

USMCA 2007

SYMPOSIUM PROGRAMME

**Sixth International Symposium on
New Technologies for Urban Safety of
Mega Cities in Asia**

**December 9-10, 2007
Dhaka, Bangladesh**

Organized by



**BANGLADESH NETWORK
OFFICE FOR URBAN SAFETY**

**Bangladesh Network Office for Urban Safety (BNUS),
BUET, Dhaka, Bangladesh**



**International Center for Urban Safety Engineering (ICUS),
Institute of Industrial Science (IIS),
The University of Tokyo, Japan**

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PREFACE

In almost all Mega Cities in Asia, due to the rapid economic growth and development, many high-rise buildings and complex infrastructure systems have been constructed in recent decades. Of prime concern is the high concentration of population, haphazard land development and commercial activities taking place in these cities. Other critical issues that are associated with the rapid urbanization include: environmental problems, supply of water, gas and power, sanitation, transportation, etc. It is therefore reasonable to postulate that the consequences of even a moderate level of natural event in the form of cyclone, earthquake, torrential flood, tornado, tsunami, etc. may be enormous in these cities. For instance, the recent Sumatra Earthquake and associated tsunami of December 2004 and October 2005 Kashmir Earthquake caused severe damage and a massive loss of life in the region. Urban Safety of Mega Cities in Asia has therefore naturally become a prime concern for the architects, engineers, planners and policymakers. It also poses a real challenge to them alike due to its multi-dimensional nature, which covers areas from structural design, maintenance and rehabilitation to disaster mitigation and risk assessment.

Recent development of various advanced technologies has provided motivation to focus on devising new methodologies for sustainable development of Asian Mega Cities with adequate safety and security. With this realization and recognition of the importance of using advanced tools in urban safety, the International Centre for Urban Safety Engineering was established at the Institute of Industrial Science, The University of Tokyo, and has taken the lead in organizing this series of symposia in the Asian region. After the successful completion of the earlier symposia in Thailand, Japan, India, Singapore and again in Thailand in 2002, 2003, 2004, 2005 and 2006, respectively, the present sixth symposium is being jointly organized by BNUS, BUET, Bangladesh and ICUS, IIS, The University of Tokyo, Japan. The symposium is sponsored by the Foundation for the Promotion of Industrial Science, Japan, Center of Excellence, The University of Tokyo and CEGIS, Bangladesh. It is also partially supported by the Embassy of Japan, Bangladesh.

Focus of this symposium is to help local and regional officials and experts involved in safety and security practice to enhance their knowledge by effectively disseminating information on new technologies for urban safety. It will provide a platform for developing and strengthening, a network among the Asian researchers and practitioners for future collaboration in diverse areas related to urban safety. To accomplish these objectives, the symposium will have two keynote sessions and ten parallel sessions on *Safety Assessment and Monitoring of Existing Infrastructure, Advanced Technologies for Assessment of Urban Safety, Maintenance, Retrofitting and Rehabilitation of Structures, Design and Assessment of Structures for Seismic, and Impact Loads, Disaster Management, Tsunamis, Flood and Environmental Risk Assessment and Urban Road Safety*. These sessions will present more than seventy technical papers including two Keynote and five Plenary papers.

I would like to take this opportunity to thank the Steering, Technical and Organizing Committees as well as the Symposium Secretariat and ICUS staffs for their time and effort in putting this symposium together. Special thanks are due to the authors of technical papers, participants and all others who took time out of their schedules to contribute to the success of this symposium. I would also like to thank the sponsors for their generous support and contribution.

Mehedi Ahmed Ansary
Chairman Organizing Committee, USMCA2007

SYMPOSIUM ORGANIZATION

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Israt Jahan, BNUS, BUET, Bangladesh
Munaz Ahmed Noor, BUET, Bangladesh (Secretary)

SYMPOSIUM OFFICE

Bangladesh Network Office for Urban Safety (BNUS),
Department of Civil Engineering,
Bangladesh University of Engineering and Technology (BUET),
Dhaka, Bangladesh
Tel : +880-2-862 05 85, +880-2-966 56 50 Ext: 7484
Fax: +880-2-862 05 86
e-mail: dirbnus@buet.ac.bd

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The Foundation for the Promotion of Industrial Science, Japan



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CEGIS

**Centre for Environment and Geographic Information Service,
Bangladesh**

Nominal Sponsorship by: Embassy of Japan in Bangladesh

GENERAL INFORMATION OF USMCA2007

The 6th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (USMCA2007) is organized by the Bangladesh Network Office for Urban Safety (BNUS), BUET, Dhaka and the International Center for Urban Safety Engineering (ICUS) of the Institute of Industrial Science, The University of Tokyo, and is sponsored by the Center of Excellence of the University of Tokyo (COE), Japan, The Foundation for the Promotion of Industrial Science, Japan and Centre for Environment and Geographic Information Service (CEGIS), Bangladesh

The first USMCA symposium was organized in Bangkok in 2002. Then, it was followed by the second one in Tokyo in 2003, the third one in Agra (India) in 2004, the fourth one in Singapore in 2005 and the fifth one in Phuket, Thailand in 2006. This series of International Symposia has been a successful forum for hundreds of researchers, practicing engineers, and decision makers from more than 10 countries to share and exchange their views on new technologies, techniques and innovations in diverse areas related to natural disasters and urbanization.

Dates

The Symposium is held on December 9 - 10, 2007.

Venue

The Symposium takes place in the Dhaka Sheraton Hotel, Dhaka.

Language

The official language of the Symposium is English. Oral presentation and discussion shall be in English only. Presenters must be able to make a participation and discussion in English.

Registration Desk

All participants and accompanying persons are cordially invited to the registration desk during below opening hours. Please collect your name card from the Registration Desk.

The opening hours are:

December 8, 2007	14.00 – 15.30
December 9, 2007	08.00 - 17.00

Support Desk

A technical support team is available during the symposium for any technical assistance for the presentations. Please contact the "Support Desk" for the technical assistance or ask you nearby staff wearing a Staff name tag to help you reaching our technical assistants. If you have not submitted your presentation(s), please submit during the registration or 3 hours before your session starts. For any other supports, please contact our Registration Desk or the Staff members.

Lunch

We have provided you coupons for lunch and invitation card for Banquet in your symposium bag.

Banquet

The Banquet on December 9, 2007 (Time 19.00 - 22.00) is included in registration for the regular participant only. Accompanying persons and those who are registered as student need to pay Taka 2000 per person for the Banquet.

Symposium Bags

- Proceedings CD
- Symposium Programme

PROGRAMME OVERVIEW

TIME	8 DECEMBER 2007, SATURDAY
1400-1530	Pre-Registration (In front of Ball Room, Hotel Sheraton)
1600-1800	Tour of BUET Laboratory & Welcome Reception (BNUS) (Please wait at the Lobby, Hotel SHERATON, at 15.45pm, the bus will leave for BUET at 16.00pm)

TIME	9 DECEMBER 2007, SUNDAY	
0800 -0900	Registration (In front of Ball Room, HOTEL SHERATON)	
0900-0940	Inaugural Ceremony (Ball Room) <i>Chairman: Professor Kimiro Meguro</i>	
0940-1010	Keynote Speech by Professor Tsuneo Katayama (Ball Room) The World Seismic Safety Initiative-What We Do and Do not Do? <i>Chairman: Professor Jamilur Reza Choudhury</i>	
1010-1040	Plenary Speech by Professor Taketo Uomoto (Ball Room) Safety Problems Related to Deterioration of Concrete Structures <i>Chairman: Professor Jamilur Reza Choudhury</i>	
1040-1110	Plenary Speech by Professor Kenji Ishihara (Ball Room) Forensic Diagnosis of Underwater Slope failure in Jamuna River <i>Chairman: Professor Jamilur Reza Choudhury</i>	
1110-1130	Tea-break (Foyer)	
	Ball Room (Room-1)	Ball Room (Room-2)
1130-1300	Parallel Session 1 Safety Assessment and Monitoring of Existing Infrastructure 1 <i>Session Chair: Prof. Tai-Ping Chang</i>	Parallel Session 2 Advanced Technologies for Assessment of Urban Safety 1 <i>Session Chair: Prof. Md. Abdur Rouf</i>
1300-1430	Lunch	
1430-1600	Parallel Session 3 Maintenance, Retrofitting and Rehabilitation of Structures <i>Session Chair: Dr. Kato</i>	Parallel Session 4 Design and Assessment of Structures for Seismic, and Impact Loads <i>Session Chair: Dr. Noor</i>
1600-1630	Tea-Break (Foyer)	
1630-1800	Parallel Session 5 Disaster Management 1 <i>Session Chair: Dr. Weng Wenguo</i>	Parallel Session 6 Tsunamis, Flood, and Environmental Risk Assessment <i>Session Chair: Prof. Yasuoka</i>
1900-2200	Symposium Dinner (HOTEL SHERATON)	

TIME	10 DECEMBER 2007, MONDAY	
	Ball Room (Room-1)	Ball Room (Room-2)
900-1030	Parallel Session 7 Advanced Technologies for Assessment of Urban Safety 2 <i>Session Chair: Dr. Dutta</i>	Parallel Session 8 Safety Assessment and Monitoring of Existing Infrastructure 2 <i>Session Chair: Dr. Munsur Rahman</i>
1030-1100	Tea-break (Foyer)	
1100-1300	Parallel Session 9 Disaster Management 2 <i>Session Chair: Prof. KM Moniruzzaman</i>	Parallel Session 10 Urban Road Safety <i>Session Chair: Dr. Hanaoka</i>
1300-1430	Lunch	
1430-1500	Keynote Speech by Professor Jamilur Reza Choudhury (Ball Room) Disaster Risk Reduction in Megacities: The Dhaka City Scenario <i>Chairman: Professor Mehedi Ahmed Ansary</i>	
1500-1530	Plenary Speech by Professor Kimiro Meguro (Ball Room) Proposal of A Sustainable Tsunami Disaster Mitigation System Considering the Characteristics of the Indian Ocean Rim Region <i>Chairman: Professor Mehedi Ahmed Ansary</i>	
1530-1600	Plenary Speech by Professor Worsak Kanok-Nukulchai (Ball Room) Distress in the Tarmac at Newly Opened Suvarnabhumi Airport <i>Chairman: Professor Mehedi Ahmed Ansary</i>	
1600-1630	Plenary Speech by Professor Yoshifumi Yasuoka (Ball Room) Satellite Observation Network for Disaster and Enviromental Monitoring in Asia <i>Chairman: Professor Mehedi Ahmed Ansary</i>	
1630-1700	Tea Break (Foyer)	

TECHNICAL PROGRAMME – DAY 1

PARALLEL SESSION 1:

Safety Assessment and Monitoring of Existing Infrastructure 1

Venue: Hotel Sheraton Ballroom (Room 1)

Date/Time: 9 December 2007, SUNDAY/ 1130 – 1300

Session Chair: Prof. Tai-Ping Chang, National Kaohsiung First University of Science and Technology Taiwan

Digital Chi-Chi City on Google Earth as Post-Earthquake Recovery Digital Archive

Osamu Murao, Atsushi Miyamoto

Seismic Assessment of Pile Founded Khilgaon Flyover

M. Moslem Uddin, Munaz A. Noor, Tahsin R. Hossain, Mehedi A. Ansary

Visual Screening Methods for Earthquake Vulnerability Assessment

A.B. Afifa Imtiaz, Mahfuza Shamim, Ashutosh Sutra Dhar, Mehedi Ahmed Ansary, Mohammad Zobair, Md. Zakaria Ahmad

Numerical and Experimental Assessment of Structures with Soft Stories

Himadree Roy, Iftekhar Anam

Vulnerability Assessment of RC Buildings of Dhaka City

Mohammad Rafat Sadat, Mohammad Sajedul Huq, Md. Salahuddin Rijvi, Md. Nafiul Haque, Mehedi Ahmed Ansary

Assessment of Cyclone Shelters due to Earthquake Hazard

Rajan Saha, Ashutosh Sutradhar, Mehedi Ahmed Ansary

PARALLEL SESSION 2:

Advanced Technologies for Assessment of Urban Safety 1

Venue: Hotel Sheraton Ballroom (Room 2)

Date/Time: 9 December 2007, SUNDAY/ 1130 – 1300

Session Chair: Prof. Md. Abdur Rouf, BUET

A Study on Effect of Land-Use Control along Active Faults in Japan

Miho Yoshimura Ohara, Kimiro Meguro, Naomi Nakashima

Application of Geophysical Imaging in Subsurface Characterization for Urban Safety from Earthquake – A Case Study from Dhaka Mega City, Bangladesh

Aftab Alam Khan, Muhammad Shahadat Hossain

Seismic Microzonation of Cox's Bazar Bangladesh

A. B. Afifa Imtiaz, Mehedi Ahmed Ansary, Ashutosh Sutra Dhar

Estimation of Risk due to Multi-Hazard Scenario in AP, India an IT Based Approach

Rahman Siddiqui, Ranjeet Joshi, Ramancharla Pradeep Kumar

Model Tests Measuring Earth Pressure Acting on Buried Structure Due to Differential Settlement

Reiko Kuwano, Toshiyuki Horii, Hidetoshi Kohashi

Landslide Hazard Analysis for Urban Areas Using Raster Dataset

Md. Zahid Hasan Siddiquee, Monsur Ahmed

PARALLEL SESSION 3:

Maintenance, Retrofitting and Rehabilitation of Structures

Venue: Hotel Sheraton Ballroom (Room 1)

Date/Time: 09 December, 2007 Sunday/ 1430 – 1600

Session Chair: Dr. Kato, The University of Tokyo

Retrofitting Design for Energy Absorbing Capacity Improvement of RC Structures subjected to Blast Loading

Keun Joo Byun, Sung-Bae Kim, Na-Hyun Yi, Jin-Won Nam, Ho-Jin Kim, Jang-Ho Jay Kim

Influence of Re-curing Condition on Damage and Recovery of Mortar Exposed to Fire

Yoshitaka Kato, Michael Henry

Strategic Maintenance of Port and Harbor Concrete Structures Based on Life-Cycle Management

Hiroshi Yokota, Mitsuyasu Iwanami, Toru Yamaji, Ema Kato

Variation of Corrosion Characterization of Reinforcing Bar in Existing RC Structure

Ema Kato, Mitsuyasu Iwanami, Hiroshi Yokota, Takumi Shimomura

Evaluation of the Seismic Vulnerability of Bangladeshi RC Building Using Non-Destructive Testing

Syed Zillur Rahman, Mehedi Ahmed Ansary, MA Noor, Rajan Saha, Hisashi Kanada, Miho Yoshimura, Kimiro Meguro, Taketo Uomoto

Ductility of Concrete Structures with Lateral Confinement and Compression Reinforcement

Md. Shah Aziz Akand, Iftekhar Anam

PARALLEL SESSION 4:

Design and Assessment of Structures for Seismic and Impact Loads

Venue: Hotel Sheraton Ballroom (Room 2)

Date/Time: 09 December, 2007 Sunday/ 1430 – 1600

Session Chair: Dr. Noor, BUET

Residual Seismic Capacity Estimation of RC Frames With Unreinforced Concrete Block Infill

Ho Choi, Yoshiaki Nakano

The Effect of Infills On The Dynamic Behavior Of Rc Frames

Samy Muhammad Reza, Raquib Ahsan, Mehedi Ahmed Ansary

Analysis of Axial Vibration of Piles in Layered Soil and Application to Batter Pile Foundations

Raquib Ahsan, Jorgen Johansen, Kazuo Konagai, Hidetaki Tanaka

Partially Encased Composite Columns: An Innovative Composite Structural System

Mahbuba Begum

Proposal of a Methodology to Design PP-band Meshes to Retrofit Low Earthquake Resistant Unreinforced Masonry Houses

Paola Mayorca, Kimiro Meguro

Modeling Nonlinear Stress-Strain Relations of Materials

Md. Raquibul Hossain, Mohammed Saiful Alam Siddiquee, Syed Ishtiaq Ahmed

PARALLEL SESSION 5:

Disaster Management 1

Venue: Hotel Sheraton Ballroom (Room 1)

Date/Time: 09 December, 2007 Sunday/ 1630 – 1800

Session Chair: Dr. Weng Wenguo, Tsinghua University, China

Enhancement on Disaster Prevention and Mitigation in Kaohsiung City

Tai-Ping Chang

Models of a Technical Platform for Emergency Management

Weng Wenguo

The State-of-the-Art of Information Technology on Disaster Prevention and Mitigation in Taiwan Urban Area

Hsu Kailin

Numerical Prediction of Wind Field under Large Scale Urban Fire in Tokyo Area

Ryozo Ooka, Yoichi Kawamoto, Kimiro Meguro, Miho Ohara

Experimental Study of Fire Propagation in a Compartment with Different Approaching Wind Conditions

Hong Huang, Ryozo Ooka, Naian Liu, Linhe Zhang, Zhihua Deng, Shinsuke Kato

PARALLEL SESSION 6:

Tsunamis, Flood and Environmental Risk Assessment

Venue: Hotel Sheraton Ballroom (Room 2)

Date/Time: 09 December, 2007 Sunday/ 1630 – 1800

Session Chair: Prof. Yasuoka, The University of Tokyo

Protective Measures of Flood Embankment along the Jamuna River in Bangladesh

Md. Munsur Rahman, Mohammad Asad Hussain, Md. Motaher Hossain

Developing an Universal Water Resource Assessment Model for Sustainable Water Security

Akiyuki Kawasaki, Srikantha Herath, Kimiro Meguro

A predictive Study of River Diversion System in Relation to Morwell River, Australia

Toby Grzmil, Dilip Nag, Dushmanta Dutta

Application of Remote sensing and GIS techniques in Water induced Disaster Management: A case Study of Bangladesh

Md. Shahabul Islam, Md. Mafizur Rahman, Kul.Prathuchai

Climatic Perturbation and Flood Risk in Coastal Cities: A Comparative Study in South and South East Asia

Dushmanta Dutta

Spontaneous Urbanization of Dhaka City and Water Logging as a Consequence

Umma Tamima, Md. Sohel Reza Amin

TECHNICAL PROGRAMME – DAY 2

PARALLEL SESSION 7:

Advanced Technologies for Assessment of Urban Safety 2

Venue: Hotel Sheraton Ballroom (Room 1)

Date/Time: 10 December, 2007 Monday/ 0900 – 1030

Session Chair: Dr. Dushmanta Dutta, Monash University, Australia

Study on the Potential of Tree Shape Classification by Using the Simulated LIDAR Data and a Tree Crown Model

Takahiro Endo, Yoshifumi Yasuoka

Lidar Technology: A Technology of New Era

Mohammad Abdul Quader, MD. Zahid Hasan Siddiquee

Management Of Building Energy Consumption And Renewable Energy Supply In The Ecological Communities Using Gis

Md. Zahid Hasan Siddiquee, Ursula Eicker, Dietrich Schröder

Comparative Analysis and Monitoring of Urban Heat Island Intensity in Asian Mega Cities by MODIS

Wataru Taheuchi, Kawin Worakanchana, Yoshifumi Yasuoka

Numerical Simulation of Atmospheric Pollution over Kanto area using the MM5/CMAQ Model “Simulation of Ozone Concentration between Two Different Weather Days”

M.V.Khiem, H.Hayami, H.Huang, R.Ooka

PARALLEL SESSION 8:

Safety Assessment and Monitoring of Existing Infrastructure 2

Venue: Hotel Sheraton Ballroom (Room 2)

Date/Time: 10 December 2007, Monday /0900 – 1030

Session Chair: Dr. Munsur Rahman, BUET

Automatic and Real-Time Bridge Health Monitoring for Heavy Traffic Routes

*Sanae Miyazaki, Yuji Ishikawa, Takahide Okubo, Kimihiko Izumi, Eiichi Sasaki,
Chitoshi Miki*

3-D Applied Element Method for PP-Band Retrofitted Masonry

*Kawin Worakanchana, Paola Mayorca, Ramesh Guragain, Sathiparan Navaratnaraj, Kimiro
Meguro*

Structural Health Assessment of Infrastructure: The Bangladesh Perspective

R Ahmed, MK Islam, MZ Ahmed, T Kundu

Investigation for Promoting Seismic Retrofit of Critical Facilities

- A Case Study of Wakayama City –

R Amano, Takeyuki Ebi, Shogo Hayashi, Kimiro Meguro, Kouji Uematsu, Kazuhisa Fujita

Fragility Analysis of Reinforced Concrete Frame Structures

MA Noor and M Yasin

Flood In Bangladesh With Focuses On 2007 Flood

Md. Aynul Kabir

PARALLEL SESSION 9:
Disaster Management 2

Venue: Hotel Sheraton Ballroom (Room 1)

Date/Time: 10 December 2007, Monday /1100 – 1300

Session Chair: Prof. Moniruzzaman, BUET

A Study for Improving Total Disaster Reduction Ability of Nursery Schools and Kindergartens

Abe Mariko, Kimiro Meguro

School Earthquake Safety Program (SESP) in Old Dhaka, Bangladesh

Israt Jahan, Mehedi Ahmed Ansary

Proposal of Intensity Scales for Different Natural Hazards in Bangladesh

M.S. Akther, Mehedi Ahmed Ansary

Vulnerability Risk Areas of Bangladesh due to Multiple Natural Hazards

M.S. Akther, Mehedi Ahmed Ansary

Some Emerging Hazards in Metropolitan Cities of Bangladesh

KM Maniruzzaman, MA Rahman

Earthquake Preparedness Helps to Combat Urban Disasters

Wahida Bashar Ahmed

Earthquake Preparedness Combined with Community Efforts

Md. Faiz Shah

PARALLEL SESSION 10:

Urban Road Safety

Venue: Hotel Sheraton Ballroom (Room 2)

Date/Time: 10 December 2007, Monday /1100 – 1300

Session Chair: Dr. Shinya Hanaoka, Tokyo Institute of Technology

Urban Road Safety: Effective Rescue of Accident Victims Using GIS Technology

Md Mazharul Hoque, Kazi Md Shifun Newaz, S M Sohel Mahmud, Sabreena Anowar Armana Sabiha Huq

Comparative Analysis of On-Street Parking Management Practices in Different Countries

Shinji Tanaka, Masao Kuwahara

Public Transport in Bangkok: A Case of the Passenger Vans

Shinya Hanaoka, Supaporn Kaewko Leopairojna

How Safe are the Walkers in Dhaka City? A Comprehensive Approach to Model Pedestrians' Safety in Dhaka City

Khan Rubayet Rahaman, Md. Ghulam Murtaza

Does Signage Matter for Road Safety? A study of Dhaka City

Khan Rubayet Rahaman, Md. Zakir Hossain, Md. Ahiq-ur-Rahman, Sadia Afrin

Evaluation of Effectiveness of Pedestrian Overpasses in Dhaka Metropolitan

Md. Mizanur Rahman, Muhammad Ashikul Islam, Md. Kamrul Hasan Rizvi

Road Traffic Accidents and Injuries: A Serious Safety Concern in Urban Areas of Bangladesh

Md. Mazharul Hoque, Chowdhury Kawsar Arefin Siddiquii, Tahera Anjuman, Sabreena Anowar, Shahnewaz Hasanat-E-Rabbi

