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THE ROLE OF THE CONSTRUCTION INDUSTRY IN THE 21ST CENTURY CONSIDERING GLOBAL ENVIRONMENTAL ISSUES

*By
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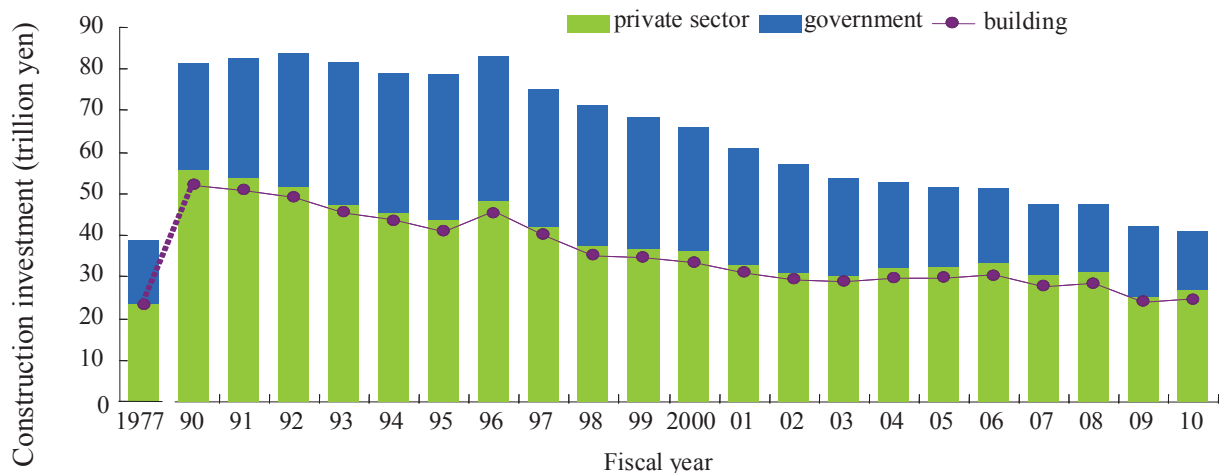
INTRODUCTION

The world population has increased 34 times its size since the Roman period and eight times its size since the industrial revolution. The supply of resources, energy and food has thus become the most serious problem facing the

planet, along with the grave issue of global warming brought about by the enormous consumption of fossil fuels and increase in CO₂ concentration in the atmosphere.

In addition to the increase in food production, infrastructure construction has played a significant role in human population growth.

In that sense, human history can also be regarded as a history of infrastructure development. History has shown that the development of a nation is driven by infrastructure construction. Public works have weakened in value in Japan in recent years with decreasing construction investment, and those



*Decreasing construction investment in Japan with a peak in 1992
(data source: Ministry of Land, Infrastructure, Transport, and Tourism)*

involved in public works do not have an optimistic outlook on the future.

Globally, there are many countries either developing or waiting to develop their infrastructure, and there is some possibility for Japan's construction industry to expand its operations overseas in the future. This article will discuss the path the construction industry should follow into the 21st century, with greatly different conditions compared to the centuries which came before.

INFRASTRUCTURE DEVELOPMENT IN JAPAN

After the Meiji Restoration,

which took place in 1868 (about a century after the industrial revolution in the UK), Japan implemented catch-up policies to increase its national strength. Unfortunately, after World War II this plan had to be restarted again from zero, and in 1962 a comprehensive national development plan was formulated for well-balanced development, thus boosting the social and economic development of Japan.

However, although there was a significant increase in construction investment in the 1970s, the decrease investment and its relationship with an un-changing GDP cannot be easily understood. One theory is that the maturity of

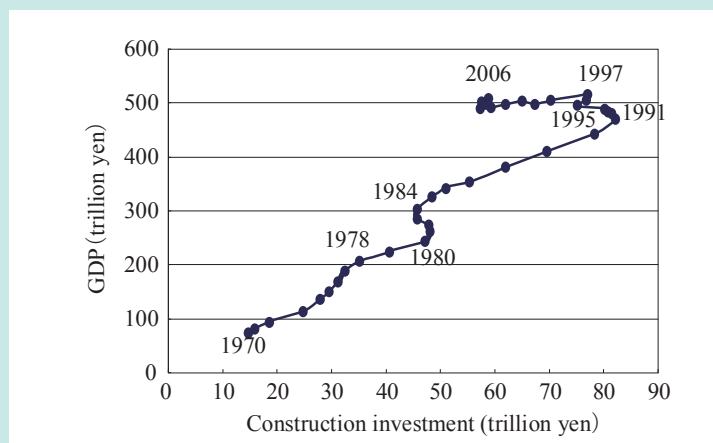
infrastructure construction reduces its effect on the GDP. This is not to say that construction investment is no longer needed, but rather that the quality should be maintained and renewed. It is thus necessary to ensure construction investment in Japan in the future. In addition, Japanese contractors are expected to enter construction markets in developing countries, so the construction industry needs to globalize into the future.

ENVIRONMENTAL ISSUES FOR THE CONSTRUCTION INDUSTRY

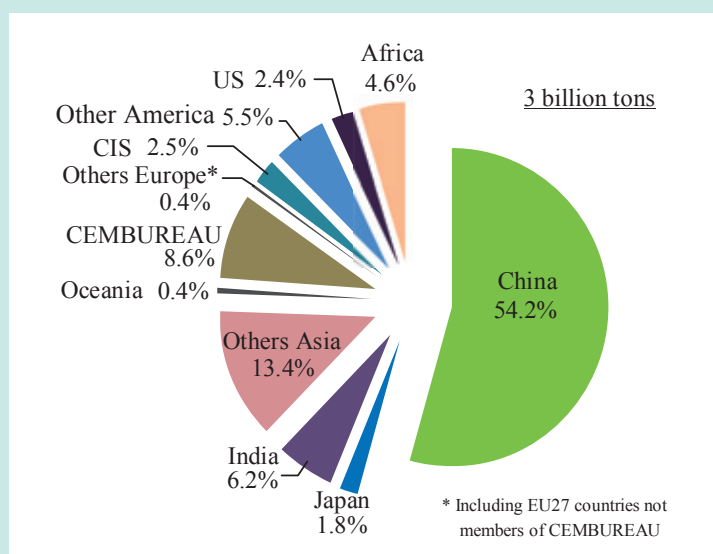
The challenges facing humanity are resources, energy, and food issues. The world will inevitably collapse if resource efficiency is not improved. Demand for fossil fuels is also surging, which means that CO₂ emissions will increase. The only option for humans is to strive towards reducing their CO₂ emissions, and there is no reason why the construction industry should be excused from this effort, so Japan needs to consider how to tackle these global problems.

The construction sector carries out its activities using cement and steel as primary materials, almost half of which is produced in China. Though it is difficult to determine precise data of CO₂ emission from the concrete sector worldwide, a figure of roughly 5 billion tons can be reached given some assumptions and existing data. This makes up 17% of the total CO₂ emissions of fossil fuel origin in 2007. CO₂ emissions from the construction industry worldwide can be roughly calculated at 6.3 billion tons, or 21.7% of total CO₂ emissions from fossil fuels.

Current global demand for cement is already exceeding even the most conservative estimates of



Relationship between construction investment and GDP



*World cement production in 2009
(data source: CEMBUREAU)*

future demand; furthermore, global cement production is expected to double in the future. Even if emissions were halved in the future, the total contribution of the construction industry is still huge, and so pressure on the construction industry to reduce its CO₂ emissions is expected to become more and more intense.

ROLE OF CONSTRUCTION INDUSTRY IN THE 21ST CENTURY

The role of infrastructure development in the history of mankind is clear: in order to stabilize a country or the world, it is necessary to construct infrastructure so that the social and economic activities of people can run smoothly. During the period of rapid economic growth in the 1960s in Japan, hasty infrastructure construction led to low quality and shortened service life. This was due to the low technological level during development. Although many lessons have been learned, many unsolved problems still remain.

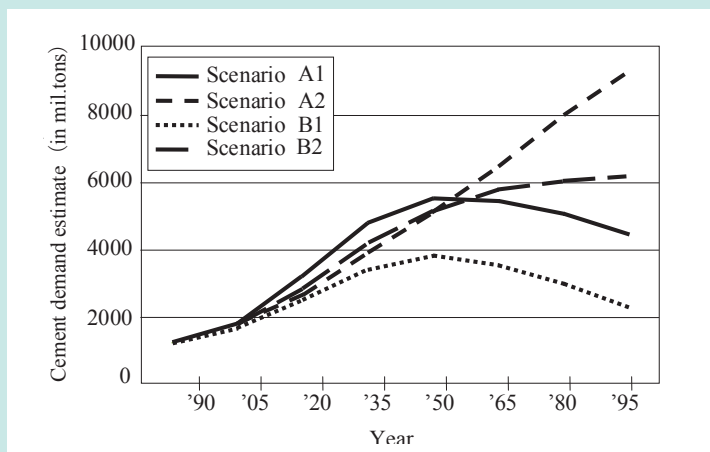
In addition to technical problems, it has become necessary to also consider how to solve the problems related to the global environment. Conventionally, environmental problems in the construction field may be seen as disruption of nature by construction works. Of course, water and soil contamination and the vibration and noise associated with construction are environmental issues, but these do not grow into a serious environmental problem – at least in the case of Japan. Disruption of the environment is unavoidable when securing the land necessary for an increased population. The only option available then is to increase the efficiency of the land use as much as possible. Rather, what is more serious for humankind

in relation to population growth is the increase in the consumption of resources and energy.

Minimizing resource usage is of paramount importance. Fortunately, concrete is mostly composed of the most abundantly-available resource on Earth – aggregate. Although its production does not have a heavy environmental load, it is still used in large quantities. With some basic assumptions regarding concrete composition the amount of basic resources for concrete can be calculated to exceed 16 billion tons.

In the meantime, CO₂ emissions from the construction industry are estimated at roughly 6.3 billion tons. If this figure were to double in the near future the effects could be enormous. However, the author has shown that a reduction of 40% is possible by combining several reduction tools, but there is a natural limit to such a reduction due to the use of materials and fossil fuels for producing cement and steel.

Recycling is one option for enabling the cement industry to achieve carbon neutrality through artificial recycling of calcium ions and captured CO₂. On the other hand, hardened cement paste absorbs CO₂ during carbonation, so if CO₂ can be forcibly absorbed in fine powder of demolished



*Cement demand estimation by Humphreys et al.
(data source: WBCSD)*

concrete, the resulting powder with absorbed CO₂ can be used as a substitute for limestone. This is another option for contributing to carbon-neutrality of cement production.

With regards to the machinery used for construction, hybrid systems combining electric motors and gasoline engines have recently appeared, and full-electric systems are expected in the future.

CONCLUSION

Considering these examples, the dream of carbon-neutrality in the concrete sector may not be unobtainable after all. Many technical difficulties lie in the way, however, but setting targets over the next few decades can help drive the challenge. The direction the construction industry should take in the 21st century is to minimize resource usage and improve infrastructure using a low- or carbon-neutral approach. To achieve this and construct high-quality socio-economic foundations on a global scale is the most important role the construction industry should assume.

*¹Professor,
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Volcanic eruption in Merapi, Indonesia, on October 26, 2010

Merapi is the most active of 129 active volcanoes in Indonesia. Located in between the Yogyakarta special region and the center of Java, Merapi has a height of 2978 meters and diameter of 28 kilometers. It is a strato-volcano which produces basaltic andesitic magma, and was formed by the subduction meeting of the Indo-Australian plate with the Asian plate. Frequent eruptions have been observed from 1768 to 2006, but the eruption which occurred in 2010 is said to be the largest in the last hundred years.

On October 26, 2010 at 5:02 pm Merapi began erupting, spreading hot clouds with a radius of four to six kilometers over the southern slope of mountains. Further eruptions followed five days later, then once again three more days later. After the largest explosion the vertical smoke column reached five kilometers and vibrations were felt up to 25 kilometers away. Pyroclastic flows were observed on the mountain slopes and hot clouds reached more than 15 kilometers above the top of the mountain, spreading a rain of ash and sand which covered all of Yogyakarta. Even though more than 320 thousand people were evacuated to a safe distance of 20 kilometers from Merapi, the eruption still destroyed more than 26 villages and left more than 150 people dead.



*Grey ash and lava flow before the 2010 Merapi eruption
(courtesy of BPPTK)*

By December 3, activity on Merapi decreased and the hazard zone was reduced to a 2.5 kilometer radius around the volcano, but other disasters followed. Heavy rainfall on top of Merapi caused the cooled lava to overflow through nine river channels around the base of the volcano. Accumulated mounds of mud and sand reached more than 1.5 meters in height.

Researchers and government officials were surprised by the nature of the Merapi eruption. Generally, past eruptions were preceded by a glowing dome of lava, but the 2010 eruption was characterized by a direct blast which broke apart the lava dome formed in the 2006 eruption.

The dense population living on the slopes of Merapi and the river running from the mountain are the primary hazards related to the Merapi eruption. It is difficult for people to leave the Merapi area because most people's livelihood is related

to agriculture; the people rely on the fertility of the volcanic soil, and just two months after the eruption the land again became green. This natural beauty also attracts tourists, who contribute to the local economy. After the eruption, the people who lived in the Merapi area began trying to rebuild their homes using whatever building materials were available, but they returned to the evacuation centers at night.

This volcanic disaster demonstrated the need to apply disaster mitigation practices such as settlement planning, microzoning of volcano hazards, strengthening dikes around rivers, and improving all equipment monitoring the volcanic activity and behavior.

*(by Silvia F. Herina,
Research Institute for
Human Settlements,
Agency for Research,
Indonesia Ministry of
Public Works)*



Village destroyed by the eruption



River filled with cooled lava

Sustainable concrete considering the Japanese context

Sustainability remains difficult to implement due to the variety of perspectives on what constitutes sustainability. This may be attributed to a critical aspect of the sustainability concept: that it is a human vision with human values. What may be sustainable in one region of the world for one set of social, economic, and environmental conditions may not be sustainable in a different region under different conditions. In a similar fashion, it is also difficult to establish a global strategy for sustainable concrete practice.

General principles such as limited CO₂ emissions, recycling, resource consumption reduction, and enhanced durability have been proposed, but how to achieve these goals depends on available resources, construction industry culture and stakeholders, institutional systems, technology level, and more. These factors are affected by regional or local socio-economic conditions and in turn affect the potential for sustainable concrete.

To better understand this relationship, results from an investigation in Japan will be briefly discussed here to illustrate

some of the challenges facing a developed country with unique socio-economic issues.

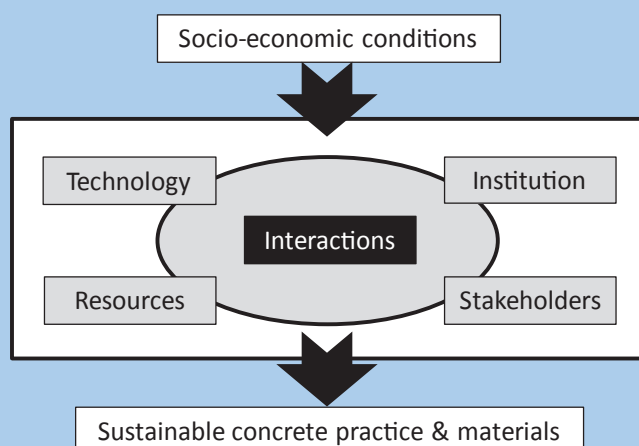
Japan is facing several long-term social and economic problems which strongly affect the potential for sustainable concrete. In the future, Japan will have to maintain an increasing number of ageing infrastructure but do so with less financial and human resources. Durability towards sustainability was given high importance in interviews and surveys with Japanese concrete industry members, which can be seen to reflect the conditions under which infrastructure will be required to serve a longer service life with little maintenance. In addition, since the industrial level of the Japan is already high, reducing CO₂ emissions through reduced transportation and construction may be one possibility for mitigating climate change.

The limited availability of habitable land in Japan increases the importance of reducing waste disposal, but Japan already has a 96% recycling rate for waste concrete. This material is, however, generally used as backfill for road construction and doesn't contribute

to reducing the consumption of raw materials in concrete, which are growing very scarce domestically. Therefore, the importance of recycling in Japan is better attributed to the need to reduce resource consumption than waste disposal.

Perhaps the clearest difference when considering sustainable concrete in Japan compared to other developed countries can be seen in the barriers to implementation. Institutional, social, and organization barriers in particular are most likely specific to Japan, as these vary the most between different countries; for example, sustainability in Japan is more driven by government forces, as opposed to the USA where the private sector carries more of the weight. In addition, less importance was given to social indicators such as health, welfare, and so forth in the investigations, suggesting that the standard of living in Japan is already sufficiently high that sustainable concrete should focus on other sustainability aspects.

The Japanese situation highlights some important issues underlying sustainable concrete in a developed country. However, the majority of concrete construction is going to occur in developing nations, particularly in Asia where growth is expected to increase greatly in the coming future. Understanding the challenges for sustainable concrete considering the conditions of other countries in the Asian region will be an important step in improving the sustainability of the concrete industry as a whole.



Relating socio-economic conditions to sustainable concrete

(by M. Henry)

USMCA 2010 was held in Kobe, Japan



Experts from 21 countries delivered 80 presentations at USMCA 2010, Kobe

ICUS, along with the United Nations International Strategy for Disaster Reduction (UNISDR), Asian Disaster Reduction Center (ADRC), Disaster Reduction and Human Renovation Institution, Graduate School of Global Environmental Studies at Kyoto University, Research Center for Urban Safety and Security at Kobe University, United Nations Center for Regional Development, and United Nations University Institute for Sustainability and Peace (UNU-SP), jointly organized the 9th International Symposium on Urban Safety of Mega Cities in Asia (USMCA 2010) in Kobe, Japan, on October 13 to 15, 2010. More than 125 people from 21 countries participated in the two-day symposium, which included twelve parallel sessions and six keynote and plenary speakers.

The symposium was inaugurated by Ms. Yuki Matsuoka (UNISDR), Mr. Atsushi Koresawa (ADRC), and Prof. Kimiro Meguro (director of ICUS).

Keynote speeches were given by Dr. Kenzo Toki (Director and

professor, Research Center for Disaster Mitigation of Urban Cultural Heritage, Ritsumeikan University, Japan), Dr. Yasuo Tanaka (Director, Research Center for Urban Safety and Security, Kobe University, Japan), Dr. Taketo Uomoto (Chief executive, Public Works Research Institute, Japan), and Dr. Yoshiaki Kawata (Director and professor, Kansai University, Japan). Plenary speeches were given by Dr. Tsuneo Katayama (Professor, Tokyo Denki University, Japan) and Dr. Srikantha Herath (Senior academic program officer, UNU-SP, Japan).

Eighty papers were presented in twelve parallel sessions, covering topics including disaster response and recovery; risk assessment, prediction, and early warning; decision-making technologies; planning and development of urban infrastructure systems; life-cycle management of infrastructure systems; climate change mitigation and adaptation; development and application of sustainable technologies; and application of geospatial technologies.



Recipients of the Excellent Young Researcher award

The Excellent Young Researcher Award, prepared by ICUS to encourage the activities of young researchers, was presented to Ms. Mari Sato (The University of Tokyo, Japan) and Mr. Md. Faiz Shah (University of Tsukuba, Japan). Their research works are introduced briefly in this newsletter.

USMCA 2011 will be held in Chiangmai, Thailand, on October 12-14, 2011. Please check this issue of the ICUS newsletter for more information and follow the RNUS and ICUS websites for future updates.

(by M. Henry)

The two winners of the Young Research Award at USMCA 2010 present their research works below.

People's seismic risk recognition in Dhaka and Bangladesh National Building Code (BNBC) 1993

Dhaka is one of the fastest growing megacities in Asia, but it is prone to natural disasters including earthquakes. The current generation has never experienced a large earthquake, as the last one occurred in 1897 and caused widespread destruction and casualties. A similar earthquake may occur at any time, so good knowledge and strong infrastructure is necessary to mitigate loss. However, the rapid urbanization of Dhaka did not consider earthquake risk; buildings are constructed in an unregulated manner without earthquake consideration, which questions people's risk recognition. In order to examine inhabitants' risk recognition

and intention for residential safety measures, a questionnaire survey was conducted in eighteen selected wards of Dhaka. Based on the obtained data, the major results show that inhabitants anticipate an earthquake as the most catastrophic disaster for Dhaka, which may occur in 5-10 years; and cost cutting, lack of information, and not following the proper design will be the main cause of house collapse. Results show only 2.4% of respondents have heard about the BNBC but they do not know it in detail. The authors checked the present status of BNBC with construction practice and conducted interviews with BRAC University, Bangladesh University of Science

and Technology, Rajdhani Unnayan Kartipakkha, and the Housing and Building Research Institute. The paper described the following results: inhabitants construct buildings without following approved design; BNBC is included under law, but no buildings legally follow it; a large number of buildings, constructed before and after 1993, may perform poorly in a big earthquake. The paper concluded that inhabitants recognized risk and acceptable damage for their residential buildings and intended to pay for safety measures.

(by Md. F. Shah, Doctoral Student, University of Tsukuba)

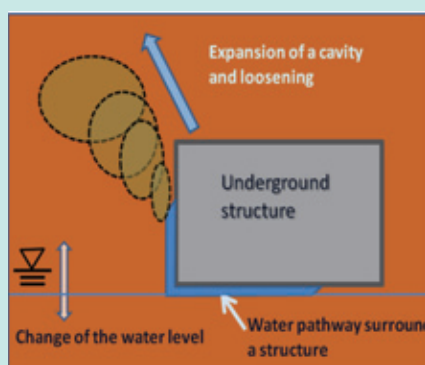
Fundamental study of permeability change around buried structures in sandy ground

This research focused on cave-in accidents, which are caused by expansion of an underground cavity and loosening. The mechanism of cavity formation and loosening generation, however, is not clear,

and it is difficult to prevent cave-in accidents before the cavity and loosening expand to the ground surface. Recent research shows that the boundary between underground structures and the ground may be an important factor in cave-in accidents. It is supposed that the water pathway expands through gaps between a buried structure and the ground due to changing water level. The water pathway causes soil drainage which results in expansion of the cavity and soil loosening. In order to study the effect of permeability at the boundary, constant head permeability test with a contact plane between the ground and the

acrylic cylinder was conducted. As a result, permeability with a cylinder is often higher than normal permeability especially in loose sand. This result suggested that loose sand has larger gaps and makes water pathway formation easier than dense sand. The direction of unevenness is also important for making the water pathway. This research suggests the existence of water pathway between buried structures and the ground may occur in particular conditions.

(by M. Sato, Master student, Kuwano Lab)



Expansion of water pathway around buried structure

USMCA 2010 post-symposium tour

After the conclusion of USMCA 2010 in Kobe, participants joined a post-symposium tour on October 15 to various notable landmarks in the Kobe area. The first stop on this tour was the Nojima Fault Preservation Museum, where people can view part of the exposed fault line which caused the Kobe (Hyogo-ken Nanbu) Earthquake. The second stop was at the Akashi Kaikyo Bridge exhibition center, which offers the opportunity to learn about the technologies used to construct the Honshu-Shikoku bridges. Lastly, participants visited the Disaster Reduction and Human Renovation Institution (DRI). This



Group photo at the Akashi Kaikyo Bridge

institute was established after the Kobe Earthquake to preserve and pass down the experiences and

lessons learned from that disaster to future generations.

(by M. Henry)

19th ICUS Open Lecture held at IIS

ICUS hosted the 19th ICUS Open Lecture at the Institute of Industrial Science on November 10, 2010 with approximately 100 participants. The theme of the lecture was "The construction industry's vision of the future: overseas projects, environmental strategies, and industry structure," and covered topics related to the future role of the Japanese construction industry considering the reduction in public investment and declining and ageing population, with particular focus on social,

economic, environmental, and institutional issues.

Dr. Koji Sakai (Professor, Kagawa University), a global leader on environmental issues in the concrete industry, spoke first on the role of the construction industry in the 21st century from the perspective of global environmental issues. Next, Mr. Toshihiro Chiba (Future Planning), a well-published journalist on the construction industry, proposed his thoughts and ideas for how the construction industry should

move forward into the future. Finally, Dr. Kazumasa Ozawa (Professor, The University of Tokyo), chair of the Japan Society of Civil Engineers Construction Management Committee and one of Japan's leaders in the construction management field, discussed how the Japanese construction industry should take its experience with infrastructure construction overseas.

(by Y. Kato)



Dr. K. Sakai



Mr. T. Chiba



Dr. K. Ozawa

BNUS Activities

Training course on GIS

A training course on “Application of GIS for Natural Hazard and Risk Assessment” was held on Sept. 25-29, 2010, at Dhaka. It was organized by the Asian Disaster Prevention Center (ADPC), and Sharmin Ara, a research planner from BNUS, participated. The training course’s objective was to develop basic skills on GIS analysis and application of GIS and Remote Sensing Techniques for Disaster Risk Reduction.

Risk resilient infrastructure workshop

BNUS members participated in a two-day workshop on “Risk Resilient Infrastructures: Role of Education and Training” on Nov. 13-14, 2010. This workshop was jointly organized by BUET-JIDPUS, the Comprehensive Disaster Management Programme (CDMP), UNDP, and the Ministry

of Food and Disaster Management, Bangladesh. The chief guest was the honorable minister of Food and Disaster Management, Dr. Muhammad Abdur Razzaque, and Prof. M.A. Ansary gave the keynote speech. The different sessions of the workshop focused on a variety of issues covering environment, architecture, civil engineering, water resources, planning, and other fields.

Lecture course and seminar on urban building fire and safety

BNUS also participated in the lecture course and seminar on “Urban Building Fire Mitigation and Safety Issues in Asian Mega Cities: Bangladesh Chapter” on Dec. 21-23, 2010 at the Public Works Department, Dhaka. This event was a collaborative research study between the Tokyo University of Science (TUS), the Building Research Institute, Japan, the Bangladesh University



Prof. Ansary receiving a certificate at the seminar on urban building fire and safety

of Engineering and Technology, American International University Bangladesh, Fire Service and Civil Defense (FSCD), and the Ministry of Housing and Public Works, Bangladesh. The lecture course was designed for students of architecture and engineering, fire professionals, and other concerned officials. Experts placed emphasis on urban building fire issues, and included several speakers from Japan.

(by M.A. Ansary, BNUS)

RC67 Committee Activities

The “Research Committee on Evaluation of CSR Activities in Environmental Conscious Society” (RC67) was started in May 2009 and, over the past year, we have interviewed five companies from various industries. After these interviews, it has become clear that these companies are not aware of the importance of domestic timber, so we developed evaluation documents to help increase the effectiveness of the interviews. This has helped increase awareness among the interviewed companies towards forest-related

CSR activities. One company whose business is not related to forest management promotes CSR activities such as collecting and planting acorns with regional volunteers in order to reforest areas which were deforested by construction of their factories. On the other hand, companies related to forest management or water resources enable large-scale forest management and put their effort into environment education or human resource development.

From the interviews we have also identified important elements

for ensuring forest-related CSR activities, such as the importance of activity continuity, promoting the use of domestic biomass to support forestry, and cooperation with local organizations and regional volunteers. From these elements we have put together evaluation points and are working on an objective evaluation system for CSR activity.

*(by K. Tokunaga,
Sawada-Takeuchi Lab)*

Environmental and disaster management symposium and IIS alumni party were held in Bangkok, Thailand

On Nov. 27, 2010, a half-day symposium on the “Forefront and Challenges of Geospatial Technologies for Environmental and Disaster Management in Southeast Asia” was held at the Patumwan Princess Hotel, Bangkok. The symposium was organized by RNUS, AIT, and Chula Unisearch, Chulalongkorn University.

Eight distinguished speakers in this field from both Japan and Thailand gave excellent presentations as follows:

- Dr. Suvit Vibulsresth (National Research Council of Thailand)
- Prof. Yoshifumi Yasuoka (Executive Director, National Institute of Environmental Studies)
- Dr. Anond Snidvongs (Acting Executive Director, Geoinformatics and Space Technology Development Agency GISTDA)
- Mr. Shinichi Mizumoto (Director, Japan Aerospace Exploration Agency JAXA)
- Dr. Wataru Takeuchi (Director, JSPS Bangkok Office; IIS, The University of Tokyo)
- Dr. Nitin Kumar Tripathi (Director, UNIGIS, AIT)
- Prof. Kimiro Meguro (Director, ICUS, IIS)
- Dr. Charat Mongkolsawat (President, Remote Sensing and GIS Association of Thailand RESGAT; Khon Kaen University)

Approximately 140 participants joined the symposium, with 40% coming from universities, 40% from government agencies, and 20% from the private sector or other organizations. Due to such



Participants at the symposium



Presentation by Dr. Suvit (Rep. of IIS Alumni Thailand Chapter)



Toast at the alumni party



Toast by Dr. Yasuoka (NIES)

large participation the venue had to be changed from the initial, smaller venue to a much larger one. This positively demonstrated the high degree of interest in this field of research in Thailand.

Following the symposium, the 4th IIS Thai alumni party was held at the same hotel. Many IIS alumni from governmental organizations, universities, and companies in Thailand joined the party. The

meeting was wonderfully filled with a friendly atmosphere and the participants reminisced about their lives at IIS and caught up on each others' recent news.

In the coming year, many ICUS-related activities will be held in Thailand. First is the 10th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA2011), which will be held

in Chiangmai on Oct. 12-14, 2011. The second even is the next all-Todai (University of Tokyo) alumni party, which will be held on Oct. 15 in Bangkok. Please check the ICUS and RNUS websites in the future for more information and announcements regarding these and other events.

(by A. Kawasaki)

ICUS Activities

- All ICUS members (excluding Prof. Yokota and Prof. Ohara) joined USMCA2010 held in Kobe, Japan, on Oct. 13-15.
- Prof. K. Meguro attended a half-day symposium and IIS alumni party on Nov. 27 in Bangkok, Thailand.
- Prof. H. Sawada visited Hanoi, Vietnam, from Oct. 30 to Nov. 3 for the 31st Asian Conference on Remote Sensing.
- Prof. H. Sawada also visited Tsinghua University in Beijing, China, from Dec. 19-21 for a research meeting on disaster protocol.
- Dr. T. Endo left for Pusan, South Korea, on Dec. 1 for a 2-month investigation on the existing conditions of LiDAR research in South Korea.
- Prof. Y. Kato visited Delft (Aula), The Netherlands, from Oct. 4-6 for the 2nd International Symposium on Service Life Design for Infrastructure.
- Prof. Y. Kato also attended the 4th Asian Concrete Federation International Conference from Nov. 28 to Dec. 1 in Taipei, Taiwan.
- Dr. A. Kawasaki went back to AIT in Bangkok, Thailand, from Nov. 15 to Dec. 14 and again from Dec. 23.

Awards

- Dr. A. Kawasaki won the GIS Award for Young Researcher from the GIS Association of Japan in October for his active submission of publications to the association.
- Ms. M. Sato, master student in Kuwano Lab, received the Excellent Young Researcher Award in October at USMCA2010 in Kobe, Japan.

Editor's Note

Last November I experienced a personal disaster: I had to be taken to the hospital in an ambulance to have my gall bladder removed. Afterwards, I thought that the ambulance is not a comfortable vehicle at all and I remembered we were often stopped by other cars even though traffic was not so heavy.

Globally, many disasters occurred before the beginning of the New Year. Monsoon rains continued for five months in Pakistan. More than 200,000 Australians were affected

by floods in Queensland at the end of December caused by Tropical Storm Tasha. High waters washed out roads, isolated entire towns, and forced thousands to flee. Conversely, temperatures in some areas rose to more than 40 degrees Celsius and the hot and dry conditions contributed to large wildfires along the coast. After facing these disastrous events, we always recognize that we need to continually improve our efforts towards mitigating natural disasters.

It is the tenth fiscal year of ICUS and we were able to successfully hold the

9th USMCA in Kobe with the support of many agencies and institutions, along with the friendly participants. It really is an honor that we could continue our activities with many colleagues and supporting parties. However, our objective is not just to hold such meetings but to decrease the number of disaster victims who must ride in uncomfortable ambulances. We strongly wish to expand our activities.

(by H. Sawada)

Announcement of USMCA 2011 (Chiangmai, Thailand)

We would like to announce that the 10th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA2011) will be held in Chiangmai, Thailand on October 12-14, 2011. Further information will be available on the ICUS and RNUS websites as details of the symposium are decided.

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