

## Dr. Mahesh Kumar Jat

Associate Professor

Deptt. of Civil Engineering

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### PROFESSIONAL QUALIFICATION

Education		
Degree	Year of passing	Division of marks
B.E (Civil)	1997	77.6 % (Hons.)
M.E. (Water Resources)	2000	76 % (Hons.)
Ph.D	IIT Roorkee  <b>Topic “Integrated Water Management Modelling in an Urban Fringe Using Remote Sensing and GIS”</b>	

### SUMMARY OF TEACHING/ INDUSTRY EXPERIENCE

S. No.	Employer	Post held	Pay scale (Rs.)	Period of employment	
				From	To
1	Gautam Buddha University	Associate Professor	37400-67000	25-03-2010	Continue
1	M. N. I. T. Jaipur	Reader	12000-18300/-	02-03-2008	24-03-2010
1	M. N. I. T. Jaipur	Sr. Lecturer	10000 – 15200/-	3-10-2006	2-03-2008
2	M. N. I. T. Jaipur	Lecturer	8000 – 13500/-	6-3-1999	3-10-2006
3	Chief Engineer, PHED, Govt. of Rajasthan	Jr. Engineer	6500 – 10500/-	28-5-1998	5-3-1999
4	Chief Engineer, R.S.E.B., Govt. of Rajasthan	Jr. Engineer	6500 – 10500/-	18-12-1997	27-5-1998

## RESEARCH AREA

Water Management Modelling, Climate Change, Hydrological Modelling, Remote Sensing and GIS Applications

## PUBLICATIONS

### Paper Published in Refereed Journals

1. **Jat, Mahesh K.**, Khare, D., and Garg, P. K., (2010), Integrated conjunctive use modeling of water resources for water deficient urban areas, Journal of Hydrology, Elsevier Sciences Ltd. **(Under Review)**
2. **Jat, Mahesh K.**, Khare, D., and Garg, P. K., (2010), Discrimination of Spectrally Overlapping Land Use / Land Cover Classes in an Urban Fringe, International Journal of GIScience and Remote Sensing, Taylor and Francis. **(Under Review)**
3. Santosh Pingale, Deepak Khare, H. C. Sharma & **Mahesh K Jat** (2009) “Design of Water Harvesting Structure based on Supply and Demand of Water in a Hillily Watershed”. Journal of Environmental Research and Development, Vol. 3, No. 3, 645 - 653.
4. **Jat, Mahesh Kumar**, Khare, D., and Garg, P. K., (2009), Degradation of watershed health due to urbanisation: a remote sensing and GIS based assessment, Urban Water Journal, Volume 6, Issue 3, 251-263.
5. **Jat, Mahesh K.**, Khare, D., and Garg, P. K., (2009), Urbanisation and its impact on groundwater: A remote sensing and GIS based assessment approach, The Environmentalist, Volume 29, Issue 1, 17-32.
6. **Jat, Mahesh K.**, Garg, P. K., and Khare, D., (2008), Monitoring and Modelling of Urban sprawl Using Remote Sensing and GIS Techniques, International Journal of Applied Earth Observation and Geoinformation, 10, 26-43. Elsevier Sciences Ltd.
7. **Jat, Mahesh Kumar**, Garg, P. K., and Khare, D., (2007), Modelling of urban growth using spatial analysis techniques: A case study of Amritsar city (India), International Journal of Remote Sensing, Taylor and Francis Ltd, 29: 2, 543-567 (2007).

8. **Jat, Mahesh K.**, Khare, D., and Garg, P. K., (2007), Classification of Spectrally Mixing Land Use Classes: A Case Study of an Urban Fringe, International Journal of Applied Remote Sensing, Spectrum Sciences Inc., Vol. 1, No. 1, 29-43.
9. Khare, D., **Jat, Mahesh Kumar**, and Devasunder, J. K., (2007), Assessment of water resources allocation options: conjunctive use planning in a link canal command, Resource Conservation and Recycling, Elsevier Sciences Ltd., 51 (2007), 487-506.
10. Khare, D., **Jat, Mahesh Kumar**, and Ediwahyunan, (2006), Assessment of conjunctive use planning options: a case study of Sapon irrigation command area of Indonesia, Journal of Hydrology, Elsevier Sciences Ltd, 328, 764-777.
11. Pareek, N., Jat, M. K., and Jain, S. K., (2006), Utilization of Brackish water, protect the quality of upper fresh water layer in Coastal areas, The Environmentalist, Springer Verlag, Environmentalist (2006) 26:237–246.
12. Dhore K. A., Khare D., Garg P. K., Jat M. K. (2006), Conceptual Framework of Decision Support System for Watershed Management in India. Earth & Life, An International Web Based Journal of Geosciences (<http://www.geofinds.com>), Vol. 1, No. 4, 1-17, (2006-12-4).
13. Jat, Mahesh K., Khare, D., and Garg, P. K., (2009), Cost Models/Functions for Waste Water Treatment, Journal of Indian Water Works Association (IWWA). (Accepted)
14. Jat, Mahesh K., Khare, D., and Garg, P. K., (2008), Cost Models/Functions for Water Treatment, Journal of Indian Water Works Association (IWWA), January-March, 2008.
15. Khare, D., Garg, P. K., Jat, Mahesh Kumar and Dhore K., (2007), Selection of Optimum Canal Alignment Using GIS: River Interlinking Perspective, Indian Journal Power and River Valley Development, March-April, 112-121.
16. Jat, Mahesh K., Khare, D., and Garg, P. K., (2006), Assessment of groundwater recharge using water level fluctuation methodology in GIS environment, Indian Journal of Power and Valley Development, Vol. 56, No. 5&6, 165-172.
17. Jat, M. K., Khare, D., and Garg, P. K., (2005), Integrated water management in urban areas: Ecological and economic advantages, Journal of Indian Building Congress, Vol. 12, No 1, 186-193, July 2005.
18. Durbude, D. G., Jat, Mahesh Kumar, Shrivankumar, G., and Singh, R. K., (2005), Application of remote sensing and GIS for the planning of water harvesting structures, Indian Journal of Power and Valley Development, Vol. 55, No. 6, 165-174, June 2005.

19. Jat, M. K., Kumar, S., and Poonia, M. P., (2000), Co<sub>2</sub>, Methane, So<sub>2</sub> Reduction Through Bio-gas Generation, National J. of Environmental sciences, NEERI, 2001, V ol. 42, N o. 3, 117 - 120, July 2000.

#### **Paper Published in International/ National Conferences**

1. Santosh M Pingale, **Mahesh K Jat** and Deepak Khare "Assessment of Climate Change for an Arid Region", National Conference on "Sustainable Water Resources Management and Impact of Climate C hange", BITS-Pilani, H yderabad C ampus, March 5-6, **2010**, pp44-60
2. Santosh M P ingale, **Mahesh K Jat** and Deepak K hare (2009) "Perspective of Urban Water Demand Management in Changing Climate" *Proceeding of Seminar on Integrated Water Resources Management: Demand Assessment and Management organized by Water Resource Department, Bureau of Indian Standard (BIS), New Delhi*, March 20, 2009, pp16-26.
3. Santosh P ingale, D eepak K hare, H .C. S harma & **Mahesh K Jat** (2008) "Design of Water H arvesting S tructure ba sed on S upply a nd D emand of W ater i n a H illy Watershed". *Proceeding of International Conference on Environmental Research–2008 held at Goa* during 18-20 Dec, pp 948 (also presented).
4. Santosh P ingale, H.C. Sharma, D eepak K hare, **Mahesh K Jat** and H arish C handra (2008). "Land a nd W ater R esources M anagement U sing R emote S ensing and G IS–A Case S tudy of H illy W atershed". *Proceeding of National Conference on Sustainable Water Resources Development and Management–2008 held at Aurangabad* during 13-14 June, pp 142-149 (presented and published).
5. Santosh P ingale, **Mahesh Kumar Jat**, D eepak K hare (2008). "Integration of G IS i n Environmental M odelling a nd Hydrological Analysis: A R eview of Integration Technologies". *Proceeding of National Conference on Infrastructure planning in Civil Engineering at NIT Hamirpur* during 16-17 June, pp 289-298 (presented and published).
6. Jat, Mahesh Kumar, Khare, D. and Garg, P. K., (2008), Integrated water management in an urban area: A case study, In Proceedings of National Conference on "Infrastructure

Development in Civil Engineering (IDCE-2008)”, Department of Civil Engineering, NIT Hamirpur, 235-246.

7. Pingle, Santosh, Jat, Mahesh Kumar and Khare, D., (2008), Integration of GIS in Environmental modelling and hydrological analysis: A review of information technologies, In Proceedings of National Conference on “Infrastructure Development in Civil Engineering (IDCE-2008)”, Department of Civil Engineering, NIT Hamirpur, 289-297.
8. Khare, D., and Garg, P. K., **Jat, Mahesh K.**, (2007), Impact of Urbanisation on Watershed Hydrology and Hydrogeology, In Proceedings of ASABE Forth Conference on Watershed Management to Meet Water Quality Standards and TMDLS Issues: Solutions and Impediments to Watershed Management and TMDLS, 19-23, held at Crowne Plaza Riverwalk, San Antonio, Texas (USA).
9. **Jat, Mahesh K.**, Khare, D., and Garg, P. K., (2006), Urbanisation and Geomorphological Changes: A Study of Urbanized Watersheds Using Spatial Technology, In: Proceedings of International Conference on Hydrology and Watershed Management (ICHWAM-2006), Centre for Water Resources, Institute of Science & Technology, JNTU, Hyderabad.
10. Khare, D., **Jat, Mahesh K.**, and Garg, P. K., (2006), Impact of Impervious Surfaces on Watershed Hydrology and Hydro-geology: A Case Study of Ajmer (India), In: Proceedings of International Conference on Hydrology and Watershed Management (ICHWAM-2006), Centre for Water Resources, Institute of Science & Technology, JNTU, Hyderabad.
11. Khare, D., Jha, A., **Jat, Mahesh K.**, and Dhore, K., (2006), Runoff Estimation in an Ungauged Watershed Using Geographic Information System, In: Proceedings of International Conference on Hydrology and Watershed Management (ICHWAM-2006), Centre for Water Resources, Institute of Science & Technology, JNTU, Hyderabad.
12. Gupta, S. K., **Jat, M. K.**, Garg, P. K. and Singh, Ranvir, (2006), Urban growth change detection through remote sensing and GIS techniques, ICORG-2006, Geoinformatics for Rural Development –Achieving synergy between technical and social systems” June 5-8, 2006, HYDERABAD 500072, India.

13. **Jat, M. K.**, Garg, P. K., and Khare, D., (2006), Impact assessment of urban growth on groundwater quantity and quality using Remote Sensing and GIS: A case study of Ajmer (India) urban area, ICORG-2006, Geoinformatics for Rural Development –Achieving synergy between technical and social systems” June 5-8, 2006, HYDERABAD 500072, India
14. **Jat, M. K.**, Garg, P. K., and Khare, D., (2006), Assessment of urban growth pattern using spatial analysis techniques, In Proceedings of Indo-Australian Conference on Information Technology in Civil Engineering (IAC-ITCE), 20-21 February, 2006, page 70.
15. Devasunder, J. K., **Jat, M. K.** and Khare, Deepak (2005), Assessment of conjunctive use options in a proposed link canal command, Proceedings of International Symposium on Recent Advances in Water Resources Development & Management (RAWRDM-2005), 23-25 November 2005, Indian Institute of Technology Roorkee, Roorkee(India), 170 - 187.
16. Sharma, R., Choudhary, M., **Jat, M. K.**, and Kumar, Sudhir, (2003), Assessment of groundwater pollution through GIS, Proceedings of International Symposium on Water Resources Planning and Management (ISWRPM-2003), 11-12 October, BITS, Pilani (India), 196-201.
17. **Jat, M. K.**, Sharma, Gunwant (2002). Remote sensing and GIS applications in Hydrology, Proceedings, National Conference on, New Trends in Civil Engineering, MBM Engineering College, Jodhpur, Rajasthan, India, February 2002, 323-326.
18. **Jat, M. K.**, Jain, A. K., (2002). Cogeneration: Energy from Waste, Proceedings, International Conference on Techno-Commercial aspects of decentralized Approach in Waste to Energy, March 1 – 3, 2002, Malaviya National institute of Technology, Jaipur.

## Journal Papers Reviewed

1. Marvin Bennett and Kenneth Tobin, (2006), Estimating Spatially Distributed Potential Groundwater Recharge with Geographic Information Systems, Hydrogeology Journal, Springer Verlag, Manuscript Number HJ-206-0396.

2. Wang, Hangsui and Yanyan Dang, (2007), Water right institution and strategies of the Yellow River Basin, Water Resources Management, Springer Verlag, Manuscript Number 20060612.
3. Devesh Pandey, S. N. Panda and N. S. Raghuvanshi (2008), Management of surplus canal water supply: An Application of Simulation Model in an Irrigation District of Chhattisgarh State (India), Springer Verlag, Manuscript Number: WARM553

### **INVITED LECTURES DELIVERED**

1. A series of lectures delivered in training programmes organized for Engineers of Uttarakhand Jal Nigam organized by Water Resources Development and Management Department, IIT Roorkee during June 2009 to January 2010.
2. Two lectures delivered in ISTE sponsored Training programme on Water management at Jaipur Engineering College Kukas, held in March 2009.
3. One lecture delivered in AICTE sponsored QIP course on Application of High Resolution satellite Images, organized by the Civil Engineering Department, IIT Roorkee on 22-06-2009.
4. One lecture delivered at IGPRS Jaipur on “Water Conservation through Watershed Intervention Works” in a Ministry of Rural Development (GOI) sponsored Training Programme for watershed development engineers (TOT) organized by IGPRS on 07-09-2009.

### **DETAILS OF SPONSORED RESEARCH**

S. No.	Title of Project	Completed/ In progress	Duration	Amount/ Grant (Rs.)	Sponsoring Agency	Co-Investigator
1	GIS based Distributed Groundwater Modelling	Submitted	2 Year	15 Lac	DST	Mahender Choudhary
2	Climate change & Urbanization :	Approved	3 Year	58.00 lakh	AICTE NCP	Dr. Deepak Khare, IIT

	Problems and Solution Strategies					Roorkee
3	Water management plan for Jawaharlal Navodaya Vidyalaya Paota	In Progress	2 Year	6.90 Lac	DST	Mahender Choudhary

## DETAILS OF CONSULTANCY PROJECTS

S. No.	Title of Project	Completed/ In progress	Duration	Amount/ Grant (Rs.)	Sponsoring Agency	Co-Investigator
1	GIS based Distributed Groundwater Modelling	Submitted	2 Year	15 Lac	DST	Mahender Choudhary
2	Climate change & Urbanization :  Problems and Solution Strategies	Submitted	3 Year	58.00 lakh	AICTE NCP	Dr. Deepak Khare, IIT Roorkee
3	Water management plan for Jawaharlal Navodaya Vidyalaya Paota	In Progress	2 Year	6.90 Lac	DST	Mahender Choudhary
4	Checking of Drainage System Design for Sikar	Completed	1 month	200,000.0	MCD, Sikar	Prof. Gunwant Sharma & Prof. Y. P. Mathur
5	Environmental Assessment & Monitoring of DPIP Project	Completed	4 years	40 Lac	DPIP, Govt. of Rajasthan	Department
6	Checking of the detailed project reports of Pradhanmantri Gramin Sadak Yojana (PMGSY)	Completed	Since 2003	24 Lakh	Ministry of Surface Transport, Govt. of India	Department
7	Third party quality inspection of water supply and drainage projects	Completed	2003-04	18 Lakh	RUIDP, Govt. of Rajasthan	Department
8	Hydraulic and surge analysis of water supply rising main of Sawainadhpor City	Completed	2009	2.40 lakh	PHED Rajasthan	Individual

9	Planning and Design of Drainage System for Mahal Road and surroundings in Jagatpura, Jaipur	In progress	2009	2.71 lakh	JDA,	Individual
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#### PH.D DISSERTATIONS GUIDED

S. No.	Name of Student	Title of Thesis	Year	Co-Guide
1	Santosh Pingle	Climate Change And Its Impact On Urban Hydrology	In Progress	Dr. Deepak Khare (IITR)
2	M. N. Pande	Rainfall-runoff Modelling in Urbanised Catchments	In Progress	-
3	Rohitashv Kumar	Optimum Irrigation Scheduling	In Progress	Dr. Vijay Shankar (NITH)
4	Gargi Sharma	Optimum Integration of water Demand Management and Supply Management Options	In Progress	Dr. Urmila Brighu

#### M. E./ M. Tech. DISSERTATIONS GUIDED

S. No.	Name of Student	Title of Thesis	Year	Co-Guide
1	Yaduveer Singh	A study of Rainfall Runoff Relationship for the Isarda Sub-watershed of Banas River.	2002	Dr. Gunwant Sharma
2	Ruchika Sharma	Analysis and mapping of ground water pollution from textile industries in Sanganer Town ( Jaipur) through a application of Geographical Information System.	2003	Dr. Sudhir Kumar
3	Naresh Kumar	Water balance study of the Ramgarh catchment area using GIS technique.	2003	-
4	Kamlesh Kumar	Mapping and analysis of vehicular pollution in Central Jaipur through a application of	2004	Sh. Pawan Kalla

		Geographical Information System.		
5	Vaibhav Garg	Rainfall-runoff modeling using GIS and ANN Techniques.	2004	-
6	Vishnu Kumar Tulara	A GIS based comparative study of groundwater quality and geomorphology.	2004	Dr. Sudhir Kumar
7	Miss Nidhi Poonia	Characterization and Treatment of Grey Water for Recycling	2009	

### **SHORT TERM COURSES CONDUCTED**

1. A two week AICTE sponsored summer school is organized for faculty members of Engineering Institutes on “Soft Computing Skills in Engineering” held from 11<sup>th</sup> December 2008 to 24<sup>th</sup> December 2008.
2. A two week AICTE sponsored summer school is organized for faculty members of Engineering Institutes on “Management and Mitigation of Natural Disasters” held from 14<sup>th</sup> July 2008 to 26<sup>th</sup> July 2008.
3. A TEQIP sponsored Short term course on “Urban Water Management” was organized during 12<sup>th</sup> October – 16<sup>th</sup> October 2007, at MNIT Jaipur
4. A TEQIP sponsored Short term course on “Computational Methods in Engineering” was organized during 16<sup>th</sup> October – 20<sup>th</sup> October 2007, at MNIT Jaipur

### **WORKSHOPS ORGANISED**

1. A Two day training program was organized for Rajasthan Housing Board Engineers on “Multistoried residential apartments” from 8<sup>th</sup> December – 9<sup>th</sup> December 2007, at MNIT Jaipur.
2. A two day workshop was organized on “Quality Assurance in Civil Engineering Projects”, 5<sup>th</sup> November to 6<sup>th</sup> November 2007, MNIT Jaipur
3. One day workshop on “Rural Technology Transfer and Demonstration” was organized on 27-10-2007 for CAPART.

**SHORT TERM/ REFRESHER COURSES ATTENDED**

S. No.	Short Term Course Title	Duration	Duration (Weeks)	Institute
1	Advance Applications of SCS-CN Technique	30-10-2006 to 03-11-2006	01	IIT Roorkee
2	Geomatics Engineering – Principles and Applications	26-6-2005 to 14-01-2006	03	IIT Roorkee
3	Remote Sensing and GIS Applications with Special Emphasis to Infrastructure Planning	06-6-2005 to 10-6-2005	01	IIT Roorkee
4	Groundwater Modelling	21-2-2005 to 25-2-2005	01	IIT Roorkee
5	Application of FEM for Structural Analysis	21-6-2004 to 25-6-2004	01	M.N.I.T Jaipur
6	Earthquake resistant Design and Retrofitting of Reinforced Concrete Buildings	30-6-02 to 12-7-02	2	I. I. T. Roorkee
7	Remote Sensing, GIS and its Applications	3-12-01 to 22-12-01	3	R. R. S. S. C (ISRO) Jodhpur
8	Remote Sensing and GIS Applications to Water Resources	4-6-01 to 27-7-01	8	I. I. R. S (NRSA - ISRO) Dehradun
9	Recent Trends in IC Engines, Alternate Fuels & Pollution Control	20-12-99 to 1-1-2000	2	M. R. E. C. Jaipur
10	Ground Water Exploration: Quantitative & Qualitative Aspects	25-10-99 to 6-11-99	2	M. R. E. C. Jaipur
11	Integrated Environmental Management: Sustainable Development	21-6-99 to 3-7-99	2	M. R. E. C. Jaipur

## **AWARDS & SCHOLARSHIPS**

1. QIP Fellowship for Ph.D
2. Merit Scholarship during BE

## **FOREIGN ACADEMIC VISITS**

1. Visited UNESCO-IHE Delft, The Netherlands to participate in a two week programme on “Climate Change and Integrated Water Management” during 8<sup>th</sup> September 2008 to 20<sup>th</sup> September 2008.
2. Visited Greenwich University, Greenwich, London, UK for Academic interaction and to explore academic collaborations during March 2009.

## **MEMBERSHIP OF INTERNATIONAL/NATIONAL SOCIETIES**

1. Indian Society for Technical Education (ISTE): LM 61284
2. Member of American Society for Civil Engineers (ASCE) since 2006: Identification No. 465229
3. Life Member of Indian Society of Remote Sensing (ISRS).  
Membership No.: L 1705
4. Life Member of Indian Water Resources Society (IWRS).  
Membership No.: LM-88-1760
5. Life Member of the Indian Association of Hydrologists (IAH).  
Membership No.: LM-1380
6. Life Member of Indian Society for Construction Materials and Structures.  
Membership No.: LM-665
7. Life Member of Indian Society for Wind Engineering.  
Membership No.: LM-356
8. The Indian Society for Technical Education  
Membership No.: LM-61284