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Reconstruction of East Japan devastated by 2011 Disasters

Viewpoints from Rikuzentakata



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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.

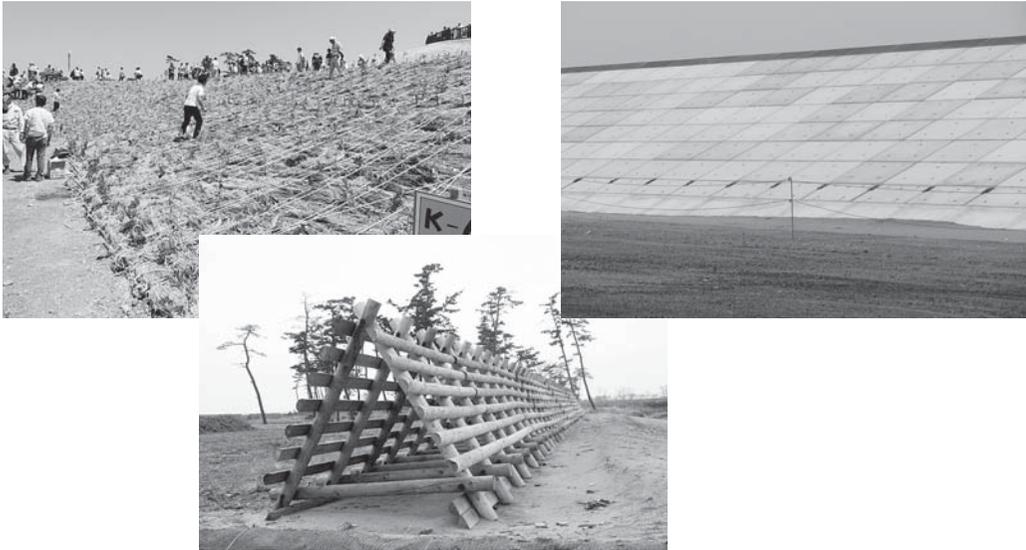
In the dialogues with the officials of the local government and local people, it often appeared that the following were main discussion points namely (1) whether priority should be given to livelihood restoration or dyke construction, (2) what to do for the areas inundated by tsunami, and (3) how we 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 IwanumaCity, 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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