IEICE Global Plaza
—Monthly community plaza in English for students, faculties and engineers—

Essay

Valuable ICT Lessons Learned from Historical Disaster in Japan

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First of all, I wish to express the deepest sympathies and condolences to Japanese society who had the serious disaster due to the East-Japan Earthquake. My heart goes out to all those affected. We would like to discuss what we learned from the historical disaster occurring in Japan on March 11, 2011. No doubt that we live with Information and Communication Technology (ICT) in our everyday life. We can say that ICT is one of the most essential utilities for everybody besides electricity and water. How can ICT help us as surviving tools in the digital era?

Damages were affecting the buildings and many lives and creating panic not only to the Japanese but also to the people all around the world. However, one of the well-known Japanese traits is that they never give up and never lose hope—once they fail, they will soon get up or even get themselves better from any crisis. According to their history, we could see whenever any crisis hit to Japan, it acted like a major dose taking the country to run up and become one of the most powerful countries in the world. On the other hand, one may not agree to the statement mentioned above due to the current Japanese demography—the current numbers of working-age people are less than the past ones. Yet, we do believe in the Japanese from their unique discipline that has showed the people all over the world during the crisis.

The impact that occurred with the automotive and high technology industry companies around the world was stopping manufacturing in Japan during the disaster aftermath, especially electronic companies that had the most impact from the disaster since Japan is a manufacturing base for semiconductors which contribute about one-fifth of the global supply. We can foresee a shortage supply from unbalancing with a high demand of smart phones and tablets this year.

Not only the Japanese companies but also many multinational companies had to face the same problem. After suspending their production, paranoid symptoms in the semiconductor industry could be seen from falling down on the stock prices.

The social media giant, Facebook, has released a map showing the distribution of the Japanese earthquake news around the world (Fig. 1). The map is updated by searching the keywords such as "Japan", "Earthquake", and "Tsunami", and then those keywords are put into the map according to its originating location. On the map, we can see that the keywords get updated several times from Japan, the Philippines, Indonesia, the United States, Australia, and Thailand.

On the other side of the world, American and Japanese students have collected data from the major social media such as Facebook, Twitter, Flickr and YouTube. According to the collected incidents, they created a map in a form of texts, pictures and videos showing where and what happened. The main purpose of doing this is to help the victims and the rescue teams to gain a better understanding of the overall situation.

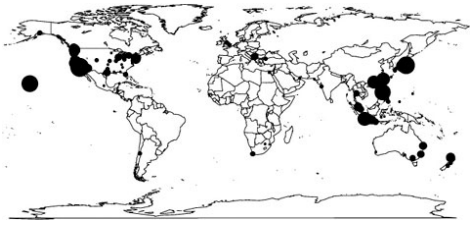

Fig. 1 World earthquake map showing the East Japan Earthquake (from Facebook)

The students who created this application say that this web application can show helpful and useful information on the map ; for example, when one saw a hospital fire or people getting stuck under the ruins, they could send this essential, helpful information to the cloud (Internet). The application will help to map this emergency information onto the corresponding location.

Needless to say, the social media and Internet have obviously shown their significant, useful powerful tools to us. From the past events that occurred earlier in Africa and the Middle East to the current situation in Japan, Mixi, Japanese multi-billion dollar social media, and Twitter have played an important role to this crisis. Unreliable phones that could not be used in some places made the social media become the main channel for communication. The social media have been used to search for someone missing, updated situations and inform their safety through this media. The social media are just like a coin that has two sides. The source of information can be released to the public rumors intentionally or unintentionally. Thus, it is necessary to verify the information from trustable, reliable sources.

Japan builds their ICT infrastructure very efficiently and professionally. We can see it at the real-time information still flowing to the Internet even with the critical situation. A Japanese business man in Tokyo told us that the mobile voice service could not be used ; however, the mobile internet still worked well. The situation was expected to be caused by the intention of the operator which allowed the communication over the Internet to accommodate more people. When one's cell phone did not work, it was normal to see people standing in line to use a public telephone in major cities.

The incident to nuclear power plants caused the anxiety across the world. Handling with the rapidly spreading rumors about the radiation, the Japanese government has reported the measure level in Tokyo on website. This also shows the transparency and immediate response of information by using ICT.

After the quake, thousands tweets in one minute bursted from Tokyo Twitter users. There were many organizations that used this social media to communicate with people in Japan. One of inevitable accounts was Tokyo Electric Power (TEPCO). TEPCO used the social media to report the latest news from the nuclear power plant and informed electricity blackout. From our observation on their announcement, scheduled power cut-off cancellation was frequently seen in the social media. This action reflected the common discipline of the Japanese—helping the country to reduce power consumption. As a result, the energy was still enough for some zones.

Another trustable source on the social media is the Office of Prime Minister of Japan who is using Twitter to communicate

Fig. 2 Example of the emergency information exchanged and shared through Youtube

with people in Japan. Twitter, at first, provided only a Japanese version and shortly after the quake an English version was also created.

Due to the uncountable help from more than hundreds countries and tens international organizations to Japan, the Prime Minister of Japan, Mr. Naoto Kan, has sent a message through the government website and the social media in both Japanese and English. We could also say that this is another way of representing a "Thank You" message via the Internet in the digital age.

We can say Twitter is an appropriate social media tool in this kind of situation because of its quick, small, and wide spread in a very short period time. The short burst characteristic of each message will not harm the overall communication network even to the huge traffic generation.

YouTube is another example of the useful Web 2.0 application in this situation. One of Japanese students studying in the United States was not able to contact her family in Japan via a traditional communication channel. Therefore, she kept monitoring data on the Net. Fortunately, she saw a clip on YouTube that captured her family staying safe there in Japan. This success came from collaboration between traditional media and digital media. Additionally, a special YouTube channel has provided the function of information exchange created by the victims through uploading their videos. Relatives and friends from all over the world can check them at the website (Fig. 2).

Online business and e-commerce were also participated. People purchase food and drink on the Internet, and they are delivered via postal system in Japan which continues to operate normally.

Under the chaos, there were many impressive events ; for instance, a video taken in the state rest area near Tokyo captured thousands of people still lining up for food distributions. And many organizations used the social media as an intermediary to receive the donations.

Japan has been quite well-prepared for the disaster aftermath. Many systems turned to normal in a short period of time thanks to their well-organized process and prompt response. Despite the well preparedness for an emergency situation, the transportation has been affected. This situation would increase investments in foreign countries. We, Thailand, have a good relationship with Japan for hundreds years. Therefore, we are expected to increase our manufacturing bases in addition to the existing ones.

Less than a month after the disaster in Japan, another natural disaster also hit the southern part of Thailand. How can the ICT support this relief? There is a Twitter account from the flood victim relief information center. This social media has delivered the useful information such as state roads status, details of public transportation, progress of the airport re-opening, electric utilities restoration, report landslide incidents that damage lives and properties and request for volunteer trunk drivers. The Department of Mineral Resources exploits an animation as a medium for better understanding about natural disasters. They make a cartoon describing about what to do when we are in the landslide situation. The link to this animation has been distributed via the social network, Twitter. A website portal named "Thai Flood" (http://www. thaiflood. com) collects all important information such as hotline numbers, state road information, breaking news and volunteer list (Fig. 3).

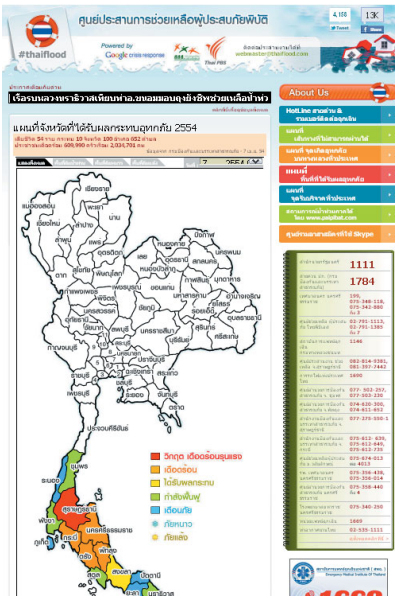

Fig. 3 Important information delivery on Thaiflood Website portal (Courtesy : http://www.thaiflood.com)

In addition to adopting the social media as a communication tools and web portal, radio amateurs have played a role in this flooding disaster as well. Moreover, it is combined with Voice over Internet (VoIP) to extend its coverage. The amateur community uses internet voice streaming to broadcast what they report about the current situation minute by minute.

We see both countries take an advantage of ICT to relieve the disaster in the similar way. The government also plays a major role in the digital media to provide more reliable information to their citizen.

All of the information mentioned above can be digested and analyzed thanks to my Japanese language skills and logical thinking that I have experienced from the concrete educational system in Japan.

Last but not least, I would like to express my sincere thanks to the Japanese government who gave the valuable, meaningful (Monbusho) scholarship to me. Thank you very much, indeed.

Note on Dr. Pheeradej Nanan's Essay

He graduated and received his BE degree from Chulalongkorn University in 1992, his ME degree from Asian Institute of Technology in 1994 and his PhD degree from Keio University (Nakagawa-Laboratory) in 2002. He also received his MBA (Executive) degree from Sasin Institute of Business Administration. He studied in AIT as a selected Thai Government's scholarship student and in Keio University as a Japanese Government Scholarship student. He returned home to Thailand and joined Communications Authority of Thailand in charge of international communications and mobile business (CAT Telecom since 2002), contributed to the planning and management of evolving ICT. He has published more than 500 articles. Currently, he is in charge of strategic planning of his company and sincerely accepted his contribution to our request. (*reported by Kenzo Takahashi, Prof./Chair, TFIPP*)

Annual Activity Report of IEICE Overseas Sections

IEICE International Affairs Committee

This corner introduces academic activities of the whole IEICE Overseas Sections in consecutive two issues. The left Reports will be published in next issue. Each report covers their activities in the 2010 fiscal year. The number of Overseas members tends to gradually increase and some new Overseas Sections will be set up soon. This corner will play a part of information sharing in the evolving community of IEICE Overseas members and potential members.

Report-1 IEICE Bangkok Section

Watit Benjapolakul, Assc. Prof. Dr.,
Chulalongkorn University,
Representative of IEICE Bangkok Section

The organization of IEICE Bangkok Section in the 2010 fiscal year was as follows : Advisor to Representative (Former Representative) : Prof. Dr. Prasit Prapinmongkolkarn, Chairman/NTC, Representative : Assc. Prof. Dr. Watit Benjapolakul, CU, First Deputy Repr. : Prof. Dr. Tawil Peungma, KMITL, Program Coordinator : Assc. Prof. Dr. Itthichai Arunsrisangchai, KMITL, Secretary & Registra : Asst. Prof. Dr. Tuptim Angkaew, CU, Conference Manager & Executive Secretary : Asst. Prof. Dr. Supavadee Aramvith, CU. The Section was supported by Advisory Board ; Assc. Prof. Dr. Kitti Tiraseath, President/KMITL and Prof. Dr. Somsak Panyakaew, Ex-Dean/FOE, CU, and the four Committees chaired by Assc. Prof. Dr. Watit B. for Communications, Prof. Dr. Tawil Paungma for Electronics, Asst. Prof. Dr. Boworn Papasratorn, Dean, School of IT/KMUTT, and Asst Prof. Dr. Supavadee A., NTC, CU, KMITL and KMUTT mean National Telecommunication Commission Thailand, Chulalongkorn University, King Mongkut's Institute of Technology Ladkrabang and King Mongkut's University of Technology Thomburi, respectively.

The Section organized Workshop on Internet Architecture 2010 (IA2010), at CU in Bangkok on Oct. 28-29, 2010, in collaboration with IEICE Japan, IEEE MTT/AP/ED Thailand, NTC, NECTEC (National Electronics and Computer Technology Center/Ministry of Science and Technology Thailand) and IPv6 Forum Thailand. More than 50 persons joined the conference. Following the opening address provided by Assc. Prof. Dr. Boonsom Lerdhirunwong, Dean/FOE, CU, two days technical program was provided to give 3 keynote speeches, 1 panel session and 3 Technical Session including 9 paper presentations. Keynote speeches were :

(1) "Internet Policy in Thailand" by Prof. Dr. Prasit P., NTC,
(2) "TV 'White Space' in Japan" by Prof. Isao Sugino, Kyushu Institute of Technology,
(3) "Spectrum Management for Broadband Wireless Access in Thailand" by Asst. Prof. Dr. Tuptim Angkaew, CU.

The Panel Session was focused on Internet status in Thailand and provided by the Chair, Prof. Prabhas Chongstitvattana and the panelists, Prof. Sinchai Kamolphiwong, Prince of Sonkla University for his topic "ICT Status and Future Internet in Thailand-Academic, Research, and Government in the Internet", Dr. Chalermpol Charnsripinyo, NECTEC, for his topic "Internet Development and Growth in Thailand". The topics of Technical Sessions were focused on Network Protocol, System Design, Network Analysis and Wireless System, where the half of presentations were provided by Thai students, they received the student research awards from Chair of TCIA, Prof. Oie, at the end of two days fruitful workshop.

Fig. 4 Banner of Conference by IEICE Bangkok Section

Fig. 5 Opening Address by Assc. Prof. Dr. Boonsom Lerdhirunwoong, Dean/FOE, CU

Fig. 6 Student Award giving ceremony

Fig. 7 Conference speakers and participants with the organizers

The Section plans the following events in 2011 fiscal year.
(1) Thailand-Japan Microwave Workshop 2011 (TJMW 2011) at KMITL on August 10-12, 2010. It is co-organized by IEEE MTT/AP/ED Thailand and supposed to have about 100 participants.
(2) IEICE Special Seminar entitled "Advance in Next-Generation Network. It is co-organized by IEICE Japan.

Report-2 IEICE Beijing Section

Jian Yang, Prof. Dr., Tsinghua University,
Representative of IEICE Beijing Section

In 2010, one professor was invited to have a special lecture. On Sept. 23, 2010, Prof. Kiichi Hamamoto of Kyushu University gave a special lecture entitled "Multi-Mode Interference (MMI) Waveguides and Its Applications Especially for Semiconductor Laser Diodes and Other Active Devices" at the meeting room of the east-Main Building, Tsinghua University. About 30 persons attended the lecture meeting. The IEICE flag was hung during the lecture and it impressed on them.

On Apr. 10, 2010, IEICE Beijing section organized a meeting for discussing what kind of activities we should do. Prof. Jian Yang, Prof. Tao Zhang, Prof. Zhisheng Niu and other ten IEICE members attended the meeting. Some suggestions were presented. The IEICE flag was hung during the meeting.

During Oct. 29-31, 2010, the international conference on multimedia technology was held in Ningbo, China. This conference was cosponsored by many organizations, including IEICE Beijing section. Prof. Jian Yang gave IEICE publicity during the conference. The Logo of IEICE was printed in the proceedings of the conference. In addition, a few people were nominated to join IEICE overseas membership.

Fig. 8 Prof. Hamamoto's lecture sponsored by IEICE

Fig. 9 Prof. Tao Zhang introduces IEICE to the participants

Report-3 IEICE Singapore Section

Lei Zhu, Prof. Dr.,
Nanyang Technological University,
Representative of IEICE Singapore Section

In the 2010 fiscal year, the IEICE Singapore Section successfully organized a few IEICE-sponsored lectures and seminars which were given by a few well-known experts in the field of wireless communications. On August 27, 2010, Dr. Jung-Woo Baik, Senior Researcher in ETRI, Korea, gave his seminar entitled "Planar Turnstile Dipole Antennas and Its Modification for Specific Goals", at School of Electrical and Electronic Engineering (EEE), Nanyang Technological University (NTU). On October 21, 2010, Prof. Yasushi Horii, Faculty of Informatics, Kansai University, Japan, gave a lecture with the title of "Recent Progress on Multi-Layered CRLH Transmission Lines and Potential Applications" at the same School. On December 7 and 8, Prof. Qi-Jun Zhang, Department of Electronics, Carleton University, Ottawa, Canada, delivered his two lectures, entitled "Neural Networks for Microwave Design : From Theory to Practice" and "Advances in Modeling and Optimization Techniques for Electronic Design", at the same School.

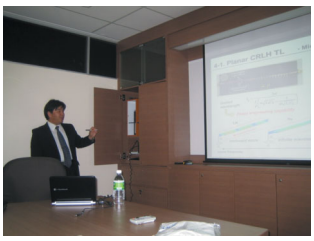

Fig. 10 Lecture by Prof. Y. Horii, Kansai University

Fig. 11 Lecture by Prof. O.J. Zhang, Carleton

Before all the lectures or seminars, the author briefly introduced the organization and activities of IEICE to all the audiences and welcomed them, especially young scholars and PhD students, to join IEICE as the overseas regular or student member. After each lecture, about 30 minutes were usually spent for interactive discussion between the lecturers and audiences due to very timely topics involved in these lectures or seminars. The number of participants in these seminars was more than 110 in total.

In the 2011 fiscal year of IEICE, Prof. Arokiaswami Alphones in NTU will take over the position of IEICE Overseas Representative in Singapore from me.

Report-4 IEICE Taipei Section

Tzong-Lin Wu, Prof. Dr.,
National Taiwan University,
Representative of IEICE Taipei Section

IEICE Taipei Section co-sponsored three events in this year. A distinguished lecture of IEICE was held in National Taiwan University (NTU), Taipei, Taiwan, on April 9, 2010. Dr. Bruce Archambeault from IBM gave a talk entitled as "Common-mode Signals on Differential Lines and Their Impact on EMC". Dr. Archambeault has been the BoD of IEEE EMC Society and an IEEE Fellow. His talk attracted more than 50 participants both from industry and academia.

The second event was also a Distinguished Lecture. A world-renowned scholar, Prof. Tatsuo Itoh from UCLA was invited by IEICE Taipei Section to deliver a talk in NTU on Nov. 3. The speech title was "Dual and Circularly CRLH Leaky Wave Antenna". More than 150 audiences attended this great event, including students, faculties, and engineers, and no empty seats were seen in the big lecture hall. It was a very successful event with warm interaction between speakers and audience. It also would be recognized as an academic activity to effectively enhance the visibility of IEICE in Taiwan and attract more members for IEICE.

Fig. 12 Distinguished Lecture by Prof. Tatsuo Itoh, UCLA at NTU

Fig. 13 IEICE Workshop of EMF Effect on Health

The third event was the workshop entitled "Workshop of EMF Effect on Health", which was held on Nov. 23, 2010 at NTU. This whole day event was focused on the discussion of EMF exposure effect on the human health. Several experts including Dr. C.K. Chao from TC95/ IEEE and Prof. Osamu Fujiwara from Nagoya Institute of Technology, Japan were invited to give their lectures. More than 50 persons attended this workshop, and exchanged opinions with the guest speakers.

Hot Topics

APNOMS 2011 Comes Up!

Technical Committee on Information and Communication Management, IEICE Communications Society

The 13th Asia-Pacific Network Operations and Management Symposium (APNOMS 2011) will be held in Taipei, Taiwan, on September 21-23, 2011. It is sponsored by KICS, KNOM, IEICE ICM, and supported by CIEE, CHT, NIU, NTU, IEEE ComSoc, CNOM, IEEE ComSoc APB, TMF, IFIP WG6.6. APNOMS 2011 will encourage open discussions on technology alternatives that focus on the management and operation of current and future networks and services. APNOMS welcomes submissions based on implementation and experimentation, as well as simulation and analytical approaches, and your participation in the conference. The topics of interest in this conference cover :

1) Network Management, Management of the Future Internet (s)
2) Architectures, Methods & Technologies (OSS, Cloud, etc.)
3) Service Management (ubiquitous, security, seamless, etc.)
4) Business Management (NGN, BSS platforms, e-business, etc.)
5) Experiences (migration, inter-operability, testbeds, etc.)

Please see the details at *http://www.apnoms.org/2011*.

Message from TFIPP Secretariat

This issue is delivered also by a free mail magazine "IEICE Global Plaza on Line" with updated news of interest for you. Please contact Prof. Takahashi, TFIPP (Task Force for International Policy and Planning) at *global@ieice. org*, if you need. Back numbers are available in archives at *http://www.ieice.org/eng/global_plaza/index.html/*.