Lesson learned from the Great East Japan Earthquake

~ The Case of Activities at Kesenumuma Municipal Kominkan ~

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1) Tsunami History of the Kesennuma Area

- 3,000 – 5,000 years ago: 3 tsunamis by geographical layers
- The Tsunami in 869 A.D. by a geographical layer
- The Tsunami in 1,611 A.D. through a lore as a fact
- The Sanriku Tsunami of 1,896 1,906 deaths
- The Sanriku Tsunami of 1,933 81 deaths
- The Chilean Earthquake Tsunami in 1,960 9 deaths
- The Great Eastern Japan Earthquake Tsunami in 2,011 1,243 deaths
  (374 Kesennuma citizens registered as dead by declaration cards)

* As of August 12, 2014
2) Tsunami Relics in the Kesennuma Area

↑ ○ Kaisho Museum

← ○ Tsunami Signpost

↑ ○ Tsunami Monument

← ○ Tsunami Memorial Stone
2 The Latest Great Eastern Japan Earthquake

1) A scene from after the disaster (Katahama, Kesennuma City)
2) Data of the Disaster 1

- Date and Time Occurred: March 11, 2011, 14:46
- Epicenter: N38.1, E142.9, Depth 24km
- Magnitude: 9.0
- Seismic Intensity in the City: 6- at Akaiwa, 5+ at Sasagajin and Motoyoshicho
- Height of Tsunami: Max. 27m
- Inundated Surface Area: 18.65 km² around the city, 9.60 km² was the urban plan area
- Burned Area: 2.48 km²
- Ground Sinking: Max. 74 cm (At a place in the old City)
- Death-toll: 1,243 (374 Kesennuma citizens registered as dead by declaration cards)  *As of August 12, 2014
- Authorized Earthquake-related deaths: 103  *As of August 6, 2012 at the screening board
3) Data of the Disaster 2

- Damaged Housing Units: 259,971 buildings as of Sep. 30, 2012
- The Number of Afflicted Family Units: 9,500
- The Number of Refuges: Max. 105 places (Mar. 20, 2011)
- The number of Refugees: Max. 20,086 (Mar. 17, 2011)
- Temporary Provisional housing: 3,503 units in 93 residential complexes
- Deemed Temporary Housing: 2,467 units, 4,320 people (as of Sep. 30, 2011)
- Afflicted Businesses:
  3,314 Companies / 4,102 Companies
- Afflicted Employees: 25,236 / 30,232
- Afflicted Fishing Boats:
  Approx. 3,000 / 3,566
  A washed-away Petroleum Tank
3 Tsunami Disaster and Community Centers
※ Phases in the Afflicted Area (Changes in the sufferers residency)

A Owned Homes (Before the earthquake / Tsunami)
....... ① Evacuation (Occurrence of the earthquake / Tsunami) .......

B Temporary Refuges (Heights, Escape Buildings, etc.)
........................................................................ ② Evacuation ........................................................................

C Refuges (Community centers, Schools, etc.)
........................................................................ ③ Move ........................................................................

D Provisional Housing / Deemed Provisional Housing (Securing Quality of life)
........................................................................ ④ Move ........................................................................

E Own Homes, Public Restoration housing / Apartments

........................................................................The Lesson from the Experiences........................................................................

〇 As the state of the afflicted area and the needs of the sufferers changed daily, community centers had to cope to the best of their ability. The Evacuation phases are classified into A –E, depending on the status of either “Evacuation” or “Move.” As a city, the present situation is still in Phase D.
1) Before the Great Disaster – Crisis Management Division and Schools took initiatives

◎ Disaster-Prevention Learning, Stocks and Trainings
   a) Know the characteristics of the disaster
   b) Prepare for the Disaster
   c) Consider how to protect oneself in the case of a disaster, receive training and become proficient in its execution
   d) Make decisions and take action
   e) Acquire methods to receive information, make use of it and disseminate it
   f) Keep cooperating and getting connected even in ordinary times

◎ The Abilities to be acquired through ESD
   a) The ability to learn and understand
   b) The ability to foresee and prepare for the future
   c) The ability to evaluate the present situations and suggestions to make them better
   d) The ability to seize the initiative
   e) The ability to make use of information and to disseminate it
   f) The ability to cooperate with others
2) Three Helps in Disaster-Prevention and Education

- **N-Help:**
  Before the latest Great Earthquake, Disaster-Prevention Education had focused on Self-Help, Mutual Help and Public Help as the mutual help at the time of a disaster. However, acknowledging the hard work and contribution of NPO, NGO NETWORK, Kesennuma City Education Board started to use this word after the Earthquake.

- **Disaster-Prevention Education in Kesennuma**
  In Tsunami Disaster-Prevention Education, it is important to make use of the three “Helps,” prepare, and offer training. The city crisis management office, schools, neighborhood associations, businesses, etc., used to deal with the issue separately. In 2003, the city crisis management office and schools started to cooperate with community centers, fire departments, police, and neighborhood associations. Furthermore, Miyagi Prefecture has appointed Disaster-Prevention Directors at each school and municipal office since 2012.

  The city board of education has been conducting research and implementation of Disaster-Prevention Education, utilizing the education researcher system. In 2013, the city reformed the Regional Disaster-Prevention Plan, making preparations by local areas more effective with the cooperation of communities, schools, etc.
3) Disaster-Prevention through Cooperation: Approaches across Age Groups and Positions

June, 2010
Joint Training of Otani Community Center, Jr. High and Elementary School Districts and Kindergartens

← June, 2008
Joint Training of Otani Community Center, Jr. High and Elementary School Districts and Kindergartens
Evacuation of the Kesennuma Citizens after the Great Earthquake

1) The actual evacuation

Research by Professor Motoyuki Ushiyama of Shizuoka University

- Irrespective of the Tsunami water depth, the death rate was 5% or less.
- Especially when the depth is no greater than 4 m, the death rate was 0.5% or lower.
- Escape on foot. Evacuees are encouraging each other. Photo: by Mr. Satoru Imagawa

Many used their cars. Realistic policies should be taken.
2) Tsunami reaching the Central Community Center and Evacuation

○ It would have been disastrous if the water washing the streets had entered the site.

○ As the center is located far enough from the coast, the people in this area could run to higher ground, but ...

Source: The Detailed Map of the Great Eastern Japan Earthquake and Tsunami by Haraguchi and Iwamatsu

（津波）（避難）

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5 Community Centers as Temporary Refuges

1) The conditions for the center to be a temporary refuge:

- Central Community Center was built in the flat area where evacuation was difficult.
- Built with reinforced concrete, this center building is able to withstand the force of a tsunami.
- Due to regular drills, the location of the entrance and stairs were known to the local residents, which aided in their evacuation. Also, the rails and outside stairs had been improved after some drills.
2) The Activities of the Temporary Refuges

- At the Central Community Center, the staff and refugees worked to survive from 15:00, March 11 to 13:00, March 13. Eventually, helicopters rescued about 450 people.
- At the Shishiori Community Center, there were 199 staff members and refugees. The next day, some of them relocated to the junior and senior high schools in the area.
- At the Koizumi Community Center, the staff members and 10 refugees had moved to the evacuation center before the tsunami hit the area. Later the community center was washed away.
- Other 8 community centers (Except for Koharagi and Shingetsu), the Civic Hall and the General Gymnasium became temporary refuges and remained as such.

The Lesson from these Experiences

- Community center buildings need adequate height and strength.
- As community centers are equipped with functions to support life, the residents expect them to serve as refuges.
- Evacuation drills in cooperation with residents turned out to be very effective.
- More supplies should have been prepared.
- Measures against breakdown of utilities and traffic are essential.
- Acquiring information is important.
- Cooperation on a routine basis is necessary.
6 Community Centers as Refuges

1) Actions by Community Centers that suffered less damage

- Matsuiwa Community Center
  The operation of this center is consigned to the private sector. It is highly evaluated for having ensured the life of refugees the quickest. This center was open to refugees the longest among community centers.

- Hashikami Community Center
  The community Center had already had a strong relationship with the residents and the schools. Even though the facility was damaged, hardships were overcome in various ways. Repair work has still been ongoing as of July, 2014.
2) How Life Was Maintained at a Refuge (Community Center) - An Example at Matsuiwa

Organization of the Center:

- **Management:** External affairs, general affairs, public relations, crime-prevention
- **Information Office:** Safety confirmation, name list and visitor control
- **Life:** Rescue, facilities and utilities, health, makeshift baths
- **Cooking:** Food management, cooking, service

**Rules at the Refuge:**
- Get up at 6:00
- Take turns to cook
- Breakfast at 7:30
  (For those who have to leave early, a family member needs to prepare the food.)
- Lunch at 12:00
- Supper at 17:00
- Finish preparing hot water for baths by 18:00
- Lights out at 21:00

**Morning Meeting**

**The initial stage of refuge life**
3) Self-Support at a Community Center

- Formation of a Community and its Function: An Example at Matsuiwa

Refugees started cooperating at an early stage and an agreement on self-support was formed soon.

↑ ○ Refugees working effectively

↑ ○ Jr. high school volunteers

........................................... The Lesson from the Experiences .........................................................
◎ There is a tendency for prolonged usage of community centers as refuges.
◎ It is necessary to encourage the refugees’ independence such as forming residents’ associations inside the refuge.
◎ The roles of staff from administrative organizations are significant.
◎ Cooperation with NPOs and NGOs must be weighed heavily.
7  Provisional Housing and Community Centers

1) Cooperation with Volunteers, Mental Healthcare, and Support for Interaction with the Community

↑ ○ Mr. Nishikawa visited Matsu Community Center

↓ ○ Nursery school toddlers digging potatoes at Matsuiwa Community Center
2) Support for provisional Housing / Community as the Residents Settled Down: 1

- A joint sports day held by Jr. high school, the community, the community center and the residents in the provisional housing (at Shishiori Jr. High)

- Mountain climbing event for the residents in the provisional housing and citizens (Karakuwa Community Center)

........................................... The Lessons Learned through the Experiences ..............................................

◎ Individuals and families have their own issues, which tend to become more serious. It is necessary to organize a consultation system to deal with these issues.

◎ Mental and physical health problems are likely to occur. A stable support system is necessary.

◎ Support is required to return the conditions to normal.
3) Support for provisional Housing / Community as the Residents Settled Down: 2

Since the occurrence of this great disaster, community centers (including similar institutions) have lived up to the expectations of the community and played an important role in rescuing refugees and in contributing to the long-term rehabilitation and reconstruction, though the situation was constantly changing. Community centers in Kesennuma City have incorporated the philosophy of ESD through the process of cooperating with schools. Even if the community members are not aware of ESD, eager activities based on community centers have contributed to sustainable development of the community and cultivation of human resources that make the development possible.