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### MD. AFTABUR RAHMAN

*Department of Civil Engineering, Chittagong University of Engineering & Technology, Chattogram-4349, Bangladesh*

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### CAREER PROFILE

A PhD in Engineering with speciality in Geotechnical Engineering

- Committed to devote in geotechnical earthquake engineering research to develop cutting-edge techniques for rational mitigation of the associated hazards
- Experienced in conducting extensive research works at two prestigious universities in Japan (total five years)
- Experienced in teaching and research ( total eleven years including six years of classroom teaching at the tertiary level)
- Excellent communication and social interactions skills
- Currently taught undergraduate and post graduate courses of geotechnical engineering and research on ground improvement and numerical modelling of soils considering geotechnical hazard

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### EDUCATION

#### **Doctor of Philosophy in Engineering**

September 2016

*Yokohama National University, Japan*

- Dissertation “Ascertaining a hands-on approach to estimate debris flow velocities for rational debris hazard mitigation”
- Excellent grades in post-graduate courses

#### **Master of Engineering (M. Engg)**

March 2013

*Saitama University, Japan*

- Thesis Title “Analysis of buried pipeline under earthquake fault movement: a DEM and FEM simulation”
- Average Marks: 90.62%

#### **B.Sc. in Civil Engineering**

September 2008

*Chittagong University of Engineering & Technology (CUET), Bangladesh*

- First Class (1<sup>st</sup> in order of merit out of 97 students)
- GPA: 3.59 out of 4.0

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### EMPLOYMENT

#### **Associate Professor**

01/2020-till date

Department of Civil Engineering  
Chittagong University of Engineering & Technology  
Chattogram, Bangladesh

**Assistant Professor**

Department of Civil Engineering  
Chittagong University of Engineering & Technology  
Chattogram, Bangladesh

10/2016-01/2020  
(Approx. 3 years 3 months)

**Assistant Professor**

Department of Civil Engineering  
Chittagong University of Engineering & Technology  
Chattogram, Bangladesh

07/2013-09/2013  
(Approx. 2 months)

**Lecturer**

Department of Civil Engineering  
Chittagong University of Engineering & Technology  
Chattogram, Bangladesh

03/2013-07/2013  
(Approx. 4 months)

**Lecturer**

Department of Civil Engineering  
Chittagong University of Engineering & Technology  
Chattogram, Bangladesh

11/2008-04/2011  
(Approx. 2 years 6 months)

**PUBLICATIONS**

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**Journals**

1. Islam, M.R., **Rahman, M.A.**, & Hayano, K. (2020). Application of Smoothed Particle Hydrodynamics (SPH) for simulating various geotechnical problems. SN Applied Sciences (SNAS). (*SCOPUS*)
2. **Rahman, M.A.**, Ahmed, S., & Imam, M.O. (2019). Rational way of estimating liquefaction severity: an implication for Chattogram, the port city of Bangladesh. Geotechnical and Geological Engineering. (*SCOPUS*)
3. Islam, M.R., Hayano, K. & **Rahman, M.A.** (2019). Insights into effects of seepage on failure of breakwater mound: experimental and numerical investigations. Indian Geotechnical Journal, 49, 531-542 (*SCOPUS*)
4. **Rahman, M.A.** & Konagai, K. (2018). A hands-on approach to estimate debris flow velocity for rational mitigation of debris hazard. Canadian Geotechnical Journal, 55, 941-955 (*SCIE*)
5. **Rahman, M. A.**, & Konagai, K. (2017). Substantiation of debris flow velocity from super-elevation: a numerical approach. Landslides, 14(2), 633-647 (*SCIE*)
6. **Rahman, M. A.**, Hashimoto, T., & Konagai, K. (2015). An attempt for velocity estimation of Nebukawa debris flow triggered by the Great Kanto Earthquake, 1923. Journal of Japan Society of Civil Engineers, Ser. A1 (SE/EE), 71(4), I\_387-I\_394. [http://doi.org/doi.org/10.2208/jscejsee.71.I\\_387](http://doi.org/doi.org/10.2208/jscejsee.71.I_387). (*SCI*)
7. **Rahman, M. A.**, & Taniyama, H. (2015). Analysis of a buried pipeline subjected to fault displacement: A DEM and FEM study. Soil Dynamics and Earthquake Engineering, 71, 49–62. <http://doi.org/10.1016/j.soildyn.2015.01.011>. (*SCIE*)
8. Konagai, K., Pokhrel, R.M., Ikeda, T., Shiga, M., **Rahman, M.A.** & Okuda, H. (2016). Follow-up report of damage caused by the Gorkha Earthquake, Nepal, of April 25th, 2015. JSCE FactSheet: FS2016-E-002
9. Ullah, M. S., & **Rahman, M. A.** (2015). Evaluation of different aspects of recycled aggregate and recycled aggregate concrete. Malaysian Journal of Civil Engineering, 27(3). (*Scopus*)

10. **Rahman, A.**, & Ullah, S. (2012). Seismic Risk Assessment Using Different Soil Conditions. *Canadian Journal of Environmental, Construction and Civil Engineering*, 3(1), 47–51.
11. Islam, M. M., Islam, M. S., **Rahman, M. A.**, & Das, A. (2011). Strength behaviour of mortar using slag as partial replacement of cement. *MIST Journal*, 3, 1–9. DOI: dx.doi.org/10.3329/mist.v3i0.8053.

#### *Peer-reviewed Proceedings*

12. Das, S., **Rahman, M.A.**, & Farooq, S.M. (2020). Buried pipeline under seismic excitations: a review. *Proceedings of 5th International Conference on Civil Engineering for Sustainable Development, Bangladesh*
13. Tabassum, N., **Rahman, M.A.** & Islam, M.R. (2020). Parametric sensitivity in large deformation analysis by Smoothed Particle Hydrodynamics (SPH). *Proceedings of 5th International Conference on Civil Engineering for Sustainable Development, Bangladesh*
14. Tabassum N., **Rahman, M.A.**, Uddin, M.N, & Singha, P. (2019). A geostatistical approach to develop the soil zonation map: an application for Chattogram city. In *Proceedings of 9th Int. Conf. on Geotechnique, Construction Materials and Environment, Tokyo, Japan (Accepted)*
15. Tabassum, N., **Rahman, M.A.** & Islam, M.R. (2019). Evaluation of numerical approach in slope stability analysis considering large deformation of geo-materials. In *Proceedings of 9th Int. Conf. on Geotechnique, Construction Materials and Environment, Tokyo, Japan (Accepted)*
16. Debanath, O.C., **Rahman, M.A.** & Farooq, S.M. (2019). Use of fly ash based geopolymer for stabilization of expansive soil. In *Proceedings of 9th Int. Conf. on Geotechnique, Construction Materials and Environment, Tokyo, Japan (Accepted)*
17. Sarker, A., Iqbal, M.B., Rahman, M.M, A-Noor, M.C., **Rahman, M.A.** & Islam, M.R. (2018). Optimum flyash to increase the strength of subgrade. In *Proceedings of 4<sup>th</sup> International Conference on Advances in Civil Engineering*.
18. Rahman, M.S., Farooq, S.M. & **Rahman, M.A.** (2018). Improvement of soft soil by physical and chemical interaction. In *Proceedings of 4<sup>th</sup> International Conference on Advances in Civil Engineering*.
19. **Rahman, M.A.**, & Konagai, K. (2017). Rational way to estimate velocities of earthquake-induced debris flow from super-elevations. In *Proceedings of 16<sup>th</sup> World Conference on Earthquake Engineering*.
20. **Rahman, M. A.**, & Taniyama, H. (2013). Response analysis of strike-slip fault movement on buried pipeline. In *Asian Conference on Civil, Material and Environmental Sciences (pp. 78–89)*.
21. **Rahman, M. A.**, & Taniyama, H. (2013). Response analysis of buried pipeline subjected to earthquake faulting: A DEM and FEM simulation. In *Proceedings of 13th Japan Symposium on Rock Mechanics & 6th Japan-Korea Joint Symposium on Rock Engineering (pp. 829–833)*.
22. **Rahman, M. A.**, & Ullah, M. S. (2012). Assessment of seismic vulnerability using different site conditions. In *Proceedings of 1st International Conference on Civil Engineering for Sustainable Development*.

#### *Non-reviewed Proceedings*

23. **Rahman, M. A.**, & Konagai, K. (2016). A numerical curved flume test for debris flow velocity estimation: justification of using super-elevation. In *18th International Summer Symposium, JSCE (pp. 4–5)*.

24. **Rahman, M. A.**, Hashimoto, T., & Konagai, K. (2014). An Attempt for Velocity Estimation of Nebukawa Debris Flow Triggered by the Great Kanto Earthquake, 1923. In 34th Earthquake Engineering Symposium, JSCE.
25. **Rahman, M. A.**, & Taniyama, H. (2013). Analysis of buried pipeline owing to reverse fault movement accounting for soil-pipe interaction. In Proceedings of 68th JSCE Annual Meeting.
26. **Rahman, M. A.**, & Taniyama, H. (2012). Numerical analysis of buried pipeline subjected to fault displacement. In Proceedings of the 5th ADB-JSP Scholar's Research Forum (pp. 24–26).

### ***Books/Thesis***

27. **Rahman, Md Aftabur** (2016) Ascertaining a hands-on approach to estimate debris flow velocities for rational debris hazard mitigation. PhD Dissertation, Yokohama National University, Japan
28. **Rahman, Md Aftabur** (2013) Analysis of buried pipeline under earthquake fault movement: A DEM and FEM simulation. Master Thesis, Saitama University, Japan

### **KEY SKILLS**

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Analytical and Numerical Modelling	I have been dealing with analytical and numerical modelling since 2008. I developed two models based on different particle based methods. All of my models are 3D to account for real scenario of the problems. My analytical and numerical skill is strongly supported by the papers published in scholarly journals (like Soil Dynamics and Earthquake Engineering, Landslides, CGJ)
Software and Programming	I am familiar with several programming languages (C, FORTRAN, and MATLAB). In last 4 years, I use FORTRAN for developing my model. Besides, I know some professional software's like AutoCAD, ETABS, SAP 2000 etc.
Time Management	I always prefer to work within the timeline. I did finish my Master and PhD research in the given time with appreciation from the professors.
Communication within the folks	I keep relations with professors, students and professionals working in my area.

### **RESEARCH GRANTS**

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1. Geotechnical Characterization of Soils in Chittagong: A Case Study, Funded by Directorate of Research and Extension, CUET, Total Grant: USD 3580, Period: 2018-2020 (on-going)
2. Development of mesh free particle method for slope stability analysis, Funded by Directorate of Research and Extension, CUET, Total Grant: USD 1320, Period: 2017-2020 (on-going)
3. Improvement of expansive soils by using geo polymer, Funded by Directorate of Research and Extension, CUET, Total Grant: USD 1980, Period: 2017-2020 (on-going)

4. Prospect of fly ash to stabilize coastal soils of Chattogram, Funded by Directorate of Research and Extension, CUET, Total Grant: USD 2000, Period: 2019-2020

## **RESEARCH INTERESTS**

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- Large deformation geotechnical hazard analysis using particle method (SPH)
- Particle-based geotechnical simulation
- Soil-structure interaction
- Liquefaction

## **ACADEMIC EARNINGS**

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- Secretary, Scientific & Technical Committee at the 5<sup>th</sup> International Conference on Advances in Civil Engineering
- Secretary, Organizing Committee at the 4<sup>th</sup> International Conference on Advances in Civil Engineering
- Reviewer of the reputed journals: Landslides, Acta Geotechnica, Geotechnical & Geological Engineering, Soil Dynamics and Earthquake Engineering
- Associate Editor of 3<sup>rd</sup> International Conference on Advances in Civil Engineering
- Experienced in organizing several seminars in Department of Civil Engineering, CUET
- Invited (Adjunct) Faculty at Military Institute of Science & Technology (MIST), BMA Campus, Chittagong

## **PROFESSIONAL EXPERTISE**

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- Test-in-Charge, Bureau of Research, Testing and Consultation, Department of Civil Engineering, CUET since January 2019
- Involved in various civil engineering testing as part of the Bureau of Research, Testing, and Consultation (BRTC) of CUET from 2009-till
- Consultant, BRTC, Civil Engineering Department, CUET since 2013
- Consultant, Geotechnical Investigation of SPM Pipeline (as a member of BRTC, CUET)
- Consultant, Geotechnical Investigation of Bhandal Juri Water Treatment Plant of Chattogram Wasa (as a member of BRTC, CUET)
- Consultant, Preliminary Estimation of Slope Stability for substation of BSRM group in PGCB Premise at Khulshi, Chattogram (as a member of BRTC, CUET)
- Consultant, Geotechnical Investigation of ICT Incubator of Ministry of Science and Technology, Bangladesh at CUET (as a member of BRTC, CUET)
- Principal Consultant for Geotechnical Investigation of AK Khan Inland Container Terminal at Chattogram, Bangladesh (as an individual consultant)
- Principal Consultant for Geotechnical Investigation of Waste Water Treatment Plant at Choukhali and Kutupalang Rohingya Camp, Cox's Bazar, Bangladesh (as an individual consultant)
- Principal Consultant for Geotechnical Investigation of LPG tank at Barobkunda, Chattogram (as an individual consultant)

- Principal Consultant for Geotechnical Investigation of proposed HS Composite Steels Limited of Unitex Group at Anowara, Chattogram (as an individual consultant)
- Principal Consultant for Geotechnical Investigation of several GIS substation of Bangladesh Power Development Board (BPDB) (as an individual consultant)
- Principal Consultant of Geotechnical Investigation of eight storied Proyash School under Bangladesh Army at Chattogram Cantonment, Bangladesh (as an individual consultant)
- Principal Consultant of Geotechnical Investigation of Chittagong Eye Infirmary and Training building of Chittagong Eye Hospital at Pahartali, Chattogram (as an individual consultant)
- Principal Consultant of Geotechnical Investigation for High Rise Apartment building of T.K.Group at Askar Dighi, Chattogram (as an individual consultant)
- Experienced in Geotechnical consultancy works, especially in geotechnical testing for more than 150 projects since 2016 (as an individual consultant)
- Experienced in foundation design of several multi-storied residential and commercial buildings (as an individual consultant)

#### **WORKSHOPS/TRAINING ATTENDED**

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- Workshop on review of existing diploma and bachelor in civil engineering course curricula incorporation disaster and environmental engineering issues in Bangladesh held on November 2-3, 2009
- Training course on disaster and environmental engineering education held during December 20-24, 2009

#### **ACADEMIC AWARDS**

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- Best Paper Award (Geotechnical) in the 5<sup>th</sup> International Conference on Civil Engineering for Sustainable Development (ICCESD-2020)
- MEXT Scholarship (Japanese Government) for PhD study from 10/2013-09/2016
- ADB-JSP Scholarship for Master study from 04/2011-03/2013
- Engr. Khorshed Anwar Memorial Award for securing 1<sup>st</sup> position in Civil Engineering Department of CUET, Bangladesh in 2009
- University Grants Commission (UGC), Bangladesh scholarship for securing 1<sup>st</sup> position in Faculty of Engineering, CUET in 2008
- Technical Board Scholarship in undergraduate level from 2004-2008
- Education Board Scholarship for excellent result in SSC examination from 2001-2003.
- Primary Scholarship (1<sup>st</sup> position) in 1995

#### **COMPUTER LITERACY**

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Programming Language: MATLAB, C, FORTRAN

Engineering Software: ETABS, SAP 2000, STAAD PRO

General Software: Office suite, Windows operating, Adobe Illustrator

## GRADUATE/UNDERGRADUATE COURSES

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### Theory Courses

- Engineering Geology & Geomorphology
- Geotechnical Engineering-I (Basic Soil Mechanics)
- Geotechnical Engineering- II (Foundation Engineering)

### Lab Courses

- Basic Geotechnical Engineering lab works
- Building Design lab works

## GRADUATE SUPERVISION

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1. Nafisa Tabassum , M.Sc Engg. Student, (Title: Development of a mesh free particle method for slope stability analysis considering soil non-linearity)-***Principal Supervisor***
2. Most. Mukta Banu, M.Sc Engg. Student, (Tentative title: Geotechnical parameter assessment of tall building foundation)-***Principal Supervisor***
3. Sabekun Nahar, M Engg. Student, (Tentative title: Prospect of an eco-friendly ground improvement approach: A case study for coastal soils)-***Principal Supervisor***
4. Sanjoy Das, M.Sc Engg. Student, (Tentative title: Geotechnical hazard assessment of unstable slop for rational landslide hazard mitigation)-***Co supervisor***
5. Abu Sadat Mohammad Tanvir, M.Sc Engg. Student at MIST (Title: Performance evaluation of geopolymer stabilized soil for road construction)-***Co supervisor***

## REFERENCES

### ***Kazuo Konagai (D. Engg)***

Professor Emeritus  
The University of Tokyo  
&  
Principal Researcher , ICL

### ***Hisashi Taniyama (D. Engg)***

Associate Professor  
Graduate School of Science and Engineering  
Saitama University, Japan  
E-mail: taniyama@mail.saitama-u.ac.jp

*Aftab*

### **Md Aftabur Rahman**

*(The information's given in this Resume are correct to the best of my knowledge)*