# Projects for the regeneration of places and communities: the Japanese experience

## Descrizione

### A. The disaster in the Great East Japan

*1. Earthquake, tsunami and nuclear reactor meltdown*

At 2:46 pm, Friday, March 11th 2011, a 9.0 magnitude earthquake hit the Pacific coast of Japan, triggering a tsunami wave of up to 10 metres high that engulfed large parts of the north-eastern area and also damaged the Fukushima nuclear power plant. Over 20,000 people were killed or went missing, some 1.2 million buildings were destroyed or damaged, and three of the Fukushima Daiichi nuclear plant reactors suffered a tragic meltdown.

The scale of the disaster defies comprehension. An earthquake of such magnitude or tsunami of such height had never struck Japan. In some areas, the tsunami travelled nearly 10km inland. Large-scale ground liquefaction occurred in many areas with weak foundations, Tokyo included. The more serious consequence however was the resulting nuclear crisis that will not only take signifcant time to solve, but has also raised questions regarding atomic energy in Japan(1).

*2. Evacuation and rescue*

As the tsunami destroyed and swept away most of the region’s buildings – houses and factories included –, searching and rescuing activities were extended to wider areas, as well as the sea. In fact, immediately after the disaster, massive rescue operations over an extensive region were carried out by neighbours, fire-fighters, self-defence

forces, and both Japanese and international non-governmental teams. Due to solid social ties, citizens in local communities cooperated with each other by guiding victims to safer places. Aid was offered from all over the world and volunteers were eager to help others even under the severely depressed condition. TV news reported scenes in which citizens had gathered to cope with the difficult circumstances and the media witnessed that no disorder or riots broke-out in the affected areas. Because three nuclear reactors had melted down, residents had to be moved to well outside the region near the Fukushima Daiichi nuclear plant.

*3. Assessment of seismic prevention and evacuation*

Most seismologists were unable to foresee the destructive power of such event. The Japanese regulations on seismic prevention that were designed to avert damage caused by earthquakes never considered the power of a tsunami, and the barriers constructed along the coast were easily destroyed by the high and strong waves. Most houses that were made of wooden materials were swept away by the tsunami and even modern buildings made of steel and concrete were destroyed, leaving behind only their foundations. Several tall buildings were damaged and had their base piles torn off by ground liquefaction. Such structural destruction had never been previously experienced in Japan.

The tsunami event was in reality made up of several waves that struck 30 minutes after the first tremor. People who knew the danger of tsunamis rushed to higher places, but many lost their lives during evacuation.
The nuclear power plant in Fukushima was not set for such catastrophe. The tsunami destroyed electrical power lines and all means to cool the nuclear fuel, eventually causing the meltdown. Hydrogen explosions destroyed the protective cladding of reactors No. 1, 3 and 4 and the Prime Minister Naoto Kan was forced to make it illegal to enter a 20km evacuation zone around Fukushima as fears of radiation leaks increased.

**B. Long road to recovery**

*1. Evacuation to shelters*

Victims of the disaster were sheltered in schools, community centres, relatives' houses, and rooms provided by volunteers, but due to fears of radiation, several people had to move to other area hundreds of kilometres away. In some cases, even the city halls were relocated to new buildings because of the contamination fear. As fathers remained in the stricken areas to restore or clear the damage and return to work, families were separated due to concern over the health of young children. Numerous elderly citizens lost their lives during the evacuation process and several of them remained home because of the difficulties faced in adjusting their lives to the new circumstances.

*2. Provisional housing units*

The government erected nearly 53,000 provisional housing units, but public shelters in the area of Fukushima, Miyagi and Iwate were closed by the end of February in 2012. Yet, nearly 340,000 people are still struggling in temporary dwellings of one kind or another(2). The decision on provisional housing units have been made together with the local communities, since after the Kobe disaster in 1995, many deaths were caused by the random arrangement of a lottery system. As in some of these cases people were separated from their friends and neighbours, the government now insists on the importance of keeping the community spirit – even if only temporary – and encourages deeper involvement with neighbours.

Safe disposing of waste is another obstacle to the reconstruction process. The enormous amount of rubble left by the tsunami has been cleared away and stored at temporary sites in the devastated areas, but although the national government requested other cities to incinerate it, only few done so due to the fear of radioactive contamination.

*3. Bonding is a keyword*

Bonding of love and friendship (*Kizuna* in Japanese) is a programme to support the families who have suffered as a result of the 2011 event. Facing such tragedy, solidarity among citizens was nurtured through the determination with which the Japanese population reacted and the joint efforts sustained for the region's reconstruction. Volunteers assisted in cleaning the devastated houses, schools, and factories, travel agents organised bus tours to collect volunteers at major cities and guide them to the affected towns, and individuals have donated significant amount of funds to support the recovery of local businesses. Moreover, information about volunteering activities are easily found on the Internet, NGOs rescue support efforts improved significantly since the Kobe disaster (being still active in many areas), and government officials from all over Japan have been sent to the affected areas so as to assist in the recovery of local business.

*4. Several obstacles remain*

In the past 12 months, a budgetary and legislative framework that establishes a reconstruction strategy has been created, including the a new Reconstruction Agency. However, the central government approved only 60 per cent of the total funding requests submitted by the local governments, directing US$250.9 billion to the reconstruction sites, sum which took longer than expected to be received(3). Local governments are now drafting a comprehensive recovery plan to define suitable places for future settlements.

Policymakers, however, are still divided on whether it would be cost effective to reconstruct towns and infrastructure. Some say it might be time to abandon the area along the coast that has registered so many tsunamis over the centuries it has been called 'tsunami alley'. Jin Sato, Mayor of Minamisanriku, for instance, decided not to have residents back in the area destroyed by the tsunami, moving them to the hillside

instead. Yet, it is not an easy task to find appropriate places for resettlement as steep mountains surround the affected areas and there is no consensus among citizens. In fact, it took over ten years after the Kobe event to complete a new settlement scheme, mostly due to the lack of trust amid the governmental bodies and the general public(4).

Moving communities to higher places would theoretically be the best solution to prevent future disasters as such, but workers would rather stay near bays and agricultural fields. Moreover, citizens were disappointed when ruins were found at the planned site and the beginning of works were postponed in at least two more years.

Several factories that operated in the area were responsible for the production of engines, brakes and computer pieces for global companies such as Nissan and Hitachi, and these were restored in an average time of two or three months after the earthquake. Fishermen also recovered quickly, even if the storages and processing factories remain destroyed. The local, small business, however, suffered from a serious lack of funds, and after losing their market position, many could not get back into the market.

*5. Time is limited, promptness is essential*

In terms of economic impact, the Japanese government estimates that material damage alone could cost as much as US$300 billion. The region’s fishing industry – one of the economic pillars of the area – was smashed by the tsunami. High unemployment rates have been a major concern. Whilst reconstruction projects are generating a high demand for labour, unemployed workers lost their jobless benefits last April. Besides, the area’s population age average has increased due to the departure of young people in search for a job in major cities.

According to a survey conducted by the Asahi Newspaper one year after the event, more than 20 per cent of the displaced population answered they would not return to their hometown due to the lack of job opportunities. This percentage was even higher – over 30 per cent – among those who had left the Fukushima area, as, apart from job insecurity, there are also considerable concerns over radiation levels(5).

Another central issue regards the redevelopment and maintenance of vital community functions. Markets, for example, provide citizens not only goods, but also the opportunity for people retain connections in their communities. In Minamisanriku, a complex of shops was opened without any government aid, but only with the volunteer assistance of Kobe vendors, and since provisional housing units are generally isolated from each other, retailers also made bus services available. This case testifies that the rapid recovery of retailers is central for the community life. However, even if such disasters often  inspire solidarity, it also brings to the surface hidden tensions and conflicts that are already alive. In Ishinomaki, for instance, people who could afford did not wait for the government's decision, building new houses alongside the provisional housing units, engendering an evident friction among the residents.

**C. Ideas proposed by architects and urban planners**

*1. Consultation is needed*

Throughout the affected region, the figure is 340,000 people are still living in temporary shelters, according to Japan's Reconstruction agency. Officials now believe it could be at least four to five more years before they can move into proper housing. But although the government will cover expenses for ground constructions, citizens must finance their own houses. That being so, elders are more likely to move in with family and relatives since moving to new houses would unfeasible in most cases, even with government support.

Nonetheless, in Kobe, a professional consultation system was developed, where architects and urban planners assisted the population. Citizens would submit their design or ideas to the local government, which, together with private foundations, would cover the expenses for the experts' advices. Unfortunately, the system was not entirely successful due to the lack of professionals and popularity of the programme. However, if the system did well, costs for new houses would decrease significantly.

*2. Shared-housed, shared-living*

The devastated areas need a new and comprehensive approach to urban planning and social programmes. The importance of community living was recognised through the death of hundreds of elders who were living alone in provisional houses after the Kobe disaster. People of advanced age found it difficult to adjust to the new lifestyle, tending to stay home for entire days. Therefore, the elderly in this rapidly aging society, who often live alone, need to move into regional hubs for better care and services, such as collective housing.

Ohtsuki, associate professor of the Tokyo University, suggested two different accommodation arrangements could be adopted at the provisional housing units in Kamaishi: independent units and collective houses where citizens can form close bonds with social carers(6). In fact, 'shared-houses', or even 'shared-living', are keywords not only for the earthquake victims, but also for the new generation. Collective houses are now designed so that it is possible to share a living room, a garden, a kitchen, and/or laundry facilities. Riken Yamamoto, a renowned architect, criticises the way in which modern houses are designed with separate rooms, emphasising individual privacy at the cost of bonding opportunities. In fact, Yamamoto argues that after World War II, policies encouraged families to live in one-unit houses, which were shared by two or three generations. Especially in rural residences, living and working areas often share a common space. These kinds of collective homes are now flourishing around Japan, especially after the disaster. For instance, even young businessmen now set up shared offices with colleagues as separate rooms are not really needed.

*3. How to get the economy back on track*

According to a survey conducted by the NHK broadcasting company, after 17 years of the Kobe disaster, 90 per cent of the community leaders agreed that, although the Kobe became strong enough to deal with natural calamities, its economy never completely recovered. In fact, little now reminds them of the city's past prosperity(7).

Major corporations' branches or affiliates were often responsible for a considerable part of the region's economy, but these relocated to other cities right after the disaster. If the destroyed regions are not rebuilt soon, these major corporations will no longer return to the former sites, settling permanently in other locations.

According to a report conducted by the Miyagi prefectural government, the tsunami caused damage to all fishing ports in the region, about 90 per cent of the fishing boats were destroyed, and 10 per cent of cultivated land was devastated. For that reason, Yoshihiro Murai, Miyagi's Governor, proposed an 'East Japan Recovery Zone' to facilitate investment and reconstruction by attracting new plants and factories to the region. Through the investment funds of major corporations in small, local companies, citizens could enjoy further job opportunities, and the disaster-stricken region could be transformed into an economically dynamic zone through these private-sector initiatives. But although Murai's programme focuses not only on the area's reconstruction, but also on its future development and sustainability, general scepticism about major corporations prevents citizens to reach a consensus.

Nonetheless, the central government too has dedicated funding programmes – in a rare cooperation between the government and the opposition – for the recovery of small industries, spending significant funds in rebuilding the area to hopefully return to pre-disaster economic levels in the coming months. Another programme provides citizens professional training in IT, marketing, and foreign languages. Finally, local universities assist students seeking a job so that they can contribute at home.

*4. Remodelling land use*

Several old towns and villages in the region however were not touched the tsunami as these were founded on the hills before there were the necessity – differing from modern cities – to be located close to rivers or by the bay side for the easy implementation of facilities and transportation systems. Ships used to be the main source of transportation before modern systems were created, and flooding, high tides, and tsunamis had often caused damage to sites near water. The advancement of civil engineering and construction technology enabled constructions near rivers and bay sides, but frequently the dangers of natural disasters have been neglected. The last tragic event forced Japan to wake-up to the danger and rethink about the use of remodelled land.

A wide variety of reconstruction plans for the towns affected by the tsunami were proposed by the governments and professionals, such as moving communities to higher places, raising the ground level, constructing taller buildings with firmer foundations, erecting higher barriers, and so on. The combination of some of these ideas could be suitable, but still, flat areas are limited and the majority of the population is not willing to return to their former towns due to the fear of future disasters like this.

**D. New risks arise together with pessimism**

*1. Tokyo is now afraid of the next earthquake*

The earthquake did not only cause heavy economical loss, but also chaos for the country’s transportation systems. In Tokyo, transportation was completely paralysed and residents had no choice but to return home by foot. Many sections of the Expressway were damaged and various train and railway services were limited or

suspended.

Days after the earthquake, the country also faced food and water radioactive contamination due to the rainfalls in the southwest area of Fukushima. Concerns about tainted food and water added further distress to the severe condition the population was already facing. The Health Ministry advised the population in the Fukushima prefecture not to drink tap water, but tests also showed traces of radioactivity in Tokyo's drinking water, although the levels were significantly below the limit. Nevertheless, the government distributed bottled water for the families and shipments of contaminated food were stopped until their safety was verified.

Seismologists now warn about the dangers of how the event could have affected the structure of skyscrapers as these have shaken considerably for more than ten minutes after the tremors had stopped. Not a single skyscraper fell during the earthquake, even if some walls and pavements cracked. But as these towers swayed and flexed rather than snapping as the earthquake's waves were distributed throughout their structure, experts now doubt if these buildings are resilient enough in case of a future similar event.

Although the earthquake's epicentre was well to the north, off Japan's coast, it still gave Tokyo the most dramatic shake most people have ever experienced. Scientific opinion is that shifting strains in the Earth's crust make a big earthquake under the capital even more likely. Other possibilities include an earthquake in the southwest area of Japan caused by the relative movement of tectonic plates or due to the eruption of Mt. Fuji.

*2. The capital on the dangerous island*

Japan has experienced many natural disasters such as earthquakes, typhoons, volcanoes, mudslides, floodings, and so on. Reconstruction should then be well

designed with professional knowledge, but further precautions should also be taken.

Major companies have already set up affiliate offices and back-up systems to lower the risk of having their business blocked in case of a future event as such; if the headquarters are damaged, the affiliate offices can quickly replace them in continuing business. Likewise, from the beginning my career when I used to work for a semi-governmental think-tank, I have been proposing an idea that the Japanese parliament should be held once or twice a year at other cities such as Osaka or Nagoya as a precautionary measure. A ‘mobile parliament’ would enable it to simulate the functions of a regular one should something happen in Tokyo. However, in order to build a serious plan as such, politicians should be reminded that to avoid facing drastic situations after, the government must pass several new legislations previously(8). Although some politicians agreed with my ideas when I gave a lecture at special session of the parliament in 2002, so far they have unfortunately been reluctant to put it into practice.

*3. An opportunity for us to rethink*

The disaster in the Great East Japan gave us an opportunity to rethink and reassess the modern life. For that reason, all 52 nuclear reactors in Japan are being shut down as having them functioning requires, apart from the acceptance of residents, a sophisticated security system for disasters. Moreover, as the demand of electricity particularly increases during the summer season, the government is now asking the Japanese population to reduce consumption by at least ten per cent. Accordingly, several other measures have been taken to save energy, such as the set up of devices to measure energy consumption in homes and factories, lighter clothing for businessmen, and the adoption of LED lighting, solar energy panels, and geothermal plants. Settling new towns in the affected areas will certainly take much longer, but these will now be safer and more comfortable sites for their residents. If environmental friendly industries decide to return to these areas as well, then workers can return to their normal lives.

As an old saying says, “good comes out of evil”. When disasters like this happens we can sometimes find comfort in believing that something good always comes from something bad. Japan now moves forward, not backward, with the continuing efforts of a nation as it progresses towards rebuilding, revival, and further growth.

**Notes**

(1) Data: National Police Agency, Meteorological Agency and Reconstruction Agency of Japan.
(2) Data: Reconstruction Agency of Japan.
(3) Nikkei Newspaper on March 11 2012.
(4) Interviews to several residents in Minamisanriku on March 26 2012
(5) Asahi Newspaper on March 11 2012.
(6) “Architecture and Social Design after 3.11” edited by Miura and Fujimura, Heibonsha, November 2011.
(7) “NHK Special” broadcasted on January 17 2012.
(8) Lecture by Ouchi at special committee on the movement of the capital functions at the Japanese Parliament held on November 27 2002.

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