

**MINUTES OF 68<sup>th</sup> MEETING OF  
TECHNICAL ADVISORY COMMITTEE OF  
NATIONAL INSTITUTE OF HYDROLOGY  
HELD ON JULY 21, 2015 AT NEW DELHI**

The 68<sup>th</sup> meeting of the Technical Advisory Committee (TAC) of the National Institute of Hydrology, Roorkee was held in the Central Water Commission, New Delhi on July 21, 2015. The meeting was chaired by Sh. A.B. Pandya, Chairman, CWC. The list of the participants is given in Appendix -I.

The Chairman in his opening remarks welcomed the members and the invitees. He appreciated the works being carried out by NIH, and urged that the Institute should gear up to handle new challenges, such as impact of climate change on water resources. He then requested the Member-Secretary to take up the agenda.

Dr V C Goyal, Member-Secretary, also welcomed the Chairman, members and invitees. He then took up the agenda items. He briefed the constitution of the Committee and informed that 8 new members have been nominated by the Chairman, GB of NIH for a term of 3 years. As this was the first meeting of the newly nominated members, he requested all the members to express their views on the research activities at NIH. The views expressed by the Chairman/members are as follows:

Sh. A B Pandya, Chairman, CWC	<ul style="list-style-type: none"> <li>• Suggested involvement of NIH in (i) paleo-channel study on Saraswati river for isotope fingerprinting, and (ii) exploitation of groundwater resources using nuclear hydrology applications NIH should consider hiring of more storage to upload completed studies on NIH webpage</li> <li>• Research should explore the nitty-gritty of the practicing science (hydrology), which should lead to better engineering practice</li> <li>• Use a uniform format (as used by the WRS Division) for reporting the work programme</li> <li>• Balance has to be struck between research and consultancy projects</li> <li>• Research programme at NIH cannot be self-sustaining. In order to avoid dilution of research focus, NIH should not spread its available resources too thin and not over-stretch on generation of funds through consultancy</li> <li>• Establish a guiding mechanism for peer-review of the requests of externally funded projects, as suggested by Dr Ravinder Kaur of WTC-IARI</li> </ul>
Sh. C K Agrawal, Member (D&R),CWC	<ul style="list-style-type: none"> <li>• Prioritization of studies is needed for timely completion/ delivery of the ongoing research work</li> </ul>
Dr. Ravinder Kaur, Director, WTC, Delhi	<ul style="list-style-type: none"> <li>• Translation research is needed to transfer results for the field and for policy makers</li> <li>• Develop methodology and semi-hightech tools, which are less data hungry and can be easily implemented</li> <li>• Focus on flood and drought studies, especially for ungauged</li> </ul>

	<p>watersheds</p> <ul style="list-style-type: none"> <li>• Studies required for precise monitoring of agricultural water</li> <li>• Explore MOUs with WTC of Agricultural Universities</li> <li>• Develop 'consortia platform' with IITs, NITs, WTCs</li> <li>• Majority of 'internal' studies, seems to be taken up on adhoc-basis, should be limited. NIH has to balance between the basic and applied research. Research studies with priority needs of the country should be taken up</li> <li>• Establish a Project Monitoring Cell (PMC) at NIH to scrutinize, prioritize and oversee implementation of all externally funded projects, including consultancy projects</li> </ul>
Dr. Surinder Kaur, DDGM(H), IMD	<ul style="list-style-type: none"> <li>• NIH should take up studies addressing actual problems, e.g. urban flooding</li> <li>• Projects should be taken up on watershed basis to tackle water quantity as well as quality related issues</li> <li>• Modeling future scenario of water resources is needed to study the impacts of climate change, e.g. on construction of water storage structures</li> </ul>
Dr. E. Sampath Kumar, Member, CGWB	<ul style="list-style-type: none"> <li>• NIH should undertake research studies on overexploitation of groundwater, and impact assessment of artificial recharge schemes</li> <li>• Modeling of coastal area problems</li> </ul>
Prof. N K Goel, IIT Roorkee	<ul style="list-style-type: none"> <li>• There should be mechanism to develop regular interactions between NIH scientists and TAC members</li> <li>• Interface must be developed between NIH scientists and academic institutions</li> <li>• Completed studies should be uploaded on NIH website</li> <li>• Institutional level check is required to ensure that papers are published in reputed and peer-reviewed journals</li> <li>• Excellence in research should be the main focus</li> <li>• Research should lead to better engineering practices</li> </ul>
Prof. K P Sudheer, IIT Madras	<ul style="list-style-type: none"> <li>• Overall coverage of NIH studies is good but in-depth studies are lacking</li> <li>• Focus should be on flood and drought studies, especially in the context of climate change, covering adaptation strategies</li> <li>• List of reputed peer-reviewed journals should be identified</li> <li>• Duration of studies should be reasonable as per requirement of the work, and not unduly over stretched</li> </ul>
Prof. Rohit Goyal, MNIT, Jaipur	<ul style="list-style-type: none"> <li>• There is lot of scope for research on developing state-of-art sensors for ground water level and water quality monitoring</li> <li>• Involvement of students from multi-disciplines in research studies at NIH should be explored</li> </ul>
Prof. KV Jayakumar, NIT, Warangal	<ul style="list-style-type: none"> <li>• Enhance visibility of NIH's work and output</li> <li>• Enhance interactions with academic institutions and involvement of research scholars</li> <li>• Focus on studies related to urban hydrology, environmental flows, wetland hydrology</li> <li>• Combine studies with NITs and IITs to be taken up</li> </ul>
Dr. N G Srivastava, AGM, PCRI, BHEL	<ul style="list-style-type: none"> <li>• Focus is required on hydro-biological aspects of wastewater treatment (e.g. phyto-remediation)</li> <li>• Studies to cover aquatic ecosystem are required</li> </ul>
Sh. Bhopal Singh, Dir.	<ul style="list-style-type: none"> <li>• Research work should lead to some products, e.g. Manuals for</li> </ul>

Hyd. (S) CWC	practicing engineers
Sh. N N Rai, Director (NE), CWC	<ul style="list-style-type: none"> <li>• Focus needed on flood management aspects</li> <li>• Problem of recurring floods in key basins should be studied</li> <li>• Reliable figures of E-flows should be worked out for different water sectors</li> </ul>

**ITEM NO. 68.2: Confirmation of the Minutes of 67<sup>th</sup> Meeting of TAC**

The Member-Secretary informed that the minutes of the 67<sup>th</sup> meeting of the TAC, held on July 15, 2014 at New Delhi, was circulated vide letter no. NIH/RCMU/TAC/34/11 dated July 22, 2014. Since no comments were received from the members, the Minutes were confirmed by the TAC.

**ITEM NO. 68.3: Action Taken on the Decisions/Recommendations in the Previous Meeting**

The Member-Secretary informed that the suggestions offered during the previous meeting have been noted for compliance.

**ITEM NO. 68.4: Status of the Work Programme for the Year 2014-2015**

The Member-Secretary briefed about the studies carried out by the Institute during the year 2014-2015. He informed that 67 internal studies and 17 sponsored projects were taken up during the year 2014-15. He also informed that 179 research papers have been published by the Institute during July 2014-March 2015 & April-May 2015. He further informed that 30 training courses/workshops/symposia were organized during this period. Members appreciated the number of publications brought out by the Institute and number of training/workshop/symposium organized by the Institute.

Some members pointed out abrupt discontinuation of two studies during the work programme of 2014-15, namely "Environmental Flow Assessment of Hemavathi River in Karnataka" under Environmental Hydrology Division, and "Impact of Climate and Land Use Change on Floods of Various Return Periods" under Water Resources Division. Director, NIH, replied that since the PIs of these studies have left the Institute, the studies could not be completed. The TAC opined that in such cases it is the responsibility of the other study team members to complete the ongoing study.

The following studies completed during 2014-2015 were presented during the meeting:

1. Saph Pani- Enhancement of Natural Water Systems and treatment methods for Safe and Sustainable Water Supply in India (Dr N C Ghosh, Sc.G, NIH)
2. Study of Hydro-meteorological Droughts of Chitrakoot Bundelkhand region in India (Dr R P Pandey, Sc.F, NIH)
3. Water Availability Studies for Sukhna Lake, Chandigarh (Dr Suhas Khobragade, Sc.E, NIH)

4. Glaciological Studies of Phuche Glacier, Ladakh Range, India (Dr R J Thayyen, Sc.D, NIH)

#### **ITEM NO. 68.5: Report the Proceedings of the Working Group Meetings**

The Member-Secretary briefed about the 41<sup>st</sup> and 42<sup>nd</sup> meetings of the Working Group of NIH, which were held at NIH, Roorkee, during November 26-27, 2014 and March 19-20, 2015, respectively. During these meetings, the Working Group members reviewed the progress of studies for the year 2014-2015 and also discussed the proposed work programme for the year 2015-2016. He presented the major recommendations of the working group.

TAC noted the proceedings of the Working Group meetings.

#### **ITEM NO. 68.6: Work Programme for the Year 2015-2016**

The Member-Secretary briefed about the proposed work programme of the Institute for the year 2015-2016, which was discussed during the 42<sup>nd</sup> Working Group meeting of NIH. He informed that 75 internal studies and 12 sponsored projects are proposed to be taken up during the current year. Director, NIH, informed that due to some administrative reasons, the RCC meeting of CFMS, Guwahati could not take place so far and shall be held shortly. The TAC authorized the Director, NIH, to consider the proposed studies at CFMS, Guwahati in the forthcoming RCC meeting and report to the TAC in its next meeting.

The TAC approved the proposed work programme of the Institute for the year 2015-2016. The list of studies approved by the TAC for the year 2015-2016 is given in Appendix-II.

#### **ITEM NO. 68.7: Reporting Items**

1. Details of the consultancy projects carried out by NIH during the year 2014-2015 were noted by the TAC. Prof K P Sudheer and Prof K V Jayakumar pointed out long delays in completion of the consultancy projects. Director, NIH, replied that the status in many such cases is shown as "ongoing" since the final payment has not been received from the funding agency although the work was completed and final report submitted long time back. The TAC suggested that in such cases the status should be reported as "completed" with a remark that the final payment is pending.

The meeting ended with a vote of thanks to the Chair.

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#### **Appendix– I: List of Participants**

#### **Appendix– II: Approved Work Programme for the Year 2015-2016**

**LIST OF PARTICIPANTS OF THE 68<sup>th</sup> TAC MEETING OF NIH**

1. Sh. A.B. Pandya, Chairman, CWC, New Delhi
2. Sh. C K Agrawal, Member (D&R) CWC, New Delhi
3. Sh. R.D. Singh, Director, NIH, Roorkee
4. Dr. E. Sampath Kumar, Member (SML), CGWB
5. Dr. Ravinder Kaur, Project Director, WTC, ICAR-IARI, New Delhi
6. Prof. N K Goel, IIT, Roorkee
7. Prof. K P Sudheer, IIT Madras
8. Prof. K V Jayakumar, NIT, Warangal
9. Prof. Rohit Goyal, MNIT Jaipur
10. Dr. Surinder Kaur, DDGM(H), IMD, New Delhi
11. Dr. N G Srivastava, AGM, PCRI, BHEL, Haridwar
12. Dr. V C Goyal, Sc.F & Member-Secretary, NIH, Roorkee

**INVITEES**

1. Dr. Sharad K. Jain, Sc.G, NIH, Roorkee
2. Dr. N C Ghosh, Sc.G, NIH, Roorkee
3. Dr. Rakesh Kumar, Sc.G, NIH, Roorkee
4. Dr. Sudhir Kumar, Sc.G, NIH, Roorkee
5. Dr. R P Pandey, Sc.F, NIH, Roorkee
6. Dr. S D Khobragade, Sc.E, NIH, Roorkee
7. Dr. R J Thayyen, Sc.D, NIH, Roorkee
8. Dr. Jyoti P. Patil, Sc.C, NIH, Roorkee
9. Sh. N.N. Rai, Director, Hydrology (NE), CWC, New Delhi
10. Sh. A K Agrawal, Director, Hydrology (DSR), CWC, New Delhi
11. Sh. M. Raghuram, Director, Hydrology (N), CWC, New Delhi
12. Sh. Bhopal Singh, Director, Hydrology (S), CWC, New Delhi

**APPROVED WORK PROGRAMME FOR THE YEAR 2015-2016**

**ENVIRONMENTAL HYDROLOGY DIVISION  
2015-16**

<b>S.N.</b>	<b>Code</b>	<b>Study</b>	<b>Study Team</b>	<b>Duration</b>
<b>Internal Studies</b>				
1.	EH/2015/TS-1	Water Quality Modelling using Soft Computing Techniques	Rama Mehta (PI) C. K. Jain	<b>2 Years (05/14-05/16)</b>
2.	EH/2015/TS-2	Himalayan River Water Quality Assessment in a Stretch from Gangotri to Hardwar	Rajesh Singh (PI) C. K. Jain M. K. Sharma S. P. Rai Renoj J. Thayyan J. P. Patra	<b>3 Years (07/14-06/17)</b>
<b>Sponsored Projects</b>				
1.	EH/2015/SR-1	Ionic Enrichment Dynamics of Glacial Sediment and Melt water of Gangotri Glacier <b>(DST)</b>	M. K. Sharma (PI) C. K. Jain Renoj Thayyan Manohar Arora Naresh Saini Jatin Malhotra Rakesh Goyal Karan Jamwal	<b>3 Years (04/14-03/17)</b>
2.	EH/2015/SR-2	Low Cost Technology for Purification of Arsenic and Microbes Contaminated Water using Nanotechnology <b>(DST)</b>	Vijaya Aggarwala, IITR (PI) Rama Mehta, NIH (Co-PI)	<b>2 Years (04/14-03/16)</b>

**GROUND WATER HYDROLOGY DIVISION  
2015-16**

S. No.	Code	Study	Study Team	Duration & Status
1.	GWH/2015/TS-1	Flow and Contaminant Transport Modeling of Riverbank Filtration	Shashi P. Indwar (PI) N.C. Ghosh Anupma Sharma Rajan Vatsa	3 ½ years (04/12 – 09/15) Status: In progress
2.	GWH/2015/TS-2	Management of Water Resources for Quantity and Quality in Yamuna-Hindon Inter-basin	Anupma Sharma (PI) Deepak Kashyap, CED, IITR (Technical Advisor) N. C. Ghosh M K Sharma R.P. Singh Sumant Kumar Shashi P. Indwar	3 years (12/14 – 11/17) Status: In progress
3.	GWH/2015/TS-3	Development of Website and e-Portal on " <i>Mitigation and Remedy of Arsenic Menace in India</i> "	N. C. Ghosh (Coordinator) C. P. Kumar (PI) Anupma Sharma Shashi P. Indwar Sanjay Mittal	2.5 years (04/15 – 9/17) Status: New
4.	GWH/2015/TS-4	Diagnosis Survey and Selection of Suitable Sites for Development of Riverbank Filtration Demonstration Schemes in Different States	Surjeet Singh (PI) N.C. Ghosh C. P. Kumar Sumant Kumar Sanjay Mittal	1 year (04/15 – 3/16) Status: New
5.	GWH/2015/TS-5	Alternate Water Supply Management Strategies in Arsenic Affected/ Vulnerable Areas: Mapping of Arsenic Affected Zones/ Regions in Eastern U.P.	Sumant Kumar (PI) & Shashi P. Indwar (PI) N. C. Ghosh R. P. Singh Rajesh Singh S. L. Srivastava	1 year (04/15 – 3/16) Status: New

**HYDROLOGICAL INVESTIGATION DIVISION  
2015-16**

S. N.	Code	Study	Team	Duration / Status
<b>Ongoing Internal Studies</b>				
1.	HI/2015/TS-1	Isotopic Studies for the Identification of Different Aquifer Groups and their Dynamics in Upper Yamuna River Plains	Sudhir Kumar (PI) C. K. Jain S. P. Rai S. D. Khobragade P. K. Garg CGWB, Lucknow CGWB, Chandigarh	<b>2 years</b> (07/13-06/15)
2.	HI/2015/TS-2	Estimation of Radon Concentration in Waters and Identification of Paleo-groundwater in Part of Punjab Located in Satluj River Basin using Isotopes	S. K. Verma (PI) S. P. Rai (Co-PI) M. S. Rao C. P. Kumar Mohar Singh	<b>2 years</b> (10/13-09/15)
3.	HI/2015/TS-3	Interaction between groundwater and seawater along the northern part of east coast of India	M. S. Rao (PI), Sudhir Kumar Pankaj Garg	<b>2 years</b> (01/15 - 12/16)
4.	HI/2015/TS-4	Isotopic investigation of benchmark Himalayan glaciers.	M. S. Rao (PI) S.P. Rai, Sudhir Kumar Pankaj Garg	<b>2 years</b> (01/15 - 12/16)
5.	HI/2015/TS-5	Assessment of dissolved radon concentration for groundwater investigations in Haridwar district	Pankaj Garg (PI) Sudhir Kumar, M. Someshwar Rao	<b>1 year</b> (01/15 – 12/15)
<b>New Internal Studies</b>				
6.	HI/2015/TS-6	Status Report on Rewalsar Lake, Himachal Pradesh	SD Khobragade (PI) Sudhir Kumar, C. K. Jain	<b>1 year</b> (04/15 – 03/16)
7.	HI/2015/TS-7	Lake-Groundwater Interaction Studies for Sukhna Lake, Chandigarh	SD Khobragade (PI) Sudhir Kumar, Senthil Kumar, Pankaj Garg	<b>3 year</b> (04/15 – 03/18)
<b>Sponsored Projects</b>				
8.	HI/2015/SR-1	The Structure and Dynamics of Groundwater Systems in Northwestern India under Past, Present and Future Climates <b>(MoES)</b>	S. P. Rai (PI) M. S. Rao Surjeet Singh S. K. Verma C. P. Kumar Sudhir Kumar V. K. Agarwal Rajeev Gupta S. L. Srivastava Vishal Gupta Mohar Singh	<b>3 years</b> (06/12-03/16) <b>Continuing Study</b>



<b>S. N.</b>	<b>Code</b>	<b>Study</b>	<b>Team</b>	<b>Duration / Status</b>
9.	HI/2015/SR-2	The Use of Environmental Isotopes to Assess Sustainability of Intensively Exploited Aquifer Systems in North Eastern Parts of Punjab, India <b>(IAEA)</b>	M. S. Rao (PI) C. P. Kumar S. P. Rai	<b>3 years</b> (09/12-08/15) <b>Continuing Study</b>
10.	HI/2015/SR-3	Assessment of Baseflow and its Impact on Water Quality in the Part of Satluj River in India using Environmental Isotopes and Age Dating Techniques <b>(IAEA)</b>	S. P. Rai (PI) R. V. Kale M. S. Rao C. P. Kumar Sudhir Kumar V. K. Agarwal Vishal Gupta Mohar Singh	<b>3 years</b> (10/12-09/15) <b>Continuing Study</b>
11.	HI/2015/SR-4	Integration of Isotope Hydrology in Aquifer Mapping Efforts in India: A Pilot Study of Upper Yamuna Plains <b>(IAEA)</b>	Sudhir Kumar (PI) S. P. Rai S. D. Khobragade C. K. Jain P. K. Garg	<b>2 years</b> (05/13-04/15) <b>Continuing Study</b>
12	HI/2015/SR-5	Understanding of hydrological processes in Upper Ganga basin by using isotopic techniques <b>(DST)</b>	Dr. S. P. Rai (PI) Dr. Sudhir Kumar Rajesh Singh S. D. Khobragade Dr. M. Arora Dr. R. J. Thayyen Sh. P. K. Garg	<b>5 years</b> (4/15 – 3/20) <b>New Study</b>

**SURFACE WATER HYDROLOGY DIVISION  
2015-2016**

S.N.	Code	Study	Study Team	Duration
<b>Ongoing Internal Studies</b>				
1.	SWH/2015/ TS-1	Application of DSS (P) for Integrated Water Resources Development & Management	A.K. Lohani Surjeet Singh Rahul Jaiswal D K Sonkusale Akilesh Verma	2 years (April 2013 to Sept. 2015)
2.	SWH/2015/ TS-2	Estimation of Water Balance for Integrated Water Resources Management in Yerrakalva Pilot Basin, A.P.	J.V.Tyagi YRS Rao	1 year (April 2014 to Sept. 2015 )
3.	SWH/2015/ TS-3	Study of Rainfall Patterns and Comparison of Rainfall Data from different Sources for Uttarakhand State	Archana Sarkar Vaibhav Garg, IIRS Rakesh Kumar N.K. Bhatnagar	2 years (April 2014 to Sept. 2017)
4.	SWH/2015/ TS-4	Quantitative assessment of uncertainties in river discharge estimation	Sanjay Kumar Sharad Jain	3 Years (April 2013 to March 2016)
5.	SWH/2015/ TS-5	Evaluation and modeling of hydrological support system for watersheds of Garhwal, Uttarakhand hills.	Avinash Agarwal Manohar Arora RK Nema	3 Years (Nov 2013 to Oct 2016)
6.	SWH/2015/ TS-6	Effect of climate change on evaporation at point scale	Digambar Singh A. R. Senthil kumar Manohar Arora	3years (June 2014 to March 2017)
7.	SWH/2015/ TS-7	Hydrological modelling, water availability analysis	J.P.Patra Rakesh Kumar Pankaj Mani	3years (April 2014 to March 2017)
<b>Ongoing Sponsored Projects</b>				
1.	SWH/2015/ SR-1	Modeling of Gangotri Glacier melt runoff and simulation of stream flow variation under different climate scenarios	Manohar Arora Rakesh Kumar	3years (May 2014 to March 2017)
<b>New Internal Studies</b>				
1.	SWH/2015/ TS-8	Flood and Sediment studies in Himalayan basin using MIKE-11 Model	A.K. Lohani	3 years (April 2015 to March 2018)
2.	SWH/2015/ TS-9	Snowmelt Runoff Modelling and Study of the Impact of Climate Change in Sharda River Basin	Archana Sarkar T. Thomas Vaibhav Garg	3 years (April 2015 to March 2018)
3.	SWH/2015/ TS-10	Study on effect of climate change on sediment yield to Pong reservoir	A. R. Senthil Kumar J. V. Tyagi Avinash Agarwal Suhass Khobragade Manohar Arora	3 years (April 2015 to March 2018)
4.	SWH/2015/ TS-11	Study of regional drought characteristics and long term changes in supplemental irrigation water requirement in Seonath Basin in Chhattisgarh	R.P. Pandey Rakesh Kumar	2 years (April 2015 to March 2017)

**WATER RESOURCES SYSTEM DIVISION  
2015-16**

<b>S N</b>	<b>Code</b>	<b>Study</b>	<b>Study Team</b>	<b>Duration</b>
<b>Ongoing Internal Studies</b>				
1.	WRS/2015/ TS-1	NIH_Basin – A WINDOWS based model for water resources assessment in a river basin	M. K. Goel Deepa Chalisgaonkar Sharad K. Jain Prabhash K. Mishra	3 Years (04/13- 03/16)
2.	WRS/2015/ TS-2	Assessing climate change impact across KBK region of Odisha	P. K. Mishra Sharad K. Jain Sanjay K. Jain	3 Years (04/13- 03/16)
3.	WRS/2015/ TS-3	Glacier change and glacier runoff variation in the upper Satluj river basin	Sanjay K. Jain Sharad K. Jain Renoj J. Thayyen	2.5 Years (10/13- 03/16)
4.	WRS/2015/ TS-4	Variability of the Hydro-climatic variables in Punjab Plains of Lower Satluj	M. K. Nema Sharad K. Jain	2 Years (11/13- 10/15)
5.	WRS/2015/ TS-5	Catchment scale evaluation of cold-arid cryospheric system Hydrology, Ganglass catchment, Ladakh	Renoj J. Thayyen S. P. Rai Sanjay K Jain Sudhir Kumar	3 years (04/14- 03/17)
6.	WRS/2015/ TS-6	Hydrologic Modelling of a part of Satluj Basin using SWAT Model	P. K. Agarwal Sharad K. Jain M. K. Goel Sanjay K. Jain M. K. Nema Tanveer Ahmed	2 -3/4 Years (06/14- 3/17)
7.	WRS/2015/ TS-7	Decision Support System for Water Resources Planning in Upper Bhima basin, Maharashtra	D. S. Rathore M. K. Goel, R.P. Pandey Sanjay Kumar Surjeet Singh	2 years (07/14- 06/16)
8.	WRS/2015/ TS-8	Modeling of Narmada basin by using the GWAVA model	Sanjay K. Jain Sharad K. Jain T. Thomas (RC- Bhopal) P. K. Mishra P. K. Agarwal M. K. Nema	2.25 years Dec. 2014 – Mar 2017
9.	WRS/2015/ TS-9	Runoff modeling of Shyok River, Karakorum Range	Renoj J.Thayyen Sanjay K.Jain	3 years Dec-2014 to Nov-2017
10	WRS/2015/ TS-10	Hydrological process and characterization of Lesser Himalayan Catchments	M. K. Nema Sharad K. Jain Sanjay K. Jain Renoj J.Thayyen P. K. Mishra P. K. Agarwal	5 Years 12/14- 12/19

<b>Ongoing Sponsored Studies</b>				
1.	WRS/2015/ SR-1	Glaciological studies of Phuche Glacier, Ladakh Range, India (DST)	Renoj J. Thayyen M K Goel S P Rai	5 Years 1/10-06/15
2.	WRS/2015/ SR-2	Assessment of Environmental flow for Himalayan River (MOES)	Sharad K. Jain Pradeep Kumar P. K. Agarwal P. K. Mishra	1 Year 10/14- 09/15
<b>New Internal Studies</b>				
1.	WRS/2015/ TS-11	Development of Ganga Information Portal	Deepa Chalishgaonkar Sharad K. Jain D. S. Rathore Sanjay K. Jain Sudhir Kumar P. K. Mishra P. K. Agarwal M. K. Nema Furquan Ullah	3 years (04/15- 03/18)
2.	WRS/2015/ TS-12	Study of Hydrological Changes in selected watersheds in view of Climate Change in India	L. N. Thakural D. S. Rathore Surjeet Singh Tanveer Ahmed Sanjay K. Jain Sharad K. Jain	3 years (04/15- 03/18)

**RESEARCH MANAGEMENT AND OUTREACH DIVISION  
2015-16**

SN	Code	Title of Project/Study, Study Team	Duration
<b>Ongoing Internal Study</b>			
1.	RMO/2015/TS-1	Participatory development of structure for IWRM Framework in identified sub-basins under Pilot Basin Studies (PBS) program <b>Team:</b> V C Goyal (PI), Omkar Singh and R V Kale	DOS: July 2014 DOC: June 2015
2.	RMO/2015/TS-2	Water Conservation and Management in Ibrahimpur Masahi Village of Hardwar District (Uttarakhand) <b>Team:</b> Omkar Singh, V.C. Goyal, C.K. Jain, and Rajesh Singh	DOS: Apr 2013 DOC: March 2016
<b>New Internal Study</b>			
3.	RMO/2015/TS-3	WEAP Model set up for four sub-basins under Pilot Basin Studies (PBS) Programme, jointly with the RCs/CFMSs <b>NIH HOs:</b> V C Goyal (PBS Leader), Jyoti Patil and R V Kale <b>Co-investigators from NIH RCs/CFMSs:</b> Chandramohan T (RC-Belgaum), Y R S Rao (RC-Kakinada), T R Nayak (RC-Bhopal), B Chakravorty (CFMS-Patna)	DOS: Apr 2015 DOC: Mar 2017
<b>Sponsored Project</b>			
1.	RMO/2015/SR-1	Customization of WEAP model for application in Ur river watershed in Tikamgarh district of Bundelkhand region. <b>(Under TIFAC Project)</b> <b>Team:</b> R V Kale (PI), T Thomas- RC Bhopal, Jyoti Patil, Rajesh Agarwal	DOS: Apr 2014 DOC: Sep 2015 <b>(Ongoing study)</b>

**Proposed Technical Transfer & Outreach Activities during 2015-2016**

S N	Code	Activity
1	RMO/2015/OR-1	Outreach activities (IITF-2015, IWW, other exhibitions)
2	RMO/2015/TW-1	5-day Workshop on "Citizen science in hydrology and water resources"
3	RMO/2015/TW-2	Orientation training of newly appointed scientists
4	RMO/2015/OR-2	Science-Policy interface, IPR issues, and technical meetings
5	RMO/2015/OR-3	Establishment of "Water Activity Centre"
6	RMO/2015/LCU	Operational expenses of LCU-Delhi

**REGIONAL CENTRE, BELGAUM  
2015-2016**

No	Title of the Study	Study Group	Duration	Funding	Status
1	Waterlogging and Salinity Studies in NagarjunaSagar Right Bank Canal Command	NV, BKP	2 years (Aug 2012 - Jul 2014) <b>Report will be submitted by 30<sup>th</sup> Sept 2015</b>	Internal	Continued
1	Integrated Water Resources Management (IWRM) on a Pilot Basin – Zuari River Basin, Goa	CMT, BKP, VCG	3 years (Apr 2013 - Mar 2016)	Internal (PBS)	Continued
2	Comparative Analysis of Various Rainfall-Runoff Models for Rivers of Western Ghats	BV, CK & MKJ	3 years (Apr 2013 - Mar 2016)	Internal	Continued
3	Studies on Spring flows and estimation of Groundwater Recharge in Ghataprabha Sub-basin	BKP, NV, SK, RV	2 years (Apr 2013 - Mar 2015) <b>Extended for one year upto March 2016</b>	Internal	Continued
4	Application of Geostatistical methods for analyzing sedimentation pattern in river basins of Kerala State	MKJ, and CM	2 years (Sep 2014 – Mar 2016)	Internal	Continued
5	Modeling of sediment yield from river basins of Kerala and Goa, using SWAT model	CMT & BV	2 years (Sep 2014 – Mar 2016)	Internal	Continued
6	Runoff estimation in a catchment using GIS and WEB based tools: A case study	MKJ and BV	1 year (Sep 2014- Aug 2015)	Internal	Continued
7	Impact of Land use/Land cover Changes on Ground water – A Case Study	BKP, BV, SKJ and NV	2 years (Sep 2014 – Mar 2016)	Submitted to MoES for Funding	Continued
8	Impact of Urbanization on Surface and Ground water Quality and Quantity – A Case Study	BKP, SK and NV	2 years (Sep 2014 – Mar 2016)	Internal	Continued

SKJ : Sharad K. Jain

VCG : V. C. Goyal, Scientist F

BKP : Purandara, Scientist E

MKJ : Mathew K. Jose, Scientist D

NV : N. Varadarajan, SRA

SK : Sudhir Kumar, Scientist G

BV : B. Venkatesh, Scientist F

CMT : Chandramohan T., Scientist D

RV : Rajan Vats Scientist B

CK : ChandraKumar S., SRA

**REGIONAL CENTRE, JAMMU  
2015-2016**

<b>S. No.</b>	<b>Title of the Study</b>	<b>Study Team</b>	<b>Duration</b>	<b>Funding</b>
<b>Ongoing Projects</b>				
1	Impact of land use changes on environmental flows of Tawi river at Jammu	P. Kumar M. K. Nema	03 years	NIH
2	Climate change effects on hydrology of the Tawi basin in Western Himalaya	M. K. Nema P. Kumar R. J. Thayyen	03 years	NIH
3	PBS: Integrated Water Resources Management (IWRM) Study in Tawi River Basin, JK	P. Kumar S. S. Rawat	05 years	NIH
4	Automation of Hydro-Meteorological Network in Jhelum Basin for Flood Forecasting	P. Kumar R. J. Thayyen M. K. Goel Sharad K. Jain	02 years 07 months	NIH
<b>New Projects</b>				
5	Estimation of sediment yield and identification of areas vulnerable to soil erosion and deposition in a western Himalayan catchment	S. S. Rawat P. Kumar	02 years	NIH
6	Hydrological Investigation of Natural Water Springs of Baan Ganga watershed in Jammu & Kashmir State	S. S. Rawat P. Kumar	03 years	NIH
7	Cryospheric processes in an alpine regime; a case study of Thajwas catchment, Sind sub-basin, Kashmir Valley, India	P. G. Jose R.J. Tahyyen S.P. Rai	03 years	NIH
8	Hydrological Assessment of the floods in the Jhelum river during Sep 2015	P. Kumar S. S. Rawat	02 years	NIH

**REGIONAL CENTRE, BHOPAL**  
**2015-2016**

<b>Sl. no</b>	<b>Name of the project</b>	<b>Duration</b>	<b>Starting and ending date</b>	<b>Status</b>
1.	Surface and ground water modeling for conjunctive use (under Pilot Basin Studies in Bina River Basin in Bundelkhand Region in M.P.)	1¾ years	April 2014 to Dec. 2015	Ongoing Project
2.	Development of DSS for Bina River Basin in Bundelkhand Region in M.P. using WEAP Model (under PBS)	2 years	April 2015 to March 2017	New Project
3.	Development of Decision Support System (DSS) Model for Shipra River Basin of MP	3 years	June 2013 to May 2016	Ongoing Project
4.	Integrating hydrology, climate change and IWRM with livelihood issues: Development of methodology and a DSS for water-scarce Bundelkhand region in India	2½ years	May 2013 to Oct. 2015	Ongoing R&D Project
5.	Integrated Drought Vulnerability Assessment for Water Resources Management of the Bina Basin	2 Years	July 2014 to June 2016	New Project
6.	Irrigation Planning and Management for the Command of Harsi Reservoir in Madhya Pradesh	2 ½ years	May 2013 to Oct. 2015	Ongoing Project
7.	Estimation of Revised Capacities of Reservoirs in Chhattisgarh state using Digital Image Processing technique	2 Years	April 2015 to March 2017	New Project



**REGIONAL CENTRE, KAKINADA  
2015 – 2016**

<b>S. No.</b>	<b>Project</b>	<b>Project Team</b>	<b>Duration</b>	<b>Status/ Fundin g</b>
1	Evaluation of urban storm water network in Hyderabad using SWMM	R.Venkata Ramana, Sc. 'C' (P.I.) Y.R.Satyaji Rao, Sc. 'F' S.V.Vijayakumar, Sc. 'F' V.S. Jeyakanthan, Sc. 'D'	April 2013 to March 2016	Ongoing /Internal
2	Statistical downscaling and assessment of climate change impact on hydrology of Mahanadi river basin	P.C.Nayak, Sc. 'D' (P.I.) Y.R.Satyaji Rao, Sc. 'F' B. Venkatesh, Sc. 'F' T. Thomas, Sc. 'D'	April 2013 to March 2016	Ongoing /Internal
3	IWRM Studies (2013-2017): Assessment of water availability in the upper Yerrakalva Basin	Y.R.Satyaji Rao, Sc.'F' (P.I) S.V.Vijayakumar, Sc.'F' J.V.Tyagi, Sc. 'G' R.Venkata Ramana, Sc.'C' B. Krishna, Sc.'C'	April 2014 to March 2016	Ongoing /Internal
4	Identification of submarine groundwater discharge and sea water intrusion zones in Godavari Delta using integrated approach	Y.R.Satyaji Rao, Sc.'F' (P.I) M.S.Rao, Sc.'D' R.Venkata Ramana, Sc.'C'	August 2014 to March 2017	Ongoing /Internal
5	Identification of Ground Water Recharge zones in Vaippar Basin, Tamilnadu using Remote Sensing and GIS techniques	V.S. Jeyakanthan, Sc.'D'(P.I) J.V. Tyagi, Sc.'G' R Venkata Ramana, Sc.'C'	April, 2015 to March, 2017	New /Internal
6	IWRM Studies (2013-2017): Development of hydrological management practice plans for IWRM in the Lower Yerrakalva Basin	S.V.Vijaya Kumar, Sc.'F' (P.I) Y.R.Satyaji Rao, Sc.'F' V.S.Jeyakanthan, Sc.'D'	April, 2015 to March, 2017	New /Internal
7	Development of groundwater level forecasting model using high frequency groundwater level data in the Srikakulam District of Andhra Pradesh	B. Krishna, Sc.'C' (P.I) Y.R.Satyaji Rao, Sc.'F' R Venkata Ramana, Sc. 'C'	April, 2015 to March, 2016	New /Internal

**CFMS, GUWAHATI  
2015 – 2016**

<b>Study No.</b>	<b>Title of the study</b>	<b>Study Team</b>	<b>Duration</b>
NIH/CFMS-G/15-17/	Estimation of Runoff for Kuls River Basin using SCS Curve Number and Geographic Information System (GIS)	S. K. Sharma G. Tirkey	07/15-03/16 (New Study)
NIH/CFMS-G/15-17/	Application of USLE model for estimation of soil loss in Kuls River Basin using remote sensing and geographic information system	G. Tirkey S. K. Sharma	07/15 - 03/16 (New Study)

**CFMS, PATNA  
2015-2016**

<b>SI</b>	<b>Title of the study</b>	<b>Study Team</b>	<b>Duration</b>
1.	Pilot Basin Studies (PBS) for Mahi River Basin in Ghaghra-Gandak Composite Basin	B Chakravorty NG Pandey Pankaj Mani	04/12-03/17 (XII Plan Year)
2.	Development of flood forecasting system based on rainfall information obtained from satellite data	Pankaj Mani Rakesh Kumar	3 year (Started in 2013-14)
3.	Time Series analysis of Monthly Rainfall in Mahi Basin	NG Pandey B Chakravorty Sanjay Kumar	2 year (2014-2016)
4.	Demonstration scheme on Riverbank Filtration in Gagatic plain of Bihar	B Chakravorty NG Pandey	2 year (2015-17)
5.	Spatial and Temporal Distribution of Geochemical Characteristics and Environmental Stable Isotopes in Groundwater of North Bengal	SR Kumar, MS Rao and SWID	1 year (2015-16)