

Curriculum Vitae of Raquib Ahsan, Ph.D.

Professor,
Department of Civil Engineering
Bangladesh Univ. of Engineering & Technology
Dhaka-1000, Bangladesh.

Phone: (880-2) -966 – 5650 Ext. 7378
Fax: (880-2) - 966 - 5639
E-mail: <raquibahsan@ce.buet.ac.bd>
<raquibahsan@gmail.com>

PERSONAL

- **Date of Birth:** 16 June 1970
- **Nationality:** Bangladeshi

EDUCATION

- **Ph.D.**, September 2000, Department of Civil Engineering, Tokyo University, Tokyo, Japan
- **M.Sc.**, September 1997, Dept. of Civil Engineering, Bangladesh University of Engineering & Technology (BUET), Dhaka, Bangladesh
- **B.Sc.**, April 1995, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

EMPLOYMENT

- **Professor**, since June 2010, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Associate Professor**, since November 2004 to June 2010, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Assistant Professor**, November 2000 to November 2004, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Lecturer**, September 1995 to November 2000, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.

PROFESSIONAL POSITIONS

- **Computer Laboratory In-Charge**, since June 2011, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Deputy Project Director**, from July 2009 to June 2011, BUET-Japan Institute of Disaster Prevention and Urban Safety, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Associate Director of Students' Welfare**, from August 2009 to October 2011, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Advisor for Computing, Internet Services and Database Management**, from December 2000 to June 2011, Department of Civil Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Organizing Secretary**, 5-6 March 2010, 3rd International Earthquake Symposium, Bangladesh (IESB-3), jointly organized by Bangladesh Earthquake Society and Department of Civil Engineering, BUET.
- **Editor**, March 2008 to March 2010, Bangladesh Earthquake Society.
- **Guest Chair**, April 2007 to October 2007, Geotechnical Earthquake Engineering Laboratory, Institute of Industrial Science, Tokyo University, Japan.

- **System Analyst**, November 2005 to April 2007, Institute of Information and Communication Technology (IICT), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.
- **Assistant Provost**, January 2003 to February 2005, Suhrawardy Hall, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.

AWARDS

- **ISIS Grant**, Visiting scholar to Intelligent Sensing and Innovative Structures, University of Manitoba, Canada.
- **JSPS Fellowship**, Post-Doctoral Fellowship of Japan Society of Promotion of Science.
- **MONBUSHO Scholarship**, Graduate scholarship Ministry of Education and Culture, Japan.

COUNTRIES OF WORK EXPERIENCE

- **Bangladesh**: As an academic and consultant since 1995 to date.
- **Japan**: As a researcher from April – October 2007.
- **Canada**: As a visiting researcher from July – August 2010.

NATIONAL COMMITTEES

- **Member**, Technical Advisory Group, Comprehensive Disaster Management Program, Phase-2, Ministry of Food and Disaster Management, April, 2012
- **Member**, Negotiation Committee, PPP Project for Establishment of Kaliakoir High-Tech Park
- **Member**, Expert Committee to assess damage of warehouse of National Curriculum and Text Book Board at Tejgaon due to fire , Ministry of Education, November 2009.
- **Member**, Sub-Committee for technical advice regarding construction of cyclone shelters and earthen kilas in the coastal region of Bangladesh, Ministry of Food and Disaster Management, December 2007.
- **Member**, Investigation committee for the collapse of 21-storied RANGS building, Ministry of Housing and Public Works, December 2007.

PROFESSIONAL AFFILIATIONS: **IEB** (Institute of Engineers, Bangladesh), **BES** (Bangladesh Earthquake Society), **BSGE** (Bangladesh Society for Geotechnical Engineering), **ISSMGE** (International Society of Soil Mechanics and Geotechnical Engineering), **JSCE** (Japan Society of Civil Engineers), **EERI** (Earthquake Engineering Research Institute), **ISHMII** (International Society for Structural Health Monitoring of Intelligent Infrastructure)

RESEARCH INTEREST

- **Structural Retrofitting** – Retrofitting of structures in Bangladesh with deficiencies from seismic design point of view.
- **Structural Optimization** - Optimization of Bridge Design using Global Optimization Algorithm
- **Structural Health Monitoring** – Structural health monitoring of reinforced concrete and prestressed concrete bridges

- **Soil-Structure Interaction** - Dynamic Soil-Structure Interaction of Semi-Infinite Layered Soil and Pile foundation, Incorporation of Soil-Structure Interaction in Shaking Table Tests
- **Structural Dynamics** - Seismic Instrumentation of Bridges and Buildings, Structural Identification of Bridges and Buildings, Modeling and Dynamic Analysis of Masonry Structures
- **Steel Structures** - Static and Dynamic Analysis of Semi-Rigid Steel Structures, Performance Based Analysis of Semi-Rigid Steel Structures
- **Structural Vulnerability Analysis** - Vulnerability Analysis of Structures against Cyclone, Tsunami and Earthquakes
- Ancillary expertise includes *Earthquake Engineering, Wave Motion, Non-Destructive Testing, Low Cost Housing, Disaster Management and Urban Safety*.

RESEARCH GRANTS AND FUNDING

1. **R. Ahsan (Principal Investigator), Tanvir Manzur, Bushra Islam**: *Frame test under cyclic lateral loading with constant vertical load*, under the Project for Capacity Development on natural Disaster Resistant Techniques of Construction and Retrofitting of Public Buildings, funded by Japan International Cooperation Agency (**JICA**), September 2012 to date.
2. **R. Ahsan (Sub-Project Manager), M. A. Ansary**: *Seismic Risk Mitigation through Retrofitting of Civil Infrastructure in Bangladesh*, funded by World Bank and University Grants Commission (**UGC**), April 2012 to April 2015.
3. **R. Ahsan (Project Director), M. A. Ansary, M. Begum**: *Structural Health Monitoring of RC Bridges in Bangladesh*, funded by Ministry of Science, Information and Communication Technology (**MOSICT**), Government of People's Republic of Bangladesh, July 2009 to June 2010.
4. **M. H. Ali (Team Leader), R. Ahsan (Coordinator), Department of Civil Engineering, BUET (Investigating Team)**: *Updating of Bangladesh National Building Code*, funded by Housing and Building Research Institute (**HBRI**), Ministry of Housing and Public Works, Government of People's Republic of Bangladesh, December 2009 to November 2010.
5. **M. A. Ansary (Project Director), R. Ahsan (Deputy Project Director)**: *Establishment of BUET-Japan Institute of Disaster Prevention and Urban Safety*, funded by Ministry of Education (**MOE**), Government of People's Republic of Bangladesh, July 2009 to June 2011.
6. **Asian Disaster Prevention Center (Investigating Team), M. A. Ansary (Advisor), R. Ahsan (Advisor)**: *Earthquake risk reduction in Chittagong Hill Tracts*, funded by Chittagong Hill Tract Development Facilities, United Nations Development Program (**UNDP**), July 2009 to June 2010.
7. **Centre for Environment and Geographic Information System (Investigating Team) and R. Ahsan (Advisor)**: *Updating available information on cyclone shelter management for tsunami preparedness*, funded by Comprehensive Disaster Management Program (**CDMP**), Ministry of Food and Disaster Management, Government of Bangladesh, January 2008 to December 2009.
8. **Institute of Water Modeling (Investigating Team) and R. Ahsan (Advisor)**: *Identification of tsunami-vulnerable schools/hospitals/emergency response and control buildings in the*

- coastal region and evaluation of their adaptation capacity to tsunami and storm surge event, funded by Comprehensive Disaster Management Program (CDMP), Ministry of Food and Disaster Management, Government of Bangladesh, January 2008 to December 2009.
9. S. Tsukamoto (Coordinator), R. Ahsan (Co-Coordinator), M. M. Rahman and M. S. Islam: *Preparation of manuals on better construction practices of rural houses, community buildings and roads/embankments in coastal areas*, funded by **Japan Platform**, Ministry of Foreign Affairs, Japan, February 2008 to April 2008.
 10. R. Ahsan (Project Coordinator): *Study of Dynamic Behavior of Steel Frames with Flexible Connections*, funded by Committee for Advanced Study and Research (CASR), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, June 2003 to May 2005.
 11. J. B. Alam (Coordinator), M. S. A. Siddiquee (Co-Coordinator) and R. Ahsan (Co-Coordinator): *Integrated micro-zonal environmental, transportation, earthquake and fire hazard assessment for urban settlement*, funded by Committee for Advanced Study and Research (CASR), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, June 2002 to May 2004.

Consultancy Projects

1. **Team Leader:** *Developing EMF and SMF for Bangladesh Urban Earthquake Resilience Project*, World Bank, June 2014 to date.
2. **Local Expert; Hazard, Vulnerability and Risk Analysis:** *Bangladesh Urban Earthquake Resilience Project*, World Bank, September 2012 to date.
3. **Expert, Structural Engineering:** *Review of Design and Tender Document of a Smart Building of the Department of Environment under CASE Project*, Department of Environment, Government of People's Republic of Bangladesh, June 2012 to date.
4. **Team Leader:** *Review of the RFP of Hi-Tech Park, Kaliakoir PPP Project*, Ministry of Science, Information and Communication Technology, Government of People's Republic of Bangladesh, September 2011 to December 2011.
5. **Expert, Structural Engineering:** *Prefeasibility Study of Golap Shah Elevated Expressway Project*, Bangladesh Bridge Authority, July 2011 to December 2011.
6. **Expert, Structural Engineering:** *Prefeasibility Study of Dhaka Ashulia Elevated Expressway Project*, Bangladesh Bridge Authority, April 2011 to December 2011.
7. **Expert, Structural Engineering:** *Review of the Prefeasibility Report of Dhaka Elevated Expressway Project*, Bangladesh Bridge Authority, January 2011 to May 2011.
8. **Coordinator:** *Updating of Bangladesh National Building Code*, Housing and Building Research Institute, December 2009 to date.
9. **Expert, Structural Engineering:** *Checking of Design and drawings of 540m portable steel bridges*, Roads and Highways Department, July 2010 to October 2010.
10. **Advisor:** *Earthquake risk reduction in Chittagong Hill Tracts*, Chittagong Hill Tract Development Facilities, United Nations Development Program, July 2009 to June 2010.

11. **Advisor;** *Updating available information on cyclone shelter management for tsunami preparedness*, funded by Comprehensive Disaster Management Program, Ministry of Food and Disaster Management, Government of Bangladesh, January 2008 to December 2009.
12. **Advisor;** *Identification of tsunami-vulnerable schools/hospitals/emergency response and control buildings in the coastal region and evaluation of their adaptation capacity to tsunami and storm surge event*, funded by Comprehensive Disaster Management Program, Ministry of Food and Disaster Management, Government of Bangladesh, January 2008 to December 2009.
13. **Co-Coordinator;** *Preparation of manuals on better construction practices of rural houses, community buildings and roads/embankments in coastal areas*, Japan Platform, February 2008 to April 2008.
14. **Expert, Structural Engineering;** Demolition of RANGS Building, RAJUK, March 2007 to Dec 2007.
15. **Expert, Structural Engineering;** Vulnerability Assessment of Hospital Buildings in Chittagong, Action Aid Bangladesh, Feb 2007 to Dec 2007.
16. **Expert, Structural Engineering;** Moulvi Bazar Gas Camp Building: Defects Detection and Remedial Measures, Chevron Bangladesh, Sept 2006 to July 2007.
17. **Expert, Structural Engineering;** Strengthening of Chittagong Port Girls' High School Building, Chittagong Port Authority, Feb 2006 to Aug 2007.
18. **Expert, Structural Engineering;** Strengthening of Chittagong Port Hospital Building, Chittagong Port Authority, July 2002 to May 2006.
19. **Coordinator;** *Study of Dynamic Behavior of Steel Frames with Flexible Connections*, funded by Committee for Advanced Study and Research (CASR), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, June 2003 to May 2005.
20. **Co-Coordinator;** *Integrated micro-zonal environmental, transportation, earthquake and fire hazard assessment for urban settlement*, funded by Committee for Advanced Study and Research (CASR), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, June 2002 to May 2004.

TRAINING

- Digital Signal Processing organized by Mechanical Engineering Department, BUET 2011.
- Seismic Retrofit of Multistoried Reinforced Concrete Buildings organized by IIT Madras, India, 28 June - 3 July, 2004.
- Cisco Networking Academy Program CCNA course jointly organized by CSE Department and IICT, BUET June 2003 - May 2004.
- Early Warning Systems and Responses in Bangladesh towards Total Disaster Risk Management Approach jointly organized by BPATC and DMB, Bangladesh in collaboration with ADRC and UNOCHA, Japan, 19-24 December 2002.
- Computer Course on Programming in C/C++ organized by IICT, BUET, 10-21 April, 2002.

PUBLICATIONS

Journals/Books:

1. Rana, S., Islam, N., **Ahsan, R.** and Ghani, S.N. (2013), "Application of Evolutionary Operation to the Minimum Cost Design of Continuous Prestressed Concrete Bridge Structure." Engineering Structures, Elsevier, Vol. 46, pp. 38-48.
2. **Ahsan, R.**, Rana, S. and Ghani, S.N. (2012), "Cost optimum design of post-tensioned I-girder bridges using global optimization algorithm." The Journal of Structural Engineering, American Society of Civil Engineers, Vol. 138 (2), pp. 273-284.
3. Shurovi, S. S. and **Ahsan, R.** (2012), "Non-Linear Time-History Analysis of 2D RC Frame with Masonry Infill," The AIUB Journal of Science and Engineering (AJSE), Vol. 11(1), pp. 15-22.
4. **Ahsan, R.**, Ansary, M.A., Al-Hussaini, T.M. and Rahman, S.Z. (2007), "Assessment of dynamic behaviour of Jamuna multi-purpose bridge through noise study," Bridge Design, Construction and Maintenance, ed. Lark, R., Institution of Civil Engineers, UK, Telford publications, pp. 143 -152.
5. **Ahsan, R.**, Ahmed, I. and Ahmed, B. (2003), "Lateral drift of semi-rigid steel frames – I," Journal of Civil Engineering, the Institution of Engineers, Bangladesh, Vol. CE 31, No. 2, 177-189.
6. **Ahsan, R.**, Ahmed, I. and Ahmed, B. (2003), "Lateral drift of semi-rigid steel frames – II," Journal of Civil Engineering, the Institution of Engineers, Bangladesh, Vol. CE 31, No. 2, 191-203.
7. Saleh, N.B. and **Ahsan, R.** (2003), "Tuned Mass Damper (TMD): A structural control device for earthquake-threatened structures," Technical bulletin published by Department of Civil and Environmental Engineering, University of Asia Pacific.
8. Konagai, K. and **Ahsan, R.** (2002), "Simulation of nonlinear soil-structure interaction on a shaking table," Journal of Earthquake Engineering, Imperial College Press, Vol. 6, No. 1, 31-51.
9. **Ahsan, R.** and Konagai, K. (2000), "Simulation in shaking table tests of soil-structure interaction," Proceedings of Railway Mechanics, JSCE, No. 4, 55-60.
10. Konagai, K., **Ahsan, R.** and Maruyama, D. (2000), "Simple expression of dynamic stiffness in grouped piles in sway motion," Journal of Earthquake Engineering, Imperial College Press, Vol. 4, No. 3, 355-376.
11. Konagai, K., Mikami, A., Katagiri, T., **Ahsan, R.** and Maruyama, D. (1999), "Report of the damage caused by Mid-North Iwate earthquake of September 3, 1998," Bulletin of Earthquake Resistant Structure Research Center, IIS, Tokyo Univeristy, No. 32, 3-16.
12. **Ahsan, R.** and Ahmed, I. (1997), "Effect of transverse shear deformation in beams," Journal of the Institution of Engineers (India), Vol. 77, 228-232.

Conferences:

13. Rashed, M. G., **Ahsan, R.** and Islam, B. (2012), "Civil Engineering Application of Shape Memory Alloys," First International Conference on Advances in Civil Engineering, Chittagong, December.
14. Islam, B., **Ahsan, R.** and Rashed, M. G. (2012), "Retrofit Techniques of Structures Associated with Soft Story," First International Conference on Advances in Civil Engineering, Chittagong, December.
15. Islam, B. and **Ahsan, R.** (2012), "Optimization of Tuned Mass Damper Parameters using Evolutionary Operation Algorithm," 15 World Conference on Earthquake Engineering, Lisbon, September.
16. Islam, B. and **Ahsan, R.** (2012), "Optimization of Tuned Mass Damper Parameters Using Evolutionary Operation Algorithm." Accepted for publication in the "Proceedings of 15th World Conference on Earthquake Engineering."
17. Rashed, M. G., **Ahsan, R.** and Chowdhury, S. R.(2012), "Numerical modeling of concrete tensile strength test by wrapping scripting language with compiled library," International Journal of Computer Applications, Vol. 40(14), pp. 34-38.
18. Mustafy, T., Islam, K. and **Ahsan, R.** (2012), "Finite Element Analysis of Rectangular Hollow Section Bonded with CFRP", Proceedings of the 12th Pan American Congress of Applied Mechanics (PACAM XII), January 2-6, 2012, Port of Spain, Trinidad.
19. Islam, B., **Ahsan, R.** and Ansary, M. A. (2011), "Bridge Deck Condition Assessment by Ground Penetrating Radar – A Case Study in Bangladesh," New Technologies for Urban Safety of Megacities in Asia (USMCA) Symposium, Chiang Mai, October.
20. Mustafy, T., Islam, K. and **Ahsan, R.** (2011), "Seismic Response Analysis of Bridge with Different Isolators", Fourth Structural Engineering World Congress (SEWC-2011), ASCE, April 4-6, 2011, Milano, Italy (10 pp. on CD-ROM Edition).
21. Islam, K., Mustafy, T. and **Ahsan, R.** (2011), "Seismic Performance of a Multi-span Continuous Base-isolated Bridge with Different Isolation Systems", The 43rd Symposium on Engineering Geology and Geotechnical Engineering(EGGE), March 23-25,2011, Las Vegas, Nevada, USA (13 pp. on CD-ROM Edition).
22. Mustafy,T, **Ahsan,R** (2010), "FE Modeling and Experimental Verification of a CFRP strengthened steel section subjected to transverse end bearing force", Proceedings of IABSE-JSCE Joint Conference on Advances in Bridge Engineering-II,August 2010, Dhaka, Bangladesh, pp. 512-518.
23. **Ahsan, R.** and Reza, S.M. (2010), "Dynamic behaviour of the Jamuna Multi-Purpose Bridge considering soil-structure interaction," Proceedings of the 9th US National and 10th Canadian Conference on Earthquake Engineering, Toronto.

24. S. M. Reza, **Ahsan, R.** (2010), Dynamic behaviour of the Jamuna multi-purpose bridge considering different scour depth. IABSE-JSCE Joint Conference on Advances in Bridge Engineering-II, Dhaka, Bangladesh, August 8-10, 2010.
25. **Ahsan, R.**, Hasan, M.M. and Reza, S.M. (2010), "Modal analysis of the Jamuna Multi-Purpose Bridge considering soil-structure interaction," Proceedings of the 3rd International Earthquake Symposium, Bangladesh, Dhaka, 373-379.
26. Islam, B., **Ahsan, R.**, Reza, S.M. (2009), "Dynamic stiffness parameters for hollow steel piles for soil-structure interaction," Proceedings of the Bangladesh Geotechnical Conference 2009, Dhaka, 58-64.
27. Rahman, A. Z. M. M., **Ahsan, R.**, Ansary, M. A., Al-Hussaini, T. M. and Moni, M. (2009), "Monitoring dynamic behaviour of the Jamuna Multipurpose Bridge," Proceedings of the 7th Asia Pacific Structural Engineering and Construction Conference (APSEC 2009) and 2nd European Asian Civil Engineering Forum (EACEF 2009), Langkawi, 450-456.
28. Hassan, A., **Ahsan, R.**, Hossain, B.M.T.A., Ahsan, M. R. (2009), "Spatial distribution of existing cyclone shelters for tsunami and storm surge preparedness," Proceedings of the International Workshop on Tsunami and Storm Surge Hazard Assessment and Management for Bangladesh, Ministry of Food and Disaster Management, Comprehensive Disaster Management Programme (CDMP), Government of Bangladesh, pp 81-89.
29. Bhuiyan, M. A. H., **Ahsan, R.**, Ahmed, M. M. Z. (2009), "Structural Strength Analysis of Infrastructure in the Coastal Region of Bangladesh," Proceedings of the International Workshop on Tsunami and Storm Surge Hazard Assessment and Management for Bangladesh, Ministry of Food and Disaster Management, Comprehensive Disaster Management Programme (CDMP), Government of Bangladesh, pp 90-96.
30. Rahman, A. Z. M. M., **Ahsan, R.**, Al-Hussaini, T. M., Ansary, M. A. and Moni, M. (2008), "Dynamic performance monitoring of the Jamuna Multipurpose Bridge," International Seminar on Latest Trends in Construction of Bridges, Indian Institute of Bridge Engineers, New Delhi, pp. 136-142.
31. Das, P. P. and **Ahsan, R.** (2007), "Performance based analysis of an inelastic unbraced steel frame with semirigid connections," 2nd International Earthquake Symposium Bangladesh, Dhaka, 113-125.
32. **Ahsan, R.**, Johansson, J., Konagai, K. and Tanaka, H. (2007), "Analysis of axial vibration of piles in layered soil media and application to batter piles," International Conference on New Technologies for Urban Safety of Mega-Cities in Asia, Dhaka, December.
33. Reza, S. M., **Ahsan, R.** and Ansary, M. A. (2007), "Effect of infills on the dynamic behaviour of RC Frames," International Conference on New Technologies for Urban Safety of Mega-Cities in Asia, Dhaka, December.

34. **Ahsan, R.**, Ansary, M. A., Al-Hussini T. M. and Rahman, S. Z. (2007), "Structural Identification of the Jamuna Multipurpose Bridge," Proceedings on the Third International Conference on Structural Engineering, Mechanics and Computation, Capetown, September.
35. Zakaria, A. M., Al-Hussaini, T. M., **Ahsan, R.** and Islam M. K. (2006), "Seismic risk reduction in Bangladesh: The network approach," Proceedings of National Conference, Civil Engineering: Meeting the Challenges of Tomorrow, Punjab, India, November, 91-95.
36. Ahmed, M. Z., **Ahsan, R.** and Dorka, U. E. (2005), "A possibility of using HYDE systems for seismic safety of soft-storey buildings in Bangladesh," Proceedings of First Bangladesh Earthquake Symposium (BES – 1), Dhaka, 163-170.
37. Rahman, S. Z., Das, P. P. and **Ahsan, R.** (2005), "Dynamic Analysis of semi-rigid 2D steel frames under monotonic loading," Proceedings of First Bangladesh Earthquake Symposium (BES – 1), Dhaka, 195-202.
38. **Ahsan, R.**, Al-Hussaini, T. M., Ansary, M. A. and Rahman, M. M. (2005), "Identification of dynamic parameters of the Jamuna Multipurpose Bridge in ambient transverse vibration," Proceedings of the Japan-Bangladesh Joint Seminar on Advances in Bridge Engineering, Dhaka, 1-12.
39. **Ahsan, R.** and Siddiquee, M.S.A. (2003), "Simulation of cyclic stress-strain behavior of sand", Proceedings of 12th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Singapore, BD-05.
40. **Ahsan, R.**, Ahmed, I. and Ahmed, B. (2003), "Secant stiffness of semi-rigid steel frames," Proceedings of the Second Annual Paper Meet and International Conference on Civil Engineering organised by Institution of Engineers, Bangladesh and Bangladesh University of Engineering and Technology, 319-329.
41. Konagai, K., **Ahsan, R.** and Maruyama, D. (2000), "Simulation of energy influx and efflux through soil-structure interface," Proceedings of 12th World Conference of Earthquake Engineering, Auckland, New Zealand, 1334/5/A.