



## **CURRICULUM VITAE of Prof. Z. Ahmad**

(as on May 25, 2019)

Dean, Infrastructure &  
Professor of Civil Engineering  
IIT Roorkee

1. **Name** : ZULFEQUAR AHMAD

2. ***Date of birth*** : 22-02-1970

3. ***Address***

***Official***

Dept. of Civil Eng.,  
Indian Inst. of Technology  
Roorkee, Roorkee (UK)  
Ph.; 01332-285423  
+919012223458  
Fax: 01332-275568,273560  
email:zulfifce@iitr.ac.in  
zulfifce@gmail.com

***Residential***

149 Vikas nagar  
Indian Inst. of Technology Roorkee,  
Roorkee (UK)  
Ph.: 01332-285469  
# C/o Noor Alam  
Goplamanth, P. Bhagwanpur  
Gopalganj (BIHAR)  
Ph.: 09939667703

4. **Details of Employments**

<b><i>Post held</i></b>	<b><i>Employer</i></b>	<b><i>Period of Employment</i></b>
<i>Professor</i>	Indian Inst. of Technology Roorkee Roorkee-247667	Oct. 23, 2012 to till-date
<i>Assoc. Professor</i>	Indian Inst. of Technology Roorkee Roorkee-247667	Feb. 06, 2007 to Oct. 22, 2012
<i>Visiting Asst. Professor</i>	Asian Institute of Technology Bangkok, Thailand	Aug. 6, 2005 to Nov. 26, 2005
<i>Asst. Professor</i>	Indian Inst. of Technology Roorkee Roorkee-247667	Dec. 14, 2001 to Feb. 05, 2007
<i>Asst. Professor</i>	Thapar Inst. of Eng. & Tech., Patiala (Punjab)	May 19, 1999 to Dec. 13, 2001
<i>Lecturer</i>	Thapar Inst. of Eng. & Tech., Patiala (Punjab)	July 31, 1995 to May 18, 1999
<i>Senior research fellow</i>	University of Roorkee, Roorkee.	August 1993 to July 1995

#### **5. Academic Qualifications**

<b><i>Degree/Certificate</i></b>	<b><i>Discipline</i></b>	<b><i>University/Institute</i></b>	<b><i>Year</i></b>
High School	---	Bihar Board	1985
(10+2)	PCM	A.M.U., Aligarh	1987
B.E. (Civil)	Civil Engineering	A.M.U., Aligarh	1991
M.E. (Civil)	Hydraulic Engg.	University of Roorkee	1993
Ph.D. *	Hydraulic Engg.	T.I.E.T., Patiala.	1998

\* Topic: Longitudinal dispersion of conservative pollutants in open channels.

#### **6. Field of specialization**

: Hydraulic Engineering

(Fluvial and Channel Hydraulics, ,  
Hydraulic structures, River  
Engineering, computational  
hydraulics, Hydropower  
Engineering)

## 7. Membership of Professional Institutions

- a) All India Council of Technical Education. (LM-25512)
- b) International Association for Hydraulic Research, The Netherlands. (I-1881)
- c) Indian Society for Hydraulics. (LM- 363)
- d) Indian water Resources Society. (LM-05-6698)
- e) Fellow of The Institution of Engineers (India). (F-117481-5) Reg. No. 120200405140

## 8. Awards/Recognitions

- a) **G M Nawathe Puraskar** by Indian Society for Hydraulics, for best paper in HYDRO 2015 conference held at IIT Roorkee, Dec. 17-19, 2015.
- b) **Outstanding Teacher Award 2015, IIT Roorkee**
- c) **2011 Outstanding Reviewer** for the ASCE Journal of Pipeline Systems, Engineering and Practice.
- d) **G M Nawathe Puraskar** by Indian Society for Hydraulics, for best paper in HYDRO 2008 conference held at MNIT, Jaipur, Dec. 15-16, 2008.
- e) **DAAD Fellowship** for period Nov.1, 2007 to Dec. 31, 2007 at University of Stuttgart, Germany
- f) **Visiting Faculty at Asian Institute of Technology Bangkok** – under faculty secondment program of MHRD, New Delhi, visited AIT Bangkok for four months (i.e., Aug. 6 to Nov. 26, 2005) for the development of courses on hydropower engineering.
- g) **JAL VIGYAN PURASKAR** by Indian Society for Hydraulics, for best paper published in ISH Journal of Hydraulic Eng. during **year 1999**.
- h) **JAL VIGYAN PURASKAR** by Indian Society for Hydraulics, for best paper published in ISH Journal of Hydraulic Eng. during **year 2001**.
- i) **THE MINISTRY OF WATER RESOURCES-DEPARTMENT OF IRRIGATION MEDAL** by The Institution of Engineers (India), for best paper published in Institution journal in **year 2002**.
- j) **WHO'S WHO IN THE WORLD** – Name appeared in Marquis Who's Who in the World edition **2005**.

- k) **Member of the International Program committee (IPC)** for the International Association of Science and Technology for Development (IASTED) Conference.
- l) **Secretary of Indian Water Resources Society (IWRS)** for year 2006-09 by executive committee of IWRS.
- m) **Reviewers** of a number of national and international journals like ASCE, ISH, IWRS, Elsevier, IE etc.
- n) **Member of Editorial Board of Indian Water Resources**, , India, during 2006-09.

## 9. Teaching Experience

Since 1995 at undergraduate and post-graduate levels in the following subjects: Fluid Mechanics, Hydrology and Groundwater, Irrigation Engineering, Water Resources planning and Management, Advanced Fluid Mechanics, Numerical and Analytical Techniques, Hydropower Engineering; Construction Planning and Managements; Free surface flow; and Hydraulic structures.

## 10. Reviewer of Journal Papers

- Journal of Institution of Engineers, India.
- Journal of Irrigation and Drainage, ASCE, USA
- Journal of Hydraulic Engineering, ASCE, USA
- Journal of Engineering & Material Science, NICAIR, India
- Flow Measurement and Instrumentation Journal, Elsevier, Cambridge, UK
- Journal of Hydraulic Engineering, Indian Society for Hydraulics, India
- Journal of Indian Water Resources Society, India
- Journal of Applied Soft Computing, Elsevier, Cambridge, UK
- Journal of Water Management, Institution of Civil Engineers, UK
- Journal of Pipeline Systems Engineering and Practices, ASCE, USA
- Journal of Water Science and Technology, IWA Publishing UK
- Journal of Hydraulic Research, IAHR, The Netherlands

## **11. Sponsored Research Projects**

1. “Water Quality Monitoring of River Satluj” NRCDD, Ministry of Environment and Forests, GOI, New Delhi, Rs. 40 lakhs. (Completed)
2. “Flow measurement with triangular free overfall” UGC, India, Rs. 0.30 lakhs. (Completed)
3. “Two-dimensional mixing of pollutants in open channels” DST, New Delhi, Rs. 9.12 lakhs. (Completed)
4. “Flow characteristics of trench weir for hydropower intake” MRHD, NEW Delhi, Rs. 14.00 lakhs (Completed)
5. “Enhanced transverse mixing of pollutants in streams with submerged vanes” DST, New Delhi, Rs. 15.99 lakhs. (On-going)
6. “Energy dissipation on block ramps” INCH, Ministry of Water Resources, New Delhi Rs. 18.74 (On-going)
7. “Discharge characteristic of a trench weir” UCOST, Govt. of Uttarakhand, UK Rs. 3.554 lakh for one year)
8. Erosion of clay-sand-silt gravel mixture, INCH, Ministry of Water Resources, New Delhi Rs. 31.448 lakh (On-going).

## **12. Consultancy Projects**

1. Hydrological study for estimation of peak discharge and HFL in streams crossing the North Roadworks from Ch. 11.029 to Ch. 19.7, L&T Construction, Chennai – 600 089 (Rs. 16 lakh)
2. Design of the anchors on pier surface of the dam and other side concrete block arrangement, AHPCL, Srinagar-Uttarakhand (Rs. 7.5 lakh)
3. Design of river training works for protection of right bank of the Ravi river near Nikka post, Gurdaspur., Border Fencing Division-2, CPWD, BSF Campus, Ramtirath, Amritsar (Rs. 7 lakh)
4. Consultancy for design of lining of Jui feeder from RD 0 to 173400 ft, Jui water Services Division, Bhiwani, Haryana (Rs. 8 lakh)
5. Design of cement concrete lining for West Jua Drain, Bahadurgarh, Water Services Division, Bahadurgarh, Haryana (Rs.5 lakh)
6. Studies regarding installing floating solar PV project at NTPC Koldam, HEPP, NTPC Limited (Rs. 25 lakh, 2019)
7. Vetting of rising mains report, hydraulics and thickness design of rising mains of Narmada-Jhabua-Petlawad-Sardarpur lift irrigation schemes JMC Projects (India) Ltd. (Rs. 10 lakh, 2019)

8. Vetting of design of Micro Irrigation Schemes-Amba Rodiya, Balakwada, Choundi Jamunia & Simrol Ambachandan, JMC Projects (India) Ltd. (Rs. 10 lakh, 2018)
9. Physical Sump Model Test for CW System for 2X660 MW Maitree Bangladesh STPP, BHEL, Ramachandrapuram, Hyderabad-502032 (Rs. 16 lakh, 2018)
10. Covering of Nallah from Transport nagar to Shingaar Cinema Culvert near Shivaji Nagar, Ludhiana., Municipal Corporation, Ludhiana, Punjab (Rs. 6 lakh, 2018)
11. Design of Thappal Tarapur Mohewal Lift scheme , Changer Area, Punjab., Ropar Headworks Division, Ropar, Punjab.(Rs. 11 lakh, 2018).
12. Design of lining and under-drainage system behind the lining for the MLL canal, Indri W/S Division, Karnal, Haryana. (Rs. 5 lakh, 2018)
13. Consultancy for lining of Dari Disty. from RD 0 to 16000, Bond Water Services Feeder Division, Bhiwani, Haryana. (Rs. 6 lakh, 2018)
14. Estimation of scour depth for the foundations of the elevated structures for Gangapath in the Zone-III, Navayuga Engineering Co. Ltd., Regional Office, Patna, Bihar (Rs. 8 lakh, 2018)
15. Analysis and design of measures for restoration of eroded land at sports stadium, HNB Garhwal University, Srinagar, Garwal Central Div., CPWD, SS Campus, Srinagar, UK (Rs.12 lakh, 2018).
16. Retrofitting and restoration of distressed Kotawali River on Haridwar-Nagina Section (km 30.00) of NH-74, National Highways Authority of India (Rs. 40 lakh, 2018)
17. Physical Sump Model Test for CW System for 2X660 MW Jawaharpur STPS, DOOSAN POWER SYSTEMS INDIA PVT., LTD. Gurgaon - 122002 (Rs. 22 lakh, 2018)
18. Physical Sump Model Test for CW System for 2X660 MW Obra C, DOOSAN POWER SYSTEMS INDIA PVT., LTD. Gurgaon - 122002 (Rs. 22 lakh, 2018)
19. Technical evaluation and quality inspection of flood protection works at Kedarnath, Uttarakhand, Chief Engineer, Irrigation Division, Srinagar Garwal, UK (Rs. 30 lakh, 2018)
20. Technical evaluation and quality inspection of flood protection works from Gaurikund to Sitapur, Uttarakhand, Chief Engineer, Irrigation Division, Srinagar Garwal, UK (Rs. 27.5 lakh, 2018)
21. Design of three vented causeways on Behat-Kadarpur-Pathanpur-Khijirpur-Chilkana Gandevad marg and Kalsia-Randaul-Dabkaura-Kansepur-Bahrampur marg, PWD, Saharanpur,UP (Rs.9 lakh, 2018)
22. Technical opinion on design and drawing of coverage of drain flowing in the front of Bhushan Steel factory at Ghaziabad, UP, Bhushan Steel Limited, Ghaziabad-201010 (Rs. 4 lakh, 2018)
23. Stabilisation of river morphology near the bridges, PWD B&R Br. Panchkula, Haryana (Rs. 15 lakh, 2018)
24. Physical model study of CW pump sump of Telangana super thermal power project Phase-1 (2×800 mw), Flowmore Limited, Gurgaon – 122 016, (Haryana) , 2018

25. Design of a causeway across Kotawali River on Haridwar-Nagina Section (km 30.00) of NH-74, National Highways Authority of India (Rs. 6.0lakh, 2018)
26. Design of J L N Feeder Canal from head to tail (length 104 km) based on study of testing and monitoring of the sample reach RD 300000 to RD 303100, Executive Engineer, Water Services Feeder Division, Rohtak, Haryana.
27. Physical model study of proposed 6 lane extradosed bridge over river Ganga near Kacchi dargah, Patna, Engineering Manager, EDRC Special Bridges, L&T Construction, Chennai – 600 089.
28. Analysis and design of river training works at Sports College, Behat, Saharnpur, UP to ensure safety of the under-construction sports college: Sports and Youth Welfare Department, Govt. of Uttar Pradesh, 101, Babu Bhawan, Lucknow-226001
29. Vetting of numerical hydraulic modelling of Bogibeel Bridge over River Brahmaputra in Assam, AGMC, RCED Unit, RITES LTD, Rites Bhawan No. 1, Sector-29, Gurgaon-122001, Haryana.
30. Detailed hydraulic study of CWP test pit expansion, The Deputy General Manager, CMM/Purchase Co-ordination & SDC, Bharat Heavy Electricals Limited (BHEL), Ramachandrapuram, Hyderabad-502 032.
31. Design of works for the protection of abutments, approach roads & riverbank for under-construction Bridge over Song River at KM: 10+036 on NH-72, General Manager, Era Landmarks Limited, B-24, Sector-3, Noida-201301
32. Design of works for training the Ratmau river at a bridge at Chainage 181+146 on NH-58, General Manager, Era Landmarks Limited, B-24, Sector-3, Noida-201301
33. Estimation of scour depth for the foundations of the Fulahar Bridge: STUP Consultants Pvt. Ltd., P-11 Darga Road, Park Circus, Kolkata-700017, India.
34. Hydrological and hydraulic study of proposed new rail bridge across river Ganga near Mokama, General Manager, Ircon International Limited, Sone Bhawan First Floor, Daroga Prasad Rai Path, Patna-800001
35. Proof checking of hydrological/hydraulic reports of proposed railway bridges over Yamuna and Markhanda Rivers, Deputy General Manager- Engineering, TATA PROJECTS LIMITED, Corporate Office, Secunderabad -500003, India
36. Physical study of spillway of Malana-11 hydro electric project, Everest Power Pvt. Ltd., Hall A, FF, Plot No. 143-144, Udyog Vihar P-1V, Gurgaon, Haryana (Rs. 25 Lakh, 2016)
37. Drainage of Nestle Campus at Tahliwal Una, HP, Manager Engineering Project Nestle India Ltd., Industrial Area, Tahliwal, Tehsil Haroli, Una, HP (Rs. 8, 2016)
38. Technical evaluation and quality inspection of flood protection works along left bank of Bhagirathi river from S P Awas to Kandula, Uttarakhand, Executive Engineer, Research and Infrastructure Division, Uttarkashi, Uttarakhand, (Rs. 5 lakh, 2016)
39. Visit to the site of the under-construction trench weir on Nandhur river at Choorgalian and modifications in its design in view of changes in the morphology of the river, Chief Engineer (Kumaon), Irrigation Department Uttarakhand, (Rs. 3 lakh, 2016)

40. Feasibility study for replacement of PSC Girder & Slab Type Bridge By Box/Multi Cell Bridge From Hydraulic Consideration, DGM-Project, Varsha Infra Ltd., Jalandhar-Amritsar Project, NH-1, Jalandhar, (Rs. 8 Lakh, 2016)
41. Hydrological and hydraulic analysis and design of the drain including its covering near the Shri Mahant Indresh Hospital, Dehradun, Shri Mahant Indresh Hospital, Patel Nagar, Dehradun, (Rs. 4 Lakh, 2016)
42. Checking the soundness of sub structure and foundation of the Mahatma Gandhi setu at Patna, Er. A K Pandey, SE (Bridges), S&R, Ministry of Road Transport & Highways (MORTH), Parivahan Bhawa, 1 Sansad Marg, New Delhi (Rs. 218 lakh, 2016)
43. Assessment of runoff generated from the drainage area near the DLF project in Sector-42,43,53 and 54 Gurgaon, Ex. Engineer, Mewat Water Service Div., Nuh, Haryana, (Rs. 10 lakh, 2016)
44. Planning and design of storm water drainage system & Analysis and design of approach channel of raw water intake for the thermal power plant at Maithon, Dhanbad, Jharkhand; Head - Project Planning and Coordination, Maithon Power Limited, Maithon Dam, Dhanbad, Jharkhand (Rs. 18 lakh, 2016)
45. Hydraulic and structural design of Panjokhra minor from km 2.9 to 5.5, Executive Engineer, SYL W/S Division, Ambala, Haryana, (Rs. 6 lakh, 2016)
46. Vetting of design and drawings of the remodeled Gomti weir with rubber gate, Dy. General Manager, Gammon India Ltd. (Rs. 6.5 lakh, 2016)
47. Preparation of DPR for barrage across Gagas river at Dwarahat, Almora. Kumaon Irrigation Division, Almora, Uttarakhand (Rs. 30 lakh, 2016).
48. Surge analysis in Transmission and Rising mains of water supply scheme of Chaksu Tehsil, Jaipur that includes Chaksu, Kadera, Khajalpura, Kothun, Kotkhawda & Titariya Pump Houses. Project Manager, Gammon India Ltd., Jaipur. (Rs. 9 lakh, 2015)
49. Transient analysis of CW system of Meja Thermal Power Project (2×660 MW). Flowmore Limited, Gurgaon (Rs. 5 lakh, 2015).
50. Transient analysis of MW system of Meja Thermal Power Project (2×660 MW) & Transient analysis of CW system of Feroze Gandhi Unchahar Power Project Stage-IV (1×500 MW) Flowmore Limited, Gurgaon (Rs. 8 lakh, 2015).
51. Consultancy services in form of technical advice/design for training the Garra river near the Raw water intake system of RPSCL, Rosa. Head Civil RPSCL, Rosa, Shahjehanpur (Rs. 6.5 lakh, 2014-15)
52. Regarding a study on impact of construction of channel on the embankment of the Ganga path and suggest the necessary changes, if any, for protection of Ganga path's embankment. Bihar State Road Development Corporation Ltd. (BSRDCL). (Rs. 12 lakh, 2015).
53. Technical evaluation and advice in respect of river flood protection works in various parts of Uttarakhand, Irrigation Division UK. (Rs. one crore plus , 2015).
54. Appraisal of DPRs for River Front Development at (1) Sultan Ganj, Bihar and (2) Chandi Ghat, Uttarakhand. MOEF, New Delhi. (2014)



55. Morphological study of rivers Ganga, Sharda and Rapti using remote sensing technique Morphology Directorate, CWC , 906 (S), Sewa Bhawan, R.K.Puram, New Delhi (RS. 2.28 crore, 2015).
56. Design of dykes to divert water towards intake while protecting the piers of existing railway bridge in Salakati, Boingaon in Assam. RITES Ltd., Gurgaon. (Rs. 12 lakh, 2015).
57. Hydrological study for developing residential plotted colony in the revenue estates of village Sarsehri & Rampur District Ambala. M.M. Developers Pvt. Ltd., 55, Model Town, Ambala Cit, Haryana. (Rs. 10 lakh, 2015).
58. Design of flood protection works for protection of Judge (Judicial) Court Building and other Building in Tharali (Chamoli).Construction Division P.W.D, Tharali Chamoli. (Rs. 5 lakh, 2015).
59. Physical model study of CW pump system of 3 × 660MW Nabinagar Super Thermal Power Project. Flowserve India Controls Pvt. Ltd., (Rs. 16 lakh, 2015).
60. Physical model study of CW pump sump of Meja and Feroze Gandhi Unchahar Power Projects. Flowmore Limited, Gurgaon (Rs.17 lakh, 2015).
61. Design of flood protection works for protection of ITBP, Gauchar campus located on left bank of the Alaknanda river at Gauchar, Uttarakhand. Garwal Kendriya Mandel, CPWD, Srinagar (Garwal) (RS. 6 lakh, 2015)
62. Flood protection measures along the eroded bank of river Alaknanda adjacent to Stadium of Chouras Campus at HN BG University, Srinagar. Garwal Kendriya Mandel, CPWD, Srinagar (Garwal) (Rs. 10 lakh, 2015)
63. Vetting of Hydraulic Design for JICA Assisted Agra Water Supply Project-Conduit Pipes : Package 5A/B/C &7. Agra Water Supply Project, Package-5A, C/o Larsen & Turbo Limited, New Delhi-1100019 (Rs. 25 lakh, 2015)
64. Evaluation of Plan Scheme “R&D Programme in Water Sector” of MoWR during XI Plan period in respect of National Institute of Hydrology (NIH), Roorkee. Ministry of Water Resources, Govt. of India. (Rs. 3166667, D. Kashyap,PI)
65. Evaluation of Plan Scheme “R&D Programme in Water Sector” of MoWR during XI Plan period in respect of Central Water Commission, New Delhi, Ministry of Water Resources, Govt. of India. (Rs. 2066667, D. Kashyap,PI)
66. Physical model study for detailed hydraulic/hydrologic investigations for bridge on Kosi, Ministry of Road Transport & Highways, New Delhi. (Rs. 36 lakh, KS Hariprasad, PI).
67. Morphological & geological study of Alaknanda River and design of river flood protection works at eroded area of HN BG University at Chauras, Garhwal. Garwal Kendriya Mandel, CPWD, Srinagar (Garwal). (Rs. 15 lakh, 2014)
68. Estimation of scour depth for the foundations of the elevated structures in the Zone-II for Gangapath, Patna. Navayuga Engineering Company Ltd.,Hyderabad (Rs. 15 lakh, 2014).
69. Physical Sump Model Test for Make Water Pump Sump and Raw water Pump sump for Kudgi STPP. Xylem Water Solutions India Pvt.Ltd., Gujarat (Rs. 35 lakh, 2014).

70. Physical model study of Intake Pump House & Make Up Water Pump House of Water Supply Project for Power Plant under Bihar State Electricity Board, Barauni, Bihar (24 lakh, 2014; Dr. P K. Sharma)
71. Flow measurement in 450 mm diameter ductile iron laid pipe at its inlet at Bandal River and outlet at Dilaram Bazaar WTP, Dehradun. NKG Infrastructure Limited (Rs. 2 lakh 2014).
72. Vetting of design of canal lining and cost of the project “37.5 cusecs water supply to Noida. Executive Engineer, B.D.G.C., Bulundshahr, UP (Rs. 12 lakh 2014)
73. Third Party Inspection of 100 Cusecs Ganga Jal Water Supply Scheme to Noida. UP Jal Nigam, Ghaziabad, (V K Gupta)
74. Retrofitting of head regulator of Upper Ganga canal escape at km 100.5 near Khatuali, UP (Rs. 8 lakh, 2014; Dr. P K Gupta).
75. Reviewing the water way requirements for important/major railway bridges in connection with proposed 3rd line in Boinchi-Shaktigarh section of Howrah Division of Eastern Railway. (Rs. 18 lakh, 2014; Prof. P K Garg, Prof. D. Kashyap).
76. Hydrological study for Gomti river front development, Lucknow Development Authority (LDA), Gomti Nagar, Lucknow, UP (Rs. 15 lakh; 2014).
77. Design of two causeways on Diggiwala-Banjarewala Road near Ganeshpur, Bhagwanpur, Haridwar, PWD Roorkee. (Rs. 2.5 lakh, 2013; Prof. Satish Chandra).
78. Design of guide bund along left bank of Solani River at Bridge on Bhagwabpur-Imli Kheda Road near Imli Kheda, PWD Roorkee (Rs. 2 lakh; 2013)
79. Hydraulic design of protection works for 285 m long under-construction road bridge across River Mohand Rao on Telpura-Kheri Shikohpur Marg near Biharigarh, PWD Roorkee. (Rs. 2.5 lakh, 2013)
80. Hydraulic design of bridge on Ganga near Ara, Bihar, Bihar Rajya Pul Nirman Nigam Ltd. Patna, Bihar. (Rs. 15 lakh; 2013 Prof. M.K. Mittal).
81. Design of pipeline from RD230500 (Jhansa Head) Narwana Branch up to Saraswati Teerath Pehowa. Water Services Division, Kurukshetra, Haryana (Rs. 5 lakh; 2014).
82. Technical evaluation of 85 cusecs Ganga Jal distribution scheme in Greater Noida. Uttar Pradesh Rajkiya Nirman Nigam Ltd., New Delhi. (Rs. 12 lakh, 2013, Dr. A A Kazmi)
83. Vetting of hydraulic & structural design of box channel, Ansal Buildwell Ltd. (Rs. 4 lakh, 2013; Dr. Bhupender Singh)
84. Discharge measurement of Delhi Sub Branch near Head regulator of Haiderpur water treatment plant of Delhi Jal Board, Yamuna Water Services Circle, Delhi-54. (Rs. 4 lakh, 2013).
85. Suggestive measures to safeguard the Tiloth bridge at Uttarkashi, Prantiya PWD, Office of Executive Engineer, Uttarkashi. (Rs. 2 lakh, 2013)
86. Flood protection and restoration work in campus at ITBP Matli (Uttarkashi). CPWD, Srinagar (Garwal). (Rs. 3 lakh, 2012; Dr. Bhupender Singh)

87. River bank protection work for ITBP Matli (Uttarkashi). CPWD, Srinagar (Garwal). (Rs. 3.5 lakh, 2013; Dr. Bhupender Singh,PI)
88. Rehabilitation Solution for a bridge on Jakhan River, Dehradun Highway Projects Limited,Okhla. (Rs. 3 lakh, 2013; Prof. KS Hariparasad, PI).
89. Vetting of hydraulic design & bedding calculations & drawings of raw water main WTP site for Meerut Water Supply project under JNNURM. Urban Works Unit-I, U.P. Jal Nigam,Meerut, (Rs. 3 lakh, 2012)
90. Floodplain mapping of Yamuna River in a reach from 05 to 10 km d/s of Hathnikund Barrage, Nainital stones, Mehmoodpur Nagli,Raipur,Behat Saharanpur,UP (Rs. 8 lakh, Prof. P.K. Garg)
91. Flood mapping of Yamuna River in a reach from 10 to 15 km downstream of Hathnikund Barrage, National Associates, Saharanpur, (Rs. 8 lakh, 2012; Prof. P.K. Garg).
92. Proof checking of anti-capillary/anti-siphonic design at side laps of metal roof troughed profile sheeting, Era Buidsys Limited, C-56/41, Sec-62,Noida-201303, India (Rs. 1.0 lakh, 2012)
93. Technical evaluation of 80 cusecs Ganga Jal distribution scheme in Noida. Office of the General Manager, Delhi Zone, Uttar Pradesh Rajkiya Nirman Nigam Ltd., B-5/101, Safdarjung Enclave, New Delhi-110 029,(Rs.10 lakh, 2011; Dr. A A Kazmi)
94. Preparation of DPR for barrage on the Kosi river at Almora. Executive Engineer, Kumaon Irrigation Division, Almora, Uttarakhand (Rs. 9 lakh, 2011)
95. Appraisal of report on “The impact of HBMPLC on Runoff dynamics of the combined catchments of Patiala Nadi and Ghaggar river, Executive Engineer, Interstate & Liason Division, Canal Rest House near Kasjmeri gate ISBT Delhi 54, (Rs. 5 lakh, 2011).
96. Back water computation in the Haider nala under peak flow and receding flow conditions of Gomti River. GM, Zone-7, U.P. Projects Corporation Ltd., Lucknow (Rs. 2 lakh, 2011)
97. Hydraulic design of guide bunds at proposed bridge on Yamuna river near Daulatpur, Construction Division-3, Public Works Department, Saharanpur, (Rs. 3.2 lakh, 2010).
98. Hydraulic design of structures for mitigation of flood in the Ambala city and nearby areas, Superintending Engineer, S.Y.L.W.S. Circle,Ambala, Rs. 14.0 lakh, 2010)
99. Mathematical studies for assessing the sediment profile for Nafra H.E. Project, Sew Nafra Power Corporation Private Limited, 6-3-871, Snehalata, Greenlands Road, Begumet, Hyderabad (Rs 12.5 lakhs, 2010)
100. Physical model study for intake and desilting chamber of Nafra Hydro Electric Project, Sew Nafra Power Corporation Private Limited, 6-3-871, Snehalata, Greenlands Road, Begumet, Hyderabad (Rs 36 lakhs, 2010)
101. Physical model study for Spillway of NAFRA Hydro Electric Project, Sew Nafra Power Corporation Private Limited, 6-3-871, Snehalata, Greenlands Road, Begumet, Hyderabad. (20 lakh, 2010)
102. C.W. Sump Model Studies for 2x500 MW Anpara TPS Stage-D-reg, BHEL Hyderabad. (20 lakh, 2010)

103. Design of barrage on the Kosi River at Almora, Kumaon Irrigation Div. Almora, Uttarakhand (Rs.10.5 lakhs, 2010; Prof. M.K. Mittal, Prof. N.M. Bhandari)
104. Checking the layout of Pump Sump, Design of Bell-Mouth, Vortex Breakers and Vortimeter, BHEL, Corporate R&D Division, Vikasnagar, Hyderabad, (Rs.2.7 lakh, 2010)
105. Technical feasibility of laying out underground pipe line for carrying electric cable along the bank of Hindon cut canal, PE (E/M)- IINoida, C-3/112, Sector-36 (Rs. 5 Lakh, 2009, Dr. A A Kazmi)
106. Design of economical conveyance system for supplying water from JLN Feeder to Gurgaon Canal, SE. Construction Circle, Haryana Irrigation Dept. Gurgaon (Rs. 5 Lakh, 2009, Prof. M.K. Mittal)
107. Third party quality inspection of Infrastructural Development works under ISHDP scheme of JnNURM in state of Bihar , Mr. S.K. Bhatnagar, Addi. GM Hindustan Prefab Ltd., Jangura, New Delhi, (Rs. 1.75 lakh, 2009, Dr. A Iqbal)
108. Location and Hydrological / Morphological Studies of New Bridges on the River Ganga and its Major Tributaries for the Ganga Expressway, For Jaypee Ganga Infrastructure Corporation Limited, Noida (Rs. 40 lakhs, Prof. U.C.Kothyari, Prof. M.K.Mittal)
109. Location of water intake for SHP at Rabo Dam, Raigarh, Chhatisgarh, Jindal Power Limited, Gurgaon, Haryana(Rs. 1.0 lakh, Prof. M.K.Mittal)
110. Hydraulic design of storm water drainage along NH-87 and Dineshpur road for SIDCUL, Pantnagar, Uttarakhand, Executive Engineer, Project Unit (SIDCUL) PWD, Pantnagar, Uttarakhand (Rs. 2.25 lacs, 2009; Prof. M.K. Mittal)
111. Additional tests of C.W. Pump sump study for Pragati-III CCPP 1500 MW-reg, BHEL Hyderabad. (4 lakh, 2009, Prof. M.K. Mittal)
112. Hydraulic design of desilting basin for the NCR channel (at about 10 km downstream of its off-take), Executive Engineer, Construction Division No. 23, Panipat (Rs. 2.7 lacs, 2009, Prof. M.K. Mittal)
113. C.W. Pump sump study for Pragati-III CCPP 1500 MW-reg, BHEL Hyderabad. (7.5 lakh, 2009, Prof. M.K. Mittal)
114. Hydraulic Design of Siphon to draw 1000 cusecs from BML to Multipurpose link Channel, SE, Construction Circle Gurgaon. (Rs. 4 lacs, 2008-09, Prof. M.K. Mittal)
115. Conservation plan for river Kshipra I Ujjain, MP, Municipal Corporation Ujjain, (Rs. 68 lakhs, 2008; Dr. Arun Kumar)
116. Engineering of two portable schemes in equatorial guinea, Anglique International Limited, New Delhi, (Rs. 48 lakhs, 2008; Dr. Arun Kumar))
117. Design of lining and under drainage of NCR channel, Haryana irrigation Board. (Rs. 4 lacs, 2008, Prof. U.C. Kothyari, Prof. M.K. Mittal)
118. Design of storm water drainage for SIDCUL, Pantnagar, Uttarakhand, PWD Uttarakhand, (Rs. 1.6 lacs, 2008) Prof. M.K. Mittal)
119. Design of Under-Drainage System of NCR Canal by Geo-Composite Filter, SE, Construction Circle Gurgaon. (Rs. 1.5 lacs, 2008, Prof. M.K. Mittal)

120. Discharge Measurement of Five Bore Wells Pumps, S.K. Gupta, Saharanpur, (Rs. 1.5 lac, 2008)
121. Reservoir sedimentation of Pipal\_Kothi H.E. Project, THDC, Rishikesh (Rs. 10 lakhs, 2007, Prof. U.C. Kothiyari, Prof. M.K. Mittal).
122. Flood submergence due to construction of Multipurpose link canal, Haryana Irrigation Board.(Rs. 3.0 lacs, 2007, Prof. M.K. Mittal)
123. Determination of the Hazen Williams coefficient ('C' Value) for GRP Pipes, Graphite India Ltd. (Rs. 1.5 lacs, 2007, Prof. D. Kashyap)
124. Scrutiny of hydraulic structures of Multi purpose link channel, Haryana Irrigation Board.(Rs. 6.0 lacs, 2006)
125. Hydraulic design of Kachela small hydro project, Techman Company Ltd., New Delhi (Rs. 1.5 Lakh, 2006)
126. Hydraulic design of aqueduct on Ghaggar River, Haryana Irrigation Board.(Rs. 1.0 lacs, 2006)
127. Design of Head and Cross regulators, Reliance Project, Upper Ganga Canal, UP. (Rs. 2 lacs, 2004)
128. Hydraulic design of trench weirs on Dabka and Nandhaur rivers, Nanital (2003)
129. Review of design of approach banks of river Hindon, Ghaziabad (UP) (2003)
130. Review of designs of hydraulic structures and works related to heritage corridor works at river Yamuna, Agra (UP) (2003)

**Total number of project undertaken before 2003: 20**

### **13. Publications**

#### **Journals (Published)**

1. Kumar, B., Kadia, S., & Ahmad, Z. (2019). Evaluation of discharge equations of the Piano Key Weirs. Flow Measurement and Instrumentation. Elsevier. (accepted)
2. Kumar, B., Kadia, S., & Ahmad, Z. (2019). Experimental study of flow field and movement of sediment over a ramp. Journal of Civil Engineering and Construction, 8(2), 79-86.
3. Aamir M. and Ahmad Z. (2019), Estimation of maximum scour depth downstream of an apron under submerged wall jets, Journal of Hydroinformatics. (Accepted)
4. Pandey, M., Zakwan, M., Sharma, P. K., & Ahmad, Z. (2018). Multiple linear regression and genetic algorithm approaches to predict temporal scour depth near circular pier in non-cohesive sediment. ISH Journal of Hydraulic Engineering, 1-8.
5. Zakwan, M., Ahmad, Z., & Sharief, S. M. V. (2018). Magnitude-Frequency analysis for suspended sediment Transport in the Ganga River. Journal of Hydrologic Engineering, 23(7), 05018013.
6. Pandey M, Ahmad Z, Sharma PK (2018) Scour around impermeable spur dikes: a review. ISH J Hydraul Eng. 24:1, 25-44.

7. Singh, U. K., Ahmad, Z., Kumar, A., and Pandey M. (2018). "Incipient motion for gravel particles in cohesionless sediment mixture". *Iranian Journal of Science and Technology, Transactions of Civil Engineering*, Springer, doi: 10.1007/s40996-018-0136-x. [SCI Indexed; Impact factor: 0.276]
8. Pandey, M., Sharma, P. K., Ahmad, Z., and Karna, N. (2018b). Maximum scour depth around bridge pier in gravel bed streams. *Natural Hazards*, 91(2), 819-836.
9. Ahmad, Z., Singh, U. K., and Kumar, A. (2017). "Incipient motion for gravel particles in clay-silt-gravel cohesive mixtures". *Journal of Soils and Sediments*, Springer, doi: 10.1007/s11368-017-1869-z. [SCI Indexed] [Impact factor: 2.522]
10. Singh, U. K., Ahmad, Z., and Kumar, A. (2017). "Formulation for critical shear stress of cohesive sediment mixture". *Current Science*, 113 (11), 2105-2111. [SCI Indexed; Impact factor: 0.843]
11. Pandey M., Sharma P.K., Ahmad Z., and Sharma U.K. (2017). Experimental investigation of clear-water temporal scour variation around bridge pier in gravel. *Environmental Fluid Mechanics*. <https://doi.org/10.1007/s10652-017-9570-8>.
12. Pandey M, Sharma PK, Ahmad Z, Singh UK, Karna N (2017) Three dimensional velocity measurements around bridge piers in gravel bed. *Mar Georesour Geotechnol*. <https://doi.org/10.1080/1064119X.2017.1362085>
13. Pandey M., Sharma P.K., Ahmad Z., and Sharma U.K. (2017). Evaluation of existing equations for temporal scour depth around circular bridge piers. *Environmental Fluid Mechanics*. DOI 10.1007/s10652-017-9529-9.
14. Singh, U.K., Ahmad, Z., and Kumar A. (2017). Turbulence characteristics of flow over the degraded cohesive bed of clay-silt-sand mixture. *Journal of Hydraulic Engineering, ISH*, DOI: 10.1080/09715010.2017.1313144, 1-11.
15. Kumar S. and Ahmad Z. (2017) "Experimental Study of Flow over Trench Weir with Flat Bars". *ISH Journal of Hydraulic Engineering*, 23(1),80-91.
16. Aamir, M., and Ahmad, Z. (2017). Prediction of local scour depth downstream of an apron under wall jets. In: Garg V., Singh V., Raj V. (eds) *Development of Water Resources in India*. Water Science and Technology Library, Springer, Cham, 75(32), 375–385
17. Aamir M., and Ahmad Z. (2016). Review of literature on local scour under plane turbulent wall jets. *Phys. Fluids* 28, 105102-1 to 20, DOI: 10.1063/1.4964659.
18. Hussain, A., Ahmad Z., and Ojha C.S.P. (2016). Flow through lateral circular orifice under free and submerged flow conditions. *Flow Measurement and Instrumentation Journal*, Elsevier, Cambridge, United Kingdom, 52, 57-66.
19. Sharma, H., Jain, B., and Ahmad Z., (2016). Optimization of submerged vane parameters. *Sadhana*, Springer, 41(3), 327-336.
20. Kumar S. and Ahmad Z. (2015). Experimental Investigation on Ingestion of Sediment into Trench". *ISH Journal of Hydraulic Engineering*, 21(3):1-10.
21. Pandey M., Ahmad Z., and Sharma P.K.(2016). Estimation of maximum scour depth near a spur dike. *Can. J. Civ. Eng.* 43: 270–278.

22. Hashid, M., Hussain A., Ahmad, Z. (2015). Discharge characteristics of lateral circular intakes in open channel flow. *Flow Measurement and Instrumentation*, Elsevier; 46, 87-92.
23. K. K. Gupta, S. Kumar and Z. Ahmad (2015). Effect of Weir Height on Flow Performance of Sharp Crested Rectangular-Planform Weir. *World Applied Sciences Journal*, 33 (1): 168-175.
24. Hussain S., Hussain, A. and Ahmad Z. (2014). Discharge characteristics of orifice spillway under oblique approach flow. *Flow Measurement and Instrumentation Journal*, Elsevier, Cambridge, United Kingdom, 39, 9-18.
25. K. K. Gupta, S. Kumar and Z. Ahmad (2014) "Flow Characteristics of Sharp-Crested W-Planform weirs". *International Journal of Advanced Technology & Engineering Research*, IJATER (IOCRSEM - 14), pp. 176 – 180.
26. H. Sharma and Z. Ahmad (2014). Transverse mixing of pollutants in streams: a review. *Canadian Journal of Civil Engineering*, NRC Research Press, 41(5), 472-482.
27. K. K. Gupta, S. Kumar and Z. Ahmad (2013). An Approach to analyze the Flow Characteristics of Sharp-Crested Triangular Planform Contracted Weirs. *World Applied Sciences Journal*, (Accepted).
28. S. Kumar, Z. Ahmad, T. Mansoor and S.K. Himanshu (2013). A new approach to analyze the flow over sharp-crested curved plan form weirs. *International Journal of Recent technology and Engineering*, Vol.2, No.1 (March, 2013); 24 – 28.
29. Riyaz, F. and Ahmad, Z. (2014). Hydraulic characteristics of turbulent circular jet under surface confinement. *ISH Journal of Hydraulic Eng.* 20(2), 222-229.
30. Khan, D.G., Hussain A., and Ahmad Z. (2013). Energy dissipation of skimming flow over stepped spillways. *Journal of Dam Engineering*, Vol. XXIII, Issue 4, pp. 1-20.
31. Azamathulla H. Md, Ahmad, Z., and Ghani, A.A. (2013). Computation of discharge through side sluice gate using gene-expression programming. *J. Irrigation and Drainage*, John Wiley & Sons Ltd. 62(1), 115-119.
32. Azamathulla H. Md. and Ahmad, Z. (2013). Estimation of Critical Velocity for Slurry Transport through Pipeline Using Adaptive Neuro-Fuzzy Interference System. *Journal of Pipeline Systems Engineering and practice*, ASCE, 4(2), May 1,131-137.
33. Ahmad Z., Sharma H., and Westrich, B. (2013). Turbulence characteristics of flow over a block ramp. *Journal of Water Resources and Hydraulic Engineering*, World Academic Publishing, March, 2(1), 21-29
34. Ahmad, Z. (2013). Prediction of longitudinal dispersion coefficient using laboratory and field data: relationship comparisons. *Journal of hydrological research*, IWA Publishing, 44.2, 362-376.
35. Kumar, S., Ahmad, Z, Mansoor, T., Himanshu, S. K. (2012). Discharge Characteristics of Sharp Crested Weir of Curved Plan-form. *Research Journal of Engineering Sciences*, 1(4), 16-20.

36. Ahmad Z. and Azamathulla H.Md. (2012). Reply to the comments on: “Direct solution for discharge in circular free overfall” [J. Hydrol. 446–447 (2012) 116–120]; Journal of Hydrology 466–467, 183–184.
37. Azamathulla H.Md., Ahmad Z. and Aminuddin Ab. Ghani. (2012). An expert system for predicting Manning’s roughness coefficient in smooth open channels by using gene expression programming. Neural Computing and Applications, Springer-Verlag London Limited (in press).
38. Ahmad, Z. and Azamathulla H. Md. (2012). Quasi-theoretical end-depth-discharge relationship for trapezoidal channels. Journal of Hydrology, 456–457, 151–155.
39. Ahmad Z. and Azamathulla H.Md. (2012). Direct Solution for Discharge in Circular Free Overfall. Journal of Hydrology, 446–447, 116–120.
40. Azamathulla H.Md., and Ahmad Z. (2012). Gene-expression programming for transverse mixing coefficient. Journal of Hydrology, 434–435, 142–148.
41. Azamathulla H.Md., and Ahmad Z. (2012). GP approach for critical submergence of intakes in open channel flows. Journal of Hydro-informatics, IWA Publishing, 14.4, 937-943
42. Hussain, A., Ahmad, Z., and Asawa G.L. (2011). Flow through side square orifices in open channels. Journal of Hydraulic Engineering, ISH, 17, SP1, 12-22.
43. Burele S. A., Gupta I.D., Singh, M., Sharma N., and Ahmad Z. (2011). Experimental study on performance of spurs. Journal of Hydraulic Engineering, ISH, (in press).
44. Hussain, A., Ahmad, Z. and Asawa G.L. (2011). Flow through sharp-crested rectangular side orifices under free flow condition in open channels. Agricultural Water Management, Elsevier, Cambridge, United Kingdom, 98, 1536– 1544.
45. Burele, S.A., Singh, M., Gupta, I.D., Ahmad, Z., Sharma, N., and Garg, P.K. (2011). Remote sensing satellite communication based operation/regulation of gates of hydraulic structure. Journal of the Instrument Society of India, 41(2), 84-87.
46. Ahmad, Z., Jain, B., Kumar, S., and Mittal, M.K. (2011). Rational design of a pump-sump and its model testing. ASCE, Journal of pipeline systems engineering and practices, 2(2), 53-63.
47. Kumar, S., Ahmad, Z. and Mansoor, T. (2011). A new approach to improve the discharging capacity of sharp-crested triangular plan form weirs. Flow Measurement and Instrumentation Journal, Elsevier, Cambridge, United Kingdom, 22,175-180.
48. Ayoubloo, M.K., Azamathulla, H. Md., Ahmad, Z., Ghani, A. A., Mahjoobi, J., and Rasekh A. (2011). Prediction of scour depth in downstream of ski-jump spillways using soft computing techniques. International Journal of Computers and Applications, 33(1), 1-6.
49. Tyagi, V.K., Khursheed, A., Sahu, B.K., Ahmad, Z., Kazmi, A. A. and Chopra, A. K., (2010). Fate of coli forms and pathogenic parasite in four full-scale sewage treatment systems in India. Environmental Monitoring and Assessment. DOI 10.1007/s10661-010-1818-4.



50. Ahmad, Z, Azamathulla H. Md., and Zakaria N. A. (2011). ANFIS-based approach for the estimation of transverse mixing coefficient, IWA Publishing, Water Science and Technology, 63(5), 1005–1010.
51. Hussain, A., Ahmad, Z, and Asawa G.L. (2010). Discharge characteristics of sharp-crested circular side orifices in open channels. Flow Measurement and Instrumentation Journal, Elsevier, Cambridge, United Kingdom, 21, 418-424.
52. Kumar, S., Ahmad, Z., Kothiyari, U.C., Mittal, M.K. (2010). Discharge characteristics of a trench weir, Flow Measurement and Instrumentation Journal, Elsevier, Cambridge, United Kingdom, 21, 80-87.
53. S. Singh, Ahmad, Z, and Kothiyari, U.C., (2009). Mixing coefficients for longitudinal and vertical mixing in the near field of a surface pollutant discharge, IAHR, Journal of hydraulic research, 48(1), 91–99.
54. Ahmad, Z. (2009). Finite volume model for BOD-DO coupled equations. Journal of Hydraulic Engineering, ISH, 15(2), 16-32.
55. Sharma, M.N, Ahmad, Z., Sharma N., (2009). Runoff and sediment yield modeling using ANN: Kankaimai watershed, Nepal, Journal of Indian Water Resources Society, 29(1), 28-37.
56. Ahmad, Z., Petappa, N.M., and Westrich, B. (2009). Energy dissipation on block ramps with staggered boulders, Journal of Hydraulic Engineering, ASCE, 135(6), 522-526.
57. Ahmad, Z. (2009). Mixing length for establishment of longitudinal dispersion in streams. International Journal of Modelling & Simulation, Acta Press, 29(2),1-10
58. S. Singh, Ahmad, Z, and Kothiyari, U.C., (2009). Two-dimensional mixing of pollutants in streams with transverse line source. IAHR, Journal of hydraulic research, 47(1), pp. 90-99.
59. Hepy, F.M., Ahmad, Z., and Kansal M.L. (2008). Critical velocity for slurry transport through pipeline. Journal of Dam Engineering, Vol. XIX, Issue 3, Oct, pp. 169-184.
60. Akhtar M.P., Ahmad, Z., Sharma N., (2008). Prediction of flow resistance and bed profiles of river Brahmaputra, Journal of Indian Water Resources Society, 28(3), pp. 14-22.
61. Ahmad, Z., Rao, K.V., and Mittal M.K. (2008). Critical submergence for horizontal intakes in open channel flows. Journal of Dam Engineering, Vol. XIX, Issue 2, Sept, pp. 71-90.
62. Ahmad, Z. (2008). Finite volume model for steady-state transverse mixing in streams. IAHR, Journal of hydraulic research, Vol. 46/Issue: extra, 72-80.
63. Ahmad, Z. (2007), “Effect of channel cross section on mixing length”, Journal of Hydraulic Engineering, ISH, 13(1), pp. 1-17.
64. Yadav P.K., Ahmad, Z. and Asawa G.L. (2007), “Parameters of hydraulic jump on corrugated beds”, Journal of Hydraulic Engineering, ISH, 13(1), pp. 93-105.
65. Ahmad, Z. (2007), “Transverse mixing in open channels with multi-sources”, J. of Institution of Engineers, Vol. 88, pp.62-66.
66. Durai, E.S.R., Ahmad Z., and Mittal, M. K. (2007), "Critical submergence at vertical pipe intakes' Journal of Dam Engineering, Vol XVIII, Issue 1, June, pp. 17-33.

67. Ranjan R., Ahmad, Z. and Asawa G.L. (2006), "Effect of spacing of submerged vanes on bed scour around River bends", *Journal of Hydraulic Engineering*, ISH, 12(2), pp.49-65.
68. Ahmad, Z. (2006). Flow measurements with triangular free overfall. *J. of Institution of Engineers*, Vol. 87, pp. 35-40.
69. Ghosh, S. and Ahmad Z. (2006), "Characteristics of flow over bottom racks", *Water and Energy International*, Water and Energy International, CBIP, Vol. 63 No. 2, pp. 47-55.
70. Aware R., Ahmad, Z. and Asawa G.L. (2005), "Scour control by submerged vanes in a curved channel", *Journal of Hydraulic Engineering*, ISH, 11(3), pp.81-90.
71. Ahmad, Z. (2005), "Finite volume formulation for water quality modelling", *Journal of Hydraulic Engineering*, ISH, 11(1), pp. 67-84.
72. Ahmad, Z. (2005), "Flow measurement using free overfall in inverted semi-circular channel", *Flow Measurement and Instrumentation Journal*, Elsevier, Cambridge, United Kingdom, 16, pp. 21-26.
73. Ahmad, Z., Kothiyari, U.C. and Ranga Raju, K.G., (2004), Longitudinal dispersion in sediment-laden flows, *International Journal of Sediment Research*, China, Vol. 19, No.1, pp.1-14.
74. Ahmad, Z. and Mittal, M.K. (2004), "Hydraulic design of trench weir on Dabka river – a case study", *Water and Energy International*, CBIP, Vol. 60 No. 4, pp. 28-37.
75. Ahmad, Z. (2003), "Theoretical end-depth-discharge relationship for rectangular channels", *Journal of Irrigation & Drainage Engineering*, ASCE, 129(2), pp. 138-141.
76. Ahmad, Z. (2003), "Estimation of longitudinal dispersion coefficients", *Journal of Hydraulic Engineering*, ISH, Vol.9. No. 1, pp. 14-28.
77. Ahmad, Z. (2002), "End-depth-discharge relationship for circular free overfall", *J. of Institution of Engineers*, Vol. 83, pp. 21-24.
78. Ahmad, Z. (2001), "Flow measurement with trapezoidal free overfall", *Journal of Hydraulic Engineering*, ISH, Vol.7. No. 2, pp. 32-44.
79. Ahmad, Z. and Kothiyari, U.C. (2001), "Time-line cubic spline interpolation scheme for solution of advection equation", *Journal of Computers and Fluids*, USA, 30 (2001), pp. 737 – 752.
80. Ahmad, Z., (2000), "Numerical solution for advection-diffusion equation with spatially variable coefficients", *Journal of Hydraulic Engineering*, ISH, Vol. 6, No.1, pp. 46-54.
81. Ahmad, Z., Kothiyari, U.C. and Ranga Raju, K.G., (1999), "Finite difference scheme for longitudinal dispersion", *Journal of Hydraulic Research*, IAHR, Vol. 37, No.3, pp. 389-406.
82. Ahmad, Z., Kothiyari, U.C. and Ranga Raju, K.G., (1999), "Longitudinal dispersion in open channels", *Journal of Hydraulic Engineering*, ISH, Vol.5. No. 2, pp. 1-21.

#### **Journals (communicated)**

83. Pandey M., Sharma P.K., and Ahmad Z. (2019). Reduction Of Scour Around The Circular Piers Using Collars. *Journal of Waterway, Port, Coastal, and Ocean Engineering*.
84. Zakwan, M., and Ahmad, Z. (2019). Dominant Discharge Indices and Effect of Class Size on Effective Discharge. *ASCE Journal of Hydrologic Engineering*,
85. Zakwan, M., and Ahmad, Z. (2019). Trend Analysis of Hydrological Parameters of Ganga River. *ASCE Journal of Hydrologic Engineering*,
86. Aamir M. and Ahmad Z. (2019), Effect of roughness of rigid apron on scour downstream of sluice gates, *IAHR Journal of Hydraulic Research*. (Under review)
87. Kumar S. and Ahmad Z. (2015) "Experimental Investigation on Ingestion of Sediment into Trench Weirs". *ISH Journal of Hydraulic Engineering*, (Under Review).
88. K. K. Gupta, S. Kumar and Z. Ahmad (2015) "Discharge Characteristics of Sharp crested W - Planform weir" *Dam Engineering Journal*, (Under Review).

#### **Conference (Presentation)**

89. Kadia, S., Kumar, B., & Ahmad, Z. (2019). Discharge Characteristics of Triangular Weir with Upstream Ramp and its CFD Modelling. *Proceedings of the XXXVIII International School of Hydraulics*, 21-24 May 2019, Lack, Poland, which will be published in Springer series: "GeoPlanet: Earth and Planetary Sciences".
90. Ahmad Z. (2019). Estimation of scour around bridge piers in alluvial rivers - a practical approach. *International Civil Eng., and Architecture Conference 2019*, Trabzon, Turkey, 17-20 April, 2019.
91. Kadia, S., Kumar, B., & Ahmad, Z. (2019). Piano Key Weir as a Dam Safety Technique and its CFD Modelling in Ansys CFX Module. *International Dam Safety Conference - 2019*, 13-14 February 2019, Bhubaneswar, India.
92. Aamir M. and Ahmad Z. (2019), Hydraulics of submerged jets causing scour downstream of a rough rigid apron, *ISRS 2019 - 14th International Symposium on River Sedimentation*, Sichuan University, Chengdu, China, September 16-19. (Accepted)
93. Ahmad Z. (2019). Scour around bridge piers in alluvial and mountaneous rivers. *11th International River Engineering Conference*, Ahvaz, Iran, Jan. 29-31, 2019.
94. Ahmad Z. (2018). Sediment transport and management in Ganga river. *Conference on River Action Plan, Flood Management and Basin Development*" 27th & 28th July 2018 at New Delhi.
95. Sharma H. and Ahmad Z. (2018). Utilising submerged vanes for enhancing transverse mixing in streams. *21st International Water Technology Conference*, Port Said, Egypt, 28-30, June 2018.
96. Ahmad, Z. (2018). Physical Model Study of Spilling and Energy Dissipation Arrangements of Malana Dam, Kullu, India. *Daniel Bung, Blake Tullis, 7th IAHR International Symposium on Hydraulic Structures*, Aachen, Germany, 15-18 May. doi: 10.15142/T35934 (978-0-692-13277-7)

97. Ahmad, Z., and Singh, U. K. (2018). "Influence of clay content on incipient motion of sand in clay-silt-sand mixture". International Dam Safety conference, Jan. 23-24, Thiruvananthapuram.
98. Hashid, M., Ahmad, Z. (2018). Critical submergence for dual hydraulic intakes. International Dam Safety Conference; 23-24 January 2018, Thiruvananthapuram, India.
99. Hashid, M., Ahmad, Z. (2017). Critical submergence for water intakes. Proceedings of the 37th IAHR World Congress August 13 – 18, 2017, Kuala Lumpur, Malaysia.
100. Singh, U. K., Ahmad, Z., and Kumar, A. (2017). "Incipient motion of sand particles in presence of silt". International conference HYDRO 2017, Dec. 21-23, pp: 1077-1082, Ahmedabad.
101. Burele, S.A., Sharma, N., Ahmad Z., and Gupta I.D. (2017). Hydraulic model studies for channelization of river Kosi by using T-type shape spur. Hydro-2017 International, L.D. College of Engineering Ahmedabad, India 1083-1095.
102. Thomas, T. M. and Ahmad Z. (2017). Trend analysis of flow and sediment load in Ganga river. International Conference on Water Challenges in India, Hotel Eros, New Delhi, 8-9 Feb. 2017.
103. Ahmad Z. (2017). Erosion and siltation in Ganga river. Conference on Sediment Management in Indian Rivers on March 17, 2017 at Central Soil & Materials Research Station (CSMRS), Hauz Khas, New Delhi organized by MoWR, New Delhi.
104. Singh, U. K. and Ahmad, Z. (2017). "Flow turbulence characteristics over cohesionless degraded bed". National seminar on water management in Himalayan region, GEU Dehradun, pp: 153-161.
105. Aamir M. and Z Ahmad (2017), Scour downstream of a rigid apron, Third National Dam Safety Conference, IIT Roorkee, India, February 18-19.
106. Singh U.K., and Ahmad Z. (2016). Incipient motion for gravel particles in cohesive mixture of clay-silt-gravel. International Symposium on River Sedimentation. University of Stuttgart, Germany, Sept. 19-22, 2016.
107. Singh, U. K., Ahmad, Z., Kumar, A. and Pandey, M. (2016). "Turbulence characteristics of flow over degraded bed of clay-silt-sand-gravel mixture". International conference HYDRO 2016, CWPRS Pune, pp: 981-987.
108. A. Hussain, M. Hashid, Z. Ahmad (2015). "Experimental Study on Spilling Jet Through Lateral Square Orifice", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
109. M. Aamir, Z. Ahmad (2015). "Estimation of Scour Depth Downstream of an Apron Under 2D Horizontal Jets", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
110. M. Hashid, A. Hussain, Z. Ahmad (2015). "Flow Characteristics of Side Circular Bell Mouth Intakes in Open Channels", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.

111. U. K. Singh, Z. Ahmad, A. Kumar (2015) "Incipient Motion of Gravel-Silt Mixture", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
112. K. K. Gupta, S. Kumar, Z. Ahmad (2015). "Experimental Study of Sharp-Crested Curved Plan Form Weirs", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
113. S. Ahmad, Z. Ahmad (2015). "Scour in Cohesion-less Soil Downstream of Block Ramps", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
114. M. Pandey, Z. Ahmad, PK. Sharma, U. K. Singh (2015). "Evaluation of Existing Equations for Maximum Scour Depth near a Spur Dike", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
115. S. Bhawe, S. Kumar, Z. Ahmad (2015). "Effect of Ramp on Discharging Capacity of a Trench Weir", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
116. J. Bhatt, D. Kashyap, Z. Ahmad (2015). "Estimation of Channel Roughness using Gradually Varied Flow Profiles", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
117. N. Varshney, PK. Garg, Z. Ahmad (2015). "Morphological Study of River Mandakini Using Geospatial Tools", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
118. P. Verma, Z. Ahmad (2015). "Empirical Equations for the Prediction of Sediment Distribution in Indian Reservoirs", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
119. SA. Burele, N. Sharma, Z. Ahmad, ID. Gupta (2015). "Mathematical Model to Study Channelization by Lowering the River Bed Through Excavation", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
120. S. Singh, Z. Ahmad (2015). "Vertical Mixing of Pollutants with Unsteady Transverse Line Source", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
121. S. Trivedi, Z. Ahmad (2015). "Performance of Vortex Type Sediment Excluder with Submerged Vanes", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
122. V. Rathore, Z. Ahmad, D. Kashyap (2015). "Modelling of Transient Flow in Pipes with Dynamic Friction", Proceedings of HYDRO 2015 International Conference; 17-19 December; Roorkee, INDIA.
123. Pandey, M., Ahmad, Z., Shrama, P.K., (2014), "Experimental Study Of Temporal Scour Around Spur Dikes." Proceeding, SITACEE'14 26-27 April 2014 JNU, ISBN: 978-93-83083-78-7, 164-171
124. Pandey, M., Ahmad, Z., Sharma, P.K., Lodhi, A (2014). "Temporal variation of scour around single spur dyke and effect of multiple spur". National conf. RACE, May 21-22, 2014, Held MMMUT Gorakhpur.

125. Sanjay A. Burele, Nayan Sharma, Z. Ahmad and I. D. Gupta. (2014). Morphological Changes of River Kosi from Chatra to Nirmali”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 11, December 18-20, Bhopal, India.
126. Umesh K. Singh, Z. Ahmad and Ashish Kumar, (2014). “Experimental Study on incipient Motion of Cohesive Sediment Mixture”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 18, December 18-20, Bhopal, India.
127. Manish Pandey, Z. Ahmad and P. K. Sharma, (2014). “Evaluation of Existing Equations for Maximum Scour Depth Near Spur Dikes”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 22, December 18-20, Bhopal, India.
128. Sanjay A. Burele, Nayan Sharma, Z. Ahmad and I. D. Gupta, (2014). “Use of Artificial intelligence for Sediment Rating and Gauge Discharge Curve”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 33, December 18-20, Bhopal, India.
129. S. Kumar and Z. Ahmad, (2014). “Effect of Clear Spacing and Width (Flatness) of Rack on Discharge Characteristics of Trench Weir”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 42, December 18-20, Bhopal, India.
130. K. K.Gupta, S. Kumar and Z. Ahmad, (2014). “An Approach To Analyze the Flow Characteristics of Sharp – Crested W – Planform Weirs”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 43, December 18-20, Bhopal, India.
131. M. Hashid, A. Hussain and Z. Ahmad, (2014). “Analytical Approach for the Critical Submergence for Horizontal intakes in Open Channel Flows”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 46, December 18-20, Bhopal, India.
132. S. Bhawe, V. Verma and Z. Ahmad, (2014). “Hydraulics Performance of A Trench Weir Under Supercritical Approach Flow”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; Chapter 48, December 18-20, Bhopal, India.
133. H Sharma and Z Ahmad, (2014). “Turbulence Characteristics of Flow Past Submerged Vanes”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; International Journal of Engineering Research, ISSN: 2319-6890; Issue Special 3, December 18-20, Bhopal, India.
134. Ankit Chakravarti, R K Jain, Z Ahmad and Umesh K Singh, (2014). “Scour Due To Water Jets In Cohesionless Sediments”, Proceedings of 19th International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro 2014; International Journal of Scientific Engineering and Technology, ISSN : 2277-1581, Issue Special, December 18-20, Bhopal, India.

135. Ahmad, Z. and Srisvastava, D. (2014). Energy dissipation on block ramps with large scale roughness. In: Hubert Chanson and Luke Toombes, Hydraulic structures and society - Engineering challenges and extremes. 5th IAHR International Symposium on Hydraulic Structures, Brisbane, Australia, (1-8). 25-27 June 2014.
136. Pandey M., Ahmad Z., Sharma P. K., and Lodhi A. S., (2014). Scour and flow behaviour around single and multiple spur dikes. International Civil Eng. Symposium (ICES'14), VIT University, Vellore, March 14-16, pp-74-82.
137. B. Jain, Z. Ahmad and K. M. Singh (2013). Computational fluid dynamics: A design tool for multiple pump intakes. Hydro International -2013conference at IIT Madras, pp 351-357.
138. Z.Ahmad and M.S. Sant (2013). Effect of circulation on discharge characteristics of vertex chamber orifice. Hydro International -2013conference at IIT Madras, pp 638-645.
139. Umesh K. Singh, Z. Ahmad and Ashish Kumar (2013). Turbulence structures over mobile bed of cohesive sediment mixtures. Hydro International -2013 conference at IIT Madras, pp 714-720.
140. Ankit Chakravarti, Z. Ahmad and R.K.Jain (2013). Scour under submerged circular turbulent water jets. Hydro International -2013 conference at IIT Madras, pp 737-744.
141. Hussain S, Hussain A, Ahmad Z. (2013). Discharge characteristics of orifice type spillways. Hydro International -2013 conference at IIT Madras, pp 835-843.
142. Ahmad Z. (2013). Morphological study of Uttarakhand's rivers. National workshop on 'Sustainable rehabilitation strategy for disaster affected Uttarakhand'. Organized by IEI Dehradun, July 27, 2013.
143. Khan, D. and Ahmad Z. (2013). Estimation of critical discharge at the failure of loose rock chutes. ISRS2013, The 12th International Symposium on River Sedimentation, September 2-5, 2013, Kyoto, Japan.
144. Sharma, H., and Ahmad, Z., (2012). A new technique for enhancing transverse mixing of pollutants in streams. International Conference on Environmental Research (ICER-2012), University of Terengganu, Kuala Terengganu, Malaysia.
145. S. A. Burele, M. N. Singh, R. G. Patil, N. Sharma, Z. Ahmad and I. D. Gupta (2012). Mathematical model studies for channelization of river Kosi. Proceedings of National Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering (HYDRO-2012), IIT Bombay, India, Dec. 7-8.
146. Kumar, S. and Ahmad, Z. (2012). Computation of diverted discharge into the trench weir under free flow condition. Proceedings of National Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering (HYDRO-2012), IIT Bombay, India, Dec. 7-8.
147. Riyaz, F. and Ahmad, Z. (2012). Hydraulic characteristics of turbulent circular jet under surface confinement. Proceedings of National Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering (HYDRO-2012), IIT Bombay, India, Dec. 7-8.
148. Ahmad Z. (2012). Prediction of long term deposited sediment profile in reservoirs-a case study. International Conference on Water Resources and Renewable Energy (ASIA 2012), Chiang Mai, Thailand, 26 and 27 March.

149. Riyaz, F. and Ahmad Z. (2011). Hydraulic characteristics of confined jets. National Conference on Hydraulics and Water Resources HYDRO 2011 held at SVNIT, Surat during December 29-30, 2011.
150. Khan, D. and Ahmad Z. (2011). Flow resistance over steep roughened channels. National Conference on Hydraulics and Water Resources HYDRO 2011 held at SVNIT, Surat during December 29-30, 2011.
151. Hussain A., Kumar S., and Ahmad Z. (2011). Discharge characteristics of bottom slot for free flow in a pipe. 4th International Congress of Environmental Research (ICER-11), 15 to 17 December 2011 Surat, India .
152. Chauhan, S., Sharma H., and Ahmad Z. (2011). Enhancing transverse mixing of pollutants in streams with submerged vanes. 4th International Congress of Environmental Research (ICER-11), 15 to 17 December 2011 Surat, India, 277.
153. Sharma, H. and Ahmad Z. (2011). Impacts of climate changes on hydropower projects. Rivers 2011 conference, to be held in Penang, Malaysia from 6 to 9 December, 821-827.
154. Khan, D. and Ahmad Z. (2011). Stabilization of angular-shaped riprap under overtopping flows. ICSWRM 2011 : International Conference on Sustainable Water Resources Management to be held in Venice, Italy during November 28-30, 1153-1157.
155. Hussain A., Ahmad Z., Asawa G.L. (2010). Flow through side square orifices in open channels. Nat. Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2010. M.M. Engineering College, M.M. University, Mullana (Ambala), pp. 523-529.
156. Sharma H., Ahmad Z. (2010). Flow pattern around submerged vanes: a review. Nat. Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2010. M.M. Engineering College, M.M. University, Mullana (Ambala), pp. 79-85.
157. Kumar S., Ahmad Z., Kothiyari U.C. (2010). Effect of rack slope and porosity on discharge characteristics of trench weir. Nat. Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2010. M.M. Engineering College, M.M. University, Mullana (Ambala), pp. 553-560.
158. Wani O.F., Anand S., Loomba V., Ahmad Z. (2010). Water hammer damage to an irrigation-cum-hydro power water conducting system. Nat. Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering, Hydro-2010. M.M. Engineering College, M.M. University, Mullana (Ambala), pp. 659-666.
159. Ahmad, Z. (2010). Estimation of transverse mixing coefficients in streams, 3rd International Congress of Environmental Research, University of Mauritius, Reduit, Mauritius, September 16-18, 2010
160. Ahmad, Z., and Kumar S., (2010). Estimation of trapped sediment load into a trench weir, 11th International Symposium on River Sedimentation (ISRS), University of Stellenbosch, South Africa, Sept. 6-9, 2010, pp.1-9.
161. Sharma H., and Ahmad Z. (2010). ADV measurements of turbulence over smooth and rough beds. Nat. Seminar on Sustainable Management and Conservation of Water Resources, Rajasthan Technical University, Kota, 12-13 March 2010, pp. 127-134.



162. Jain B., and Ahmad Z. (2010). Computation of 3D velocities in a contact tank using CFD. Nat. Seminar on Sustainable Management and Conservation of Water Resources, Rajasthan Technical University, Kota, 12-13 March 2010, pp 163-166.
163. Romeji, N., Ahmad Z., Sharma, N. (2010). Optimal configuration of boulders on block ramps for stream restoration. EWRI's 3rd developing Nations conference: India 2010 - 3rd International Perspective on Current & Future State of Water Resources & the Environment, January 5-7, IIT Madras, Chennai, India.
164. Khandelwal A., Jain, K., Jain, B. and Ahmad, Z. (2008). Computation of flow patterns near an air-entraining vortex using CFD. Hydro-2008, Malaviya National Institute of Technology Jaipur 302 017.
165. Ahmad, Z., (2008). Finite volume model for BOD-DO interaction in streams, XVII International Conference on Computational Methods in Water Resources, Westin San Francisco Market Street Hotel, San Francisco, July 6-10.
166. Sharma, M.N, Ahmad, Z., Sharma N., (2007). Prediction of Sediment Yield Using ANN from Kankaimai Watershed in Eastern Nepal, 10th International Symposium on River Sedimentation (ISRS), Moscow, Aug. 1-7, 2007, pp. 267-275.
167. Ahmad, Z., Mittal M.K., (2007). Submerged vanes for sediment control at water inakes – A design methodology, 6th International R & D Conference, Feb. 13-16, 2007, Lucknow, India. pp. 446-457.
168. Nadimetla, M.P., Kumar S. and Ahmad, Z. (2006). Effect of flatness of bars on discharge characteristics of trench weir. Hydro 2006, Bharati Vidyapeeth Deemed University, Pune, Dec. 8-9, pp. 719-727.
169. Kumar, A. and Ahmad, Z. (2006). Transverse mixing of pollutants in open channels. Hydro 2006, Bharati Vidyapeeth Deemed University, Pune, Dec. 8-9, pp. 292-300.
170. Ahmad, Z., Mittal M.K., (2006). Recent advances in the design of trench weir, Himalayan small hydropower summit, Oct. 12-13, Dehradun, India. pp. 72-84
171. Sarvanan S., Ahmad Z., and Jain M.K. (2006), “Grid based rainfall runoff modelling using remote sensing and GIS”, Indo-Austrian Conference on Information Technology in Civil Engineering, Dept. of Civil Eng., IIT Roorkee, Feb. 20-21.
172. Ahmad, Z. (2005), “Modeling transient transverse mixing of pollutants in streams”, National seminar on Sustainable Infrastructure for National Development (NSSIND), Z.H. College of Eng. and Tech., AMU, Aligarh, April 17-18, pp. 105-112.
173. Aware R., Ahmad, Z. and Asawa G.L. (2004), “Scour control by submerged vanes in a curved channel”, National conference on Hydraulics & Water Resources, HYDRO-2004, VNIT, Nagpur, December 27-28.
174. Ahmad, Z. (2004), “Mixing length for establishment of longitudinal dispersion in streams”, The IASTED International Conference on Environmental Modelling and Simulation (EMS 2004), November 22-24, St. Thomas, US Virgin Islands, USA.
175. Ahmad, Z. (2004), “Modeling transverse mixing of pollutants in open channels using the finite-volume” International Conference on Hydraulic Engineering : Research and Practice, ICON-HERP-2004, IIT Roorkee, October 26-28, pp. 464-472.

176. Singh, S., Kothiyari, U.C., and Ahmad, Z. (2003), "Prediction of traveltime and longitudinal dispersion of pollutants in streams using ANN", workshop on ANN-Applications in Hydraulic Engineering, held at Bharati Vidhyapeeth University, Pune, July 5, pp. 54-63.
177. Ahmad, Z. (2002), "Free overfall as measuring device in triangular channels", Conference on Hydraulics, Water Resources and Ocean Engineering - HYDRO 2002, IIT Bombay, Dec. 16-17, pp. 115-119.
178. Ahmad, Z. and Singh, S., (2001), "End-depth-discharge relationship for free overfall in trapezoidal channels", Conference on 'Hydraulic Structures' held at Bharati Vidhyapeeth University, Pune, July 6-7, pp. 72 – 76.
179. Ahmad, Z. (1999), "Determination of dispersion coefficients for open channels", National seminar on Water Resources management for sustainable development, March 12-13, Tirupati, AP, pp156-160.
180. Ahmad, Z. (1999), "Numerical scheme for advection-diffusion equation", South-Asian Countries conference on challenges to Architects and Civil Engineers during twenty-first century, April 7-9, Kathmandu, NEPAL, pp 259-267.
181. Ahmad, Z. and Singh, S., (1998), "New numerical scheme for computation of 1-D advection equation", Proceedings of IX National Symposium on Hydrology, November 26-27, Amritsar, INDIA, pp. 402-410.
182. Ahmad, Z., Kothiyari, U.C. and Ranga Raju, K.G., (1993), "Water hammer in pipe networks", Presented on NASORT held at University of Roorkee from March 27-28, pp. 253-262.

#### **14. B. Tech. Project supervised (from 2005)**

S.No.	Title	Year	Name of Student	Co-supervisor
1	Estimation of longitudinal dispersion coefficient using ANN	2005	Mr. Harish Kumar	-
2	Design and planning of Small Hydro Project	2006	Mr. Ankit Pareek and his group	Prof. M.K.Mittal Prof. N.M. Bhandari
3	Design of Syphon Aqueduct	2006	Mr. Kislay Kishore and his group	Prof. A.K. Jain
4	Flow pattern near Water Intake using CFD	2007	Mr. Ankit Khandewal Mr. Prashant Agarwal	-
6	Flow measurement using metallic strip	2007	Mr. Arun Sharma	-
7	Flow calculation in horse-shoe conduit	2007		-

8	Environmental and water waste treatment of industrial estate, Haridwar	2008-09	Abhishek Sharma Pamkaj Bansal Pavan Gupta	Dr. A. A. Kazmi
9	Geo-sedimentation investigation of the hydro-power projects	2008-09	Mohit Saxena Akshay Wahal Ankit Khandewal Prashant Patel	Prof. U.C. Kothiyari Prof. Mahendra Singh
10	Design of water conducting system of pump storage plant for hydraulic transients condition	2009-10	Abhilash Ashish Kumar Chandan Gupta Chennareddy S. S. Rajesjwearachary	Prof. Mahendra Singh Dr. P.K. Sharma
11	Hydraulic and structural design of siphon for canal water intake	2009-10	Nithil Malguri Sneha Rao Yash Ratn	Prof. M.K. Mittal Dr. A. Upadhyay
12	Hydraulic and structural design of settling basin	2010-11	Bhawani S. Salvi Manjet S Dagar Sunayan Dania Saivesh Narayan	Prof. V K Gupta Dr. Umesh Sharama
13	Design of water supply network for Greater Noida Town	2010-11	Navneet Kumar Nitin Kadian Pranjal Srivastava R Vaasai	Dr. A A Kazmi
14	Planning and design of a Hydropower Project	2012-13	All B.Tech. students	Project Coordinator

#### 15. Master dissertation supervised

S.No.	Title	Year	Name of Student	Co-supervisor
1	Prediction of travel time of pollutants in open channels using ANN	2003	Ms Shalini Singh	U.C. Kothiyari
2	Scour around submerged vanes	2004	Rahul Aware	G.L. Asawa

	in meander channels			
3	Flow characteristics over bottom racks	2005	Ms Susmitta Ghosh	-----
4	Sediment management with submerged vanes	2005	Rajeev Ranjan	G.L. Asawa
5	Transverse mixing in open channels with multi-points pollutant sources	2006	Ajay Kumar	A. A. Kazmi
6	Effect of approach flow on critical submergence for pump intake	2006	Eswaran Durai	M.K. Mittal
7	Hydraulic jump on corrugated bed	2006	Pradeep Kumar	G.L. Asawa
8	Hydrologic response of Kankai Mai water shed in eastern Nepal	2006	Mekhnath Sharma	Nayan Sharma
9	Energy dissipation on block ramp	2007	M. P. Nadimetta	-----
10	Critical submergence at intake in uniform flow	2007	K. Vigneswar Rao	M.K. Mittal
11	Sediment managements at water intake	2007	Vinod Kumar	Nayan. Sharma
12	Numerical model studies on River Ganga for fairway between Allahabad and Sirsa	2007	Perwez Akhtar	Nayan Sharma
13	Determination of critical velocity for slurry transport through pipeline	2008	Fery M. Hepy	M.L. Kansal
14	Scour reduction by collar plate under live bed conditions	2008	Piyush Dev Singh	U.C. Kothiyari
15	Flow pattern in pump sump intake	2009	Bhupesh Jain	-----
16	Hydraulic transients in water conducting system of a PSP	2009	Pawan Kumar	----
17	ADV measurements of turbulence over smooth and rough surfaces	2009	Himanshu Sharma	----
18	Sediment management in streams	2009	Asika	M.L. Kansal
19	Sector vector Machine rainfall-	2009	Md. Zaikaullah	Nayan Sharma

	runoff prediction			
20	Discharge characteristics of side orifices in open channels	2010	Ajmal Hyssain	G.L. Asawa
21	Enhanced transverse mixing of pollutants in open channels with submerged vanes	2010	Swapnil Chouhan	Vipul Rastogi
22	Discharge characteristics of bottom racks with T-shaped bars	2011	Vishaka Markhanda	C S P Ojha
23	Energy dissipation on block ramps with protruding boulders	2011	Dilavar Gull Khan	----
24	Characteristics of turbulent circular jet with surface confinement	2012	Fahem Riaz	----
25	Hydraulic characteristics of flow over ramp with rounded boulders	2012	Devanand Srivastava	----
26	Sediment trap efficiency of pressurized desilting chamber	2012	Seraj Ahmad	C S P Ojha
27	A study on orifice type surge tank system	2013	Neha Chauhan	Deepak Kashyap
28	Numerical simulation of dam break scenario	2013	Chand Kumar	Deepak Kashyap
29	Discharge characteristics of orifice type spillway under oblique approach flow	2013	Sabir Hussain	P.K. Sharma
30	Hydraulic performance of bottom rack under supercritical approach flow	2013	Vipin verma	----
31	Estimation of hydraulic roughness parameters for boulder streams	2013	Dereese Admasu Tessema	M. L. Kansal (WRDM)
32	Sediment removal efficiency of vortex chamber type of sediment extractor	2013	Manish Shankar Sant	P.K. Sharma
33	Flow pattern and scour around spur dikes in channels	2014	Manish Panday	P.K. Sharma
34	Scour in stratified sand and gravel bed under submerged	2014	Minakshee Mahananda	----

	circular vertical jets			
35	Critical submergence of bell mouth intakes in uniform flow	2014	Muhammed Hashid	----
36	Scour in cohesionless sediment bed under submerged inclined jets	2015	Angad Kumar Sharma	P.K.Sharma
37	Estimation of channel roughness using gradually varied flow profiles	2015	Jaya Bhatt	Deepak Kashyap
38	A development of empirical equations for the prediction of sediment distribution in Indian reservoirs	2015	Preety Verma	----
39	Experimental study on contraction scour in cohesionless soil	2015	Ravindra Kumar Singh	P.K.Sharma
40	Performance of vortex type sediment excluder with submerged vanes	2015	Shubham Trivedi	Nayan Sharma
41	Modelling of transient flow in pipes with dynamic friction	2015	Vijit Rathore	Deepak Kashyap
42	Geomorphological study of river Mandakani at some critical locations using geospatial tools	2015	Nandini Varshney	P K Garg
43	Planform study of river Ganga using satellite images	2015	Deen Dayal	P K Garg
44	Hydraulics of gabion weirs	2016	Dessalew Tadesse	C S P Ojha
45	Bridge scour in constricted flows	2016	Rishi Kumar Garhewal	P K Sharma
46	Channel process and morphology of Ganga river	2016	Gaurav Tiwari	R.D. Garg
47	Hydraulics of Inflatable rubber dam	2017	Prapti Rathod	---
48	Study on erosion and siltation in Ganga river from Patna to Mokama, Bihar	2017	Tresa Marry Thomas	---
49	Scour below underwater pipe in a channel	2017	Melsew Berihun	P K Sharma
50	Scour around pier under submerged condition	2017	Ashutosh Kumar Gupta	P K Sharma
51	Experimental study on development length in a pipe	2018	Pavitra Kumar	-----
52	Scour around a compound pier	2018	Ajay Singh	-----

53	Protection against the scour downstream of a solid apron using concrete mattresses	2019	Suman Kumar Jha	S K Mishra
52	Scour downstream of a corrugated apron	2019	Rakesh Kumar Choudhary	S K Mishra
53	Movement of sediment over a Piano Key Weir	2019	Subhojit Kadia	S K Mishra
54		2019		P K Sharma
55		2019		

#### 16. Ph.D. dissertation supervised

S.No.	Title	Year	Name of Student	Co-supervisor
1	Two-dimensional mixing of pollutants in open channels	2005	Sarbjit Singh	U.C. Kothyari
2	Experimental investigation of flow over trench weir with flat bars	2012	Sanjeev Kumar	U.C. Kothyari
3	Distributed Rainfall-Runoff modeling with variable storage using GIS	2013	S. Saravanan	M.K. Jain
4	Energy dissipation on block ramp	2013	R.M. Singh	Nayan Sharma
5	Influence of cohesion on scour under submerged circular vertical jet.	2014	Ankit Chakraborty	Ashish Kumar
6	Flow characteristics of side orifices and intakes in open channels	2014	Ajmal Hussain	C S P Ojha
7	Experimental Investigation for Channelisation of a Braided River	2015	Sanjay A Burele	Nayan Sharma I. D. Gupta
8	Investigation on swirl in pump sump intake and its control	2015	Bhupesh Jain	K M Singh
9	Enhanced transverse mixing of pollutants in open channels with submerged vanes	2016	Himashu Sharma	----
10	Influence of cohesion in cohesive sediment transport	2018	Umesh Kumar Singh	Ashish Kumar

11	Experimental Investigation of Flow in Trench Weir with T-shape bars	2019	Ms Swati Bhawe	-----
12	Study on Scour of mobile channel bed downstream of block ramps	On-going	Seraj Ahmad	-----
13	Scour downstream of sluice gate	Submitted	Mohd. Aamir	-----
14	Critical submergence for multiple intakes	On-going	Mohd. Hashid	-----
15	Scour around bridge piers in curved channels	On-going	Preety Verma	-----
16	Erosion and siltation in river Ganga	On-going	Mohd. Zakhwan	-----
17	Hydraulics of Piano Key Weir	On-going	Binit Kumar	-----
18	Interference of bridge piers on flow and scour pattern	On-going	Arbaz Ahmad	-----
19	Hydraulics of Gabion Weir	On-going	Ali Shariq	Ajmal Hussain
20	Scour under vortex flow		Faisal Ansari	

## 17. Courses developed

- During four months stay at AIT Bangkok, developed a course of *Planning and Development of Hydropower* for PG students. The complete course material is available on the following site:  
[www.sce.ait.ac.th/people/faculty/z\\_ahmad/](http://www.sce.ait.ac.th/people/faculty/z_ahmad/)
- Developed a course of *Design of Hydropower Structures* for PG students. The complete course material is available on the following site:  
<http://www.iitr.ernet.in/departments/CE/hydro.htm>
- Written the following two course materials under continuing education program of AICTE, New Delhi:
  - Transport of Pollutants in Open Channels*, 2001, pages-162



**b)** *Control Sections in Open Channels*, 2003, pages- 160.

## **18.0 QIP Short Term Lectures/Expert Lectures**

1. March 17, 2017. Conference on sediment management in Indian rivers. MoWR, River Development and Ganga Rejuvenation, Govt. of India.
2. Wastewater Pumping – Basic Calculations: Basics of sewage treatment, IIT Roorkee, Jan. 27, 2006 to Feb. 1, 2006.
3. Practice Exercise O & M of Pumps, Valves & Piping: Basics of sewage treatment, IIT Roorkee, Jan. 27, 2006 to Feb. 1, 2006.
4. Project Monitoring: Bar Chart/ CPM/ PERT (I): Specialist Training Course on Rural Infrastructure Development Project, Sponsored by NABARD, May 22-26, 2006.
5. Project Monitoring: Bar Chart/ CPM/ PERT (II): Specialist Training Course on Rural Infrastructure Development Project, Sponsored by NABARD, May 22-26, 2006.
6. Sediment control at water intake using submerged vanes: Special Training Course on Sediment Management in Hydropower Projects, IIT Roorkee, August 7-9, 2006.
7. Hydraulic Design of Trench Weir, NIT Hamirpur, July 17, 2007.
8. Control of sediment at water Intake using submerged vanes, NIT Hamirpur, July 17, 2007.
9. A series of lectures on hydraulic design of hydropower structures, T.I.E.T, Patiala, Aug. 25, 2007.
10. Sediment Control at Water Intake using Submerged Vanes, JUIT, Solan, HP, Jan-2009.
11. Hydraulics of Trench Weir, JUIT, Solan, HP, Jan-2009.
12. Hydropower- A key to prosperity in the growing world, EDS-08, Dehradun, organized by Muslim Educational Trust, New Delhi,
13. Organised one day IWRS workshop of Global Climate Change and Its Impact on Water Resources, IIT Roorkee, Dec-6, 2008.
14. Flood estimation. Survey Investigations and Hydrological studies for SHP Development, June 08-12, 2010, IIT Roorkee.
15. Impacts of Climate change on hydropower projects, DST Sponsored National Seminar on Global Warming and Its Effects on Water Resources, December 03-04, 2010, Graphics Era University, Dehradun, Key note speaker.
16. Development of Water Resources in India, Role of Civil Engineers in Human & Infrastructural Development” Engineers day celebration The Institutional of Civil Engineers, New Delhi, Sept. 15, 2010, Key note speaker.
17. Physical modeling of desilting chamber, 2<sup>nd</sup> Sediment Management Conference, The Grand, Vasant Kunj, New Delhi, November 11, 2011.

(Z. Ahmad)