



YNU 横浜国立大学
YOKOHAMA National University



Reconstruction of East Japan devastated by 2011 Disasters

Viewpoints from Rikuzentakata



Edited by
Masanori Kobayashi
Yukira Mochida and
Nobuhiro Kaneko

Yokohama National University
Graduate School of Environment
and Information Sciences

Leadership Development Program
for Sustainable Living
with Environmental Risks (SLER)

March 2014

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Foreword

Yokohama National University (YNU) launched the Leadership Development Program for Sustainable Living with Environmental Risks (SLER) with support from the Japan Science and Technology Agency (JST) in FY 2009. This five-year program aims to develop leaders who will play core roles in promoting environmental risk management and sustainable development, and provide educational opportunities for graduate students. The 2013 fiscal year will be the fifth and final year of SLER, which consists of short and long term courses. It is expected that a total of the students who have completed SLER over the past five years will be 142 at the end of March 2014. Additional 18 students will fulfill the requirement of SLER in the following years.

The program focuses on developing overarching, international, and practical perspectives in the next generation of leaders to help them understand issues from a broader point of view, going beyond the borders of individual study areas. Specifically, YNU undertakes education, research and leadership development through an international network of universities, in cooperation with eight universities in Asia and Africa, the United Nations University Institute of Advanced Studies (UNU-IAS) in Minatomirai, Yokohama, and the United Nations University Institute for Sustainability (UNU-ISP) and Peace in Aoyama, Tokyo. YNU conducts a joint course for YNU and UNU students, and connects them with YNU's eight overseas partner universities through an interactive multimedia education system (iMES). Leading practitioners of international organizations, businesses, NGOs, governmental agencies, and international research institutes are invited to give lectures and interact with students and faculty in English. YNU also conducts overseas trainings in cooperation with these universities. Joint field surveys have also been conducted in Madagascar, Malaysia, and Viet Nam over the past three years.

As an international leadership development program, the short-term intensive course is considered to be an important activity. The intensive course runs for two weeks in September, to which students have been invited from each of YNU's eight overseas partner universities for the past three years. Eight faculty members were also invited from each of these universities between 2011 and 2012. In 2012, students from the United Nations University attended the course. YNU students can receive official credits for completing the short-term intensive course on "Integrated risk management and resilience development."

Over the past three years of the short intensive course, YNU visited the sites of reconstruction activities in the areas affected by the triple disaster of the Great East Japan Earthquake, interviewed stakeholders, and took part in reconstruction activities. This experience offered attendees a valuable opportunity to understand the area's ongoing efforts and consider potential future challenges by learning about risk management, sustainability promotion, and evaluating local resilience and the capacity to address issues in reconstruction. The extension course also intended to explore the potential of applying our expertise in the field of ecology, chemical and waste management, disaster reduction and local community empowerment, with a view to making contributions to ongoing reconstruction processes. The Great East Japan Earthquake killed more than 18,000 people, and 2,600 more remain missing. Seeing the damage first-hand and listening to the individual stories of local people gives a sharp view into just how tremendous the damage was. The local people deserve great respect as they continue to struggle to overcome these hardships.

It often crosses my mind that our hope of applying our expertise to reconstruction in the disaster-hit areas has been in vain. I specialize in soil ecology and carry out research with local stakeholders and other university faculty members on rehabilitating the forests exposed to radioactive contamination caused by the Fukushima nuclear power accidents. Considering the magnitude of these problems, there may be a long way to go. However, I am undertaking research in the hope that our work can make a contribution to the reconstruction in the areas devastated by the tsunami and nuclear power plant accidents.

We were indeed fortunate to have received support from numerous local stakeholders to carry out our program for the study tours to the disaster-hit areas in Tohoku, and Rikuzentakata City, in particular. I would like to express my heartfelt appreciation, for the generous support we have received, to Mr. Futoshi Toba, Mayor of Rikuzentakata City; Mr. Takashi Kubota, Vice Mayor; Mr. Tsuyoshi Yamada, Director, Urban Planning Division; and many others of the Rikuzentakata City Office; as well as Katsuji Chida, Oyster farmer; Vice Chairman of the Rikuzentakata City Council and the Chairman of the Rikuzentakata City's Reconstruction Committee; Mr. Makoto Komatsu, Rikuzentakata City Council; Mr. Mitsuru Tamura, CEO, Reminiscent Future Creation Corp.; Mr. Shoma Okamoto, Representative, Sakura Line 311 and former Director, SAVE TAKATA Rikuzentakata Office; Mr. Chuichi Shida, President, Hirota Gardening Production Association; Mr. Yoshihisa Suzuki, Chairman, Takata Pine Woodland Conservation Society; Mr. Muneyoshi Nagata, Vice Chairman; Mr. Kazuyoshi Kohno, Chairman, Yagisawa Corp.; Mr. Michihiro Kohno, President; and others whose names I am unable to mention here.

Many local partners that were preoccupied with reconstruction provided us with generous support and accommodated our group four times over the past three years. Rather than helping, we might have disturbed them by depriving them of the time they needed for the reconstruction process. However, our local partners have continued to encourage us, saying that their interactions with visitors encouraged them to never give up, and that they would like many Japanese and overseas students to see how they are carrying out the reconstruction process in the disaster-hit area of Tohoku. They also want YNU to develop future leaders who can protect the environment, build resilience to disasters, and establish a sustainable society throughout Japan and around the world. Their warm words soothed our doubts and we continued to visit. Even though we intended to help and encourage our partners, it was actually the other way around, with our partners encouraging us.

There are probably many other people who have visited the disaster-hit areas more frequently than us, and our involvement there may also be considered to be limited. Being in the metropolitan area, we are only able to understand the situations in disaster-hit areas through the eyes of the media. The new administration has increased the budget for reconstruction. Debris has been removed, but we hear in the media that many local people in the disaster-hit areas still have a long way to go in reconstruction. What can we do about this reality? It has been three years since the disaster, and we are compelled to confront this question and take action.

This booklet, “Reconstruction of East Japan devastated by 2011 Disasters – Viewpoints of Rikuzentakata,” has been produced by revising the proceedings of the symposium on “Reconstruction and Invigoration of Disaster-hit Areas – Viewpoints from Rikuzentakata,” which was held with our local partners in Rikuzentakata under this SLER at YNU on 25 March 2013. I reiterate my appreciation to all those who have supported our program, and sincerely hope that this booklet can be useful in considering how we can engage ourselves in reconstruction in the disaster-hit areas in the future.



Nobuhiro Kaneko

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and

Coordinator

Leadership Development Program for Sustainable Living with
Environmental Risks (SLER)

Congratulatory Remarks

The Leadership Development Program for Sustainable Living with Environmental Risks (SLER) of Yokohama National University is based on the strategic environment leadership development program of the Ministry of Education, Culture, Sports, Science and Technology. This program started in FY 2008 and will end in FY 2014. The program allows students and graduate students from Japan and overseas to study a series of subjects together as leaders in solving environmental issues. To date, the program has selected 17 universities to implement projects. These 17 universities are now conducting their own environment leader development programs. The program is aimed to enable Japanese graduate school students as well as those from Asia and Africa to study together, undertake training and acquire abilities for demonstrating leadership to resolve environmental challenges.

Of these, five universities will complete their programs this fiscal year, which also means that grants will also end. However, each university is planning to continue the program using its own budget. With a total of 1,000 students in graduate and postgraduate courses, and additional 400 students in the short extension course, approximately JPY 4.8 billion has been spent on this environmental leader development program. Ultimately, this figure will be JPY 6 billion, with 1,200 to 1,300 students trained as environmental leaders.

A major feature of Yokohama National University's program is what it means to live with risks, and what can be done by developing environmental leaders. To become an environmental leader, students must have a grasp of the concepts of environmental technologies and science, as well as environmental policies. It is also important for students to not only study about these subjects in a classroom environment, but to also acquire the skills needed to become a leader. Leadership development has been recently given increasing attention and the stories of the individuals who are considered as leaders or who are involved in developing leadership have been featured in the media. I have been following particularly the remarks made by the people who have been playing an important role and demonstrating leadership in various fields such people on what kind of expertise and qualifications are considered as indispensable. Problem solving skills are a requirement, but other areas are also key, such as the development and implementation of a clear vision with a broad perspective, and how to gain the understanding of stakeholders. These skills cannot be learned in a classroom; students must go on-site to gain experience in these areas, and learn how to communicate

with local people, listen their ideas and opinions, and observe what is happening. By acquiring these skills, students can form a clear vision of leadership.

Selfish approaches are not the marks of a leader; rather, leaders incorporate tolerance and flexible ideas into any projects. The skills that graduate students can acquire from these types of experiences, such as reconstruction efforts, are the main priority of instructors at YNU and other participating universities. However, in fact, it will take 10 to 20 years for students to become real environmental leaders in society. In promoting leadership development based on the long term future visions, a subject of reconstruction in the disaster hit areas is highly significant on the ground that it helps devising local policies and activities, advancing human resource development and research work conducive to reconstruction and fostering leadership development taking into account human co-existence with nature, disasters and risks involved in building a sustainable society.

Yokohama National University (YNU) has been convening symposiums and seminars, and carrying out research works on radioactive contamination after the Fukushima nuclear reactors' accident. I hope that YNU will continue and upscale such approaches to design education, research and leadership development in an integrated way that spontaneously correspond to the contemporary social agenda. Leadership development doesn't end with the completion of the programs and the graduation of students from universities. We should be reminded that we need to fulfill out task of facilitating network activities among the students and the universities that were involved in leadership development programs. I believe that such networks of people and organizations will help consolidating our wisdom and passing on shared ingenuity across future generations.

Fiscal support to the program is available for five years. The self-reliant continuation of the program is by itself an important issue for each university. Research activities must be completed within a certain period, but education continues for a lifetime. Likewise, program support to YNU will end in March 2014. Now it is up to the university to decide how to move forward. It is expected that YNU will further flourish the program and the graduates of this program will take their places in the future as leaders for building a sustainable society.



Koujun Yamashita
Program Officer

Department for Promoting Science and Technology System Reform
Japan Science and Technology Agency

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Study Tour to Disaster-hit Areas in Tohoku and Development of Environmental Leadership

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The Yokohama National University Graduate School of Environment and Information Sciences (YNU-GSEIS) has been implementing the Leadership Development Program for Sustainable Living with Environmental Risks (SLER) for the past five years. As a part of SLER, we have undertaken a study tour to areas of Tohoku devastated by the Great East Japan Disaster in 2011 to observe the reconstruction process, interview local stakeholders and participate in practices to support reconstruction activities. We considered it beneficial for not only Japanese students, but also foreign students from overseas such as Asia and Africa, to observe the damages caused by the tsunami and activities undertaken by local people to promote reconstruction in the disaster-hit areas towards establishing a sustainable society. In planning the study tour, we have held discussions with local stakeholders, and have received suggestions on our own activities that could be helpful to local stakeholders and the reconstruction process, and benefit participating students as they observe and learn about the reconstruction process. An expectation was expressed in the planning process that the local stakeholders would like us to make good use of the expertise and insight being developed by the university to support the reconstruction process. In response to such expectations of the local stakeholders, we have intended under SLER to learn about the reconstruction process in the disaster-hit areas, while at the same time exploring the possibility of making contributions to the reconstruction process.

More specifically, we organized a study tour in November 2011 to Rikuzentakata, Iwate Prefecture, as the Rikuzentakata City Government and local stakeholders expressed their consent to receive our group. Our group consisted of 35 participants in total, including 21 students and 14 faculty and staff members. Our group spent two days in Rikuzentakata visiting various sites and interviewed local officials and stakeholders. In conducting the study tour, we placed an emphasis on the following areas: (1) reconstruction plans, (2)

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livelihood restoration of local people affected by the disaster, (3) debris management, (4) coastal woodland restoration, (5) agriculture rehabilitation, (6) fishery restoration, (7) small and medium enterprise revitalisation, and (8) NGO and social entrepreneurs' activities. The visit took place about six months after the disaster. Destroyed houses and buildings were dismantled, and debris was separated at temporary storage sites. It was reported that land subsided by about 60 cm to 1 meter in some areas in Rikuzentakata. Paddy fields with stagnated water debris lay unused. However, there were paddy fields in the hilly areas that were inundated by sea water from the tsunami, but were not affected by debris. Such paddy fields were washed with freshwater twice to remove salinity and reused to grow rice. Rice seedling plantation was conducted a 1 – 2 month later than previous years. Ships and rafts used for oyster farming were all destroyed and volunteers from Tokyo metropolitan areas supported the refurbishing of oyster farming rafts. The auto-camping site called “Mobilia” in Otomo-cho, Rikuzentakata City was used as evacuation site after the disaster and converted to a temporary housing site. Local evacuees residing in Mobilia temporary housing told us stories of what had happened both during and after the disaster. Even six months after the disaster, they still claimed that they still were having occasionally bad dreams of horrifying scenes from the disaster, and they often woke up in the middle of the night. They revealed psychological shock or posttraumatic stress disorder (PTSD). The students and faculty members were shocked to learn the magnitude of the multiple damages caused by the tsunami and suffered by the local people. At the same time, they learned and felt a great deal of sympathy by understanding the compassion of the local people to restore the landscape of their hometown that existed before the disaster and their frustration of not seeing concrete future steps towards restoring lost livelihoods.

In Rikuzentakata City, the building of the Social Welfare Council was destroyed by the tsunami, and its senior and operational staff members were killed or remained missing. For this reason, volunteers were organizing and managing a volunteer center. We were told about the role played by the center to provide information on volunteer work, such as the removal of sludge debris and support for matching volunteers with local needs. The participants of the tour tried to collaborate with local people in carrying out activities to support reconstruction. The participants were divided into two groups to support activities. One group worked with a member of an American NPO called “All Hands” to clean photo frames and albums dirtied by the tsunami, and thereafter collected at the meeting room of Mobilia. The other group worked with Mr. Katsuji Chida and other members of the Hirota Bay Fishery Cooperative to make rafts and ropes for farming oysters and seaweed. We were considering activities with which we

could demonstrate our expertise. However, we did support these activities in response to the needs expressed by the local people. The members of the group were working with masks in the dusty room to remove dirt from large photo frames and albums of family photos. They said that their hearts were aching by thinking of the lives and livelihoods lost by the tsunami. The members of the group that supported the refurbishment of the oyster farming raft said that it was a good experience for the prompt reconstruction of fishery farming in collaboration with local people and other volunteers that came from long distances. By and large, the participants gave us feedback that it was indeed very useful to interact on reconstruction issues with the local people who rose up from the devastation, and were striving to pursue reconstruction and associated activities. It was proposed that we would consider the program for the following year by listening to the views of the local people and capitalizing upon the characteristics of SLER with a view to contributing to the reconstruction in the disaster-hit areas.

In 2012, a year later, Professor Emeritus Akira Miyawaki of YNU and Director of the Japanese Center for International Studies in Ecology (JISE) of the Institute for Global Environmental Strategies (IGES) proposed a “Debris used life-saving green dyke initiative.” Prof. Miyawaki was proposing that instead of incinerating debris as waste, it would be better to use them as resources of the planet. He specifically proposed to bury debris in the coastal areas, create mounds and plant ever-green broad leaved trees thereon. He suggested that the tree-planted mounds would function as dykes. There was an impediment to this initiative such as Japanese legislation on waste management that does not allow wooden waste to be buried without incineration on the grounds that some wooden waste may contain toxic chemicals. In Rikuzentakata, a single tall pine survived the tsunami and was called the “Miracle Single Pine.” Mr. Yoshihisa Suzuki and other members of the Takata Pine Conservation Association were eager to restore pine woodland that was 2 km long and had about 70,000 pines before the disaster. The area was considered to be one of the most beautiful landscapes with white sandy beaches and green pines. There was a need to listen to the voices of the local people. For these reasons, in our study tour program, we did not necessarily take the position to promote the green dyke initiative. Instead, we tried to have dialogues with local people and understand how they perceived the green dyke initiative.

In July 2012, we organized a study tour to disaster-hit areas in Tohoku under SLER. Prof. Miyawaki joined the tour. In total, 57 persons participated in the tour, including the students and faculty members of YNU, United Nations University, Gifu University, Tokyo University of Agriculture and Technology, and Iwate University, as well as other public participants. On 31 July, a courtesy call was made to Mr. Futoshi Toba,

Mayor of Rikuzentakata city, and we exchanged views over the reconstruction plan of Rikuzentakata City, debris management and coastal woodland restoration. In the afternoon on 31 July, we organized a public seminar entitled, “Life-saving debris used for the green dyke initiative – Rikuzentakata Seminar,” in the gymnasium of Rikuzentakata Junior High School. At this seminar, Mr. Takashi Kubota, Vice Mayor of Rikuzentakata City stated in his remarks that the initiative proposed by Prof. Miyawaki would be useful in promoting the restoration of the dyke and establishing a memorial park. Prof. Miyawaki stated that many pine and cedar trees fell down or died due to the tsunami in the coastal areas, while ever-green broad leaved trees survived, such as laurel or *Persea thunbergii* and *Camellia japonica*. Dykes made of concrete would face the shock of tsunami on the flat face all at once, while tree-planted mounds could absorb the shock through multiple dimensions. Prof. Miyawaki argued that for this reason, a



Integrated Reconstruction Plan



Debris management



Tsunami inundated paddy restoration



SME revitalization



Rehabilitating fishery sector



Seedling production



Woodland restoration

mounded woodland with ever-green broad leaved trees would be more resistant to a tsunami compared to concrete dykes, and the trees on the mounds could withstand the movement of the tide that retreated to the ocean. Mr. Doryu Hioki, Chairman of the Life-saving Green Dyke Initiative Tohoku Council explained about the various activities in the disaster-hit areas in Tohoku to promote the green dyke initiative. The local participants said that the green dyke initiative was reasonable in promoting debris management and coastal woodland restoration. At the same time, it was pointed out that it would be important to use indigenous tree species of the local areas. Some underlined that the priority should be given to the restoration of the Takada pine woodland. In the coastal area, debris management was being advanced, and a plan was made to raise the height of the dyke from 5.5 meter prior to the disaster to 12.5 meter with concrete materials. There was no place to undertake tree seedling plantation at this time. At the same time, pine seedlings were grown from pinecones originally collected for Christmas decorations. With Prof. Miyawaki, we conducted a seedling plantation demonstration in Otomo-cho following the Miyawaki method that emphasizes the dense plantation of multiple seedling species and conducted a training on seedling pot production. We have also observed laurel or *Persia thumbergii* and *Camellia japonica* in Kurosaki Shrine in Hirota-cho. At Mobilia, we worked with local people to remove weeds in the farm garden supported by NPO Tagada Eight Rises (Hakki) Project. This farm garden was promoted not necessarily to grow vegetables, but to provide the evacuees, particularly the elderly who tended to stay inside of the temporary housing and lacked physical exercise. By working at the farm garden, they could promote conservation, good health through proper exercise, and lessen the psychological shock from the disaster by getting in touch with the soil and refreshing themselves. At Mobilia, we had a gathering with the children and their parents who resided in Mobilia, and gave notebooks made of paper from bamboo with encouraging messages from the participants.

On the way back, we stopped and paid our respects at the Okawa Elementary School in Ishinomaki City, Miyagi Prefecture. At this school, 70 children were killed by the tsunami and four remain missing. We met the parents of the children who lost their lives. The children and school teachers were using the hills behind the school for mushroom collection and nature observation. However, as the school was not located in the warning zone of the tsunami attack, the school did not have an evacuation manual or evacuation drills for tsunami warnings. This fact seemed to have prevented them from a timely and safe evacuation. Children were climbing hills in the backyard only for the purpose of collecting mushrooms and observing the nature, but never climbed hills for the purpose of evacuation drills. This could be one of the reasons why the school teachers did not allow children to evacuate to the hills. It was felt strongly that

we would need to have an integration of nature observation and disaster evacuation, and undertake necessary practices.

In Iwanuma City, Miyagi Prefecture, we visited the pilot project site of the green dyke initiative in the Iwanuma City Airport South Park. Mr. Doryu Hioki, Chairman of the Life-saving Green Dyke Initiative Tohoku Council attended our visit and gave us an explanation on the 4 meter high mound where 6,000 ever-green broad leaved trees were planted by about 1,000 volunteers in May 2012. This pilot project was carried out by the Iwanuma City Government to promote the implementation of the green dyke initiative proposed by Prof. Miyawaki. The Iwanuma City Government intends to implement the “Millennium Hope Hill” project. The participants could understand the green dyke initiative by observing real activities on the ground.

In September 2012, we undertook a study tour with the participating students and faculty members of YNU, United Nations University, and overseas partner universities for the annual intensive course. In principle, we followed the program of the previous year, discussed reconstruction issues with local stakeholders and observed the sites. At this time, the Takata Pine Conservation Association had planted pine seedlings at abandoned farmlands and started seedling nurseries. We inquired about the possibility of growing the seedlings of ever-green broad leaved trees such as *Persia thumbergii* or *Camellia japonica*. However, they declined on the grounds that they were preoccupied with the growing of pine seedlings. On the other hand, Prof. Miyawaki recommended us to produce seedling pots by collecting sprouts of *Persia thumbergii* and *Camellia japonica* under their respective mother trees. Mr. Chuichi Shida, Chairman of the Hirota Horticulture Cooperatives agreed to work together with us to produce the seedling pots. During this tour, we collected 445 seedlings of *Persia thumbergii*, 30 *Camellia japonica* and two *Eurya japonica* Thunb, and planted almost half directly in farmland. The other half was kept in pots and Mr. Shida subsequently transplanted them to his farmland.

We stopped and observed the disaster debris intermediary management facility in Shinomaki Industrial Port, Ishinomaki City, Miyagi Prefecture. In Shizugawa, Minamisanriku-cho, Miyagi Prefecture, we observed the oyster farming rehabilitation undertaken by the local fishery cooperative. In Shizugawa, prior to the disaster, intensive oyster farming was carried out with dense placement of oyster farming ropes. The ropes were all destroyed by the disaster. In the reconstruction process, they have shifted away from dense intensive oyster farming to optimal farming in harmony with marine ecosystems. The World Wildlife Fund (WWF) of Japan supported the monitoring activities, and we learned that oyster farming restoration was being promoted in harmony with marine ecosystems.

In September 2013, as a part of the annual intensive course, we organized a study tour to the disaster-hit areas of Tohoku together with the students of YNU and overseas partner universities. In this year, we first visited Nihonmatsu City, Fukushima Prefecture and received a briefing from Mr. Masatoshi Muto, Secretary-General of NGO Towa Hometown Management Council on radioactive contamination, reputational damages and revitalization of agriculture and forest management. In Towa, the level of radioactive contamination has declined over time, and the radiation level detected in locally produced food is lower than the standard. However, large-scale commodity buyers cancelled contracts based on the fear of radioactive contamination, and the volume and price of their agricultural sales went down and could not recover to the levels prior to the disaster. In Towa, a pilot project was undertaken by Prof. Nobuhiro Kaneko, SLER Coordinator, together with local stakeholders and experts from other universities to measure the level of radioactive material movement from the ground to woodchips. Trees in the forests contaminated by radiation were cut down and broken into woodchips. The woodchips were placed in net bags and laid across the hilly slope. Mold that grew between the ground surface and the bottom of the woodchip bags was supposed to absorb a certain level of radiation from the ground into the woodchip bags. The pilot project was intended to measure the level of such radiation movement from the ground to the woodchip bags. The participants observed the pilot project implementation and discussed the challenges to promoting such undertakings on the wider scale.

In Shizugawa, Minamisanriku-cho, Miyagi Prefecture, we visited the sites of environmentally-sound, optimal density oyster farming. It was reported that the growth rate of oysters was much better than the time prior to the disaster. Mr. Kiyohiro Goto, member of the Miyagi Prefecture Shizugawa Fishery Cooperatives, said that they intended to establish a brand of Shizugawa oysters that were now growing better than before, and market them at better prices through wider marketing channels. Mr. Narinori Iwabuchi, President of NPO Tanbo (paddy fields) explained to us about the rehabilitation of the paddy fields inundated by the tsunami in an environmentally-sound manner. They have drained paddy fields with fresh water to remove salinity. Thereafter, they have introduced organic rice farming and stopped using agrochemicals. Alga emerges naturally and blocks sunshine thereby restraining weed growth. At the same time, they introduced non-tillage land care methods and watering of paddy fields even in winter time. With these methods, they could activate soil micro-organisms that can support rice growth. Rice grown in this method was labelled “happiness restoration rice,” which sounds like a homonym of “reconstruction rice” in Japanese with the use of Chinese characters. It was said that the rice was being sold at the price higher than the standard rice.

In Rikuzentakata City, we observed that substantive progress was made in disposing huge volumes of debris. Debris was separated based on the size and diameter of concrete waste and gravel. Wooden waste was separated and shipped to a cement factory in Ohfunato. Payment was made to the cement company as a fee to dispose the wooden wastes. The cement company incinerated the received wooden wastes as supplements for fuel. The fiscal budget by the government for debris disposal was said to be available only until the end of March 2014, about three years after the disaster. The waste separation plant was operating over extended hours in order to expedite the speed of disposing debris by the set deadline. Regarding rice farming, Mr. Tsuyoshi Usui, Chief of the Hirota Peninsula Agricultural Cooperatives said that the level of rice yielding was restored to a level equivalent to the one prior to the disaster. He said that there were little effects now from salinization caused by the tsunami. The farming rafts and gears for oyster farming have been restored. However, it would take two years to harvest oysters after planting oyster seeds. They have not yet harvested oysters. Government funding was made available to cover 89% of the total cost for restoring the broken ships, rafts and gears. However, the remaining 11% fell upon the individual oyster farmers, and it appeared to be a heavy financial burden as the total cost was quite huge. The Government's Organization for Small and Medium Enterprises and Regional Innovation (SMRJ) was providing financial support to the restoration of small and medium enterprises (SMEs). It appeared that funding provided by a company called Music Securite, a music software distribution company, was playing an instrumental role in mobilizing funds for supporting SME restoration.

Almost half of the *Persia thumbergii* seedlings planted in 2012 were inadvertently removed. About 200 seedlings were planted in a farm and about 40 seedlings survived over the year. In 2013, we produced about 400 *Persia thumbergii* seedling pots. One of the reasons for the death of the 2012 *Persia thumbergii* was believed to be the cold air and possible frost over the winter. It was generally explained that seedling of *Persia thumbergii* does not survive when the temperature goes down below 3 degree Celsius. It was said to be important to set up a facility to protect seedlings from cold air or frost in winter.

At each annual intensive course, every student was given a thematic assignment and required to make a final presentation. In addition, the students made a presentation on the outcome of the study tour to the disaster-hit areas of Tohoku at symposiums organized at the United Nations University in Tokyo in September 2012 and 2013. In 2013, we invited Mr. Masayoshi Yoshino who is originally from Fukushima and currently a Member of the House of Representatives, Chairman of the Environment Committee of the House of Representatives and Acting Chairman of the Global

Legislators' Organisation for a Balance Environment (GLOBE) Japan, and interacted with him over the issues of disaster reconstruction, radiation-contaminated waste water in the Fukushima nuclear power plant, radioactive decontamination, and the Sanriku Reconstruction National Park development. We also interacted with Mr. Tsuyosi Yoshiwara, President of The Johnan Shinkin Bank and Mr. Yasushi Hibi, Director of Conservation International Japan over the policy issues related to energy and biodiversity conservation, with a view to establishing a sustainable society and strived to understand reconstruction in disaster-hit areas from a holistic perspective.

We have also tried to promote dialogues in Yokohama with people in Rikuzentakata. On 22 March 2012, we invited Mr. Mitsuru Tamura and spoke with him at the “Special Seminar: One year from the Great East Japan Disaster – Reconstruction Process and Challenges of Rikuzentakata.” On the following day, 23 March, Prof. Akira Miyawaki gave a keynote lecture at the “Global Seminar: Towards Establishing a Sustainable and Resilient Society – Activities in Asia and Support to Rehabilitation in East Japan” organized in Naka-ku, Yokohama by the Institute for Global Environmental Strategies (IGES). At the panel discussions, Mr. Katsuji Chida, Mr. Mitsuru Tamura, Mr. Shoma Okamoto and Mr. Masanori Kobayashi discussed disaster damages and reconstruction in Rikuzentakata. On 25 March 2013, we organized the “Public Symposium: Reconstruction and Invigoration of Disaster-hit Areas – Viewpoints



At the UNU symposium on 23 September 2013. From left, Mr. Masayoshi Yoshino, Masanori Kobayashi, Mr. Tsuyosi Yoshiwara and Mr. Yasushi Hibi

from Rikuzentakata” at YNU and had discussions with Mr. Chida, Mr. Tamura, and Mr. Okamoto over the progress made and challenges ahead for reconstruction in Rikuzentakata. This booklet was produced by updating the manuscripts used for these symposiums. As described, we not only visited the disaster-hit areas and talked with the local stakeholders there, we also invited some of the local partners to Yokohama and discussed the progress made in the reconstruction process despite their busy schedules. By having periodic interaction, we have tried to maintain continuous interface with the people in Rikuzentakata and undertake planning for the study tour in a way that makes our study tour relevant to the reconstruction process.

In the study tour to the disaster-hit areas of Tohoku and the Great East Japan Disaster, we have tried to enable the participating students to observe the situation with their own eyes and proactively interact with local stakeholders. We strived to encourage the students to develop their own perspectives and explore possible ways for facilitating reconstruction and building a sustainable society in the future. All the participants said that by having dialogues with local stakeholders, they could understand the relation of interests among stakeholders in real society, the complexity involved in decision making processes and the challenges that lie in promoting collaboration among the stakeholders of the local communities. They could learn about these issues through mutual communication from overarching perspectives. They said that the tour was indeed very instructive and beneficial.

After the study tour in September 2013, a NPO called “Global Green” based in Tokyo provided a grant to Mr. Chuichi Chida of the Hirota Horticulture Cooperatives to construct a greenhouse to grow *Persia thumbergii* seedlings.

The study tours to the disaster-hit areas of the Great East Japan Disaster enabled the students of SLER to observe the realities in the disaster-hit areas that face various challenges, interact, think and explore possible solutions. This process was considered to be an important component in developing environmental leaders. On the other hand, there is still a long way to go for reconstruction. People still live in temporary housing and we should not forget those people who have not yet restored the livelihoods that they had before the disaster. People in Tohoku or other areas in east Japan have been cherishing their beautiful land and seascapes in harmony with the nature through generations. We sincerely hope that they can restore their livelihood quickly and pass on their exquisite landscape to future generations. And being involved in research and leadership development, we renew our hope to make contributions in some way to support the reconstruction process and establish a sustainable society in disaster-hit areas.

Reconstructing Rikuzentakata and Empowering Local Communities

Katsuji Chida

Vice Chairman of the Rikuzentakata City Council
Chairman of the Reconstruction Commission of the Rikuzentakata City
Oyster farmer

Impact of the Great East Japan Earthquake on Rikuzentakata

Located in the southeastern part of Iwate prefecture near the border with Miyagi prefecture, Rikuzentakata is a beautiful city surrounded by the ocean and mountains. A deeply indented coast called rias coast has a complex coastal line and it usually alleviates the impact of waves. Such coastal like areas are known for the suitable sites to farm oysters, scallops, and seaweed. Above all, Rikuzentakata was proud of the beautiful white sand and green pine-dotted landscape of Takadamatsubara, one of best scenic spots in Japan. However, the tsunami triggered by the magnitude-6 earthquake off the Sanriku coast hit the Tohoku coastal area on March 11, 2011 and brought devastation to the entire Tohoku region.

The population of Rikuzentakata city at that time was approximately 24,000; 1,735 citizens lost their lives in the disaster. As of October 2012, the number of missing person is 14. Approximately 7% of the population either lost their lives or remain missing. What does this figure mean for the city? Rikuzentakata is comprised of eight towns. Five are located on the coast, including Takata town which is located at the center of the city. Approximately 15% of the population of Takata town has fallen victim to the disaster. Many people living in the coastal area have lost their relatives or friends to the disaster. This is a very sad fact. One-third of all Rikuzentakata municipal officers—111 people—perished in the disaster. In a split instant, the tsunami also took the lives of people working to help the local people: 51 firemen, including 34 firemen that were guiding the evacuation of people to safer places after the earthquake, and 11 ward mayors, including eight working on similar activities.

With nature's gifts from the ocean and mountains, Rikuzentakata city was economically dependent on fisheries and agriculture, and promoted tourism for visitors to enjoy the city's natural environment. Before the disaster, the number of people engaging in agriculture or fisheries accounted for approximately 14% of the working population, and if the number of people in services industries such as hotels and restaurants are added, the total figure will be almost 20%. What do these figures mean? I serve for the Rikuzentakata City Council member while at the same time carry out oyster farming with my three sons. The tsunami's damage to the fisheries in Rikuzentakata city is estimated to be JPY 33 billion, including damage to fishery facilities, boats, farming facilities, marine products, and ports and coastal facilities. The estimated damage to the agricultural sector is JPY 34 billion, and JPY 0.12 billion for the forestry sector. Imagine the size of damage to other local industries, such as food processing and retail.

Challenges for the reconstruction of Rikuzentakata

Takatamatsubara in Rikuzentakata had a total of 2 km in length and 21 ha washed completely away by the tsunami. The coastal area is said to have subsided by 50 to 80 cm and at maximum 90 cm. The number of damaged houses totals 3,368, of which 3,159 houses have totally collapsed. At the peak of the disaster, there were more than 10,000 people who had no place to stay, and 2,168 temporary houses were constructed. As the chairman of the Reconstruction Commission of the Rikuzentakata City, I think the biggest challenge is identifying the ways to revitalize Takata town and the surrounding areas devastated by the tsunami. No one wants to return and live where three story buildings could be wiped out by a tsunami. Due to the extensive coverage of hilly land, there are not many places in Rikuzentakata ready for the relocation of all the people affected by the tsunami. Identifying the owners of mountain land is also a very time-consuming task since the history of landownership rights, including inheritance or relocation, must be checked to clarify ownership.

Disaster debris is being disposed with a target for completion by 2014. Immediately after the disaster, debris was piled up in many places but the amount of debris around the city has since decreased. Meanwhile, construction of a tide prevention embankment along the coast is moving ahead. Before the disaster, there used to be a 5.5 m embankment. This was completely damaged, and the new embankment will be 12.5 m in height. Due to the lack of flat land for residential areas, the administration is planning to rehabilitate Takata town and its surroundings by mounding soil for approximately 9 m. The cost required to construct the 2 km, 12.5 m embankment is approximately JPY 23 billion.

Another JPY 17 billion has been allocated to develop the residential area. Local residents have voiced various opinions to this type of large-scale, long-term construction work; however, it is very difficult to implement a reconstruction plan which can satisfy all stakeholders.

Memorial Park

Rikuzentakata has submitted a request to the national government requesting their support for the management of the Takata Matsubara sand beach, which will be a part of the city's memorial park. However, there are many requirements that must be met when establishing a national memorial park, including historical and cultural aspects. Developing tide prevention embankments for the park will not be enough for it to be designated as a national park. Accordingly, the proposed name, "National Memorial Park," has become less popular among local people stakeholders recently. Local people in Rikuzentakata are concerned about the park's potential designation as a national park. There is no doubt that a small city like Rikuzentakata would be unable to maintain such park on its own. This is a major concern for the local people.

Rehabilitation of the fishery industry

Rikuzentakata has been hit by tsunamis every three and a half years. As an oyster farmer with my three sons, I have experienced both large and small tsunamis during my career. I used my own money to rebuild the oyster farm after the past four tsunamis. After the tsunami that occurred after the Great East Japan Earthquake, the national government provided subsidies for eight-ninths of the amount of damage for the first time to help with rehabilitation. Although this support is needed, subsidizing eight-ninths of the cost means that the people affected need to shoulder 12% of the cost required for rehabilitation. However, most fishermen need to spend at least JPY 20 to 30 million to build a fishing boat. The boat I am building costs JPY 60 million. My farming raft costs more than JPY 300 million. Having to shoulder these expensive costs is ridiculous in the extreme.

After the disaster, it was estimated that the number of fishermen in Rikuzentakata dropped to 50%. I believe that in actuality, two-thirds of fishermen have closed their businesses even though their names remain on the union register, and therefore, the actual number of fishermen still in the area is only one-third of the original. These remaining fishermen are now working hard to rehabilitate their businesses. In June 2011, three months after the disaster, the union asked all fishermen if they would

continue to work in the industry, but did not inform them about the subsidy available from the national government. This means that two-thirds of the fishermen who survived the past four tsunamis and rebuilt their businesses out of their own pockets with two, three, or four loans, decided to retire because they determined that they would not be able to rebuild their businesses from the unprecedented damage of the tsunami. When information of the government subsidy reached the industry, this cheered up the remaining fishermen to some extent.

Tide embankment

Seaweed farming used to dominate the fishery industry in Sanriku. Why did it deteriorate? About fifty years ago, a tsunami triggered by the Chile earthquake damaged the coastal area. Accordingly, a concrete tide embankment was built. I learned about the negative impacts of concrete embankments on the natural environment when working at a seafood wholesaler, which was the starting point of my career. Therefore, the concrete tide embankment development plan made and submitted by local communities to the government is of deep concern. It cannot be used as an alternative to the development of a green embankment advocated by Prof. Miyawaki, which I strongly feel necessary.

The current deputy mayor of Rikuzentakata has been dispatched by the central government. According to his explanation, the embankment should be made of concrete because it is a requirement to obtain a budget for construction. This is very disappointing. All who work in the fishery industry know from their own experience that concrete has serious negative impacts on the natural environment. Now, no one is engaged in seaweed farming in Sanriku.

Seaweed grows with silicon. Minerals in seawater cannot penetrate through concrete, which causes changes in the composition of seawater. For this reason, I also have an objection to the construction of a dam in my hometown. Dams pollute rivers, and subsequently have a negative effect on the sea. Nature allows us to make a living, and therefore, I protest anything that would damage the natural environment. He wonders if pressure from construction firms is behind the conditions placed on the budget for the construction of the tide embankment. While a concrete embankment will have an adverse impact on the environment, a green embankment can be less expensive if debris is cleaned up and land is filled by soil. Even if the land subsides, it is easy to rehabilitate with additional soil. Prof. Miyawaki said *Machilus thunbergii* can grow roots of five to seven meters in a few years, which creates a stronger wall than one would find with a concrete embankment. Actually, this species is often found around shrines. Having seen

a picture of them growing after the tsunami, I totally understood what Prof. Miyawaki's saying. Hopefully a system will be put into place to build a green embankment using the national budget.

Relocation of residents

The current mayor of Rikuzentakata was appointed a month before the disaster; he is young and often on TV. His policy pledge during the election was to develop Rikuzentakata by working with city residents, and from the perspective of these residents. However, he has not listened to the views of his constituents in the reconstruction plan; rather, the mayor is only exchanging opinions with representatives from various organizations at the reconstruction planning committee that he established. The process through which the reconstruction plan passed the city council was adequate, but public opinion has not been reflected well in some components of the plan, including group relocation.

Local people are not well aware of the details of the reconstruction plan and are rightly worried about it. However, the official process is now complete, and residents have heard an explanation on how group relocation will be implemented. Accordingly, local people have been asked to relocate in 32 groups. Among them, approximately 500 households have completed preparatory procedures, and construction work will start now that the national government's approval has been obtained. But there are two problems: one is shell mounds, which has archeological value from ancient Jomon Era, scattered in the relocation area and the other is a concern about land price. Land prices in Rikuzentakata are low. Surrounding mountain forests upland cost approximately JPY 3,000 yen/*tsubo* (approx. 3.3m²). Some people use their own resources to request house constructors to build houses. In this case, land prices are higher at JPY 30,000 or 40,000 yen/*tsubo*. The city buys land for group relocation at these prices. Local upland owners who said they would sell land at low prices immediately after the disaster have become tempted to increase prices because they now know they can sell for more than 10 times higher than the original price.

Damage caused by harmful rumors

Rikuzentakata is also suffering from radiation damage. Grass stacked in reclaimed land near my house was found to contain high levels of radioactive substances. Farms which harvested and stacked the grass for its livestock were supposed to keep and then burn it, even if the level of contaminants was below 100 bq. However, incinerators have

been fully occupied with debris from the disaster, and the contaminated grass is still wrapped in rolls and stored. The most damaged are bed logs for shiitake mushrooms. In Ichinoseki in Iwate prefecture, farms that use bed logs are facing serious problems.

Along the coastal area, cesium has been detected in small landlocked salmon. But this finding has not attracted major attention from the media and has yet to bring about further damage to local stakeholders. The important point is that the weakest often are the target of the heaviest damage due to harmful rumors. For example, in the case of oyster farming, if oysters are equated with the norovirus, this is harmful for sales. This virus does not exist in the sea but in human bodies. The virus excreted from human bodies is decomposed through the public sewage but some can flow out into the sea. If someone takes in it, the virus will propagate in the body. Humans can infect with the virus just inhaling the dehydrated virus. If the media reports a norovirus incident, oyster farmers are always the first to be accused. However, norovirus incidents often occur at welfare facilities because of excrement, which stays in the air and causes secondary and tertiary infections. The media should take every effort to be fair and accurate in reporting.



Mr. Chida explaining resumed oyster farming in Hirota Bay (Forefront, September 2013)

Connection with universities

After the disaster, I have been supporting the temporary housing site called “Mobilia” in Otomo-cho, Hirota Peninsula. My family all moved in the temporary houses after the disaster, and I am also appointed as a chairman of the residents’ association. Mobilia was originally a auto camp site with a large space in the hilly areas. It had tent sites, camping car sites and bungalow sites. After the disaster, it functioned as an evacuation center, and then it was designated as a temporary housing site. Mobilia is the largest temporary housing site in Rikuzentakata city, and it has 168 units of which 108 unites are independent houses instead of row houses. The number of registered residents rose to 362. Fortunately, as Mobilia was the camp site, there were facilities such as a meeting hall. Because of that, many NPO and Universiteis visit Mobilia for support and friendship activities. YNU is one of such universities.

Professors and university students have been communicating with local people through Mobilia. Students from various universities bring comfort to local people, and the elderly get strength through communication with young people. Students from Tamagawa University visited Mobilia to comfort and encourage the local people who loved their experience. Hosei, Rikkyo, Kobe and a number of other universities have visited Mobilia to date.

The local people are still suffering from the disaster. Study reports documented by professors are important in terms of recording this experience for the younger generation. This time, professors from Yokohama National University recorded a film, which will be an important resource for the future. Hopefully, this type of support will continue in the long term.

Reconstructing Rikuzentakata and Creating Local Businesses

Mitsuru Tamura

President, Reminiscent Future Creation Corp.

Current situation of local SMEs

Looking back to the time that elapsed since the disaster, I feel that it was very long time, but at the same time the time passed very quickly. I feel that I have done a lot. I have been managing businesses as an entrepreneur in one way or the other. As I am associated with the society as an entrepreneur, I need to sustain my organization as a business enterprise. From that viewpoint, I had many chances to speak at various meetings over the time, and I have some messages that I kept conveying to many people.

There are about 700 enterprises in Rikuzentakata that are members of the chamber of commerce (see Figure 1). Of these 700 businesses, 86.4% were damaged in the disaster, and about 140 business owners lost their lives. Although only 46 companies were expected to restart business, a total of 336 companies have been able to bounce back. This information is heartening, however, an additional 186 companies have decided to close down (30% of all businesses) and 27 others have relocated. The remaining seven companies have not yet decided what their next step should be. Under these conditions, local residents were left to wonder if Rikuzentakata could actually continue to exist as

Enterprises in Rikuzentakata	
No. of CoC members:699	(As of March 2013)
of which:	• Restarted: 336
Affected by the disaster: 604 (86.4%)	• Expected to restart: 48
No. of killed: 139	• Closed down: 186
	• Relocated: 27
	• Others (TBD): 7

Figure1. Enterprises in Rikuzentakata

a city. Currently, between 19,500 and 19,600 people live in the city; these numbers include people who are registered as residents of Rikuzentakata, but may actually reside outside the city, as well as many elderly residents. Therefore, the actual number of people who live in the city may be less than 18,000, which presents a concern that the city will be able to continue functioning as a municipality.

The Reminiscent Future Creation Corp. depends on Rikuzentakata City for its business. The company, therefore, feels an urgent need to help. As of April last year, the number of newborn babies was approximately 80. If the city's population continues to decrease, there will be fewer business opportunities for the company in the future.

For example, the President of the company also manages driving schools in Tohno, Hiraizumi, and Rikuzentakata. The main school had been located in Rikuzentakata, but had to be moved to Hiraizumi after the disaster. The school in Rikuzentakata must be renovated, and to achieve this, the company needs the help of people. With a decreasing population, this type of business may not be viable. For the moment, the company is able to keep up profits due to people coming from around Tokyo to get drivers' licenses. However, other companies, such as retail shops, are struggling.

Rikuzentakata City announced that it would revitalize the city in eight to ten years after the disaster. Two-Three years have passed since then, and only seven to eight years remain to make good on this promise. Can shop owners wait another seven to eight years without making a profit? For example, even if the city could develop a shopping area, after seven years, how many retailers would still be around to rebuild their shops? What about the purchasing power of consumers? Will local people that may be facing financial difficulties be able to spend enough money to guarantee the success of these small companies? SME owners are anxious as they face these concerns, and the situation must be changed.

Concerns of SMEs

The Reminiscent Future Creation Corp. is a member of the Association of Small- and Medium-Size Enterprises, an organization made up of 42,000 enterprises nationwide. Mr. Mitsuru Tamara, President of Reminiscent Future Creation Corp., has served as the Kesen branch director in Iwate Prefecture and as the representative director of the prefecture since 2010. In these roles, We have conducted a questionnaire survey for businesses in Rikuzentakata. The survey collected different information, and inquired about the businesses' ideas for the future. The results of the questionnaire showed how

anxious businesses are about the future. A 56-year-old respondent wrote that he had been employed in animal hospital management. He was anxious about how to make a living in Rikuzentakata because there are little or no households with pets. Waiting ten years for the city to recover would put many of these SMEs out of business. Some respondents wrote harsher comments and indicated that they had no expectations of the city at all. Other comments included requests to lower hurdles for grants, subsidies, or loans.

These subsidies systems are all complex, and some require SMEs to meet difficult requirements to obtain grants or subsidies. For example, the Sanriku Fund requires individual proprietorships to subscribe to social insurance before applying for a small grant from the fund. These types of hurdles are hard for SMEs to overcome. In the questionnaire, one respondent from the service industry said that people could build houses in the city once roads are improved and shopping areas are developed. However, if this takes too much time, the population would decrease further and this would result in a decline in the number of local businesses. Another respondent requested the city to take quick action. He/she wanted to hear strong and comprehensive ideas and solutions from the city, and said that in turn, the city needs to listen to the people who want to continue to live in Rikuzentakata.

It is indeed legitimate to claim democracy and public participation in reconstruction. However, when it comes to the actual practice, it doesn't necessarily work well. It can be said that with so many pretexts, it looks like the plans are imposed by the government upon local people unilaterally.

At this time, the city government is acting independently in making decisions, without taking the ideas of the city's residents into consideration. Residents have few opportunities to look through the information on decisions by the city. The city says that it wants to hear public opinions, but is not putting this into practice.

Reputational damage

I have a thought on reputational damage. Over the years, Shiitake mushrooms had been manufactured in Hiraizumi and Tohno. The products made in Hiraizumi were found to contain high levels of radioactive substances, and it was decided that they should not be sold on the market. The products manufactured in Tohno contained levels of radioactive substances that were lower than the standard, however, the company decided to stop sales of the product based on their principle to prioritize safety. The company is currently

putting together a damage claim against Tokyo Electric Company, together with other manufacturers. However, this issue of harmful rumors is a matter of education. For example, 70,000 pine trees from Rikuzentakata were to be burned at the Daimonjiyaki Festival in Kyoto; however, residents in Kyoto strongly opposed this idea and as a result, the idea was rejected. Why were people in Kyoto opposed to this? This opposition was not based on proof, but rather, fear; and therefore, education is a matter of major importance. In other words, pine of Rikuzentakata was not regarded as prayer stick, but just as flown woods. We may be able to show the level of detected radioactive contaminant residue against the standard in order to confirm the safety of foods and household products objectively. However, we also need to consider how the consumers or recipients interpret such indications. It is important to carry out activities to promote understanding at the side of consumers regarding the safety issues of the products from Tohoku.

About Reminiscent Future Creation Corp.

The Reminiscent Future Creation Corp. was created to promote reconstruction of Rikuzentakata and the city revitalization. This is an enterprise that was launched with other members of the Association of Small- and Medium-Size Enterprises and Socio Engine, the secretariat in Tokyo that organizes the social business network. It aims to create enterprises and employment in Rikuzentakata and Kesen to the quickly revitalize the area. The company was launched in September 2011, and will be dissolved within 10 years. This is a unique point as most companies aim to keep their businesses open as long as possible. With support from the Cabinet Office, the company is current growing 40 business incubators to help start-up businesses in their early months or years (also known as “business incubators”). When these businesses have achieved success, Rikuzentakata may become the next “silicon valley” of Japan, and may result in people thinking that Rikuzentakata is the best place to start a business. You may think that it would not be easy to start businesses so easily. However, it is not that difficult. We have already produced 40 incubators

The company is also currently working on the urban development of the Imaizumi district by establishing a council and in discussions with the city. Another project is the Hakoneyama Terrace project, with a budget of approximately JPY 200 million. The objective of this project is to develop a café and a terrace in Hakoneyama, where visitors can study at the café or stay overnight at its accommodation facilities. In the future, this project will act as a way to attract people who want to live in Rikuzentakata. The café will also offer other business opportunities, and will play a key role in attracting people

and developing other business activities in surrounding areas. However, due to a lack of resources, it would be necessary to take out loans. To avoid this, the company is looking for people that are interested in holding shares of JPY 50,000 without voting rights. At this time, 1,000 shares are available, and investment is highly welcomed.

These business incubators were selected through open recruitment. The social business network applied for a grant from the Cabinet Office and was awarded JPY 2.5 million per person. Through interviews, presentations, and consultations with experts, the company selected 40 applicants. Of these, one or two companies are working in the IT area. Other companies include producers of noodles with rice flour, café entrepreneurs, and bakeries. The viability of these ideas, such as the likelihood of business plans to develop in the future and specific ideas about the businesses' target customers, were evaluated together with experts. The Reminiscent Future Creation Corp. also manages a farm called Manpuku Farm. This project was evaluated based on the identification of target customers, which is particularly important for the agricultural industry. As the motivation level of the staff members at Manpuku Farm was highly praised, assistance is given to its business. It is one of the prospective businesses with further development.

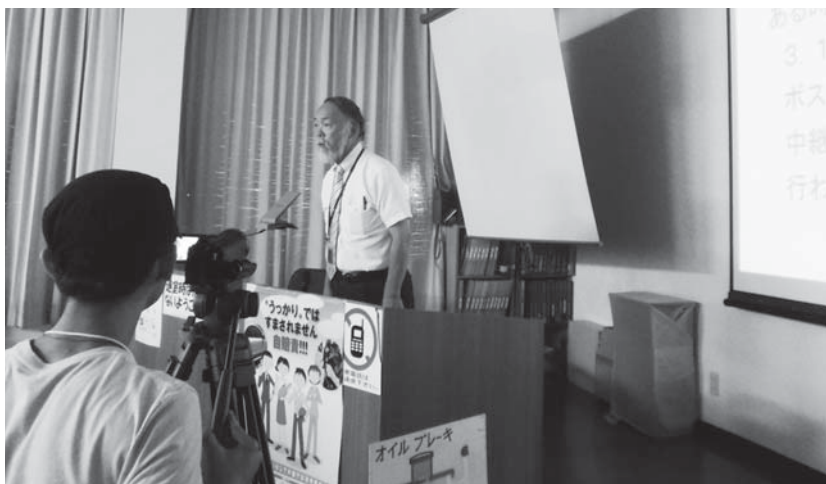
Using the national budget

The budget of JPY 2.5 million to develop business incubators should be spent by the end of March 2013. Although starting a new business takes time, the budget must be spent by the end of the fiscal year. For example, the reconstruction budget to build a tide prevention embankment is managed by the Ministry of Land, Infrastructure, Transport, and Tourism. Although the company thinks that that budget would better serve the community by using it for urban development, rather than the construction of a tide prevention embankment, the Ministry will not allocate the budget for purposes other than for the development of a tide prevention embankment. If there is available money for reconstruction, it would be much more beneficial for the city to use, for example, JPY 300 billion, to rehabilitate or revitalize itself without being limited to a specific purpose. However, multiple restrictions make it hard to use the money. The city is grateful for the JPY 2.5 million from the government, but is struggling with the imposed restrictions.

Expectation for universities

As mentioned earlier, reputational damages are a matter of education. Students should learn about the nature of Japanese people at junior high and high schools, as well as universities or other educational institutions. For example, a number of people from overseas visited Japan during the Meiji era. One famous visitor was Ms. Isabella Bird. She was a well-known British traveler and travel writer. In 1978, she travelled through Japan and published a book on her journey in Japan. She described in her book Japan's landscape and culture very objectively, and touched upon then Japan's custom. There can be various views on her description about Japan. However, it can be said that she praised the beauty of Japan's rural landscape. I hope that young people can learn the beauty of Japan's rural landscape and the social systems that support such landscape as such topics will be integrated into the curriculum at elementary, junior high and high schools and universities. If people learn the activities in agrarian or fishery villages, they will share more widely the notion of harnessing nature's blessing. If such notion was widely shared, we would not have to be perplexed by reputational damages that we are currently experiencing.

After the Great East Japan earthquake, people from overseas were impressed by the people of Tokyo and their control in the face of the disaster. It is hoped that people in the future will think that the March 11th disaster was something that made Japan a great country as well.



Mr. Tamura explaining tsunami damages and reconstruction challenges in Rikuzentakata (September 2012)

Reconstruction of Rikuzentakata and NPO Activities

Shoma Okamoto

Representative, Sakura Line 311, Local Director, SAVE TAKATA

Start of SAVE TAKATA

Born in Rikuzentakata, I studied economics at university in Sendai. After graduation, I worked in architecture in Tokyo. Although a native of Rikuzentakata, I was in Tokyo when the disaster occurred, and do not consider myself to be a victim. However, my parents' home in Rikuzentakata was washed away in the tsunami. This is one reason why I am now involved in supporting the people affected by the disaster through an NPO.

When the disaster occurred, I contacted friends in Tokyo to try to get information on what was happening locally, and share what I found out. This communication formed the base for SAVE TAKATA, which started with one question, "Who knows about Takata?" Subsequently, the NPO created a website to share information with a wide range of people.

Initial efforts focused on information sharing, but the NPO has seen a gradual shift in its role and now functions as a coordinator. SAVE TAKATA receives various inquiries from people in different areas, such as Tokyo, asking if small shelters in Rikuzentakata need items for the people who had relocated there because of the disaster, and if SAVE TAKATA could bring what was collected to these shelters. There are many people who want to do something to help the people of Rikuzentakata, but are not sure where to start because they have never been there and are not familiar with the local situation. SAVE TAKATA coordinates the efforts of the people who want to help and balances it with local needs, which is determined through studies that are carried out to find out what is needed in the area.

Evaluation of reconstruction efforts

I evaluated the current reconstruction efforts of the area with a score of four on a one to

five scale (one being the best, and five being the worst). There are countless problems, but neither the construction of tide prevention embankments nor the relocation of residents to uplands, in particular, have progressed as smoothly as they could. This situation has resulted in feelings of hopelessness among local residents.

Moving beyond reconstruction towards self-sufficiency

As presented on the NPO's website, SAVE TAKATA is implementing a total of 15 projects (<http://savetakata.org/>). All of the projects have a single goal—identifying how younger people can participate in city planning and the delivery of actual profits to Rikuzentakata. In 2011, approximately 150 NPOs/NGOs participated in activities to support reconstruction in affected areas. In 2012, approximately 70 organizations were active in Rikuzentakata. Most of the participants in these activities are in Rikuzentakata on a voluntary basis. This volunteer spirit is important, but when considered from a medium- to long-term perspective, there is uncertainty about how many people will remain in the area. To live in Rikuzentakata, residents need an income of at least JPY 2.2 million to 2.3 million per person per year. This means that at least JPY 22 million is needed to hire 10 people. How can companies come up with this amount of money?

When I started this organization, I used approximately JPY 2 million from my own pocket to carry out activities; that is all gone now. Last summer, SAVE TAKATA hit solvency and was able to pay the salaries of its staff, which had me feeling, for the first time, that the NPO could continue its activities over the mid- to long-term.

I believe it is time to stop using words such as “support” and “reconstruction.” While it is indeed a necessary and significant goal, reconstruction is a very complicated venture. However, Rikuzentakata needs to be self-sufficient after reconstruction, which means that the society must recover to a normal economic level. Currently, Rikuzentakata's economy depends on external support. For example, the local government budget is approximately JPY 10 billion; however, Rikuzentakata has spent JPY 100 billion, almost 10 times the budgeted amount. This additional budget also comes with strings attached, as it is restricted to reconstruction. It is difficult to imagine a bright and happy future for Rikuzentakata after that money is spent.

Rikuzentakata has been featured at various opportunities and is supported by a wide range of people. As with other local cities, its population is greying, and the city has been suffering economically. With no attractive jobs, people end up leaving, as in my experience—I gained my experience in architecture in Tokyo, hoped to carve out a

career in Italy, and go back to Takata to live out the next years of my life. However, this disaster made me think about what could be done to help the people of the area. I came to the conclusion that if I could both reconstruct and eventually change Rikuzentakata, I would commit my whole life to achieving that. This determination was the start of SAVE TAKATA, which aims to build an ideal city in 20 to 30 years.

Opening up Rikuzentakata to people from other areas

Support activities may continue for three to five years. However, in order for the local community to be self-sustaining and continue for 10 or more years, the scope support activities must be reevaluated and narrowed down. For this reason, companies and NPOs like our organization that conduct such activities must be acutely aware of financial sources. For example, my salary is less than a half of what I received when I was in Tokyo. It is hard to live at this level of income for a long time in Rikuzentakata, and does not provide enough financial security for marriage, purchasing a house, or having a child.

In Rikuzentakata, SAVE TAKATA wants to create an environment that welcomes both the people who born there and those from other areas. To achieve this, a significant amount of resources will be needed. SAVE TAKATA improves the local economy, and aims to create an environment that is attractive to and welcomes people from other areas.

Sakura Line 311

In addition to my role as the director of SAVE TAKATA, I also serve as the deputy representative of Sakura Line 311 and on the organizing committee of the Rikuzentakata Mobile Star Festival.

Sakura Line 311 is an activity that encourages the planting of cherry trees in Rikuzentakata. A line of about 170 km in length can be drawn by tracing the points the tsunami reached. Sakura Line 311 is a project that aims to plant a cherry tree every 10 meters along this line to record how far the tsunami came inland. Rikuzentakata has been hit by four tsunamis in the past 120 years. After the tsunami triggered by the Chile earthquake, stone monuments were placed in many places to notify later generations about the points the tsunami had reached and to warn local people not to build houses below that line. Most people did not know about these monuments until the disaster in 2011. SAVE TAKATA wanted to create monuments that are loved by the local residents, but to also make sure that this disaster is not forgotten, and so, decided to plant cherry

trees. The project's ultimate goal is to plant 1,700 trees; however, as of May 2012, only 520 trees have been planted.

A significant advantage of the Sakura Line project lies in extending invitations to people to visit Rikuzentakata in order to plant trees. Participants can enjoy sightseeing, and also take part in planting activities. In 10 years, it is hoped that many of these same volunteers will return to Rikuzentakata to see how much the trees have grown and how much the city has changed. I have also planted several trees, and stop by regularly to see how much they have grown. In this regard, this project is a way to keep a focus on Rikuzentakata, so it will not be forgotten. This November or December, the project plans to plant 200 or 300 trees.

Two important themes

One key theme of the project is how local people can become the major stakeholders of activities in five or ten years. The organizing committees of the Rikuzentakata Mobile Star Festival and Sakura Line 311 are mostly made up of people in Rikuzentakata. SAVE TAKATA only acts as a support organization. It is important for local people to take on the main role in such activities.

The second major theme is how people can take advantage of opportunities to offer support to Rikuzentakata. It is because of the disaster that I had an opportunity to speak out about my hometown at Yokohama National University. A majority of people had never heard of Rikuzentakata before the disaster. Every time I am invited to give speeches in Tokyo metropolitan areas, I always think that I am given a chance to encounter each one of the audience there. I believe that it is important to capitalize upon such encounters and link them to Rikuzentakata.

There is no doubt that it is easier to find resources in urban areas due to the size of the local economy. On the other hand, it is hard to earn a million yen in Rikuzentakata. SAVE TAKATA's mission is to promote mid- to long-term urban development by local people so that they become prouder of their city using the resources from urban areas.

Reconstruction requires many years, and conditions will always change over time. Last year, only 90 babies were born in Rikuzentakata. In our time, approximately 240 people attended coming-of-age ceremonies; however, these babies will celebrate the same ceremony with much less people when their time comes. This is another reason that activities are carried out to urge younger generations to remain in or return to the city.

For the future

There are some young people who are anxious to return to Takata, or people who are considering moving to Takata from other areas.

I am also a member of the younger generation but did not hesitate to return to Rikuzentakata because I was determined to facilitate change in my hometown even if I could not make enough money. Currently, there are many organizations that are active in Rikuzentakata, as well as young people from other areas. NPOs generally operate based on a single year budget, and some will finish projects at the end of March. In considering what to do next, some people will join other organizations or decide to start their own business. These people who have committed themselves to the reconstruction and revival of Rikuzentakata are innovators and pioneers who have decided to take action regardless of the risks. There are not many people like this, and such determination can change entire lives.

However, passing on a self-sustaining city for the next generation is an important focus for SAVE TAKATA. The innovators and pioneers that have strong motivation to create new systems stand out from their peers and attract attention. But there are not many people who are willing to commit themselves in the same way. This path is full of struggles, and it is natural for people on the outside to sit back and watch what these innovators and pioneers are doing, rather than get involved directly.

These activities can also guide people on the outside to start businesses in Takata. It is important to develop a town where young people can start their own businesses. SAVE TAKATA hopes to expand its activities in the future to attract more people who want to launch businesses that contribute to local development.



Mr. Okamoto giving explanations to visitors near the tsunami run-up border line
(Second from the right, November 2011)

Reconstruction of Disaster-hit Areas and Upgrading of Coastal Forests

Mr. Makoto Nikkawa

Secretary-General, Great Green Wall Foundation
Consultant, Japanese Center for International Studies in Ecology
of the Institute for Global Environmental Strategies

Earthquake archipelago and tide protection forests

Since the Jogan earthquake and tsunami that occurred in Japan in 869, Japan has repeatedly been hit by earthquakes, including the devastating Great East Japan Earthquake on March 11, 2011. Documents prepared by the Cabinet Office predict that an earthquake of significant scale will hit Japan in 30 years. If it occurs in the southern sea, the east southern sea or a metropolitan area, it would result in damage of approximately JPY 220 trillion if no preventive measures were taken. It is a fact that the people of Japan live on an “earthquake archipelago.”

In Wakayama Prefecture, the tidal embankment built in the eighteen century has protected residents from tsunamis for years.

The Japan Center for International Studies in Ecology, managed by Prof. Akira Miyawaki, was initially an incorporated foundation under the Ministry of Education, Culture, Sports, Science and Technology founded as a pilot research corporation. It has now been integrated as a department within the Institute for Global Environmental Strategies.

Prof. Miyawaki visited the areas affected by the Great East Japan Earthquake in April 2011, right after the disaster, to survey the damage. Subsequently, he researched conventional tide prevention forests there and what the ideal should be for the future. Before the disaster, there were prevention pine forests on the beach. Because pine can grow on nutrient-poor land, it is well suited for the beach. However, these tide prevention forests, made up of only a single species, were completely washed away by the unprecedented scale of the tsunami.

What is being advocated is not the exclusion of pines from these protective coastal forests. The most important issue is that these uprooted trees caused secondary disasters, including the destruction of houses. In addition, when refluxing, there was nothing on the shore to stop objects flowing out to the sea because the protective forests were gone (Figure 1). Thousands of people are still missing, and it is not hard to imagine they washed out to sea.

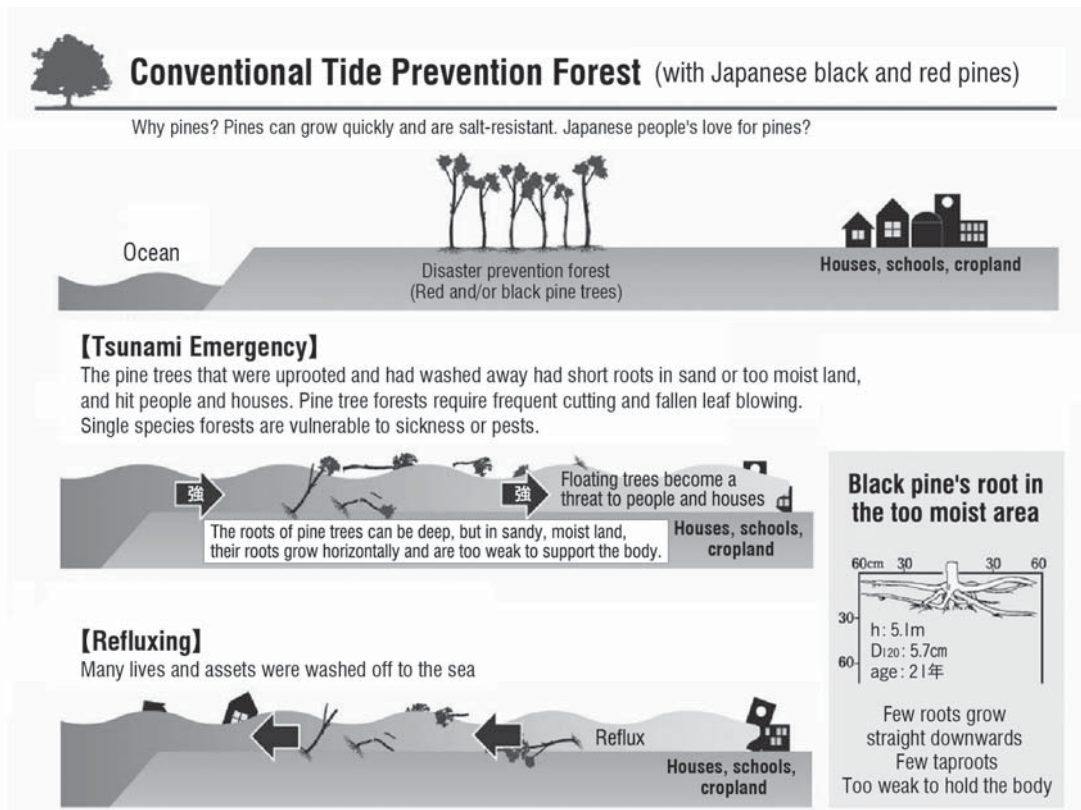


Figure 1. Conventional Tide Prevention Forests (Japan Center for International Studies in Ecology 2012)

Green Tide Prevention Forests

Figure 2 illustrates the tide prevention forest that is being proposed. Pines are not included in this figure, but in fact, they will be planted on the front line. The biggest advantage of this type of forest is that tsunami water can flow between planted trees; this reduces its energy by half. This does not happen with concrete dykes. Therefore, when the tsunami water flows through the forest, it would not have enough remaining power to tear down houses or buildings. Moreover, trees that remain on the shore can save people or houses from being washed away to the sea at reflux.

With regard to debris issue, we consider the debris as a resource. Meetings with Mr. Goshi Hosono, the Environment Minister at that time, were held several times to persuade the Ministry to consider debris as a resource, and bury all debris, including wood biomass, as it could be used to make mounds on which a tide prevention forest could be planted. However, there were differing opinions about the wood biomass, especially those of collapsed houses, and the possibility that it could contain hazardous substances. This argument may be correct, however, it is possible that modern construction materials may also contain hazardous substances.

After World War II, parks were built on the debris from the war in Germany. About 30 years ago, Prof. Miyawaki and the author visited the Olympic Park during a study tour to Germany. A local guide said that a ton of debris from the war, including combat vehicles, was buried underground. At that time, it appeared that there were no toxic chemicals mixed in with such debris. However, in recent years, the Ministry of the Environment announced that chemicals with the potential to pollute groundwater might be contained within debris. In Germany, a number of parks had been built on debris from the war until 1998, but such activities have since been banned. The EU and U.S. also ban the practice of burying underground objects which may contain unknown substances. Following this policy, the Ministry of Environment in Japan has also announced that it will not bury the debris of collapsed houses, but did approve this practice for naturally-growing or drift trees. Naturally-growing trees are used together with debris to make mounds for tide prevention forests in Iwanuma, which will be discussed later in this article.

Figure 3 is a cross section of our ideal forest. This is based on the environment protection forest of Kimitsu Works of Nippon Steel Corporation (currently Nippon Steel & Sumitomo Metal Corporation), developed by Prof. Miyawaki about 28 years ago. The image is approximately 100 m in width and ideally 22 m in height. The height will



Future Tide Prevention Forest (Green forest that saves lives and assets)

[Characteristics]

In principle, tree species are selected in accordance with local conditions.

Forests comprised of diverse native trees have the strength to survive, and are resistant to sickness and pests.

For two to three years after planting a variety of pot seedlings closely together, weeding is needed, but after, no management is required.

The forests will survive until the year 9000, the next glacial period, through repeating alternation of generations.

Super tall trees will be cut in future for local economy.

These forests will keep their disaster prevention and environmental conservation capacities for future generations and communities.

They are the best natural environmental education materials, as they should continue to exist if there have been no anthropogenic effects.

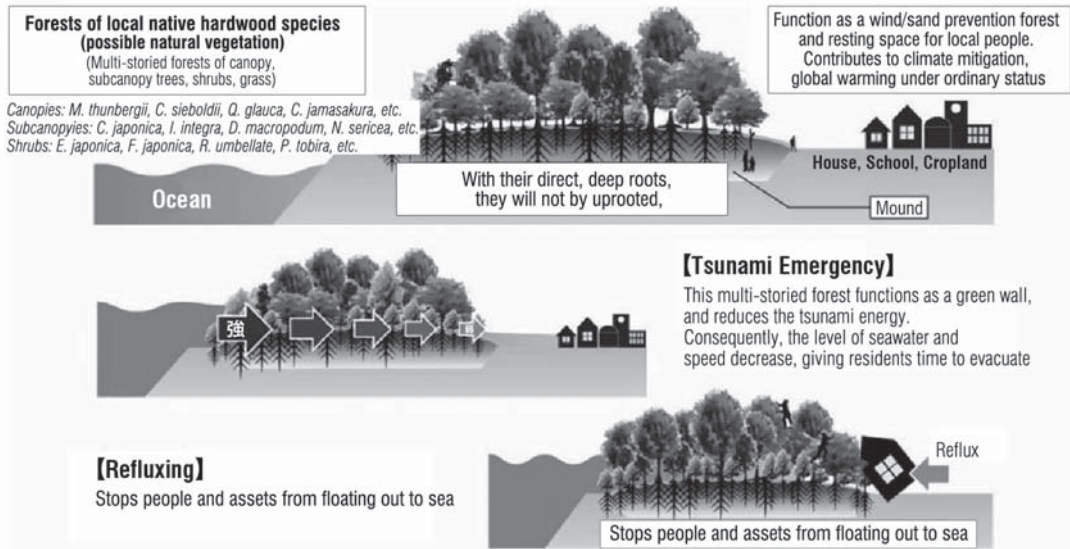


Figure 2. Future Tide Prevention Forests (Japan Center for International Studies in Ecology 2012)

Cross section of the life-saving tide prevention forest

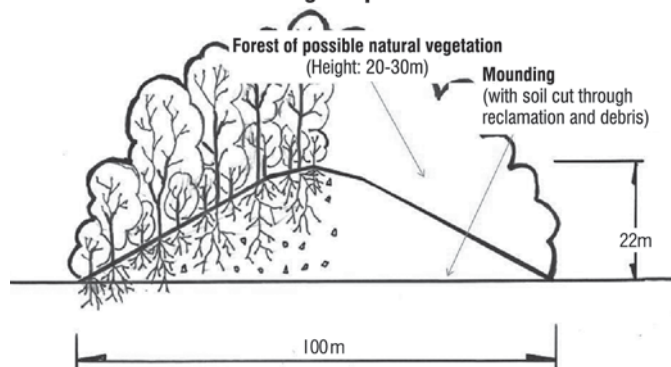


Figure 3. Cross Section of the Tide Prevention Forest (Japan Center for International Studies in Ecology 2012)

actually be about 10 m as we do not have enough soil. In its ideal state, this would be a 40 m wall, including the height of trees, which might be high enough to prevent tsunamis like the one in 2011, which recorded forty-something meter high waves at the highest point.

In Miyagi prefecture, all members of the Prefectural Assembly agreed to the concept of this green tide prevention forest, but the project did not move forward. Why? Because it is not made up of pine. Four years ago, Prof. Miyawaki persuaded the Forestry Agency that species other than the pine could be used to construct coastal forests. However, there have been far too many cases where local stakeholders do not move forward with a project, even though it has been approved by the national government. The ideal tide prevention forest includes hardwood species; however, many people prefer pine. Even if they are informed that the forest will contain pine trees, the species that are best suited to the beach, in front, and other species will be planted behind them to further strengthen the forest's preventive functions, people still do not understand. Some of the grounds for this resistance include the argument for pine that is focused on sentiment and technical issues, as well as business reasons. There are many people that grow pine trees, and efforts are being made to include hardwood species in these nurseries. But the problem in this regard is that it is difficult to grow hardwood species. If a non-expert started with 10 hardwood trees, the actual number of trees that would grow enough for planting may end up being only one at best, or zero in the worst case. Currently, JCIS is developing a textbook on this subject to increase the number of hardwood nurseries. At the same time, JCIS is developing a system to buy hardwood trees from these nurseries. JCIS hopes to move this forward by steps.

When disasters happen like this, many people go for volunteer works. There can be however some matters that people may not understand unless they actually live there and it is sometimes hard to handle such situations. We currently make a plan for the next 10 years as a timeframe for our involvement and we hope to advance our work steadily.

On March 5, 2012, Mr. Morihiro Hosokawa, former Prime Minister, visited the JCIS biological center and evaluated Prof. Miyawaki's concept of the ideal tide prevention forest highly. At that time, Mr. Hosokawa had organized the Japan Revitalization Committee, and was considering the appropriate path for reconstruction. In the course of coordinating the Committee, he talked with a lot of knowledgeable people and decided to visit Prof. Miyawaki, with whom he was well acquainted since he was the Governor of Kumamoto prefecture, as JCIS had supported him in forest development in Kumamoto. The concept of the "Great Wall" project was created from this reunion.

Last year, Prof. Miyawaki and the author visited the Baltic Sea coast. Europeans have suffered from tidal waves in the North Sea and Baltic Sea for the past 500 years. On the shore line, there is a tide prevention forest that stretches for more than 10 km. Behind the forest, there is a major sightseeing area. The tide prevention forest was developed on mounded ground along the shore, and has a resort area behind it. This is the embodiment of our ideal forest.

Case studies

Last year, mounds were constructed along the dyke of Otsuchi River in Otsuchi town. With JPY 30 million granted by the Yokohama Rubber Co., Ltd., a dyke of 50 m was constructed in the initial phase. The company concluded a memorandum of understanding with the Mayor of Otsuchi town to construct the 250 m dyke over a period of five years. One problem this project faces, among others, is seedlings. The project selected pot seedlings. But these pot seedlings are in fact grown in Kanagawa prefecture. From a botanical viewpoint, this may cause crossbreeding and other issues, which has been a contentious issue among experts. However, it will take at least two years to make pot seedlings with local seeds, which means that local seedlings are not available at this time. From August 2011, JCIS colleagues started collecting and growing local



Mr. Nikkawa speaking at the acorn pick tours in Sendai in 2012

Kosterm seeds. From this summer to the fall, the project will be able to use pot seedlings grown from seeds collected around Sendai Plain to the area close to Iwate. Mr. Hosono joined together with other stakeholders in planting these seedlings in April 2012.

In Yamamoto town, Yaegaki Shrine had been damaged by the disaster. The shrine's Shinto priest asked local people to plant trees. The priest and parishioners decided to start reconstruction of the affected areas by planting trees in the surrounding land around the shrine. This decision rebuilt the local community. The shrine had played an important role in the lives of the local people; they visited occasionally, such as on the New Year's Day or when a new baby was born, and therefore, they hoped that it would be reconstructed. With funding from the Nippon Foundation, three areas on the grounds of the shrine were rebuilt last year, and an additional three places this year.

The Green Tide Prevention Forest project is being carried out in cooperation with the Green Bond (Midori no Kizuna) Recovery Project promoted by the Forest Agency. Almost all sections of tide prevention forests of more than 160 km in length were devastated. To rehabilitate this, the project decided to reconstruct these forests at 50 km, including the Arahama area, using this fiscal year's budget. This rehabilitation project will be implemented in cooperation with companies or organizations using new and innovative approaches. JCIS is considering the development of their ideal tide prevention forest with 3,000 trees for approximately 1,000 m² this May, in cooperation with the Green Bond project. Of the 14 organizations that applied to cooperate with the project, all organizations, with the exception of JCIS, plan to plant black pine trees. The 1,000 m² lot assigned to JCIS will be covered with different types of trees; it will be quite a view to behold when all plantation is completed.

We are considering various cases. In some cases, concrete dykes are indeed the most ideal solution. However, JCIS's target is to plant species in accordance with the potential vegetation theory of Miyagi prefecture.

Securing reconstruction budget

Iwanuma city has promoted reconstruction projects under the Mayor's very strong leadership over the past years. When the Hills of One Thousand Years of Hope (Sennen kibo-no-oka) project in Iwanuma started last year, the city had no budget for reconstruction. The concept of this project was born from the fact that the area behind Matsushima in Matsushima Bay was barely damaged. Islands scattered in the bay were said to have reduced the power of the tsunami. Accordingly, JCIS suggested building small hills in public parks. Unlike dykes along the shore line, small hills in city parks may result in a similar outcome as that seen in Matsushima Bay. The city agreed to the implementation of the project, however, the Reconstruction Agency did not allocate a budget saying that building such small hills would most likely not contribute to disaster reduction. But Mr. Tsuneaki Iguchi, the Mayor of Iwanuma, is a clear-sighted leader and decided to keep the project.

This year, the project will start activities on June 9th. JCIS has already planted 6,000 trees (Figure 4) and will plant an additional 20,000 trees this year. Thanks to the approval of the Reconstruction Agency gained just before the submission of this year's plan to the city council at the end of March, JCIS can plant more trees than last year. According to a person in charge of reconstruction matters at the Reconstruction Agency, the agency cannot reject plans agreed upon by multiple municipalities. In other words, if



May 2012 Iwanuma city, Miyagi prefecture (Nikkawa, 2013)

Figure 4. Forestation activity of the Hills of One Thousand Years of Hope (Sennen kibo-no-oka) project in Iwanuma city

local municipalities are in agreement about a certain project, the Reconstruction Agency cannot interfere with how they spend the budget. This means that if local municipalities have different opinions, the current way is the only way to use the reconstruction budget. In terms of cooperation within an area, chairs of ward assemblies have strong authority. If these chairs and assemblies look for solutions in opposite directions, they will not be able to formulate a plan for cooperation. There may be conflicts among parties, but for reconstruction, it is essential to work together.

Issues and potential options

The most urgent issue is how to secure planting land. JCIS will make a move if there is land that can be used for planting (Figure 5). With the offer of a lot, it is important to get agreement from local stakeholders. The method of constructing the tide prevention forest and its contribute to urban development should be clarified in advance.

Issues and Potential Options	
1. Securing land for plantation	➔ - Achieving agreement among local people - Detailed urban development plan
2. Securing funds	➔ - Use of the reconstruction budget
3. Citizen's participation	➔ - Use of festivals (local culture and products) - Recruiting volunteers

Figure 5. Issues and Potential Options (Nikkawa, 2013)

The Reconstruction Agency will possibly approve the application for the reconstruction budget submitted under a mutual agreement with stakeholder communities, as mentioned earlier. Furthermore, JCIS's best strength is to encourage public participation by using local festivals. Each community hosts various festivals, some of which have been downsized because of the greying population. By using festivals, JCIS wants to provide support to revitalize local products and to secure funds for such activities. In planning such activities, JCIS will continue to pursue opportunities to promote planting. Launched on July 10, 2012, this project already has a long list of people nationwide who are willing to participate as volunteers. JCIS will work to reconstruct affected areas together with these people.

Rebuilding SMEs in GEJE-affected Areas and Crowd Funding

Yoshitaka Inoo

Managing Director, Music Securities, Inc.

Background on the Establishment of a Support Fund for Disaster Areas

Music Securities, Inc. manages a micro-investment platform, the Securite Fund to Support Disaster Areas, for small- and medium-sized enterprises (SMEs) in the areas affected by the Great East Japan Earthquake (GEJE). This section will introduce Music Securities, Inc., and briefly describe the reasons behind the operation of this micro-investment platform, in addition to its system, achievements, impacts and issues.

Music Securities' core business is the management of a website named "Securite." The website system is similar to that of an online shopping mall. In the website, tenant owners of the Securite site do not sell goods through the Internet; rather, they raise funds from individuals. At the time of this writing, Securite has 94 tenants, and 179 open funds. For example, a company engaging in pearl farming in Lake Biwa has established a JPY9.3 million fund with a unit amount of JPY50,000. The company has obtained 35% of the total from 19 investors to date.

Music Securities offers this system to various SMEs in order to support fundraising efforts. The history of the company, established in 2001, is not long. Thirteen years ago, the company was founded with a mission to help users "enjoy music more freely" and a main focus on music funds. Musicians usually produce albums with money from a record company. However, if musicians could produce albums with their own money, they would be able to do this on their own terms, free from the opinions of other investors. This concept of enjoying music without having to act as "yes-men," meant that musicians needed to be more financially independent. To support this objective, Music Securities launched operations to offer tools to musicians to assist them in producing their own albums.

In 2007, the company hit a turning point. Shinkame Shuzo, a sake brewery in Saitama, which produces high-quality *junmaishu* (*sake* made without added alcohol or sugar) that requires three to four years for brewing, was having trouble finding funding during the long brewing period. The company contacted Music Securities to see if a fund could be set-up through which *sake* lovers could support *sake* brewing. This was the start of diversifying funds for clients other than musicians.

Such breweries are another type of artist and have a strong belief in their own products. Just as fans allow musicians to produce music, business owners should be able to do business with the support of their own fans. In this way, Music Securities has expanded its business focus since 2007. Since the triple disaster following the Great East Japan Earthquake (GEJE) in 2011, the company considered different ways to support affected areas as part of its main business focus, and decided to use this system to support businesses in affected areas that were dedicated to continuing business by matching them with potential investors. In April 2011, a new funding system was launched based on this decision.

Although Music Securities was not familiar with local companies in the area, the company was able to establish funds for local companies thanks to an official of the Miyagi prefectural government that they became acquainted with via Twitter in April, and who provided them with information on many local SMEs. Yagisawa Shoten, a soy sauce brewery founded over 200 years ago, is one such company. In April 2011, Music Securities set-up a meeting with representatives of Yagisawa Shoten at a driving school, which was being used as the company's office because the tsunami had washed away all of their facilities. Listening to the stories of the staff of Yagisawa Shoten gave the representatives of Music Securities a glimpse into their courage and resilient spirit, and changed their attitude from wondering if they could help, to actual involvement. Music Securities has continued to manage this fund believing that their role is to promote the business ventures of extraordinary companies in affected areas.

Funding System

The major characteristic of the Securite Fund to Support Disaster Areas lies in its composition: half of each investment is donated and the rest is invested. Each investor can invest in the fund in units of JPY10,500. This figure is comprised of investment fees (JPY5,000), handling charges (JPY500), and donations, also referred to as a support grant (JPY5,000). Of the 179 funds now available, this donation system has been introduced only for this fund. This is because of the concern that if the fund were based

on 100% investment, it might be difficult to market as a financial product. This was a concern that arose when developing the business plan with business owners, and it was decided that half of the money invested would be as donations to strongly encourage business reconstruction. Music Securities was not fully confident that this newly-introduced system would be accepted by investors; however, to date, more than 24,000 investors have joined this fund. This unique financial product has also been featured in the media. Even though half of the money invested is lost immediately after investment, many people have joined the fund to support local companies.

Music Securities visits local business owners based on the requests of local residents. If after explaining the system, the local companies agree to work with Music Securities, a fund is created and a page opened on the website. The first step to attract investors is to disclose information on the business owners, the type of business they are involved in, the purpose of the fund, and the methods of securing revenue to make repayments. Next, potential investors select a business or businesses they want to support based on the information. Business owners then allocate actual revenue gained from utilizing the fund money to investors once a year (The allocated amount depends on the actual amount of revenue.) Various incentives are also offered to investors. For example, Yagisawa Shoten sends its investors one of their products made with the first soy sauce brewed at a new factory that was rebuilt last winter. Such benefits are another characteristic of this fund.

Achievements and Issues

Currently, 37 companies use our system. Of these, 25 companies have raised their targeted funding amount and are working to rebuild their business. The total amount of the funds of these 37 companies is JPY1,126 million. Music Securities has already raised JPY900 million and JPY200 million remains to be raised. The total number of investors nationwide is 25,000.

Since two years have passed since the disaster, Music Securities conducted a survey to understand the current issues that participating companies face. When asked about actual progress and issues, many companies expressed that they were having difficulty implementing the business plans developed when a fund was established (56%). Specific obstacles included distribution channels, fundraising, and securing human resources. These results clearly show that there are still many issues in fundraising, even if contributions from overseas and preferential interest for bank loans are available. Although Music Securities plans to continue this system to raise the remaining JPY200

million, challenges remain as the company sees the speed of fundraising gradually slowing in comparison to 2011 and 2011 and with much less media attention, and decides how to continue building a bridge between individuals and SMEs in affected areas.

The company's challenges for the future include ways to connect the expectations, ideas, and manpower of SMEs and investors over the long term, as well as how to obtain financial resources. In the recently conducted survey, Saikichi Shoten in Kesenuma commented that because of the fund, the commitment made with investors and their continuous interest in the company's success helped them push themselves to restart their business. This comment, along with responses from other companies, confirms that the fund has achieved more than raising money. For these business owners, the money from people they have never met means that great numbers of people want these companies to stay open and succeed. Some companies in the affected areas have assigned an employee to check the website to see how many people have invested in their business and make a daily report to their managers. In this way, these companies can understand how they are being supported not only financially with the money invested, but also through the connections with investors. The fund for Yagisawa Shoten is large, with more than 3,300 investors throughout Japan that want them to keep their doors open for business. This is a key point in the success of the fund and part of Music Securities' important mission to keep delivering these messages to local companies.

Another trend is a shift in what investors intend to support, i.e., a change from supporting the affected area to supporting a particular individual in a company. With the passage of time since the disaster, it may be difficult to continue to raise support for the affected area as a whole, and may be easier to offer support to a particular person in Yagisawa Shoten, for example, through an investment based on the investor's own choice. The funds offered by Music Securities are based on such a system. To build relationships between businesses and investors, Music Securities actively organizes events at which both business owners and investors can meet face-to-face. One example is a tour to invested companies. This tour is quite popular because investors can actually see how their money was spent. These tours offer investors a chance to meet the owners of businesses in which they have invested.

For business owners, investors are more than consumers and less than employees. Investors share a common objective with business owners to achieve higher revenue, but are not insiders. Therefore, they can give advice not only on short-term interests but also mid- to long-term benefits, which can be hard for insiders to identify. As business owners can be occupied with issues at hand, it is important to figure out how to build

such relationships with investors. One popular event is the experience of working one day in the company as an employee. As part of strategies to pursue opportunities to secure a nationwide distribution network, companies in affected areas may open an exhibition booth or office at various events, such as the Tokyo International Forum, for example. During these event periods, they need staff on hand to sell their products at the event venue. To avoid associated personnel costs, which can be significant, companies can recruit temporary employees from their pool of investors. This opportunity is very popular among investors even though there is no pay. They are also not volunteers because they will eventually get returns when the company makes a profit. Investors enjoy this opportunity to actually get involved in their invested company. Another popular program is taking part in product development. For example, investors have been asked for advice about one business owner's problem in selling a sauce for rice bowl dishes. Proposed ideas include changing the name or packaging of the product. Investors also enjoy this opportunity to join in product development, and many write about meetings they participated in on their blogs.

Music Securities recognizes that establishing a relationship that is valuable both for business owners and investors is important. More specifically, one key to success is to create opportunities for investors to be useful or get involved in businesses in affected areas. A survey of investors found that investors received many benefits from participating in the fund. One benefit is a specific role in the success of the businesses in which they have invested. Investors get a return with ordinary investments, but in this case, they are also able to take on a role in advance of this return. Normally, employees have specific roles assigned to them in a business, but it is also possible for investors to have a role in business activities. One challenge that Music Securities faces is to design and provide a platform to connect more than 3,000 people throughout Japan based on the unique relationship between business owners and investors. In the previous example, sharing a task, such as requesting investors to brainstorm on a new name for a sauce for rice bowl dishes, can offer value and benefits to investors. Based on these findings, Music Securities needs to create such relationships between investors and business owners, while keeping communication lines open about issues that they face.

Employment Search Assistance Business in Affected Area

Daisuke Sasaki

Employment Search Assistance Project
Public Support Service Division, Human Touch Corp.

Human Touch Corp. dispatches or introduces human resources to, or undertakes commissioned projects from private companies and local governments around Japan, such as Yokohama city. Group companies include Human Resourcia and Human Academy, which offer education, human resource development, and nursing services.

In FY2012, the Human Touch Corp. group was commissioned by the Iwate prefectural government to undertake a project to help people in affected areas find employment. This section will provide some information about the one-year project and the company's experience in communicating with the people in the area.

Outline of the project

Human Touch Corp. carried out Iwate prefecture's employment and human resources development project in FY 2012 for areas not limited to but including affected by the Great East Japan Earthquake. Following the global economic downturn precipitated by the collapse of Lehman Brothers in 2008, the national government established an emergency fund for employment. Since then, several projects have been implemented, and the Iwate prefectural government planned to use this fund to implement their employment and human resources development project for people who had lost their jobs as a result of the disaster. The Human Touch Corp. group and 12 other organizations were selected from among 26 organizations that had made proposals to the government. The project budget was set at JPY 1,140 million, and the 13 organizations involved in the project helped 604 people find jobs (Figure 1).

Table 1 shows a breakdown of the program proposed by Human Touch Corp. The group was assigned to assist 50 people in Morioka, Miyako and Kamaishi. Interestingly, most of the people who were looking to use these services were from Morioka, an inland

FY 2012 Employment and Human Resources Development Project for Affected Areas	
<p>01 Project outline</p> <p>The objective of this project is to hire people affected by the Great East Japan Earthquake at outplacement companies in Iwate, and offer OFF-JT (lectures, etc.) and OTJ to assist them in acquiring the techniques and knowledge required for employment in a company engaging in rehabilitation or reconstruction in affected areas. In conjunction with this capacity development, the project will encourage matching new employees with companies to support reemployment in the region.</p>	<p>02 Summary of the commission process</p> <ul style="list-style-type: none"> - Applicant organizations: 26 - Commissioned organizations: 13 - Expected number of people to be reemployed: 604 - Budget: JPY 1,140 million <p style="text-align: right; font-size: small;">(Source: Iwate Prefectural Government Website)</p>

Figure 1. Iwate Prefecture FY 2012 Employment and Human Resources Development Project for Affected Areas (Sasaki, 2013)

Table 1. Human Touch Corp. Group's Program for the Project (Sasaki 2013)

Outline

Project Period	Eligible Persons	Work Type	OFF-JT	OJT	Notes
June 1, 2012 – November 30, 2012	Persons who lost jobs as a result of the disaster. (Max. 50 people)	OFF-JT (1.5 months) + OJT (4.5 months)	- Basic business - "IT Passport" - "CAD Operator (2nd grade)" - "Sales clerk (3rd grade)"	Temp to Term: Aims at direct employment, and provides a wide range of working experience, regardless of the company size or category.	If an employee has difficulty commuting to the workplace, a housing allowance will be provided during the period of employment.

Breakdown of Participants

Home location	Gender	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Total
Around Morioka city (34 people)	Female	10	6	4		20
	Male	9	4		1	14
Around Miyako city (13 people)	Female	3	3	3		9
	Male	1	2		1	4
Around Kamaishi city (3 people)	Female		1			1
	Male			1	1	2
Total		23	16	8	3	50

city, rather than Miyako or Kamaishi on the cost. Other supporting organizations had also been assigned more people from inland districts than from the coastal area. In some cases, there were no spaces available for OJT in Miyako or Kamaishi, so participants from these areas had to go to Morioka for OJT (OFF-JT was conducted in the respective local areas). Eligible participants included people who had lost their jobs as a result of the disaster and were looking for reemployment. However, because the project was being implemented by Iwate prefecture, it was basically open to the entire prefecture, and therefore, a budget of nearly JPY 1.2 billion had been allocated.

The group offered support to 16 people in the coastal area to find employment. The group's six-month program consisted of 1.5 months of OFF-JT and vocational training to help participants get ready for formal employment. During this period, participants were hired by the group. Based on the assumption that there would be a large number of participants from affected areas who wanted to change their career course, the group prepared lectures on office work, CAD for construction businesses, and sales skills. After this training, participants worked in companies for 4.5 months. Human Touch Corp. located companies which wanted to participate in this project, and which would not bear the personnel costs for such employment. If these companies found someone they wanted to hire among the pool of participants, and the participant was willing to do so, they concluded a direct employment contract.

While many have pointed out a lack of job offers or mismatches in employment, Human Touch Corp. found that a number of jobs were available. In fact, there have been many mismatches between job offers and job seekers. There are plenty of offers regarding disposal of or transportation of debris in affected areas. However, Human Touch Corp. and other human resource companies use a worker dispatch system and are unable to hire out workers for the disposal of debris, which is specified in regulations. . As well, local job seekers are anxious about what to do when these short-term jobs have been terminated. This is one reason why the prefectural government planned and implemented this project. Indeed, the disposal or transportation of debris is needed for reconstruction. However, while local people are hoping to secure long-term jobs, manpower is also needed for short-term jobs to promote reconstruction. This is a dilemma. As many of these short-term jobs require special skills, local labor offices have already launched official trainings and are considering supporting measures for FY 2013 and beyond.

In such a situation, people who are looking for long-term jobs tend to remain unemployed for long periods. Local labor offices extended the duration of the wide-ranging benefits of employment insurance and unemployment benefits by 90 days. The effects of this 90-day extension are not yet apparent; it will depend on the number of people who become ineligible for employment insurance and unemployment benefits after the extension period. As of February 2012 when the project was commissioned, the prefecture expected that the number of people eligible for benefits would increase by 200 people monthly after April 2012. Based on this assumption, the government launched this employment support project to create jobs for those unemployed persons that have been affected by the disaster.

Outcome

As a result of hiring 50 people and dispatching them to various companies for 4.5 months, 62% (31 people) were able to contract with companies for direct employment. Many participants who had worked in seafood processing, souvenir shops, or retail stores before the disaster wanted to find similar jobs. But a number of local enterprises have closed down their businesses, which left many people struggling to find employment in similar fields or similar work. Some participants in inland areas were able to successfully change their careers through this program, i.e., from seafood processing and retail, to nursing and machine manufacturing. These participants were able to enter into direct employment contracts with companies.

Next steps

The prefecture will not implement a similar project in FY 2013. For people looking for employment, this project offers job training and an opportunity to see if they really want to work for a particular company during OJT. For companies, this project reduces the risk of hiring people by offering a chance to work together for a set period of time. Alternatively, there is a possibility that the relationship will end in the short-term. That the number of applicants, especially from the coastal area, was less than expected indicates that the mechanism of this project was not suited to job seekers' needs.

According to Human Touch Corp.'s interviews with local governments, many are planning projects focused on supporting the recovery and revitalization of local companies. The local governments in Rikuzentakata, Miyako, Ofunato, and Kamaishi are focusing on projects to support companies, not to encourage temporary employment, but rather to attract enterprises or new employment.

A survey by the Ofunato city office on local high school graduates found that of the approximately 700 graduates each year, about 560 people go on to higher education and approximately 140 people move into the job market. Of these job seekers, approximately 70 people find a job outside the prefecture; the remaining 70 people find employment within the prefecture, or continue looking for a job in the prefecture (Figure 2). These results indicate that there are few attractive jobs in the prefecture, and that it is difficult to keep the younger generation in the area. Therefore, it is essential for these areas to attract companies in order to retain or increase their workforce. As mentioned above, local governments are shifting their focus to supporting enterprises, and in general, emergency employment support measures for job seekers are becoming less popular.

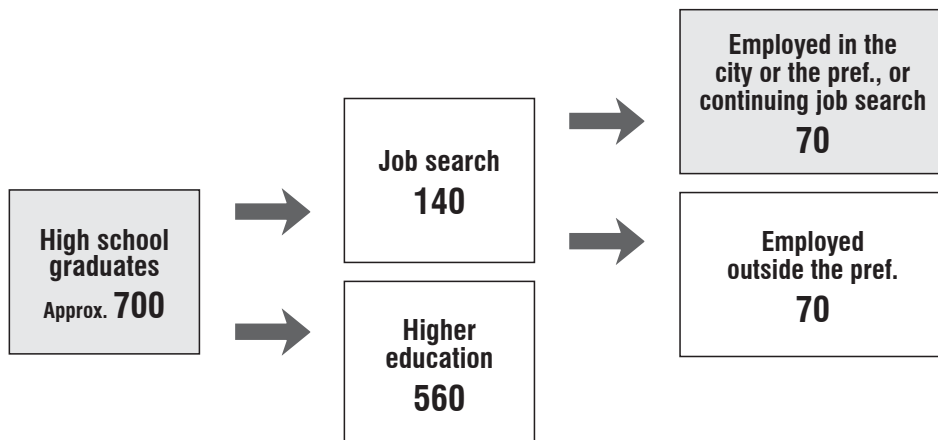


Figure 2. Courses after Graduation from High School in Ofunato City

Employment support project for new graduates

Human Touch Corp. has planned a project for FY 2012, which aims to support new graduates who are willing to stay and work in Iwate Prefecture (Figure 3). The project, conducted by the Small and Medium Enterprises Agency, will offer six-month internships to new graduates, with the ultimate goal of facilitating direct employment. Subsidies are provided to participating graduates, and participating companies take part in the project on a voluntary basis.

Implementing body	Small and Medium Enterprises Agency
Operator	Human Resources Corp. and other private companies
Project area	Nationwide
Purpose	To enhance direct employment through internships of up to six months
Eligible persons	Job seekers: Persons who have graduated from a university or similar within the past three years or senior university students who have not been offered employment as of October 2013
	Company: Small and medium enterprises
Support	Subsidies are provided to job seekers during the internship period.
	Coordinators introduce interns to companies at no cost.

Figure 3. Outline of the Employment Support Project for New Graduates (Sasaki 2013)

Challenges

The role of the human resources service industry is the match-making of such resources. Many local companies have said that they do not have the capacity to hire new employees. Many jobs will be created when local companies regain their strength, new companies are established, or new companies from outside the prefecture or city establish offices in affected areas. In such an environment, the first aforementioned project would be more beneficial for both job seekers and businesses.

Some suggest that recruiting potential employees from other areas would be a way to address increases in the active job opening ratio in affected areas (for example, more than 1.54 times in Rikuzentakata), if local people are not available to fill these positions. Human resources service companies need support from administrative agencies especially for large-scale projects. Such job creation projects are generally based in the local area, i.e., where the concept of “local people to local companies” prevails. Since these projects are implemented within a certain prefecture or city, implementing agencies are less aware of the transboundary movement of human resources beyond their respective boundaries. This may become a challenge for the future.

Many business owners are not aware of the projects mentioned in this paper. Promoting these efforts is another problem, and there are many projects which could be used more effectively. These efforts need to be developed in cooperation with other private companies, implementing agencies, and economic organizations to offer the greatest advantage to job seekers and businesses that hire these human resources.

Reconstruction of Disaster Hit Areas and Revitalization of Homeland – Challenges and Future Perspectives

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As a part of the activities for the Leadership Development Program for Sustainable Living with Environmental Risks (SLER), I was given a task of planning and managing the study tours to Tohoku Great East Japan disaster hit areas to observe reconstruction and experience field activities. Including preparatory visits, I had chances to visit Rikuzentakata, Iwanuma and other parts of Tohoku Great East Japan disaster hit areas and to meet and discuss with local people and attend related events. In this article, I would like to reflect my current observations obtained through visits and field works, outcome reporting presentations, dialogues with stakeholders, participation in various events and information made available in media and literature. I would try to reflect the views broadly shared by the students and faculty members who participated in the study tours to Great East Japan disaster hit areas based on their remarks and reports. However, due to the time constraint, I regret and need to see the indulgence of the readers that I could not fully engage consultations with the students and faculty members who participated in the tours with respect the points that are going to be made in this article.

Participatory decision making – Cases of land use planning and dyke

Concerning the reconstruction plan, many local governments established reconstruction committees and facilitated the development of reconstruction plants. In Rikuzentakata City, the City Council established its reconstruction special committee. The City's Reconstruction Plan Review Committee was also established with 50 members who were citizens and experts. Prof. Norihiro Nakai, Professor, Tokyo Institute of Technology served as Chair of the Committee and supported the development of the

reconstruction plan. Various activities were undertaken to comprehend the views of the citizens over the reconstruction plans through interviews with district chiefs, surveys on the people affected by the disasters, and questionnaire surveys to the citizens. As alluded in the previous articles, it is important to examine whether the reconstruction plan was developed in a way that local people were convinced.

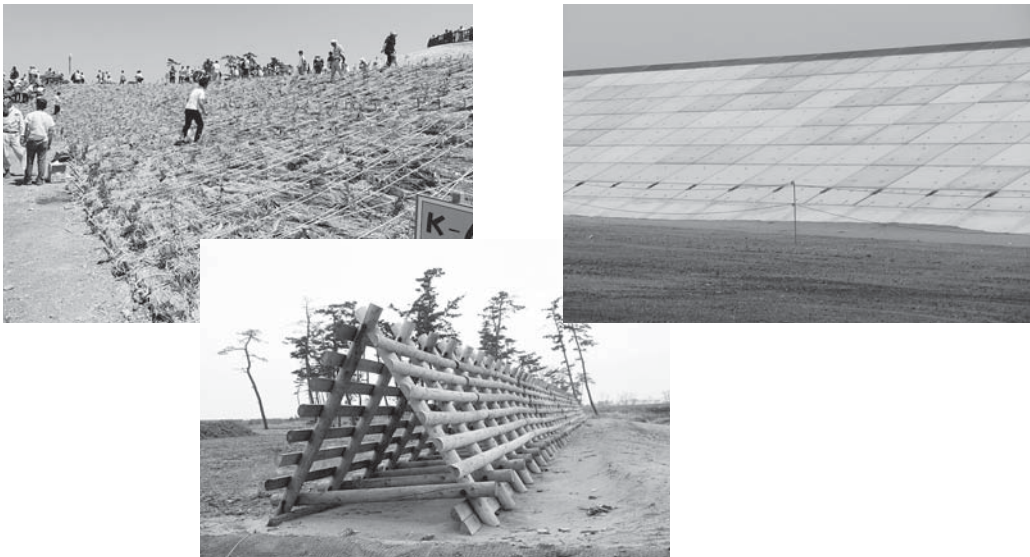
In the dialogues with the officials of the local government and local people, it often appeared that the following were main discussion points namely (1) whether priority should be given to livelihood restoration or dyke construction, (2) what to do for the areas inundated by tsunami, and (3) how we should consider the height and modalities of the dyke. Of course, it would be possible to argue that livelihood cannot be restored without dykes. It is also true that it takes time to confirm the land ownership of the tsunami inundated areas more than anticipated. However, it may be inevitable to admit that priority was ostensibly given to the construction of the dyke and not to the restoration of the people's livelihood. In the tsunami inundated areas, one suggested not to construct any architecture and use it as farmland that can be a buffer zone for tsunami. It was explained that the owner of the land in the tsunami inundated areas were concerned over the plunging land price and thought that it would be impossible to sell the land. They might have thought that the construction of dykes would make it easier for the government to procure the land in the tsunami inundated areas or sell the land at the price level lose to the one prior to the disaster. This may be the motivation of some land owners speaking in favour of constructing high dykes. In the original reconstruction plan, it was planned to create a mound to level up the ground level by five meters. However, in March 2014, the ground was supposed to be raised by 8 – 10 meters. In Rikuzentakata City, construction work to raise the ground level is expected to advance more rapidly as the Ministry of Land, Infrastructure and Transport – Business District Development Division issued a notification on special measures for designating alternative land. With this notification, the Rikuzentakata City can launch construction even when the City faces difficulty in attaining agreements from land owners for starting construction.¹ There are local people who are concerned over safety after the construction of raising the ground level such as land slide or liquefaction. It remains uncertain how many local people and entrepreneurs will use the elevated ground of the tsunami inundated areas. In March 2014, in the coastal areas in Rikuzentakata, a gigantic belt conveyor was installed that would carry soil and gravel from the mountain adjacent to Kesen River. The volume of soil and gravel is equivalent to 2 million dump cars.² Soil and gravel would be carried actually not by the dump cars, but by the belt conveyor what was constructed for 3 km long with the budget of 12 billion Japanese

yen, or 120 million US dollars. It is said that the time required for transport soil and gravel can be one third if they are transported by the belt conveyor compared to the time required by the dump cars.³ Landscape in the coastal area in Rikuzentakata has changed a lot from the past.

With respect to dykes, it was planned in Rikuzentakata City to raise the height of the dyke from five meters prior to the disaster to 12.5 meters. Prof. Akira Miyawaki was proposing to use debris as a part of the foundation for the dykes that would be constructed with mounds and not necessarily with fresh concrete. In the current plans of constructing dykes, there is no reference to the use of debris and they are likely to be made of fresh concrete in a conventional manner. It is projected that the inland areas of the dyke could be planted with trees. However, there is no plan to plant tree seedlings at the top of the mounds. It was explained that the budget could be offered if the City would agree to construct the concrete made dykes, but could not be offered if the City would plan to use funds for the activities other than constructing concrete made dykes. The tied budget approach was said to restrain the options that the local governments



Belt conveyer that crosses Kesen River in Rikuzentakata. A replica of Miracle Single Pine is hidden behind.



From Left, Millennium Hope Hill (Green dyke), pine woodland development site and concrete dyke

in the disaster hit areas could pursue. In Iwanmuma City, Miyagi Prefecture, a mound approach was adopted in the Millennium Hope Hill project. In this project, the wastes that could be used as materials for the foundation of the Millennium Hope Hill project and eight meter high mounds were created. On 9 June 2013, 4,500 volunteers turned out and planted about 30,000 ever green broad leaved tree species seedlings on the mounds that stretch out as bands in Shimosato, East of the Sendai Airport.⁴ Why could this kind of undertaking be possible? Local people explained to us that the green dyke initiative could be made possible if the local government and local people make an agreement.

In reference to the modalities of dykes, people in some disaster hit areas have been reconsidering the height of the dyke.⁵ Main concerns over the dykes are (1) possible delay in evacuation due to the invisibility of the ocean, feeling of entrapment, and disturbance to scenic views, (2) it was believed that the dykes could not last in the massive tsunami, and (3) possible negative impacts on marine ecosystems and fishery farming. There has been an emerging call for learning lessons in Okushiri Island, Hokkaido.

In 1993, an earthquake that occurred in the magnitude of 7.8 in South-west ocean of Hokkaido caused tsunami and the tsunami devastated Okushiri Island, Hokkaido. Thereafter, a dyke was constructed at the height of 11 meters and caused impacts on the Island's economy (Sadaike 2012). The Island was believed to be a treasure box of

seafood such as sea urchins, but the dyke obstructed the subsurface water flows and reduced seafood production. The population of the Island declined by 40 percent, and Okushiri Island continues to pay off a part of the debts to cover the cost of the dyke construction. In the disaster hit areas including Rikuzentakata, there are many fishery farmers. Concerns have been expressed if the impacts of dyke construction have not been sufficiently examined. In Iwanuma City, it is not necessarily the case that the citizens were unanimously satisfied with the aforementioned Millennium Hope Hill project. The Millennium Hope Hill is located about several hundred meters away from the shoreline and developed with the initiative of the Iwanuma City Government. Next to the Hill close to the shoreline, the Forestry Agency has been developing lines of stands to hold pine seedlings. Next to them on the shoreline, the Ministry of Land, Infrastructure and Transport have developed concrete dykes along the shoreline. There is a voice to justify a set of three dykes as multiple defense. However, the Millennium Hope Hill is supposed to function as dykes and there could be excessive development of dyke facilities in the coastal areas. In the visited disaster hit areas, there were wetlands of which the significance was lost with land reclamation, but they have emerged again with land subsidence such as Otomoura Wetland in Rikuzentakata, Iwate Prefecture or Nagatsuraura Wetland in Ishinomaki, Miyagi Prefecture, and it was suggested that there could be a merit in restoring them as wetlands (CECJ-NEC 2013). However, a movement was more toward utilizing such areas as farmland with land elevation instead of restoring them as wetlands.

In Otsuchi-cho, Iwate Prefecture, stakeholder dialogues have been promoted successfully with coordinators and advisors under the catch phrase “Creating a town that is elaborate and beautiful and make people dare to have a walk” (Nakai 2013). It may be misperceived that there is a trade-off between the quest for stakeholder agreements and the speed of reconstruction. However, stakeholders’ consent would rather accelerate the reconstruction, and the gap between the stakeholders’ views and the reconstruction plan could delay the reconstruction process.⁶ Large scale infrastructure constructions continue in the disaster hit areas and the demands have been also emerging for infrastructure works in metropolitan Tokyo areas in view of the plan to hold the 2020 Olympics in Tokyo. The cost for materials procurement and staff deployment has been rising and now the local governments in the disaster hit areas face consecutive failures of competitive biddings for infrastructure constructions as bidders place demands high prices against the under-budgeted infrastructure projects.⁷ It is expected that reconstruction will be carried out in order to enable the present and future generations to have pleasant life and pass on proudly the beautiful homeland to future generations.

Revitalizing local economy – success factors of crowd finance

There are many issues to be discussed over reconstruction and they are all profound. Thus, there is a limit in discussing such issues through the occasional short visits. People living in long distance away from the disaster hit areas may find it difficult to support reconstruction work due to the physical distance even though they develop such intentions. There are many ways of getting engaged with reconstruction in disaster hit areas. At this time, due to the space limit, I would like to make supplementary remarks on crowd finance.

Crowd finance is fund provisions by indefinite people through internet. There have been an increasing number of cases overseas, and such a service has been expanding in Japan. Mr. Iio of Music Securite discussed the Rehabilitation Fund in his article contained in this booklet. I would like to discuss the activities of the Rehabilitation Fund and the companies that have been supported by the Fund based on my personal interactions the concerned people.

Mr. Tamura stated in his article contained in this booklet that many companies that were devastated by the disaster were small and medium enterprises in Rikuzentakata, and it is an arduous tasks to rehabilitate such enterprises. On the other hand, a number of companies have been supported by the Rehabilitation Fund of Music Securite and revitalize their business. Such companies include Yagisawa Corp - an long established Mio/Shoyu or soybean paste or soy source brewer, Suisen Corp - a sake or rice wine brewer, Iwai - a boutique of Japanese pottery and sundries.

Pastry Kimuraya is one of the companies that have received funds from the Rehabilitation Fund to rehabilitate its business. Kimuraya is a long established pastry shop. Its shop was destroyed by the tsunami. When I visited Rikuzentakata in November 2011, Mr. Masayuki Kimura, Pastry Kimuraya owner was making pastries in the container that was used to transport rescue food and goods and thereafter abandoned. Mr. Kimura said that since his birth, he was waking up with the scent of pastry making and brought up with its ambiance, it was very unbearable to live without pastry making. He also said that he had a plan to reopen a new shop with other companies in the terraced house in the areas little above the line where the 2011 tsunami reached. Land lease fee was paid by the Rikuzentakata City Government. The Organization for Small and Medium Enterprises and Regional Innovation of Japan (SMRJ) was covering the cost of constructing the terraced house. Mr. Kimura, business owner needed to cover the cost of procuring equipment and decorating interior. The cost that Mr. Kimura had to bear



New product is being developed at a new shop. This photo shows a production of a bestselling product "Dream Tree Baum"



Container used by Mr. Kimura as temporary pastry kitchen (November 2011)

was nevertheless still substantive particularly for the entrepreneurs who have lost their shops by the tsunami. For this reason, Mr. Kimura decided to apply for funding by the Rehabilitation Fund of Music Securite.

There have been some common features of the companies that have been successfully rehabilitating their businesses with the support of the Rehabilitation Fund. (1) They had established businesses prior to the disaster, (2) the entrepreneurs are enthusiastic about restoring the business, (3) their businesses are closely linked with local economy. Mr. Kimura speaks at various occasions that he decided to restart his business after the disaster because his former customer told him her wish to taste his pastry again. In the Rehabilitation Fund, a half of the payment by the donors is given as grant to the entrepreneurs and the other half is given as investment with possible returns. Mr. Kimura planned to mobilize the investment of JPY12,500,000 or US\$125,000 equivalent for his first call in September 2011.⁸ Small and medium or micro-enterprise owners never thought that they could have relations over loans and investment with financial institutions and they took for granted that they would be rejected at the entrance even if they would try to seek such relations. However, this Rehabilitation Fund has made it possible for entrepreneurs to establish relations with people across Japan as investors and consumers.

This Rehabilitation Fund has deliberate features as well. As Mr. Iio already explained its functions, I would discuss as users or donors. First, (1) Business owners appear often with their families or employees in the photographs posted on the website of the Rehabilitation Fund, and publicize the business activities extensively, (2) email magazines are sent periodically to the donors to provide their business information, (3) products of their companies can be sent to the donors based on the size of their investment, (4) the study tours are organized for donors to visit the companies supported by the Rehabilitation Fund, (5) once the decision is made to support the company, it is donors/ investors who chose the companies to invest or support. It could be a different story for the large scale investors or those who represent the large scale investment organisation. However, normally, individual investors or donors rarely meet the entrepreneurs of the companies in which the investors invest. For the case of charities, we can know the organisations that receive donations or manage such funds, but do donors do not meet the recipients. I had a chance to join in the tour organized for the donors to visit the companies supported by the Rehabilitation Fund. It seemed that the participating investors were highly sympathetic with the entrepreneurs who devote themselves to restore their businesses. The Rehabilitation Fund does not have any branch offices and

do not provide face-to-face counter services. It relies on internet only in order to reduce the operational cost and maintain the fee as low as five percent.

Entrepreneurs seem to be evolving as well. Yagisawa Corp develop products that are made with the soybean paste or soy source of Yagisawa Corp, and label the vinegar source “Troublesome if you are not here” with a very witty product name. It is indeed striking to learn their quest for innovation and compassion. Mr. Kazuyoshi Kohno, Chairman of Yagisawa Corp who conferred his business to his son, Mr. Michihiro Kohno as President reopened the factory in the site of the elementary school what was closed due to the transfer. Mr. Kazuyoshi Kohno still spearheads the business of Yagisawa Corp. He made remarks that his company was destroyed by the tsunami, but tradition and techniques survived. It is instructive to see him carrying on his pride, confidence and responsibility of succeeding over 200 year old tradition. Suisen Sake or Rice Wine Brewery also lost its headquarters factory in the disaster, and rented a space of the other sake brewery. Suisen produced a rice wine/sake product that hasn't yet completed its fermentation. Sake at such a stage still holds live yeast and enzyme, but fermentation process is suspended so it can be properly canned or bottled. Rice wine release little bubbles – unique feature for the case of sake. The product is named “Yukikko or Child of snow” that also sounds quite appealing. The product has become one of the bestselling products for Suisen. Yukikko also enabled Suisen to sell sake in the shorter production cycle as it can be canned or bottled quickly without waiting for the completion of fermentation. Iwai –a sundry shop sell pottery, towel, handkerchiefs with messages, and its original products. It is an ideal place to look for souvenirs at the visit to Rikuzentakata. It seemed that investment is catalysed by the diligence and honesty of the entrepreneurs who are fervent to promote innovation in business management and product design.

In Rikuzentakata, oyster farmers are making attempts to produce seafood product and open oyster bars. It is called sixth industrialization by combining primary industry of fishery, secondary industry of manufacturing and tertiary industry of services. Mr. Chida Katsuji is also interested in such a move. Mr. Mitsuru Tamura was involved in biomass or renewable energy development and agriculture. People are trying to enter new businesses as well. The Rehabilitation Fund doesn't necessarily require the applicant for finance to have the record of business operations prior to the disaster. However, as a financial institution, it is required to examine the economic viability and the feasibility of wining support by the donors. Mr. Okamoto promotes the plantation of cherry trees along the contour where the tsunami reached in 2011. With such actions, he intends to transmit the knowledge of the tsunami to the future generations. Funds are required for

undertaking such activities. Further ideas need to be explored to create mechanisms to mobilize funds for non-profit activities.

An example of the Music Securite's Rehabilitation Fund demonstrates that a system is provided through internet to link entrepreneurs in the disaster hit areas and citizens who want to support such entrepreneurs. It is expected that crowd finance can be more widely known as one of the systems that can possible instigate local economy.

Rehabilitation of disaster hit areas and the role of universities

It was intended to promote environmental leaders through the study tours to Rikuzentakata and other disaster hit areas in Tohoku – Great Est Japan for the past three years, and our activities were regarded as positive by the faculty members, students and local partners. Obviously, our program was designed to take a group of students to the study tour once a year. For this reason, our contributions to rehabilitation could be marginal compared with the other activities where the students were being sent in turn to keep their presence over the long time, or the students stay there for long. However, if one is working on the issues of community development or a sustainable society and entrusted with a program to undertake field surveys or activities, it is worth finding a partner and establish a linkage with rehabilitation in disaster hit areas. Collaboration to support rehabilitation with partner organisations in the disaster hit areas is called “pairing or paired assistance” and highly recommended.⁹

In Nihonmatsu, Fukushima Prefecture, Prof. Nobuhiro Kaneko has been undertaking a pilot project to revitalize forest management in the radiation contaminated forests is one of the examples where research activities are undertaken in collaboration with local partners. Under this program, we have been collaborating with Takata Pine Conservation Association and Hirota Horticulture Cooperatives to promote woodland management in coastal areas and undertaken site visits, dialogues and experimentation. In Rikuzentakata, pine and cedar seedling are being produced. However, there is no activity to produce seedlings of ever-green broad leaved trees such as *Persia thumbergii* or *Camellia japonica*. For such a reason, we have started consultations with local partners to explore a possibility of producing seedling of *Persia thumbergii* or *Camellia japonica*. These seedlings of ever-green broad leaved trees can be required for planting tree seedlings when the dyke is built and plantation areas are designated in about eight years from now. If seedlings of local ever-green broad leaved tree species are not grown at the time of tree seeding plantation, ever-green broad leaved trees cannot be planted on

the ground that they are not local. It is therefore important to start producing seedling of local ever-green broad leaved trees and develop capacities to do so at the early stage. In addition, tree seedling plantations are already undertaken in the neighbouring areas such as Minamisanriku or Ohtsuchi and it may be possible that locally grown seedlings can be provided to support such seedling plantation.

As reconstruction and livelihood recovery are an urgent priority, it wasn't difficult for the university to take up a preparation for long term woodland development and building social capacity. However, local people do not necessarily share the importance of ever-green broad leaved trees. We had to undertake trials and errors by collaborating with local partners. As there is a plan to plant trees on the inland side of the dyke or to build a memorial park in Rikuzentakata, we considered it significant to produce seedling of local ever-green broad leaved trees. We have started collecting sprouts of such trees

Finishing the construction of a greenhouse for seedling nurseries in Hirota-cho, Rikuzenataka City. Second from right is Mr. Chuichi Shida, Chairman, Hirota Horticulture Association. (28 February 2014)



Seedling nursery at Rinnoji Temple in Sendai. 15,000 seedling pots of ever-green broad leaved trees are being developed through the collection of their seeds by volunteers.

and producing seedling pots. It is vital that this kind of activities will be continued. Information needs to be consolidated and shared over the years as students will come and go from this kind of program. It is also vital that the university management, education ministry authorities, private sector and others will provide support for us to continue this kind of activities.

Towards rehabilitating disaster hit areas and building a sustainable society

The 2011 disaster brought calamity to many people. However, instead of being knocked out, people in the disaster hit areas are striving to restore livelihood with long tradition and reminiscent homeland landscape. We have learned a lot from them. We have met people person who would have almost list their life. We met a person who was drained in the tsunami, but survived by coincidence. We met a person who was a part-time fire fighter who had to go around days and nights to recover corpses of his friends and acquaintances. We heard a story of a boy who was pushed his butt by the elderly lady and managed to climb stone stairs to stay alive while seeing that lady drawn in the tsunami. The boy could not tell to anybody for almost two years that he still sees the lady in the dream while he is asleep. All the people said to us that it is their happiness that they are alive. Their words that naturally appear in our conversation reminds of the significance to live. A mother who lost his son at the tsunami that attached the Ohkawa Elementary School in Ishinomaki said to us that she would like us to undertake research in order to prevent a tragedy like theirs. The words of the parents who lost their children at the Ohkawa Elementary School struck our minds so heavily. We must further share our knowledge and creativity, and promote collaboration in rehabilitation in the disaster hit areas in order to establish a sustainable society that allows us to attain greater happiness and pass on the beautiful homeland to the future generation with a universal pride. I reiterate my appreciation to all those who have given support to this program and myself. I hope that people in the disaster hit areas will renew their smile, vitality and pride of their homeland and share them with us for long.

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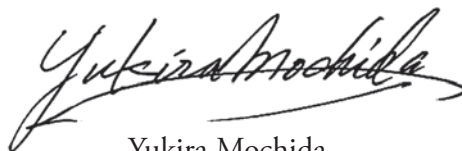
Afterword

The Leadership Development Programme for Sustainable Living with Environmental Risks, supported by JST, aims to develop leaders to promote environmental risk management and sustainable development. During the course of this program, participants visit the areas affected by the Great East Japan Earthquake to share ideas for reconstruction, long-term risk management, and sustainable community development. We have undertaken the field studies in the Tohoku region hit by the 2011 disaster with the hope to think together and exchange ideas with the local people during our limited visit of the past three years towards facilitating reconstruction, promoting long term risk management and establishing a sustainable society.

I served as a faculty member at Tohoku University for 20 years. I spent six months every year at Sukayu Onsen (hot springs) in Aomori Prefecture to study the forests of Hakkoda Mountains at the Mount Hakkoda Botanical Laboratory of Tohoku University. During the winter, I engaged in research at the Botanical Gardens, Tohoku University in Sendai. I hope that the affected areas in Tohoku, what he feels to be his second hometown, will regain its power through the reconstruction of the area. Although three years have passed since the disaster, there are still myriad problems left to solve. There are limits to what one person can do, and for this reason, it is important to share knowledge to support the reconstruction efforts.

YNU is looking for common ground between providing support to the affected area's rehabilitation efforts, and the university's own agenda to develop leaders in risk management and create a sustainable society as it carries out further research and educational activities. YNU appreciates the continuous generous support and advice from the local community in the affected areas and other stakeholders.

In conclusion, YNU would like to express its gratitude to JST, and many other stakeholders who support this program. I would like to reiterate my sincere hope that the people in the Tohoku region hit by the 2011 disaster will regain very soon through reconstruction vitality much more than before and reclaim hometown full of natural beauty and blessing.



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