CV of Md. Arif Hossain Jewel, PhD

Md. Arif Hossain Jewel, PhD
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EDUCATION

Degree and Institution name	Duration
PhD in Environmental Science & Tech., Kyoto University	October, 2018 - September, 2021
MS in Environmental Science & Tech., Kyoto University	October, 2016 - September, 2018
B.Sc. in Agricultural Engg., Bangladesh Agricultural University	March, 2008 – November, 2012
Higher Secondary Certificate, Govt. Science College	August, 2005 – May, 2007
Secondary School Certificate, KCSM High School	January, 2003 – March, 2005

THESIS

Degree	Title	Supervisor
PhD	Effect of seepage on incipient motion and rheology of cohesionless soil	Akira Murakami and Masayuki Fujihara
MS	Effect of seepage flow on the critical tractive force of cohesionless soil bed subjected to surface flow	Akira Murakami
Undergrade	Performance evaluation of twin nozzle rotating head sprinkler	Md. Nazrul Islam

FIELD OF SPECIALIZATION & SKILL

- Sediment Dynamics, Computational Fluid Dynamics, Hydrology, Agricultural Mechanization, Irrigation Engineering, Water Resources Management, Seepage and

Erosion Modelling, Soil Rheology, FT4 Powder Rheometer, 3-D Printed Particulate Mechanics, Particle Image Velocimetry (PIV)

RESEARCH & JOB EXPERIENCE

Environmental Science & Tech. Division, Graduate School of Agriculture, Kyoto University, Japan
Graduate Researcher (PhD) ***October, 2018 - September, 2021***

- Particle Image Velocimetry (PIV), High speed photography and videography
- Sediment dynamics
- Turbulence, Lattice Boltzmann Method-Discrete Element Method
- Low confining stress using FT4 powder rheometer

Experimental methods and laboratory techniques to study bedload transport, alongside numerical modeling of pore scale analysis using Lattice Boltzmann Method-Discrete Element Method. Laboratory investigation of soil rheology to solve soil failure problem during low stress condition in the boundary between hydraulics and soil mechanics.

Environmental Science & Tech. Division, Graduate School of Agriculture, Kyoto University, Japan
Graduate Researcher (MS) ***October, 2016 - September, 2018***

- Particle Image Velocimetry (PIV)
- Erosion and Sediment transport

Investigate experimental methods and laboratory techniques to study sediment transport and fluid flow, alongside bedload transport using particle image velocimetry.

Rural Development Academy (RDA), Bogura, Bangladesh
Assistant Director ***17 July 2013 – 5 February 2023***
Deputy Director ***6 February 2023– 19 December 2023***

- Research, Action Research, Training, and Consultancy

- **Research and Action Research** in the field of hydraulics, hydrology, irrigation and water resources management
- **Assistant Project Director (Infrastructure)** for the ADP funded project "Action Research Project on Cooperative Based Multi-

Storied Rural Housing with Modern Amenities for Restoration of Agricultural Land" shortly Palli Janapad.

- **Consultant:** For replicating different types of RDA developed models such as low-cost deep tube wells (DTWs), buried pipe irrigation, arsenic and iron treatment plant models, and water resources development all over Bangladesh.
- **Focal person** for the agricultural machinery production and marketing through Public- Private- Partnership (PPP) model named RDA-KMT Workshop.
- **Training Module Developer and Trainer:** Modern Irrigation Practices through Efficient & Economic Use of Water training for Infrastructure IDCOL, LGED, and BADC
- **Organizer and Trainer:** Training Workshop on People-Private-Public (PPP) Mechanical Yard Approach for Mechanized System of Rice Intensification (MSRI) and Tricho-compost Production; Organized by: Noyaborga Limited, Dhaka and RDA, Bogura, Technically and Financially Supported by: University of Tsukuba, Japan
- **Facilitator:** Foundation Training Course for BCS (Health) cadre, BCS (Education) cadre, BCS (General) cadre, BBS Officials, and LGED Engineers

Department of Agricultural Engineering., Sher-e-Bangla Agricultural University, Dhaka, Bangladesh
Assistant Professor ***19 December 2023 - Till now***

- Teaching, Research, Training, Project, and Consultancy

My research uses experimental methods and laboratory techniques to study sediment transport and fluid flow, alongside bedload transport using particle image velocimetry and numerical modeling of pore scale analysis using Lattice Boltzmann Method-Discrete Element Method. As a faculty, I also do research and teaching in the field of hydrology, agricultural mechanization, precision, and smart agriculture.

Department of Soil Science, Universitas Sebelas Maret, Indonesia
Postdoctoral Researcher ***01 July 2024 – 30 July 2024***

- Assisting in teaching courses on Irrigation and Drainage; Supervision to master's students conducting thesis research on "*Estimating groundwater potential for irrigation*"; Refining and co-authoring an international on the topic of climate

change and soil amendment effect on Java Tea plant;
Conducting a training program for undergrad, master's and PhD students for writing and publishing high quality academic article;

COMPUTER AND PROGRAMMING SKILL

- Microsoft Office packages
- Auto CAD, Fusion 360, HTML
- C++, Fortran, MATLAB, Python, CUDA C/C++
- Lattice Boltzmann Method, Discrete Element Method
- CROPWAT
- CLIMWAT

AWARDS/SCHOLARSHIPS

- SAINS TANAH Young Collaborative Partner Award, 2nd International Conferences of Sains Tanah (ICOSATA) 2024, Surakarta, 28-30 August 2024.
- MEXT (Monbukagakusho) Scholarship for Doctoral study, Japanese Ministry of Education, Culture, Sports, Science and Technology, October, 2018 – September, 2021.
- MEXT (Monbukagakusho) Scholarship for Master's study, Japanese Ministry of Education, Culture, Sports, Science and Technology, October, 2016 – September, 2018.
- AARDO Fellowship for participating training courses at the Egyptian International Centre for Agriculture (EICA), Egypt, January – April, 2016.
- Board Scholarship (General), Secondary School Certificate (S.S.C.) Examination, Board of Intermediate and Secondary Education, Dhaka, Bangladesh, 2007.
- Junior Scholarship (General), KCSM High School, Kishoregonj, Bangladesh, 2003-2005.

IN COUNTRY TRAINING/CONFERENCE/WORKSHOP

Name	Duration	Place/Country	Year
Postharvest Processing Technology for Food and Nutritional Security	5 Days	BARC, Dhaka	2024
Water Efficient and Climate Smart Irrigation Management	3 Days	BARC, Dhaka	2024
Training on Outcome Based Education	1 Day	SAU, Dhaka	2024

Annual Planning Conference	2 Day	RDA, Bogura	2023
Workshop on Research, Extension and Farmers' Involvement	1 Day	RARS, Rangpur	2023
Seminar on Aisleless and Cooperative Based Cultivation	1 Day	BCA, Cumilla	2023
Workshop on Awareness Building Regarding Safe Food	1 Day	RDA, Bogura	2023
Co-creating a Thriving Entrepreneurial Ecosystem	3 Days	Bangladesh	2023
Use of Farm Machinery and Efficient Irrigation Management	5 Days	BARC, Dhaka	2016
Skill Development Training on Food Processing Techniques	3 Days	RDA, Bogura	2016
Mainstreaming Environment, Climate Change and Disaster Risk Management for Development Planning	5 Days	NAPD, Dhaka	2015
45th Special Foundation Training Course	2 Months	RDA, Bogura	2013

FOREIGN TRAINING/CONFERENCE/WORKSHOP

Name	Duration	Place/Country	Year
Webinar on Research Trends in the Flow - Sedi ment - Vegetation Interactions in Fluvial System	1 Day	Spain Water and IWHR, China	2021
56th Annual Conference of the Japanese Geotechnical Society	3 Days	Japan	2021
1st Indo-Japan Webinar Series on Geotechnics for Disaster Mitigation	6 Days	India-Japan	2020
16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering	5 Days	Taiwan	2019
53rd Annual Conference of the Japanese Geotechnical Society	3 Days	Japan	2018
Food Processing Technology	2.5 Months	Egypt	2016

PUBLICATIONS

International and National Journal Articles

Journal article (Sediment dynamics; Fluid-Particle interaction; Hydraulics; Hydrology)

1. Vishwakarma, D. K., Kuriqi, A., Ali, A. S., Kishore, G., Al-Ansari, N., Pandey, K., Kumar, P., Kushwaha, N.L., **Jewel, A.**, Forecasting of stage-discharge in a non-perennial river using machine learning with gamma test, ***Heliyon,*** 2023.

(doi: 10.1016/j.heliyon.2023.e16290)

2. **Jewel, A.**, Fujisawa, K., Murakami, A., Effect of injection on bed shear stress and turbulence characteristics in a closed conduit flow, ***Paddy and Water Environment***, 2022. (doi: 10.1007/s10333-022-00905-7)

3. **Jewel, A.**, Fujisawa, K., Murakami, A., Evaluation of incipient motion of sand particles by different indirect methods in erosion function apparatus, ***Water***, 13, 1118, 2021. (doi: 10.3390/w13081118)

4. Kitao, T., Fukumoto, Y., Fujisawa, K., **Jewel, A.**, Murakami, A., Validation of LBM simulation of saturated seepage flow through 3D-printed homogeneous porous medium for fluid-particle coupled analysis, ***Acta Geotech.***, 2021. (doi: 10.1007/s11440-021-01210-z)

5. **Jewel, A.**, Fujisawa, K., Murakami, A., Effect of seepage flow on incipient motion of sand particles in a bed subjected to surface flow, ***J. Hydrol.***, 579, 2019. (doi: 10.1016/j.jhydrol.2019.124178)

Journal article (Irrigation; Agricultural Mechanization; Environment)

1. Kader, M.A., Khan, F.H., Tulip, S.S., Mridha, M.A.H., and **Jewel, A.**, Applicability of plastic mulch and conservation strip tillage for potato production in Bangladesh, **Sains Tanah Journal of Soil Science and Agroclimatology**, 18(2): 115-125, 2021. (doi: 10.20961/stjssa. v18i2.43559)

2. **Jewel, A.**, Agricultural mechanization in Bangladesh: higher education and research institutions' perspectives, **African-Asian Journal of Rural Development**, Vol. 52, No. 2, pp. 7-27, 2019.

3. Kader, M.A., Singha, A., Begum, M. A., **Jewel, A.**, Ferdous, H. K., and Nazrul, I. K., Mulching as water-saving technique in dryland agriculture: review article, **Bulletin of the National Research Centre**, 43, 148, Oct 2019. (doi: 10.1186/s42269-019-0186-7)

4. Nessa, Fakhrun and **Jewel, A.**, Analysis of soil nutrient and heavy metal concentration in agricultural land of zirani industrial a rea, Savar, Dhaka, **International Journal of Innovation and Scientific Research**, vol. 10, no. 1, pp. 90–98, 2014.

5. **Jewel, A.** and Islam, M.N., Performance evaluation of twin nozzle rotating head sprinkler, **Bangladesh Rural Development Studies**, vol. XVII, no. 1, pp. 101–108, 2014.

International and National Conference Proceedings

1. **Jewel, A.**, Fujisawa, K., Murakami, A., Effect of injection on bed shear stress in erosion function apparatus. ***Proc. of the 56th Annual Conference of the Japanese Geotechnical Society*** (in zoom platform online), Japan, July, 2021.

2. **Jewel, A.**, Fujisawa, K., Fukumoto, Y., Murakami, A., Numerical investigation of seepage force acting on interfacial bed particles by DEM-LBM. **In book: Challenges and Innovations in Geomechanics**, IACMAG 2021, LNCE 126, pp. 317–325, 2021. (doi: 10.1007/978-3-030-64518-2_38)

3. **Jewel, A.**, Fujisawa, K., Murakami, A., Effect of seepage flow on critical tractive force of cohesionless soil bed subjected to surface flow. ***Proc. of the 16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering***, Taipei, Taiwan, pp. 637- 642, October, 14-18, 2019.

4. **Jewel, A.**, Fujisawa, K., Murakami, A., Effect of upward seepage flow on critical tractive force of cohesionless soil material subjected to surface flow. ***Proc. of the 53rd Annual Conference of the Japanese Geotechnical Society***, Takamatsu, Kagawa, Japan, July, 2018.

RESEARCH SUPERVISION EXPERIENCE

- Research guidance to Undergraduate (last semester) and Masters students of Agricultural Facilities Engg. Lab., Kyoto University, Japan; September, 2018 – September, 2021

PROFESSIONAL MEMBERSHIPS

- Member, Institution of Engineers Bangladesh (IEB)
- Member, Japanese Geotechnical Society (JGS)
- Member, Engineers Australia (EA)
- Member, Agriculturist (Krishibid) Institution Bangladesh (KIB)

REVIEWED PEER-REVIEW JOURNALS

- ActaGeophysica
- CFD Letters
- Asian Journal of Water, Environment and Pollution
- SAINS TANAH - Journal of Soil Science and Agroclimatology
- Scientific Reports

REFEREES

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   Kyoto University, Yoshida Honmachi, Sakyo-ku, Kyoto 606-8501, Japan
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I certify that the information provided in this CV is true and correct.

Date: 24/09/2024 Signature: