Curriculum vitae

Dr. Bandita Barman

Assistant Professor
Department of Civil Engineering
IIT (ISM), Dhanbad, INDIA

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0326-223-5398 (O); 9085778672 (M)

RESEARCH INTERESTS	Sediment Transport and Fluvial Hydrodynamics, Turbulent Flow, Surface Water Flow Modelling, Modeling and Simulation of Fluvial Processes.
EDUCATION	PhD, August 2018 **Indian Institute of Technology Guwahati,** India • Thesis title: Turbulent flow structures and morphological characteristics of mining affected alluvial channel. • Advisors: Prof. Arup Kumar Sarma and Prof. Bimlesh Kumar M.Tech., June 2015 **Indian Institute of Technology Guwahati**, India • Thesis title: Morphological modeling of alluvial channel with aggregate mining. • CGPI: 9.78/10 B.E. in Civil Engineering, 2011 **Assam Engineering College,** Jalukbari, India • Percentage: 84.47%
AWARDS	Key funded Post-Doctoral Research Fellowship, Wuhan University, China, 2019 MHRD PhD scholarship, IIT Guwahati, 2015 MHRD MTech scholarship, IIT Guwahati, 2013 3rd Rank in BE, 2011 Engineering Merit Scholarship in B.E. from Govt. of Assam
RESEARCH EXPERIENCE	Post-Doctoral Research Fellow, Feb 2019 – Sept 2019 **Wuhan University**, China • Project title: Experimental investigations of channel thalweg profile of Jingjiang reach (Middle Yangtze River) • Advisor: Prof. Junqiang Xia
TEACHING EXPERIENCE	Assistant Professor July, 2021-present Department of Civil Engineering, **IIT (ISM) Dhanbad** Assistant Professor October, 2019-July, 2021 Department of Civil Engineering, **SVNIT Surat** Assistant Professor (Adhoc) August, 2018- December, 2018 Department of Civil Engineering, **NIT Meghalaya** Assistant Lecturer August, 2011- July, 2013

Jigmey Namgyel Polytechnic, Bhutan

PUBLICATIONS
(Journal published)

1. Laxman V Rathod, P V Timbadiya, and **Bandita Barman**. Turbulent Anisotropy and Coherent Structures in Flow through a Symmetric Compound Channel with Emergent Floodplain Vegetation, *Physics of Fluids,accepted for publication*
2. Ravi Kumar Mishra, **Bandita Barman**, Tinesh Pathania. 3D Modeling of Hydro-Morphodynamic Characteristics of Mining Affected Alluvial Channel using TELEMAC3D and GAIA, *Physics of Fluids*, 36 (10), 2024. **(IF 4.1)**
3. Gurugubelli Yatirajulu, P V Timbadiya, and **Bandita Barman**. Flow turbulence and morphological characteristics in an asymmetric alluvial sinuous channel, *Ocean Engineering*, 312: 119341, 2024. **(IF 4.6)**
4. Gurugubelli Yatirajulu, P V Timbadiya, and **Bandita Barman**. Turbulent flow structures and Reynolds stress anisotropy in an asymmetric sinuous mobile channel, *Physics of Fluids*, 36 (8), 2024. **(IF 4.1)**
5. **Bandita Barman,** Saundaraya Narayan Kashyap, and Bimlesh Kumar**.** Flow velocity prediction in a vegetated channel using soft computing techniques, Multiscale and Multidisciplinary Modeling, Experiments and Design, 1-11, 2024. (**IF 1.9**)
6. **Bandita Barman,** Jyotirmoy Barman, and Bimlesh Kumar. Fractal dimensions of hydraulic parameters in sand mined alluvial channel. *Water Supply*, 22 (6): 2022, 6143–6156. **(IF 1.768)**
7. **Bandita Barman** and Bimlesh Kumar. Quantification of Turbulent Flow Anisotropy in an alluvial channel Mining Pit. *Marine Georesources and Geotechnology*, 2022/ https://doi.org/10.1080/1064119X.2022.202550. **(IF 2.673)**
8. **Bandita Barman**, Bimlesh Kumar, and Arup Kumar Sarma. Impact of sand mining on alluvial channel flow characteristics. *Ecological Engineering*, 135, 36-44, 2019. **(IF 4.035)**
9. **Bandita Barman**, Bimlesh Kumar, and Arup Kumar Sarma, Dynamic characterization of migration of a mining pit in an alluvial channel. *International Journal of Sediment Research*, 34, 155-165, 2019. **(IF 2.902)**
10. **Bandita Barman**, Bimlesh Kumar, and Arup Kumar Sarma, Turbulent flow structures and geomorphic characteristics of mining affected alluvial channel. *Earth Surface Processes and Landforms*, 43, 1811-1824, 2018. **(IF 4.133)**
11. **Bandita Barman**, Anurag Sharma, Bimlesh Kumar, and Arup Kumar Sarma, Multiscale characterization of migrating sand wave in mining induced alluvial channel. *Ecological Engineering*, 102, 199-206, 2017. **(IF 4.035)**
12. **Bandita Barman**, Arup Kumar Sarma, and Bimlesh Kumar, Mining Pit Migration of an Alluvial Channel: Experimental and Numerical Investigations. *ISH Journal of Hydraulic Engineering*, Online ISBN 978-3-319-55125-8, 2018. **(IF 0.451)**

BOOK CHAPTER

Bandita Barman, Bimlesh Kumar, and Arup Kumar Sarma. Experimental study on mining pit migration. Book Title: *Development of water resources in India*, Series Title: Water Science Technology Library Series, Springer, Vol. 84, Chapter 26, ISBN: 978-3-319-55124-1.

Koradia Ashishkumar K, **Bandita Barman**. Numerical Solution of Two-Dimensional Shallow Water Flow with Finite Difference Scheme. Book Title: Fluid Mechanics and Hydraulics: International Conference on Hydraulics, Water

Resources and Coastal Engineering, (pp. 115-126). Series Title: Lecture Notes in Civil Engineering Singapore: Springer Nature Singapore, ISBN 978-981-19-9150-9.

CONFERENCE PAPERS

1. Laxman Rathod, Gurugubelli Yatirajulu, P. V. Timbadiya and, **Bandita Barman**. Performance of Acoustic Doppler Vectrino Profiler in Measurement of Velocity Profile in Mobile Bed Channel, 23rd congress of the international association for hydro environmental engineering and research – Asia pacific division, IIT Madras 2022.
2. Gurugubelli Yatirajulu, P. V. Timbadiya and, **Bandita Barman**. Longitudinal and Lateral Velocity in a Sinuous Channel Bend, International Seminar on Sustainable Technologies for River Erosion Alleviation and Management (STREAM – 2022)
3. Gurugubelli Yatirajulu, P. V. Timbadiya and, **Bandita Barman**. Review on Morphology and Turbulence Characteristics in Meandering Rivers, EGU General Assembly 2022.
4. Laxman Rathod, P. V. Timbadiya and, **Bandita Barman**. Flow Resistance Due to Rigid and Flexible Vegetation: A Review, EGU General Assembly 2022.
5. Laxman V Rathod, **Bandita Barman**, Bimlesh Kumar. Estimation of Bed Material Load using Artificial Intelligence Techniques, EGU General Assembly 2021. (Online)
6. Koradia Ashishkumar K, **Bandita Barman**. MacCormack Finite-Difference Scheme for Simulation of Flood Hydrograph, International Conference (Online) on Water and Environment (ICWE- 2021) March 22-23, 2021 (Best paper award)
7. Jyotiprakash Tarei, **Bandita Barman.** Performance of Mac-Cormack finite difference scheme with TVD and Artificial Viscosity, Water Resources and Coastal Engineering (HYDRO), NIT Rourkela, 2020. (Online)
8. **Bandita Barman,** Bimlesh Kumar, Arup Kumar Sarma, Junqiang Xia. Turbulent flow characteristics in a mining pit: an experimental investigation. International Symposium on River Sedimentation, Chengdu, China, 16th - 20th September, 2019.
9. Jyotirmoy Barman, Jyotismita Taye, **Bandita Barman,** and Bimlesh Kumar. Turbulent Characteristics of Sinuous River System. International Symposium on River Sedimentation, Chengdu, China, 16th -20th September, 2019.
10. **Bandita Barman**, Abhishek Dixit, Arnab Kumar Pal, Bimlesh Kumar and Arup Kumar Sarma. Characteristics of bed load in a mined alluvial channel. 22nd International Conference on Hydraulics, Water Resources and Coastal Engineering (HYDRO), L. D. College of Engineering, Ahmedabad, 21st - 23rd December, 2017.
11. **Bandita Barman**, Shivam Singh, Shankar Dev Gour, Subhashish Chamua, Bimlesh Kumar and Arup Kumar Sarma. Review on adverse impact of river sand mining. 22nd International Conference on Hydraulics, Water Resources and Coastal Engineering (Hydro), L. D. College of Engineering, Ahmedabad, 21st -23rd December, 2017.
12. **Bandita Barman**, Bimlesh Kumar and Arup Kumar Sarma. Statistical analysis of bed feature of an alluvial channel at upstream and downstream of mining pit. 44th National Conference on Fluid Mechanics and Fluid Power, Amrita University, Amritapuri Campus, Kollam, Kerala, 14th -16th December, 2017.

13. **Bandita Barman**, Bimlesh Kumar, and Arup Kumar Sarma, What follows after sediment mining- a preliminary investigation. 6th International and 43rd National Conference on Fluid Mechanics and Fluid Power, MNNIT Allahabad, ISBN 978-93-5267-408-4, 15th -17th December, 2016.
14. **Bandita Barman** and Arup Kumar Sarma. A study on river bed degradation due to mining of coarser top sediment layer. 6th International Conference on Computational Mechanics and Simulation, IIT Bombay, 27th June- 1st July 2016.

SPONSORED RESEARCH PROJECTS

1. Coordinator: Dr. Anshumali

PIs

Dr Bandita Barman /Dr Kironmala Chanda/ Dr Tinesh Pathania /Dr Sanjit Kumar Pal/Dr. Renu V

Sponsoring Agency: Indian Institute of Technology (ISM) Dhanbad

IIT(ISM)/2021-2022/826/INSTITUTE, **Rs. 21,00,000/-**

Delineation of the Administrative Boundary of the Banki River, Garhwa District, Jharkhand: An Implication in Restoration and Conservation of the Ganga River Basin

2. PI

Dr Bandita Barman

Sponsoring Agency: Indian Institute of Technology (ISM) Dhanbad, FRS(174)/2022-2023/CE, **Rs.15,00000/-**

Turbulent characteristics of flow over heterogeneous submerged vegetation patches.

CONSULTANCY PROJECT

Sedimentation Study of Siang and Dibang Rivers of Arunachal Pradesh (External consultant)

TEACHING RESPONSIBILITIES

Theory

Hydrogeology and Well Hydraulics (UG/PG) CFD in Civil Engineering (PG) River Engineering (PG) Fluid Mechanics and Machines (UG) Engineering Graphics (UG)	IIT (ISM) Dhanbad
Fluid Mechanics (UG) Hydraulic Engineering(UG) Energy and Environmental Engineering(UG)	SVNIT Surat
Hydrology and Water Resources Engineering (UG) Solid Mechanics (UG)	NIT Meghalaya

TEACHING RESPONSIBILITIES	Practical Advance Testing Laboratory (PG) Engineering Graphics(UG) Water Resources Engineering(UG)	IIT (ISM) Dhanbad
	Hydraulic Engineering (UG) Hydraulic and Hydraulic Machine (UG) Water Resources Engineering-II (UG) Hydraulic Engineering Laboratory (PG)	SVNIT Surat

PHD STUDENTS GUIDED (Ongoing)

1. Saundarya Narayan Kashyap (Sole)
2. Ravi Kumar Mishra (Co-guide: Dr. Tinesh Pathania, IIT (ISM) Dhanbad)
3. Rozy Kumari (Sole)
4. Rakesh Kumar (Sole)
5. Gurugubelli Yatirajjulu, External Guide (SVNIT Surat)
6. Laxman V Rathod, External Guide (SVNIT Surat)

MTECH STUDENTS GUIDED (Ongoing/Completed)

IIT (ISM) Dhanbad

1. Ankit Kumar (2024-2025)
2. Arjun D C (2024-2025)
3. Rakesh Kumar (2023-2024)

Dissertation Title: experimental study on turbulent parameters in narrow channel with gravel bed

4. Ashish Kumar (2022-2023)

Dissertation Title: Experimental study on watershed responses under heterogeneous vegetation patterns.

SVNIT Surat

5. Koradia Ashishkumar K (2020-2021)

Dissertation Title: Numerical modelling of 2-D shallow water flow with finite difference scheme.

6. Saundarya Narayan Kashyap (2020-2021)

Dissertation Title: Flow prediction in vegetative channel using machine learning techniques.

7. Kranthi Teja Potnuri (2020-2021)

Dissertation Title: Hydrodynamic Parameters in an Alluvial Channel.

8. Laxman V Rathod(2019-2020)

Dissertation Title: Estimation of bed material load using artificial intelligence techniques

9. Jyotiprakash Tarei(2019-2020)

Dissertation Title: Performance of MacCormack finite difference scheme with TVD and artificial viscosity

MTECH PROFESSIONAL PROJECT GUIDED

Sayed Farhan Ali, Palai Manoj Kumar, Hridhya A (SVNIT Surat)
Project Title: Study of width and braiding index of the Brahmaputra river in Assam

ADMINISTRATIVE RESPONSIBILITIES	FIC, Water Resource Engineering Lab Member, DUGC Member, Department documentation cell	IIT (ISM) Dhanbad

Member, TEQIP

SVNIT Surat

Departmental Training and Placement Coordinator (Feb 2020-July 2021)
Warden of Mother Teresa Bhavan, SVNIT Surat (March 2021-July 2021)
Co-chairperson of CES (Civil Engineering Student Chapter), SVNIT Surat (September 2020-July 2021)

OTHERS

- Acted as Co-organizing secretary Hydro 2021
- Conducted One-week short term training program on 'Design of Storm Water Drainage Systems as per CPHEEO-2019'at Civil Engineering Department, Sardar Vallabhbhai National Institute of Technology – Surat
- Reviewed technical articles for Physics of Fluid, Natural Hazards, Progress in Computational Fluid Dynamics, an International Journal; ISH Journal of Hydraulic Engineering