ICUS Newsletter

Volume 14 Number 1 Apr. to Jun. 2014

International Center for Urban Safety Engineering
Institute of Industrial Science, The University of Tokyo

Launch of SATREPS Project (2014-2020)

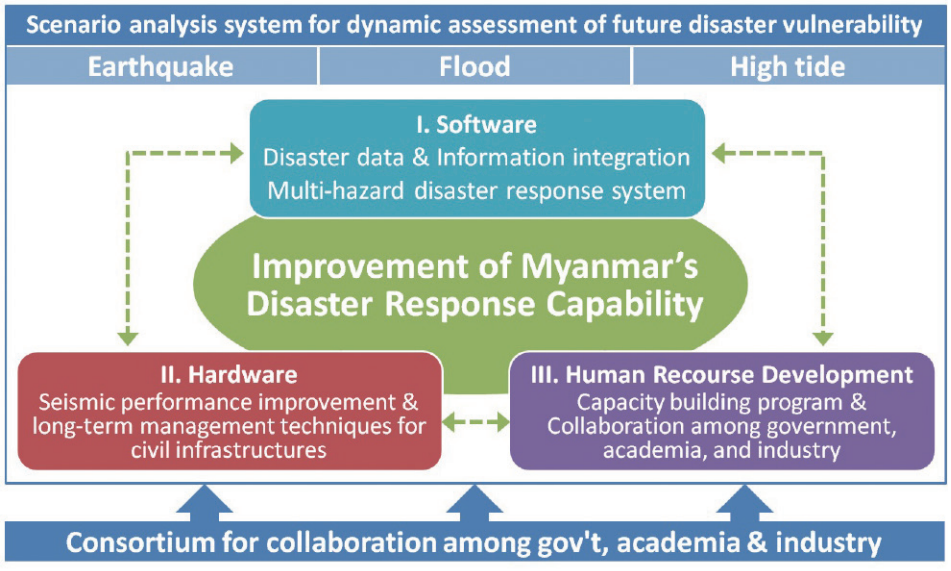
"Development of a comprehensive disaster resilience system and collaboration platform in Myanmar"

By Kimiro MEGURO

Professor, Director of International Center for Urban Safety Engineering

Institute of Industrial Science, The University of Tokyo

It is an honor to announce from ICUS that the Government of Japan has decided to accept our bilateral research project between the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar") and Japan under the framework of Project for Science and Technology Research Partnership for Sustainable Development (SATREPS) through Japan International Cooperation Agency (JICA) and Japan Science and Technology Agency (JST). Using this opportunity, I would like to thank all partners and relevant organizations including Yangon Technological University (YTU), Myanmar representative to the project, for their unified cooperation, which made the project possible to be accepted. ICUS will dedicate continuous efforts with our partners towards success of the project. We hope the project will contribute to



Conceptual diagram of the project

Areas of interest (circled)

reduce disaster risk of Myanmar as well as to promote further bilateral cooperation between Myanmar and Japan.

Background

Myanmar has been growing drastically attracting a great deal of interest from all over the world. If Myanmar develops with proper plans and technological strategies, it will become a newly industrialized country within a short period of time. However, Myanmar is also a high disaster-prone country, especially earthquake and water-related disasters. Probability of the occurrence of these disasters would increase by global climate change as well as increase of disaster risk associated with rapid and large-scale land and urban development. Therefore, Myanmar has to address these probabilities by promoting collaboration among government, academia and industry for improving the capability of comprehensive disaster risk reduction in Myanmar.

Overall Goal

This project aims to develop integrated disaster resilience systems consisting of software, hardware, and human resource development (HRD), for improvement of Myanmar's disaster management capacity, which contributes to steady economic growth with safe cities formation.

Project Purpose

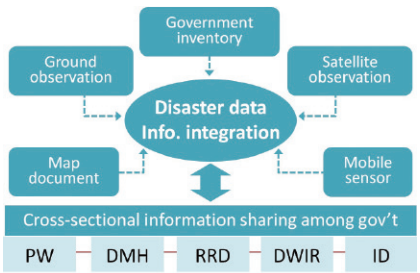
To project future disaster vulnerability in Myanmar, we will build a system of disaster scenario analysis by earthquake, flood, and high tide based on results of the monitoring and assessment on changes of urban development in the country: water and river basin environment, land use, building, infrastructure, micro topography, and traffic and crowd flows. We anticipate the system to be proposed to government policies such as future regional plan, disaster mitigation plan, and land use guidance. In addition, we will establish a collaborative consortium among Myanmar government, academia and industry to facilitate the sharing of project outcomes as well as between Myanmar and Japan.

Project partners
(including expected agencies under negotiation as for Myanmar side)

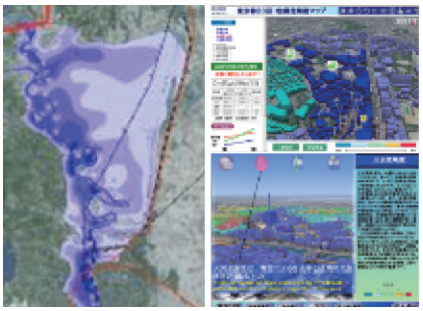
Japan	**The Univ. of Tokyo,** Hokkaido Univ./Tohoku Univ./Keio Univ./Hiroshima Univ.
Myanmar	**Yangon Technological University (YTU)**, Myanmar Engineering Society (**MES**)/Relief and Resettlement Dept. (**RRD**)/Ministry of Social Welfare, Relief and Resettlement/Dept. of Metrology and Hydrology (**DMH**)/Ministry of Transportation/Directorate of Water Recourses and Improvement of River Systems (**DWIR**)/Ministry of Transport/Public Works (**PW**), Ministry of Construction/Irrigation Dept. (**ID**)/Ministry of Agriculture and Irrigation/Yangon City Development Committee (**YCDC**)/Mandalay Technology University (**MTU**)

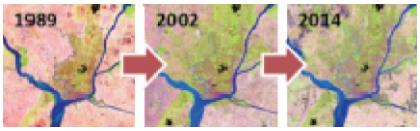
Outputs

Software: Build integrated information data base by gathering and processing information obtained from ground and satellite observation, government inventory, and mobile sensors. Develop multi-hazard disaster response system based on the scenario analysis systems.

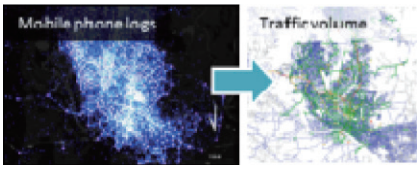


Disaster data & Information integration


Generate flood/earthquake hazard map



Analyze urban expansion by satellite images



Visualize traffic/crowd flow using cell-phone data

Hardware: Develop technologies for improving seismic performance and long-term management for existing and future civil infrastructures: reasonable repair and strengthening, cheap and easy retrofitting, concept of design and construction management, quality control, and proper inspection and diagnosis.

Apply leading-edge inspection and diagnosis technologies

Reasonable repair & strengthening

Cheap & easy seismic retrofitting

Establish "Research Center for Urban Safety" in YTU

Capacity development programs for experts

Promote collaboration among government, academia & industry

Human Resource Development: Establish the center tentatively named "Research Center for Urban Safety" in YTU to conduct capacity development programs for experts in disaster management and urban safety. The center will be taking a role to facilitate continuous production of human resources from the sector of government, academia and industry.

Record of Progress

Courtesy visits to central governments and Embassy of Japan in Myanmar

On 11th June 2014, Japanese members, Dr. Kawasaki, Prof. Murao, Dr. Nagai, and Dr. Sekimoto made courtesy visits to Myanmar's related ministries and agencies: RRD, DWIR, DMH, Transport Planning Department, Ministry of Railway Transport (MORT), and Works & Inspection Department, Ministry of Communications and Information Technology (MICT). After explanation and discussion, we successfully received agreements from all five agencies for future cooperation in the project.

Japanese members, Prof. Meguro and Dr. Kawasaki, also made a courtesy visit to H.E. Higuchi, Japanese Ambassador to Myanmar at Embassy of Japan on 13th June 2014. Professor Meguro explained the concept of the project and the importance of assistance from the Embassy of Japan. H.E. Higuchi announced the Embassy's firm commitment to support the project. We have received important suggestions so that the project can gain a clearer understanding for not only government agencies but also for the public in Myanmar.

RRD

DWIR

DMH

MORT

MICT

Embassy of Japan

Meeting with Japanese members

Monthly meetings held in Japan

Since May 2014, ICUS has been organizing monthly meetings among Japanese members inviting multi-disciplinary experts, and officers from JICA and JST. The purpose of the meetings is to study and shape the operations and activities of the project so that it can be feasible and influential for the improvement of Myanmar's disaster management copacity and urban safety. On 2nd July 2014, the 3rd official meeting was held at ICUS lecture room. Each team leader firstly reported on a visit to Myanmar: progress situation of adjustment with counter persons in Myanmar and future operation plan of their responsible activities. After feedback from attendees, a general consensus on the development of the Project Design Matrix (PDM) as well as the Plan of Operation (PO) was made as a resolution of the meeting.

Official meetings with Myanmar institutions in Yangon

The 2nd and 3rd official meetings were held at YTU on 12th and 13th June, 2014, respectively. At the 2nd meeting held between the Japanese team, Dr. Kawasaki, Prof. Murao, Dr. Nagai, and Dr. Sekimoto, and the Myanmar team faculties of YTU including Prof. Khin Than Yu, Pro-rector, a plan of implementation in each core section of the project was presented by Japanese members. Faculties of YTU, Myanmar members, also explained their research topics and ideas to put the operation plan of the project into shape. The 3rd meeting was held at YTU with Prof. Meguro. JICA officers and representatives from MES, DMH, YCDC, and local NGOs were also invited in addition to the 2nd meeting's members. In opening, the official process to be taken for final acceptance of the project was explained by the JICA officer. As it was an essential and important task that we have to accomplish, active questions and answers were made to enhance understanding. Not only explanations of the project to the new attendees but discussion was made to gain mutual understanding of the project among attendees. Ideas from various perspectives on the facilitation of the project were suggested by both Myanmar and Japanese attendees.

Meeting with counterpart members in Myanmar

Group photo of attendees

Sinkholes in Pokhara, Nepal

A number of sinkholes occurred in Pokhara, Nepal, in November 2013. The locations of sinkholes are mostly on fields of rice and other crops. About 50 families had to evacuate since sinkholes also appeared beside houses.

Unfilled sinkhole

Prof. Kuwano of ICUS, together with Associate Prof. Kiyota and two other members of IIS, The University of Tokyo visited Pokhara for preliminary survey of the sinkholes on June 10-11, 2014. Most of the sinkholes have already been filled, but according to the local residents, new sinkholes occasionally appear. The area seems to still be unstable.

Two major sinkholes, which were about 10 m in diameter, remained unfilled. Depth was unmeasurable because there was thick sediment of fine soil and a water pool at the bottom. The water level of each sinkhole varies day by day and two sinkholes seem to be connected to each other by subsurface water paths. The sinkholes appear to be caused by large-scale internal erosion of a calcareous silt layer, although the exact location and depth of erosion is unknown. Judging from the apparent depth of the sinkholes, a soil pipe can be deeper than GL-6~7 m.

Additional field investigations will be conducted by the same members in November 2014.

Challenge to reduce fire damage in Dhaka, Bangladesh

Fire is one of the most serious disasters in Bangladesh, especially, when it occurs in or near Dakka; where it is densely-packed with people and buildings. Such area with tangled paths makes firefighting difficult by not allowing firefighting units to attend an incident quickly. Fire tends to occur at shops and factories since they deal with flammable materials on a daily basis. Three large fires occurred in April 2014 alone.

Chemical Shop in a Residential Building;

On 10th April 2014, a fire, seemed to be caused by an exploding paint thinner drum, spread throughout a shop and burnt the store owner and employees beside Tejgaon Women's College. Majority of the victims were pedestrians. Out of 11 victims, 4 victims died of their injuries.

Plastic Factory Fire

On the night of 11th April 2014, a fire occurred in a three-story plastic factory building in Old Dhaka's Lalbagh area. Seven firefighting units attended the fire. As the factory was located in a congested area, it was difficult for the firefighters to reach the location and extinguish the blaze. Several adjoining houses were also damaged in the fire.

OTOBI Furniture Factory Fire

On the night of 22nd April 2014, a huge fire broke out at the OTOBI furniture factory, on the outskirts of the capital city Dhaka. The fire was put out by ten firefighting units. At least 30 workers out of 400 were injured while escaping the factory. No deaths were reported. It is assumed that an electrical short-circuit caused the fire. The fire-fighting capacity inside the factory was inadequate and the fire service faced difficulty as it had to haul in water from outside.

BNUS/BUET is actively working on this issue with Bangladesh Fire Service and Civil Defense (BFSCD). Currently, an Emergency Operation Centre (EOC) is planned to be established in BFSCD where BNUS Director Prof. Ansary acts as an advisor. As one of our activities, we have installed seven Thermal Image Cameras through ILO's cooperation to detect electric short-circuit, one of the major sources of fire. We will be continuously active to assess the existing conditions of factories with the cameras to prevent occurrence of fire before it becomes too late.

Figure 1: Area around the shop

Figure 3: Position of factory in Google Earth

Figure 2: Fire fighters put out flames in the plastic factory at Lalbagh in Dhaka

Figure 4: Burning tin shades

All photos (except Figure 3) sourced from Daily Star/ Prothom Alo.

Open House

During 6th and 7th June 2014, the annual Open Campus was held in IIS. ICUS participated in a guided tour as part of the event on 5th June prior to the open campus, for 25 multidiscipline professionals from general contractor, construction consultant, technological transfer institute, and academia. After the keynote lecture given by Associate Professor Nagai, research activities carried out by the laboratories of Prof. Meguro, Prof. Oki, Prof. Kuwano, and Associate Prof. Kato, were introduced. In closing, exchanges of opinions with all participants, and subsequent individual discussion between each faculty and an applicant were held. The guided tour concluded successfully with not only an introduction of our laboratories but indications of further development of research in ICUS.

Keynote lecture by Dr. Nagai

Oki lab.

Visitors from Hanoi

Visitors from the National University of Civil Engineering (NUCE) in Hanoi, one of the leading Universities in Vietnam, including Prof. Phan Quang Minh (Dean, Building and Industrial Engineering Department) and Vice Dean Mr. Vu Hoan visited ICUS on May 28, 2014. They first observed the facilities and experimental apparatus in laboratories of the Social Infrastructure Management Group. Then information on the current status of education and research was exchanged between both universities, expecting to establish further collaboration and a closer relationship. Vietnam has been facing a turning point in consideration for not only disaster prevention but also management and sustainability of social infrastructures including other buildings as cities grow and mature. Therefore, as a start for the future relationship, ICUS has officially issued a recommendation letter so that NUCE can take the lead in the field of urban development management in Vietnam.

Front row, left to right: Prof. Reiko Kuwano and Prof. Kimiro Meguro (ICUS), Prof. Phan Quang Minh and Mr. Vu Hoan (NUCE)
Back row, left to right: Dr. Kohei Nagai (ICUS), Dr. Nguyen Hoan Giang, Dr. Nyugen Trung Hieu and Dr. Tran Hong Hai (NUCE)

Welcome and Farewell to ICUS STAFF

ICUS welcomes three new members from 1st April 2014, Mr. Tetsuro Ito, and Dr. Hiroshi Dobashi as visiting professors, and Dr. Yudai Honma as a lecturer. We expect their contributions for our activities. Mr. Ito had been the Deputy Chief Cabinet Secretary for Crisis Management (DCCSCM) of Japanese Government for 3.5 years with five Prime Ministers. The DCCSCM is the top governmental official to tackle crisis supporting Prime Minister. At the time of occurrence of the 2011 Great East Japan Earthquake, he was at the post and he had been playing very important role for managing response activities against earthquake disaster and TEPCO's Fukushima Daiichi Nuclear Power Plant accident. Dr. Dobashi is structural engineer and an expert of infrastructure management. He is now the President of Shutoko Engineering Co., Ltd. Dr. Honma is an expert of Operations Research (OR) and he has applied OR technology to discuss transportation systems. From 1st June 2014, Dr. Akiyuki Kawasaki transferred to the River and Environmental Engineering Laboratory, Department of Civil Engineering, Graduate School of Engineering, The University of Tokyo. We convey our appreciation for his great contributions towards safer and sustainable urban development. ICUS welcomes another member 16th June, Dr. Laura Banasiak from as an assistant clerk. We expect her to further our international activities.


Mr. T. Ito


Dr. H. Dobashi


Dr. Y. Honma


Dr. A. Kawasaki


Dr. L. Banasiak

ICUS Activities April- June

Date	Name	Country	City	Purpose	
Apr. 1-16	Dr. Kawasaki	Thailand	Bangkok		Operation of RNUS & lecture
Apr. 27-May 25	Dr. Kawasaki	Thailand	Bangkok		Operation of RNUS & lecture
Apr. 30- May 4	Dr. Kawasaki	India	Delhi	Workshop	Development of early warning and mitigation system of disaster
May 13 -15	Prof. Meguro Dr. Kawasaki Dr. Nagai	Myanmar	Yangon	Meeting	JICA-JST SATREPS project
May 18-19	Dr. Kawasaki	Laos	Vientiane	Meeting	Mekong River Society
Jun 9-13	Prof. Kuwano	Nepal	Pokhara	Research	Research for sinkholes in Pokhara
Jun 10-17	Dr. Kawasaki	Thailand	Bangkok		Operation of RNUS & lecture
Jun 12-15	Prof. Meguro Dr. Kawasaki Dr. Nagai	Myanmar	Yangon	Meeting	Yangon Technology University
Jun 15 -19	Dr. Numada	Turkey	Istanbul	Conference	The 23rd SRA-E Conference
Jun 16 -21	Dr. Kato (T)	Chengdu	China	Meeting	Post-disaster recovery project and control of urban development based on flood risk assessment
Jun 22 - 27	Dr. Kato (T)	Turkey	Ankara	Seminar	The project on capacity development toward effective disaster risk management
Jun 22 -28	Dr. Numada	USA	Colorado	Workshop	The 39th Annual Natural Hazards Research Applications

USMCA2014: Nov 3–5, Yangon, Myanmar

The 13th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA 2014) will be held inYangon, Myanmar on **November 3-5, 2014**. Further information is available at the USMCA 2014 official

Website: **http://icus.iis.u-tokyo.ac.jp/usmca2014/index.html**

Editor's note...

As introduced in the cover article of this issue by Prof. Meguro, a new research project in Myanmar has just launched. The project is under a research program called SATREPS by JST and JICA.

SATREPS was launched in 2008, and one of the first flagship projects was IMPAC-T (Integrated Study Project on Hydro-Meteorological Prediction and Adaptation to Climate Change in Thailand). IMPAC-T aimed to solve water-related disasters, such as flood and droughts due to social developments, and also due to the projected climate changes, which will exacerbate the impacts of hydro-meteorological extreme events in the coming decades.

A record-breaking gigantic flood occurred in the Chao Phraya River in 2011, and IMPAC-T dedicated the project resources in the emergent flood surveys, monitoring and predicting inundated areas, and proposing revised reservoir operations to reduce damage. An integrated system to disseminate the hydrological situation in the Chao Phraya River basin was developed based on the experiences from the flood event, and is still being operated and utilized in Thailand (http://impact-www.eng.ku.ac.th/chaophraya/).

IMPAC-T was successfully completed in March 2014, and another project aiming to integrate adaptation policy to climate change with existing national policies, such as disaster risk management and integrated water resource management, is under preparation. Hopefully, ICUS will run two SATREPS projects from April 2015.

by Taikan OKI

International Center for Urban Safety Engineering (ICUS)
Institute of Industrial Science, The University of Tokyo
4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan
Tel: (+81-3) 5452-6472, Fax: (+81-3) 5452-6476
http://icus.iis.u-tokyo.ac.jp

PRINTED MATTER

The International Center for Urban Safety Engineering (ICUS) is a research center located at the Institute of Industrial Science, The University of Tokyo.

The purpose of ICUS is to identify, investigate, and resolve issues towards the realization of sustainable urban systems for the prosperity and safety of society considering challenging socio-economic problems.