

DHYAN SINGH ARYA

dsarya@gmail.com

Areas of expertise/ interest

GIS and Remote Sensing Applications
Climate Change Impact Studies
Hydrological Data Analysis
Surface Water Modelling

Education

Ph.D. (Environmental Engineering), Pondicherry University, Pondicherry, India, 1997
M. Tech. (Hydrology) Indian Institute of Technology, Roorkee, India, 1991
A.M.I.E. (Civil Engineering), Institution of Engineers (I), India, 1988

Professional Experience

Indian Institute of Technology, Roorkee, India
Professor {Since Nov 2015}; Associate Professor {Sep 2009 - Nov 2015};
Assistant Professor {Feb 2001 - Sep 2009}; Lecturer {Jan 1998 - Feb 2001}
UNESCO-IHE, Delft, The Netherlands
Guest Faculty, HIKM, {Jun 2005 to Nov 2005 and Dec 2014 to Jan 2005}
Punjab Remote Sensing Centre, Ludhiana, India
Scientist 'SC' {Dec 1995 to Jan 1998}
Environmental Software & Services GmbH, Austria
Guest Scientist {from Oct 1996-Dec 1997}
Pondicherry University, Pondicherry, India
Research Scientist {Oct 1991-Sept 1995}

Publications

Books : 4 (*Edited – 1, Book Chapter - 1*)
Research papers : 63 (*Published –58, Communicated - 5*)
PhD theses supervision : 10 (*Completed -7, Ongoing –3*)
Master theses supervision: 39 (*Completed -37, Ongoing –2*)
Projects undertaken : 43 (*Completed -35, Ongoing – 8*)
Short-term courses : 34

Technical Skills

ArcGIS, ERDAS Imagine, SWMM, HEC HMS and RAS, MIKE 11, VIC,
Precis RCM, LARS WG
Programming and Databases: C++, Fortran; MS Access, SQL Server

Memberships

Member, Joint Task Team, Commission on Hydrology, World Meteorological Organisation
Fellow, Institution of Engineers (India)
Member, Indian Association of Hydrologists
Member, International Association of Hydrological Sciences

Awards/Honours:

- 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 Thesis 'Identification of Glacial Lakes and GLOF Estimation in a Mountainous Watershed in Arunachal Pradesh', 2013
- Kathpalia Award for MTech Thesis 'Study of Extreme Hydrological Events and Impact of Climate Change on Rainfalls – A Case Study of North-western Bangladesh', 2010
- Young Academic Award to work as Visiting Faculty at UNESCO-IHE, The Netherlands
- North-south Dialogue Scholarship to work on GIS based DSS in Austria
- Master of Engineering with Distinction
- Institute's Medal for securing highest marks in the Institutions of Engineers, India

Co-curricular Activities

- Head, Department of Hydrology, 2015 onwards
- O.C. (HIS Lab), 2001 onwards
- Coordinator, Thomso 2015
- Chief Warden, Rajiv Bhawan, Students' Hostel, 2010-2015 onwards
- O.C. (MTech Class) and Faculty Advisor, 2011-2015
- O.C. (Computer Labs), 2006-2013
- Member, Executive Committee, Faculty Forum, IIT Roorkee, 2011-2013
- Convener, International Conference on Challenges in Disaster Mitigation & Management Strategies, Feb 2013
- Faculty Advisor (Dramatics Section), Cultural Society, IIT Roorkee, 2000-2012
- Treasurer, Series of National research conference on Disaster Mitigation in Housing in India, 2009-2010
- Joint Organizing Secretary, 3rd State Science & Technology Congress, 2008.
- O.C. Lab/Stores, 1998-2006
- Joint Organizing Secretary, International conference on Hydrological Perspectives for Sustainable Development, 2005
- Warden, Cautley Hostel, 2005-2006
- Dy. Chief Adviser, Thomso (Institute's Youth Festival) 2003, 2004 and 2006
- Staff Advisor (Stores), Institute's Sports Council (2003-2005)

Visits Abroad

- Switzerland (World Meteorological Organisation, Geneva; May 4-12, 2015; Jul 18-20, 2012; Apr 4-6, 2007)
- US (The City College of New York, Ohio State University, University of Alabama at Birmingham, University of Alabama at Tuscaloosa: Aug 18-28, 2014)
- Hong Kong (The University of Hong Kong: May 1-6, 2013)
- Thailand (Asian Institute of Technology, Bangkok: Dec 21-22, 2013)
- Germany (Technical University of Hamburg, Climate Service Centre, Hamburg: Jul 13-18, 2012)
- UK (Reading University, Met Office: Aug 20-28, 2011)
- The Netherlands (UNESCO-IHE, Delft: Mar 25-Apr 3, 2007; Jun 17-Nov 14, 2005; Mar 6-9, 2005 and Dec 2004-2005)
- Indonesia (Catholic University, Bandung: May 11-20, 2005)
- Singapore (National University of Singapore: May 20-22, 2005)
- France (UNESCO, Paris: Mar 11-12, 2005)
- Austria (ESS GmbH, Vienna: May, 2015; Oct 1996 -Dec 1997)

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.

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:

In Journals

1. Singh R, Arya DS, Taxak AK, Vojinovic Z. 2015. Impact of climate change on Rainfall Intensity-Duration Frequency (IDF) Curves in Roorkee. Hydrological Processes (communicated).
2. Murumkar A, Arya DS. 2015. Application of LARS-WG and VIC for Projections of Hydro-meteorological Variables under Changing Climate. Climate Research (communicated).
3. Murumkar A, Arya DS. 2015. Spatio-temporal Changes in Meteorological Variables under Changing Climate: A Case Study of the Bhima Basin in India. Atmospheric Research (communicated).
4. Murumkar A, Arya DS. 2015. Comparative Analysis of Gridded Dataset and Observed Station-scale Rainfall Data under Changing Climate. Hydrological Sciences (communicated).
5. Ganguly T, Arya DS, Taxak AK. 2015. Spatial and Temporal Analysis of Daily Rainfall Data of Rajasthan, India. Atmospheric Processes (communicated).
6. Aeron A, Garg RD, Arya DS, Aggarwal SP. 2015. Implementation of Open Source Web GIS based DSS for Optimal Evacuation Route Identification during Flood Disaster. Natural Hazards (communicated).
7. Sathishkumar D, Arya DS, Perumal M. 2014. Distributed dual drainage model for simulating urban storm water runoff in open drainage systems. Water Resources Management (communicated).
8. 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.
9. 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.
10. 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.

List of Publications, PhD and MTech Theses, Projects, and Short Courses

11. Kumar D, Arya DS, Murumkar A, Rahman M. 2014. Impact of climate change on rainfall in north-western Bangladesh using multi-GCM ensembles. *International Journal of Climatology*. 34:1395-1404.
12. Misir V, Arya DS, Murumkar A. 2013. Impact of ENSO on river flows in British Guyana. *Water Resources Management* 27(13): 4611-4621.
13. Sathishkumar D, Arya DS, Vojinovic Z. 2013. Modelling of urban landuse dynamics and its impact on surface runoff characteristics. *Computers, Environment and Urban Systems Journal* 41: 124-135.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. Basistha A, Arya DS, Goel NK. 2007. Spatial distribution of rainfall in Indian Himalayas -A case study of Uttaranchal Province, India. *Journal of Water Resources*

Management

22: 1325-1346.

27. 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.
28. 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.
29. 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.
30. Roba GF, Arya DS, Goel NK. 2000. Stream flow forecasting using artificial neural network. *Water & Energy International* 57(1):30-37.
31. Arya DS, Joshi H, Abbasi SA. 1995. Growth of Roorkee city. *Geographical Review of India* 57(3): 223-241.
32. 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.
33. 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.
34. 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.
35. 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.

In Conferences

36. 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.
37. 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.
38. 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.
39. Arya DS, Kori S, Vaidya AM. 2014. Simulation of Shoreline Changes along Muthalapozy Harbour, India. In *Proceedings of the International Conference on Hydroinformatics 2014, New York, US*. 17-21 August, 2014.
40. Arya DS, Murumkar A, Greebala 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.

41. Arya DS, Greeballe 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.
42. 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.
43. 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 Tools. In Proceedings of the National Symposium on Space Technology for Food & Environmental Safety, New Delhi. 5-7 December, 2012.
44. 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.
45. 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.
46. 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.
47. 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).
48. 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).
49. 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).
50. Agarwal N, Arora M, Goel, NK, Arya DS. 2009. Estimation of snow cover area in Bhagirathi catchment upto Tehri dam site. In Proceedings of the National seminar on 'Hydro power stations- advancement in harnessing & up-keeping' organized by National Power Training Institute, Durgapur at Dehradun, India. 2-3 July, 2009.
51. 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).
52. 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.
53. 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.
54. Chaudhury PC, Arya DS, Srivastava DK. 2008. Irrigation Management and Canal Scheduling using DSS in Harabhangi Irrigation Project (Orissa). In proceedings of 13th National Symposium on Hydrology with Focal Theme on 'Inflow Forecasting during Extremes' organized by National Institute of Hydrology at IIT Delhi, India. 28-29 August, 2008.
55. Adam EE, Arya DS, Sathish Kumar D. 2008. Storm Water Modelling in Roorkee City using SWMM – A Case Study. In proceedings of 13th National Symposium on Hydrology with Focal Theme on 'Inflow Forecasting During Extremes' organized by National Institute of Hydrology at IIT. Delhi, India. 28-29 August, 2008.
56. 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).
57. 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.
58. Goel NK, Gauchan B, Arya DS. 2006. Flood Quantile estimation for 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.
59. 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) organized by the Department of Civil Engineering, Engineering College Kota, Kota, India. 27-28 March, 2006.
60. 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) organized by the Department of Civil Engineering, IIT Roorkee, Roorkee, India. 27-28 March, 2006.
61. 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.
62. 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' organized by the

List of Publications, PhD and MTech Theses, Projects, and Short Courses

Department of Hydrology, IIT Roorkee at Roorkee, India. 23-25 February, 2005. pp 32- 44 (Vol 1).

63. 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 organized by Central Board of Irrigation and Power (CBIP), New Delhi, India. 15-18 February, 2005. pp I32 – I48 (Vol 4).
64. 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.
65. 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.

Theses Supervision:

PhD Theses

1. Climate Change Impacts Study of Narayani River Basin in Central Nepal (*ongoing*).
2. Climate Change and Reservoir Simulation (*ongoing*).
3. Web-based Spatial Decision Support System for Flood Risk Mapping (*ongoing*).
4. Impact of Climate Change on Hydrometeorological variables in Bhima Basin (India) (2015).
5. Dual Drainage Model for Urban Flood Modelling (2012).
6. Flood Forecasting and Early Warning Studies for Parts of Bangladesh (2011).
7. Optimal Water Utilization and Management of an Irrigation System (2010).
8. Climate Change Studies: A Spatio-temporal Analysis for part of India (2010).
9. A Decision Support System for Tropical River Water Quality Management (2008).
10. Variable Parameter Flood Routing Methods for Hydrological Analyses of Ungauged Basins (2007).

M.Tech/M.Engg/MCA Theses

1. Threats and Challenges to Sunder Bans, Bangladesh, Ongoing.
2. Impact of Climate Change in Narayani River basin, Nepal, Ongoing
3. Impact of Climate Change on IDF Curves, 2015.
4. Rainfall-Runoff Modelling of Bhagirathi Catchment using Mike 11, 2015.
5. Impact of Climate Change in Godavari River Basin, 2014.
6. Climate Change Studies in Neera basin using SWAT, 2014.
7. Snowmelt Modelling of Dhauri Ganga River at Tamak Lata, District Chamoli, Uttarakhand, 2013.
8. Numerical Simulation of Flow through Vertical Gates with Different Lip Shapes, 2013.
9. Identification of Glacial Lakes and GLOF Estimation in a Mountainous Watershed, 2013.
10. Study of meandering behaviour for parts of the Ganges and Euphrates Rivers using GIS, 2012.
11. Impact of Climate Change on precipitation in Jamuneshwari Basin, Bangladesh, 2012.

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12. Impact of ENSO on River Flows in British Guyana, 2011.
13. Assessment of Sediment Transport Rate and Shoreline Evolution in Coastal Environment, 2011.
14. Study of extreme hydrological events and impact of climate change on Rainfalls – A case study of north-western Bangladesh, 2010.
15. Impact assessment of land use dynamics on urban flooding, 2010.
16. Flood simulation using GIS and MIKE 11 – A case study of Teesta River basin, 2009.
17. Modelling of snowmelt component of runoff of Bhagirathi catchment at Tehri, 2009.
18. Estimation of rainfall and temperature from remote sensing data using artificial neural networks, 2009.
19. River Migration, Design Flood and Scour Depth Computations at Pipeline Crossing, 2009.
20. Urban Flood Modelling: A case study of Roorkee City, 2008.
21. Water Resources management for an Irrigation project using a DSS, 2008.
22. Study of Spatial Variability of Rainfall in Uttarakhand, 2008.
23. Climate Change Effects on Hydrological Elements and Water Resources Components, 2006.
24. Flood Risk Mapping, 2006.
25. Flood risk mapping for East Rapti River, Nepal using GIS and HEC-RAS, 2005.
26. Flood plain mapping using GIS in Lower part of Chindwin River in Myanmar, 2005.
27. Temporal and Spatial Analysis of Rainfall in Uttaranchal, 2004.
28. Development of Resettlement and Rehabilitation Information System for Sardar Sarovar Project using Internet GIS, 2003.
29. Development of SDSS for Land Capability Classification- A Case Study of an Ethiopian Watershed, 2002.
30. Development of spatial information system of Uttaranchal, 2002.
31. Mahanadi Irrigation Projects information system, 2002.
32. Application of DSS in Irrigation Management – A Case Study of Meghna Dhonagoda Irrigation Project, Bangladesh, 2002.
33. Model Assisted Groundwater Assessment of Ghaggar Yamuna doab, 2001.
34. Stream flow Forecasting Using Linear Perturbation Model & ANN Approach, 2000.
35. Artificial Recharge Measures in Problematic Areas of Andhra Pradesh – A case study, 2000.
36. Development of Hydrological Information System for a Micro-catchment, 1999.
37. Stream flow Forecasting Using ANN, 1999.
38. Software Development for Sediment Distribution in Reservoirs, 1999.
39. New Software Package SMART-ALEC, 1994.

Projects Details:

Consultancy Projects/Reports

1. Development of Methodology for Design Basis Flood for Guidelines, AERB, Mumbai (Ongoing, 2015).
2. Review of Hydrological Report of VSI Airport, Airports Authority of India, (Ongoing, 2014).

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3. Ground Water Coloration Problem of Shabajpur Area Sponsored by Jubilant Organosys Limited, Gajrola, India, (Ongoing, 2013).
4. Estimation of PMF Design Flood Spillway Capacity For Kalpasar, Narmada, Water Resources, Water Supply & Kalpasar Department Government of Gujarat, (Ongoing, 2013).
5. Development of Inflow Forecasting System for Tehri Dam, Sponsored by Tehri Hydropower Development Corporation Limited, (Ongoing, 2012).
6. Hydrology and Power Potential Studies for Vishnugad Pipalkoti Hydro-electric Projects, Sponsored by Tehri Hydro Development Corporation Limited, New Tehri, (Ongoing , 2011).
7. Review of Gomti Nagar (Extension) Drainage Design, Sponsored by Lucknow Development Authority, Lucknow, India, (Ongoing, 2009).
8. 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).
9. Planning For Optimum Development of Ground Water in Coastal Sand Dune Pockets of Orissa, Under Hydrology Project, Phase-II, Directorate of Ground Water Survey & Investigation, Orissa, Bhubaneswar (2015).
10. Validation of Hydrometeorological Data of SEW Sites, Sponsored by SEW Energy Limited, Hyderabad (2015).
11. Error Removal and Verification of Data of Rargari Site - II, RK Engineering Corporation, Roorkee India, (2012).
12. Error Removal and Verification of Data of Tamak Lata Site - II, RK Engineering Corporation, Roorkee India, (2012).
13. Establishment of Institute of Hydrology and Water Management, Bikaner, M/S Sapience Consultancy and Research Pvt. Limited, Hyderabad, (2012).
14. Review of Reports and Drawings of Dump Sites for Chenani Tunnel, J&K, Sponsored by Leighton Contractors India Pvt. Ltd, Gurgaon, India, (2011).
15. Error Removal and Verification of Data of Rargari Site, RK Engineering Corporation, Roorkee India, (2011).
16. Hydrological Assessment Report (for Nallahs at South Portal, North Portal & South Dump Site at Km 86) on NH 8, Jammu, Sponsored by Leighton Contractors India Pvt. Ltd, Gurgaon, India, (2011).
17. Hydrological Study for Shamshabad Area Sponsored by GMR Hyderabad, India, (2011).
18. Error Removal and Verification of Data of Tamak-Lata and Langasu Sites, RK Engineering Corporation, Roorkee India, (2011).
19. Snow Cover Studies in Nyukcharong Chu and Mago Chu Catchments, Sponsored by SEW Energy Limited, Hyderabad (2011).
20. Meandering Behavior of Ramganga, Ganga and Kali Rivers, Sponsored by GAIL (India) Delhi, (2011).
21. GLOF Studies for Nyukcharong Chu and Mago Chu Hydro-electric Projects , Sponsored by SEW Energy Limited, Hyderabad (2010).
22. G&D Site Selection for Sirkari Bhoyal and Rupsia Bagar Hydro Project, Sponsored by RK Engineering Corporation, Roorkee India, (2010).
23. Ground Water Study near Shabajpur and along Bagad River, Sponsored by Jubilant Organosys Limited, Gajrola, India, 2010.

List of Publications, PhD and MTech Theses, Projects, and Short Courses

24. Velocity, Cross Section and Discharge Measurement on Chilla Power Channel, Rishikesh, Sponsored by DLZ Corporation, Pune, 2009.
25. Study and Analysis of Observed Data of Sukheti Khad Watershed and River Beas, Sponsored by Bhakhra Beas Management Board, Shimla, India, 2009.
26. River Migration and Design Flood Studies for Barmer Salaya Pipe Line Project, Sponsored by Larsen and Toubro Ltd., Faridabad, India, 2009.
27. Hydrological Survey and Investigation at Rajiv Gandhi International Airport, Shamshabad, Sponsored by GMR Hyderabad, India, 2009.
28. Reconnaissance Survey Report of the Impact of Waste Disposal Practices on Ground Water along Bagad River, Sponsored by Jubilant Organosys Limited, Gajrola, India, (2009).
29. Hydrological Studies for Construction of Intake Well of Indian Oil Corporation Limited of Mahanadi Barrage, Cuttack, Sponsored by WAPCOS Limited, (2009).
30. Hydrological Survey at Koteshwar Power Station for Water Supply– Geophysical Investigations, Sponsored by Power Grid Corporation of India Limited, Roorkee India, (2009).
31. Review of Hydrological Studies for Tehri HE Project, Sponsored by Tehri Hydro Development Corporation Limited, (2009).
32. Hydrological Survey and Investigation at Koteshwar for Water Supply, Sponsored by Power Grid Corporation of India Limited, Roorkee, India (2008).
33. 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).

Research Projects

34. Studying meandering and shifting behaviour of the Ganges River in plains of Uttarakhand UCOST, Dehradun, India (ongoing).
35. Inventorisation of Industries Using Web and GIS based Techniques for Hardwar and Udham Singh Nagar Districts, UCOST, Dehradun, India (ongoing).
36. Development of Spatial Water and Climate Information System for Uttaranchal, sponsored by Department of Science and Technology, Govt. of India (2009).
37. 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 (2009).
38. 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).
39. General Purpose Software Development for Water resources Information and Decision Support System, sponsored by MHRD, Govt of India (2008).
40. Modernization and Strengthening of Hydrometeorological Laboratory sponsored by MHRD, Govt. of India (2006).
41. Development of Dynamic Flood Frequency Model sponsored by Indian National Committee on Hydrology (Ministry of Water Resources), Roorkee (2005).
42. Development of Hydrological Information and Decision Support System Laboratory for AICTE, New Delhi, (2002).
43. Estimation of Evaporation from Free Water Surface for University of Roorkee, Roorkee, (2001).

Short-term Courses Organized:

1. International Training Course on Flood Forecasting and Warning for South and South east Asia, WMO, Geneva, Oct 26-Nov 1, 2015
2. Flood Estimation and Forecasting, Irrigation Management Institute, Tamil Nadu under IAMWARM project, Trichy, 22nd -27th Feb, 2015.
3. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, 7th -17th April, 2014.
4. Remote Sensing and GIS Applications in Water resources Projects, Irrigation Management Institute, Tamil Nadu under IAMWARM project, Trichy, 9-14th Feb, 2014.
5. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, 10th -20th June, 2013.
6. International Training Course on Climate Change Issues and Impacts on Water Resources Management in Coastal and Seasonal Wetlands, Bangladesh Water Development Board, Dhaka, Bangladesh, 11th -20th March, 2013.
7. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, 21-23rd Jan, 2013.
8. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, 14-18th Jan, 2013.
9. International Training Course on Hydrological Analysis for Water Resources Planning and Management in Environmental Aspects, Bangladesh Water Development Board, Dhaka, Bangladesh, 11th -20th June, 2012.
10. International Training Course on Effect of climate Change on Flood Estimates and Hydrological Variables, Bangladesh Water Development Board, Dhaka, Bangladesh, 5th -14th March, 2012.
11. Crop Water Management, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, 13-17th Dec, 2011.
12. Estimation of Design Flood and design of Spillways for Minor Irrigation Projects, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, 1-5th Dec, 2011.
13. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, 19-21st Oct, 2011.
14. Hydrological Assessment and Water Resources Planning, OCTMP, Water Resources Department, Govt. of Odisha, Bhubaneshwar, 26-30th Sept, 2011.
15. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, 20-22nd June, 2011.
16. International Training Course on Flood Estimation in a Changing Climate, Institute of Water Modelling, Dhaka, Bangladesh, 6th -12th March, 2011.
17. 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.
18. International Training Course on Urban Flood Modelling and Drainage Design, Lunawa Environment Improvement & Community Development Project

List of Publications, PhD and MTech Theses, Projects, and Short Courses

- (Technical Component), Ministry of Urban Development and Sacred Area Development, Govt. of Sri Lanka, 22-27th March, 2010.
19. Remote Sensing and GIS Applications in Hydropower Projects, National Hydro Power Corporation Limited, Faridabad, 22-27th Feb, 2010.
 20. Hydrological Analyses and Planning for Water Resources Projects with Exposure to Emerging Tools, Hydrology Project, Irrigation Department, Govt. of Maharashtra 16th-21st Nov, 2008.
 21. Urban Flood Modelling and Drainage Design, Mumbai Metro Region Development Agency, Mumbai, 22-27th Sept, 2008.
 22. Planning, Analyses and Modelling of Groundwater in Hard Rock Areas, Ground water and Surveys and Development Agency, Pune, Govt. of Maharashtra, 1-6th Sept, 2008.
 23. Planning, Analyses and Modelling of Groundwater in Hard Rock Areas, Ground water and Surveys and Development Agency, Pune, Govt. of Maharashtra, 18-23rd August, 2008.
 24. Groundwater Planning, Analyses and Modelling In Hard Rock Areas, Department of Mines and Geology, Govt. of Karnataka, 21-26th July 2008.
 25. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, 9-14th June, 2008.
 26. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, 17-22nd December, 2007.
 27. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, Damodar Valley Corporation Limited, 1-6th October, 2007.
 28. Hydrological Analyses and Planning for Hydropower Projects, National Thermal Power Corporation Limited, 20-25th August, 2007.
 29. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, 2-7th July, 2007.
 30. Hydrological Analyses and Planning for Hydropower Projects, Satluj Jal Vidut Nigam Limited, 19-24th February, 2007.
 31. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, Damodar Valley Corporation Limited, 18-23rd December, 2006.
 32. 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, 12-19th October, 2006.
 33. Hydrological Analyses and Planning for Hydropower Projects with emphasis on Design Flood Estimation, National Hydro Power Corporation Limited, 31st July – 5th August, 2006.
 34. Hydrological Analyses and Planning for Hydropower Projects, National Thermal Power Corporation Limited, 5-10th June, 2006.