TEN YEARS SINCE 2004 SUMATERA EARTHQUAKE AND THREE YEARS SINCE 2011 TOHOKU EARTHQUAKE: EARLY-WARNING SYSTEMS ALONE CANNOT SAVE EVERYONE

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Extended Abstract

Much Japanese watched the tsunami video attacking Banda Aceh on the 2004 Sumatra, and they have a lot of tsunami disaster memories, and early tsunami warming system. However, we lost about 20,000 people by the 2011 Tohoku earthquake tsunami. It makes clear that we never rescue the people from the tsunami only by an early warming syste.

Never remained the ward of "Tsunami" in Banda Aceh in 2004

In February 2004, a research team of Nagoya University was coming to Banda Aceh to investigate the disaster on th 2004 Sumatra earthquake tsunami (I was a research member of Nagoya University at the 2004 Sumatra earthquake, and joint the research team since the first field survey in 2012). Not only the natural scientists but also the humanities' scientists, including Indonesians join the research team, and field researches in Aceh have been continued every year until now. As results of the research, eight annual reports totally to 1,000 pages and four books, including writings in Indonesia are published. Through the first interviews in Banda Aceh, we understand that not so many peo- ple remained the tsunami coming after the earthquake felt, and when they watched the tsunami they never shouted "Tsunami!". They shouted out,"Sea is ascending". As re- sults, there are many fatalities by the tsunami along the coastlines.They had no time to evacuate from the tsunami, because they started the evacuation after they watched the attacking tsunami. In one village, only the people going out the village to the down-town were saving their lives.

In spite of tsunami warming in three minutes after the earthquake

On March 11, 2011, a giant earthquake with 10 minute-strong shaking was occurred in Tohoku off. In three minutes of the earthquake, JMA issued the tsunami warming through the TV program. Additionally, following the warming of JMA, local broadcasting system told the people,"Big tsunami is coming". However, we lost 20,000 people, and we had an accident of the nuclear power plant in Fukushima by the tsunami. All people remained the tsunami attack by the long-strong shaking of the earthquake, and many people preparing their evacuation. Some people never evacuate from their homes, because my home is in highland or home has second floor.

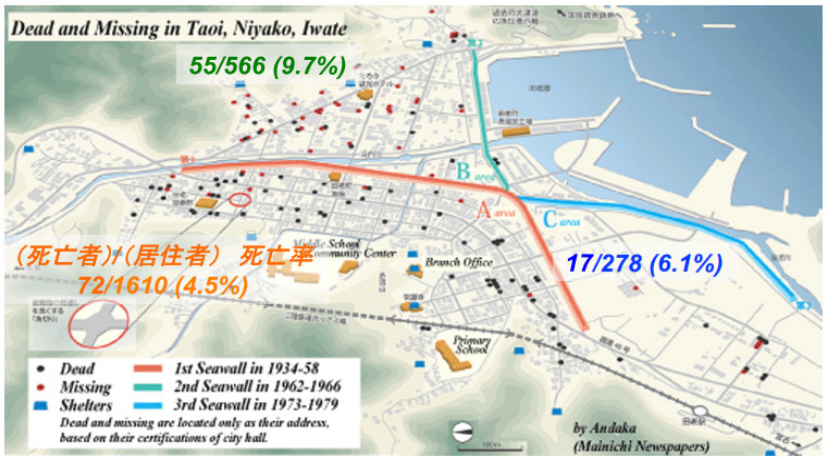

Figure 1: Distribution of the dead or were missing in Taro-cho, Iwate-ken by the 2011 Tohoku earthquake tsunami. by Andaka reporter of Mainich Newspaper

Development of on site warming system

In natural disaster such as earthquake, volcano eruption┐heavy rain, land slide and flood, firstly natural hazards were reported in the field. In Japan, regional weather station is permitted to issue the warming of only meteorological hazards. As the results, in the filed, there are seismometer stations, and there are no records of earthquakes in local weather stations. When they felt the earthquake, they are only waiting the warming issue of the central weather station. Japan Railways develop the ”on site warming system”, Urgent Earthquake Detection and Alarm System UrEDAS to stop the running Shinkansen for the saving the passenger instantly. It is the very simple basic conception. When seismometers detect shaking of the earthquake, the system processes the data and stops the running train in the region in few seconds just before the strong shaking.

The regional research center to achieve the disaster mitigation

We need regional warming systems more closely communicated to local citizens, which is a very important information for their evacuation from the disaster. I suggest estab- lishing of the regional research center to achieve the disaster mitigation. Of course, the center is constructed by local governments, branches of earthquake and volcano agencies, and researchers of the university. For example, they detect some volcanic activities by monitoring. They issue the warming directly to the citizens around volcanoes. In my idea, it is not regional subjects, but it is a national subject of Indonesia.