AGENDA AND AGENDA NOTES

75th MEETING OF THE TECHNICAL ADVISORY COMMITTEE (TAC) OF NIH

1st September 2021
AT 1100 Hrs
VC Mode

NATIONAL INSTITUTE OF HYDROLOGY
ROORKEE-247667

AGENDA AND AGENDA NOTES FOR THE 75th MEETING OF THE TAC OF NIH

AGENDA ITEMS

List of Appendices

ITEM # 75.1 Opening Remarks by the Chairman

ITEM # 75.2 Confirmation of the minutes of 74th meeting of the TAC

The 74th meeting of the TAC was held at Roorkee on Dec. 15, 2020 in VC mode. The minutes of the meeting were circulated to all the members and invitees vide email dated Jan.1, 2021. A copy of the minutes of the 74th meeting of TAC is given in **Appendix-75.2.1[Page # 1 (Vol.-II)].** Since no comments were received from the members on the circulated minutes, the minutes may please be confirmed.

ITEM # 75.3: Action taken on the decisions/ recommendations in the previous meeting

S N	Query/Suggestion	Action Taken
1	The Chairman mentioned that study on discharge measurement in Himalayan basins by use of AWLR is important even for CWC and desired that NIH may take up these studies on pilot basis to understand and clarify to the field agencies the complexities of discharge measurement in hilly terrains.	Being explored in collaboration with field agencies.
2	Prof. Jayakumar requested NIH to prepare a 'Research Digest in Hydrology' as an output of Indian National Committee on Inter-Governmental Hydrological Programme (INC-IHP), compiling abstract of research papers on hydrology-related topics published by NIH and others in India.	Noted for compliance.

ITEM # 75.4: Status of the work programme for the year 2020-21

List of Completed studies

S.No	Title of the project	PI	Division	Internal/ Sponsored
1.	Environmental Assessment of Aquatic Ecosystem of Upper Ganga Basin	M. K. Sharma	EHD	Sponsored
2.	Ground Water Quality Assessment with Special Reference to Sulphate Contamination in Bemetara District of Chhattisgarh State and Ameliorative Measures	M. K. Sharma	EHD	Sponsored
3.	Water quality assessment of Haridwar District	R.K. Nema	EHD	Internal
4.	Application of Satellite Data Products for Water Resources Assessment	Suman Gurjar	GWHD	Internal
5.	The Regional Hydrological Impact of Agricultural Water Saving Measures in the Gangetic Plains	Sumant Kumar	GWHD	Internal
6.	Impact on Salinity of River Mahadayi due to Proposed Dams on River Mahadayi	Gopal Krishan	GWHD	Internal
7.	Study of River - Aquifer Interactions and Groundwater Potential at Selected Sites in the Upper Ganga Basin up to Dabrani	Surjeet Singh	GWHD	Sponsored
8.	Hydro-geochemical Evolution and Arsenic Occurrence in Aquifer of Central Ganges Basin	Sumant Kumar	GWHD	Sponsored
9.	Development of regional relationships for water availability analysis and flood estimation for lower Godavari basin (3f)	Sanjay Kumar	SWHD	Internal
10.	Study of Hydrological Changes in selected Watersheds in view of Climate Change in India	L.N. Thakural	SWHD	Internal
11.	Evaluation of water quality of Government schools in Roorkee block, District Haridwar	N.K. Bhatnagar	SWHD	Internal
12.	Application of unified-extreme-value (UEV) distribution for flood frequency: (1) Lower Narmada & Tapi subzone-3b, (2) Lower Godavari subzone-3f	S.K. Singh	SWHD	Internal
13.	Developments of Water Accounts for Subarnarekha Basin Using Water Accounting Plus (WA+) Framework	P. K. Singh	WRSD	Internal
14.	Real time flood modelling using HEC-RTS modelling framework	Vishal Singh	WRSD	Internal
15.	Measurements and Modeling of Evapotranspiration and other Hydrological Processes in Lesser Himalayas	M K Nema;	WRSD	Sponsored
16.	Preparation of Guidelines for the “Management of Glacial Hazards and Risks especially GLOFs & LLOFs”	Sanjay K. Jain	WRSD	Sponsored
17.	Conservation of ponds in Ibrahimpur- Masahi Village and performance evaluation of natural treatment system	Omkar Singh	RMOD	Sponsored

18.	Rejuvenation of village ponds in identified villages of Baghpat, Ghaziabad and Meerut districts of Uttar Pradesh	Omkar Singh	RMOD	MoJS (through Scheme funds)
19.	Impact of Land use/Land cover Changes on Ground water – A Case	B.Venktesh	RC, BELAGAVI	Sponsored
20.	Studies on Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply in parts of Western Ghats, India	B K Purandra Sudhir Kumar	RC, BELAGAVI	Sponsored
21.	Assessment of Hydrological Characteristics of a Western Himalayan river – A study of River Ujh	D. Khurana	RC, JAMMU	Internal
22.	Forecasting of Flash flood and Management for east flowing rivers of India's Subzone 4(a)	R.VenkataRamana	RC, KAKINADA	Internal
23.	Sedimentation Study of Hirakud Reservoir, Odisha using Optic and Microwave Remote Sensing Technology	V.S.Jeyakanthan	RC, KAKINADA	Sponsored
24.	Flood Inundation Mapping of Beki River Basin of Assam	S.K Sharma,	RC, GUWAHATI	Internal
25.	Development of regional methods for design flood estimation in North Brahmaputra subzone 2 (a).	S.K Sharma,	RC, GUWAHATI	Internal
26.	Modeling of Tawa Reservoir Catchment and Development of Tawa Reservoir Operation Policy under Climate Change	Er.S.P. Indwar	RC, BHOPAL	Sponsored
27.	Modeling of Narmada using GWAVA. (International Collaborative Project with CEH Wallingford, UK)	Dr.T. Thomas	RC, BHOPAL	Sponsored

ITEM # 75.5: Report of proceedings of the Working Group and RCC Meetings

The 51st meeting of the Working Group of NIH was held during 14-15 June 2021 in VC mode. The Working Group considered the status of the work programme for the year 2021-22 under two categories: (i) internally funded projects, and (ii) sponsored/consultancy projects. The approved minutes of the 51st meeting of the NIH Working Group are given in **Appendix 75.5.1 [Page # 396 (Vol.-II)]**.

General comments/suggestions by the members during the 51st meeting of WG are as follows:

- Suggested use of modern tools like AI, IOT
- Address water related issues with changes in landuse and water use
- Also address equity and economics aspects of water security
- Use of IOT sensors and systems
- Bring out a vision paper on hydrology in future
- Impact of rural toilets on groundwater system and health of human beings
- Align spring studies demonstrating impacts to beneficiaries
- Urban flood modelling for some cities in India
- Emphasized on effective presentation during meetings
- Address real-life water related problems faced by India
- Start with problems in Roorkee
- Attempt holistic solution through integrated approach

- Document success stories
- Plan follow up studies for impact assessment
- Due attention should be given to the preparation and delivery of the presentation
- Carefully worded shorter titles with important keywords are easier to locate in a keyword search
- Objectives for the project can be stated as SMART objectives
- Wider dissemination of short and informative films, such as made by RMOD, to reach as many people as possible can go a long way in generating interest and desirable action in hydrology
- More studies/projects dealing with drinking water security
- PIs to complete pending studies
- Before proposing a new study, explore data availability, consent of local user departments and collaborators
- Find out how studies are utilized by user organizations/stakeholders

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

RCC meetings

DRC, Kakinada - 30th RCC – 03 Aug., 2021
CFMS, Patna– 20th RCC – 22 Jun., 2021
CIHRC, Bhopal - 19th RCC – 18 Mar., 2021
HRRC, Belagavi- 31st RCC – 26 Mar., 2021
WHRC, Jammu - 25th RCC – 02 Jul., 2021
CFMS, Guwahati – 16th RCC – 02 Aug., 2021

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

	No. of Studies/Projects During the Year 2020-21				
Division	**Ongoing**		**New**		**Total**
	Internally funded	Sponsored	Internally funded	Sponsored	
Environmental Hydrology	2	4	2	-	**8**
Ground Water Hydrology	2	9	2	1	**14**
Hydrologic Investigation	1	7	2	-	**10**
Surface Water Hydrology	6	2	2	-	**10**
Water Resources System	3	11	3	2	**19**
Research Management & Outreach	1	3	3	-	**7**
HRRC, Belagavi	4	4	-	-	**8**
WHRC, Jammu	3	3	1	-	**7**
CIHRC, Bhopal	-	7	1	-	**8**
DRC, Kakinada	1	7	-	-	**8**
CFMS, Guwahati	6	2	1	-	**9**
CFMS, Patna	2	-	2	-	**4**
Total	**31**	**59**	**19**	**3**	**112**

ITEM # 75.6: Work Programme for the year 2021-22

The approved Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2020-21 is given in the tables below, and details are provided in **Appendix 75.6.1 [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. Research Management & Outreach Division
7. Regional Centre, Belagavi
8. Regional Centre, Jammu
9. Regional Centre, Bhopal
10. Regional Centre, Kakinada
11. Centre for Flood Management Studies, Guwahati
12. Centre for Flood Management Studies, Patna

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

	No. of Studies/Projects During the Year 2021-22				
Division	**Ongoing**		**New**		**Total**
	Internally funded	Sponsored	Internally funded	Sponsored	
Environmental Hydrology	3	3	1	1	**8**
Ground Water Hydrology	1	9	-	-	**10**
Hydrologic Investigation	2	9	2	-	**13**
Surface Water Hydrology	4	2	2	-	**8**
Water Resources System	4	11	-	3	**18**
Research Management & Outreach	4	3	-	-	**7**
HRRC, Belagavi	3	2	1	-	**6**
WHRC, Jammu	3	2	3	1	**9**
CIHRC, Bhopal	2	5	2	-	**9**
DRC, Kakinada	-	6	1	-	**7**
CFMS, Guwahati	5	2	-	1	**8**
CFMS, Patna	2	-	1	1	**4**
Total	**33**	**54**	**13**	**7**	**107**

ENVIRONMENTAL HYDROLOGY DIVISION

RECOMMENDED WORK PROGRAMME FOR THE YEAR 2021-22

SN	Study	Study Team	Duration/Status
Sponsored Projects (Ongoing)			
1.	Water Quality Assessment of Southwest Punjab Emphasizing Carcinogenic Contaminants and their Possible Remedial Measures	Rajesh Singh (PI) Pradeep Kumar, M. K. Sharma, Sumant Kumar **Partner:** Irrigation Department, Punjab	3 Years (09/17-08/21) **Sponsored by**: NHP-PDS **Status:** In-progress
2.	Leachate Transport Modeling for Gazipur landfill site for suggesting ameliorative measures	Anjali (PI) Sudhir Kumar, J. V. Tyagi M. K. Sharma **Partner:** CGWB (Delhi unit)	3 Years (11/2019 – 5/2023) **Sponsored by**: NHP-PDS **Status:** In-progress
3.	Water Efficient Irrigation by Using SCADA System For Medium Irrigation Project (Mip) Shahnehar	R.P. Pandey, (PI). Jagdeesh Patra, Rajesh Singh, N. K. Bhatnagar, Shekhar Saini	3-years (12/17-06/22) **Status:** In-progress
Sponsored Projects (New)			
4.	Isotopic and geochemical approach to study vulnerable confined and unconfided drinking water aquifers in Varanashi and surrounding area	Rajesh Singh (PI) R. P. Pandey BHU, Varanashi (Lead) Other Collaborators: BARC, Mumbai, ICER, Hungary	3 years 07/ 2021-07/24 **(proposed collaborative study)**
Internal Study (Ongoing)			
5.	Water quality assessment of Haridwar District	R.K. Nema (PI) Rajesh Singh, J. V. Tyagi, Pradeep Kumar	2 years (05/19-06/21) **Status:** completed
6.	Simulation of Non-Point Source Pollution Processes in Song River	Pradeep Kumar (PI) J. V. Tyagi, M. K. Sharma, Rajesh Singh, R. K. Nema	4 years (11/19-10/23) **Status:** In-progress
7.	Development of rejuvenation plan for Hindon river system	M. K. Sharma (PI) Sudhir Kumar, R. P. Pandey, Anupma Sharma, Anjali, Vishal Singh, Pradeep Kumar, NiteshPatidar, Surjeet Singh, Rajesh Singh	3 Years (07/20-06/23) **Status:**In-progress
8.	Influence of Anthropogenic Factors on River Ganga in the stretch from Rishikesh to Haridwar	Rajesh Singh (PI) J. V. Tyagi, R. P. Pandey, R.K. Nema, Pradeep Kumar, M. K. Sharma	2 Years (06/20-05/22) **Status:** In-progress
Internal Studies (New Study)			
9.	Understanding Arsenic mobilization in groundwater of Haridwar and formulating remediation measures	Rajesh Singh (PI) R. K. Nema, Sumant Kumar, Pradeep Kumar, M. K. Sharma	3 Years (July 2021 – June 2024)

GROUND WATER HYDROLOGY DIVISION

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

SN	Title of Project/Study	Study Team	Duration	Status & Comments/ Suggestions	Funding
Internal Studies					
1. NIH/GWH/ NIH/20-22	Integrated GEE-MODFLOW based Groundwater Recharge Assessment System for Hindon River System	Nitesh Patidar (PI), Gopal Krishan, Suman Gurjar	Aug 2020-Jul 2022	On-going	Internal
Sponsored Projects					
2. NIH/GWH/BGS/17-20	Groundwater Fluctuations and Conductivity Monitoring in Punjab - New Evidence of Groundwater Dynamics in Punjab from High Frequency Groundwater Level and Salinity Measurements	Gopal Krishan (PI), Surjeet Singh, C. P. Kumar, M. S. Rao *From: BGS, UK* Dr. Dan Lapworth (PI) Prof. Alan MacDonald	Dec 2017-Nov 2021	On-going	Sponsored by BGS, UK
3. NIH/GWH/ PDS/17-21	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 (PI), Surjeet Singh, C. P. Kumar, *IIT-Roorkee:*M. L. Kansal, Brijesh Yadav (PI) *Sehgal Foundation, Gurgaon:* Lalit Mohan Sharma	Dec 2017-Jul 2022	On-going	Sponsored by NHP under PDS
4. NIH/GWH/ PDS/17-21	Ganges Aquifer Management in the Context of Monsoon Runoff Conservation for Sustainable River Ecosystem Services - A Pilot Study	Surjeet Singh (PI), M. K. Goel, Sudhir Kumar, Suman Gurjar, Gopal Krishan	Dec 2017-Jul 2022	On-going	Sponsored by NHP under PDS
5. NIH/GWH/ DST/18-20	Future Secular Changes and Remediation of Groundwater Arsenic in the Ganga River Basin - FAR GANGA	B. Chakravorty (India Lead), Surjeet Singh (Dy. Lead), Sumant Kumar, Gopal Krishan, Suman Gurjar *Other India Partners:* IITR, IITKg, MCS, Patna *UK Partners:* Univ. of Manchester, BGS, Salford University, Univ. of Birmingham	Jan 2018-Dec 2021	On-going	DST-Newton Bhabha – NERC - India -UK Water Quality Research Programme

6. NIH/GWH/ DST/18-20	Impact of Rainwater Harvesting on Groundwater Quality in India with Specific Reference to Fluoride and Micro-pollutants	Anupma Sharma (India Lead), Sumant Kumar, Gopal Krishan, Suman Gurjar, M. K. Sharma *Other Indian Partners:* IIT Ropar, IIT Jodhpur *UK Partner:* Cranfield University *Project Partners:* Water Harvest, Excellent Development (UK based NGOs)	Jan 2018-Dec 2021	On-going	DST-Newton Bhabha-NERC-India-UK Water Quality Research Programme
7. NIH/GWH/ CEHM/18-22	Integrated Management of Water Resources for Quantity and Quality in Upper Yamuna Basin upto Delhi	Anupma Sharma (PI), Sanjay K. Jain, Archana Sarkar, M. K. Sharma, L. N. Thakural, Sumant Kumar, Suman Gurjar, Vishal Singh, Nitesh Patidar *Partner Organizations:* Irrigation & Water Resources Dept. Haryana, Groundwater Dept. UP, Yamuna Basin Organization, CWC, New Delhi	Apr 2018-Mar 2022	On-going	Special Project under "Centre of Excellence " (NHP)
8. NIH/GWH/ DST/19-23	Enhancing Food and Water Security in Arid Region through Improved Understanding of Quantity, Quality and Management of Blue, Green and Grey Water	Anupma Sharma (Lead NIH), C. P. Kumar, Suman Gurjar, Nitesh Patidar (*Lead*: CAZRI Jodhpur, *Partners*: NIH Roorkee, IISWC Dehradun, CSWRI Bikaner, CIAH Bikaner, NIAM Jaipur)	Mar 2019-Feb 2024	On-going	Sponsored by DST
9. NIH/WRS/NMSHE/16-20	Development of a project website and hydrological database in Upper Ganga basin (SP-1)	M. K. Goel (PI), M. Arora, A. K. Lohani, D. S. Rathore, D. Chalisgaonkar, A. R. S. Kumar, Surjeet Singh, P. Mani, A. Sarkar, M. K. Nema, Suman Gurjar, P. K. Mishra	Jan 2016-Sep 2021	On-going	Sponsored by DST under NMSHE SP-1,
10. NIH/GWH/CCRBF/20-23	Expansion of the Indo-German Competence Centre for Riverbank Filtration – CCRBF	Gopal Krishan (PI & Coordinator)	Jul 2020-Jun 2023 ***Status: Approval is under considerati on of MEA***	On-going	Sponsored by Federal Ministry of Education & Research, Germany

Training Courses Proposed

1	Four Training courses shall be organized by the Division during 2021-22 under the National Hydrology Project (NHP).

HYDROLOGICAL INVESTIGATIONS DIVISION

RECOMMENDED WORK PROGRAMME FOR THE YEAR 2021-2022

S. N.	Project Title	Study Team	Duration	Status
	INTERNAL STUDIES:			
1.	Hydrological investigations of selected springs in Tehri Garhwal District , Uttarakhand	S M Pingale (PI), Sudhir Kumar S. D. Khobragade Soban Singh Rawat Er. Padam Singh, (UUHF, Ranichauri) Rajeev Gupta	Apr 2019-Mar 2022	Continuing Study
2.	Assessment of impact of land use and land cover change on groundwater conditions in parts of Sabarmati river Basin, Gujarat	M. Someshwar Rao (PI) Sudhir Kumar Vipin Aggarwal	Apr 2021 – Mar 2023	***Revised New Study***
3.	Integrated Hydrological Investigations of Renuka lake, Himachal Pradesh, for its Conservation and Management	SD Khobragade (PI) Sudhir Kumar Hukam Singh Rajiv Gupta Vipin Agarwal Scientist from GoH.P.	Jul 2020-Jun 2023	Continuing Study
4.	Assessment of dissolved radon concentration in groundwater of Uttarakhand	Hukam Singh (PI), M Someshwar Rao, Soban Singh Rawat, Vipin Agarwal	Apr 2021-Dec 2022	New Study
	SPONSORED PROJECTS			
1.	Understanding of hydrological processes in Upper Ganga basin by using isotopic techniques	Suhas Khobragade (PI) Sudhir Kumar, Rajesh Singh, M. Arora	Apr 2016 – Mar 2021 Extended upto Sep 2021	NMSHE Project
2.	Dating very old ground waters of deeper aquifers in Ganga Plains, India	M. Someshwar Rao (PI) Sudhir Kumar	Jun 2016 – Dec 2022	IAEA under CRP
3.	Chemical & Isotopic Characterization of Deep Aquifer Groundwater of Middle Ganga Basin	Sudhir Kumar (PI) M. Someshwar Rao Vipin Aggarwal	Jan 2018 – Jan 2022	NHP (PDS)
4.	Integrated Study on groundwater dynamics in the coastal aquifers of West Bengal for sustainable groundwater management	M. Someshwar Rao (PI), Sudhir Kumar A. R. Senthil Kumar V. S. Jeyakanthan	Jan 2018 – Jan 2022	NHP (PDS)
5.	Development of a comprehensive plan for conservation and sustainable management of Bhimtal and Naukuchiatal lakes, Uttarakhand	Suhas Khobragade (PI) Sudhir Kumar	Jan 2018 – June 2022	NHP (PDS)
6.	Unravelling Submarine Discharge (SGD) zones along the Indian subcontinent and its islands	Sudhir Kumar (PI) SM Pingale, M.	Apr 2019 – Sep 2021	Study under NCESS, MoES

S. N.	Project Title	Study Team	Duration	Status
	(Mission SGD) – Pilot Study	Someshwar Rao, BK Purandara, YRS Rao		
7.	Groundwater Rejuvenation As Climate change Resilience for marginalized and gender sensitive GangeS (GRACERS)	Sudhir Kumar (PI) M. Someshwar Rao SM Pingale	Jun 2019 – May 2022	(IIT Bombay, Mumbai)
8.	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 (PI) Sudhir Kumar, P G Jose, Suman Gurjar, D S Bisht	Aug 2017 – Mar 2022	NHP (PDS)
9.	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 (PI) P G Jose, Suman Gurjar, D S Bisht	Jan 2019– c 2021De	NMHS

SURFACE WATER HYDROLOGY DIVISION

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

SN	Title of Project/Study	Study Team	Duration	Status & Comments	Funding
Ongoing Sponsored Studies					
1	Hydrological modelling in Alaknanda basin and assessment of climate change impact(NMSHE)	A.K.Lohani Sanjay K. Jain Archana Sarkar V.S. Jeyakanthan L.N. Thakural	5 years (April 2016 to September 2021)	On-going	DST
2	Rainfall-Runoff Modelling of Selected Basin based on LULC pattern and development of Correlation (NHP)	A.K. Lohani R.K. Jaiswal Sushant Jain WRD Rajasthan Sanjay Agarwal Shailendra Kumar	24 months (Oct. 2019 to April 2022)	On-going	NHP
Ongoing Internal Studies					
1	Assessment of Climate Change Impact on Water Availability and Agriculture in part of Banas basin	Archana Sarkar Surjeet Singh Suman Gurjar Sunil Gurrapu	2.5 years (Nov. 2018 August 2021).	On-going Extended upto August 2021	NIH
2	Evaluation of seasonal extreme rain events across river basins of India in 3D global temperature change scenario.	Ashwini Ranade Archana Sarkar	3 years (April 2018 to October 2021)	On-going Extended upto October 2021	NIH

3	Evaluation of the influence of low-frequency atmosphere-ocean oscillations on annual floods in the watersheds of the Indian subcontinent	Sunil Gurrapu Ashwini Ranade J.P. Patra	3 years (Nov 2018 to October 2021)	On-going	NIH
4	Probabilistic dam break flood wave simulation and flood risk assessment for preparation of EAP for Mahi Bajaj Sagar dam in Rajasthan.	J.P. Patra Rakesh Kumar Pankaj Mani Sunil Gurrapu	2 years (July 2020 to August 2022	On-going	NIH
New Internal Studies					
1	Application of unified-extreme-value (UEV) distribution for flood frequency: (1) Mahi & Sabermati subzone – 3a (2) Godavari subzone-3e.	S.K. Singh	One year (April 2021 to March 2022)	New Study	NIH
2	Uncertainty in rating curves and discharge estimation	Sanjay Kumar, L. N. Thakural Sunil Gurrapu N.K. Bhatnagar J P Patra	2 Years **(**April 2021 to March 2023)	New Study	NIH

WATER RESOURCES SYSTEMS DIVISION

RECOMMENDED WORK PROGRAMME FOR THE YEAR 2021-22

SN	Title of Project/Study	Study Team	Duration	Status & Comments	Funding
Ongoing Sponsored/ Internal Studies					
1.	Development of a project website and hydrological database in Upper Ganga Basin **(Sub-project – 1)**	M. K. Goel; M. Arora; A. K. Lohani; D. S. Rathore; D. Chalisgaonkar; A. R. S. Kumar; S. Singh; P. Mani; A. Sarkar; M. K. Nema; P. K. Mishra	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST
2.	Real-time snow cover information system for Upper Ganga basin **(Sub-project – 2)**	D. S. Rathore; (Now Deepa Chalisgaonkar is PI) V. S. Jeyakanthan; L. N. Thakural;	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST
3.	Glacial Lakes & Glacial Lake Outburst Flood (GLOF) in Western Himalayan Region **(Sub-project – 3)**	Sanjay K. Jain; A. K. Lohani; Sudhir Kumar; Praveen Thakur (IIRS)	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST
4.	Assessment of downstream impact of Gangotri glacier system at Dabrani and future runoff variations under climate change scenarios **(Sub-project – 4)**	~~Renoj J.Thayyen;~~ Sanjay K. Jain; Sharad K. Jain (Retd.) P. K. Mishra; M. Arora; AP Dimri (JNU)	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST

5.	Observation and modelling of various hydrological processes in a small watershed in Upper Ganga basin **(Sub-project – 5)**	M K Nema; Sharad K. Jain (Retd.); ~~Renoj J.Thayyen;~~ Sanjay K. Jain; P K Singh, P. K. Mishra; P. K. Agarwal AP Dimri (JNU)	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST
6.	Water Census and Hotspot analysis in selected villages in Upper Ganga basin **(Sub-project – 11)**	P. K. Mishra; M. K. Nema; ~~Renoj J. Thayyen;~~ Pradeep Kumar	5 years (01/16-03/21) (Extended till Sept., 2021)	On-going	DST
7.	Investigating Water Stress using Hydro-meteorological and Remote Sensing data	D. S. Rathore; (Now L. N. Thakural is PI); Sanjay Kumar; B. Venkatesh M. K. Jose; T. Chandramohan	3 years 2017-2020 (Extended upto June, 2021)	On-going	PDS under NHP
8.	Snow and glacier contribution and impact of climate change in Teesta river basin in Eastern Himalaya	Sanjay K. Jain P. K. Singh; M. Arora ~~Renoj J. Thayyen;~~ A. K. Lohani; Vishal Singh;	3 years (11/19-11/22)	On-going	NMHS-MoEF
9.	Assessment of seasonal variations in Hydrology and Cryosphere of upper Ganga Basin	~~Renoj J. Thayyen~~ Vishal Singh A. P. Dimri (JNU) Sanjay K. Jain	3 years (06/19-11/22)	On-going	NRDMS-DST
10.	Permafrost mapping and characterization of Ladakh Region	~~Renoj J. Thayyen;~~ A. P. Dimri (JNU) will lead now; G. Jeelani (KU); V. Agnihotri (GBPNI)	3 years (11/19-11/22)	On-going	NMHS-MoEF
11.	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; P K Agarwal	2 years (08/20-07/22)	On-going	NHP
12.	Seasonal Characterization of Gangotri Glacier melt runoff and simulation of streamflow variation under different climate scenarios	M. Arora P K Mishra Vishal Singh	3 years (04/18-03/22)	On-going	NIH
13.	Impacts of glacier and climate change on runoff for selected basins of Himalayan region	Vishal Singh; Sanjay K. Jain; Manohar Arora	2 years (08/20-07/22)	On-going	NIH
14.	Monitoring and Hydrological Modelling of Henvel watershed in Lesser Himalaya (Phase II)	M K Nema; Sanjay K Jain; ~~Renoj J. Thayyen;~~ P K Mishra; P K Agarwal	3 years (08/20-07/23)	On-going	NIH
15.	Upgradation of NIH_ReSyP to .NET Platform– a Reservoir Operation Package	D. Chalisgaonkar M. K. Goel	1 year (08/20-07/21)	On-going	NIH
	New Internal/ Sponsored Studies				

1.	Development of Water Accounts for the different sub-basins in the state of Nagaland Using Water Accounting Plus (WA+) Framework.	P K Mishra; P K Singh; P K Agarwal	2 years (06/21-05/23)	New **Presented** Due care will be taken to use the latest available open access dataset preferably up to 2020, as advised by Dr. V. C. Goyal.	NHP
2.	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; M K Nema; P K Singh; Vanlalpekhlua Sailo (SDO from Mizoram); Lalruatkima (JE from Mizoram)	2.5 years (06/21-05/24)	New	NHP
3.	Monitoring of Hydrological Processes in Glaciated and Non Glaciated Watersheds of North-West Himalaya	M K Nema; Sanjay K Jain; Manohar Arora; Vishal Singh; Praveen Thakur (IIRS)	3 years (07/21-06/24)	This study was not presented in the WG. SKJ informed that this study will be taken up after MOU is signed with IIRS.	IIRS

RESEARCH MANAGEMENT AND OUTREACH DIVISION (RMOD)

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

SN	Title of Project/Study	Study Team	Duration	Funding	Status
		INTERNAL STUDY			
1	Conservation of ponds in Ibrahimpur- Masahi Village and performance evaluation of natural treatment system	NIH: Omkar Singh (PI) V C Goyal, Rajesh Singh, Digambar Singh, Subhash Kichlu, Rajesh Agrawal, Rakesh Goel, NR Allaka; CEH-UK: Prof. Laurence Carvalho & Team	Apr 2018-Jul 2021	NIH, CEH-UK	On-going
2	Integrated assessment of water resources for sustainable use in Upper Dhasan basin in Bundelkhand region	Jyoti Patil (PI) T Thomas (Co-PI), P K Mishra Rohit Sambare	Jul 2020- Dec 2022	NIH	On-going
3	Establishing hydrologic regime and ecohydrological functions of Jhilmil Jheel wetland (Haridwar District, Uttarakhand)	Rohit Sambare (PI) V C Goyal (Co-PI), Suhas Khobragade; Gajendra Singh-USAC, Dehradun; WI-SA, New Delhi; HESCO, Dehradun	Jul 2020- Jun 2022	NIH	On-going
4	Hydrology-based scenario planning for water productivity and optimization of income from farming practices in Mewat region, Haryana	A R Senthil Kumar (PI) Omkar Singh (Co-PI) Rajesh Agarwal, N R Allaka Scientist from KVK/Agri Univ.	Jul 2020- Jun 2022	NIH	On-going
		SPONSORED PROJECTS			
1	Hydrological modelling in Bhagirathi basin up to Tehri dam and assessment of climate change impact	A R Senthil Kumar (PI) J. V. Tyagi, M. K. Goel, S. D. Khobragade, P. C. Nayak, Manohar Arora	Mar 2016-Mar 2021 (Extended upto Sep 2021)	DST-NMSHE	On-going
2	Innovation Centre for Eco-Prudent Wastewater Solutions (IC-EcoWS)	V.C. Goyal (PI), Omkar Singh, Rajesh Singh, Jyoti P. Patil, Rohit Sambare, Project Team, HQ (IC-EcoWS) Partners: NIH, MNIT-Jaipur, IIT-Bombay, IRMA-Anand	Apr 2019-Mar 2024	DST (GoI)	On-going
3	Preparation of Guidebook on S&T Interventions on Pond Rejuvenation	V C Goyal (PI), Jyoti Patil	Sep 2020- Jun 2021 (Ext. requested upto Dec 2021 from DST)	DST (GoI)	On-going

Proposed Training/Webinar/Outreach Activities of RMOD (2021-22)

S. N.	Outreach Activity	Tentative Date & Month	Place	Target Participants	Team
1	Webinar on "Water for Public Health (W4PH): Preparing for Disasters & Pandemics"	Jul 2021	Online mode	Medical and WASH professionals, water utility professionals, researchers	V C Goyal, Jyoti Patil, Varun Goyal, Amrendra Bhushan
2	Workshop/Webinar on rejuvenation of ponds and treatment of domestic wastewater through constructed wetlands	Sep 2021	NIH Roorkee	R&D Institutes/University/Govt. Organizations	NIH: Omkar Singh, V.C. Goyal, Rajesh Singh, Digambar Singh UKCEH: Laurence Carvalho & Elliot Hurst
3	Awareness Programme for School Children	July-Sep 2021	2 Schools in Roorkee/ Nearby	School Children	Digambar Singh, Omkar Singh, Subhash Kichlu, Rajesh Agarwal, N R Allaka
4	Awareness Programmes on "Water Conservation/Pond Rejuvenation" for Stakeholders in Ibrahimpur Masahi village/schools	Sep-Dec, 2021	Ibrahimpur Masahi/ schools	Villagers/ School children	Omkar Singh, V.C. Goyal, Rajesh Singh, Digambar Singh, Subhash Kichlu, Rajesh Agarwal, NR Allaka
5	Life cycle approach for rejuvenation of ponds and lakes using Nature Based Solutions (4 training courses of 5-days duration) Funded by NWM (MoJS, GoI)	Sep'21 – Jul '22	Roorkee/ Online	Field engineers and practitioners	Jyoti Patil, V C Goyal, Omkar Singh, Digambar Singh, Rohit Sambare, N R Alakka

Other Outreach Activities:

S.N.	Activity
1	• Preparation of Short Video on Pond Rejuvenation & CW-NTS of Ibrahimur Masahi
2	• Coordination of 75 planned Activities at HQ & RCs under Bharat Ka Amrut Mahotsav @ India 75 • Organizing activities as per mandate of Division under Bharat Ka Amrut Mahotsav @ India 75
3	• River Walk of Solani River (stretch to be identified)
4	• Any other Outreach activity on demand/assigned

HARD ROCK REGIONAL CENTRE, BELAGAVI

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-2022

S. N.	Project Title	Study Team	Duration	Status
	INTERNAL STUDIES:			
1.	Development of Prediction Tools for Assessment of Water Resources in Ungauged Catchments of West Flowing Rivers of Western Ghats Region	Chandramohan T (PI), Venkatesh.B., Chandrakumar. S., and officials from WRDO Karnataka	3 years April 2018-March 2021	An extension of 6 months, i.e., till September 2021 was recommended by the RCC.
2.	Climate Change Impact assessment for Jayakwadi Reservoir	B Venkatesh (PI), MK Jose, Chandrakumar, Ahilash and officers from WRD, Govt. Maharashtra)	3 years May 2018 – April 2021	An extension of 6 months, i.e., till September 2021 was recommended by the RCC.
3.	Flood Vulnerability Assessment and developing mitigation plan for Thiruvananthapuram City, Kerala	Chandramohan T (PI), Venkatesh.B., MK Jose and Chandrakumar.S	2 years (Sept 2019 – Aug 2021	An extension of 6 months, i.e., till September 2021 was recommended by the RCC.
4.	Impact Of Sand Mining On Groundwater Regime In Parts of Manjira River Basin, Telangana State	MK Jose(PI), B Venkatesh, Chandramohan, Abhilash and Officials form TSGWD	2 years Sept 2020 – Aug 2022	New Study
	SPONSORED PROJECTS:			
1.	Estimation of Submarine Groundwater Discharge in Parts of Karnataka	BK Purandara(PI), Sudhir Kumar, JV Tyagi and N Varadarajan	Jan 2018 – March 2021 Extended till Sept 2021 by sponsoring authorities	Ongoing study sponsored by NCESS (MoES
2.	Groundwater Model Development In Micro Basin Of Hard Rock In Krishna And Godavari River Basins Of Telangana	B Venkatesh (PI), MK Jose, Sudhir Kumar, Abhilash & Officials form TSGWD	3 years (Sept 2019 –Aug 2022 Extended upto August 2023	NHP (PDS)

WESTERN HIMALAYAN REGIONAL CENTRE, JAMMU

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

S. No.	Title of Study	Team	Duration	Remarks
Internal Studies				
1.	Hydrologic and hydraulic modelling for floodplain inundation mapping under future climate change scenarios: A case study of Tawi River, India.	R. V. Kale P. G. Jose D. S. Bisht	03 years (August 2018 - March 2021)	Ongoing (Extended up to Sept. 2021)
2.	Statistical evaluation of global precipitation estimates over data scarce Western Himalayan Region of India	D. S. Bisht S. S. Rawat P. G. Jose	02 Years (Oct 2019 - Sept 2021)	Ongoing
3.	Estimation of changes in snow cover and glacier mass balance for Upper Chenab River Basin	P. G. Jose D. S. Bisht	02 Years (August 2020 - August 22)	Ongoing
4.	Mass and Energy Balances 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 (July 2021- June 2024)	New study
5.	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 D. Khurana	03 Years (September 2021-July 2024)	New study
6.	Early Signatures of 21st Century on Snow Cover Dynamics in Zanskar River Basin, Ladakh	D. S. Bisht P. G. Jose	01 Year (July 2021 - June 2022)	New study
Externally funded R & D Studies				
1.	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 P. G. Jose S. Gurjar D. S. Bisht	03 years (April March 2019 to 2022)	Ongoing study funded by NMHS
2.	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	B. Sahoo, (PI, IIT-Kgp) R. V. Kale, (Co-PI)	03 years (July, 2020 – June, 2023)	Ongoing study funded under STARS by MHRD, GoI.
3.	Preparation of PRI based geo-referenced biodiversity assessment, documentation and conservation plan of wild flora and fauna of Kishtwar High Altitude National Park (KHANP) - Hydrology of streams and Land use and ecosystem resource mapping	P. G. Jose D. S. Bisht	02 years (July 2021- June 2023)	New study funded by UT of J&K

CENTRAL INDIA HYDROLOGY REGIONAL CENTRE, BHOPAL

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

SN	Title of Project/Study	Study Team	Duration	Status & Comments/ suggestions	Funding
		Internal Studies			
1	An experimental assessment of low cost Auger Hole Techniquefor accelerating ground water recharge	Ravi Galkate R.K. Jaiswal Vivek Bhatt (WALMI)	Sep 2020- Aug 2023	On-going (In collaboration with WALMI Bhopal)	NIH-WALMI Bhopal
2	Impact Assessment Study at WALMI, Bhopal Demonstration Farm	R.K. Jaiswal Ravi Galkate Vivek Bhatt (WALMI) R. Thakur (WALMI)	Oct 2020- Jun 2021	On-going (In collaboration with WALMI Bhopal)	NIH
3	Re-assessment of evapotranspiration (*ETo*) estimation for irrigation planning in Madhya Pradesh	Ravi Galkate, R.K. Jaiswal, A.K. Lohani, Suhas Khobragade, Shashi Indwar Ex.Engg./Dy Dir, MPWRD	July 2021 – June 2023	New (In collaboration with MPWRD Bhopal)	NIH New study
4	Assessment of water yield in river basins of Madhya Pradesh	R.K. Jaiswal Ravi Galkate, A.K. Lohani, Shashi Indwar Ex.Engg./Dy Dir, MPWRD	July 2021 – June 2023	New (In collaboration with MPWRD Bhopal)	NIH New study
		Sponsored Projects			
1	Evaluation of impact of Rabi irrigation in Ganga River sub-basin of Madhya Pradesh	R. V. Galkate R. K. Jaiswal, T. Thomas S.P. Indwar, MPWRD	Sep 2017-Sept. 2021	On-going (In collaboration with MPWRD Bhopal)	NHP-PDS
2	Impacts of Upcoming Irrigation Projects and Climate Change on the Droughts and Desertification Scenario for Chambal Basin in Western Madhya Pradesh	T. Thomas P.C. Nayak, Surjeet Singh, B. Venkatesh, R.V. Galkate, R. K. Jaiswal, S. P. Indwar	Dec 2017- Nov 2021	On-going (In collaboration with MPWRD Bhopal)	NHP-PDS
3	Integrated Assessment of the Impacts of Climate Change and Land use Change on the Hydrology of the Narmada basin through Hydrological Modelling Approaches	T. Thomas S. Singh, B. Venkatesh P. C. Nayak, A. Sarkar, Manish Nema, P. Mishra, S. P. Indwar	Feb 2018- Jan 2023	On-going (In collaboration with MPWRD Bhopal)	NHP-PDS

4	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	R. K. Jaiswal R. V. Galkate T. Thomas Shashi Indwar. A. K. Lohani, Sudhir Kumar, Surjeet Singh, MPWRD	April 2019-Mar 2023	On-going (In collaboration with MPWRD Bhopal)	NHP-PDS
5	Development of Decision Tool for Efficient Utilization of Water Resource in Parbati Canal & Dholpur Piped Irrigation Project of Rajasthan	R. K. Jaiswal R. V. Galkate, A. K. Lohani, Shashi Indwar, RJWRD	April 2019-Mar 2022	On-going (In collaboration with RJWRD Jaipur)	NHP-PDS

DELTAIC REGIONAL CENTRE, KAKINADA

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

S. No	Title of the Project	Team	Start date and End date	Funding
I.	**Internal Study (1 New study)**			
1.	Identification of Recharge and Discharge areas of Palar basin in Tamilnadu	V.S.Jeyakanthan (PI) J.V. Tyagi Sudhir Kumar, Y.R.Satyaji Rao, S. Raja	September 2021 to -March 2023	Internal Funding (NIH)
II.	**Sponsored Projects (Ongoing (6))**			
1	Groundwater salinity source identification in Godavari delta, Andhra Pradesh	Y.R.Satyaji Rao (PI) T.Vijay, Sudhir Kumar R.VenkataRamana Gopal Krishana S.V.Vijaya Kumar	March 2018 to October 2021	NHP(PDS) (LA: DRC, NIH) (SP-28/2017-2018/PDS-13)
2	Study of the behaviour of Multi-Aquifer system & Aquifer mapping for an effective Groundwater Management in Gunderu Sub-Basin, West Godavari district, AP	S.V.Vijaya Kumar (PI) Anupama Sharma Y.R.Satyaji Rao T.Vijay Sudhir Kumar J.V.Tyagi	August 2018 to March 2022	NHP(PDS) (LA:AP State GW&WA Dept.,) AP_1_2017_80
3	Dam break studies of Kandaleru and Pulichintala dams in Andhra Pradesh	P.C.Nayak (PI) Y.R.Satyaji Rao A.K. Lohani B. Venkatesh A. R. S. Senthil Kumar T. Thomas	April 2019 to March 2022	NHP(PDS). (LA: DRC, NIH) SP-43/2019-21/1

4	Urban hydrological studies of critical pilot area using of hydrological instruments in the Greater Hyderabad Municipal Corporation (GHMC) area Hyderabad.	R.VenkataRamana (PI) Y.R.Satyaji Rao V.S.Jeyakanthan T.Vijay	January 2020 to April 2023	NHP(PDS) (LA: Hydrology and Investigations, I & CAD, Govt.,Telengana) TEL-6_2017_86
5	High Performance Advanced Septic System for Villages and Roadside Restaurants	Y.R Satyaji Rao (PI) T.Vijay	April 2018 to March 2022	IC-IMPACT, Canada
6	Unravelling Submarine Groundwater Discharge (SGD) Zones along A.P and Odisha States (Mission SGD)-Pilot Study	Y.R. Satyaji Rao (PI) T.Vijay	April 2019 to September 2021	MoES,Govt., of India.

CENTRE FOR FLOOD MANAGEMENT STUDIES, GUWAHATI

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

Sl. No.	Title	Study Group	Duration (Month/Year)	Study Type	Remarks
1.	Linear Hydrological routing using Satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin	Gulshan Tirkey, S. K. Sharma, P. Mani	3 years (4/18 to 3/21)	Internal	On-going (Er Gulshan Turkey is on long medical leave.)
2.	Impact of Climate Change on Runoff and Sediment Yield for a Major Tributary of River Brahmaputra	Swapnali Barman, J.V. Tyagi, R.K. Bhattacharya, W Rahul Singh	3 years (11/18 to 12/21)	Internal	On-going
3.	Groundwater Quality Assessment of Morigaon district of Assam with emphasis on Arsenic & Fluoride Contamination	S.K. Sharma Rajesh Singh G. Tirkey W Rahul Singh	2 years (7/19 to 6/22)	Internal	On-going
4.	Hydrological Behaviour of two mid-sized Mountainous Catchments under the influence of Climate and Land Use Changes	W Rahul Singh , A.K .Lohani, A. Bandyopahdyay Swapnali Barman Nitesh Patidar	3 years (7/19-6/22)	Internal	On-going
5.	Rainfall Induced Flood Hazard Risk Vulnerability Assessment in East Jaintia Hills, Meghalaya	G. Tirkey, S. K. Sharma, A. K. Lohani	2 years (9/20-8/22)	Internal	On-going
6.	River basin planning studies in Teesta basin up to confluence with Rangit River in Sikkim	Swapnali Barman M.K. Goel A.K. Lohani D.S. Rathore Deepti Raani W.R. Singh	3 years (3/19 to 2/22)	Sponsored under NHP	On-going

7.	Study on Behaviors of Flooding and Unexpected Drought like Situations in Garo Hills District of Meghalaya	S. K. Sharma R.P. Pandey GulshanTirkey Swapnali Barman W.R. Singh	3 years (10/19 to 9/22)	Sponsored under NHP	On-going
8.	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	Swapnali Barman, R.K. Bhattacharya M.K. Dutta, W.R. Singh	3 Years (4/21-3/24)	Sponsored under DST-SERB Power grant	New Study

CENTRE FOR FLOOD MANAGEMENT STUDIES, PATNA

RECOMMENDED WORK PROGRAM FOR THE YEAR 2021-22

Sl	Title	Study Team	Duration
Internal Studies			
1	Integrated Flood Management Plan for a stretch of Burhi Gandak River from Sikanderpur to Rosera	B Chakravorty(PI), Pankaj Mani and NG Pandey	2 years (04/20-03/22)
2	Performance evaluation of Upper Morhor Canal System of South Bihar	NG Pandey(PI) B Chakravorty	2 years (04/20-03/22).
3	Design flood estimation for small structures in the south Bihar area.	Pankaj Mani (PI), B Chakravorty, I C Thakur, Director WALMI	1 years (04/21-03/22)
Sponsored Study (PDS/NHP)			
4.*	Modelling and management of erosion and sedimentation processes in alluvial river using morphodynamic modeling*	Pankaj Mani(PI) J. P. Patra B. Chakravorty & WRD Bihar	New study proposed under PDS (05/21-04/24)

**This study was started as an internal study in April, 2019. The proposal of this study was submitted to NHP as PDS. This study has been approved as PDS in Feb. 2021 with duration of 3 years from May, 2021 to Apr 2024 and therefore now this study has been taken up as PDS.*

The list of research papers published by the scientists and scientific staff of the Institute during Oct. 2020 – Mar.2021 & Apr. – Jul. 2021 is given in **Appendix 75.4.2 [Page # 379 (Vol.-II)]**. The list of workshops/training courses/seminar/symposia organized during Oct.2020 – Jul.2021 is given in **Appendix 74.4.3 [Page # 390 (Vol.-II)]**. The progress of laboratory work done during Oct.2020-Jul.2021 is given in **Appendix 74.4.4 [Page # 393 (Vol.-II)]**.

S.No.	Item	Published Oct.2020-Mar.2021	Published Apr.-Jul. 2021
1.	International Journal	38	17
2.	National Journal	09	01
3.	International Conference/ Seminar/ Symposium	35	04
4.	National Conference/ Seminar/ Symposium	17	03
5.	Books/Chapters	07	00
	Total	**106**	**25**

S.No.	Item	Oct.2020-Mar.2021	Apr.-Jul. 2021
1.	Workshops/Training Courses organised	32	3

The TAC may please consider the progress and status of the Work Programme of the Divisions and RC/CFMS of NIH for the year 2021-22.

ITEM # 75.7: 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, SoI, 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. The main role of R&D Section is to coordinate these research activities and to review and monitor the progress of the PDSs. In the first R&D session, 26 project proposals were presented by IAs and these are in the process of approval/revision.

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. Four training courses have been oragnised in different areas of hydrology and water resources under NHP.

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. We plan this centre to become 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. The hydrologic modelling services strive to make India self reliance in water management tools and techniques to help decision making on movement, availability, fate and quantity and quality management of both surface and sub-surface water. Three studies on application of different models have been initiated in CEHM. A status report on the Hydrologic modelling has been prepared.

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.

National Mission for Sustaining the Himalayan Ecosystem (NMSHE)

The National Mission for Sustaining the Himalayan Ecosystem (NMSHE) is one of the eight missions under the National Action Plan on Climate Change (NAPCC).

NMSHE is a multi-pronged, cross-cutting mission across various sectors. It contributes to the sustainable development of the country by enhancing the understanding of climate change, its likely impacts and adaptation actions required for the Himalayas- a region on which a significant proportion of India's population depends for sustenance.

NMSHE seeks to facilitate formulation of appropriate policy measures and time-bound action programmes to sustain ecological resilience and ensure the continued provisions of key ecosystem services in the Himalayas. NMSHE intends to evolve suitable management and policy measures for sustaining and safeguarding the Himalayan ecosystem along with developing capacities at the national level to continuously assess its health status.

Recognizing the importance of scientific and technological inputs required for sustaining the fragile Himalayan Ecosystem, the Ministry of Science and Technology has been given the nodal responsibility of coordinating this mission. However, the mission involves valuable cooperation of Indian Himalayan States, the Planning Commission and the Ministry of Environment, Forests and Climate Change to achieve its goals.

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

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 expected to provide a unique opportunity of exploring the vast potential of NTS in Indian conditions, and shall deliver the full spectrum of research, innovation, development of business model, capacity building, outreach and dissemination activities. The emerging concept of a Circular Economy in the field of wastewater treatment and reuse will also be explored at the Centre. It will also play a catalytic role to propagate and promote the NTS for a variety of applications in India, and help in promoting the concept of IWRM Planning in India.

ITEM # 75.8: Reporting Items:

LIST OF ONGOING CONSULTANCY PROJECTS IN NIH (As on 01.08.2021)

S.N.	PROJECT TITLE	PROJECT NO.	Sponsoring Agency	Division	TENURE	PRINCIPAL INVESTIGATOR
1.	Hydrological Study of Tanda Thermal Power Plant Stage –II (2x660MW)	CS-196/2020-21/HID	NTPC Ltd.,	HID		Dr. Sudhir Kumar Sc. G
2.	Preparation of Emergency Action Plan (EAP) and flood inundation map for Rakasakoppa Dam	CS-200/2020-20/RC(Belagavi)	KUWS &D Borad, Belagavi	RC-Belagavi	06 Months	Dr B. Venkatesh, SC F
3.	Review of Hydrogeology to assess Impact of NTPC Mouda on surface water and ground regime (especially around ash dyke (St-I & II) and propose specific measures	CS-202/2020-22/HID	NTPC Limited, SSC WR1, Surat	HID	24 Months	Dr. Sudhir Kumar Sc. G
4.	Risk Assessment Study for Earthen Reservoir at Nachna & Township for Rajasthan Refinery cum Petrochemical of HPCL Rajasthan Refinery Limited (HRRL)	CS-204/2020-20/RC(Patna)	HPCL Rajasthan Refinery Limited (HRRL)	RC-Patna	05 Months	Dr. Pankaj Mani, Sc. F
5.	"Hydro geological investigation of M/S Marshall Cyclw and M/S Kathuria Brothers Ghaziabad	CS-206/2020-21/GWH	Dr. Brijesh Yadav, Deptt. of Hydrology, IIT Roorkee, Roorkee - 247667	GWH	06 Months	Dr. Gopal Krishan, Sc. C
6.	Verification of Hydrologic Model for Sabarmati Riverfront Development (Phase II)	CS-208/2020-21/ RC(BH)	Sabarmati Riverfront Development Corporation Ltd. (SRDCL), Ahmedabad	RC-Bhopal	03 Months	Dr. R K Jaiswal, Sc. D
7.	Evaluation of design of strom water drainage structure in Shaheed Asafaq Ullah Khan near Ramgarh Tal (Wetland), Gorakhpur.	CS-210/2020-21/RMOD	Uttar Pradesh Rajkiya Nirman Nigam Ltd., (UPRNN), Gomti Nagar, Lucknow	RMOD		Dr. A.R. Senthil Kumar, Sc. F
8.	Hydrological Review of Rak Dam	CS-212/2020-21/RC-BL	Karnataka Urban water supply and Drainage	RC, Belagavi	06 Months	Dr. B. Venkatesh, Sc. F

			Board, Belagavi			
9.	Glacial lake outbrust Flood study for Hydro-Electric Project located on river Chenab	CS-216/2020-21/WRSD	SJVN Ltd. Shimla	WRSD	03monts	Dr. Sanjay Kumar Jain, Sc.- G
10	Hydrological Studies in view of Updation of Hydrological aspects of Kishan DPR	CS-217/2021-22/SWHD	Kishan corporation Ltd. Kishan Bhawan, tom colony Dakpathar, vikashnagar Dehradun-248125	SWHD	2 months 15 days	Sh. J.P. Patra, Sc.- D
11	Dam break Flood Analysis and Pregaration of Emergency Action plan for Ukai Dam, kadama Dam, Dhanoi Dam, Panam Dam, Shetrunji Dam, Hiran dam, and Machhundri Dam	CS-218/2021-22/SWHD	Water resources Department, Govt. of Gujarat, Gandhinagar	SWHD	18 months	Dr. A.K Lohani Sc.- G
12	Hydro- geological study in Meja, Prayagraj, U.P	CS-219/2021-22/SWHD	Meja Urja Nigam Pvt. Ltd.	SWHD	24 months	Dr. A.K Lohani Sc.- G
13	Environment Impact Assessment Project, Manali (H.P)	CS-220/2021-22/GWHD	M/S Paras Stone Manali	GWHD	03 months	Dr. Gopal Krishan Sc.- D

ITEM # 75.9: Any other item with permission of the Chair