

**AGENDA AND AGENDA NOTES
77th MEETING OF THE
TECHNICAL ADVISORY COMMITTEE (TAC) OF NIH**

**19th February, 2024
at 1700 Hrs (Revised)
(Online Mode)**



**NATIONAL INSTITUTE OF HYDROLOGY
ROORKEE-247667**

AGENDA AND AGENDA NOTES FOR THE 77th MEETING OF THE TAC OF NIH

AGENDA ITEMS

ITEM NO.	ITEM	Page#
77.1	Opening remarks by the Chairman	1
77.2	Confirmation of minutes of 76 th meeting of the TAC	1
77.3	Action taken on the decisions/recommendations of the previous TAC meeting	1
77.4	Status of work programme for the year 2022-23 I. List of completed studies II. Technical Achievements of the Institute for the Year 2022-23 III. Presentation of completed studies: (a) Development of Decision Tool for Efficient utilization of Water Resource in Parbati Canal Irrigation Project of Rajasthan (Dr. R K Jaiswal, Sc. F, RC Bhopal) (b) Impacts of glacier and climate change on runoff for selected basins of Himalayan region (PI: Dr. Vishal Singh, Sc. D) (c) Integrated GEE-MODFLOW based Groundwater Recharge Assessment System for Hindon River System (Dr. Nitesh Patidar, Sc. C)	2
77.5	Report the proceedings of the Working Group and RCC meetings	5
77.6	Work Programme for the year 2023-24	7
77.7	Major projects and activities of national importance	21
77.8	Reporting Items i. List of on-going Consultancy projects in NIH	22
77.9	Any other item with permission of the Chair	26

List of Appendices

Appendix No.	Title	Page # (Vol.-II)
77.2.1	Minutes of the 76 th Meeting of TAC	1
77.4.2	List of research papers	270
77.4.3	List of workshops/training/symposia	299
77.4.4	Progress of laboratory work	306
77.5.1	Minutes of the 53 rd meeting of the NIH Working Group	309
77.6.1	<p>Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2023-2024</p> <p>(i) <i>Environmental Hydrology Division</i> 24</p> <p>(ii) <i>Ground Water Hydrology Division</i> 76</p> <p>(iii) <i>Hydrological Investigation Division</i> 99</p> <p>(iv) <i>Surface Water Hydrology Division</i> 127</p> <p>(v) <i>Water Resources System Division</i> 160</p> <p>(vi) <i>Centre for Cryosphere and Climate Change Studies</i> 190</p> <p>(vii) <i>Technical Cell</i> 222</p> <p>(viii) <i>Hard Rock Regional Centre, Belagavi</i> 235</p> <p>(ix) <i>Western Himalayan Regional Centre, Jammu</i> 239</p> <p>(x) <i>Central India Hydrology Regional Centre, Bhopal</i> 246</p> <p>(xi) <i>Deltaic Regional Centre, Kakinada</i> 254</p> <p>(xii) <i>North Eastern Regional Centre, Guwahati</i> 258</p> <p>(xiii) <i>CFMS (Ganga Basin), Patna</i> 264</p>	

ITEM # 77.1 Opening Remarks by the Chairman

ITEM # 77.2 Confirmation of the minutes of 76th meeting of the TAC

The 76th meeting of the TAC was held at Roorkee on Aug.29, 2022. The minutes of the meeting were circulated to all the members and invitees vide email dated Oct. 17, 2022. A copy of the minutes of the 76th meeting of TAC is given in **Appendix-77.2.1[Page # 1 (Vol.-II)]**. Since no comments were received from the members on the circulated minutes, the minutes may please be confirmed.

ITEM # 77.3: Action taken on the decisions/ recommendations in the previous meeting

S No	Query/Suggestion	Action Taken
1	Item# 76.3: The pending case of the creation of a post of Documentation Officer was discussed in this meeting to look after the requisite task of compilation of hydrological research in India on identified topics and other documentations works.	Creation of post of Documentation Officer is being addressed through cadre review.
2	Item #76.4: Comments on completed study Study: Water quality assessment of South West Punjab emphasising carcinogenic contaminants and their possible remedial measures (Dr. Rajesh Singh): The members advised to include a comparison of WQI and HHI of groundwater in the study area, sources responsible for change in the WQ during pre and post monsoon, and to add disclaimer in the report to avoid panic in the society.	The PI has incorporated the comments in the study.
3	Item #76.5: (a) Chairman expressed the need to take joint studies with CWC on focussed topics such a climate change and its impact on water resources. Member (D&R) also raised concern to take up joint studies with CWC in focussed area including dam break studies. (b) The Chairman expressed his concern on a study entitled” Long term hydrological assessment for the development of water security plan for three sub-basins namely Barak, Minor rivers draining into Bangladesh and	(a) Recently, the Institute has created a new Centre at HQ, i.e. Centre for Cryosphere & Climate Change Studies (C4S) which will regularly interact with various concerned organizations in these areas. It is also suggested to develop a section/cell in CWC for effective collaboration and exchange with NIH. (b) The study is ongoing. As suggested, the confidentiality of the report will be maintained.

	Minor rivers draining into Myanmar sub-basins in the state of Mizoram". He advised to maintain confidentiality of such studies in NE region and provide a copy to CWC on completion.	
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ITEM # 77.4: Status of the work programme for the year 2022-23

I. List of Completed studies

S. No	Title of the project	PI	Division	Internal/Sponsored
1.	Influence of Anthropogenic factors on River Ganga in the stretch from Rishikesh to Haridwar	Rajesh Singh	EHD	Internal
2.	Integrated GEE-MODFLOW based Groundwater Recharge Assessment System for Hindon River System	Nitesh Patidar	GWHD	Internal
3.	Probabilistic dam break flood wave simulation and flood risk assessment for preparation of EAP for Mahi Bajaj Sagar dam in Rajasthan.	J.P. Patra	SWHD	Internal
4.	Uncertainty in rating curves and discharge estimation	Sanjay Kumar	SWHD	Internal
5.	Application of unified-extreme-value (UEV) distribution for flood frequency: selected rivers of U.S.A.	S.K. Singh	SWHD	Internal
6.	Application of unified-extreme-value (UEV) distribution for flood frequency: Comparison of results using GEV distribution	S.K. Singh	SWHD	Internal
7.	Impacts of glacier and climate change on runoff for selected basins of Himalayan region	Vishal Singh	WRSD	Internal
8.	Seasonal Characterization of Gangotri Glacier melt runoff and simulation of streamflow variation under different climate scenarios	M. Arora	WRSD	Internal
9.	Study of flood mitigation measures in Mahav nala using mathematical modelling study	Pankaj Mani	RC, Patna	Internal
10.	Integrated Flood Management Plan for a stretch of Burhi Gandak River from Sikanderpur to Rosera	B. Chakravorty	RC, Patna	Internal
11.	An experimental assessment of low-cost Auger Hole Technique for accelerating groundwater recharge	R V Galkate	RC, Bhopal	Internal
12.	Assessment of Impacts of Groundwater Salinity on Regional Groundwater Resources, Current and Future Situation in Mewat, Haryana – Possible Remedy and Resilience Building Measures	Gopal Krishan	GWHD	Sponsored
13.	Ganges Aquifer Management in the Context of Monsoon Runoff Conservation for Sustainable River Ecosystem Services - A Pilot Study	Surjeet Singh	GWHD	Sponsored
14.	Capacity Development Program on Site Suitability Mapping for Managed Aquifer Recharge (MAR) under Varying Climatic Conditions using Remote	Nitesh Patidar	GWHD	Sponsored

	Sensing and Machine Learning based Hydrological Modelling Tools			
15.	Dating very old ground waters of deeper aquifers in Ganga Plains, India	M. Someshwar Rao	HID	Sponsored
16.	Chemical & Isotopic Characterization of Deep Aquifer Groundwater of Middle Ganga Basin	Sudhir Kumar	HID	Sponsored
17.	Integrated Study on groundwater dynamics in the coastal aquifers of West Bengal for sustainable groundwater management	M. S. Rao	HID	Sponsored
18.	Development of a comprehensive plan for conservation and sustainable management of Bhimtal and Naukuchiatal lakes, Uttarakhand	Suhas Khobragade	HID	Sponsored
19.	Groundwater Rejuvenation As Climate change Resilience for marginalized and gender sensitive GangeS (GRACERS)	Sudhir Kumar	HID	Sponsored
20.	Web-GIS Based Spring Inventory for Vulnerability Assessment and Hydro-Geological Investigation of Selected Springs for Sustaining Local Water Demand in Ravi Catchment of Himachal Pradesh	S S Rawat	HID	Sponsored
21.	Web-enabled Inventory of Natural Water Springs of Tawi River Catchment of Jammu and Kashmir State of India for Vulnerability Analysis and Developing Adaptive Measures for Sustaining Tawi River	S S Rawat	HID	Sponsored
22.	Assessment of dissolved radon concentration in groundwater of Uttarakhand	Hukam Singh	HID	Internal
23.	Dam break studies of Kandaleru and Pulichintala dams in Andhra Pradesh	P C Nayak	SWHD	Sponsored
24.	Assessment of seasonal variations in Hydrology and Cryosphere of upper Ganga Basin	Vishal Singh	WRSD	Sponsored
25.	Impacts of Upcoming Irrigation Projects and Climate Change on the Droughts and Desertification Scenario for Chambal basin in Western Madhya Pradesh	T Thomas	RC, Bhopal	Sponsored
26.	Development of Decision Tool for Efficient utilization of Water Resource in Parbati Canal Irrigation Project of Rajasthan	R K Jaiswal	RC, Bhopal	Sponsored
27.	Urban hydrological studies of critical pilot area using of hydrological instruments in the Greater Hyderabad Municipal Corporation (GHMC) area Hyderabad	R. Venkata Ramana	RC, Kakinada	Sponsored

II. Technical Achievements of the Institute for the Year 2022-23

- ✓ During the year 2022-23, the Institute has worked on 51 R&D studies and 47 sponsored projects. The Institute has also taken up 36 consultancy projects and successfully completed 11 consultancy projects funded by various Central/State Governments, PSUs and Private Organizations during the year.
- ✓ The Scientists of Institute have published 4 books, 43 chapters in books, and 217 research papers in reputed international and national journals and proceedings of various international and national conferences, seminars and symposia, during the year.
- ✓ As part of the Technology Transfer Programme of the Institute, a total 51 activities (IGWC-2022 with IIT-Roorkee, 2 National Seminar, 48 Training Courses) were organized during the year in different parts of the country.
- ✓ A total 62 Mass Awareness Programme were organized by the Institute during the year in different parts of the country. Of these, 28 activities were organised under Aazadi Ka Amrit Mahotsav, 17 activities under Swachh Bharat Mission, 1 activity under Poshan Pakhwada and 8 other activities. The Institute participated in 8 exhibitions at various places of the country.
- ✓ The Institute has been participating in a major project under National Hydrology Project (NHP) funded by MoJS (GoI) through World bank. NIH has been involved in various activities of NHP viz., Purpose Driven Studies, training and capacity building, development of hydrological model and Decision Support System (PM).
- ✓ A new regional centre (NIH-North Western Regional Centre, Jodhpur) has been approved during the year 2022-23 at Jodhpur (Rajasthan) to carry out field-oriented hydrological studies related to arid and semi-arid region in the North-Western states of Rajasthan, Gujarat, Haryana and Punjab.
- ✓ A Centre for Cryosphere and Climate Change Studies has been established in the Institute at Roorkee during the year 2022-23 to facilitate the effective management of snow and glacier resources in the country to address the water availability, glacier change and glacial lake outburst flood studies.
- ✓ Institute has received one patent on “Fluoride Removal Media Developed from Bagasse Fly Ash and a Method for Synthesis Thereof” during the year.

III. Presentation of completed studies:

- a) Development of Decision Tool for Efficient utilization of Water Resource in Parbati Canal Irrigation Project of Rajasthan (**Dr. R K Jaiswal, Sc. F, RC Bhopal**)
- b) Impacts of glacier and climate change on runoff for selected basins of Himalayan region (**PI: Dr. Vishal Singh, Sc. D**)
- c) Integrated GEE-MODFLOW based Groundwater Recharge Assessment System for Hindon River System (**Dr. Nitesh Patidar, Sc. C**)

ITEM # 77.5: Report of proceedings of the Working Group and RCC Meetings

The 53rd meeting of the Working Group of NIH was held during 16-17 March, 2023. The Working Group considered the status of the work programme for the year 2022-23 under two categories: (i) internally funded projects, and (ii) sponsored/consultancy projects. The approved minutes of the 53rd meeting of the NIH Working Group are given in **Appendix 77.5.1 [Page # 309 (Vol.-II)]**.

General comments/suggestions by the members during the 53rd meeting of WG are as follows:

- Suggestion for supervision of doctorate and Master Level Courses by Scientists and initiation of 2-week master student's program in the domain of hydrology and water resources
- Develop a database and share it in the public domain
- Burning issues related to water should be emphasized while designing any research proposal
- Research and its dissemination in the interest of society and suggestion to develop Models/Mobile Apps for common people
- Suggested collaboration of new NIH-RC, Jodhpur with CAZRI (Jodhpur) in R&D and other activities
- Use of drone technology in inaccessible areas
- Efforts to patent the software developed and other technological innovations by the Institute
- Collaboration with MOES and other organizations in the area of Cryosphere/Glacier Studies.
- Works for enhancing drinking water security as per mandate of the Ministry
- Dissemination of R&D Output/Press release of NIH Studies
- To assess impact of training programs
- Separate Cell for Software Development
- Suggestion for B. Tech/M. Tech. Internship Programs
- Increased collaboration with CWC and CGWB

Comments/suggestions on specific studies are incorporated in the Work Program tables.

RCC meetings

DRC, Kakinada	-	32nd RCC – 03 Aug, 2023
CFMS, Patna	-	22nd RCC – 11 May, 2023
CIHRC, Bhopal	-	21st RCC – 17 May, 2023
HRRC, Belagavi	-	33rd RCC – 10 April, 2023
WHRC, Jammu	-	27th RCC – 28 June, 2023
NERC, Guwahati	-	18th RCC – 24 August, 2023

The TAC may please note the proceedings of the meetings of the Working Group and RCC.

No. of Studies/Projects During the Year 2022-23					
Division	New		Ongoing		Total
	R & D	Sponsored	R & D	Sponsored	
Environmental Hydrology	1	-	3	3	7
Ground Water Hydrology	3	1	1	7	12
Hydrologic Investigation	1	-	2	7	10
Surface Water Hydrology	9	-	2	1	12
Water Resources System	1	2	3	5	11
Research Management & Outreach	1	-	3	1	5
HRRC, Belagavi	1	1	-	2	4
WHRC, Jammu	1	-	4	3	8
CIHRC, Bhopal	-	1	4	4	9
DRC, Kakinada	1	1	1	2	5
NERC, Guwahati	2	-	2	3	7
CFMS, Patna	-	1	2	1	4
Total	21	7	27	39	94

ITEM # 77.6: Work Programme for the year 2023-24

The approved Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2022-23 is given in the tables below, and details are provided in **Appendix 77.6.1 [Page # 23 (Vol.-II)]**:

1. Environmental Hydrology Division
2. Ground Water Hydrology Division
3. Hydrological Investigation Division
4. Surface Water Hydrology Division
5. Water Resources Systems Division
6. Centre for Cryosphere and Climate Change Studies
7. Hard Rock Regional Centre, Belagavi
8. Western Himalayan Regional Centre, Jammu
9. Central India Hydrology Regional Centre, Bhopal
10. Deltaic Regional Centre, Kakinada
11. NIH-North Eastern Regional Centre, Guwahati
12. CFMS (Ganga Basin), Patna
13. North Western Regional Centre, Jodhpur

The number of studies/projects handled by each Division under different categories are given below:

No. of Studies/Projects During the Year 2023-24					
Division	New		Ongoing		Total
	R & D	Sponsored	R & D	Sponsored	
Environmental Hydrology	2	-	3	5	10
Ground Water Hydrology	2	-	2	3	07
Hydrologic Investigation	-	-	4	4	08
Surface Water Hydrology	-	-	5	1	06
Water Resources System	-	-	4	3	07
Centre for Cryosphere & CC Studies	-	-	4	4	08
HRRC, Belagavi	-	-	4	3	07
WHRC, Jammu	-	-	5	1	06
CIHRC, Bhopal	-	2	3	3	08
DRC, Kakinada	3	1	2	1	07
NERC, Guwahati	4	-	1	1	06
CFMS, Patna	2	-	1	1	04
Total	13	03	38	30	84

ENVIRONMENTAL HYDROLOGY DIVISION

Recommended Work Programme for the Year 2023-24

S. N.	Title of the Study	Study Team	Duration
R & D Studies (Ongoing)			
1.	Characterisation of Groundwater Dynamics in Krishna-Godavari Delta interims using groundwater levels, Hydrochemistry, Isotopes and Emerging Contaminants	M. K. Sharma (PI) Suhas Khobragade Rajesh Singh	2 Years (04/22-03-24)
2.	Understanding Arsenic mobilization in groundwater of Haridwar and formulating remediation measures	Rajesh Singh (PI) R. P. Pandey Sumant Kumar Pradeep Kumar M. K. Sharma V. K. Tyagi Kalzang Chhoden	3 Years (07/21-06/24)
3.	Simulation of Non-Point Source Pollution Processes in Song River	Pradeep Kumar (PI) M.K. Sharma Rajesh Singh	4 Years (11/19-10/23)
R & D Studies (New)			
4.	Hydrological Studies for the Conservation of Rewalsar Lake	Kalzang Chhoden (PI) Rajesh Singh, R. P. Pandey Pradeep Kumar Vinay Kumar Tyagi Omkar Singh Shuhas Khobragade D.S. Malik, GKU, Haridwar	3 Years (12/22-11/25)
5.	Comprehensive evaluation of disinfection units of STPs in Ganga basin: Occurrence and control the formation of emerging oxidation precursors	Vinay Kumar Tyagi (PI) Rajesh Singh Mukesh K. Sharma Pradeep Kumar J. P. Patra Kalzang Chhoden R.P. Pandey	3 Years
Sponsored Studies (Ongoing)			
6.	Water Efficient Irrigation by Using SCADA System For Medium Irrigation Project (MIP) Shahnehar	R. P. Pandey, (PI) Jagdeesh Patra, Rajesh Singh N. K. Bhatnagar	6 Years (12/17-12/23) Sponsored by: NHP
7.	Anaerobic Co-digestion of Thermochemically Pre-treated Organic Fraction of Municipal Solid Waste and Sewage Sludge: Effect on Process Performance and Microbial Community Development	Vinay Kumar Tyagi (PI)	5 Years (2018-2023) Sponsored by: DBT
Collaborative Studies (Ongoing)			
8.	Isotopic and geochemical approach to study vulnerable confined and unconfined drinking water aquifers in Varanasi and surrounding area, India	Rajesh Singh (PI) R.P. Pandey BHU, Varanasi (Lead) Other Collaborators: BARC, Mumbai, ICER, Hungary	3 Years (07/21-06/24) Sponsored by: BHU

9.	Comprehensive characterization of variably processed sewage sludge in Ganga basin to classify its suitability for safe disposal	Vinay K. Tyagi, (Co-PI) A.A. Kazmi (PI, IITR)	02 Years (01/22-12/23) Sponsored by: Central Pollution Control Board (CPCB)-NMCG
10.	SARASWATI 2.0 - Identifying best available technologies for decentralized wastewater treatment and resources recovery for India	Vinay K. Tyagi, (Co-PI) A.A. Kazmi (PI, IITR)	4 Years (03/20-02/24) Sponsored by: Department of Science & Technology (DST)

GROUNDWATER HYDROLOGY DIVISION

Recommended Work Programme for the year 2023-24

S. No.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Studying arsenic genesis and developing alternate water supply management strategies in Ganga basin	Sumant Kumar (PI) S. Singh, R. Singh G. Krishan, S. S. Rawat M.K. Sharma N. Patidar P. K. Mishra M. K. Goel	3 years (04/22 – 03/25)
2.	Conjunctive Management of Water Resources in IGNP Command	Nitesh Patidar (PI) M. K. Goel Anupma Sharma Surjeet Singh Gopal Krishan Sumant Kumar Nidhi Kalyani	2 years (04/22 – 03/24)
Sponsored Studies (On-going)			
3.	Integrated Management of Water Resources for Quantity and Quality in Upper Yamuna Basin up to Delhi	Anupma Sharma (PI) S. K. Jain, A. Sarkar M. K. Sharma L. N. Thakural, S. Kumar P.K. Mishra, Vishal Singh Nitesh Patidar, N. Kalyani <i>Partners</i> Haryana Irr. & WR Dept., UPGWD, UYRB, CWC	6 years (04/18-01/24)
4.	Enhancing Food and Water Security in Arid Region through Improved Understanding of Quantity, Quality and Management of Blue, Green and Grey Water	Anupma Sharma (PI) Gopal Krishan Nitesh Patidar P.K. Mishra <i>(Lead: CAZRI Jodhpur, Partners: NIH Roorkee, IISWC Dehradun, CSWRI & CIAH, Bikaner, NIAM Jaipur)</i>	5 years (03/19 - 01/24)
5.	Leachate Transport Modeling for Gazipur landfill site for suggesting ameliorative measures	Anjali (PI) Sudhir Kumar J. V. Tyagi (Superannuated) M. K. Sharma	3 Years 7 months 11/19 – 05/23

Sponsored Studies (New)			
6. NIH/GWH/ 23-24	Development of Archive of Soil Hydraulic Characteristics	Surjeet Singh (PI) Nitesh Patidar, M.K. Goel Anupma Sharma Anju Chaudhary	1 year (04/23 – 03/24)
7. NIH/GWH/ 23-25	Enhancement and application of NIH_WISDOM	Nitesh Patidar (PI) Deepak Singh Bisht M.K. Goel, T. Thomas Sunil Gurrapu Anupma Sharma Surjeet Singh	2 years (10/23 – 09/25)

HYDROLOGICAL INVESTIGATIONS DIVISION

Recommended Work Programme for the year 2023-24

S. N.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Assessment of the Possible Impact of Climate Change on Evapotranspiration for Different Climatic Regions of India	SD Khobragade (PI) Vishal Singh Sudhir Kumar	3 years (04/22-03/25)
2..	Ascertaining the efficacy of use of State of the art technologies for spring mapping and sustainability of springs through suitable interventions	Soban Singh Rawat, (PI) Sudhir Kumar Santosh M. Pingale P K Mishra, D. S. Bisht, Rajesh Singh	3 years (04/22-03/25)
3.	Hydrogeological and Isotopic investigation of groundwater in Himalayan Watershed of Kashmir, India	Gopal Krishan (PI) M.S. Rao <i>SKUAST-Srinagar</i> Rohitash Kumar	1.5 years (09/22 – 03/24)
4	Feasibility of Open Sources Data for the Estimation of Runoff and Water Storage Capacity for Rainwater Harvesting Strategies	S.M. Pingale (PI) S.S. Rawat Rajeev Gupta	2 years (04/23- 03/25)
Sponsored Studies (On-going)			
1.	Groundwater Fluctuations and Conductivity Monitoring in Punjab - Groundwater resilience in Punjab and adaptation to future changes in climate and water resource demands (title modified by funding agency)	Gopal Krishan (PI), S. Singh, C. P. Kumar (retd.), M. S. Rao <i>BGS, UK:</i> Dr. Dan Lapworth Dr. Alan MacDonald Dr. Daren Goody	5 years (12/17-11/24)
2.	Expansion of the Indo-German Competence Centre for Riverbank Filtration – CCRBF	Gopal Krishan (PI & Co-coordinator)	3 years (07/20 – 06/23)
3.	Partitioning Evapotranspiration into Evaporation and Transpiration fluxes	Gopal Krishan (PI), MS Rao	3 years (04/21 – 03/24)

S. N.	Title of the Study	Study Team	Duration
	using Stable Isotopes of Oxygen and Hydrogen		
4.	Changing the fate of the Hindon river by evaluating the impact of agriculture on the water balance: Developing a template for a cleaner Ganga river	Sudhir Kumar (Proj.Coordinator) M. K. Sharma, (PI) Suhas Khobragade Anjali, Vishal Singh SM Pingale, Nitesh Patidar Surjeet Singh	5 Years 04/22-03/27

SURFACE WATER HYDROLOGY DIVISION

Recommended Work Programme for the year 2023-24

S. No. & Ref. Code	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.NIH/SW HD/22-24	Development of Cloud Data Based Integrated Framework to Forecast Flood for Efficient Operation of Reservoirs	A. K. Lohani R. K. Jaiswal J.P. Patra P. C. Nayak Vishal Singh	Two Years April 2022 – March 2024
2.NIH/SW HD/22-24	Flood Forecasting under Changing Climate Conditions - Role of Machine Learning and Conceptual/Physical based Model	P. C. Nayak A. K. Lohani J. P. Patra Sunil Gurrapu T. Thomas Om Prakash Jatin Malhotra	3 Year (July 2022 to June 2025)
3.NIH/SW HD/22-25	Hydrological Study to conserve the water resources of Bikaner, Rajasthan	L. N. Thakural M. K. Shama R. K. Jaiswal J. P. Patra P. K. Mishra Nitesh Patidaar N. K. Bhatnagar Jatin Malhotra Anil Kumar Chhangani	2 Year (July 2022 to June 2024)
4.NIH/SW HD/22-24	Review of design flood and dam break analysis of Khadakhai Dam in Odisha	J.P.Patra, A. K. Lohani Pankaj Mani P. C. Nayak Sanjay Kumar	3 Year (April 2022 to March 2025)
5.NIH/SW HD/21-24	Investigation of hydrodynamic approach of flood inundation mapping along with assessment of changes in river planforms using a cloud-based Google Earth Engine (GEE) computing platform in data-scarce Western Himalayan River basin	R. V. Kale A. K. Lohani J. P. Patra D. Khurana	03 Years (September 2021-October 2024)

Sponsored Studies (On-going)			
1. NIH/SWH D/20-23 MoE- STARS/S TARS- 1/743	Operational coastal flood management through short-to-medium range (real-time) flood vulnerability mapping in the Brahmani-Baitarani River Basin integrating human and climate induced impacts (Funded under STARS by MHRD, GoI)	B. Sahoo, (PI, IIT-Kgp) R. V. Kale, (Co-PI)	03 years (July, 2020 – June, 2023) <i>(Transferred from WHRC Jammu to SWHD NIH Roorkee)</i>

WATER RESOURCES SYSTEMS DIVISION

Recommended Work Programme for the year 2023-2024

S. No.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Monitoring and hydrological modeling of Henval watershed in Lesser Himalaya	M. K. Nema Sanjay K. Jain P. K. Mishra	(08/20-07/23)
2.	Spatio-temporal Water Availability under Changing Climate and Landuse Scenarios in Wainganga River Basin	M. K. Nema P. K. Mishra Rahul Jaiswal	(04/22-03/24)
3.	Investigating gap areas, current trends and future directions of research in Climate Change Impact on Hydrology and water Resources in India through Scientometrics	Archana Sarkar Jyoti Patil Charu Pandey	(05/22-10/23)
4.	Hydrology-based scenario planning for water productivity and optimization of income from farming practices in Mewat region, Haryana	A. R. Senthil Kumar Omkar Singh Rajesh Agarwal N. R. Allaka	(09/20-08/22) (Ext. upto 06/23)
Sponsored Studies (On-going)			
5.	Development of Water Accounts for the different sub-basins of Brahmaputra and Barak River Basins in the state of Meghalaya Using Water Accounting Plus (WA+) Framework.	P. K. Singh P. K. Mishra	(08/20-07/22) Ext. upto 12/23
6.	Hydrological Assessment of Ungauged Basins (Aghanashini, Dasanakatte, Sita Nadi, Madisala Hole, Swarna Nadi and Gurupur River Basins) of the West Flowing Rivers in Western Ghat Region of Karnataka	P. K. Singh Vishal Singh Sanjay K. Jain	(09/22-09/24)
7.	Monitoring and Assessment of Mountain Ecosystem and Services in North-West Himalaya (Phase-II): Monitoring and Modeling of Hydrological Processes in Glaciated and Non-Glaciated Watersheds of North-West Himalaya	M. K. Nema Sanjay K. Jain P. K. Mishra Praveen Thakur (IIRS)	(04/22-03/25)

CENTRE FOR CRYOSPHERE AND CLIMATE CHANGE STUDIES

Recommended Work Programme for the year 2023-2024

S.N.	Title of the study	PI	Duration
R & D Studies (On-going)			
1.	Investigation on occurrences of seasonal extremes across Northwest Himalaya in relation to global atmospheric thermal and circulation changes	Ashwini Ranade	3 years (04/22-03/25)
2.	Climate change scenarios for Andhra Pradesh and its impact on streamflow and groundwater levels in Pennar River basin	Sunil Gurrapu	2 years (04/22-03/24)
3.	Monitoring and Modelling of Gangotri (Bhojwasa) watershed under different Climate Scenarios	P. K. Mishra	3 years (04/23-03/26)
4.	Glacier recurrence survey, Instrumentation and Modeling to study the Batal Glacier in part of Western Himalaya, India	Vishal Singh	5 years (04/23-03/28)
Sponsored Studies (On-going)			
5.	Snow and glacier contribution and impact of climate change in Teesta river basin in Eastern Himalaya	Sanjay K. Jain	11/19-09/23
6.	Development of Water Accounts for the different sub-basins in the state of Nagaland Using Water Accounting Plus (WA+) Framework.	P. K. Mishra	04/21-06/23
7.	Long term hydrological assessment for the development of water security plan into three sub-basins namely Barak, Minor rivers draining into Bangladesh and Minor rivers draining into Myanmar sub-basins in the state of Mizoram	Vishal Singh	04/21-03/24
8.	Monitoring and Assessment of Mountain Ecosystem and Services in North-West Himalaya (Phase-II): Monitoring and Modeling of Hydrological Processes in Glaciated and Non-Glaciated Watersheds of North-West Himalaya	Sanjay K. Jain M. K. Nema	04/22-03/25

HARD ROCK REGIONAL CENTRE, BELAGAVI

Recommended Work Programme for the year 2023-2024

S. N.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Monitoring and Evaluation of Ground Water Quality of Belagavi City, Karnataka, India	Varadarajan N. (PI) Chandra Kumar S. AbhilashR	2 year (6/22 to 5/24)
2.	Comprehensive Assessment of Hydrology of Large Rivers basins of Western Ghats of Karnataka	Venkatesh.B (PI) Abhilash.R. N. Varadarajan	3 year (4/23-4/26)
3.	Studies on Occurrence, Distribution of Springs in parts of Western Ghats, India	Abhilash.R. (PI) Venkatesh.B.	1 year (4/23-3/24)
4.	Water Productivity assessment in Irrigation Projects by Geo-Spatial Optimization Techniques	Abhilash.R. (PI) Venkatesh.B.	3 year (4/23-4/26)
Sponsored Studies (On-going)			
1.	Groundwater Model Development in Micro Basin of Hard Rock in Krishna And Godavari River Basins of Telangana	B. Venkatesh (PI) M.K.Jose Sudhir Kumar Abhilash R. & Officials form TSGWD	3 years (Sept 2019 –Aug 2022 Extended upto August 2023)
2.	Impact of Sand Mining On Groundwater Regime in Parts of Manjira River Basin, Telangana State	M.K. Jose (PI), B. Venkatesh Chandramohan T. Abhilash R. and Officials form TSGWD	2 years Sept 2021 – Aug 2023
3	Comprehensive Assessment of Water Availability, Use and Issues for Goa State	B. Venkatesh, Chandramohan T. Abhilash R. and Officials of WRD Goa	2 years (01/22 to 12/23)

WESTERN HIMALAYAN REGIONAL CENTRE, JAMMU

Recommended Work Programme for the year 2023-2024

S. No.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Estimation of changes in snow cover and climate-cryosphere interaction in Upper Chenab River Basin	P. G. Jose D. S. Bisht	02 Years 07 months (08/2020 – 03/2023) Extn. up to 10/2023
2.	Early signatures of 21 st Century on snow cover dynamics in Zaskar River Basin, Ladakh	D. S. Bisht P. G. Jose	02 Years (07/2021 -06/2023) Extn. up to 12/2023
3.	Investigation of hydrodynamic approach of flood inundation mapping and assessment of changes in river planforms using a cloud-based GEE platform in data-scarce Western Himalayan basin	R. V. Kale A. K. Lohani J. P. Patra D. Khurana	03 Years (09/2021-07/2024)
4.	Mass balance of Phuche and Khardung glaciers, Ladakh Range with implications for downstream water availability under changing climate.	P. G. Jose D. S. Bisht D. Khurana	03 Years (07/2021- 06/2024)
5.	Comparative analysis of fine-scale satellite & reanalysis precipitation products in Upper Ganga Basin using multi-criterion decision-making	D. S. Bisht M. K. Goel	01 Year (06/2022 – 05/2023) Extn. up to 12/2023
Sponsored Studies (On-going)			
6.	Permafrost mapping and characterization of Western Himalayan Region	P. G. Jose A.P. Dimri (JNU) G. Jeelani (KU) V. Agnihotri (GBPNIHESD)	04 years (08/2019- 03/2024) funded under NMHS

CENTRAL INDIA HYDROLOGY REGIONAL CENTRE, BHOPAL

Recommended Work Programme for the year 2023-2024

SN	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Re-assessment of evapotranspiration (<i>ET_o</i>) estimation for irrigation planning in Madhya Pradesh	NIH R.V. Galkate, R.K. Jaiswal A.K. Lohani Shashi Indwar MP-WRD, Bhopal Deepak Satpute Sayyam Jhanjari Sameer Soni	3 years (Nov 2021 – Oct 2024)
2.	Water Availability Assessment for Project Formulation in Sub Basins of Ganga River in Madhya Pradesh	NIH R K Jaiswal, Ravi Galkate, A K Lohani. MP-WRD, Bhopal B Baghel	3 years (Nov 2021 – Oct 2024)
3.	Development of Reservoir Operation Plan under Climate Change scenarios for Kolar reservoir	NIH Shashi Indwar, T. Thomas, R. K. Jaiswal, R.V. Galkate, MP-WRD, Bhopal C.E, Hoshangabad, S.E Kolar, E.E Kolar.	3 years (Oct 2021 – Sept 2024)
Sponsored Studies (On-going)			
4.	Integrated Assessment of the Impacts of Climate Change and Land-use Change on the Hydrology of the Narmada basin through Hydrological Modelling Approaches	NIH T. Thomas, B. Venkatesh, P. C. Nayak, Surjeet Singh, Shashi Indwar MP-WRD, Bhopal Director Hydromet Mahesh Paliwal, B. Baghel.	5 years (Feb 2018 – Sep 2023) Special PDS under NHP
5.	Hydrological Modeling for Evaluation of Return Flow and Irrigation Planning for Optimal Utilization of Water Resource in the Command of Sanjay Sagar Project in Madhya Pradesh	NIH R K Jaiswal, Ravi Galkate, T Thomas Shashi Indwar, A K Lohani, Sudheer Kumar, Surjeet Singh MP-WRD, Bhopal Director, Hydromet,	4 years (Apr 2019 – Sept 2023) PDS under NHP

		SE, GW circle, Database Admin, SE, EE, and AEs of Bah Project	
6.	Integrated reservoir operation studies for Mahanadi reservoir project complex in Chhattisgarh: SP-56/2021-22/NIH (CIHRC)	NIH R K Jaiswal Ravi Galkate Shashi Indwar A. K. Lohani M. K. Goel Vishal Singh Sumit Saini Dipti Rani WRD Chhattisgarh A. Verma J. K. Das V. K. Dubey A. Gupta P. Awadhiya IGKV Raipur S. Chandinah	2 years (Apr 2022-Mar 2024) Special Project under NHP
Sponsored Studies (New)			
7.	Assessment of impact of climate change on water resources in Shipra river basin	NIH, Bhopal Ravi Galkate, R. K. Jaiswal, Shashi Indwar, RNTU, Bhopal Shalini Yadav, S. K. Sharma	3 years from the date of award (INCCC, M/o Jal Shakti)
8.	Water Resource Management for Tawa Reservoir Project under Climate Change	NIH, Bhopal R. K. Jaiswal, Ravi Galkate, Shashi Indwar, MPU Bhopal R N Yadav, M P Verma	3 years from the date of award (INCCC, M/o Jal Shakti)

DELTALIC REGIONAL CENTRE, KAKINADA

Recommended Work Programme for the year 2023-2024

S.No.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Identification of Recharge and Discharge areas of Palar river basin in Tamilnadu	V.S. Jeyakanthan (PI) J.V. Tyagi Sudhir Kumar Y.R. Satyaji Rao R.Venkata Ramana	2 years 09/21 - 03/23 <i>Ext. 03/24</i>
2.	Impact assessment of backwater through drains, creeks and river mouths on groundwater salinity in the Godavari Delta, Andhra Pradesh	Y.R.Satyaji Rao (PI) Sudhir Kumar V.S. Jeyakanthan R. Venkata Ramana	2 years 08/22 - 08/24
R & D Studies (New)			
3.	Storm water flood Management in the coastal city - A case study	R. Venkata Ramana (PI) Y R Satyaji Rao (PI) V. S. Jeyakanthan Sabyasachi Swain	2 years (04/23 – 03/25)
4.	Climate Change Impact Assessment under Future Scenarios over the East Coast of India: A focus on the Hydroclimatic Extremes	Sabyasachi Swain (PI) Y.R. Satyaji Rao V.S.Jeyakanthan R Venkata Ramana	2 years (04/23 – 03/25)
5.	Evaluation and post-processing of multi-model short-to-medium-range precipitation forecasts: Towards developing a flood early warning system over Subarnarekha Basin	Sabyasachi Swain (PI) Y.R. Satyaji Rao Biswajeet Pradhan Saswata Nandi	3 years (04/23 – 03/26)
Sponsored Study (On-going)			
6.	High Performance Advanced Septic System for Villages and Roadside Restaurants	Y.R. Satyaji Rao (PI) T.Vijay	3 Years 04/18 – 12/22 <i>Extended</i> (IC – IMPACT Canada)
Sponsored Study (New)			
7.	Quantification of SGD and its quality flux along the north coastal Andhra Pradesh	Y.R. Satyaji Rao (PI) Sudhir Kumar, S.M Pingale, M.K.Sharma R.Venkata Ramana	3 years (Project yet to be awarded by MoES)

NORTH EASTERN REGIONAL CENTRE, GUWAHATI

Recommended Work Programme for the year 2023-2024

Sl. No.	Title of the Study	Study Team	Duration
R & D Studies (On-going)			
1.	Drought characterization and vulnerability assessment in Assam	WR Singh, S Barman, SK Sharma, SV Vijaya Kumar, AK Lohani	2 Years (7/22 – 6/24)
R & D Studies (New)			
2.	Short Term Flood Forecasting Using Bootstrap based Artificial Neural Networks within Beki River basin.	S.K. Sharma, S. Barman, S. Arora, S.V. Vijaya Kumar, A.K. Lohani	1 Year (7/23 – 6/24)
3.	Linear Hydrological routing using Satellite precipitation datasets for flood forecasting in parts of BrahmaputraBasin	W. R. Singh Swapnali Barman, S. Arora, S.V. Vijaya Kumar,	1.5 years (9/23-2/25)
4.	Rainfall Induced Flood Hazard Risk Vulnerability Assessment in East Jaintia Hills, Meghalaya	S. K. Sharma S. Barman, S. Arora, S. V. Vijaya Kumar,	1.5 years (9/23-2/25)
5.	Hydrodynamic modelling for riverbank protection- A case study	Swapnali Barman, W. R. Singh, S Arora, S. K. Sharma S. V. Vijaya Kumar	1.5 years (9/23-2/25)
Sponsored Study (On-going)			
6.	A Coupled Hydrodynamic and Bank Dynamic Modeling Approach for Forensic Analysis of Bankline Erosion Process Along Majuli Island- the Largest Inhabited River Island in the World	S Barman, R.K Bhattacharya, M.K. Dutta W.R. Singh	3 years (04/21-03/24) Under DST-SERB (Power Grant)

CENTRE FOR FLOOD MANAGEMENT STUDIES, PATNA

Recommended Work Programme for the year 2023-2024

SI	Title of the Study	Study Team	Duration
R & D Study (On-going)			
1	Design flood estimation for small structures in the South Bihar area.	Pankaj Mani (PI), J P Patra, Pravin Rangrao Patil & Director WALMI	2 years (04/21-09/23)
R & D Studies (New)			
1	Influence of non-stationarity on flood frequency analysis for South-Bihar region	Pravin Rangrao Patil (PI) Pankaj Mani Suryansh Mandloi	02 years (05/23-03/25)
2	Evaluation of hydrologic models for Gandak river basin	Suryansh Mandloi (PI) Pankaj Mani Pravin Rangrao Patil	02 years (05/23-03/25)
Sponsored Study (On-going)			
1.	Modeling and management of erosion and sedimentation processes in a reach of Gandak river using morphodynamic modeling	Pankaj Mani (PI) J P Patra Pravin Rangrao Patil Suryansh Mandloi & WRD Bihar	3 years (05/21-04/24) Under NHP (PDS)

The research papers published by the scientists and scientific staff of the Institute during 2022-23 are given in **Appendix 77.4.2 [Page # 270 (Vol.-II)]**. The list of workshops/training courses/seminar/symposia organized during 2022-23 is given in **Appendix 77.4.3 [Page # 299 (Vol.-II)]**. The progress of laboratory work done during 2022-23 and 2023-24 (upto Aug. 2023) is given in **Appendix 77.4.4 [Page # 306 (Vol.-II)]**.

S.No.	Research papers (RFD Target 170 Nos.)	2022-23	2023-24 (upto Jan.2024)
1.	International Journal	81	62
2.	National Journal	13	08
3.	International Conference/ Seminar/ Symposium	107	48
4.	National Conference/ Seminar/ Symposium	16	59
5.	Books/Chapters	47	21
	Total	264	198

S.No.	Workshops/Training Courses (RFD Target 40 Nos.)	2022-23	2023-24 (upto Jan.2024)
1.	Workshops/Training Courses organized	48	22

The TAC may please consider the progress and status of the Work Programme of the Divisions and RC/CFMS of NIH for the year 2023-24.

ITEM#77.7: Major projects and activities of national importance:

National Hydrology Project (NHP)

National Institute of Hydrology (NIH) is participating in NHP as one of the central agencies. There are a total of 47 implementing agencies (IAs) including eight central agencies (MoWR, RD&GR; CWC, CGWB, NIH, CPCB, Sol, NRSC and CWPRS), 37 state-level agencies and two river basin organizations (RBO) under NHP. Keeping in view the NHP objectives and initiatives, NIH is involved in the following activities of NHP:

- Demand driven research through Purpose Driven Studies (PDS)
- Training and Capacity building
- Centre of Excellence for Hydrological modeling
- Decision Support System (DSS)

Purpose Driven Studies (PDS)

One of the main focuses of NHP is Research and Development (R & D) in the form of Purpose Driven Studies (PDSs). Considering the peculiarities and large variation in the nature of problems associated with water resources planning and development, the issues involved in research related to particular region and specific project, the NHP is sponsoring research proposals of applied nature along with basic and action research. The research activities of such nature are implemented through R & D Section of NHP which is located at NIH. PDSs are related to specific issues of water management problems identified within the area of operation of implementing agencies and of public concern.

Training and Capacity Building

NIH has been assigned with the important task of planning and organizing the training programmes for capacity building of the IAs under NHP. The main objective of the training and capacity building activities is to create, enhance and develop capacity in IAs at desired level to plan, implement and operate water resources schemes. The NHP training section is involved in identifying the training needs and preparation of annual training programs in relevant areas in consultation with various implementing agencies.

Centre of Excellence for Hydrologic Modelling (CEHM)

Developing a “Centre of Excellence for Hydrologic Modelling” and giving leadership to the Country in hydrologic modelling services is one of the four major tasks assigned to NIH under the NHP. This Centre is hosting knowledge repositories in hydrological processes understanding, advanced tools and techniques, advancement taking place from time-to time globally on hydrological research, tools and techniques to respond to the India’s hydrologic modelling services.

Decision Support System (DSS) Studies

Decision Support System (DSS) component is essential for up-gradation and maintenance of DSS software developed and implemented in the pilot basins of nine state agencies during HP-II project. New applications of DSS in other basins have been considered in association with states data centers and their planning and design departments. These activities would ensure the sustainability of DSS software in state implementing agencies and its utilization for planning various water resources activities.

Innovation Centre for Eco-Prudent Wastewater Solutions (IC-EcoWS) by DST

The project 'Innovation Centre for Eco-Prudent Wastewater Solutions (IC-EcoWS)' is funded by Department of Science & Technology (DST), Government of India. The National Institute of Hydrology (NIH) Roorkee is the leading institute for implementation of this project, in collaboration with the project partners from Indian Institute of Technology Bombay (IITB), Malaviya National Institute of Technology (MNIT), Jaipur and Institute of Rural Management Anand (IRMA), Ahmedabad.

The Centre is exploring the vast potential of NTS, especially constructed wetlands (CW) in Indian conditions by conducting research on improving the efficacy of CW in wastewater treatment. The major part of field experiments of NTS technology has been carried out by NIH and Project Partners. The interim findings of the project were disseminated among various stakeholders during stakeholders' workshops at different locations to create awareness.

ITEM # 77.8: Reporting Items:

List of Consultancy Projects (Completed: 11 Nos.; On-going:36)

SN	PROJECT TITLE	SPONSORING AGENCY	PI
PROJECTS COMPLETED DURING 2022-23			
1.	Environmental Flow Study of Shongtong Karchamm HEP project in Himachal Pradesh	HPPCL, Kinnaur	Manohar Arora
2.	Hydro-geological investigations in MRM Campus	MRPL Mangalore	B K Purendra
3.	Environmental flow study of Surgani-Sundla HEP in Distt Chamba (HP)	HPPCL, Hamirpur	Manohar Arora
4.	Water Availability Studies for Chutka Lake	NPCIL Mumbai	Rakesh Kumar
5.	Hydrogeological Study for Assessment of Impact of Mining on Bearma River and other water bodies in the study area and its mitigation plan at S.M.P.I. limestone mine area at village Kolkarhiya, Pawai Tehsil Panna Distt MP	Springway Mining Pvt Ltd Damoh MP	Sudhir Kumar
6.	Hydrology and Hydrological study for proposed RW Hybrid Park at Khavda Distt. Rann of Kutch, Gujarat	Gujarat Industries Power Company Limited, P.O. Petrochemicals, Distt. Vadodra	Sudhir Kumar

7.	Evaluation of design of storm water drainage structure in Shaheed Asafaq Ullah Khan Praani Udyan near Ramgarh Taal (Wetland), Gorakhpur	Uttar Pradesh Rajkiya Nirman Nigam Ltd., (UPRNN), Gomti Nagar, Lucknow	V.C. Goyal
8.	Hydro-geological Study of Area in the Vicinity of SEL Manufacturing Company Ltd. Nawanshahr, Punjab	Dr. B.R. Ambedkar NIT, Jalandhar, Punjab	Surjeet Singh
9.	Hydrological Study fo New India Garden(NIG) Project at village Indraprasth, New dehli	CPWD, Central Vista Project Division-IV, Nirman Bhawan, New Delhi	R.P. Pandey
10.	Hydrological study for design of drainage system and evaluation of flood diversion channel for the RBI Campus, Dehradun	CPWD, Dehradun	R.P. Pandey
11.	Vetting Hydrology of Dinki & Baras Barrage	RVRPPL-NEC JV Jubliee hills	R.K. Jasiwal
PROJECTS ON-GOING DURING 2022-23			
1.	Impact Assessment of rejuvenated ponds in Saharanpur Distt. U.P.	People's Action for National Integration (PANI) Ayodha (U.P.)	V.C.Goyal
2.	Engineering Services for carrying out extreme value analysis & statistical analysis of latest metrological data for Mahi Banswara Rajasthan Atomic Power Project (MBRAPP)	NPCIL Nabhikiya Urja Bhawan Anushakti Nagar Mumbai	J.P. Patra
3.	Performance evaluation of Nano Catalytically Instant Water Converter (NCIWC) equipment for Water waste water treatment	Envirogreen Minetech India Pvt. Ltd. Indore	Rajesh Singh
4.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Kawas	NTPC Kawas, Kawas Gas Power Project Surat Gujarat	Sudhir Kumar
5.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Singrauli	NTPC Singrauli, singrauli Super Thermal Power Project Shakti Nagar, Sonabhadra U.P.	Sudhir Kumar
6.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Jhanor-Gandhar	NTPC Jhanor Gandhar Gas Power Project Urja Nagar Bharauch Gujarat	Sudhir Kumar

7.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Rihand	NTPC Rihand Super Thermal Power Project Rihand Nagar, sonebhadra U.P.	Sudhir Kumar
8.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Unchahar	NTPC Unchahar Geroz Gandhi Thermal Power Project Unachahar Raebareli U.P.	Sudhir Kumar
9.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Anta Rajasthan	NTPC Anta Gas Power Project Anta Baran Rajasthan	Sudhir Kumar
10.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Sipat	NTPC Sipat Thermal Power Project Bilaspur Chhattisgarh	Sudhir Kumar
11.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Korba	NTPC Korba Super Thermal Power Project Korba Chhattisgarh	Sudhir Kumar
12.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Lara	NTPC Lara Super Thermal Power Project Raigarh Chhattisgarh	Sudhir Kumar
13.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Ramagundam	NTPC Ramagundam Super Thermal Power Station, Peddapalli Telengana	Sudhir Kumar
14.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Mandsaur	Mandsaur Solar PV (5x50mw) Mandsaur, M.P.	Sudhir Kumar
15.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Farrakka	Farakka Super Thermal Power Station Murshidabad West Bangal	Sudhir Kumar
16.	Hydro geological study to assess the impact of mining activities in & around Rampura Agucha Mine Area of Hindustan Zinc Ltd in the Bhilwara Distt. Rajasthan	Hindustan Zinc Ltd. Udaipur Rajasthan	Sudhir Kumar
17.	Study of Rainwater Harvesting Potential assessment & its review / design to increase the water possibility at Talapalli Coal Mining Project	NTPC Ltd. Coal Mining (Ranchi) Col Mining HQ, Ranchi Jharkhand	Pankaj Mani
18.	Study of Rainwater Harvesting Structure/Facilities/Systems	NTPC Rajgarh 1050 Rajgarh SOLAR PV, Rajgarh M.P.	Sudhir Kumar

	at NTPC Rajgarh Solar PV Plant		
19.	Study of Rainwater Harvesting Structure/Facilities/Systems at NTPC Solapur Station	NTPC Solapur 1045 Solapur STPP, South Solapur Maharashtra	Sudhir Kumar
20.	Glacial lake outburst Flood (GLOF) study for Arun-4 HEP	SAPDC (SJNV Ltd.)	Sanjay K Jain
21.	Dam Break analysis & flooding simulation, preparation of inundation mapping & emergency action plan for Vasna Barrage, Ahmedabad, Gujarat	Addl. C.E. Ahmedabd Municipal Corporation, Ahmedabad	A K Lohani
22.	Hydrogeological study to assess the impact of dewatering on Groundwater & its quality in the nearby area of Rajpura Dariba Mine of Hindustan Zinc Ltd.	Hindustan Zinc Ltd.	Gopal Krishn
23.	Site selection for intake well in Alakhnanda River near Srinagar for Marhi Chauras Pumpng Peyjal Yojna	Uttarakhand Peyjal Sansthan Vikas Nirman Nigam Devprayag (Tehri Garhwal)	R.P.Pandey
24.	Evaluation of Electrolyte solutions for salt composition	Faith Inovations, Roorkee	Rajesh Singh
25.	Verification of Hydrology and Hydraulic study for proposed Barrage cum Bridgebetween Torrent Power and Camp Sadar Bazar for Sabarmati River Front Development Project (SRFDCL), Ahmedabad	Sabarmati River Front Development Project (SRFDPCL), Ahmdabad	R. K. Jaiswal
26.	Site selection for intake well in Ganga River Bharpoor Pumping Peyjal Yojna Phase II	Uttarakhand Peyjal Sansthan Vikas Nirman Nigam Devprayag (Tehri Garhwal)	R.P.Pandey
27.	System studies for proposed Farakka-Sundarban project	National Water Development Agency (NWDA), Ministry of Jal Shakti	Surjeet Singh
28.	Water quality studies for Tehri reservoir, Tehri HPP (4x50mw)	THDC, India Ltd. Tehri Garhwal	M.K.Sharma
29.	Technical Evaluation of infiltration well of Dadua - Bhandali minral water	Uttarakhand Pey jal Nigam	R.P. Pandey

	pumping scheme of Alaknanda river for Feasible options to maintain the supply		
30.	VOC Analysis of water samples	National Environmental Engineering Research Institute (NEERI), Nagpur	M.K. Sharma
31.	Comprehensive hydrological analysis of Harangi catchment	chief Engineer Irrigation (South Zone)' Mysore	B. Venkatesh
32.	Study of seasonal change in the quality of Ujjani Dam water & identification of sources of contamination wrt increase in ionic concentrations at Solapur STPP	NTPC Ltd. (Solapur)	Suhas Khobragade
33.	Hydrodynamic Modelling of Krishna River to study backwater effect of Almatti Dam & Barrage in Karnatak State	WRD Govt of Maharashtra	A.k Lohani Sc
34.	Hydrological study for water availability assessment in Sukhnai River & runoff diversion to Saprar Dam	Irrigation Constriction Division Mauranipur Irrigation & WRD Govt. of U.P.	R.P. Pandey
35.	Site selection for intake well of Indra-Tipri pumping water supply scheme	Dinesh Prasad Dangwal, Village Masras Distt. Tehri	R.P. Pandey
36.	Site Selection for intake well in Jalkoor River for Jalkoor pumping peyjaj yojna	Shree Guru Agencies New Market, Haldwani Distt. Nainital	Pradeep Kumar

ITEM # 77.9: Any other item with permission of the Chair

With the permission of the Chairman, it is requested to identify 3- 4 gauging sites of CWC (with facilities of ADCP, AWLR, AWVR) for a collaborative study of NIH with CWC and CWPRS. A very brief presentation of the technology can be made, subject to the permission of the Chairman.