

Report on discussion in the field of “Disaster Prevention”

1. Significance of research in this field

Natural disasters frequently occur now in any parts of the globe. Climate change causes higher fluctuations. Typical examples are: European floods in summer 2002, heavy snowfall in 2003 and extreme heat wave in summer 2003, which killed about 30,000 people; and Japanese successive extremely, cold and hot summers in 1993 and in 1994 as well as in 2003 and in 2004, respectively. Typhoons and torrential rainfalls often cause serious damages in Japan. Other geophysical disasters such as volcanic eruptions, earthquakes and tsunamis are also very serious in the plate tectonic zones in the world, especially in Asia, including Japan. Once natural disasters happen, their impacts can be so enormous and borderless that they may even lead to loss of social and economical infrastructures in a wide region.

As natural disasters are common phenomena all over the world, we can join forces by utilizing international networks for disaster risk reduction which already exist, and state-of-the-art technologies from different countries to predict and warn about breakouts of natural disasters and mitigate damages.

It is also meaningful to include social aspects to promote research in this field, namely, what we can learn from the past experiences in different regions, and how people would react to natural disasters once they happen, because public understanding and awareness is a key to mitigate social impact through appropriate reactions of general publics to warnings.

2. Necessity of International Collaboration and Expected Synergistic Effects

As already stated in 1., international collaboration in this research field is particularly important, as natural disasters occur in any parts of the globe and regardless of borders. We can combine our wisdom to be prepared for hazardous occasions or try to reduce disaster risk and damages as much as possible.

As prospective participating countries to the East Asia Science and Innovation Area Joint Research Program (the “e-ASIA JRP”) are closely located to one another in the East Asia Region, it is significantly important to share hydrological data or know-how to predict probable maximum scale of hazardous events, such as storm or flood, so that the preparedness for such events can be determined accordingly. We can learn from or make use of existing international networks, such as Flow Regimes from International

Experimental and Network Data (FRIEND) or Disaster Reduction Hyperbase -Asian application- (DRH Asia), just to name a few.

From the nature of research in the Disaster Prevention, establishing “Early Warning Systems” and “Disaster Management Systems” are of common interests to most of the prospective participating countries. Even in so-called developed countries in the East Asia Region, human casualties by tsunamis, floods and landslides are still enormous, which may have been saved by having “Early Warning Systems” effectively installed in the Region. This is a very urgent issue to be tackled.

Relevant common questions in the Region are; (1) what are the effective Early Warning Systems, and (2) how to mitigate social and economic life activities and (3) how to integrate them into Disaster Management Systems.

The reasons for the countries in the Region to jointly address these issues are that meteorological conditions, tsunamis and so on have common impacts in this Region without a sense of borders, and that it is relatively easy to conduct a comparative study on what factors need to be added or deducted in a trial to reduce death toll, by inspecting evacuation behaviors and comparing social factors in different countries in this Region.

Indonesia has already installed sensors for the Early Warning System for tsunamis in different areas of the country, but it is facing some operational issues, such as how to warn people of a sign of tsunamis when electricity may be out of reach, or accuracy of warnings may not be very high so that people eventually start to ignore warning signs. There may be some room for improvement with the “software” part of the system.

The Philippines has what they call the “DRM (disaster response mitigation) Cycle”, in which “strengthening forecasting capability”, “enhancing capacity of grass root” and “utilizing chief executives in local communities” are included as objectives and measures.

Thailand is aware of risks for dam collapses by earthquakes, which also have relevance to neighboring countries.

Japan has expertise in research areas as floods, earthquakes, tsunamis, IT and sensing devices, which may be useful to strengthen already-ongoing efforts in the above-mentioned countries, as well as lessons learned at the tragic Great East Japan Earthquake.

3. Identified Areas for Cooperation

Participants to the “Science talk on Disaster Prevention” have identified possible future collaboration as follows.

a. Collaboration in Tsunami Warning Systems

As the UNESCO’s Tsunami Warning System in the Indian Ocean will start to be operated by Indonesia, Australia and India from next year, it is quite useful to add software aspect to the System (such as how to relay warnings effectively to local citizens) by collaboration among coastal countries such as Indonesia, Australia, India, Thailand, the Philippines and Japan.

Collaboration with the ASEAN Flagship Program for “Early Warning” is also necessary and important.

b. Collaboration in Early Warning System for extreme water related events

Issuing Early Warning signs (or gaining Early Detection data) of possible hazardous events, such as typhoons, torrential rainfall, tsunamis and floods would be very interesting, which can be possible by utilizing data from satellites and other spatial information, and forecasting or evaluating frequency and magnitude of extreme meteorological and hydrological conditions. Collaboration in this area may include the Philippines, Japan and any other country which is interested.

c. Collaboration in Prediction of Earthquake associated Disasters

Strengthening the ability to monitor strong ground motion by IT Strong Motion Seismometer will be interesting to Thailand, which can be also used for prediction of tsunami early warning or dam collapse. Collaboration in this area may also be interesting to Lao PDR, Myanmar, Japan and other maritime countries.

Participants to the “Science Talk on Disaster Prevention” are listed as follows.

• Japan

(a) Prof. Yoshimori Honkura, Professor Emeritus, Department of Earth and Planetary Sciences, Tokyo Institute of Technology (Session Moderator)

(b) Prof. Kaoru Takara, Professor, Disaster Prevention Research Institute, Kyoto University

(c) Prof. Keiko Tamura, Professor, Risk Management Office, Niigata University

• Philippines

Ms. Rowena U. Montecer, International Science Relations Officer, DOST, the Philippines

- Thailand

Dr. Parichatt Krongkant, Director of International Cooperation, NSTDA, Thailand

- Indonesia

Dr. Ir. Pariatmono, Director for Empowering Science and Technology for Government Institutions, Indonesia

Observers:

- Cambodia

H.E. Mr. Chea Sieng Hong, State and Cum-National COST Chairman, Cambodia

- Philippines

Prof. Lydia R. Leonardo, Chair, Department of Parasitology, College of Public Health, University of the Philippines Manila, Philippines