

PROF. DHYAN SINGH ARYA

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I am a Professor (HAG) in the Department of Hydrology at the Indian Institute of Technology Roorkee, India. As a Civil Engineer and trained hydrologist, I have held positions at esteemed institutions such as Pondicherry University, the Punjab Remote Sensing Centre in Ludhiana, and IIT Roorkee, along with international collaborations at ESS in Vienna (Austria) and IHE in Delft (The Netherlands). I actively collaborate with various academic and research centres at IIT Roorkee as a Joint/Associate faculty member. I have held several administrative positions in the past, including Dean of Administration at IIT Roorkee (2022–2025), Professor-in-Charge of Security (2020-22), Head of Department of Hydrology (2015–2018), Chief Warden (2010–2015), and Warden (2004–2005).

My research focuses on how anthropogenic factors and climate change affect hydrological processes. I have expertise/interests in hydrological data analysis, climate variability assessment, rainfall-runoff modelling, dam breach modelling, flood modelling, and creating emergency action plans for dams. Additionally, I explore urban stormwater management, the impacts of climate change on water resources, and the application of GIS and remote sensing in Hydrology. I have worked on various problems in these areas across river basins in countries including India, Bangladesh, British Guyana, Ethiopia, Iraq, Malawi, Myanmar, Nepal, Sri Lanka, Sudan, and Tanzania.

Credentials: Books/Chapters authored - 4; Research papers published - 108; Ph.D. thesis supervision - 21 (9 In Progress); Master thesis supervision - 67 (3 In Progress); Projects - 84 (14 In Progress); Short-term courses organised (45), h-index - 21.

Modelling tools used: HEC-HMS, HEC-RAS, MIKE, SWMM, WinSRM, VIC, Precis and WRF Regional Climate Models, LARSWG Weather generator; *GIS/Remote Sensing Tools:* ArcGIS, QGIS, ERDAS Imagine with programming in C++, Fortran, Python etc.

Education:

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- Ph.D. (Environmental Engineering): Pondicherry University, Pondicherry, India, 1995
 - Master of Technology (Hydrology): Indian Institute of Technology, Roorkee, India, 1991
 - A.M.I.E. (Civil Engineering): Institution of Engineers (I), India, 1988

Experience:

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- Indian Institute of Technology Roorkee, Roorkee, India
 - Professor (Highest Academic Grade) – Jan 2023 to present.
 - Professor – Nov 2015 to Dec 2022
 - Associate Professor – Sep 2009 to Nov 2015
 - Assistant Professor – Feb 2001 to Sep 2009
 - Lecturer – Jan 1998 to Feb 2001
 - Guest faculty, IHE, Delft, The Netherlands: Jun 2005 to Nov 2005 & Dec 2004 to Jan 2005
 - Scientist, Punjab Remote Sensing Centre, Ludhiana, India: Dec 1995 to Jan 1998
 - Guest Scientist, Environmental Software & Services GmbH, Vienna, Austria: Oct 1996 to Dec 1997
 - Pondicherry University, Pondicherry, India: Research Engineer - Oct 1991 to Sept 1995

Additional Information:

Memberships:

- Member, Board of Governors, Quantum University, Uttarakhand.
- Member, Dam Safety Review Panel of Govt. of Maharashtra.
- Convener, XIIth Scientific Assembly of the International Association of Hydrological Sciences (IAHS 2025).
- Co-lead, Surface Water Hydrology, Upper Indus Basin Network – India Chapter, ICIMOD, Nepal
- Member, International Advisory Board, RWESCK, Kwame Nkrumah University of Science and Technology, Ghana
- Fellow, Institution of Engineers (India)
- Member, Indian Association of Hydrologists
- Member, International Association of Hydrological Sciences

Fellowships and Awards:

- Ranked amongst the top 10 PG teachers in IIT Roorkee, 2023, 2022, 2020, 2019, and 2018.
- Distinguished Alumni Award, KLDV Inter College, 2018.
- Distinguished Alumni Award, KL Polytechnic Roorkee, 2017
- Best Case Study Paper Award 2014 for the paper ‘Development of the Jamuneswari flood forecasting system’ ASCE-EWRI Journal of Hydrologic Engineering
- Kathpalia Award for MTech Theses (IIT Roorkee), 2010, 2013
- Young Academic Award to work as Visiting Faculty at UNESCO-IHE, The Netherlands
- North-south Dialogue Scholarship to work on spatial DSS in Austria
- Master of Engineering with Distinction
- Institute’s Medal for securing the highest marks in the Institutions of Engineers in India

Administrative Experience

- Dean of Administration IIT Roorkee since Jun 2022.
- Professor In charge of the Hydrological Information Lab since 2001.
- Professor In charge of Security, IIT Roorkee from Oct 2020 – Jul 2022.
- Head, Department of Hydrology, IIT Roorkee, India from Feb 2015 – Feb 2018.
- Chief Warden, Rajiv Bhawan (Student Hostel) from 2010-2015.
- Warden of boy’s student hostel i.e. Cautley Bhawan (student hostel) 2005-2006
- I was part of organising teams for many conferences at the department and institute levels.

Co-curricular Activities:

- I was actively involved in co-curricular activities in different capacities, such as Faculty Advisor (Dramatics Section of the Cultural Society), IIT Roorkee, 2000-2012;
- Coordinator, Thomso (Institute’s Youth/Cultural Festival) 2015; Deputy Chief Adviser, Thomso 2003, 2004 and 2006

Countries/Places Visited:

- Sri Lanka (2025), Singapore (2025, 2005), Germany (2024, 2012), Australia (2024), Nepal (2023, 2015), Canada (2023), USA (2022, 2017, 2014), UK (2011, 2018), Barbados (2017), South Africa (2017), Thailand (2018, 2016, 2013), Switzerland (2015, 2012, 2017), Hong Kong (2013), The Netherlands (2007, 2005), Indonesia (2005), France (2005), Austria (1996-97)
- I have travelled widely in India from Ladakh (North) to Kanyakumari (South) and from Arunachal Pradesh (East) to Rajasthan (West), working on projects in the hydrology and water resources sectors.

Books:

1. Perumal, M, D.C. Singhal, D.S. Arya, D.K. Srivastava, N.K. Goel, B.S. Mathur, H. Joshi, Ranvir Singh, M.D. Nautiyal, 2005, Hydrological Perspectives for Sustainable Development (ed.), Vol 1 & 2, Allied Publishers Pvt Ltd., New Delhi, 1099 pages.
2. Abbasi, S.A. and D.S. Arya: 2000, Environmental Impact Assessment: Available Techniques, Emerging Trends, Discovery Publishing House, New Delhi, 161 pages.
3. Arya, D.S. and S.A. Abbasi: 1995, Urbanization and its Environmental Impacts, Discovery Publishing House, New Delhi, 193 pages.

Book Chapters:

4. Murumkar, A., D.S. Arya and M.M Rahman: 2013, Seasonal and Annual Variations of Rainfall Pattern in the Jamuneswari Basin, Bangladesh, On a Sustainable Future of the Earth's Natural Resources (ed.), Springer Earth System Sciences, DOI 10.1007/978-3-642-32917-3_19, Springer-Verlag Berlin Heidelberg, pp 349-362.

Research Papers:

Journal Papers:

1. Maiti, Pulak Kumar, Amit Gaurav, Pinakshi Biswas, Bhanu Prakash Vellanki, Dhyan Singh Arya, Ranjana Pathania, 2025, Carbohydrate-active enzymes and biofilm-associated genes mediate persistence of antibiotic-resistant bacteria in varying human-impacted aquatic systems, Journal of Environmental Chemical Engineering, <https://doi.org/10.1016/j.jece.2025.118024>.
2. Sushmita Gouraha, D. S. Arya, and P. Srivastava, 2025, How Urbanisation and Terrain Characteristics Shape Precipitation and Temperature Patterns in Complex Geographies: A Case Study of the Doon Valley, Journal of Theoretical and Applied Climatology, 10.1007/s00704-025-05654-1.
3. Shweta Lall, E. Rajasekar, D.S. Arya, and Sukumar Natarajan. 2025. Data-driven approach to generate typical reference year weather files for building energy simulations, Journal of Building Engineering, DOI: <https://doi.org/10.1016/j.jobee.2025.113218>.
4. Oliver Hatfield, David Coley, Rajasekar Elangovan, Dhyan Singh Arya, and Sukumar Natarajan. 2025. Generating global high-resolution current and future weather timeseries, and the implications for India, Building Services Engineering Research and Technology, <https://doi.org/10.1177/01436244251340360>.
5. Sharib I, et.al., 2025, Impact of antecedent rainfall and soil saturation on widespread debris flows in the northern Western Ghats during the 2021 extreme rainfall, Bulletin of Engineering Geology and the Environment, Accepted.
6. Shweta Lall, Oliver Hatfield, David Coley, Isha Rathore, Rajasekar Elangovan, Dhyan Singh Arya, Hangeol Park and Sukumar Natarajan. 2025. Accurate representations of locally meaningful future extreme weather events and the implications for India, Building Services Engineering Research and Technology, DOI: 10.1177/01436244251339722/ ID: BSE-C-24-289.R2.
7. Mukherjee T, Goel NK, Arya DS, Arora M. 2025. Integrating Hydro-Geomorphological Adjustments into Flood Mapping for Enhanced Risk Assessment, Geoenvironmental Disasters, <https://doi.org/10.1186/s40677-025-00309-9>.

8. Malla, MK and Arya, DS. 2025. Effects of Climate Change on the Hydrological Regime of a Mountainous Catchment: A Case Study from the Hindu Kush Himalayan Region, *ASCE Journal of Journal of Hydrologic Engineering*, <https://doi.org/10.1061/JHYEFF.HEENG-6376>.
9. Zubaed, MA, Ashish Mishra and DS Arya, M Rahman. 2024. Analysing land use and land cover dynamics (1972-2020) and evaluating drainage system efficacy: A case study of Bangladesh polders, *Journal of Irrigation and Drainage*, DOI 10.1002/ird.3072.
10. Velpuri Manikanta, Titas Ganguly, Shweta Lall, Elangovan Rajasekar, Dhyan Singh Arya. 2024. Disaggregation of Climatic Variables Using a Novel Stochastic Approach and its Application in Building Performance Simulation Studies, *Journal of Building Performance Simulation*, <https://doi.org/10.1080/19401493.2024.2427101>.
11. Aman Kumar, Malla, MK and Arya, DS. 2024. Spatiotemporal Variation and Teleconnections of Extreme Precipitation in the Upper Indus Basin: Insights for Natural Hazard Assessment, *Journal of Water and Climate Change*, <https://doi.org/10.2166/wcc.2024.650>.
12. Ashish Mishra and Dhyan Singh Arya, 2024, Land Surface Temperature Dynamics during Covid-19 Lockdown in Diverse Climatic and Physiographic Zones – A Study of Indian Mega Cities, *Transactions in GIS*, DOI: 10.1111/tgis.13237.
13. Malla, MK and Arya, DS. 2024. Analysis of hydrological responses using semi-distributed conceptual models in a mountainous catchment in the HKH region, *Hydrological Sciences Journal*, <https://doi.org/10.1080/02626667.2024.2378138>.
14. Phuntsho R, Malla, MK, Arya, DS, 2024, Past and Future Climate Variability Analysis in Bhutan, *Theoretical and Applied Climatology Journal*, <https://doi.org/10.1007/s00704-024-04973-z>.
15. Ganguly T, Arya, DS, 2023, A novel framework for a multimodal ensemble of GCMs and its application in the analysis of projected extremes, *International Journal of Climatology*, <https://doi.org/10.1002/joc.8266>;1–18.
16. Ashish Mishra and Dhyan Singh Arya, 2023, Assessment of land use land cover dynamics and urban heat island effect of Dehradun city, North India: A remote sensing approach, *Journal of Environment, Development and Sustainability*, Springer. <https://doi.org/10.1007/s10668-023-03558-6>.
17. Ganguly T, Arya, DS, Paul, PK, 2023, Spatio-Temporal Patterns of Precipitation in Arid and Semi-Arid Regions in Western India, *Journal of Earth System Science*, 132:71.
18. Malla, MK and Arya, DS. 2023. Event-based Extreme Precipitation Variability Analysis over a part of Hindu Kush Himalayan Region, *International Journal of Climatology*, DOI: 10.1002/joc.8082.
19. Marina Batalini de Macedo, Eduardo Mario Mendiondo, Maria Tereza Pepe Razzolini, N. K. Goel, Dhyan S. Arya, Mathew Kurian & Adelaide Cassia Nardocci. 2022. Multi-stage resilience analysis of the nexus flood-sanitation-public health in urban environments: a theoretical framework, *Urban Water Journal*, DOI: 10.1080/1573062X.2022.2047737
20. Singh R, Arya DS, Taxak AK, Vojinovic Z. 2016. Potential Impact of Climate Change on Rainfall Intensity-Duration-Frequency (IDF) Curves in Roorkee, India. *Water Resources Management*, 30:4603–4616.
21. Saba D, Arya DS. 2015. Application of remote sensing and GIS in sinuosity and river shifting analysis of the Ganges River in Uttarakhand plains. *International Journal of Applied Geomatics* 7: 13-21.

22. Taxak A, Murumkar A, Arya DS. 2014. Long-term spatial and temporal rainfall trends and homogeneity analysis in Wainganga basin, central India. *Journal of Weather and Climate Extremes* 4: 50-61.
23. Murumkar A, Arya DS. 2014. Trend and periodicity analysis in rainfall pattern of Nira basin, central India. *American Journal of Climate Change* 3: 60-70.
24. Kumar D, Arya DS, Murumkar A, Rahman M. 2014. Impact of climate change on rainfall in northwestern Bangladesh using multi-GCM ensembles. *International Journal of Climatology*. 34:1395-1404.
25. Misir V, Arya DS, Murumkar A. 2013. Impact of ENSO on river flows in British Guyana. *Water Resources Management* 27(13): 4611-4621.
26. Sathishkumar D, Arya DS, Vojinovic Z. 2013. Modelling of urban land use dynamics and its impact on surface runoff characteristics. *Computers, Environment and Urban Systems Journal* 41: 124-135.
27. Kaur S, Srivastava DK, Arya DS. 2013. Improved planning model for canal scheduling of rotational irrigation. *Journal of Irrigation and Drainage Engineering*. 139: 560-570.
28. Rahman M, Goel NK, Arya DS. 2012. Study of early flood warning dissemination system in Bangladesh. *Journal of Flood Risk Management* 6(4): 290-301.
29. Aeron A, Garg RD, Arya DS, Aggarwal SP. 2012. Advancement in flood risk mapping systems: A brief review. *i-manager's Journal of Civil Engineering*: 40-49.
30. Rahman M, Arya DS, Goel NK, Mitra AK. 2012. Rainfall statistics evaluation of ECMWF and TRMM model data over Bangladesh for flood-related studies. *Meteorological Applications* 19(4): 501-512.
31. Rahman M, Goel NK, Arya DS. 2012. Development of Jamuneswari flood forecasting system – A case study in Bangladesh, *ASCE Journal of Hydrologic Engineering* 17: 1123-1140.
32. Gundekar HG, Arya DS, Goel NK. 2011. Morphometric study of the Dudhana river basin (Maharashtra). *Hydrology Journal, Indian Association of Hydrologists, India* 34(1-2): 33-41.
33. Kaur S, Srivastava DK, Arya DS. 2011. Some limitations of a planning model for canal scheduling of rotational irrigation. *International Journal of Earth Sciences and Engineering*. 4(6): 286-289.
34. Rahman M, Arya DS, Goel NK, Dhamy AP. 2011. Design flow and stage computations in the Teesta River, Bangladesh using frequency analysis and MIKE 11 modelling, *ASCE Journal of Hydrologic Engineering* 16(2): 176-186.
35. Rahman M, Arya DS, Goel NK. 2010. Limitation of 90 m SRTM DEM in drainage network delineation using D8 method - A case study in flat terrain of Bangladesh. *International Journal of Applied Geomatics*. 2: 49-58.
36. Arya DS, Singh J. 2009. Web-based resettlement and rehabilitation information system for water resources projects - A case study. *Hydrology Journal, Indian Association of Hydrologists, India* 32(3-4): 241-255.
37. Babbar R, Arya, DS, Joshi H. 2009. A proposed decision support system for river water quality management in India. *Journal of Decision Systems* 18(4): 411-427.
38. Basistha A, Arya DS, Goel NK. 2008. Analysis of historical changes in rainfall in the Indian Himalayas. *International Journal of Climatology* 29(4): 555-572.

39. Basistha A, Arya DS, Goel NK. 2007. Spatial distribution of rainfall in Indian Himalayas -A case study of Uttarakhand Province, India. *Journal of Water Resources Management* 22: 1325-1346.
40. Basistha A, Goel NK, Arya DS, Gangwar SK. 2007. Spatial pattern of trends in Indian sub-divisional rainfall. *Jalvigyan Samiksha (Hydrology Review)*, Indian National Committee on Hydrology, NIH Roorkee 22(2007):47-57.
41. Arya DS, Abbasi SA. 2001. Identification and classification of key variables and their role in environmental impact assessment: Methodology and software package INTRA. *Environmental Monitoring and Assessment* 72: 277-296.
42. Arya DS, Abbasi SA, 2001. SMART: A new software package for environmental trend analysis. *Journal of the Institution of Public Health Engineers* 2001(2): 40-51.
43. Roba GF, Arya DS, Goel NK. 2000. Stream flow forecasting using artificial neural network. *Water & Energy International* 57(1):30-37.
44. Arya DS, Joshi H, Abbasi SA. 1995. Growth of Roorkee city. *Geographical Review of India* 57(3): 223-241.
45. Abbasi SA, Arya DS, Hameed AH, Abbasi N. 1995. Water quality analysis of a typical river of Kerala – PunnurpuZha. *Pollution Research* 15(2): 163-166.
46. Arya DS, Joshi H, Abbasi SA. 1994. Developmental trends and their environmental impact in a typical central Indian town with special reference to Roorkee. *Environmental Monitoring and Assessment* 33:35-150.
47. Abbasi SA, Nipanay PC, Arya DS. 1994. Heavy metals in the sediments of a river impacted by pulp-and-paper effluent. *Journal of the Institution of Public Health Engineers* 1994(2): 18-23.
48. Abbasi SA, Nipanay PC, Soni R, Arya DS. 1992. Assessment of water quality criteria for cobalt, nickel and copper vis-à-vis impact studies on freshwater teleost 'Nuria Denricus'. *Journal of the Institution of Public Health Engineers* 1994(2): pp. 8-18.

Conference Papers:

49. Arya, DS, Jaiswal, S, Sarma, Rm Das, D, 2025, Assessing the Risk of Sequential Dam Breaks: A Case Study of Tuirial Dam, to be presented at the 41st IAHR World Congress in Singapore during June 22-27, 2025.
50. Malla, MK and Arya DS, 2024, Comprehensive Assessment of Hydrological Regime in the Upper Indus Basin under Various Climate Change Scenarios, Presented in AGU 2024.
51. Gauraha, S, and Arya DS, 2024, Effects of Urbanization on Precipitation and Temperature Trends in the Doon Valley, India, Presented in AGU 2024.
52. Kumar K, Bhardwaj A and DS Arya, 2024, Deformation monitoring around dam and reservoir in Indian Himalayas using SBAS-INSAR method. Published in the proceeding of SPIE Future Sensing vol 13083, doi: 10.1117/12.3022840.
53. Malla, MK and Arya DS, 2024, Precipitation and Water Availability Analyses in the Upper Indus Basin of the Hindu Kush Himalayas: Unveiling the Challenges, Presented in the International Conference on Nature-Based Solutions for Water Security and Climate Adaptation, Belgrade, Serbia, 3-5 July 2024.

54. Shweta Lall, Sukumar Natarajan, E. Rajasekar, D.S. Arya, 2024, A comparative study of extreme and typical weather on the indoor thermal performance of a residential building, Presented in the RoomVent Conference 2024 in Stockholm, Sweden, April 23-26, 2024.
55. Mishra A, Jubaid, A and Arya DS. 2023. Assessment of Impact of Changing Land Use and Land Cover Dynamics and Waterlogging in Southwest Polders of Bangladesh, Fall Meeting 2023 AGU, Dec 11-15,2023.
56. Mukherjee, Tuhin, Arya, DS and Goel, NK, 2023, Flood Risk Zone Mapping of the Solani River Watershed (India) Using Machine Learning Algorithm, Fall Meeting 2023. AGU, 11-15 December 2023.
57. Malla, MK and Arya DS, 2023, Hydrological modelling in the Upper Indus Basin using conceptual models, Fall Meeting 2023 AGU, Dec 11-15,2023.
58. Gauraha, S, Chikabyumbwa, AS, and Arya, DS, 2023, Assessment of climate change impacts in Bua River Basin, Malawi, Fall Meeting 2023 AGU, Dec 11-15,2023.
59. Mishra A and Arya DS, 2023 Assessment of diurnal urban heat island (UHI) intensity in a microclimatic urban environment using Local climate zone classification approach, Fall Meeting 2023 AGU, Dec 11-15,2023.
60. Malla, MK and Dhyan Singh Arya, 2023 Changing Dynamics of Extreme Precipitation Events in Upper Indus Basin, HYDRO 2023, NIT Warangal, Dec 21-23, 2023.
61. Malla, M. K., and Arya, D. S. , 2023. Hydrological model calibration in a Himalayan Catchment Using Remote Sensing/Reanalysis Datasets (No. EGU23-165). Copernicus Meeting, Vienna, April 24-28, 2023.
62. Mishra A and Arya DS. 2023. A machine learning-based comparative analysis of meteorological indicators within a heterogeneous urban microclimate (<https://doi.org/10.57757/iugg23-1062>). XXVIII General Assembly of the International Union of Geodesy and Geophysics (IUGG) (Berlin 2023).
63. Mishra A and Arya DS. 2022. Correlation Analysis Between Land Use Land Cover and Land Surface Temperature Dynamics over Dehradun Urban District, India, Urban Transitions, Elsevier Italy.
64. Shweta Lall, E. Rajasekar, D.S. Arya and Sukumar Natarajan, 2022, Impact of plan-form on climate loading of an office building, 36th PLEA (Passive and Low Energy Architecture), 22 Nov 2022. <https://plea2022.org/wp-content/uploads/2023/03/PROCEEDING-ONLINE-FINAL-MARZO.pdf>.
65. Arya DS and Shamshad F. 2022. Spatiotemporal Analysis of Rainfall Variability in Bangladesh presented in AGU Fall Meeting, Chicago, 12-16 December 2022.
66. Mall, MK and Arya, DS. 2022. Changing Dynamics of Extreme Precipitation Events in Upper Indus Basin presented in AGU Fall Meeting, Chicago, 12-16 December 2022.
67. Gouraha, S and Arya DS. 2022. Impact of Urbanization on Precipitation and Temperature in Doon Valley, India, presented in AGU Fall Meeting, Chicago, 12-16 December 2022.
68. Arya DS and Kumar A. 2022. Spatiotemporal Analysis of Dry and Wet Events and their Transition across the Upper Indus Basin presented in AGU Fall Meeting, Chicago, 12-16 December 2022.
69. Mishra A and Arya DS. 2022. Comparative Assessment between the Satellite Land Surface Temperature and Observed Air Temperature: A Case Study of Dehradun City, India in AGU Fall Meeting, Chicago, 12-16 December 2022.
70. Ashish Mishra and Dhyan Singh Arya. 2021. Evaluation of Urban Heat Island Effects and Ecological Comfort of a Himalayan District in India, AGU Fall Meeting 2021

71. Malla, MK and Dhyana S. Arya. 2020. Assessment of Climate Change On The Extreme Precipitation In Upper Indus Basin. In AGU Fall Meeting 2020. AGU, 2020.
72. Mishra A, Arya DS. 2020. Development of Decision Support System for Urban Flood Management -A Review of Methodologies and Results, ASCE World Environmental and Water Resources Congress 2020, <https://doi.org/10.1061/9780784482988.007>, pp 60-70.
73. Ganguly T, Arya DS. 2020. Resilience, Reliability and Vulnerability Analysis of a Multipurpose Reservoir under Projected Climate, Presented in Roorkee Water Conclave 2020, Roorkee, India, Feb 24-27, 2020.
74. Arya DS, Rajasekar E, Ganguly T, Lall S, Velpuri, M. 2019. Creation of Building Simulation Weather Files – emerging challenges. Presented at the International Conference on Building Energy Demand Reduction in Global South, New Delhi, 14 December 2019
75. Manikanta, M, Arya DS. 2019. A Review of Climate Change and Water Availability Research in the Upper Indus Basin. Presented in the Second Upper Indus Basin Network-Indian Chapter Workshop, New Delhi, India, 13 December 2019.
76. Murumkar A, Arya DS, Taxak, AK, Shedekar, VS. 2018. Climate Change Impact on Rainfall and Streamflow in Bhima River Basin, India. In Proceedings of the International Conference on Sustainable Water Management, Chandigarh, India, 10-11th Dec. 2018.
77. Arya DS. Department of Hydrology: A Unique School for Hydrological Education in India. IAHS Scientific Assembly 2017, Port Elizabeth, South Africa, July 10-14, 2017.
78. Aeron A, Garg RD, Arya DS, Aggarwal SP. 2015. Flood Inundation Mapping and Vulnerability Assessment of a Small Part of Lower Mahanadi Delta Region. In Proceedings of the International Conference IGARSS 2015, Italy. 26-31 July 2015.
79. Ganguly T and Arya DS. Review Paper on Impact of Climate Change on Dams. Third National Dam Safety Conference held at IIT Roorkee, Feb. 18-19, 2017.
80. Arya DS, Greeballa A, Murumkar A. 2013. ENSO and its Impact on Monsoon Rainfall in Central India. In Proceedings of the National Seminar on Climate Change Impacts on Water Resources Systems, Civil Engineering Department, Parul Institute of Engineering and Technology, Limda, Vadodara, India. 28-30 November 2013.
81. Saba D, Murumkar A, Arya DS. 2013. Meandering Behaviour and Flood Hazard Mapping of the Ganges River Using Remote Sensing and GIS. In Proceedings of the International Conference on Challenges in Disaster Mitigation & Management, CoEDMM, IIT Roorkee, India. 15-17 February 2013.
82. Aggarwal SP, Garg RD, Arya DS, Aeron A. 2012. Flood Damage Assessment of delta region of Mahanadi River in Odisha using RADARSAT data with ILWIS and ArcGIS Rahman M, Goel NK, Arya DS. 2009. Advancement of Flood Forecasting and Warning System in Bangladesh for Risk Management - Present and Future. In Proceedings of the 3rd International Conference on Perspective on Current and Future State on Water Resources and Environment, EWRI, ASCE, Chennai. 5-7 January 2010.
83. Tools. In Proceedings of the National Symposium on Space Technology for Food & Environmental Safety, New Delhi. 5-7 December 2012.
84. Goel NK, Karki B, Kar AK, Arya DS. 2012. Development of regional flood frequency relationships for Nepal using SRTM data-enabled attributes and clustering. In Proceedings of the International Conference on Hydroinformatics 2012, Hamburg, Germany. 13-18 July 2012.

85. Arya DS, Kabuya P, Murumkar AR, Rahman MM, Goel NK. 2012. Impact of Climate Change on Rainfall Pattern in Jamuneshwari River Basin, Bangladesh. In Proceedings of the International Conference on Hydroinformatics 2012, Hamburg, Germany. 13-18 July 2012.
86. Murumkar A, Arya DS. 2014. Rainfall Variability Analysis in the Nira River Basin using Multi-model GCM Ensemble. In Proceedings of the International Conference on Hydroinformatics 2014, New York, US. 17-21 August 2014.
87. Arya DS, Gautan A, Murumkar A. 2014. Snowmelt Modelling of Dhauliganga River using Snowmelt Runoff Model. In Proceedings of the International Conference on Hydroinformatics 2014, New York, US. 17-21 August 2014.
88. Arya DS, Kori S, Vaidya AM. 2014. Simulation of Shoreline Changes along Muthalapozhy Harbor, India. In Proceedings of the International Conference on Hydroinformatics 2014, New York, US. 17-21 August 2014.
89. Arya DS, Murumkar A, Greeballa A. 2014. Impact of El Niño Southern Oscillation on Summer Monsoon Rainfall in Bhima Basin, Central India. In Proceedings of the International Conference on Hydroinformatics 2014, New York, US. 17-21 August 2014.
90. Rahman M, Arya DS, Goel NK. 2009. Approach of Early Flood Warning Systems for Urban Flood Risk Mitigation. In Proceedings of the International Conference on Research Activities in Disaster Mitigation for Housing in India, Roorkee, India. 22-23 August 2009. 106-118 (Vol 1).
91. Sathishkumar D, Adam EE, Arya DS, Goel NK. 2009. Urban Flood Risk Assessment and Mitigation. In Proceedings of the International Conference on Research Activities in Disaster Mitigation for Housing in India, Roorkee, India. 22-23 August 2009. 210-216 (Vol 1).
92. Chakraborty D, Goel NK, Arya DS, Gairola A. 2009. Flood Estimation in Mumbai Metropolitan Region Using Regional Flood Frequency Analysis. In Proceedings of the International Conference on Research Activities in Disaster Mitigation for Housing in India, Roorkee, India. 22-23 August 2009. 135-147 (Vol 1).
93. Agarwal N, Arora M, Goel, NK, Arya DS. 2009. Estimation of snow cover area in Bhagirathi catchment up to Tehri dam site. In Proceedings of the National seminar on 'Hydropower stations- advancement in harnessing & up-keeping' organised by National Power Training Institute, Durgapur at Dehradun, India. 2-3 July 2009.
94. Gundekar HG, Arya DS, Goel NK, Sarkar S, Sethi BK. 2009. Aspects of Socio-Economic Implications of Floods in Last Decades. In Proceedings of the International Conference on Water, Environment, Energy and Society (WEES-2009) organised by National Institute of Hydrology, Roorkee. 2009. 1496-1503 (Vol-III).
95. Rahman M, Arya DS, Goel NK. 2008. Approach of Early Flood Warning System for Urban Flood Risk Mitigation. In Proceedings of the International Conference on Disasters and Development - Bridging the gap between theory and practice (ICoDAD), Kathmandu, Nepal. 23-24 November 2008.
96. Chaturvedi S, Arya DS, Sathishkumar D, Basistha A. 2008. Modelling the Spatial Distribution of Rainfall in Uttarakhand, India. In Proceedings of the 3rd Science and Technology Congress, Uttarakhand at IIT Roorkee. 10-11 November 2008.
97. Chaudhury PC, Arya DS, Srivastava DK. 2008. Irrigation Management and Canal Scheduling using DSS in Harabhangi Irrigation Project (Orissa). In Proceedings of the 13th National Symposium on Hydrology with Focal Theme on 'Inflow Forecasting during Extremes' organised by the National Institute of Hydrology at IIT Delhi, India. 28-29 August 2008.

98. Adam EE, Arya DS, Sathish Kumar D. 2008. Storm Water Modelling in Roorkee City using SWMM – A Case Study. In Proceedings of the 13th National Symposium on Hydrology with a Focal Theme on 'Inflow Forecasting During Extremes' organised by the National Institute of Hydrology at IIT. Delhi, India. 28-29 August 2008.
99. Rahman M, Arya DS. 2008. Irrigation Performance Improvement by Non-Structural Measures – A Case Study from Bangladesh. In Proceeding of the ASCE conference on World Environmental & Water Resources Congress 2008, Honolulu, Hawaii. 12-16 May 2008. (doi 10.1061/40976(316)555).
100. Babbar R, Joshi H, Arya DS. 2006. A waste load allocation methodology for river water quality management. In the Proceedings of the National Conference on Environmental Pollution Control for Sustainable Development (EPCSD-2006) organised by the Department of Civil Engineering, Engineering College Kota, Kota, India. 27-28 March 2006.
101. Arya DS, Gauchan B, Goel NK. 2006. Flood Plain Mapping for East Rapti River, Nepal, using GIS and HEC-RAS. In Proceedings of the International Conference on Hydroinformatics, Nice, France. 4-8 September 2006.
102. Goel NK, Gauchan B, Arya DS. 2006. Flood Quantile estimation for the Narayani river system of Nepal using pooled flood frequency analysis approach. In Proceedings of the International Conference on Hydroinformatics, Nice, France. 4-8 September 2006.
103. Babbar R, Joshi H, Arya DS. 2006. DSS: Scope and its application in water quality management. In Proceeding of the Indo–Australian Conference on Information Technology in Civil Engineering (IAC-ITCE) organised by the Department of Civil Engineering, IIT Roorkee, Roorkee, India. 27-28 March 2006.
104. Goel NK, Than HH, Arya DS. 2005. Flood Risk Mapping for Lower Part of Chindwin River Basin (Myanmar). In Proceedings of the International Conference on 'Innovation, advances and implementation of flood forecasting technology', Norway. 17-19 October 2005.
105. Arya DS, Litoria PK, Mathur A, Sharma PK. 1996. Environmental Trend and Impact Analysis of Ludhiana City. International Seminar on Environment, Energy and Technology: Regional and Global Perspectives at Banaras Hindu University, Varanasi, India. 11-15 December, 1997. Page 92.
106. Arya DS, Litoria PK, Mathur A, Sharma PK. 1996. Environmental Review of Ground Water Resource of Ludhiana City. In Proceedings of the International Seminar on Environment, Energy and Technology: Regional and Global Perspectives, held at Banaras Hindu University, Varanasi, India. 11-15 December 1997. Page 160.
107. Berhanu B, Arya DS. 2005. TEFASES –A SDSS for Land Capability Classification for Ethiopian Watersheds. In Proceedings of the International Conference 'Hydrological Perspectives for Sustainable Development 2005' organised by the Department of Hydrology, IIT Roorkee at Roorkee, India. 23-25 February 2005. pp 32- 44 (Vol 1).
108. Rahman M, Arya DS. 2005. Preparation of Irrigation Management Plan using DSS – A case study from Bangladesh. In Proceedings of the Fifth International R & D Conference at Bangalore organised by Central Board of Irrigation and Power (CBIP), New Delhi, India. 15-18 February 2005. pp 132 – 148 (Vol 4).

Thesis/Dissertation Guided:

PhD Theses:

1. Lingraj Nath, 2024, Climate change and dam safety (In Progress), (DS Arya, NK Goel).
2. Julekha Pervin, 2024, Carbon Emission Models and Food Security (In Progress).
3. Satyajit Singh Saini, 2024, Aerosols' impact on Glaciers and Polar Climate (In Progress).
4. Shivendra Jaiswal, 2023, Sequential Dam Breach Modelling and Risk Analysis (In Progress).
5. James E Samuel, 2023, Development of Real-time Urban Flood Forecasting System (In Progress).
6. Krishna, 2022, Deformation analysis of Dams using SAR technique (In Progress) (DS Arya, Alok Bhardwaj).
7. Tuhin Mukherjee, 2021, Impact of LULC on the hydrological regime (In Progress) (DS Arya, NK Goel).
8. Aman Kumar, 2021, Analysis of Hydro-climatic Extremes in Upper Indus Basin (In Progress).
9. Sushmita, Urban Flood Modelling and Management (In Progress), (DS Arya, Piyush Srivastava)
10. Shweta Lall, 2025, A New Framework for Developing Past & Future Climate-Appropriate Weather Files for Building Energy Simulation, (Rajasekar, DS Arya)
11. Ashish Mishra, 2025, Impact of Urban Heat Islands on Microclimate of a Sub-Tropical City.
12. Malla Manikanta, 2025, Analysis of Extreme Precipitation Events and Assessment of Climate Change Impacts of Water Availability in the Upper Indus Basin.
13. Titas Ganguly, 2029, Climate Change and Reservoir Simulation.
14. Anurag Aeron, Web-based Spatial Decision Support System for Flood Risk Mapping (2015) (RD Garg, DS Arya and SP Agrawal).
15. Asmita Murumkar, Impact of Climate Change on Hydrometeorological variables in Bhima Basin (India) (2015).
16. Sathishkumar D, Dual Drainage Model for Urban Flood Modelling (2012), (DS Arya, M Perumal).
17. Mohd. Rahmam, Flood Forecasting and Early Warning Studies for Parts of Bangladesh (2011) (DS Arya, NK Goel).
18. Simaran Kaur, Optimal Water Utilization and Management of an Irrigation System (2010) (DK Srivastava, DS Arya).
19. Ashok Basishtha, Climate Change Studies: A Spatio-temporal Analysis for part of India (2010) (DS Arya, NK Goel).
20. Richa Babbar, A Decision Support System for Tropical River Water Quality Management (2008) (H Joshi, DS Arya).
21. Bhabigrahi Sahoo, Variable Parameter Flood Routing Methods for Hydrological Analyses of Ungauged Basins (2007) (M Perumal, DS Arya).

M.Tech/M.Engg/MCA Theses:

1. Aniket, 2025, Dam Breach Modelling (In Progress).
2. Begum Juma, 2025, Hydrology of a dam in Tanzania (In Progress).
3. Parth Sarkar, 2025, Hydrological study of a dam in Kachchh region (In Progress).
4. Chhavi Saini, 2025, Determining critical sections of a Highway Using a Geographical Information System and HEC-RAS
5. Avnish Chauhan, 2025, Spatial and Temporal Assessment of Rainfall Patterns and Urbanisation Influence in Delhi NCR Region.
6. Shaurya Pathania, 2025, Dam Breach Modelling of Malana Dam and Flood Extent Comparison Using Sentinel-1 SAR Imagery.
7. Sudhanshu, 2025, Impact of Dam Break: A Case Study of Karbi Langpi Hydro-Electric Project.
8. Varun Bhasin, 2024, Safeguarding Hydraulic Structures using Machine Learning.

9. Maribo P Simion, 2024, Dam Break Modelling using HEC-HMS and HEC-RAS; The case of Mindu Dam, Tanzania.
10. Jishnu Deka, 2024, Dam Break Modelling of Tuirial Dam using HEC-RAS, Mizoram, India.
11. Sharib Islam, 2024, Investigating Possible Roles of Causative Factors like Antecedent Rainfall, Saturation and Groundwater in Landslides Occurrence in Maharashtra.
12. Amrita Nongbet, 2023, Dam Breach Analysis of Uiam Earthen Dyke-I Using HEC-RAS.
13. Phuntsho Rinzin, 2023, Trend, Morphometric and Flood Frequency Analysis of Thimchhu River Sub-Basin, Thimphu City, Bhutan.
14. Shrishti Sharma, 2022, Hydrograph Separation and Snowmelt Modelling of River Bhagirathi at Harshil.
15. Abhishek Narasagond, 2022, Leakage Risk Assessment in Water Distribution System.
16. Rajat Mishra, 2022, Rainfall Prediction: A Comparative Analysis of Machine Learning Classifiers.
17. Aman Kumar, 2021, Analysis of Hydro-climatic extremes in Upper Indus Basin.
18. Ananad Kumar Jena, 2021, Flood Plain Zoning Using HEC-RAS for Subarnarekha River Basin in Odisha.
19. Md Arifin Jubaed, 2021, LULC and Drainage Dynamic Study of Polders in Bangladesh.
20. Chinsinsi Chikabvumbwa, 2020, Assessment of Climate Change Impacts in Bua River Basin, Malawi.
21. Diliga Cosmas, 2020, Assessment of Groundwater Potential Zones Using Remote Sensing, Geographic Information System and Multi Influencing Factor Technique: A Case Study of Juba city, Sudan.
22. Mohana, 2019, Urban Flood Risk Mapping for Parts of Dehradun City, 2019.
23. Assessment of Climate Change Impact on River Flow Regime at Malagarasi Catchment, Tanzania, 2019.
24. Assessment of Water Resources in Ungauged Catchments, Kerala, 2019.
25. Spatiotemporal Variability Analysis of Rainfall in Bangladesh, 2018.
26. Analysis of Historical Inflows at Darbandikhan Dam, Iraq, 2017.
27. Flood Plain Zoning for Kelani River Basin, Sri Lanka, 2017.
28. Rainfall-Runoff Modelling Using Mike 11 in Kinyasungwe - Mkondoa Watershed, Tanzania, 2017
29. Study on Climate Change in Sundarbans, Bangladesh, 2016.
30. Analysis of Climate Change Impacts in Marshyangdi River Basin, Nepal, 2016.
31. Impact of Climate Change on IDF Curves, 2015.
32. Rainfall-Runoff Modelling of Bhagirathi Catchment using Mike 11, 2015.
33. Impact of Climate Change in Godavari River Basin, 2014.
34. Climate Change Studies in Neera basin using SWAT, 2014.
35. Snowmelt Modelling of Dhauli Ganga River at Tamak Lata, District Chamoli, Uttarakhand, 2013.
36. Numerical Simulation of Flow through Vertical Gates with Different Lip Shapes, 2013.
37. Identification of Glacial Lakes and GLOF Estimation in a Mountainous Watershed, 2013.
38. Study of meandering behaviour for parts of the Ganges and Euphrates Rivers using GIS, 2012.
39. Impact of Climate Change on precipitation in Jamuneshwari Basin, Bangladesh, 2012.
40. Impact of ENSO on River Flows in British Guyana, 2011.
41. Assessment of Sediment Transport Rate and Shoreline Evolution in Coastal Environment, 2011.
42. Study of extreme hydrological events and impact of climate change on Rainfalls – A case study of northwestern Bangladesh, 2010.

43. Impact assessment of land use dynamics on urban flooding, 2010.
44. Flood simulation using GIS and MIKE 11 – A case study of Teesta River basin, 2009.
45. Modelling of snowmelt component of runoff of Bhagirathi catchment at Tehri, 2009.
46. Estimation of rainfall and temperature from remote sensing data using artificial neural networks, 2009.
47. River Migration, Design Flood and Scour Depth Computations at Pipeline Crossing, 2009.
48. Urban Flood Modelling: A case study of Roorkee City, 2008.
49. Water Resources management for an Irrigation project using a DSS, 2008.
50. Study of Spatial Variability of Rainfall in Uttarakhand, 2008.
51. Climate Change Effects on Hydrological Elements and Water Resources Components, 2006.
52. Flood Risk Mapping, 2006.
53. Flood risk mapping for East Rapti River, Nepal using GIS and HEC-RAS, 2005.
54. Flood plain mapping using GIS in Lower part of Chindwin River in Myanmar, 2005.
55. Temporal and Spatial Analysis of Rainfall in Uttaranchal, 2004.
56. Development of Resettlement and Rehabilitation Information System for Sardar Sarovar Project using Internet GIS, 2003.
57. Development of SDSS for Land Capability Classification- A Case Study of an Ethiopian Watershed, 2002.
58. Development of spatial information system of Uttaranchal, 2002.
59. Mahanadi Irrigation Projects information system, 2002.
60. Application of DSS in Irrigation Management – A Case Study of Meghna Dhonagoda Irrigation Project, Bangladesh, 2002.
61. Model Assisted Groundwater Assessment of Ghaggar Yamuna doab, 2001.
62. Stream flow Forecasting Using Linear Perturbation Model & ANN Approach, 2000.
63. Artificial Recharge Measures in Problematic Areas of Andhra Pradesh – A case study, 2000.
64. Development of Hydrological Information System for a Micro-catchment, 1999.
65. Stream flow Forecasting Using ANN, 1999.
66. Software Development for Sediment Distribution in Reservoirs, 1999.
67. New Software Package SMART-ALEC, 1994.

PDF/Research Fellows/Interns hosted:

1. Ms Deeksha, 2024, Summer trainee, Apr – Aug 2024.
2. Mr Eric Tshitende Kakanda, Department of Natural Resources Management, University of Kinshasa, Democratic Republic of the Congo, worked as a CV Raman Fellow from Sep 6, 2023, to Dec 6, 2023.
3. Ms Neosha G Narayanan from MIT (USA) was hosted in my lab to work on GLOF from June 20 to Aug 18, 2022.
4. Dr Pulak K Maiti, Assessment of climate change induced variations in bacterial diversity and antibiotic resistome around Rispana River, Uttarakhand, Jan. 2023.
5. Dr Rashmi Rama Krishna, Assessment of climate change induced variations in bacterial diversity and antibiotic resistome around Rispana River, Uttarakhand, Feb. 2019-Feb 2021.
6. Dr Sreekanth Janardhanan, CSIRO (Australia), AISRF EMCR Fellow 2018-2019, Emerging Challenges of Hydrological Planning and Analysis in India, March-April 2018.

7. Mr Elhadi Eisa Adam, University of Khartoum (Sudan), Review of Weather Forecast Model, Satellite Rainfall Sources and Rainfall Analysis, July - August 2017.
8. Mr. Kabuya M Pierre (Republic of Kongo), Classification of the sub-catchments of the Congo River basin using Self Organizing Maps/ANN, Sep 15, 2014 to Dec 15, 2014.

Projects:

Research Projects :

(\$ means Co-PI role)

1. CO-INVENT: COoperative project between India and Norway on studying cryo-climatology of the glaciated Himalayan region, UGC under Indo-Norway funds (INCP2-2024/10240), 2024-2027. In Progress.
2. Establishment of a Globally Accredited Honey Testing Facility and Development of a Honey Geodatabase, National Bee Board, Ministry of Agriculture and Farmers Welfare, New Delhi, Rs 24 Crore, 2024-26, In Progress.
3. \$Establishment of an International Centre of Excellence for Dams at IIT Roorkee, Ministry of Jal Shakti, Rs 119 Crores, 2021-26, In Progress.
4. \$Theory of Change Observatory on Disaster Resilience, a joint project sponsored by Belmont Forum; Euro 1070000; Rs 9.4 Crores; participating as an associated partner with other partners from Pen State University, USA, Cranfield University, UK, and University of Sao Paulo, Brazil, 2020-22.
5. \$Assessment of climate change-induced variations in bacterial diversity and antibiotic resistance around Song River, Uttarakhand, UCOST, Dehradun, Rs 8.0 Lakh, 2020-22.
6. Analysis of Climate Change and Urban Heat Island Impact in Dehradun, Uttarakhand, DST, Govt. of India under 'National Network Programme on Urban Climate', DST (Govt. of India), Rs 64 Lakh, 2019-2023.
7. \$Zero Peak Energy Building Design for India, Sponsored Jointly India/UK DST-EPSRC, Rs 5.8 Crore, 2018-2023.
8. \$Capacity Building of IIT Roorkee in Dam Safety under Dam Rehabilitation and Improvement Project (DRIP), Central Water Commission, MoWR, New Delhi, Rs 10.92 Crore, 2017-20.
9. Studying meandering and shifting behaviour of the Ganges River in plains of Uttarakhand UCOST, Dehradun, India, Rs 2.5 Lakh, 2012.
10. Inventorisation of Industries Using Web and GIS-based Techniques for Hardwar and Udham Singh Nagar Districts, UCOST, Dehradun, India, Rs 6.6 Lakh. 2010-15.
11. Development of Spatial Water and Climate Information System for Uttaranchal, sponsored by Department of Science and Technology, Govt. of India, Rs 13.68 Lakh, 2009-10.
12. \$Meteorological Data Collection, Monitoring, Processing and Analysis to Evaluate Climate Variability in the state of Uttaranchal sponsored by Department of Science and Technology, Govt. of India, Rs 13.68 Lakh, 2009-10.
13. Assignment for Developing Research Proposal on 'Early Flood Warning Systems' in Collaboration with the Universities from Egypt, Ghana, Indonesia, Palestine, The Netherlands and Yemen, sponsored by POWER of UNESCO-IHE, Delft, The Netherlands, 2008.
14. General Purpose Software Development for Water Resources Information and Decision Support System, sponsored by MHRD, Govt. of India, 2008.

15. ^{\$}Special Assistance Programme (SAP) for research and teaching in the thrust areas of Ground Water Hydrology, Water Quality Studies and Hydroinformatics, Rs 37 Lakh, UGC.
16. Modernization and Strengthening of Hydrometeorological Laboratory sponsored by MHRD, Govt. of India, Rs 15.0 Lakh, 2006.
17. Development of Dynamic Flood Frequency Model sponsored by Indian National Committee on Hydrology (Ministry of Water Resources), Roorkee, Rs 3.7 Lakh, 2005.
18. Development of Hydrological Information and Decision Support System Laboratory for AICTE, New Delhi, Rs 22.13 Lakh, 2002.
19. ^{\$}Environmental Impact of Waste Disposal Practices on Ground Water Regime of Roorkee Town, 1999, Rs 8 Lakh, AICTE (1999)
20. Estimation of Evaporation from Free Water Surface for University of Roorkee, Roorkee, 2001.

Consultancy Projects/Reports (\$ - Co-PI):

1. ^{\$}Hiring Consultancy Services for Hydrographic Survey and Other Associated Studies of Virbhadrha Barrage, UJVN Ltd., 56.64 Lakh, 2025, In Progress.
2. Conducting Revised Hydrology, Dam Break Analysis, Emergency Action Plan, Hazard Potential, and preparing Operation and Maintenance Manual, SIPC (Rajkot), NWRWS&K Department, Govt of Gujarat, Rs 4.72 Cr, 2025, In Progress.
3. Comprehensive Stormwater Management Plan for Bhubaneswar City, Bhubaneswar Municipal Corporation, Govt. of Odisha, Rs 9.49 Cr, 2025, In Progress.
4. Selection of G&D Site on Yamuna River for Lakhwar Multipurpose Project, UJVNL (RKEC), Rs 2.0 Lakh, 2024, In Progress.
5. HFL and drainage study for the Proposed Ethanol Plant Project at Jeetpur Bahedi Industrial Area, Una, Himachal Pradesh, M/S Hindustan Petroleum Limited, Himachal Pradesh, Rs 28.32 Lakh, 2024, In Progress.
6. Dam Breach Analysis and Preparation of Emergency Action Plan of Chutak Project in Kargil, NHPC (Faridabad), Rs 29.5 Lakh, 2024, In Progress.
7. Dam Breach Analysis and Preparation of Emergency Action Plan of Nimoobazgo Project in Alchi, NHPC (Faridabad), Rs 29.5 Lakh, 2024, In Progress.
8. Development of a Flood Forecasting System for Tapovan-Vishnugad HEP, NTPC Ltd., Rs 1.17 Crore, 2024, In Progress.
9. Dam Break Analysis of the Lower Kopili Hydroelectric Project, Assam and preparation of EAP, Assam Power Generation Corporation Limited, Guwahati, Rs 31.8 Lakh, 2023, In Progress.
10. GIS-based Rainfall-induced Landslide susceptibility mapping in Uttarakhand and Himachal Pradesh', ICICI Lombard Ltd. Mumbai, Rs 46 Lakh, 2023, In Progress.
11. ^{\$}Development of Operational Realtime Inflow Forecasting System for Chamara-III Power Station, NHPC Ltd., Rs 1.36 Crore, 2020, In Progress.
12. ^{\$}Operational Inflow forecasting system for Tehri dam, sponsored by THDCIL; Rs 1.03 crores, 2020-23, In Progress.
13. Dam Breach Analysis and Preparation of Emergency Action Plan for Tuirial Dam, NEEPCO, Mizoram, NEEPCO, Guwahati, Rs 24.78 Lakh, 2023-24.
14. ^{\$}Development of Stage-Discharge Tail Water Rating Curve on Lakhwar Dam Site, UJVN Limited (Govt of Uttarakhand Enterprise), Dakpathar, Rs 15.0 Lakh, 2023.

15. Vetting of Observed G&D Data of A G&D Site near Lakhwar Project, Uttarakhand, UJVNL (RKEC) Rs 1.59 Lakh, 2022-23.
16. Assessment of Surface Water and Groundwater Resources for the Proposed Ethanol Plant Project at Jeetpur Bahedi Industrial Area, Una, Himachal Pradesh, M/S Hindustan Petroleum Limited, Nalagarh IRD, Himachal Pradesh, Rs 14.75 Lakh, 2022.
17. Selection of G&D Site for Yamuna River, Dakpathar, UJVNL (RKEC), Rs 1.6 Lakh, 2021.
18. [§]Third-party evaluation of DWRIS Scheme, DoWR, RD &GR, Ministry of Jal Shakti, Government of India, Rs 24.78 Lakh, 2020.
19. [§]Flood Routing Study of Koldam Hydro Power Station, NTPC Ltd., Faridabad, Rs 18.88 Lakh, 2019.
20. [§]Development of improved operational flood forecasting system for Tehri dam, sponsored by THDCIL 1.6 Crores (1.1 Crores Phase I 2011-12, and 0.5 Crores Phase II 2019-20).
21. Drainage Aspects of HRRL Refinery at Pachpadra, Barmer, Rajasthan, Sponsored by Engineers India Ltd., New Delhi, Rs 11.8 Lakh, 2018-19.
22. [§]Study of the migration/meandering behaviour of River Midhola in Distt. Surat, Sponsored by GAIL India Ltd., Surat, Rs 7.9 Lakh, 2017-18.
23. [§]Development of Inflow Forecasting System for Tehri Dam, Sponsored by Tehri Hydropower Development Corporation Limited, 2019.
24. [§]Revision of guidelines of estimation of design basis flood for inland nuclear power plants, AERB, Rs. 10 Lakh, 2014-15; (awarded 2014-15; Completed 2016-17).
25. [§]Estimation of PMF, design flood including determining spillway capacity for Gulf of Khambat development Project- Kalpasar project', sponsored by Kalpasar Department, Rs 62.8 lakhs, awarded 2012-13, completed 2018-19.
26. [§]Performance Evaluation of Dam Rehabilitation and Improvement Project (DRIP), Ministry of Water Resources (MoWR, RD&GR), Rs 23.6 Lakhs, 2017-18..
27. [§]Groundwater colouration studies near Shabajpur village, sponsored by Jubilant Life Sciences Limited, Gajraula, Rs 14.97 Lakh, awarded 2013-14 (Completed 2018-19).
28. Validation of Hydrology of Burthing and Phulibagar Small Hydro-Electric Projects, Essel Infra-projects Ltd., New Delhi, Rs 5.95 Lakh, 2017.
29. Hydrogeological Monitoring and Analysis of Groundwater in and around Lalitpur Thermal Power Plant, Spatial Geotech Pvt Ltd., Noida, 2017.
30. [§]Hydrology and Power Potential Studies for Vishnugad Pipalkoti Hydro-electric Projects, Sponsored by Tehri Hydro Development Corporation Limited, New Tehri, Rs 13.23 Lakh, 2012.
31. Review of Gomti Nagar (Extension) Drainage Design, Sponsored by Lucknow Development Authority, Lucknow, India, Rs 6.75 Lakh, 2008-09 completed in 2016.
32. [§]Review of Hydrological Aspects of TATO – II and SIYOM HE-Project Sponsored by Reliance, Rs 6.75 Lakh, 2008-09.
33. [§]Reconnaissance Study Around GHIAL, GMR Ltd., Rs.1.12 Lakh, 2008-09.
34. [§]Review of hydrological report of VSI airport, Port Blair, Airports Authority of India, Rs. 15.17 Lakh, 2014-16.
35. [§]Groundwater and soil remediation measures near CTO-V, Hyderabad, Dr Reddy's, Rs 13.1 Lakhs 2014-15.
36. [§]Application of Remote Sensing Technique for Mapping Water Logged and Salt Affected Area in the Coastal Tract of Orissa, Under Hydrology Project, Phase-II, Directorate of Ground Water Survey & Investigation, Orissa, Bhubaneswar, 2015.

37. [§]Planning For Optimum Development of Groundwater in Coastal Sand Dune Pockets of Orissa, Under Hydrology Project, Phase-II, Directorate of Ground Water Survey & Investigation, Orissa, Bhubaneswar, 2015.
38. Data validation for SEW project sites, Sponsored by SEW Infrastructure, Hyderabad. Rs. 5.0 Lakhs, 2011-12.
39. Error Removal and Verification of Data of Rargari Site - II, RK Engineering Corporation, Roorkee India, 2012.
40. Error Removal and Verification of Data of Tamak Lata Site - II, RK Engineering Corporation, Roorkee India, Rs 5.5 Lakh, 2012.
41. [§]Establishment of Institute of Hydrology and Water Management, Bikaner, M/S Sapience Consultancy and Research Pvt. Limited, Hyderabad, 2012.
42. [§]Review of reports and drawings of South dump site for Chenani- Nashri tunnel J&K, sponsored by Leighton Contractors India Pvt. Ltd. and NHAI amount Rs. 6.5 Lakh, 2013-14.
43. [§]Review of reports and drawings of dump sites for Chenani- Nashri tunnel J&K, sponsored by Leighton Contractors India Pvt. Ltd. and NHAI amount Rs. 25.3 Lakh, 2012-13.
44. [§]Hydrological Assessment for Chenani- Nashri tunnel area, sponsored by Leighton Contractors India Pvt. Ltd. and NHAI amount Rs. 11.47 Lakh, 2011-12.
45. Error Removal and Verification of Data of Rargari Site, RK Engineering Corporation, Roorkee India, 2011.
46. [§]Hydrological study near Shamsabad Area, GMR Ltd., Rs.16.7 Lakh, 2010-11.
47. Error Removal and Verification of Data of Tamak-Lata and Langasu Sites, RK Engineering Corporation, Roorkee India, 2011.
48. Snow Cover Studies in Nyukcharong Chu and Mago Chu Catchments, Sponsored by SEW Energy Limited, Hyderabad, Rs 5.29 Lakh, 2011.
49. Meandering behaviour of river Ramganga and Ganga near Farrukhabad, Sponsored by GAIL India Limited, Rs. 21 Lakh, 2009-10.
50. GLOF Studies for Nyukcharong Chu and Mago Chu Hydroelectric Projects, Sponsored by SEW Energy Limited, Hyderabad, Rs 15.6 Lakh, 2010.
51. [§]Design energy computations for Tehri dam, sponsored by THDC Ltd., Rs 2.2 Lakh, 2009-10.
52. G&D Site Selection for Sirkari Bhoval and Rupsia Bagar Hydro Project, Sponsored by RK Engineering Corporation, Roorkee India, 2010.
53. [§]Ground Water Study near Shabajpur and along Bagad River, Sponsored by Jubilant Organosys Limited, Gajrola, India, Rs 5.5 Lakh, 2010.
54. Velocity, Cross Section and Discharge Measurement on Chilla Power Channel, Rishikesh, Sponsored by DLZ Corporation, Pune, Rs 5.6 Lakh, 2009.
55. [§]Study and Analysis of observed data of Suketi Khad, Kansa Khad and River Beas Sponsored by Bhakra Beas Management Board, Rs 7.86 Lakh, 2008-09.
56. [§]River Migration and Design Flood Studies for Barmer Salaya Pipeline Project, Sponsored by Larsen and Toubro Ltd., Faridabad, India, Rs 29 Lakh, 2009.
57. [§]Hydrological Survey and Investigation at Rajiv Gandhi International Airport, Shamshabad, Sponsored by GMR Hyderabad, India, Rs 1.12 Lakh, 2009.
58. [§]Reconnaissance Survey Report of the Impact of Waste Disposal Practices on Ground Water along Bagad River, Sponsored by Jubilant Organosys Limited, Gajrola, India, Rs 6.7 Lakh, 2009.

59. [§]Hydrological Studies for Construction of Intake Well of Indian Oil Corporation Limited of Mahanadi Barrage, Cuttack, Sponsored by WAPCOS Limited, Rs 5.05 Lakh, 2009.
60. [§]Urban drainage design for Jaipur city, Jaipur Development Authority, Rs 7.86 Lakh, 2008-09.
61. Hydrological Survey at Koteswar Power Station for Water Supply– Geophysical Investigations, Sponsored by Power Grid Corporation of India Limited, Roorkee India, Rs 2.25 Lakh, 2009.
62. [§]Review of Hydrological Studies for Tehri Dam, Sponsored by THDC Limited, Rs 4.5 Lakh, 2009.
63. [§]Hydrological Survey and Investigation at Koteswar for Water Supply, Sponsored by Power Grid Corporation of India Limited, Roorkee, India, 2008.
64. [§]Hydrogeological and Electrical Resistivity Survey for Identification of Tube well Location(s) at L.P.G. Bottling Plant Site, Landhaura (Roorkee) for M/S Bharat Petroleum Corporation Ltd., Noida, 1999.

Short-term Courses:

1. Short-term Training Program on Preparation of Emergency Action Plans (EAPs) for Dams, Jan 2024.
2. Advanced Hydrological Data Analysis, In Collaboration with CEH, UK for the participants the Department of Hydrology and Meteorology, Myanmar, Feb 2021.
3. Design Flood Estimation for Gauged Catchments and Ungauged Catchments, Dam Rehabilitation and Improvement Project, Ministry of Jal Shakti, Department of Water resources, River Development & Ganga Rejuvenation, New Delhi, Sep 16-20, 2019.
4. Open Data Sources: Introduction and Spatiotemporal Analysis. National Hydrology Project, Ministry of Water Resources, New Delhi, Mar 19-24, 2018.
5. International course on Water Resources Management for African Participants, Ministry of External Affairs, Govt. of India, Jan 7-27, 2018.
6. Open Data Sources: Introduction and Spatiotemporal Analysis. National Hydrology Project, Ministry of Water Resources, New Delhi, Oct 9-4 October 2017.
7. River Basin Planning Using HEC Software, National Hydrology Project, Ministry of Water Resources, New Delhi, Oct 17 - 22 October 2016.
8. Identification of Contaminated Sites and its Treatment Technologies, Interferences and Data Management using GIS-Hands-On-Training, Central Pollution Control Board, New Delhi, Nov 14- 18, 2016.
9. River Basin Planning Using HEC Software, National Hydrology Project, Ministry of Water Resources, New Delhi, Sep 5-10, 2016.
10. River Basin Planning Using HEC Software, National Hydrology Project, Ministry of Water Resources, New Delhi, Jul 11- 16, 2016.
11. River Basin Planning Using HEC Software, National Hydrology Project, Ministry of Water Resources, New Delhi, May 16-21, 2016.
12. International Training Course on Flood Forecasting and Warning for South and South east Asia, WMO, Geneva, Nov 26- 12, 2015
13. Flood Estimation and Forecasting, Irrigation Management Institute, Tamil Nadu under IAMWARM project, Trichy, Feb 22-27, 2015.
14. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, Apr 7-17, 2014.

15. Remote Sensing and GIS Applications in Water resources Projects, Irrigation Management Institute, Tamil Nadu under IAMWARM project, Trichy, Feb 9-14, 2014.
16. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, Jun 10-20, 2013.
17. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, Mar 11- 20, 2013.
18. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, Jan 21-23, 2013.
19. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, Jan 14-18, 2013.
20. International Training Course on Hydrological Analysis for Water Resources Planning and Management in Environmental Aspects, Bangladesh Water Development Board, Dhaka, Bangladesh, Jun 11-20, 2012.
21. International Training Course on Effect of climate Change on Flood Estimates and Hydrological Variables, Bangladesh Water Development Board, Dhaka, Bangladesh, Mar 5-14, 2012.
22. Crop Water Management, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, Dec 13-17, 2011.
23. Estimation of Design Flood and design of Spillways for Minor Irrigation Projects, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, Dec 1-5, 2011.
24. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, Oct 19-21, 2011.
25. Hydrological Assessment and Water Resources Planning, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, Sep 26-30, 2011.
26. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, Jun 20-22, 2011.
27. International Training Course on Flood Estimation in a Changing Climate, Institute of Water Modelling, Dhaka, Bangladesh, Mar 6-12, 2011.
28. Use of ArcGIS and MODFLOW in Analysis and Modelling of Groundwater in Hard-rock Areas, Ground water and Surveys and Development Agency, Pune, Govt. of Maharashtra, Nov 22-Dec 11, 2010.
29. International Training Course on Urban Flood Modelling and Drainage Design, Lunawa Environment Improvement & Community Development Project (Technical Component), Ministry of Urban Development and Sacred Area Development, Govt. of Sri Lanka, Mar 22-27, 2010.
30. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, Feb 22-27, 2010.
31. Hydrological Analyses and Planning for Water Resources Projects with Exposure to Emerging Tools, Hydrology Project, Irrigation Department, Govt. of Maharashtra, Nov 16- 21, 2008.
32. Urban Flood Modelling and Drainage Design, Mumbai Metro Region Development Agency, Mumbai, Sep 22-27, 2008.
33. Planning, Analyses and Modelling of Groundwater in Hard Rock Areas, Ground water and Surveys and Development Agency, Pune, Govt. of Maharashtra, Sep 1-6, 2008.
34. Planning, Analyses and Modelling of Groundwater in Hard Rock Areas, Ground water and Surveys and Development Agency, Pune, Govt. of Maharashtra, Aug 18-23, 2008.

35. Groundwater Planning, Analyses and Modelling In Hard Rock Areas, Department of Mines and Geology, Govt. of Karnataka, Jul 21-26, 2008.
36. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, Jun 9-14, 2008.
37. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, Dec 17-22, 2007.
38. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, Damodar Valley Corporation Limited, Oct 1-6, 2007.
39. Hydrological Analyses and Planning for Hydropower Projects, National Thermal Power Corporation Limited, Aug 20-25, 2007.
40. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, Jul 2-7, 2007.
41. Hydrological Analyses and Planning for Hydropower Projects, Satluj Jal Vidut Nigam Limited, Feb 19-24, 2007.
42. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, Damodar Valley Corporation Limited, Dec 18-23, 2006.
43. International Refresher Course on 'Urban Flood Modelling and Disaster Management' in association with UNESCO-IHE, Delft, funded by NUFFIC, The Netherlands, organized at IIT Roorkee, India, Oct 12-19, 2006.
44. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, Jul 31-Aug 5, 2006.
45. Hydrological Analyses and Planning for Hydropower Projects, National Thermal Power Corporation Limited, Jun 5-10, 2006.

Visits Abroad:

1. Australia (Western Sydney University, New South Wales University, Water-NSW, 2024)
2. Nepal (ICIMOD, 2023)
3. Canada (Concordia University, Ecole Polytechnique, and Five Hydropower Projects organisation, 2023)
4. US (Arizona State University. 2022; Purdue University, 2017; The City College of New York, Ohio State University, University of Alabama at Birmingham and at Tuscaloosa, Aug 18-28, 2014)
5. Thailand (Chulalongkorn University Bangkok: Jun 11, 2018; Asian Institute of Technology, Bangkok: Jan 26-Feb 3, 2018, Mar 25-31, 2016, Dec 21-22, 2013)
6. UK (ICMS Edinburgh, University of Bath: Feb 26-Mar 10, 2018; Reading University & UKMO: Aug 20-28, 2011)
7. Barbados (Bridgetown, WMO SYMET XIII, Oct 28-Nov 2, 2017)
8. South Africa (Port Elizabeth, Johannesburg and Kruger: July 9-17, 2017)
9. Switzerland (World Meteorological Organisation, Geneva; May 4-12, 2015; Jul 18-20, 2012; Apr 4-6, 2007)
10. Hong Kong (The University of Hong Kong: May 1-6, 2013)
11. Germany (Technical University of Hamburg, Climate Service Centre, Hamburg: Jul 13-18, 2012)
12. The Netherlands (UNESCO-IHE, Delft: Mar 25-Apr 3, 2007; Jun 17-Nov 14, 2005; Mar 6-9, 2005 and Dec 2004-2005)
13. Indonesia (Catholic University, Bandung: May 11-20, 2005)
14. Singapore (National University of Singapore: May 20-22, 2005)
15. France (UNESCO, Paris: Mar 11-12, 2005)
16. Austria (ESS GmbH, Vienna: May, 2015; Oct 1996 -Dec 1997)

