

**Aiming for broad-scale consensus for sustainable regional  
revitalization and towards regenerating livelihood**

**- Sustainable Recovery Goals for Fukushima -**

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## **A way forward to Sustainable Recovery Goals for Fukushima**

### **1 Introduction**

Six years after the 2011 nuclear accident at the Fukushima Dai-ichi Nuclear Power Plant, a major "milestone" was marked in March 2017. Namely, evacuation orders were lifted for "habitation restricted areas" and "preparing to lift restriction areas" leaving the evacuation order only for "difficult to return areas" and the entirety of Futaba and Okuma Towns, located beside the Dai-ichi power plant. This cancellation of the evacuation order is also a declaration that evacuees must be able to return to their home towns based on a certain decrease in radiation levels. Therefore, support such as the provision of temporary housing for people from that area will also end within one year (by March 2018). Needless to say, evacuees are finding it very difficult to understand how this "milestone" can be a significant turning point for reconstruction or rebuilding of their lives.

According to the latest in a series of surveys implemented by the Reconstruction Agency, Fukushima Prefecture and concerned municipalities to try and gauge what course of action citizens intend to follow, the percentage of evacuees from Futaba Town (as of September 2016), Okuma Town (as of August 2015), Namie Town (as of September 2016) and Tomioka Town (as of April 2016) who expressed an "intention to return" were 13.4%, 11.4%, 17.5%, and 16.0%, respectively. Conversely, those whose intention was "not to return" showed a much higher ratio, at 62.3%, 63.5%, 52.6%, and 57.6%, respectively.

In the four towns and villages (Tomioka Town, Namie Town, Kawamata Town and Iidate Village) where evacuation restrictions were lifted in March and April 2017, only 2% of residents returned to their homes within one month (NHK, 17 May, 2017). As of 1 May, 303 people (5.1% of the population) had returned to Iidate Village, 128 people (1.3%) to Tomioka Town, 19 people (1.2%) to the Yamakiya district of Kawamata Town, and 300 people (2%) out of a population of 15,000 to Namie Town. Of the combined target districts of these four towns and villages, about 850 people (2%) have returned out of a population of 32,000. In addition, these numbers are believed to include residents traveling between their hometowns and evacuation places.

This should now be the beginning of a very important phase to create scenarios for reconstruction of the disaster area and to support future lives and recovery of evacuees by incorporating their intentions. Inevitably it will be extremely difficult for evacuees to rebuild their lives within the one-track process from "lifting the evacuation order" to "return home" indicated by the "milestone". More significantly, cancelling evacuation orders means support measures (such as temporary housing and

compensation) for rebuilding nuclear evacuees' lives will be terminated after one year, after which evacuees will be treated as so-called "voluntary evacuees".<sup>1</sup> We must reconfirm whether the central government and TEPCO are fulfilling their responsibilities for evacuees in terms of living / revitalization, local community revitalization, and hometown reconstruction.

After the accident, four investigative committees published findings on the Fukushima Daiichi nuclear accident.<sup>2</sup> With the exception of TEPCO's investigative committee, they stated the following. According to the Government Committee "...the background for the extremely serious and large-scale accident included many complex problems related to accident prevention measures, disaster prevention measures, onsite response at the power station after the accident, and measures to prevent the spread of damage". The private sector committee stated that "this accident strongly represents the character of 'human accident'" and the Japanese Diet Committee noted that "this accident is clearly not a 'natural disaster' but a 'manmade disaster'". People forced to endure severe living conditions in evacuation after the man-made nuclear disaster are however bombarded with offensive words and phrases from the government, such as "declared resolved," "it's lucrative" (in response to areas worried about accepting interim waste storage facilities), "under control," "your own responsibility", etc.

Mr. Hiroshi Itoh who served for a long time as the Mayor of Miharu Town, Fukushima Prefecture, compared the damage, reparations and future course of living reconstruction experienced by residents of areas submerged by the national construction project of the Miharu Dam and that of nuclear evacuees. He questioned the responses from the government and TEPCO to the reconstruction of the life of the evacuees and communities affected by the nuclear accident.<sup>3</sup>

Although the aforementioned major "milestone" six years after the nuclear accident indicates the process being taken for a return to hometowns by the "cancellation of the evacuation order", evacuees are plagued by the question of whether they should return home or continue living in evacuation; for either option, they must bear in mind the harsh difficulties awaiting them if they want to rebuild their lives and homes.

Up to now, reconstruction efforts have been undertaken mainly by municipalities (contaminated areas were classified into decontamination areas subject to direct control by the national government and priority investigation areas by municipal control). There are limits to what can be carried out by individual municipalities, and it is necessary to pursue the process of recovery while carrying out wide-area coordination and wide-area cooperation to address issues such as land use, formation and planning of residential areas, regeneration of regional economy and support for evacuation. In terms of those

issues, evacuees and affected municipalities should share broader goals for quality of life, quality of the community, and quality of the environment, toward the revitalization of the region from the nuclear disaster. In the process of pursuing such goals, as well as listening directly to the evacuees themselves, we should create situations and opportunities involving survivors in forming a consensus for rehabilitation proponents (such as convening roundtable meetings with residents, administrators and experts). This paper considers these issues and aims to find a path towards regional revitalization after the nuclear disaster and for the reconstruction of lives and livelihoods.

## 2 Aiming for broad-scale consensus for sustainable regional revitalization and towards rebuilding living in Fukushima

To cope with the severe, broad-scale and long-term impacts of the nuclear disaster, various issues have been identified at national, prefectural, and municipal levels; each aspect must be verified individually. Reconstruction after the nuclear disaster caused a slew of new problems because of the one-track reconstruction process set up at the initial, post-disaster stage and as a result of subsequent projects. Therefore it is crucial to proceed while at the same time correcting those trajectories.

To overcome a nuclear disaster of this magnitude, we must be prepared that it will take a long time. However, even though there is a long way to go, we cannot afford to be frustrated by concerns about the future. For those long-suffering residents forced to evacuate from their home towns, and for the municipalities in charge of restoration and reconstruction of afflicted areas, the most important and urgent issue is for survivors to be able to feel a sense of security and safety in their daily lives.

In March to April 2017, before and after the "milestone" of the evacuation order cancellation, a series of roundtable meetings was held involving evacuees, administrative officers (town and prefecture), experts, and researchers.<sup>4</sup> Participants were primarily evacuees from Namie Town living in temporary housing in Motomoya City and planning to move to newly built public housing in Fukushima City. The following are some of the main points from the roundtable meetings and discussion about future visions.

- 1) Although some evacuees had built new houses outside Namie Town, they strongly hope to continue to protect their home in Namie. One evacuee shared how he shed tears during the ceremony for the start of house building for his new home. Although he might not be able to return, his thoughts toward his hometown were very strong, and his residency registration was kept in Namie.
- 2) The same evacuee returns to Namie Town about once a month, and tries to clean up his house, etc.

However, every time he goes back, he finds damage inflicted on the house by wild boars etc. Located in a high radiation area, there are no workers will come to do construction to prevent damage from these animals. The desire to return may gradually fade, but the attachment to home will not change.

- 3) Remarkable local communities had been formed due to the rich natural environment, mutual aid, traditional events, history, etc.. These were destroyed and lost in the nuclear accident. No one gives compensation for this loss, and its reconstruction is completely uncertain.
- 4) One woman is preparing to move to newly built public housing from temporary housing, where some friends continue to live, so she worries about if/when she should move.
- 5) In cooperation with a social welfare group from the evacuation destination, an evacuee group organized a field tour to check the actual situation in Namie. People from areas that accepted them as evacuees showed a keen interest about the nuclear disaster stricken areas.

Additionally, the following issues made a deep impression on me while visiting temporary housing, public housing, voluntary action groups and joining some municipalities' committees for reconstruction planning.

- 6) In the early stages after the nuclear disaster, high radiation areas included those near the nuclear power plant (NPP) as well as scattered pinpoint areas designated as "Specific Spots Recommended for Evacuation." As this designation was done by each residential lot, village communities requested the designation be made instead on a village-by-village basis, following the traditional bonds of village communities. In some communities, residents themselves have been working on tests such as rice cultivation while measuring radiation doses themselves in Oguni Village, Ryouzen District in Date City. Finally, some amount of compensation will also be granted for households outside designated evacuation areas, and some progress rebuilding community bonds can be seen.
- 7) Although many nuclear evacuees who received compensation based on radioactive contamination have experienced distressing incidents such as harassment, bullying, discrimination, etc. in evacuation destinations, there are also cases of symbiotic relationships in various forms between local governments and communities of evacuees. I hope to report on these specific cases in due course in a separate report, but they include: exchange with evacuees in temporary housing from Namie Town in Koori Town (through the establishment of Namie Town Branch Office in Koori Town and management of Kuwa-Nami dining hall, making free farmland available, providing public housing to evacuees from Namie by Koori Town, etc.); management of tours to

nuclear disaster affected areas by temporary housing residents from Namie Town and welfare officers of Motomoya City, etc.); provision of public housing to nuclear evacuees in Otama Village, etc.); and acceptance of evacuees from Katsurao Village in Miharu Town and cooperative efforts to restore both local governments.

- 8) I have also touched on the dedicated work of officials toward restoration and reconstruction of afflicted municipalities. Municipal officials were also evacuees themselves, but at the committee meeting for reconstruction, local residents raised violent criticisms and demands against not only the central government and TEPCO but also local governments. These municipal officials also had to handle a huge amount of clerical work dealing with application processes for reconstruction projects and related promotion projects such as the Fukushima Reconstruction Revival Special Measures Law etc. Eventually, a state of competition developed among affected municipalities. In some cases municipal mayors directly petitioned top government agencies to obtain project budgets.
- 9) While waiting for restoration of their hometowns, evacuees must continue their daily lives. Life reconstruction and securing work in evacuation destinations are important in the recovery process after a nuclear disaster. It is important to share initiatives supporting related multi-line scenarios, for example expressions such as "double residency card", or "two-area resident."
- 10) If recovery progresses from now, municipalities will be working on various projects in hometowns such as infrastructure development, public facility maintenance and housing reconstruction. Whether or not they can take charge of such planning, project implementation, ordering work, supervision work etc., will be a huge challenge. Another question is whether knowledge about issues that Fukushima Prefecture has been working on can be applied successfully, such as for temporary housing, recovery public housing and residential land development. It is uncertain if the orders to local companies can be carried out or not, an issue which is connected to regional reinvestment in economic revitalization.
- 11) Currently, an area covering 16 km<sup>2</sup> for the interim storage of radioactive contaminants and materials produced by decontamination is being developed around the west side of the Fukushima Daiichi Nuclear Power Plant, where work is being carried out on difficult tasks for resolution and decommissioning. However, in order to operate in earnest, an enormous amount of work is needed, such as consensus with landowners, maintenance of storage facilities and carry-in of a huge number of flexible containers temporarily placed around Fukushima Prefecture (including volume reduction process). There is no doubt that this interim storage facility will have a major impact on

the reconstruction plans of Futaba Town and Okuma Town where it is located. The central areas of both towns before the nuclear power plant accident were near Futaba station and Ohno station as shown on the map in Figure 1. The intermediate storage facility is situated between the existing built-up urban area and the Fukushima Daiichi NPP, and includes a vast expanse of land as shown on the map. If this facility starts to operate at full scale, enormous amounts of contaminated material from all areas in the prefecture will be transported to this facility along trunk roads, etc., affecting areas along these trunk lines for a long time. This will greatly affect not only the current “difficult-to-return” areas but also the reconstruction plans of the two towns where all areas are designated as "evacuation direction areas" as well as have an impact on future land use.



**Figure 1**

While broad-scale and long-term responses are being sought towards the resolution of such a severe nuclear power plant accident, there are major restrictions to moving forward with reconstruction plans in each municipality. It seems necessary to have a mechanism to respond across a wide area with the aim of long-term reconstruction.

To address these various issues and create a premise for future efforts toward reconstruction, I would like to propose: "to share the goal to rebuild living and revive hometowns," to be called "Sustainable Recovery Goals for Fukushima" in accordance with the SDGs (Sustainable Development Goals) shown in "Agenda 2030" adopted by the United Nations in 2015 (see Figure 2 below).



**Figure 2**

In order to rebuild people's livelihoods and revive their hometowns after a wide-ranging, long-term and severe nuclear disaster, it is important to share their goals as much as possible. We have been promoting the formulation of reconstruction plans for each municipality, but if we try to overcome nuclear disasters, we must advance not only the quality of life based on the community, but also consider how we can improve the whole environment, and think about goals as a broad-scale issue that transcends municipalities. Here, we must understand "Quality of Life" (QoL), "Quality of Community" (QoC), "Quality of Environment" (QoE) in a multilayered manner and share them as concrete indicators, including looking at how they can be applied to evacuees. It seems that one way to capture "quality of life" has so far included "the quality of community" mentioned here. But after tough discussions on the question of reparations for the impacts of the nuclear disaster, it was not understood how communities' traditions, culture, and management had been deeply damaged, and how these aspects are closely related to the recovery of evacuees' livelihood. I will reconsider this as the "quality of community." Furthermore, the "quality of the environment" was raised not only from the viewpoint of how much radiation contamination should be suppressed

after the specific disaster of radiation contamination as a trigger, but also in terms of how to preserve nature itself.

Moreover, discussions on quality of life in Japan are currently at the ideological level only, and there is little progress on looking at detailed contents more deeply, so here I would like to propose a method to proceed towards a concrete indexing of QoL. The quality of life and the quality of community are often different at the municipal or local community level depending on the natural environment, historical origins, and current industries and livelihoods. Therefore, these indicators should be agreed upon at the municipal level. However, one problem remains of how to adjust QoL and QoC in the recovery of livelihoods in the places of evacuation, as shown in Figure 2.

Furthermore, when advancing concrete discussions about indexing these three layers of "quality", we have to recognize the location of the areas affected by the nuclear disaster, and also look at Japan's perception of disasters and related issues of town development. Therefore, on the right side of Figure 2, I present a longitudinal concept that is a premise for examining the qualities. At the same time, we may be able to reach a common recognition by continuing to examining these keywords when conducting a concrete examination of each "quality" level.

Specific indicators for each "quality" remain at the level of examples at the current stage. I think that these can also be treated as indicators that can be shared across regions as much as possible while taking regional characteristics into consideration. In reality, the problem with numerical indexing is whether there are any developments in digitizing basic data. At this stage, it may be realistic to proceed with indexing that can qualitatively grasp the situation without being concerned about quantitative indicators.

### 3 Basic overall concept of regional revitalization in Japan

I have pointed out that when the Great East Japan Earthquake and Fukushima Nuclear Disaster occurred, Japan fell into a negative spiral (economic downturn, political confusion, social instability) covering the whole of the country. Restoration and reconstruction are relevant when looking at how to cope with these issues, and furthermore, environmental objections have to be added. I think that we can understand these problems as resulting from the direction of the original Reconstruction Design Council decisions at that time to "not deal with nuclear disaster" and pursue "creative reconstruction".<sup>5</sup>

Although we now know more about evacuation measures due to subsequent disclosure of information, at first there was insufficient information and only recently have the actual conditions

become clear. Some examples include the existence of TEPCO's "meltdown" technical standards that were hidden for a long time, and the fact that Osaka Prefecture corrected the number of evacuees to that prefecture from 88 people to 793 people in June 2017, and so on.<sup>6</sup>

When considering indexing QoL, QoC and QoE aiming at rebuilding and revitalizing the region, it is important to have a shared basic awareness. Four basic concepts are explained below.

### 3.1 Sustainability

Japan enjoyed a high economic growth period from the 1960s, with tremendous energy consumption on the basis of mass production, mass consumption and mass disposal from national land development to home life. The progress of globalization after the 1980s and subsequent collapse of the economic bubble around 1990 resulted in a remarkable distortion of rapid economic growth. There has been a severe imbalance in the progress of the country including issues such as a concentration of development centered on Tokyo, as well as global warming and climate change brought about by the massive use of fossil fuels and related waste gases. There has also been issues with the rapid expansion and subsequent hollowing out of urban areas of almost all cities, and decreasing population accompanied by a rapidly aging society. Construction of huge numbers of houses during these past four decades has generated 8 million vacant houses today-- a major negative legacy.

Even in rural areas that were promoting industry in the economic growth period, primary industry has dramatically declined as has secondary industry. As a result, local areas have lost employment power. In the suburbs, large-scale commercial facilities and retail chain stores selling products such as electric appliances and clothing line the main roads and bypasses. Not only private sector facilities, but suburbanization of public facilities such as schools and hospitals has also been promoted and spurred the hollowing out of the central urban area. This is the result of aiming for rapid "growth" of the regional economy and urbanized community; the idea of sustainability was raised much later in Japan.<sup>7</sup>

In terms of life reconstruction and regional revitalization in Fukushima, rather than looking toward the conventional large-scale public development policy, corporate attraction-type regional promotion measures and big projects, we should promote the development of a regional economy that includes mutual circulation of the special features of Fukushima's natural and environment, and its local human and natural resources.

Sustainable development promoted by the United Nations pursues symbiosis of nature, resources, environment, regional economy, local community, and everyday life. To add a little more emphasis, regional development, technological development for that purpose, and improvement of convenience of life should emphasize maximizing conservation of the natural environment of the region and the earth.

The most serious thing to overcome related to the nuclear power plants is the disposal of 10 nuclear reactors existing in Fukushima.<sup>8</sup> From Tohoku Electric Power's conventional thermal power plant and nuclear power plant from which Fukushima had been receiving the majority of its power, we have to gradually and definitely reduce the electricity supply, convert to renewable energy and switch to an energy-saving lifestyle. Rather than rapid economic growth, we must aim for appropriate economic growth, pursue stable employment and living, and try to ease the extreme population decrease and the speed of aging of the society. Economic growth at an appropriate speed and improvement in consumption levels will lead to reduction of mass production, mass consumption and mass disposal.

### 3.2 Resilience

The concept of resilience was originally considered a physics term related to stress. "Stress means 'distortion due to external force'; on the other hand, resilience has begun to be used as 'the force to repel distortion due to external force' ".<sup>9</sup> I think that the concept of resilience has only recently become widely used in the field of disaster prevention, but it is not clear.

Dr. Haruo Hayashi talked about resilience as follows on the website of the Resilience Association, started in April 2012.

*In the field of disaster prevention, there was no word for 'disaster prevention ability' in Japanese. The "Hyogo Framework for Action 2005-2015" was adopted at the World Conference on Disaster Reduction held in Kobe in 2005 and the word "resilience" gained citizenship in the sense of "disaster prevention ability", and it became actively used here and there... There are alloys and clothing have a "shape memory," and I have been led to think that this character of "shape memory" is resilience. Experts in psychology and health science also use resilience as an important keyword.<sup>10</sup>*

He added: "In addition to the conventional preventive power, we call the comprehensive power that adds the ability to overcome disasters as Disaster Resilience in the world. Disaster prevention will just have to head towards increasing resilience."<sup>11</sup>

After the Great East Japan Earthquake, regional organizations such as firefighting teams played a major role in restoration activities such as searching for missing people, supporting evacuees and

debris processing, especially in the tsunami-affected areas. However, due to radiation contamination in the nuclear disaster area, local forces could not respond in the initial stage, with results such as investigation activity being terminated. Nonetheless, there is no doubt that the bonds in these areas were a source of resilience.

In addition, the proposal 'For improving resilience to disasters' by the Science Council of Japan explained:

*There is a serious vulnerability to disasters in Japan, and comprehensive efforts including social and non-physical and mental aspects are necessary to overcome it. It is urgent issue that even if encountering an extreme phenomenon exceeding the assumption is not impaired as much as possible, even if damage cannot be avoided, it is important to suppress it as much as possible, to improve the power to overcome the damage, restore "resilience". It is important to improve not only social and economic systems but also take a comprehensive viewpoint including human life and spiritual aspects.*

They also pointed out on the current situation and problems:

*In the Great East Japan Earthquake disaster, earthquake prediction and evacuation warning of radioactive contamination because of the nuclear power plant accident etc., the continuing risk monitoring, information gathering and vulnerability of decision making were revealed, and impressed upon the public about the importance of balanced cooperation between public assistance and self-help. The neighborhood relations of regional disaster prevention such as "cooperation" and "nearby" in the region connecting the central government and the residents are diluted. The low ability to read and transmit risk information is also an obstacle to improving resilience against disasters. With this earthquake disaster, rapid recovery of emergency turmoil and failure to respond quickly amplified secondary disasters and delayed recovery / reconstruction from disasters. There is a limit to the accurate forecast for the future crisis, even the affected municipalities and residents tend to forget real experience with the passage of time, and the more complicated disaster prevention system planned and designed carefully. It also became clear that there was the possibility of causing serious system collapse due to error.'*<sup>12</sup>

Resilience must foster basic thinking in daily life and administration system. While raising resilience as a basic viewpoint, we cannot deny the fact that this includes promoting the "hardening of the country landscape" such as construction of giant levees by grand public works.

The premise of building resilience is to adapt our communities and cities to the characteristics of natural ecosystems, climate characteristics and topographical geology as much as possible. It means the orbit correction from the enormous systemization of cities and infrastructure.

In the process of restoration after the 1978 Miyagi-ken Oki earthquake, the restart of gas in Sendai City took more than a month longer than other utilities of electricity and water supply. This was because Sendai City's population had increased and the expansion of urban areas meant that the gas supply system had also expanded over a huge area compared to the old system. Rather than one enormous system, gas supply lines could be developed in clusters using segmentation, and then by

inspecting each segment of the system, it would be possible to restore and resume supply in that specific area.

While working on reconstruction from the Great Hanshin-Awaji Earthquake in 1995, the Kobe City Reconstruction and Revitalization Promotion Committee released a survey report *Sustainable Urban & Community Development* based on the 'compact city' concept.<sup>13</sup> In the compact city concept of Kobe City, autonomous living areas are regarded as building units of the city as a compact town.

These ideas are not impossible in huge cities such as Tokyo and also in large-scale new towns developed throughout the country during the period of high economic growth. It is necessary to thoroughly correct the trajectory while reconsidering characteristics such as rivers, lakes, ridges and valleys, original geological features, ecological systems and weather conditions. In Japan we have to modify the logic of development that has been promoting speed and scale for half a century since the 1960s.

Resilience is to emphasize the recovery ability that nature and humans possess as much as possible. It is important to prioritize human reconstruction and residential / living environment regeneration. What is needed is to construct a continuous restoration and reconstruction system in a form that everyone can see by creating solidarity and linkages with the wisdom and energy of various entities.

### 3.3 Risk Management

The difference between "risk management" and "crisis management" has been established. Crisis refers to a situation that has already occurred, whereas risk refers to danger that has not occurred yet. In other words, "crisis management" is the idea of reducing damage caused by accidents and incidents as much as possible after they have already occurred, and that is why it is called a "crisis management system," and is set up immediately after a major disaster or a major accident. However, "risk management," now widely used in disaster prevention, includes both emergency response post-disaster, and disaster reduction and prevention.

Information dissemination in the initial stage by national and prefectural governments after the nuclear accident in Fukushima had a major impact on evacuation afterwards, presentation of safety standards, entry into temporary housing, how to proceed with decontamination, designation of evacuation direction areas, and reconstruction plans etc. In other words, information was disseminated with insufficient speed and precision in the initial stages and this brought various

uneasiness, dissatisfaction, distrust and indignation to the survivors and affected areas. What is vital is to secure information sources with high transparency and reliability, to enhance information dissemination systems, to access highly flexible information from municipalities and others responsible for affected people. However, even though such indications are made at the time of each disaster, there is no indication that local people are aware of the enhancement of the information dissemination systems during the initial period in preparation for the next disaster. Earthquakes of seismic intensity class 4 occurred even after the Fukushima nuclear power plant accident. For inhabitants who experienced that time, and who had realized the damage suffered by the first nuclear power plant, it is no wonder that they were very concerned as to whether the second nuclear reactor was stable. However, it is still not known whether or not a system for instantly issuing safety confirmations has been developed.

It is also important not only to provide such information dissemination functions but also to convey lessons learned from risk management for evacuation behavior and guidance for temporary housing etc. during the initial period.

After the earthquake and tsunami disaster on 3.11, rescue operations at that time were canceled in line with an evacuation order due to the Fukushima nuclear power plant accident that occurred afterwards. Members of the rescue team left the scene fully aware that injured people were still trapped, waiting to be rescued. How can we make use of lessons learned from this confusion? How is it reflected in the regional disaster prevention plan (especially the regional disaster prevention plan at the site of nuclear power plants)?

It is not only that national and local governments need to create plans based on new guidelines, but it will be decisive whether these mechanisms involve local community residents. Detailed reports were published on actual conditions and problems of evacuation behaviors immediately after the disaster through hearings by municipalities and survivors in the case of the National Assembly Investigation Committee. It is important to conduct the ex-post evaluation and see how the following guidelines are being utilized, and whether community residents themselves can make direct use of the guidelines as their own action guidelines.

It is necessary to have a full-scale verification and summarization of role sharing and cooperation system of the state, prefectures, municipalities, etc. against large-scale, broad-scale, long-term natural and severe disasters such as the Fukushima Nuclear Disaster etc. Were there problems in specifying the evacuation direction area based on radiation dose after the Fukushima Nuclear Disaster and distinguishing evacuees from other than designated areas as "independent

evacuees"? Were there problems with evacuation and decontamination operations such as issues of compensation? Decontamination has been handled by municipalities in the "priority survey areas", but were municipalities properly responsible? Municipalities have been the main bodies formulating recovery and reconstruction plans and implementing related projects, however there are municipalities where the accident occurred, municipalities where the intermediate storage facility is located, and municipalities with many local residents who think that they cannot return to their hometown for a long time, etc. How can municipalities implement a highly realizable reconstruction plan and related projects? It may be necessary to pursue a form of broad-scale cooperation including local governments that accept evacuees; the role of the prefecture should also be significant.

In order to promote this complicated crisis management, it is necessary to construct a systematic and sustainable risk management system. The Reconstruction Agency established after the Great East Japan Earthquake is a government agency established for a limited time until 2020. However, in Europe and the US, national government level organizations such as the Radiation Protection Agency and the Crisis Management Agency are established. In particular, the Radiation Protection Agency shows a wide range of contents on "radiation protection", and generally it is basically based on time, shielding, and distance. The International Commission on Radiological Protection (ICRP) introduces the three basic principles of legitimacy, optimization, and dose limit for radiation protection systems and the reduction of radiation exposure as much as possible. Taking measures of ALARA (As Low as Reasonably Achievable) is a basic concept of optimization. In order to disseminate the fundamental recognition of such radiation protection in Japan, which has 54 nuclear reactors, it is necessary to establish a national organization such as the Radiation Protection Agency to constantly verify how to respond to nuclear disasters and to develop up-to-date action guidelines etc.

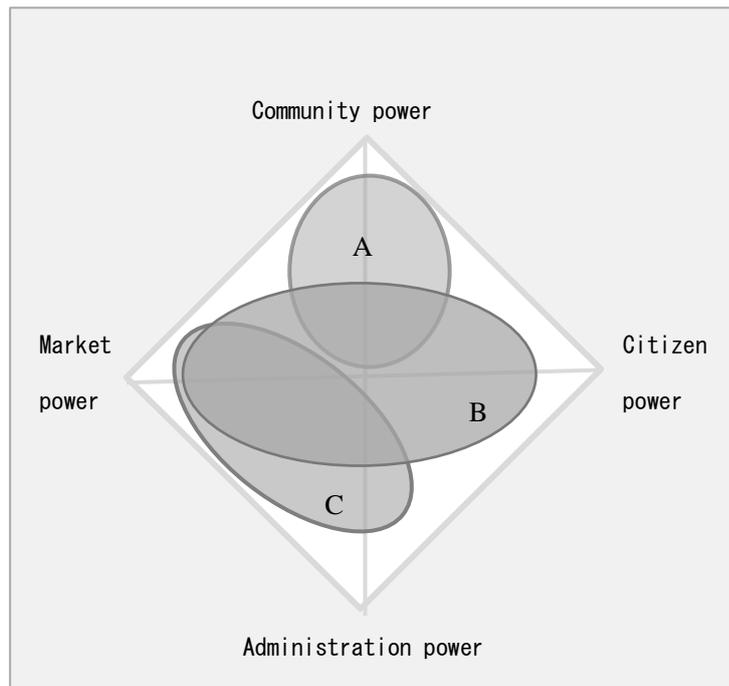
### 3.4 Capacity Building

The concept of capacity building is used not only to build regional powers but also to enhance and nurture capabilities and tolerance of entities involved in various fields. In this section I refer to the improvement of mutual cooperation and the individual competence of local residents, administrative agencies, residents' organizations involved in regional rebuilding and rebuilding in the afflicted areas and building regional power.

The most basic force of local power is the existence and demand of each resident. Sometimes the demands of each one of them differ from the consensus of the local community. Until now, in

many cases in local communities in Japan, the traditional method of obeying the majority was used, which leaves decisions to local influential people. However, when we encountered nuclear disasters and touch upon the painful facts such as related deaths, we learn that the fundamental task of hometown restoration is to protect people's lives and to reconstruct life and work.

Even if it is a small number of voices, the attitude of valuing each person's request is the basis of democracy.



**Figure 3**

I raised the topic of "Regional housing Policy," envisioning four types of power that influence residents and pointed out the need for balanced development between them<sup>14</sup>. "Regional power" here is the total of the four forces shown in Figure 3. Incidentally, the figure shows the balance of the four forces. A indicates developing countries, B is for Western countries, and C is Japan.

However, when the word "consensus building" is used, that nuance will suddenly become unstable. "Consensus building" is often interpreted as following the majority. There were unfortunately too many proposals from the standpoint of higher-ups that were unilaterally adopted as the majority opinion, without listening to each individual's voice. It would be better to find another way to reach ideas that encompass as many requests and opinions as possible. In other words, "democracy" is the foundation of capacity building, and capacity building may start from rethinking "what is democracy". Even in the practice of reconstruction and regeneration of living, it is important not to frequently use the "majority vote" to jump to a quick conclusion when discussing

direction and concrete projects and trying to form an agreement. To explore a direction in which as many concepts as possible can exist at the same time is the basis for social inclusion.

It is necessary to promote the fundamental significance of "consensus building" and review fundamental mechanisms (such as how to formulate consultation and consensus building processes between administration and residents/community). There is also a task of "forming entities" to face disaster reconstruction and risk management. During the recovery process for the nuclear disaster, survivors were certainly the subjects of rescue and relief, but conversely they are also the main actors of reconstruction. Without their agency, regeneration of the local community will become something forced upon them. In order to maintain and operate the local nature / environment, tradition / culture, local industry, local community, etc., there needs to be cooperation with the administration while ensuring the involvement of local residents as main actors in recovery.

Reconstruction of local autonomy is one of the most fundamental tasks of capacity building. It can be said that local autonomy in Japan has seen some difficulties recently. When dealing with the central government, it is presumed that even when it is the municipality that is in charge of reconstruction, the use of various business systems related to reconstruction will follow the unilateral criteria for adoption of projects by the central government rather than the intention of the municipality. Municipalities are being forced to formulate a business plan according to central standards. Various measures in municipalities throughout the central government are being developed under national guidance. For example, in 2015, the Ministry of Public Management, Home Affairs, Posts and Telecommunications announced a request to all municipalities to form "Public Facilities Comprehensive Management Plans". In order to slow down the population decline of municipalities and maintain public facilities in an aging society, MoPHPT is also raising the use of PFI etc. to encourage the use private entities. Even though such measures will entail suppression of fiscal expenditure, there is no suggestion to obtain common recognition about the prospects and tasks of the community which is the prerequisite for the issue.

There needs to be both group autonomy and residents' autonomy to drive local autonomy. To ensure that both ways are included properly, there needs to be clearer capacity building within the local community, but it this is still sluggish in Japan.

Public housing for evacuees has been built in various places. Prior to construction, roundtable meetings were held between evacuees, experts and the municipalities who were to provide the housing. Evacuees were asked for their opinions and requests for public housing and many elderly evacuees strongly requested street trees and gardening spaces. However, in most cases, such requests

are rejected by municipal official administrators because of their doubts about who would maintain and manage this space. In the end, municipalities that received evacuees in temporary housing etc. sometimes provided temporary housing tenants with their own vegetable gardens.

Some local municipalities in Fukushima Prefecture allocated the cost of formulating comprehensive plans and project implementation expenses to local community organizations.

Of course, it is bottom-up power that is effective for daily and continuous town planning activities, and this power also led to mutual support activities for residents in the event of a disaster. In other words, building capacity should entail not only the administration but also involve the local residents to develop a space where they can engage positively to come up with concrete solutions to daily regional (economic) problems, urban problems, housing problems, medical welfare issues, educational problems, regional disaster prevention issues, etc..

## 4 Toward indicators for three qualities

I would like to consider some indicators that can be shared among affected people, municipalities and experts to achieve QoL, QoC and QoE, respectively, and attempt to obtain clues to agree on the direction of regeneration and goals toward this aim. The index here does not point only to those aspects that can be quantified. In many plans, the outcome measures are indicated numerically. However, some obstacles exist. For example, quantification requires statistical data that can obtain objective and stable numerical values, which tends to limit the indicators themselves. Here, the indicator is not limited to what can be quantified. If it can be grasped qualitatively, we are planning to treat it as an indicator. On that basis, I would like to list each "quality" here by way of example. Specific contents and indexing will be set through a consensus among affected people and municipalities and experts, respectively.

### 4.1 Quality of Life

#### ➤ Housing

- Housing rebuilding in hometown and/or securing housing in the evacuation destination
- Dual housing support as options in hometowns and evacuation destinations
- Ability to secure residence facilities etc. for temporarily returning to hometowns.
- Prevention of damage by animals to residences and neighborhoods
- Maintaining relationships with local relatives and local communities
- Opportunities for consultation about design, construction, maintenance and repair; counseling/advice related to institutions such as funds and taxes
- Possibility to maintain lifestyle as before disaster; transition to energy saving lifestyle
- Accessibility to housing support council and services/advice related to housing safety net issues

#### ➤ Health

- Preventive medical system for safety and security (especially radiation exposure and treatment,

- etc.)
- The presence of hospitals and clinics that have established basic medical examination subjects and the availability of emergency medical services
  - Responding to elderly medical care
  - Securing medical care for obstetrics and gynecology and pediatrics
  - Examination dosimetry system (preferably in elementary school district or junior high school district unit) such as whole body counter and food exposure dose inspection
  - Radiation education (the survivors themselves to learn and act)

➤ Welfare

- Consultation at social welfare council, region comprehensive support center, etc.
- Secure occupancy of nursing care center, home care service etc.
- The existence of places to spend time on a daily basis for people such as the elderly and the disabled

➤ Education

- Elementary and junior high schools within a reasonable distance, with safe and secure routes and access for commuting
- Collaboration and coordination between schools, childcare, and community education
- Securing a schoolyard where children can play with confidence
- Educational opportunities such as nature experience
- Access to high school
- Access to specialized education (vocational school, junior college, university etc.)
- Social education
- Opportunities to understand risk communication

➤ Work/income

- Possibility of continued employment / continuation of business
- Potential for employment in reconstruction projects (for example, building housing)
- New employment opportunities (renewable energy industry, agricultural commerce and industry collaboration, green tourism, aged society compatible service industry, etc.)
- Possibility of return of primary industry workers (including test cultivation and test operation)
- Regeneration of regional economy by new industrial promotion and transfer of technology to regional manufacturing industry and creation of employment opportunities for previous local residents
- Wages that have returned to original levels

➤ Leisure, etc.

- Is there a park that you can access nearby ?
- Are there opportunities such as sports to maintain health ?
- Do you have opportunities to engage in cultural activities on a daily basis ?
- Do you have a place to drink tea with close friends or do activities like hobbies ?

## 4.2 Quality of Community

➤ Community management & facilities, rules and roles

- Can you realize "*Kyōyou · Kyōiku*" (there are today's errands, there is a place to go today) ?
- Are there regional organizations such as neighborhood associations and self-governing associations; do you have opportunities to participate in them ?
- Is it possible to maintain awareness of bonds with other people ?
- Can rules in the community (townscape, environmental conservation, mutual aid, traffic safety, choreographer, events for elderly, etc.) be reinstated ?
- Is there implementation thorough rules such as emergency evacuation behavior, implement evacuation drills ?
- Are there people who are responsible for each role?
- Are the functions and facilities necessary for the community satisfied ?
- Can you realize symbiosis with the evacuation destination community?

➤ Heritage

- Can traditional buildings, ruins / heritage, natural landscapes, sights etc. be preserved and restored ?
- Are there people who are responsible for maintaining and operating them?
- Are there activities to communicate and cultivate community heritage as pride of the area ?

➤ Culture

- Can traditional events be resurrected ?
- Are there people who are responsible for cultural activities?
- Are there archives that are maintained, including records of disasters?

➤ Accessibility to information and decision making

- Is there a means for information exchange with the town hall? Is it easy to access?
- Is the place for consultation between administration and residents reestablished?
- Are opportunities resumed to exchange opinions of residents in the area?
- Are there places to access help and consultation from experts?

### 4.3 Quality of Environment

➤ Land, forest, basin management and monitoring

- Is there a system for monitoring radiation doses and fixed-point observations?
- Is it possible to continue decontamination and measurement of its effects?
- Is there a prospect of management and removal of contaminated material from temporary storage places?
- Do you get information on the transport route to the intermediate storage facility of flexible containers and accompanying measures?
- Are we proceeding with the land use plan after the disaster and its changing procedure?
- Is it possible to confirm the amount of forest reserves (modification by the development act) after disaster?
- Are there new rules and guidelines such as for wild planting in forests?
- Are damage measures for wild animals and others taken? Are considerations for biodiversity considered?
- Is there a fixed-point observation system for rivers, lakes, coastlines, groundwater (water quality, biological, topography changing, etc.) ?
- Are new measures being taken to prevent tides and floods in coastlines and rivers (Such as adjustment reservoirs and land use adjustments)?

➤ Renewable energy

- Will renewable energy efforts such as solar, wind power, biomass, small hydropower, geothermal power, and dual-use energy systems like geothermal and hydropower be promoted?
- Is awareness-raising about renewable energy or organizing for its realization progressing?
- Participation in management and management by local residents
- Technical advancement in local manufacturing industry etc.
- Are efforts to promote energy saving lifestyles (electric consumption, garbage separation and garbage recycling, self-care garden, suppression of private cars, etc.)?

➤ Infrastructure

- Are considerations made regarding topography, geology and ecosystems promoted in infrastructure development?
- Are viewpoints such as speed limitation and pedestrian priority roads spreading as people-friendly roads?
- Are studies on the necessity and placement of parks / green areas, comfort, sanctuary effect of small animals, CO2 reduction effect etc. being carried out?

- |  |
|--|
| <ul style="list-style-type: none"><li><input type="checkbox"/> Is there a progress plan such as cooperation and convenience of railway and bus taken into consideration?</li><li><input type="checkbox"/> Is water quality management information on water supply and sewer systems known to local residents?</li><li><input type="checkbox"/> How is the safety and efficiency of electricity and gas supply systems advanced (micro grid, clustering, etc.)?</li></ul> |
|--|

## 5 Future directions of development

Before this proposal, I gathered information on the following activities since March, 2011: involvement in the Fukushima Prefecture Reconstruction Vision and Reconstruction Plan, Namie Town Reconstruction Vision and Reconstruction Plan; Futaba Town Reconstruction Plan etc.; and outside Fukushima Prefecture, participation in the reconstruction plan of tsunami-damaged Onagawa Town.

In the Reconstruction Vision and Reconstruction Plan of Fukushima Prefecture, the first of its basic philosophies was a 'society that does not rely on nuclear power, and to create a safe, secure and sustainable society'. In addition to drawing up a plan for future reconstruction, the emergency response of "Emergency restoration, support for living reconstruction, support for reconstruction of municipalities" was listed as the main issue. Through Namie and Futaba Towns' reconstruction vision and reconstruction plans, survivors who were forced to evacuate across a wide area and over the long term are referred to as "Namie Town people no matter where they are," with respect for each person's choice. Additionally, basic ideas such as a "community outside the town" and "outside town base" and others were proposed in the plan.

Decontamination of radiation contaminants has been promoted as a top priority task after the disaster. IGES (the Institute for Global Environmental Strategies) launched FAIRDO (Fukushima Action Research on Effective Decontamination Operation) project and I have been involved in the implementation of this project. FAIRDO has been conducting research activities in collaboration with related European groups (such as NERIS<sup>15</sup>), which was also an opportunity to learn about experiences and lessons learned in Europe after the Chernobyl nuclear accident.

Various challenges have emerged and become clear through these activities. For example, the disruption of information since the accident has caused great confusion and/or divisions among survivors and affected municipalities, and there has been insufficient opportunity for survivors to reflect on requests and proposals that are the subject of reconstruction. Although the keyword "capacity building" is widely used around the world, through discussions with local residents, local communities and governments in Japan, the way to proceed towards forming consensus by confirming

each position and finding common problems is still undeveloped. There is also a strong tendency for many residents to follow the "majority vote," and rather than first acknowledging each opinion, to seek "presentation of the original plan" of the administration. This has prevented the creation of a flat relationship. I have also encountered situations which seemed to prevent the formation of a consensus between survivors in the reconstruction process, administration, experts and others. "Human revival" should be the basis to ensure a recovery from the severe disaster caused by the Fukushima nuclear power plant accident, but we also need to question the fundamental attitude of TEPCO and the government as the cause of the nuclear power plant disaster and to involve victims as the subject of reconstruction. The survivors are unlikely to reconstruct their lives and livelihoods, rather they simply keep on waiting for reconstruction and this will likely undermine their energy and enthusiasm to step into the future.

While addressing precise and prompt information with high transparency, we faced the challenge of creating a mechanism to form a consensus so that residents, administration and experts will be able to discuss more comprehensive ideas and countermeasures in a non-hierarchical way.

On 17 March, 2015, based on the accumulation of these reconstruction plans and survey research, the Fukushima Forum was held at the 3rd United Nations World Conference on Disaster Reduction, and the following Fukushima Action Declaration was adopted.<sup>16</sup>

**Overcoming Fukushima Nuclear Disaster towards the recovery of people's lives**

**— Fukushima Manifesto for Action 2015 —**

17 March 2015

Fukushima Nuclear Disaster which has been caused by the Great East Japan Earthquake that took place on 11 March, 2011, continues to be an extremely difficult issue.

Based on lessons from today's workshop, we would like to raise fundamental issues and propose ways in which we overcome the disaster and move towards the recovery for people's lives and their hometowns.

1. Human dignity and recovery of people's lives must be placed as specific measures in the recovery and reconstruction effort.

Due to severe condition of survivors who are forced to live as evacuees for a long time, far away from home, there are cases of 'the death indirectly caused by the nuclear disaster' such as suicide and lonely death. Because we wrestle for the recovery of evacuees' life from drop of remarkable quality of life caused by fragmentation and isolation in their evacuated places and we act as a prime problem in evacuees regaining decent human life.

We will build an information platform that is highly transparent and to which anyone can access easily.

Until today, the troubled situation of those nuclear disaster survivors remains unresolved and this has to do with a great confusion over the issues of information dissemination from the onset of disaster response, including the facts about accident itself and evacuation order, radiation risk and safety, decontamination, compensation, assistance for evacuees in wide area. There is an urgent need to establish a comprehensive system of information dissemination.

We build an information dispatch system having high precise quickness about the nuclear disaster and transparency and act to form a high information platform of the transparency to contribute to the security of the accessibility, the agreement formation process in the revival process.

2. Consensus building must be established for the recovery of people's lives and the reconstruction of hometowns

It is extremely important that the affected population will participate in the process of consensus building in the recovery and reconstruction process from the nuclear disaster. The participation itself is the act of revival and recovery for the survivors and communities. Thus, we act to set up a 'Round Table' a form of discussion participated by all stakeholders including the residents, companies, administrative officers and experts, where everyone can discuss freely at community as well as municipal level.

The course of action derived from our experience with Fukushima Nuclear Disaster shall be proposed not only to those affected in Fukushima but also to the areas and stakeholders such as residents closed to nuclear power plants in other parts of Japan and around the world as a way of crisis management for facilities related to nuclear power and radioactivity in the future.

We, citizens and experts who participated in this workshop, hereby make a resolution to establish a world-wide network in order to bring our actions together based on the proposed course of action.

The participants of Related Events in Fukushima at the 3<sup>rd</sup> UN World Conference on Disaster Risk Reduction

I would like to examine how to overcome the Fukushima Nuclear Disaster and to form consensus toward improving "quality of life", "quality of community" and "quality of the environment" toward the revitalization of the Fukushima region.

## 5.1 We will set up a wide-ranging cross-sectional research activity to deal with wide-ranging and long-term issues for Fukushima regeneration

The Fukushima Nuclear Power Plant disaster is expected to require a long period of time to resolve the nuclear power plant accident itself as well as the process for incinerating contaminated waste. This also has a major impact on the revitalization of surrounding municipalities and local communities. For reconstruction and revitalization, each municipality has been developing many projects separately. Due to differences in radiation dose distribution (especially evacuation designation areas), tasks such as the location of the nuclear power plant's decommissioning furnace, intermediate storage facility and transportation there from the temporary storage place, it will be impossible to predict the outcome based on municipal recovery and reconstruction efforts alone. In the meantime, evacuees are living in evacuation destinations and struggling to rebuild their lives there, so municipal foundations (fiscal, population, industry, etc.) may weaken. The most fundamental issue is to identify the limits of deploying reconstruction and rehabilitation for each municipality, and to construct a mechanism for broad-scale cooperation. What we propose here is to set up research activities to recognize common regional and cross-cutting issues.

Following the Fukushima Nuclear Disaster, Fukushima Prefecture concluded the "Environment Creation Strategy Base Plan," which had been under consideration since 2012, and opened the "Environment Creation Center" in July 2016. This center will work on four main subjects: monitoring; survey/research; information collection/transmission; and education/training/exchange). Also, in conjunction with the opening of this center, the Japan Atomic Energy Agency (JAEA) in April 2016 and the National Institute for Environmental Studies (NIES) in June of the same year began operations on the same premises. As I have already introduced, the FAIRDO project was launched in 2012-2013 under IGES, and we have worked not only on research about how decontamination should be carried out but also on the issue of how to respond to nuclear disasters in general. Through its activities, we have deepened collaboration with NERIS and NTW,<sup>17</sup> which are continuously active in Europe.

This is a proposal to gather various activities related to the revitalization of the Fukushima region after the Fukushima Nuclear Power Plant accident. As the first step, through a network of these research organizations and others, we should establish a consortium for long-term research exchange and collaboration (Consortium on SRGs for Fukushima).

## 5.2 Preparing for Sustainable Recovery Goals for Fukushima

The SRGs proposed in this paper are to establish the shared aim of reconstruction and

revitalization in Fukushima by survivors, evacuees and affected municipalities. It is necessary to share specific goals with each other, to reliably mitigate confusion and anxiety about the future, as well as look into the prospects of rebuilding lives and realize a reliable course of living reconstruction and regional revitalization. This goal-sharing procedure will occur through a roundtable where not only survivors but also stakeholders fighting for regional revitalization from the nuclear disaster gather on an equal footing (touched on in the next section). As a prerequisite, it is necessary to have common recognition of the special background to regional revitalization in Fukushima and the tasks of reconstruction. In order to better understand the three levels of "qualities" mentioned earlier, and their basic social foundation, a deeper understanding of "sustainability", "resilience", "risk management" and "capacity building" is important. It is first necessary to pursue a shared understanding of concepts such as environmental conservation, disaster prevention, nuclear power, society, economy, local autonomy etc. from specialists in the respective fields. To support such fundamental activities, we will first prepare an opportunity to hold roundtable meetings for all parties including municipalities, disaster-affected residents, NPOs, support organizations and experts who have been involved in formulating reconstruction plans so far; it is also necessary to confirm the rules and roles of the consensus-building process in create concrete indicators for the three levels of "qualities" along with the keywords above. For example, consensus-building will confirm that it is not a process of deciding one indicator or one numerical value by majority vote. Indicators need to be feasible, not aiming for stability of fixed numerical values over a long period of time. They should be reviewed every 5 or 10 years, and act as a guideline for common goals during that period.<sup>18</sup> This should be emphasized in the preparatory stage to gain common understanding about the meaning and operation of such "qualities" and the role-sharing of administrative officials, residents, specialists, etc.

### 5.3 Specific indexing of QoL, QoC, QoE

The outline of the three "quality" indicators could be made available for presentation in the research group, with the concrete indicators then decided at the roundtable meetings. In fact, the concluding suggestions from the FAIRDO project (2012-2013) were the following actions:

- 1) Efforts to realize participatory communication and consensus formation
  - Preparation and call for creation of regional roundtable meetings
  - Utilization of simulation tools (such as RODOS model) for plan formulation and consensus building
  - Consensus building on temporary storage placement using simple assessment

2) To promote information-sharing among stakeholders, to effectively implement the above-mentioned efforts and to reduce burdens

- Preparation and calling for an information platform<sup>19</sup>

Furthermore, in March 2015, a meeting in Fukushima related to the United Nations Disaster Reduction World Conference adopted an "action policy" based on the "top priority of living revival", "construction of information platform", "roundtable meetings with all stakeholders".

We have been promoting the Public Resources Foundation Grant Project, "Construction of information platform" and "roundtable meetings" aiming for reconstruction and revival of Fukushima for two years in 2015 and 2016.

In this project, based on the lessons learned from Fukushima Nuclear Disaster, we aim to create highly transparent information by national and municipal governments, to build an interactive "information platform" that anyone can easily access and to implement the "roundtable" to discuss the problems of reconstruction and town planning with all stakeholders to form consensus on an equal basis.

The issues after the nuclear disaster that we saw as the premise of this project were as follows:

1) With the Fukushima nuclear disaster, the importance of emergency response at the time of a large-scale disaster was revealed. It was an urgent task to realize the construction of an "information platform" that is highly transparent and easy for residents to access.

2) Various support has been provided to survivors forced to evacuate and to affected municipalities, but the survivors themselves have been not involved in the formulation and execution of the plan as a party to reconstruction themselves. It has also been a challenge for municipalities to respond to the reconstruction budget indicated by the national government.

"Consensus formation" in the reconstruction process and wide-ranging community planning is often done by unilaterally by the administration. Also, the mechanism by which private activities and public activities cooperate and collaborate is not fully functioning. It is necessary to construct a mechanism whereby residents are involved as parties to the consensus-building process.

3) Building a highly transparent "information platform" that secures interactivity and accessibility, and ensures that "community-based roundtable meetings" can be held, is important and effective not only for recovery from the nuclear disaster but also for future local community regeneration.

The two-year project led to the following initiatives and results.

4) Regarding the "information platform", we initially developed the following two tasks: ① Creation of a "Reconstruction Assistance Map" of various organizations including research institutions

involved in reconstruction and survivors' support in Fukushima Prefecture; and ② Construction of an highly transparent, two-way "information platform" model for reconstruction after the nuclear disaster. With emphasis on the latter, we first implemented "FUKUREP" (<http://www.fukurep.net/>) which displays the radiation contamination status and reconstruction situation in Namie Town in real time, and became part of Namie Town's information dissemination.

5) The following two issues about the "roundtable" were mentioned initially: ① Analysis of consensus formation process in Fukushima City and municipalities in the prefecture for projects such as reconstruction plans/decontamination plans etc. which necessitates a "roundtable" to carry out interviews and questionnaire surveys etc. ② Regarding support for survivors and the revival of hometowns, we prepared interviews and other meetings of the "roundtable" in Fukushima City, Date City, and Namie Town as a model.

We held the *kurumaza* (roundtable) four times with people living in temporary housing and public housing, town and prefectural staff, and experts. We were able to reflect the opinions given there in the (second) reconstruction plan of the town. Also, through asking evacuees from difficult-to-return areas to frankly discuss the gaps between their feelings on returning to their hometown and the fact that they could not return, the characteristic issues of nuclear disaster were shared. In conclusion, these precedent efforts could give clues for the information platform and the roundtable, but they have not reached the point of full implementation. For future development, the following are some lessons of past efforts.

From the beginning of the roundtable project, the only way to ensure its success was to discuss what would be the content and aim of the "roundtable meeting". This went against the "traditional" way to hold public meetings by government whereby local residents and survivors were not actively involved. There were many cases where these were one-way explanations or places to ask questions. Recently government started to use the expression "consensus building" frequently. However, what was often referred to as "consensus building" was actually just to raise the level of support by local residents and related persons towards drafts and proposals presented by the government. Even at such meetings when the organizer says "let's talk on an equal footing," people would often demand: "If the administration has a draft, let's see it." At this moment it ceases to be an "equal footing" meeting.

In the expression "consensus building", there is a particularly strong nuance in Japan that the process finds one direction and acknowledges it. It is important for residents, related organizations and experts to present their thoughts and requests first, in accordance with the theme of the roundtable. The premise at this stage of expressing initial opinions is that listening to each opinion will not lead

to controversy. When various opinions are shared, we exchanged some opinions, and when it comes to the stage of how to put together opinions, the decision method called "majority vote" is customarily used in Japan. This same procedure is used by the Japanese from when we enter elementary school and first experience class management, and a similar procedure is followed in junior high school, high school, university and in general society. First, the starting point is to acknowledge the existence of various opinions, and more important than the majority vote is that even if a solution can be found where a number of opinions can be consolidated, the most important point for discussion is if it is possible to come to an agreement or not.

What I think about community development and urban planning is that various cities and local communities live and work under various conditions. Each activity supports the city and the local community. Therefore, consensus building must first be pursued such that there are several solutions at the same time, rather than finding one point of agreement.

In the process of restoration following the Fukushima nuclear power plant disaster, the government indicated the scenario of decontamination → radiation dose reduction → evacuation direction cancellation → return to former hometowns. After the evacuation order was lifted in March and April 2017, evacuees from areas where the evacuation order had been lifted were considered "voluntary evacuees" and one year later, this demonstrates an extremely one-track process of discontinuing support and compensation. From the experiences involved in municipal reconstruction plans, the severity of the nuclear disaster has meant long-term evacuation due to anxiety about radiation contamination. For many evacuees who have been working on rebuilding their lives, it is extremely unreasonable to ask them to go back to their hometowns after only a one-year grace period. A multiple-track scenario with several options is crucial in this case.

The *kurumaza* (roundtable) is a mechanism in which various entities take part in exercises, exchange opinions and find certain agreement points. I believe that there is a creative point of discussion where each person gives their opinions and does not jump to a hasty conclusion using a majority vote but finds multiple choices and scenarios. What is important for such a *kurumaza* is the role of a facilitator who ensures the meeting proceeds smoothly. From the stage of listening to the opinions of attendees, I have seen many cases that turn into a question and answer session and end up as criticism of the opinions of each person. There were even times where some people withdrew just because of another participant had an opinion that contradicted their own. It is important for the facilitator to have a proper understanding of the rules of discussion and then to determine the direction of discussion.

#### 5.4 Reflecting on future reconstruction plans of the country/prefecture/ municipality

To reiterate, the reconstruction after complex disasters including the nuclear disaster in Fukushima and regional revitalization exhibit different problems from the reconstruction / rebuilding of lives and regional revitalization after major, mainly natural, disasters such as earthquakes, tsunamis, typhoons and fires.<sup>20</sup> Immediately after the occurrence of the nuclear power plant disaster, most municipalities listed "to return to the original place" and "revitalization of the hometown" as pillars of recovery, with decontamination as a major measure. Then, as measures to support evacuees, municipalities have provided support for life reconstruction, emphasizing local ties and local community ties. However, the severity of nuclear disaster has been revealed, including the fact that "disaster-related deaths" continue to increase even after more than six years. It has become clear from the following difficulties that there are limits to the efforts by municipalities for reconstruction after a nuclear disaster. These include the wide distribution of contaminated areas, the difficulty of decontamination in difficult-to-return areas, the difficulty of hometown reconstruction and strict judgment of survivors' intentions to return. Nevertheless, the scope of reconstruction plans for complex disasters including nuclear power plant accidents is very broad, and a long-term response is required.

The reason why I raised the three levels of "quality" is not only to explore paths of reconstruction and rebuilding for each municipality, but also to share more wide-ranging and long-term challenges and to share them with disaster-stricken municipalities and evacuees. I believe that it is necessary for local governments and all stakeholders to acquire common tasks and targets, and thus to constantly revise the reconstruction plan so far. Of course, the prefecture also has a major role in regional coordination, and further enhancement of institutional and financial support by the central government will be necessary. Although there were many urgent tasks to deal with at an early stage, in order to clarify and concretize the future course of local regeneration and people's living / rebuilding, it became very important to set up a common goal for rebuilding our lives and ensure regional revitalization.

#### 5.5 Exchange with NERIS and other experiences in Europe

After I participated in the formulation of the reconstruction vision of Fukushima Prefecture and made a final proposal in September 2011, I visited IASS (Institute of Advanced Sustainability Studies) in Potsdam, Germany. Dr. Klaus Töpfer, Director of IASS, had a forum prepared in response to the Chernobyl nuclear disaster response in Europe. Dr. Töpfer was also the chairman of the "Ethics

Committee on Safe Supply of Energy" which recommended the decommissioning of nuclear power plants in Germany in July 2011. I received various information at the IASS forum and began the implementation of the FAIRDO (Fukushima Action Research for Decontamination Operation) project under IGES (Institute for Global Environmental Strategies) for two years from June 2012. In addition to researchers from Japanese universities and from IGES, we received support from Dr. Töpfer and other researchers who had been conducting investigations in Europe after the Chernobyl accident.<sup>21</sup> By getting their participation, we have been promoting exchanges between European efforts after Chernobyl and initiatives after the Fukushima nuclear power plant accident. During these activities, the FAIRDO project has continued to cooperate with NERIS (European platform on emergency response to nuclear emergency, established in 2010), NTW (Nuclear Transparency Watch), etc. even after the completion of the FAIRDO project.<sup>22</sup> In collaboration with them, an international symposium was held in September 2012 and in May 2015 based on the field survey in Fukushima Prefecture etc. In addition, we participated in NERIS 's forum in November 2012 and November 2014 and reported on Fukushima facts.<sup>23</sup>

Responding to the Fukushima nuclear power plant accident and subsequent disasters should be shared not only in Japan but also in various countries as important lessons in human history. As of August 2012, there are 435 commercial nuclear reactors in 30 countries around the world.<sup>24</sup> Given the formation of the Earth, the structure of its surface crust, weather fluctuations, the physical aging of nuclear reactors themselves, and the anthropogenic maintenance and management system, it is impossible to think that these nuclear reactors can remain safe forever. The actual situation of the nuclear accidents at Chernobyl and Fukushima is still under clarification, and it is necessary to systematically proceed to clarify the actual state after the nuclear disasters and also to widely share the lessons learned from them. More than anything, we must aim to establish a system that gives top priority to the lives and safety of local residents who are survive such nuclear disasters.

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<sup>1</sup> The phrase 'so-called "voluntary"' evacuees is used intentionally, to emphasize the critical distinction in this terminology; whereas referred to as "voluntary evacuees", this title is in itself misleading as it implies that people chose to evacuate on their own, and not because of radiation and contamination. The use of 'so-called voluntary' or quote "voluntary" evacuees is common practice among scholars and authors writing about displacement of Fukushima.

<sup>2</sup> The four reports are as follows: National Diet ·Investigation Committee on TEPCO Fukushima Nuclear Power Plant Accident, July 5, 2012; Central Government Investigation and Verification Committee on TEPCO Fukushima Nuclear Power Plant Accident, July 23, 2012; Private independent verification committee on Fukushima nuclear power plant accident, Feb 27, 2012; TEPCO investigation committee on Fukushima nuclear accident, June 20, 2012

<sup>3</sup> Hiroshi Ito. 'Reconstruction of evacuees' lives and communities' regeneration', The 63rd Fukushima

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- Reconstruction Support Forum, April 20, 2014
- <sup>4</sup> Details of these efforts are described on pages 16 to 18.
- <sup>5</sup> Reconstruction Design Council, “Towards Reconstruction ‘Hope beyond the Disaster’”, June 25, 2011.
- <sup>6</sup> The Fukushima Prefecture's "Immediate report of damage caused by 2011 Tohoku Region Pacific Coast Earthquake (No. 1698, as of June 12, 2017)" counted the number of refugees to Osaka prefecture is 54 people.
- <sup>7</sup> Atsushi Miura. "Japan has become a Fast Climate and Land- Suburbanization and its Pathology", Yosensha, 2004
- <sup>8</sup> All nuclear power plants existing in Fukushima supply power to the Tokyo metropolitan area by the Tokyo Electric Power Company (TEPCO); Fukushima Prefecture does not receive that energy supply.
- <sup>9</sup> According to Wikipedia, "Resilience (psychology)".
- <sup>10</sup> Haruo Hayashi, "Disaster resilience and disaster prevention technology", Institute of Disaster Prevention, Kyoto University Disaster “Prevention Research institute annual report No. 59 A, June 2016
- <sup>11</sup> Ibid
- <sup>12</sup> Japan Science Council, East Japan Great Earthquake Disaster Reconstruction Assistance Committee · Building Resilience for Disasters Subcommittee "Toward Improving Resilience to Disasters", September, 2014
- <sup>13</sup> Kobe City Reconstruction and Revitalization Promotion Committee. A Survey Report- Building a Sustainable City / Community based City, Compact City Initiative. March, 1999
- <sup>14</sup> H. Suzuki, "Prospects of Regional Housing Policy aiming at Regional Revitalization" (edited by the Research group on Local Housing in Architectural Institute in Japan, Domesu Shuppan, p.25), March, 2005
- <sup>15</sup> NERIS (European platform on emergency response to nuclear disaster, <http://www.eu-neris.net/>). It was founded in 2010 to collaborate and strengthen the activities that European countries have worked on after the Chernobyl nuclear accident and to succeed to the next generation of experts. It has conducted research and exchange on emergency response such as evacuation and restoration / reconstruction.
- <sup>16</sup> United Nations World Conference on Disaster Risk Reduction related events in Fukushima Organizing Committee "Declaration of Fukushima Action · Three Resolutions - Toward Overcoming the Fukushima Nuclear Disaster -", March 17, 2015
- <sup>17</sup> NTW (Nuclear Transparency Watch, Nuclear Energy Transparency Monitoring, <http://www.nuclear-transparency-watch.eu/>). A private organization of nuclear power monitoring in Europe established in 2013 after the Fukushima nuclear power plant accident.
- <sup>18</sup> Dr. Satoshi Asano of Mie University has told an interesting story on the comprehensive plan of Ise City and town planning. Relating to the rebuilding the shrine of Ise Jingu every 20 years, the city reviews periodically the last 20 years' implementation of its city planning and revises it for next direction and issues.
- <sup>19</sup> FAIRDO 2013, “Challenges of Decontamination, Community Regeneration and Livelihood Rehabilitation”, July 2013, pp. 61-73
- <sup>20</sup> Regarding the characteristics of nuclear disaster, the conceptual drawing of the author is cited in disaster educational materials in Fukushima prefecture. Fukushima Prefectural Board of Education "Disaster Education Instruction and Materials Third Edition", March 2016, pp. 48-49
- <sup>21</sup> The major members of the FAIRDO project from Europe were as follows.  
Dr. Viktor Averin, Research Institute of Radiology, Beralus  
Mr. Gilles Heriard-Dubreuil, MUTADIS, France  
Dr. Tatiana Duranova, Nuclear Power Plant Research Institute, Slovakia  
Dr. Inger Eikelmann, Norwegian Radiation Protection Authority, Norway  
Prof. Eduardo Gallego, Technical University of Madrid, Spain  
Prof. Wolfgang Raskov, Karlsruhe Institute of Technology, Germany  
Dr. Miranda Schreurs, The Freie Universita Berlin, Germany  
Dr. Klaus Töpfer, Institute of Advanced Sustainability Studies, Germany  
Dr. Erich Wirth, Federal Office for Radiation Protection, Germany
- <sup>22</sup> For the activities of NERIS and NTW and their response to the Fukushima disaster, please refer to the following documents.  
Masao Kabuki, “Fukushima Does not Give Up - A Voice from the Reconstruction Site”, Fujiwara Shoten, 2017.3, pp. 180-185
- <sup>23</sup> For the activities of collaboration with Fukushima of NERIS, please refer to the following document.  
Norwegian Radiation Protection Authority, Mutadis, Fukushima University, Tokyo Institute of Technology and IGES, "Local Populations Facing Long-term Consequences of Nuclear Accidents: Lessons Learnt from Fukushima and Chernobyl", January, 2016
- <sup>24</sup> Miranda A. Schreurs , “ The International Reaction to the Fukushima Nuclear Accident and Implications for Japan “ , ed. Miranda Schreurs and Fumikazu Yoshida, “ Fukushima – A Political Economic Analysis of a Nuclear Disaster “ , Hokkaido University, 2013, p.2