The 2019 International Training Workshop for Natural Disaster Reduction

- Applying Big Data[1] and Social Media[2] for Disaster Risk Reduction and Emergency Preparedness

Workshop 1 on Big Data: 30th April – 2nd May, 2019

International Training Workshop for Natural Disaster Reduction (ITW) will host two three-day workshops in the first half of 2019 and major themes focus on big data and social media applications to assist in Disaster Risk Reduction and Emergency Preparedness. The two workshops demonstrate innovative applications of using the state-of-the art information and telecommunication technology to enhance coverage and efficiency of information facilitation.

As trans-boundary movements of goods and people grow rapidly and dynamically around the world, thus information and alerts of natural disasters or hazards based on big data and social media would provide the best approach to effectively integrate partnership between public and private sector to mitigate adverse impacts. Especially, modern technology speeds up development of telecommunications and shortens time to transfer data, and widen channels of message deliveries. At the information age, big data and crowdsourcing data not just facilitate trade activities and business operation, but also bring benefits to disaster risk reduction, emergency preparedness, business continuity planning, resilient global supply chain, critical infrastructure protection and tourism safety. From public sector to private industry or individuals, information generated from big data and crowdsourcing data is vital for strategy of disaster risk reduction, operation of emergency relief, planning for business continuity management and sustainable development of economy and livelihood.

The proposed workshop aims at: (1) To investigate current status of application and demands of data through a comprehensive survey; (2) To develop a roadmap of capacity building by demonstrating advanced technology and best practices; (3) To promote crowdsourcing data collected from social media for enriching contents of disaster risk management; (4) To formulate a mechanism sharing experiences to strengthen disaster resilience and emergency preparedness.

The workshop organizer also invites international experts and scholars to share new trends and the best practices of using big data and social media. The 2019 ITW does offer an interactive platform to engage international efforts and collaboration in making our society more disaster-resilient.

Workshop 1: Disaster Big Data Analysis and Applications
30th April – 2nd May, 2019

Taiwan is a highly disaster-prone country and how to mitigate disaster risk is an essential issue catching attention from both government and the general public. However, due to extreme weather events and potential large-scale earthquakes, exposure of risk to land and population increases and becomes more diverse than ever. In last two decades, Ministry of Science and Technology has been investing resources on fundamental science researches related to natural hazards and disaster management that helps to establish the base developing disaster risk reduction and emergency preparedness in Taiwan. Nowadays, modern technology speeds up development of telecommunications and shorten time to transfer data and deliver messages. At information age, big data and open data not just facilitate trades and business, but also benefit disaster management.

After the 2011 Tohoku Earthquake and Tsunami in Japan, the analysis of big data provides an in-depth view about how people reacted to shakings and warnings. Before, during and after disasters, data and information are two key elements to keep citizens and government prepared for it and also help emergency responders through providing situation awareness. By applying big data as open data, it will enhance societal preparedness and resilience. Since 2013, Taiwan has introduced the Common Alerting Protocol (CAP) to standardize disaster information for dissemination though multiple channel. Google Crisis Map is one of the platforms to build up the late mile to people living in Taiwan. Later in 2014, the fourth-generation telecommunications will officially provide service to the public that requires innovative approaches assisting in raising public awareness and enhancing information coverage during emergency.

Workshop 1 focuses on what kinds of big data sets are possibly applied; how to use big data to create in-depth views for better policy on disaster management; and why user-oriented applications of big dada could enhance information coverage among the general public. In order to integrate big data for application, strategies are required to get all stakeholders involved. For examples, standardized data formats and information exchange mechanism, these are two fundamental elements to succeed multilateral collaboration. Other than government, private sector also produces informative big data and offers a dense network to disseminate in-time information. Furthermore, to display big data analysis by using Web-GIS system that is very helpful for decision making. The course content is scheduled for three days, including three keynotes.

DRAFT AGENDA
The 2019 International Training Workshop for Natural Disaster Reduction
- Disaster Big Data Analysis and Application
30th April – 2nd May, 2019

April 30 (Day 1) Integration of Disaster Information	
08:30~09:00	Registration
09:00~09:20	Opening
09:20~10:10	**Keynote1**: What should we do for effective Common Operational Picture by taking advantage of Big-Data? Professor Munenari Inoguchi, Faculty of Sustainable Design, University of Toyama, Japan
Coffee Break	
10:30~11:20	**Keynote2**: TBC Prof. Pu-Jen Cheng, Department of Computer Science and Information Engineering, National Taiwan University
11:20~12:10	**Keynote3**: Big Data Development of NCDR. Dr. Tzu-Yin Chang, NCDR, Taiwan
Lunch	
13:30~14:50	Big Data Application of NCDR Dr. Wen-Sen Li, NCDR, Taiwan
Coffee Break	
15:10~16:30	Introducing the DISP platform of NCDR Dr. Wen-Rui Su, NCDR, Taiwan
Welcome Reception	

May 1 (Day 2) Big Data and Disaster Application	
09:00~09:50	Hands-on training by groups– NCDR DISP Platform (1) – Dr. Wen-Rui Su, NCDR, Taiwan
09:50~10:40	Hands-on training by groups– NCDR DISP Platform (2) – Dr. Wen-Rui Su, NCDR, Taiwan
Coffee Break	
11:00~11:50	Hands-on training by groups– NCDR DISP Platform (3) – Dr. Wen-Rui Su, NCDR, Taiwan
Lunch	

13:30~14:20	Application of big dada for mitigating debris flow. Dr. Hsiao-Yuan Yin, Director of Soil and Water Conservation Bureau, Taiwan
14:20~15:10	Depression Detection and Reasoning using Social Media Data and Deep Learning Technology. Prof. Arbee Chen, Asia University, Taiwan
Coffee Break	
15:30~16:30	Make big data powerful on GIS platform. Dr. Walk Chang, Interactive Digital Technologies Inc. , Taiwan

May 2 (Day 3) Big Data and Cross-Domain Applications	
09:00~11:50	Field Visit: 1. Central Emergency Operation Center (CEOC) 2. New Taipei City (EOC)
Lunch	
13:30~16:30	(1) Sharing finding and results by groups (2) Joint discussions on (3) Roadmap for the next move
Coffee Break	
16:50~17:30	Conclusions and closing
Closing Ceremony & Dinner	