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PRESERVATION OF HISTORICAL ARCHITECTURE AND COMPLIANCE WITH TODAY'S SAFETY LAWS

By

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Architecture needs to satisfy various demands, one of which is safety laws. All architecture even existing historical architecture-must comply with these requirements. However, a lot of historical structures do not satisfy modern safety requirements.

There are two main reasons on this issue. The first is that today's standards are higher than those at the time when the historical structures were constructed. The second is that many years have passed since the construction and the structural safety has deteriorated with age.

To bring these historical architectures up to today's safety standards, it is necessary to refurbish their structure. However, the historical value may be lost due to refurbishment. Therefore, a new method is needed. There are laws and regulations that determine the safety. In Japan, building standard law and fire safety law often outline the methods and equipments required. However, these can influence the value of historical structures. For example, even if only the old part of building is refurbished, these laws require improvements to the whole building.

Therefore, special measures are needed within such laws and regulations in order not to lose historical value. Such special measures are seen not only in Japan but also in many other countries. For example, all architecture built before a law or regulation is enacted is covered or exempted by separate special measures for historical architectures.

In Japan, one problem is that

Beam smoke detector

there is little historical architecture to which special measures can be applied. Another problem is that it is not clear how to apply special measures. However, in the case of historical architectures designated by the national government ("Kokuhou" and "Jyuyo-Bunkazai"), there are national guidelines for seismic diagnosis and earthquake proof reinforcement. However, they give the initiative for diagnosis, reinforcement and fire protection is given to the owners of "Kokuhou" and "Jyuyo-Bunkazai". But most historical architectures won't be able to follow "Kokuhou" and "Jyuyo-Bunkazai" due to high cost and time required. It's a very severe problem in Japan. So it is necessary to quickly propose new special measures that can be applied easily to historical architecture.

The author has researched the relationship between laws and how they apply to secure the safety of historical structures in Britain, France, Germany, and the United States. This research shows the same problems in these countries. But the solution is different in each country.

In Britain, there are reference standards for refurbishments of historical and cultural architectures, and such standards are included in the "British Standard". British Standard is set by a third party, and the local government or institution for inspection confirms the special measures based on standards, such as in the case of the Shakespeare Globe Theatre.

In the United States, there is the state code for general architectures executed by the International Code Council. But for historic architecture, the local government has set the original codes; for instance, California State has set the 2007 California Historical Building Code.

In France, there is a commission for security under the governments and the commission decides the relevant means for taking special measures in the care of historic architectures. The commission for security is broken down into national, prefectural, and city council levels. Risks are decided by use, scale and accommodation number of the architecture. If the risk is high, a commission of the upper government decides the appropriateness of special measures, as demonstrated by the Cathedral Saint Corentin.

Shakespeare Globe Theater, London, Britain Reconstruction of historical architecture
In general, thatched roof is not permitted in down town area, but this architecture permitted by using fire resistive board and a sprinkler system in the roof.

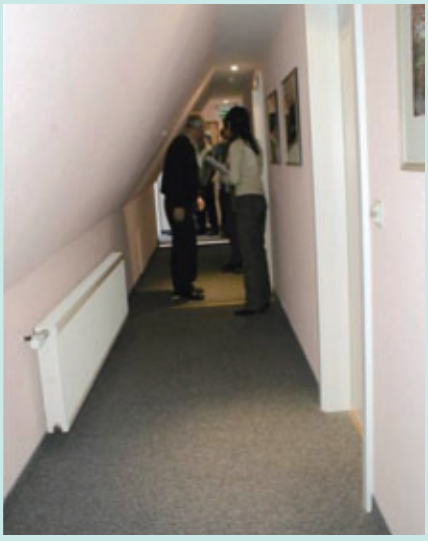
In Germany, first whether architecture has historic value is decided by town planning officers of the local government. Then a safety officer of the local government decides the relevant special measures for the historic architectures under their discretion without affecting the historical

Cathedral Saint Corentin , Quimper, France
This stand pipe is the special fire prevention equipment for the wooden roof frame of this cathedral.

value, such as enhanced escape options to compensate for narrow spaces.

The procedure of the law and how to decide the appropriate methods are different in each country. But practical consistent ways between safety and historic preservation are almost the same in each country. So we can learn many useful facts for how to maintain safety and historical value.

First of all, even if the historical structure doesn't comply with safety. This means that weak points remain in the building, so to compensate for this weakness the other regions and parts are reinforced by appropriate specifications and equipment which have higher quality than the basic ones required by the safety laws and regulations. This method is called the engineering approach.



Hotel converted historic architecture, Goslar, Germany.
In general, such a narrow and low corridor aren't permitted to use as evacuation way. But this corridor was permitted by using doorway and staircase for evacuation wider than standards.

Next, it is possible to restrict the usage or amount of accommodation to ensure safety in the historical which does not meet the safety laws and regulations. In case of new architecture, usage and accommodation are decided by laws and regulations and the same specifications and equipments are applied to each region equally. In the historic architecture different specifications and equipments can be set according to region.

The reason for permitting such an exception is to allow owners and managers to sufficiently ensure the safety of architecture by themselves considering each case individually. In other words, the responsibility of owners and managers to handle risk management for architecture is strictly enforced in Britain, France, Germany, and the United States. Moreover, the usage or accommodation limit are not maintained, violators are severely punished.

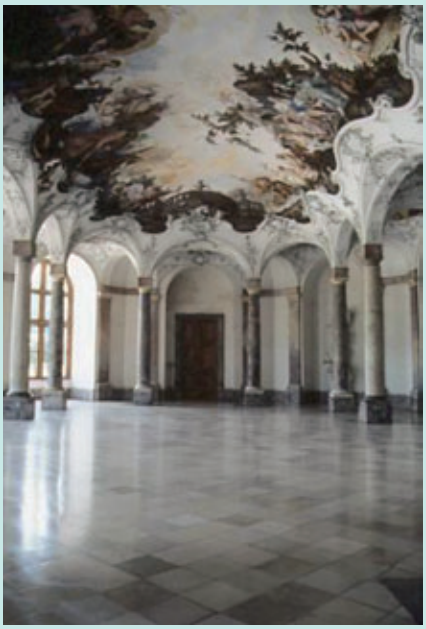
This is the difference in philosophy of responsibilities and penalties between Japan and Britain, France, Germany, and the United States. We should follow foreign examples.

One more important point is that the government highly recommends and historic preservation officers permit improvements to historical structures from an engineering approach. In Japan, when the historic architecture is refurbished, it is not clear how to preserve the historic value or how to improve without losing the historic structure.

Especially in the case of "Kokuhou" and "Jyuyo-Bunkazai", the owners must apply for permission from the national government in advance by National Preservation Law for Cultural Properties. But the national government doesn't reveal the standards for permission in this law. If the differences between the regions that have historical value and the other regions are clear, it will be ensure for owners to apply for permission. Also, it will be easier for architects and construction engineers to propose new methods and ideas for safety and historic preservation.

I hope that Japan will refer to the examples of other countries and take a positive engineering approach to securing the safety of historical architecture.

([1] Kogakuin University, Japan)



Residence, Wurzburg, Germany: the large hall of this building is changed using way and accommodation number by the way. So the escape light for emergency is temporary.

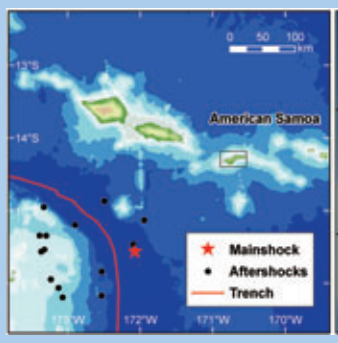
The 2009 Samoa Earthquake Induced Tsunami: A Quick Survey from the Field

On 29 September, at 17:48 UTC (06:48 Local time), a major earthquake of magnitude 8.1 occurred off the coast of the Samoa islands. The tsunami generated by this earthquake struck the Samoa islands and killed at least 149 people in Samoa, 34 people in American Samoa, nine people in Tonga, and resulted in the most devastation due to tsunami in the history of the Samoa region. Dr. Shunichi Koshimura, Associate Professor, Tohoku University, and his colleagues conducted a post-tsunami field survey on Tutuila island, American Samoa, from 5 to 8 Oct., 2009, focusing on the measurements of tsunami run-up height, flow depth, extent of inundation zone, structural damage inspection, and collected eyewitness accounts.

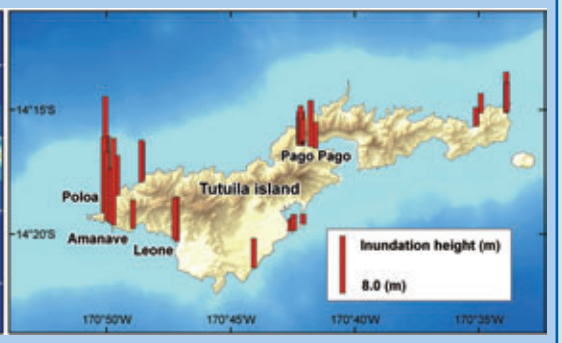
Measured tsunami run-up heights are summarized. The tsunami hit more severely along the western coast of Tutuila island. The highest run-up of 16.3m was measured at the village of Poloa which is located on the western coast of the island. The village of Poloa was totally devastated and two people in this village were killed. And 12.4m inundation height was measured at Amanave (southern coast of the island) where the tsunami penetrated roughly 200m inland. Severe damage was also observed at the village of Leone, where 6m tsunami attacked.

The tsunami penetrated more than 200m inland and left extensive amount of debris in the lagoon.

Pago Pago harbor is located in the bottom of the inverse L-shape bay and was hit by 5m tsunami that were penetrated more than 500m inland. We surveyed the structural damage in Pago Pago harbor by on-site inspection with GPS measurement, which leads on the understanding of the relationship between the tsunami hazard and structural vulnerability. As a preliminary result, we found that 35 out of 127 houses within the inundation zone were washed away.



Samoa island and its vicinity



Tsunami run-up measurement

During the survey, we interviewed the survivors to collect eyewitness accounts on the tsunami arrival time, the initial sea surface movement, and the number of tsunami attacks. Along the southern coast of Tutuila island, the tsunami was likely to have started by depression (Leone, Poloa, and Pago Pago) and the second wave was the highest (Leone), which was consistent with the observed tide record at Pago Pago harbor. The most important result of the interviews was that the residents were aware of tsunami and knew that they should move to higher ground as they felt strong ground shaking. In this event, the Pacific Tsunami Warning Center (see the name lists) issued a warning at 07:04 (16 minutes after the earthquake) and the national weather service office of Pago Pago disseminated the guidance of evacuation through the radio at 07:02 (14 minutes after the earthquake). This awareness probably contributed to reducing the number of fatalities in Tutuila island (34 casualties reported). For instance, a school bus driver in Poloa village, who had just left the students in the school, was aware of tsunami after the earthquake and took the children back to the higher ground. This sort of awareness- that strong ground shaking is a sign of tsunami,-is the most important factor for surviving a tsunami disaster.

Tsunami damage in the village of Leone

Tsunami debris left in Leone lagoon

Acknowledgements:

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Survey team members ;

Shunichi Koshimura (Leader, Associate Professor, Graduate School of Engineering, Tohoku University), Yuichi Namegaya (Researcher, Geological Survey of Japan, AIST, Japan), Yuichi Nishimura (Assistant Professor, Institute of Seismology and Volcanology, Hokkaido University, Japan), Yugo Nakamura (Researcher, Institute of Seismology and Volcanology, Hokkaido University, Japan), Gerard J.Flyer (Geophysicist, Pacific Tsunami Warning Center, NOAA, USA), Akapo Akapo (Director, National Weather Service, NOAA, American Samoa), Laura S. L. Kong (Director, International Tsunami Information Center, UNESCO/IOC-NOAA, USA)

(By S. Koshimura
Tohoku University, Japan)

Japan's Expected Role for Transboundary Collaboration in the Mekong Region

In order to establish a regional cooperative framework in East Asia, namely, creation of Asian free trade regions attention to ASEAN (Association of SouthEast Asian Nations) countries has been increasing. As one of ICUS's focal study regions, this article summaries current interactions between Japan and East Asia, especially in the Mekong area.

In January 2010, China and Korea largely reduced trade tariffs with six major ASEAN countries, including Singapore and Thailand, and Free Trade Agreement (FTA) between ASEAN and India, Australia and New Zealand went into effect. Japan has already completed FTA and Economic Partnership Agreement (EPA) with ASEAN countries, and Prime Minister, Yukio Hatoyama has recently reintroduced the concept of the East Asian Community (EAC).

Through a series of these moves, Mekong-Japan Exchange Year was promoted in 2009 under the catchphrase of "Together toward the future, Mekong and Japan." The Mekong-Japan Summit Meeting, which included Cambodia, Thailand, Vietnam, Myanmar, and Laos, was held in Tokyo in November 2009 and the Tokyo Declaration of the First Meeting among the Heads of the Governments of Japan and the Mekong region countries and the Mekong-Japan Action Plan 63 were announced. Many visions are shared among these countries, such as becoming mutually important partners in political, economic and social perspectives, and cooperating with various regional frameworks. In addition, it was recognized that the Mekong region still confronts regional and global challenges including climate change, natural disasters and infectious diseases, which are threats to human security.

To realize the Green Mekong, Japan committed to important actions on climate change and environmental and disaster management in the region. Japan committed to promote technology and knowledge transfer to the Mekong region for improving environmental management, especially for water resources management and flood control. Many technical and financial assistance strategies were declared but, as the Mekong is the longest "international river" in Asia, more support is required to realize the Green Mekong through facilitating cooperation and collaboration among riparian countries in cross-boundary environment. This means that many of the proposed actions, such as strengthening capacity to tackle rapidly-spreading infectious disease and reducing flooding damage by extreme climate change, expand beyond national borders.

In the Mekong, upstream and downstream issues interlace hierarchically in both mainstream and tributary systems. Economic discrepancy, political conflicts and cultural differences lie hidden across national borders. Therefore, in order to promote effective regional actions, especially from an environmental management perspective, solving or facilitating cross-boundary issues becomes a very challenging but unavoidable problem. By collaborating with riparian and stakeholder countries, international organizations and Mekong River Commission, Japan is expected to take leadership in coordinating cross-boundary issues from a neutral position with Yuai (友愛 : Prime Minister Hatoyama's principle, the spirit of friendship). Considering current ASEAN situations, there is still a long way to go until East Asian Community (EAC) can be realized, but this starting point is one of many important and enduring tests of Japan's commitment.

(by A. Kawasaki)

A dam construction in the upstream of a river tributary in Vietnam

Nonaligned upstream development affects the life of downstream residents in tributary systems in Cambodia

Survey of September 30, 2009 Sumatra Earthquake

On September 30, 2009 at 17:16, an intense earthquake (M7.6) occurred just off the western Sumatra coast in Indonesia (Location: 0.789°S, 99.961°E). The focal depth was 80 km (USGS). The epicenter was 45 kilometers from the port city of Padang, Sumatra. An after shock (M6.2) occurred 22 minutes later, followed by a third quake (M6.8), which struck 225 km southeast of Padang. This continuous shaking caused widespread destruction in the area of Padang Pariaman District. Most inhabitants in the affected areas have lost their houses due to collapse by seismic motion or landslide. The official death toll confirmed was 739, with another 296 people missing and presumed dead, primarily in Padang Pariaman District. A total of 863 people were seriously injured, and 1,356 people slightly injured. Damage to houses was widespread with 121,679 houses severely damaged, 52,206 moderately damaged, and another 57,510 lightly damaged, rendering homeless estimated was 250,000 families, many people were too frightened to return home (UN OCHA). We conducted a survey of the damaged area from Oct. 16 to 18.

There were many damaged buildings in both Pariaman and Padang. Over 300 building were observed quickly during this survey.

Structures affected by this earthquake were low-rise residential masonry, hotel buildings, government offices and industrial facilities. Low-rise residential masonry buildings are generally constructed with bricks and they are either one story or two story buildings. In the structural type, engineered and non-engineered structures in the seismic affected areas may be classified into three general categories; namely, wooden structure, unreinforced-masonry structure and masonry structure with frame.

There were much typical damage to wooden houses and masonry houses constructed with bricks. Compared to brick masonry houses with or without RC slabs and/or columns, they performed better; however, there were instances of total collapse due to intense ground shaking. Pancake-type collapse was observed in the buildings of China Town. These buildings are probably the most vulnerable to seismic motion and may collapse during the next strong earthquake.

Totally collapse of wooden house

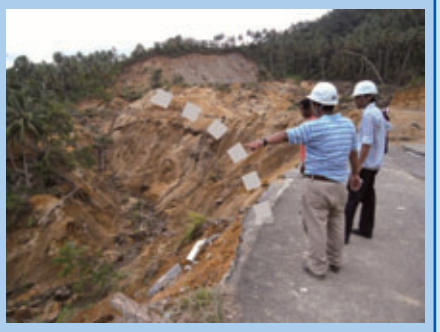
Pan-cake type collapse in China town

From an assessment of 15 bridges, no significant damage was observed from this earthquake. Bridges in the epicentral area are mainly truss or simple beam bridges. The damage to bridges were mainly caused by the failure of approach embankments and uneven settlement of piers.

During the survey, roads were available to traffic. The damage to roadways was also observed in this study. Surface ruptures and failures of embankment along the river and slope cut caused damage to roadways at several places in Padang and Pariaman. In particular, slope failures occured in places with volcanic sediments and volcanic soft rocks, such as in Pariaman. Extensive slope failures were observed along the moutainous road. Some of these roadways were constructed on the thin ridge with soil surface along the river. The failure points occurred at the attacking side of river, where the foot of the slope loses stability because of erosion due to water flow. Typically, the slope at the attack side may be unstable due to erosion of the foot.

There was a large slope failure of volcanic sediment. Since the volcanic sediment is a type of pumice soil, under water supply it can easily fail on the sliding surface of the clay layers. When the earthquake occurred, a wedding ceremony was being held on the sliding soil mass. This failure shown the photo above caused the deaths of 200 people attending the party.

Slope failure along mountain road



Large slope failure of volcanic sediment

The railway is normally used for leisure on the weekends. The railway was available on the first weekend after the earthquake. Slight failure of railway embankments was observed, however they were completely recovered after the first leisure day.

The most remarkable geotechnical damage was caused by liquefaction and accompanying lateral movement.

The liquefaction sites are located between the coastal line and a small river with ground layers of sand and a shallow ground water level in the marine deposit. Settlement of buildings and foundation damage due to liquefaction-induced ground failure and lateral spreading resulted in the collapse of masonry houses and/or severe cracking walls.

Most industrial facilities are located in Southern Padang City. Inspection of some industrial plants in Padang and Pariaman showed that the earthquake did not cause any major damage to industrial facilites except some small scale damage.

Two ceramic isolators in electric power station were damaged, but were repaired two days later. However, seven to ten days were needed to restore electric power in Padang city. Electricity was fully recovered by ten days.

Two port facilities in Padang were surveyed. The cement plant and coal storage did not suffer considerable damage and the economic loss due to the subsidence or lateral movement of coastal line was little. Liquefaction and slight damage at the ferry crossing were observed. No damage was found in the petroleum tank yard.

(by M. Numada)

Project on Amazonian Carbon Dynamics

"CArbon Dynamics of Amazonian Forests" (CADAF) project is a science technology and research partnership for sustainable development project under the framework of both the Japan Science and Technology Agency (JST) and the Japan International Cooperation Agency (JICA), and will start from January 2010. CADAF is a giant project spanning 4 years with a budget of approximately 1.5 million USD per year. Prof. Sawada and Dr. Endo are participating in the project with the Forestry and Forest Products Research Institute (FFPRI), Japan; Instituto Nacional de Pesquisas da Amazônia (INPA) and National Institute for Space Research (NPE), Brazil. The objective of the project is the development of quantitative evaluation technology for assessing the carbon dynamic of Amazonian forests, including methodologies for Reduced Emissions from Deforestation and forest Degradation (REDD). We are in charge of mapping the carbon dynamic of the whole Amazonian forest using satellite data in the project. From 20th November to 1st December, we went to Sao Paulo and Manaus in Brazil for discussion with the project participants, and then stayed at a test site inside the Amazonian forest near Manaus for a day and discussed the common goals of the participating parties. We will inform you of some of the highlights of this project by newsletter over the next year.

(by T. Endo)

Overview of field survey at Amazonian forest

Disaster Drill held at the University of Tokyo Hospital

Disaster drill was held at the University of Tokyo Hospital from 13:30 on October 1st, 2009. Prof. Meguro and Dr. Ohara are studying disaster management manual system for University of Tokyo Hospital with the University of Tokyo Hospital and the Division for Environment, health and Safety. The disaster drill was planed based on the disaster management manual.

In the drill, occurrence of the Tokyo Metropolitan Earthquake with magnitude 7 was assumed. The Drill consisted of 2 parts. The first part was the training for checking the safety of patients, staffs and facilities in each ward of the hospital just after the earthquake and reporting the results to the disaster command center. Based on the reports from each ward and sections, the disaster command center decided that the hospital has the capability to accommodate disaster victims transported from outside. The second part of the drill was the training of triage and treatment for outside disaster victims. Triage is the medical activity for sorting patients according to the severity of their injuries in order to provide maximum medical treatment under the restriction of medical resources. The mimic disaster victims were sorted to be Red; Severely-injured to be treated urgently, Yellow; Moderately-injured, Green; Slightly-injured after the first and second triage.

Lessons learnt from these drills will be included to brash up the contents of disaster management manuals.

(by M.Ohara)

Disaster command center

Triage of mimic patient

USMCA 2009 was held in Incheon, Korea

Experts from 7 countries delivered 82 presentations at USMCA 2009, Incheon

The National Institute for Disaster Prevention (NIDP), Seoul, Korea; the Korea Disaster Prevention Association (KDPA), Seoul, Korea; the Korean Society of Hazard Mitigation (KOSHAM), Seoul, Korea; and ICUS organized the Eighth International Symposium on New Technologies for Urban Safety of Mega Cities in Asia, (USMCA2009), at Incheon, Korea on October 15-16, 2009. This symposium were supported by the Incheon Metropolitan City Government (Korea); Incheon Urban Development Corporation (Korea); The Foundation for the Promotion of Industrial Science (Japan); and Global Center of Excellence for Sustainable Urban Regeneration (Japan).

The two-day symposium program was arranged in three keynotes, two plenaries and 12 technical parallel sessions.

The symposium was inaugurated by Dr. Byung-Ha, President of KDPA, Dr. Wook Kwon, President of KOSHAM, Mr. Sang-Soo Ahn, Mayor of Incheon City and Prof. Kimiro Meguro, Director of ICUS. Keynote lectures were given by Dr. Yeon-Soo Park, Adminsitrator of National Emergency Management Agency, Mr. Yasuyoshi Ichikawa, ICUS Visiting Prof. and Prof. Haruhisa Shimada, Tokai University. Plenary speakers were Prof. Sudhir Misra, IIT Kanpur and Prof. Waon-Ho Yi, Director of NIDP.

About 260 people participated in the symposium, and 82 papers were presented in technical sessions covering a wide range of issues in the area of urban safety, including green growth technology for urban safety; urban risk and response strategy against climate change; safety assessment of existing infrastructure; decision-making technologies for dealing with urban disasters; advanced technologies for monitoring and assessment of urban safety; rehabilitation an retrofitting of urban structures against disasters; emergency management for urban disasters; risk assessment, prediction and early-warming of urban disasters; and application of GIS,GPS and RS to enhance the urban safety. ICUS prepared the Excellent Young Researcher Award to encourage activities of young researchers in the field of urban safety engineering. The winners of this award were: Dr. Tae-Ho Ahn, Mr. Kotaro Sakurai and Ms. Risa Kuwahara (IIS, The Univ. of Tokyo).

Young researcher award recipients

Post-Conference Field Study Trip

USMCA 2009 participants visited the inside of the Northeast Asia Trade Tower (NEATT), the supertall skyscraper standing 305 meters (70 floors); which is under construction in New Songdo City, on 17th October. This post-conference field study trip to Incheon Bridge and 2009 Incheon Global Fair & Festival was specially arranged by with the help of the Incheon Metropolitan City Government.

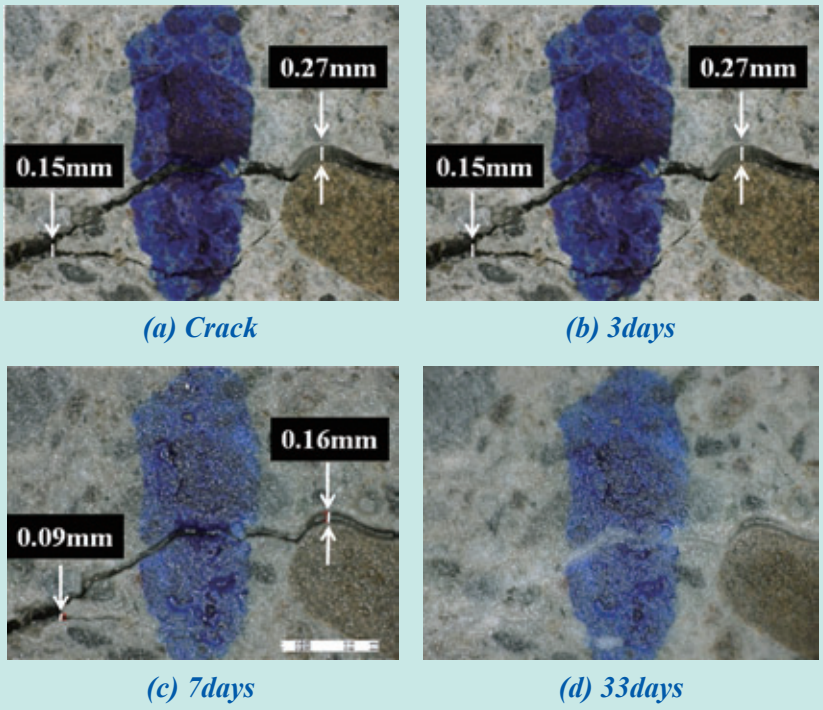
New commercial and residential construction in Songdo New City

At the USMCA2009 in Incheon, Korea, three researchers were selected as winners of the Young Researcher Award. One winner briefly introduces his award-winning research below.

Design of Crack Self-Healing on Concrete Structures

This study aims to develop and apply self-healing concrete as a new method for crack control and enhanced service life in concrete structures. This concept is one of the maintenance-free methods which, apart from saving direct costs for maintenance and repair, reduces the indirect costs – a saving generally welcomed by contractors. In this research, the self-healing phenomenon of autogenous healing concrete using geo-materials for practical industrial application was investigated. Moreover, in order to apply this concept to the field, a self-healing concrete, designed by the author, was fabricated by ready-mixed car in a ready-mixed concrete factory, then used for the construction of artificial water-retaining structures and actual tunnel structures. The results show that the concrete cracks were significantly self-healed after 28 days re-curing. Crack width of 0.15mm was self-healed after re-curing for 3 days and the crack width decreased from 0.22 mm to 0.16 mm after re-curing for 7 days. Furthermore, it was almost completely self-healed at 33 days. It was founded that this phenomenon occurred mainly due to the swelling effect, expansion effect and re-crystallization. From these results, it is considered that the utilization of appropriate dosages of geo-materials has a high potential for a new repair method for cracked concrete under the water leakage of underground civil infrastructure such as tunnels.

(By T. H. Ahn, IIS, The University of Tokyo)



(a) Crack *(b) 3days*

(c) 7days *(d) 33days*

Process of self-healing on self-healing concrete at water/binder ratio of 0.47

RNUS Activities

Regional Network Office for Urban Safety (RNUS) played an important part in the Outreach International Program between Universiti Technologi Malaysia (UTM) and Asian Institute of Technology (AIT) on December 18, 2009. AIT and UTM committed to send studStudents in the Department of Remote Sensing and Geoinformatics visited AIT accompanied by senior lecturers and pursued collaborated academic activities from December 14 to 20. On December 18, as a part of the activities, Prof. Haruo Sawada of ICUS gave an hour' lecture with the title "Introduction of ICUS Activities and Remote Sensing Study in Regional Scale," which included the role of RNUS. Twenty-one students and two lecturers from the department of remote sensing, UTM, attended the lecture and listened intently to it, and asked vigorous questions after the lecture.

(By A. Kodaka, RNUS)

Commemorative photo

BNUS Activities

"Release of pressure model" for reducing earthquake vulnerability

Most earthquake-related deaths are due to structural collapse or lack of awareness among the inhabitants, so for disaster mitigation, both construction and planning play a vital role in reducing casualties and minimizing damage in the affected areas. To promote disaster mitigation, BNUS has prepared a "release of pressure model" as a guideline intended for use in disaster-vulnerable areas.

To make this model, different factors were selected from a literature study considering ward No. 68 in Dhaka city and from a socio-economic survey of 200 households in the ward. Major aspects of the model include:

Root causes:
- Prejudice towards ethnic minorities and social groups
- Unequal distribution of economic power
- Belief in modernization and science

Dynamic pressures

Lack of:
- Awareness of earthquake risk
- Awareness that Old Dhaka is more vulnerable than other areas

Macro forces:
- Economic strength creating work opportunities
- Aging population for both genders

Unsafe conditions

Physical environment:
- Unsafe, non-engineered dwellings due to design faults
- Aged and damaged buildings
- Narrow staircases in buildings
- Severe overcrowding in high-density urban areas in Dhaka
- Unsafe infrastructure due to lack of knowledge on seismic design

Impact of local economy:
- Businesses run on the ground floor or front of building with upper levels used for residential purposes
- Unsafe conditions in factories or industrial areas

Social relationship:
- Lack of mobility for the elderly, such as escape routes during disasters
- Sub-standard living conditions

Public actions and institutions:
- Lack of proper implementation of disaster management planning in older and more-vulnerable areas
- Lack of coordinated action
- Lack of disaster preparedness at all levels

Hazards

Primary impact:
- Earthquake ground shaking

Secondary impact:
- Fire, ground displacement

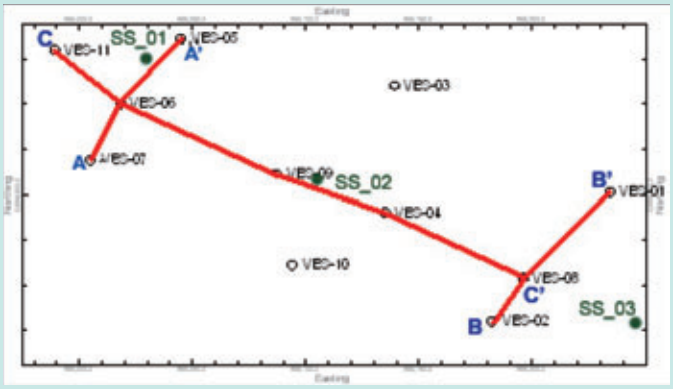
Shallow seismic survey at Muchai Site, Rashidpur

A shallow seismic survey was carried out to evaluate shear wave velocity to a depth of around 30 meters. Hammer source was used to generate the energy and a 12-channel seismograph was used to record the data. Geophone spacing was 3 meters. Data were recorded when the ambient noise was at a minimum. The collected data were processed using Pickwin software. The survey was conducted at three locations, as shown in the figure below, with an example of the shear wave velocity observed at Station 1. These shear wave velocities can be used for site categorization used in the national earthquake hazard reduction program.

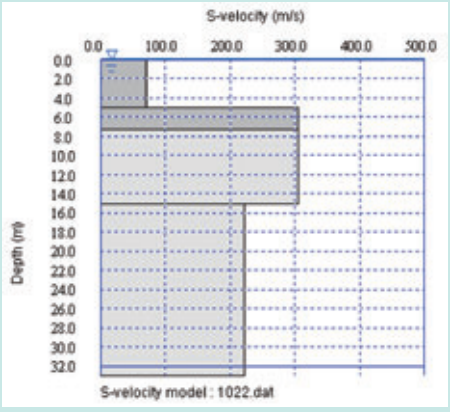
Dr. Tanaka visits BNUS

Dr. Shinji Tanaka from the Transportation Engineering division AIT, Bangkok, visited BNUS, BUET, Dhaka on December 7, 2009. During this visit, Prof. M.A. Ansary of BNUS briefly introduced the Earthquake Evacuation Plan for Old Dhaka, the microzonation map of Cox's bazaar city, earthquake recording instruments used in Bangladesh, the effects of cyclones Sidr and Aila, climate change scenarios for Bangladesh, and other BNUS research activities. Finally, Prof. Ansary presented a gift to Dr. Tanaka for visiting the BNUS office.

(By M. A. Ansary, BNUS)



Shallow seismic (SS) and vertical electrical sounding (VES) locations and the direction of electrical profiles in the survey area



Shear wave velocity at Station 1

Order of the Rising Sun to Dr. Suvit Vibulsresth

Dr. Suvit with Dr. Yasuoka and Prof. Meguro

Dr. Suvit Vibulsresth received the honor of the order of the Rising Sun (Gold Rays with Neck Ribbon) from the Japanese Government. He graduated University of Osaka in 1964 and received his Ph.D from the University of Tokyo in 1989 after studying at the Institute of Industrial Science (IIS). He was a director of the Department of Remote Sensing on the National Research Council of Thailand and became the first Director General of the Geo-Informatics and Space Technology Development Agency (GISTDA) in Thailand. This honor is the result of his continuous contribution to establishing friendship and scientific cooperation between Japan and Thailand, particularly in the field of remote sensing. He often attended ICUS's international workshops and is a collaborator of IIS, and is also working the president of IIS Alumni Thailand chapter. We congratulate him on this prestigious decoration.

(by Prof. H. Sawda)

17th ICUS Open Lecture was held at IIS

The 17th ICUS Open Lecture was held at IIS on November 4 with approximately 150 participants. Three presentations were given on the lecture' theme, "town planning with all safety, cityscape and cultural properties," and forcused on the preservation of houses in the Important Traditional Building Preservation Area. Dr. Kariya of Oyama National College of Technology discussed the houses from the view point of preservation as cultural properties. Dr. Kawai of the Building Research Institute discussed them from the view point of safety against the earthquake. Prof. Goto of Kogakuin University discussed the practical preservation with diverse values after three presentations, panel discussion was held by the speakers and the importance of considering various value systems for traditional houses was recognized.

(By M. Koshihara)

Dr. Y. Kariya

Dr. N. Kawai

Prof. O. Goto

ICUS Activities

• Prof. Meguro, Prof. Sawada, Visiting Prof. Ichihashi, Assoc. Prof. Kuwano, Assoc. Prof. Kato, Assoc. Prof. Hong, Dr. Tanaka, Dr. Endo, Dr. Numada, and Dr. Baruah attended the 8th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA 2009) in Incheon, Korea.

• Prof. Sawada visited Soul, Korea from Oct. 12th to 13th to make a presentation at the Korea Forest Research Institute.

• Prof Sawada visited Beijing, China from Oct. 17th to 21st to attend the Asian Conference for Remote Sensing.

• Prof. Sawada and Dr. Endo visited São Paulo and Manus in Brazil from Nov. 20th to Dec. 1st to attend CADAF project.

• Dr. Endo visited Busan, Korea from Oct. 11th to 13th to make a presentation at the Dept. of Geoinformatic Engineering, Pukyong University.

• Dr. Numada visited Padang, Indonesia from Oct. 15th to 20th to investigate earthquake damage.

• Dr. Tanaka visited Dhaka, Bangladesh from Dec. 3rd to 8th to participate in and make a presentation at the GCOE Seminar.

Awards

Graduate students Masamitsu Suzuki and German Alberto Pardo Rios of Kato Laboratory received Excellent Presentation Awards at the Japan Society of Civil Engineers Annual Conference 2009.

Editor's Note

In the main article, Prof. Goto of Kogakuin University reported difficulties and problems associated with the preservation of historical architecture. The historical value is as precious as safety and how to refurbish aged valuable architectures in order to secure the safety without damaging their historical characteristics is one of the most important issues. Currently, our mission – the search for urban safety – is in a similar situation. Everyone would agree that the safety of the urban system is a very important matter, but other factors – including economic, environmental, aesthetic, cultural and historical issues – should also be taken into account. Such difficult tasks can only be overcome by the development of social strategies as well as engineering technologies. We, ICUS, need to continue making efforts with colleagues in many countries to contribute to the safety of urban systems.

During the period covered by this volume, USMCA 2009 was successfully held at Incheon, Korea, thanks to our Korean colleagues at NIDP, KDPA, and KOSHAM. I would like to deeply express our appreciation to all the participants who contributed to USMCA 2009. At the post-conference tour, we visited the Northeast Asia Trade Tower to view the newly-constructed Incheon Bridge and New Songdo City. Both of these works made us feel the rapid growth, prosperity and future possibility of urban cities as a result of the application of modern advanced technologies.

(By R. Kuwano)

Call for Paper of USMCA2010

The 9th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA2010) will be held in Kobe, Japan on October 13th and 14th, 2010. The symposium is co-organized by ICUS and the United Nations International Strategy for Disaster Reduction (UNISDR), and marks the 15th anniversary of the Kobe Earthquake of 1995 and International Day for Disaster Reduction on October 13th. The deadline for abstract submission is June 30, 2010. Please visit the ICUS website for more information. The symposium brochure will be sent to you soon.

If you would like to contribute an article to ICUS newsletter or have any comments or suggestions, please contact the editorial committee at icus@iis.u-tokyo.ac.jp. Any article within the scope of urban safety engineering and management will be considered for publication after internal peer review by the editorial committee. To know the scope of ICUS activities, please visit ICUS homepage at http://icus.iis.u-tokyo.ac.jp/

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