# MOHAMMAD ZAKWAN

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## Career Summary

- **Highest Educational Qualification:** Ph.D. **(IIT Roorkee)** (Details in Annexure A.1)
- **SCI Journal Publications**: 24 (Details in Annexure A.2)
- **Scopus Journal Publications**: 20 (Details in Annexure A.3)
- **Editorial Services** : 03 (Scopus Books) and 03 Journals (Details in Annexure A.4)
- **Book Chapters :** 09 (Details in Annexure A.5)
- **Conference Papers:** 06 (Details in Annexure A.6)
- **Teaching Experience:** 09 years (Details in Annexure A.7)
- **Reviewer :** Over 200 research articles (Details in Annexure A.8)
- **Invited Lectures :** 08 (Details in Annexure A.9)
- **Supervision:** 2 PhD (awarded)
- **Citations :** 1205
- **h-Index :** 21 (Google Scholar)
- **i10-index :** 37 (Google Scholar)

**Award and Achievement**

- **NET JRF (Engineering Sciences) secured an All India Rank – 89.**
- **Gold Medalist – B.Tech. (Civil Engineering) and M.Tech. (Civil Engineering)**

**Professional Profile Links**

- Google Scholar: https://scholar.google.co.in/citations?user=XwH5d5wAAAAJ&hl=en#
- ResearchGate: https://www.researchgate.net/profile/Mohammad-Zakwan
- LinkedIn: https://www.linkedin.com/in/mohammad-zakwan-892bb1b6

## A.1– EDUCATIONAL QUALIFICATIONS

- **Ph.D. – Civil Engineering**, Civil Engineering Department, Indian Institute of Technology, Roorkee with a **CGPA of 9.3 in Course Work** in **2020**.

  **Ph.D. Thesis Topic**

  - "**Investigation on Flow and Sediment Transport in Ganga River**" under the able guidance and mentorship of Prof. Zulfequar Ahmad, Civil Engineering Department, Indian Institute of Technology, Roorkee.

- **Master of Technology** (Hydraulic Structures, Civil), Department of Civil Engineering, Zakir Husain College of Engineering and Technology, A.M.U., Aligarh with a **perfect 10 CGPA**. **(Gold Medallist)** in **2016**.

  **M. Tech. Dissertation Topic**

  - "**Parameter Estimation of Discharge Rating and Infiltration Models Using Optimization Technique**" under the able guidance and mentorship of Prof. Mohd. Muzzammil and Prof. Javed Alam, Department of Civil Engineering, Zakir Husain College of Engineering and Technology, A.M.U., Aligarh.

- **Bachelor of Technology** (Civil Engineering), Department of Civil Engineering, Zakir Husain College of Engineering and Technology, A.M.U., Aligarh with a **9.64 CGPA(Gold Medallist)** in **2014**.

# A.2 SCI JOURNAL PUBLICATIONS

| Title | Year | Indexing | Publisher |
|---|---|---|---|
| Tabassum, R., Gondu, V. R., & **Zakwan, M. (2025**). **Numerical simulation of scour dynamics around series of spur dikes using FLOW-3D**. Journal of Applied Water Engineering and Research. | 2025 | SCI | Taylor & Francis |
| Niazkar, M., Piraei, R., & **Zakwan, M. (2025). Application of Machine Learning Models for Short-term Drought Analysis Based on Streamflow Drought Index**. Water Resources Management, 1-18. | 2025 | SCI | Springer |
| Tabassum, R., Guguloth, S., Gondu, V. R., & **Zakwan, M. (2024)**. Machine learning-based prediction of scour depth evolution around spur dikes. Journal of Hydroinformatics, 26(11), 2815-2836. | 2024 | SCI | IWA |
| Tabassum, R., Guguloth, S., Gondu, V. R., & **Zakwan, M. (2024). Scour depth dynamics in varied spacing spur dike configurations: A comprehensive analysis.** Physics and Chemistry of the Earth, Parts A/B/C, 135. | 2024 | SCI | Elsevier |
| Khan, I., **Zakwan, M.,** Pulikkal, A. K., & Lalthazula, R. (2024). **Environmental flow assessment for the Musi River, India.** Environment, Development and Sustainability**, 1-15.** | 2024 | SCI | Springer |
| **Zakwan, M.** (2023). **Analysis of Simplified approach for Determination of Modified Kostiakov Model Parameters.** Water Science and Technology, IWA, accepted (in production). | 2023 | SCI | IWA |
| Masood, A., Niazkar, M., **Zakwan, M.,** & Piraei, R. (2023). **A Machine Learning-Based Framework for Water Quality Index Estimation in the Southern Bug River**. Water, 15(20) | 2023 | SCI | MDPI |
| Niazkar, M., & **Zakwan, M.** (2023). **Developing ensemble models for estimating sediment loads for different times scales**. Environment, Development and Sustainability, 1-19. | 2023 | SCI | Springer |
| **Zakwan M,** Pham Q. B., Bonnaci, O. and Durin, B. **(2022). Application of Revised Innovative Trend Analysis in Lower Drava River,** Arab J Geosci 15, 758 (2022). https://doi.org/10.1007/s12517-022-09591-5 | 2022 | SCI | Springer |
| Khan, I., **Zakwan, M.,** Pulikkal, A. K., & Lalthazula, R. **(2022). Impact of unplanned urbanization on surface water quality of the twin cities of Telangana state, India.** Marine Pollution Bulletin, 185, 114324. | 2022 | SCI | Elsevier |
| **Zakwan, M.,**& Niazkar, M. (2021). **Discussion of "Reverse Flood Routing in Rivers Using Linear and Nonlinear Muskingum Models" by Badfar et al. (2022)** Journal of Hydrologic Engineering, 2021. | 2022 | SCI | ASCE |
| Umar, S., Lone, M. A., Goel, N. K., &**Zakwan, M.** (2022). **Trend analysis of hydro-meteorological parameters in the Jhelum River basin, North Western Himalayas.** *Theoretical and Applied Climatology* | 2022 | SCI | Springer |
| **Zakwan, M.** and Ahmad, Z. **Analysis of sediment and discharge ratings of Ganga River, India.** Arabian Journal of Geosciences. | 2021 | SCI | Springer |
| **Zakwan, M.**, Pham, Q. B., & Zhu, S. (2021). **Effective Discharge Computation in the Lower Drava River.** Hydrological Science Journal. **626-637** | 2021 | SCI | Taylor & Francis |
| Niazkar, M., and **Zakwan, M. (2021). Application of MGGP, ANN, MHBMO, GRG, and Linear Regression for Developing Daily Sediment Rating Curves,** Mathematical Problems in Engineering, 2021,. | 2021 | SCI | Wiley |
| Shivashankar, M, Pandey, M., &**Zakwan, M.,(2021). Estimation of settling velocity using generalized reduced gradient (GRG) and hybrid generalized reduced gradient–genetic algorithm (hybrid GRG-GA)**, Acta Geophysica, 10.1007/s11600-021-00706-2 | 2021 | SCI | Springer |
| Niazkar, M., and **Zakwan, M. (2021). Assessment of Artificial Intelligence Models for Developing Single-value and Loop Rating Curves,** Complexity, Volume 2021, 121. DOI: 10.1155/2021/6627011 | 2021 | SCI | Wiley |
| **Zakwan, M.,**& Niazkar, M. (2021). **A Comparative Analysis of Data-Driven Empirical and Artificial Intelligence Models for Estimating Infiltration Rates.** Complexity, 2021. | 2021 | SCI | Wiley |
| **Zakwan, M.**, Ahmad, Z., & Sharief, S. M. V. (2018). **Magnitude Frequency Analysis for Suspended Sediment Transport in the Ganga River.** Journal of Hydrologic Engineering, 23(7), 05018013. | 2018 | SCI | ASCE |
| **Zakwan, M.** (2018). **Comparative analysis of the novel infiltration model with other infiltration models.** Water and Environment Journal. | 2018 | SCI | Willey |
| Pandey, M., **Zakwan, M.**, Khan, M.A. & Bhawe. S. **(**2020**). Development of Scour Around a Circular Pier and its Modelling Using Genetic Algorithm.** Water Supply. | 2020 | SCI | Willey |
| **Zakwan, M.** and Ahmad, Z. **Trend Analysis of Hydrological Parameters of Ganga River** Arabian Journal of Geosciences. | 2021 | SCI | Springer |
| **Zakwan, M**. (2018) **Spreadsheet-based modelling of hysteresis affected curves.** Applied Water Science, 8(4), 101. | 2018 | SCI | Springer |
| Aiyelokun, O., Pham, Q. B., Aiyelokun, O., Malik, A. -- and **Zakwan, M. Credibility of design rainfall estimates for drainage infrastructures: extent of disregard in Nigeria and proposed framework for practice.** Natural Hazards. Article DOI: 10.1007/s11069-021-04889-1 | 2021 | SCI | Springer |

# A.3 SCOPUS INDEXED JOURNAL PUBLICATIONS

| Title | Year | Indexing | Publisher |
|---|---|---|---|
| **Zakwan, M.** (2022). **Application of Excel optimisation tool in solving and teaching water resource problems.** International Journal of Hydrology Science and Technology, 14(1), 63-74. | 2022 | Scopus, WoS | Inderscience |
| Sharief, S. M. V., **Zakwan, M.** Farhana, N. **(2023). Estimation of Infiltration Rate using a Nonlinear Regression Model.** Journal of Water Management and Modelling. https://doi.org/10.14796/JWMM.C509 | 2023 | Scopus, WoS | Chi |
| Pandey, M., **Zakwan, M.**, Sharma, P. K., & Ahmad, Z. **Multiple linear regression and genetic algorithm approaches to predict temporal scour depth near circular pier in non-cohesive sediment**. ISH Journal of Hydraulic Engineering, 1-8. | 2020 | Scopus | Taylor and Francis |
| **Zakwan, M., &**Ara, Z. **(2019). Statistical analysis of rainfall in Bihar.** Sustainable Water Resources Management, **5(4), 1781-1789.** | 2019 | Scopus, WoS | Springer |
| **Zakwan, M. (2020) Revisiting Maximum Observed Precipitation and Discharge Envelope Curves.** International Journal of Hydrological science and Technology. | 2020 | Scopus, WoS | Inderscience |
| Sharief, S. M. V. &**Zakwan, M. (2021) "Comparative Analysis of Seepage Loss through Different Canal Linings".** International Journal of Hydrological science and Technology. | 2021 | Scopus, WoS | Inderscience |
| Khan, I.**, Zakwan, M.,** &Mohanty, B. (2022)**. Water Quality Assessment for Sustainable Environmental Management.** ECS Transactions, 107(1), 10133. | 2020 | Scopus, WoS | ECS |
| **Zakwan, M.,** & Khan, I. **(2020). Estimation of Discharge coefficient for side weirs.** Water and Energy International, 62(11), 71-74. | 2020 | Scopus | CBIP |
| Ara, Z. and **Zakwan, M. "Rainfall Runoff Modelling for Eastern Canal Basin",** Water and Energy International**,** 61 (6), 63-67 | 2018 | Scopus | CBIP |
| **Zakwan, M.**, Muzzammil, M. and Alam, J. **"Application of spreadsheet to estimate infiltration parameters"**. Perspective in Sciences, 2016 (8), pp 702-704, doi: 10.1016/j.pisc.2016.06.064 | 2016 | DOAJ | Elsevier |
| **Zakwan, M.** and Muzzammil, M. (2016). **"Optimization Approach for Hydrologic Channel Routing."** Water and Energy International,59(3), 66-69., | 2016 | Scopus | CBIP |
| **Zakwan, M."Application of optimization technique to estimate IDF parameters"** Water and Energy International, 59(5), pp 69-71, | 2016 | Scopus | CBIP |
| **Zakwan, M.** "**Estimation of runoff using optimization technique"** Water and Energy International, 59(8), 42-44. | 2016 | Scopus | CBIP |

## A.4 Editorial Services

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- Water Resource Modelling and Computational Technologies, **Elsevier (Scopus)**. (https://www.sciencedirect.com/bookseries/current-directions-in-water-scarcity-research/vol/7/suppl/C)
- Water, Land and Forest Susceptibility and Sustainability: Geospatial Approaches & Modeling- Volume 1, **Elsevier (Scopus)** (https://www.sciencedirect.com/book/9780323918800/water-land-and-forest-susceptibility-and-sustainability)
- Water, Land and Forest Susceptibility and Sustainability: Geospatial Approaches & Modeling- Volume 2, **Elsevier (Scopus).** (https://www.sciencedirect.com/book/9780443158476/water-land-and-forest-susceptibility-and-sustainability)
- Guest Editor for Journal of Water and Climate Change (SCI) (https://iwaponline.com/jwcc/pages/si_machine_learning_and_climate_change)
- Editor for Journal of Water Management and Modelling.
- Editor for Discover Water Journal
- Editor for Mathematical Problems in Engineering Journal
- Editor for Discover Applied Science Journal

## A.5 BOOK CHAPTERS CONTRIBUTED

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- Muzzammil, M., Alam, J., and **Zakwan, M. (2018). A Spreadsheet Approach for Prediction of Rating Curve Parameters.** In Hydrologic Modeling (pp. 525-533). Springer, Singapore.
- **Zakwan, M. (2021).Trend Analysis of Groundwater Level Using Innovative Trend Analysis.** In Springer-Nature Book: Groundwater Resources Development and Planning in the Semi-Arid Region, Springer, Cham.
- S Sharief, S. M. V., &**Zakwan, M.** (2021). **Groundwater Remediation Design Strategies Using Finite Element Model.** In Groundwater Resources Development and Planning in the Semiarid Region (pp. 107-127). Springer, Cham.
- Ahmad, Z., **Zakwan, M**., & Garg, P. K. (2022). **Braiding and Planform Pattern of Ganga**. In Anthropogeomorphology (pp. 25-54). Springer, Cham.
- Niazkar, M., &**Zakwan, M. (2022). Parameter estimation of a new four-parameter Muskingum flood routing model.** In Computers in Earth and Environmental Sciences (pp. 337-349). Elsevier.
- Kushwaha, N. L., Elbeltagi, A., Patel, A., **Zakwan, M.,** Rajput, J., & Sharma, P. (2022). **Assessment of water resources using remote sensing and GIS techniques**. In Current Directions in Water Scarcity Research (Vol. 7, pp. 85-98). Elsevier.
- **Zakwan, M.**, Sultana, Q., & Ahamad, G. (2022). **Magnitude frequency analysis of sediment transport: Concept, review, and application.** In Current Directions in Water Scarcity Research (Vol. 7, pp. 497-512). Elsevier.
- Niazkar, M., &**Zakwan, M**. (2022). **Application of machine learning models to side-weir discharge coefficient estimations in trapezoidal and rectangular open channels.** In Current Directions in Water Scarcity Research (Vol. 7, pp. 467-479). Elsevier.
- **Zakwan, M.,**& Niazkar, M. (2022). **Innovative triangular trend analysis of monthly precipitation at Shiraz Station, Iran**. In Current Directions in Water Scarcity Research (Vol. 7, pp. 589-598). Elsevier.

## A.6 CONFERENCE ARTICLES

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- **Zakwan, M.,** Khan, I., Ara, Z., Rahim, Z. A., & Sharief, S. M. V. (2019). Trend Analysis of Rainfall in Bihar. Proceedings of Water Resources Management (WRM2019) pp.79-85.
- Ara, Z., and **Zakwan, M.** "**Reservoir Sedimentation Analysis: A Case Study"**. Proceedings of National Conference on Water, Environment & Society (NCWES-2018) pp.286-292.
- **Zakwan, M.** (2016). **"Equation Solvers as an Alternative to Conventional Regression."** 3rd National Conference on Sustainable Water Resource Development and Management, Aurangabad.
- **Zakwan, M.**, Muzzammil, M. and Alam, J. (2016). **"Estimation of Soil Properties using Infiltration Data"**. National Conference on Advances in Geotechnical Engineering, Aligarh.
- Azmi, S. and **Zakwan, M.** (2016). **"Data specific scour predictors",** 3rd National Conference on Sustainable Water Resource Development and Management, Aurangabad.
- Muzzammil, M. Alam, J. and **Zakwan, M."An optimization technique for estimation of rating curve parameters."** Symposium of Hydrology, Delhi, December 2015.

## A7. TEACHING EXPERIENCE

### Assistant Professor - April 2017 till date.

**Civil Engineering, B.tech and Polytechnic, Maulana Azad National Urdu University (MANUU), Hyderabad, Telangana**

**KEY RESPONSIBILITIES AND CONTRIBUTIONS**

- Designed syllabus for the Water Resource Engineering, Hydraulics and Geo-Technical Engineering for Diploma Engineering and B.tech at MANUU, Hyderabad.
- Co-Coordinator for B.tech Civil Engineering Programme.
- Taught Water Resource Engineering, Hydraulics and Geo-Technical Engineering to the students of Civil Engineering.
- Developed resources for online teaching and learning (YouTube Videos and Validation of SWAYAM course).
- Member of NAAC Committee of University for criterion 5.2.
- In-charge of Hydraulics Laboratory.
- In-charge of Time Table Civil Engineering.
- Worked as Incharge -Industrial Training and visit for final year Diploma in Civil Engineering.
- Co-Ordinator of Hindi Club.
- Worked as an Examination In-charge at Polytechnic, MANUU.
- Worked as an Attendance Coordinator, Polytechnic, MANUU.
- Worked as Presiding Officer and Counting officer GHMC Election 2020.
- PI for Minor Research Project Unlocking Water Quality: Assessing Bore Well Samples at MANUU Campus, Hyderabad
- **PhD Guidance**: Supervised Mr. Iqbal Khan to obtain the PhD on topic "Assessment of Water Quality of Major Surface Water Sources of Hyderabad, India" and Mrs. Reshma Tabassum to obtain PhD on "Design of Multiple Spur Dikes in Non-Cohesive Sediment".

## A8.REVIEWER

- Journal of Hydrologic Engineering. **ASCE**
- Ain Shams Engineering Journal. **Elsevier**
- Process Safety and Environmental Protection. **Elsevier**
- Journal of South American Earth Sciences. **Elsevier**
- Sustainable Water Resources Management. **Springer**
- Water Science and Technology. **Springer**
- Water Resources Management. **Springer**
- Water Management **ICE**
- Sustainability **MDPI**
- Resources **MDPI**
- Water **MDPI**
- Minerals Engineering **MDPI**
- Hydrology **MDPI**
- Plos One **PLOS**
- Journal of Hydro-informatics **IWA**
- Mathematical Problems in Engineering **Hindawi**
- Flow Measurement and Instrumentation **Elsevier**
- Cold Regions Science and Technology **Elsevier**
- Journal of Hydro-environment Research **Elsevier**
- International Journal of Hydrology Science & Technology. **Inderscience**

## A.9 Invited Lectures

- Technical Expert Talk at **"Two-Day National Conference On Computational Methods, Data Science and Applications**, May 2021 at Department of Computer Science and I.T., MANUU, Hyderabad.
- Technical Expert Talk at Faculty Development Program **"Data Science Applications in Sciences and Technologies"** March 2022 at Baba Ghulam Shah Badshah University, Rajouri, J&K.
- Technical Expert Talk at Faculty Development Program **"Applications of AI in Water Resource Management (AAWRM-2022)",** March 2022, U.P. Technical University.
- Invited Lecture at One Day Webinar on **"Mountain Rivers and Hazard Assessment: Mechanics, Prediction and Countermeasures"** February 2022 at National Institute of Disaster Management, New Delhi.
- Technical Expert Talk in Workshop on **"Mountain Rivers and Hazard Assessment: Mechanics, Prediction and Countermeasures"** February 2022, NIT, Warangal, Telangana.
- Technical Expert Talk in Workshop on **"Hydrodynamic and Morphologic Characterization of River Channels"** July 2023, NIT, Warangal, Telangana.
- Technical Expert Talk in Workshop on **"'Recent Research Developments in Basic Sciences and Engineering"** September-October 2024, NIT Mizoram, Mizoram.

## PERSONAL DATA

Name: Mohammad Zakwan

Father's Name: Nudrat Husain

Residential Address: 13/1809, Qazi Mohalla, Sahranpur, U.P., India -247001

## REFERENCES

Prof. Zulfequar Ahmad (Professor, IIT Roorkee, Roorkee, India)

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Dr. Majid Niazkar (Euro-Mediterranean Center on Climate Change, Italy)

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**(Dr. Mohammad Zakwan)**