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# ANNEXURE I: Information about Educational Qualification, Research Experience, Papers Published

## **Educational Qualification**

Qualification	Discipline	Specialization	Year	Division	CGPA/%	University	Place	Country
B.E.	Civil	Civil	1990	First (Hons)	67%	A.P.S. University Rewa	Rewa (M.P.)	India
M.E.	Hydrology	Watershed Management	2000	First (Hons)	92%	University of Roorkee, Now IIT Roorkee	Roorkee	India
PhD (pursuing)	Civil	-	-	+	-	MANIT Bhopal	Bhopal	India

#### Area of Specialization

Rainfall Runoff & Sediment Modeling, Watershed Prioritization for Soil Conservation, Environment Impact Assessment, Remote sensing and GIS Applications, CAT Planning, Water Availability Studies, Watershed Management, Climate Change Studies

#### Experience

# Research (25 Years)

- Scientist-C National Institute of Hydrology, Jal Vigyan Bhavan, Roorkee, Uttarakhand, India from June 2011 till date
- Scientist-B, National Institute of Hydrology, Jal Vigyan Bhavan, Roorkee, Uttarakhand, India from Aug 2005 – June 2011.
- PRA, National Institute of Hydrology, Jal Vigyan Bhavan, Roorkee, Uttarakhand, India from Feb 2002 – Aug 2005.
- SRA, National Institute of Hydrology, Jal Vigyan Bhavan, Roorkee, Uttarakhand, India from Sept 1991 – Feb 2002.

#### Technical Papers Published/Accepted

- International Journal 30
- 2. National Journal 30
- 3. International Conference/Symposium/Seminar/Workshop 20
- 4. National Conference/Symposium/Seminar/Workshop 25

#### M. Tech Thesis Guidance

Two students from Maulana Azad National Institute of Technology Bhopal, Four students from Jawaharlal Nehru Krishi Vishvavidalaya (JNKV), Jabalpur, Seven students from Banaras Hindu University (BHU) Varanasi guided as Co-guide for M. Tech dissertation work

#### Reports Completed

Thirty Five technical reports covering different aspects of water resources and hydrology have been completed for National Institute of Hydrology, Roorkee

#### **Book Edited**

H. L. Tiwari, S. Sureh, R. K. Jaiswal (2014). Hydraulics, Water Resources, Coastal and Environmental Engineering Vol. I & II, Excellent Publishing House, New Delhi

# Consultancy/Sponsored Research Projects

- Water Budgeting in the Barrages in river Shipra for Simhasta-2004 Funded by Mela Authority, Ujjain.
- Identification of Suitable Sites for Water Storage Structures in Rehli and Garhakota Tehsils in Sagar District - Funded by District Administration, Sagar.
- Study of reservoir sedimentation, impact assessment and development of catchment area treatment plan for Kodar reservoir in Chhattisgarh state – World Bank Funded Purpose Driven Studies under Hydrology Project Phase II.
- Water availability study and supply-demand analysis in Kharun sub-basin of Seonath basin in Chhattisgarh state – World Bank Funded Purpose Driven Studies under Hydrology Project Phase II.
- 5. National Program on Isotope Fingerprinting of Waters in India (IWIN) DST Funded Project
- Study of Hydrological and Hydro-geological Aspects of the Korba Power Project in Chhattisgarh to Assess Water Source Sustainability- West Korba Power Project Ltd, Raigarh (Chhattisgarh)
- Study of Hydrological and Hydrogeological Aspects of Jhabua Power Project in Madhya Pradesh to Assess Water Source Sustainability - Jhabua Power Limited, Gurgaon (Haryana)
- Assessment of impact of coal mining from Mahan coal block on groundwater recharge and sedimentation in Rihand Reservoir and to suggest appropriate measures to mitigate the identified impacts- Mahan Coal Ltd, Waidhan, Singroli (M.P.).

#### Special Achievements

The Hemprabha-S N Gupta Medal has been awarded by the Institution of Engineers, Calcutta for the paper titled "Waterlogged Area Mapping of Mokama Group of Tals using Remote Sensing and GIS" in 1999.

Consolation prize for best paper has been awarded for paper "Ken Nadi Tantra ke Sonar evam Bearma Up-bhivajako me Dainik apwah ke Akado ka anukaran" in **National Conference on Bharat-Varsh ke Aviral Vikash me Jal Sansadhano ki Bhumika**, Sept, 26-27, 2007, NIH, Roorkee.

Joint Organizing Secretary of Nineteenth International Conference on Hydraulics, Water Resources & Environmental Engineering (HYDRO 2014 International) at MANIT Bhopal during Dec 18-20 2014.

## Membership

- 1. Member, International Association of Hydrological Sciences, U.K.
- 2. Associated Member, Institution of Engineers, Kolkata, India.
- 3. Life Member, Indian Water Resources Society, Roorkee, India
- 4. Life Member, Indian Association of Hydraulics (ISH), India
- 5. Member, WES NET India

# Workshop, Training Course, Seminar, Conference Attended

Twenty seven training course/workshop/conference have been attended including 11-weeks training on Remote Sensing & GIS from NRSA, Hyderabad and one week training on Arc-GIs at Esri India, New Delhi.

SAARC Special Training Program on "Hydro-Infrastructure Development and Management" at Seoul, South Korea from Oct October 12 to November 01, 2014.

# Annexure- II: List of Recent Papers (From 2008 onwards) and Reports Published

# Papers Published in International Journals

 Thomas, T., Jaiswal, R.K., Ghosh, N.C., Singh, S. and Galkate, R.V. (2008). "Runoff Modelling for an Experimental Watershed in Bundelkhand Region using GIUH based Clark Model". International Journal of Environment and Development.

 Singh, S., Ghosh, N.C., Pandey, R.P., Galkate, R., Thomas, T. and Jaiswal, R.K. (2008). "Numerical Solution of 1D Boussinesq Equation for Water Table Fluctuation between Drains in response to Recharge and ET in a Sloping Aquifer", Int. J of Ecological Economies & Statistics (IJEES).

 Thomas, T., Jaiswal, R.K., Ghosh, N.C., Singh, S. and Galkate, R.V. (2008). "Runoff Modelling for an Experimental Watershed in Bundelkhand Region using GIUH based Clark Model", International Journal of Environment and Development.

 Jaiswal R.K., Thomas, T., Ghosh, N.C., Galkate, R.V., Singh, S. (2009). "GIUH based Regional Rainfall-Runoff Model for Un-gauged Watersheds in Bundelkhand Region of Madhya Pradesh, India" Accepted in International journal of Water Resources and Environmental Management.

 Jaiswal, R.K., Nayak, T.R., Thomas, T., Galkate, R.V., Singh, S. (2009). "Assessment Of Sedimentation in Ravishankar Sagar Reservoir Using Digital Image Processing Techniques" Accepted in International Journal of Environmental Research and Development.

 Thomas, T., Jaiswal, R.K., Galkate, R.V., Singh, S. and Ghosh, N.C. (2009). "Development of Rainfall-recharge Relationship for a Fractured Basaltic Aquifer in Central India", International Journal of Water Resources Management, published online; doi 10.1007/S11269-009-9425-2.

 Thomas, T., Ghosh, N.C., Jaiswal, R.K., Galkate, R.V. and Singh, S. (2009). "Influence of Spatial Heterogeneity and Land Use on Soil Water Infiltration and Hydraulic Conductivity-Case Studies", International Journal of Water Resources and Environmental Management.

 Thomas, T., Jaiswal, R.K., Galkate, R.V., Singh, S. and Ghosh, N.C. (2009). "A water balance approach for sustainable management of groundwater in Sagar block, Bundelkhand region, Madhya Pradesh", ICFAI University Journal of Soil & Water Resources.

 Jaiswal, R.K., Thomas, T. and Galkate, R.V. (2010). "Assessment of reservoir sedimentation pattern for environmental planning in Rajaval reservoir of Gujarat (India), International Journal of Applied Environmental Sciences, 5(4), 529-540.

 Jaiswal, R.K., Thomas, T., Galkate, R.V. and Singh, S. (2010). "Revised capacities and pattern assessment in Rajaval and Kharo reservoirs of Gujarat (India)", ICFAI University Journal of Soil & Water Sciences, Vol. 3, No. 4, 7-19.

 Kumar, B., Rai, S.P., Kumar, U.S., Verma, S.K., Garg, P., Kumar V.V., Jaiswal, R.K., Purendra, B.K., Kumar, S.R., Pande, N.G. (2010), "Isotopic characterization of Indian precipitation", Water Resources Research, doi: 10.1029/2009WR008532.

 Rajoriya, S., Jaiswal, R.K. and Galkate, R.V. (2010), "Estimation of surface and groundwater resources in Sagar, Madhya Pradesh, India, Journal of Environmental Research and Development, Vol. 5, No. 3A, 825-829.

 Jaiswal, R.K., Thomas, T. and Galkate, R.V. (2011). "Regional flood frequency modeling for a basin of central India", Journal of Flood Engineering, Vol. 2, No. 1, Jan-Jun 2011, 61-78.

 Jaiswal RK, Thomas T, Galkate RV, Jain SK (2012) Assessment of Revised Capacities & Trend Analysis of Sediments in Reservoirs of Southern Gujarat (India) International Journal of Water Resources and Environment Management (IJWREM), 3(2), 155-165.

 Galkate RV, Jaiswal RK, Thomas T and Singh S (2012) Hydrological investigations and water resources management for wildlife sanctuary in central India, International Journal of Hydrology Science and Technology, 2(4), 325-341.

 Thomas T, Jaiswal RK, Ghosh NC, Galkate RV (2012) Impact Assessment Analysis of Conservation Measures for sustainable Development of Degraded Watershed in Bundelkhand Region, International Journal of Water Resources and Environment Management (IJWREM), 3(1), 99-109.

 Krishan G., M.S. Rao, R.K. Jaiswal, B. Kumar, C.P. Kumar (2013) "Southwest (SW) monsoon dynamics study in Indo-Gangatic Plains using isotopic techniques" Journal of Geology and Geosciences, <a href="http://dx.doi.org/10.4172/jgg.1000119">http://dx.doi.org/10.4172/jgg.1000119</a>.

Jaiswal, R.K., T. Thomas, R.V. Galkate, N.C. Ghosh, A.K. Lohani, and Rakesh Kumar (2013)
 "Development of geomorphology based regional Nash model for data scares central India region",
 Water Resources Management, DOI 10.1007/s11269-013-0486-x.

 Jaiswal R.K., T. Thomas, R.V. Galkate, N.C. Ghosh, and S. Singh (2013) "Watershed prioritization using Saaty's AHP based decision support for soil conservation measures", Water Resources Management, DOI 10.1007/s11269-013-0494-x, 2013.

- Jaiswal R.K., T. Thomas, R.V. Galkate, and J. Tyagi (2013) "Soil water retention modeling using pedotransfer functions", ISRN Journal of Civil Engineering, http://dx.doi.org/10.1155/2013/208327, 2013
- Jaiswal R.K., T. Thomas, R.V. Galkate, N. C. Ghosh, and S. Singh (2014) "Reservoir operation & planning using MIKE BASIN in drought affected Bundelkhand region of M.P. (India)" International Journal of Earth Science and Engineering, 07(01): 349-355, 2014.
- Krishan G, MS Rao, B Kumar, CP Kumar, S Kumar, R.K. Jaiswal, Y. R., S. Rao, S. Tripathi, M. Kumar, P. K. Garg and P. Kumar (2014) Monitoring of Southwest Monsoon Using Isotope Analysis of Ground Level Vapour (Glv) in Indian Sub-Continent. J Earth Sci Clim Change 5: 224. doi:10.4172/2157-7617.1000224.
- Jaiswal R. K., H. L. Tiwari, A. K. Lohani (2014). Trend Assessment For Extreme Rainfall Indices in the Upper Mahanadi With Reference To Climate Change, International Journal of Scientific Engineering and Technology, www.ijset.com: 93-99
- Jaiswal R. K., N. C. Ghosh, Poonam Guru and Devakant (2014) "MIKE BASIN Based Decision Support Tool for Water Sharing and Irrigation Management in Rangawan Command of India", Advances in Agriculture, http://dx.doi.org/10.1155/2014/924948.
- T. Thomas, R. K. Jaiswal, P. C. Nayak, N. C. Ghosh (2014) "Comprehensive evaluation of the changing drought characteristics in Bundelkhand region of Central India" Meteorol Atmos Phys, DOI 10.1007/s00703-014-0361-1.
- B. Prasad, R. K. Jaiswal, H. L. Tiwari (2014). Assessment of Environmentally Stressed Areas for Soil Conservation Measures Using USPED Model, International Journal of Engineering Research, www.ijer.in: 58-62
- C. D. Mishra, R. K. Jaiswal, A. K. Nema (2014) Prioritization of a Watershed Based on spatially distributed parameters, International Journal of Engineering Research, www.ijer.in: 70-75
- Jaiswal R. K., N. C. Ghosh, R. V. Galkate, T. Thomas (2015) "Multi Criteria Decision Analysis (MCDA) for watershed Prioritization", Aquatic Procedia. 4: 1553 – 1560.

# Papers Published in National Journals

- Jaiswal, R.K., Thomas, T., Galkate, R.V., and Singh, S. (2008). "Geomorphology Based Rainfall-Runoff Modeling in Small Watershed", Journal of Indian Water Resources Society, 28(2), 20-25.
- Singh, S., Galkate, R. V., Thomas, T. and Jaiswal R. K. "Assessment of water quality and trophic status for utilization of Sagar lake", accepted for publication in the Journal of Indian Water Resources Society, Roorkee.
- Galkate, R.V., Thomas, T., Pandey, R.P. and Singh, S. and Jaiswal, R.K. (2008). "Assessment of Rainwater Availability and Planning for Water Resources Development in Chhindwara District of MP, India", Journal of Indian Water Resources Society, 28(2), 6-14.
- Thomas, T., Jaiswal, R.K., Galkate, R.V. and Bhar, A.K. (2008). "Development of a Monthly Rainfall-Runoff Model for Wainganga River Basin in Madhya Pradesh", Journal of Applied Hydrology, Visakhapattnam.
- Galkate, R.V., Thomas, T., Pandey, R.P. and Singh, S. and Jaiswal, R.K. (2008). "Assessment of Rainwater Availability and Planning for Water Resources Development in Chhindwara District of MP, India", Journal of Indian Water Resources Society, 28(2), 6-14.
- Singh, S., Galkate, R. V., Thomas, T. and Jaiswal R. K. (2008) "Assessment of water quality and trophic status for utilization of Sagar lake", Journal of Indian Water Resources Society, 28(1), 29-35.
- Jaiswal, R.K., Thomas, T., Galkate, R.V., and Singh, S. (2008). "Geomorphology Based Rainfall-Runoff Modeling in Small Watershed", Journal of Indian Water Resources Society, 28(2), 20-25.
- Thomas, T., Jaiswal, R.K., Galkate, R.V. and Singh, S. (2009). "Artificial Neural Network Based Modeling of Stream Flows for Sindh Basin in Madhya Pradesh", Journal of Indian Water Resources Society, Vol. 29 (1), 8-16.
- Thomas, T., Jaiswal, R.K., Galkate, R. and Singh, S. (2009). "Estimation of Revised Capacity in Shetrunji Reservoir using Remote Sensing & GIS", Journal of Indian Water Resources Society, Roorkee.
- Thomas, T., Jaiswal, R.K., Galkate, R.V. and Singh, S. (2009). "Artificial Neural Network Based Modeling of Stream Flows for Sindh Basin in Madhya Pradesh", *Journal of Indian Water Resources Society*, Vol. 29 (1), 8-16.
- Thomas, T., Jaiswal, R.K., Singh, S., and Bhar, A.K. (2010), "Trend Identification and Stochastic Modelling of Groundwater Levels in Sagar District of Madhya Pradesh", The Journal of Indian Association of Hydrologists, 32(3-4), 306-313.

- Jaiswal, R.K., Thomas, T., Galkate, R.V. and Ghosh, N.C. (2011), Geomorphology Based Nash Model for Watersheds in Sonar River Basin (M.P.)", Journal of Indian Water Resources Society, Vol. 31, No. 3-4, 1-7.
- Jaiswal R.K., T. Thomas, R.V. Galkate, N.C. Ghosh, and S. Singh (2014) "Catchment area treatment (CAT) plan and crop area optimization for integrated management in a water resource project", J of Institution of Engineers, DOI 10.1007/s40030-014-0052
- Poona Guru, R. K. Jaiswal, Devakant, K. L. Mishra (2014). Reservoir Operation and Irrigation Managementusing MIKE BASIN Model for Rangawan Reservoir, Journal of Indian Water Resources Society, 34(4): 1-8.

# Papers published in International Conferences/Seminars/Symposium:

- Jaiswal, R. K., Thomas, T., Nayak, T. R., and Bhar, A. K. (2005). "Application of Remote Sensing and GIS for Groundwater Potential Area Mapping", Proc. of the 25<sup>th</sup> International Cartographic Congress on Bridging the Digital Divide and Taking Cartography to Grass Root Level", Dr. Hari Singh Gaur University, Sagar, Nov. 28 to Dec. 01, 2005.
- Thomas, T., Jaiswal, R. K., and Bhar, A. K. (2005). "Estimation of SCS-CN for Runoff Prediction of a Watershed Using Remote Sensing Techniques", Proc. of the 25th International Cartographic Congress on Bridging the Digital Divide and Taking Cartography to Grass Root Level', Dr. Hari Singh Gaur University, Sagar, Nov. 28 to Dec. 01, 2005.
- Thomas, T., Jaiswal R. K. and Singh, S. (2006). "Hydrologic Modelling of Stream flows using Artificial Neural Networks", published in the International Conference on Hydrology and Watershed Management, Dec 05-08, 2006, Centre for Water Resources, JNTU, Hyderabad.
- Nayak, T.R & Jaiswal, R. K. (2006). "Sedimentation Assessment in Tawa Reservoir using RS & GIS Technique", International Symposium on Geospatial Data for Sustainable Development, Goa, Sept 27-30, 2006.
- Thomas, T., Jaiswal R. K. and Singh, S. (2006). "Hydrologic Modelling of Stream flows using Artificial Neural Networks", published in the International Conference on Hydrology and Watershed Management, Dec 05-08, 2006, Centre for Water Resources, JNTU, Hyderabad.
- Jaiswal R. K., Thomas, T., Singh, S., and Galkate, R. V. (2006). "Preparation of Management Plan to control Soil Erosion in a Watershed", published in the proceedings of the National Conference on Application of Remote Sensing and GIS in Resource Management, Bundelkhand University, Jhansi Feb 25-26, 2006.
- Jaiswal, R.K., Thomas, T., Galkate, R.V., Singh, S. and Ghosh, N.C. (2009). "Surface and Groundwater Resources Development in Basaltic Region of Madhya Pradesh (India) - A case study of Tumri Watershed", FSES 2009 at IIT Kharagpur during December 17-19, 2009.
- Thomas, T., Jaiswal, R.K., Galkate, R.V., Singh, S. and Ghosh, N.C. (2009). "A Comprehensive Watershed Management Plan for a Degraded Watershed in Bundelkhand Region of M.P., India", International Conference on Water, Environment, Energy and Society (WEES-2009), New Delhi (India), Jan 12-16, 2009, 1872-1880.
- Galkate, R.V., Thomas T., Jaiswal, R.K., Singh, S. and Ghosh, N.C. (2009). "Water Resources Management Plan for Naoradehi Wildlife Sanctuary", FSES 2009 at IIT Kharagpur during December 17-19, 2009.
- Jaiswal, R.K., Galkate, R.V., Thomas, T., Ghosh, N.C. and Singh, S. (2010). "Remote sensing & GIS based assessment of revised capacities in reservoirs of central India", 3rd International Conference on Hydrology and Watershed Management with Focal Theme on Climate Change – water food and environmental security (ICHWAM), 3-6 February, 2010, JNTU, Hyderabad.
- Thomas, T., Jaiswal, R.K., Galkate, R.V., Ghosh, N.C. and Singh, S. (2010). "Modelling of runoff and soil erosion processes in a degraded watershed for the development of watershed management plan", 3rd International Conference on Hydrology and Watershed Management with Focal Theme on Climate Change – water food and environmental security (ICHWAM), 3-6 February, 2010, JNTU, Hyderabad.
- Galkate R.V., Thomas, T., Pandey, R.P., Singh, S. and Jaiswal, R.K. (2010). Drought study in Chhindwara district of Madhya Pradesh, India", 3rd International Conference on Hydrology and Watershed Management with Focal Theme on Climate Change – water food and environmental security (ICHWAM), 3-6 February, 2010, JNTU, Hyderabad.

- Thomas, T., Galkate, R.V., and Jaiswal, R. K. (2010). "Daily Runoff Simulation for Sonar and Bearma Basins of Ken River System", International Workshop on River Management (IWRM), Dec 14-16, 2010, New Delhi, pp. 253-264.
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- Galkate, R. V., Pandey, R. P., Thomas, T., Jaiswal, R. K. (2010). "Identification of Meteorological and Hydrological Droughts in Central India", 14th National Symposium on Hydrology, 21-22 December, 2010, Jaipur. (Abstract Published).
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# List of Reports for National Institute of Hydrology, Roorkee

S.N	TITLE OF REPORT	No.
	Erosion, Sedimentation and Flooding in River Kosi	SR-26
2.	Evaluation of Precipitation Gauge Density in Punpun Catchment of Ganga River system	TR-180
3.	Sedimentation Problems in Massanjore Reservoir of Mayurakshi River System, West Bengal	CS/AR-151
4.	Geomorphological Characteristics of Punpun Basin of Ganga River System	CS/AR-152
5.	Status of Ground Water Quality in Patna Town	CS/AR-187
6.	Establishment of SCS Runoff Curve Number for Batane Sub Basin of Punpun Basin using IRS-IA LISS II Data Base	CS/AR-190
7.	Delineation of Flooded Area in Mayurakshi Basin using Remote Sensing and Conventional Technique	CS/AR-191
8.	Water logging and Drainage Congestion Problem in Mokama Tal Area, Bihar	CS/AR-194
9.	Waterlogged Area Mapping and Hydrological Data Analysis of Mokama Tal Area	CS/AR-13/96-97
10.	Determination of SCS Runoff Curve Number and Land use Change for Hamidnagar Sub basin of Punpun Basin	CS/AR-14/96-97
IL.	Estimation of Runoff from Bewas Basin using SCS Curve Number Model	CS/AR-9/97-98
12.	Rainfall Runoff Modelling for Water Availability Studies in Ken River Basin using SCS-CN model and Remote Sensing Approach	CS/AR-13/97-98
13.	Study of Sedimentation in Bila Reservoir Using Remote Sensing Technique	Completed
14.	Assessment of Sedimentation in Ghatprabha, Gendhi Sagar, Vaigai, Tandula and Lingnamakki Reservoirs Using Digital Image Processing Techniques	CS/AR-1/2002-03
15.	Flood Frequency Modelling of River Parvati in M.P.	Completed
16.	Regional Evaluation of Hydrological Properties of Soil in Sagar District	Completed
17.	Water Budgeting in the Barrages in river Shipra for Simhasta-2004- Funded by Mela Authority, Ujjain	Completed
18.	Erosion Modeling of Bila Reservoir Catchment using USLE and GIS	Completed
19.	Hydrological Modeling of Stream flows in Wainganga Basin in Madhya Pradesh	Completed
20.	Stream flow Forecasting in Sindh River Basin Using Artificial Neural Network	Completed
21.	Assessment of Sedimentation in Ramganga, Rihand, Tungbhadra, Barna and Somsila Reservoirs using Digital Image Processing Techniques	CS/AR-2/2003-04
22.	Development of GIUH for Small Catchments in Sagar District	Completed
23.	Assessment of Sedimentation in Matatila, Tawa, Lower Manair and Nagarjunasagar Reservoirs Using Digital Image Processing Techniques	CS/AR-1/2004-05
24.	Assessment of Sedimentation in Ravishankar Sagar Reservoir Using Digital Image Processing Techniques	Completed
25.	Integrated Water Resources Management Plan for Sustainable Development Plan of Nauradehi Wild Life Sanctuary	Completed
26.	Water Quality Management Plan for Rejuvenation of Sagar Lake	CS/AR-3/2007-08
26.	A Comprehensive Watershed Management Plan for a Degraded Watershed in Bundelkhand Region	CS/AR-1/2008-09
27.	Assessment of Reservoir Sedimentation in Shetrunji Reservoir using Remote Sensing and GIS	Completed
30.	Identification of Suitable Sites for Water Storage Structures in Rehli and Garhakota Tehsils in Sagar District – Funded by District Administration, Sagar	Completed
31.	Integrated Water Resources Management for Catchment and Command of Benisagar and Rangawan Reservoirs in Madhya Pradesh	Completed
32.	World Bank Funded Purpose Driven Study- Study of Reservoir Sediment, Impact Assessment and Development of Catchment Area Treatment Plan for Kodar Reservoir in Chhattisgarh State	Submitted
33.	World Bank Funded Purpose Driven Study -Water Availability Study and Supply-Demand Analysis in Kharun Sub-basin of Seonath Basin in Chhattisgarh State	Submitted