

**AGENDA AND AGENDA NOTES
72nd MEETING OF THE
TECHNICAL ADVISORY COMMITTEE (TAC)
OF NIH**

**3 JUNE 2019
AT 1500 HRS
2nd Floor (S), Committee Room
CWC, New Delhi**



**NATIONAL INSTITUTE OF HYDROLOGY
ROORKEE-247667**

AGENDA AND AGENDA NOTES FOR THE 72nd MEETING OF THE TAC OF NIH

AGENDA ITEMS

ITEM NO.	ITEM	Page#
72.1	Opening remarks by the Chairman	1
72.2	Confirmation of minutes of 71 st meeting of the TAC	1
72.3	Action taken on the decisions/recommendations of the previous TAC meeting	1
72.4	Status of work programme for the year 2018-2019 Presentation of completed studies: i. River shifting analysis and flow modelling study of Ganga river from Rishikesh to Anupshahar (Dr. Pankaj Mani) ii. Hydrological investigation of natural water springs of Baan Ganga watershed in J&K State (Dr. S S Rawat)	2
72.5	Report the proceedings of the Working Group and RCC meetings	17
72.6	Work programme for the year 2019-20	17
72.7	Major projects and activities of national importance i. Roorkee Water Conclave-2020 ii. 6 th National Water Symposium	33 33
72.8	Reporting Items 1. List of completed & on-going Consultancy projects in NIH at a glance	34
72.9	Any other item with permission of the Chair	39

List of Appendices

Appendix No.	Title	Page # (Vol.-II)
72.2.1	Minutes of the 71 st Meeting of TAC	1
72.4.1	Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2018-19	6
72.4.2	List of research papers	290
72.4.3	List of workshops/training/symposia	302
72.4.4	Progress of laboratory work	305
72.4.5	Activities carried out under IEC programme	310
72.5.1	Minutes of the 47 th meeting of the NIH Working Group	313
72.5.2	Minutes of the 48 th meeting of the NIH Working Group	337

ITEM # 72.1**Opening Remarks by the Chairman****ITEM # 72.2****Confirmation of the minutes of 71st meeting of the TAC**

The 71st meeting of the TAC was held at New Delhi on April 23, 2018. The minutes of the meeting were circulated to all the members and invitees vide email dated 24.05.2018. A copy of the minutes of the 71st meeting of TAC is given in **Appendix-72.2.1[Page # 1 (Vol.-II)]**. Since no comments were received from the members on the circulated minutes, the minutes may please be confirmed.

ITEM # 72.3:**Action taken on the decisions/ recommendations in the previous meeting**

The ATR is as follows:

S N	Item#	Suggestion	Action Taken
	General comments	Devise mechanism for review of completed studies and projects	NIH funded studies are reviewed by the Working Group. The completed studies are sent for external review to 2-3 experts, and after incorporating their comments & suggestions, hard & soft copies are circulated to the concerned organizations and individuals.
	71.3	NIH may examine available NCERT text books, and consult books prepared for UNICEF by CWRDM	A preliminary report on this matter was submitted to the then JS(PP).
	71.4	<ul style="list-style-type: none"> i. HI Division's study on "Rejuvenation of springs and spring-fed streams in Mid-Himalayan basin using spring sanctuary concept" should come out with clear methodology ii. EH Division's study on "Development of habitat suitability curves for the aquatic species of western Himalayan streams" be submitted to CWC for reference 	<p>This study is near completion, and the methodology shall be included in the final report.</p> <p>Head, EHD has informed that the report is under preparation and shall be submitted to CWC when ready.</p>
	71.5	<ul style="list-style-type: none"> i. NIH to take up studies on GIUH-based flood estimation ii. NIH may consider a study on 'Conjunctive use using NDVI' iii. Form a working group on 'Impact of climate change on PMP', with members from NIH, CWC and IMD/IITM 	<p>Head, SWHD has informed that GIUH-based flood estimation is being carried out under ongoing studies.</p> <p>A study for water accounts assessment for Subarnarekha catchment by use of WA⁺ is in progress.</p> <p>NIH presently has no meteorologist to take lead of the Group. CWC may take lead of the proposed Group.</p>
	71.8	Scheduled date of completion of consultancy projects should be mentioned. If the final report has been submitted, the project will be considered complete.	Noted.
	71.9	II. Participation in international research project funded by The Research Council of Norway- Er Mathur (CWC) advised to explore if the data of Godavari or Krishna basins could be analyzed in this project,	Director, NIH has informed that once the required data is available, the same shall be analyzed.

	<p>III. Organization of HEPEX workshop on Flood Forecasting- The Chairman advised to schedule the workshop on a convenient date by avoiding conflicts with other major scientific meetings/events in India, US and Europe.</p>	<p>Due to poor response from the HEPEX organizers, the workshop dates could not be finalized. Hence dropped.</p>
--	--	--

ITEM # 72.4: Status and progress of the work programme for the year 2018-19

The approved Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2018-19 is given in the tables below, and details are provided in **Appendix 72.4.1[Page # 6 (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, Belgaum
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

APPROVED WORK PROGRAMME FOR THE YEAR 2018-19

ENVIRONMENTAL HYDROLOGY DIVISION

Work Programme 2018-19

S.No.	Study	Study Team	Duration / Status	Funding
Internal Studies (Cont.)				
1.	Development of Habitat Suitability Curves for the Aquatic Species of Western Himalayan Streams and Assessment of Environmental Flows	Pradeep Kumar (PI) C. K. Jain	3 Years (04/16-03/20)	NIH
Sponsored Projects (Cont.)				
2.	Environmental Assessment of Aquatic Ecosystem of Upper Ganga Basin	C. K. Jain (PI), NIH Manohar Arora, NIH M. K. Sharma, NIH Pradeep Kumar, NIH D. S. Malik, GKU	5 Years (04/16-03/21)	DST (NMSHE) Project Cost: 2.25 Crore
3.	Ground Water Quality Assessment with Special Reference to Sulphate Contamination in Bemetara District of Chhattisgarh State and Ameliorative Measures	M. K. Sharma (PI) C. K. Jain Surjeet Singh Pradeep Kumar Partner: WRD, Raipur A. K. Shukla Ashok Verma P. C. Das	3 Years (09/17-08/19)	NHP(Under PDS) Project Cost: 25.4 Lakh
4.	Water Quality Assessment of Southwest Punjab Emphasizing Carcinogenic Contaminants and their Possible Remedial Measures	Rajesh Singh (PI) M. K. Sharma Sumant Kumar Pradeep Kumar Partner: Irrigation Department, Punjab	3 Years (09/17-08/20)	NHP (under PDS) Project Cost: 65.6 Lakh

Note: The study on Environmental Assessment of Village Ponds in Uttarakhand and Western UP has been dropped from EHD and merged with RMOD with Dr. Rajesh Singh, Sc. 'C' as one of the members of the study group

GROUND WATER HYDROLOGY DIVISION
Work Programme 2018-19

S. No.	Project	Project Team	Duration & Status	Funding Source
1. NIH/GWD/ NIH/15-19	Peya Jal Suraksha - Development of Six Pilot Riverbank Filtration Demonstrating Schemes in Different Hydrogeological Settings for Sustainable Drinking Water Supply.	N.C. Ghosh (Project Lead), B. Chakraborty, Y.R.S. Rao, Anupma Sharma, Surjeet Singh, Sumant Kumar, Gopal Krishan, Suman Gurjar, Anju Choudhury, Sanjay Mittal, Ram Chandar, Staff of SW Lab	21/2 year (11/15 – 4/18) Status: Continuing study. Extended upto 04/2019	MoWR, RD & GR (under Plan Fund)
2. NIH/GWD/ BGS/16-20	Ground water fluctuation and conductivity monitoring in Punjab- New evidence of groundwater dynamics in Punjab from high frequency groundwater level and salinity measurements	From : NIH, Roorkee Gopal Krishna, (PI), Surjeet Singh, C. P. Kumar, N.C Ghosh From : BGS, UK Dr. Dan Lapworth (PI) Prof. Alan MacDonald (project coordinator	03 Years (01/16-11/20)	BGS, UK
3.NIH/GWD /NMSHE/16 -20	Study of river - aquifer interactions and ground water potential at selected sites in the upper Ganga basin up to Dabrani.	Surjeet Singh (PI), N.C. Ghosh, R. J. Thayyen, Manohar Arora, Gopal Krishan,	1 year (01/16 – 12/20)	DST (under NMSHE)
4. NIH/GWD/ NIH/16-19	Grey Water to Blue Water – Natural Treatment Techniques for Trans-forming Wastewater into Sustainable Useable Water	N.C. Ghosh (Project Leader), Anupma Sharma, Surjeet Singh, Sumant Kumar, Suman Gurjar, Anju Chaudhury, Sanjay Mittal, Ram Chandar	3 years (11/16-10/19) (progress in hold)	NWM, MoWR, RD & GR
5.NIH/GWD /DST/18-20	Future Secular Changes and Remediation of Groundwater Arsenic in the Ganga River Basin- FAR GANGA	NIH-Team: N. C. Ghosh (Indian Lead) Surjeet Singh; Sumant Kumar; Gopal Krishan; Suman Gurjar Other Indian partners: IIT Rke; IIT Khg; & Mahavir Cancer Sansthan, Patna. UK- Partners: Prof. David Polya – UK lead; Univ. of Manchester; BGS; Salford University; Univ. of Birmingham.	3 years (01/18 – 12/20) .	DST-Newton Bhabha- NERC- India- UK Water Quality Research Programme.
6.NIH/GWD /DST/18-20	Impact of Rainwater Harvesting on Groundwater Quality in India with Specific reference to Fluoride and Micro-pollutants.	NIH-Team: Anupma Sharma (Indian Lead); Sumant Kumar; Gopal Krishan; Suman Gurjar and M. K. Sharma Other Indian partners: IIT Ropar & IIT Jodhpur. UK Partner: Cranfield Univ. Alison Parker – UK Lead; Cranfield University Pablo Campo Moreno,	3 years (01/18 – 12/20)	DST-Newton Bhabha- NERC- India- UK Water Quality Research Programme.

		School of Water, Energy and Environment; Cranfield University		
7. NIH/GWH D/PDS/18-21	Ganges Aquifer Management in the context of Monsoon Runoff conservation for sustainable River Ecosystem Services- A Pilot study	Surjeet Singh, (PI), N.C Ghosh, Sudhir Kumar, C. P Kumar, Suman Gujar, Gopal Krishan	04 Years (02/18-02/21)	NHP (under PDS)
8. NIH/GWH D/PDS/18-20	Assessment of impacts of groundwater salinity on regional groundwater resources, current and future situation in Mewat, Haryana – possible remedy and resilience building measures	NIH, Roorkee, India Gopal Krishan (PI), N. C. Ghosh, Surjeet Singh, C.P. Kumar. Haryana Irrigation Department Consultants IIT-Roorkee Brijesh Yadav (PI) Sehgal Foundation, Gurgaon Lalit Mohan Sharma	03 years (01/18 12/20)	NHP (under PDS)
9. NIH/GWH D/PDS/18-20	Hydro-geochemical Evolution and Arsenic Occurrence in Aquifer of Central Ganges Basin	Sumant Kumar (PI), N.C. Ghosh, Sudhir Kumar, Rajesh Singh, Gopal Krishan, Anju Chaudhary, Ram Chandar	03 years (01/18 12/20)	NHP (under PDS)
10.NIH/GW D/PDS/18-20	Integrated Management of Water Resources for Quantity and Quality in Upper Yamuna Basin upto Delhi.	NIH Team: Dr. Anupma Sharma (Lead)	05 years (02/18-01/23)	NHP Special Project under “Centre of Excellence”
11. NIH/GWD/ NIH/18-19	Application for Conjunctive use management of Surface Water and Ground Water in Saryu Nahar Pariyojana, U.P.	Suman Gurjar (PI), Jyoti P. Patil (Co-PI), N.C. Ghosh, Sumant Kumar, Anupma Sharma, Surjeet Singh	1 year (04/18-03/19)	NIH

HYDROLOGICAL INVESTIGATIONS DIVISION
Work Programme 2018-19

SN.	Project Title	Study Team	Duration	Funding
INTERNAL STUDIES:				
1.	Radiocarbon dating of deeper groundwater of Indo-Gangetic Basin	M.S Rao (PI) Sudhir Kumar	3 years (04/16 – 03/19)	NIH
SPONSORED PROJECTS:				
1.	Understanding of hydrological processes in Upper Ganga basin by using isotopic techniques	SD Khobragade Sudhir Kumar SK Verma	5 Years (04/16-03/21)	DST (under NMSHE Project)
2.	Rejuvenation of Springs and Spring-fed Streams in Mid-Himalayan Basin using Spring Sanctuary concept	Sudhir Kumar SD Khobragade	3 Years (06/16 -05/19)	Project with GBPIHED
3.	Dating very old ground waters of deeper aquifers in Ganga Plains, India	MS Rao Sudhir Kumar CK Jain	3 Years (06/16 -05/19)	IAEA under CRP
4.	Integrated Study on groundwater dynamics in the coastal aquifers of West Bengal for sustainable groundwater management	MS Rao Sudhir Kumar	3 ½ year (1/18-6/21)	NHP (under PDS)
5.	Chemical & Isotopic Characterization of Deep Aquifer Groundwater of Middle Ganga Basin	Sudhir Kumar MS Rao	3 ½ year (1/18 – 6/21)	NHP (under PDS)
6.	Development of a comprehensive plan for conservation and sustainable management of Bhimtal and Naukuchiatal lakes, Uttarakhand	SD Khobragade Sudhir Kumar	3 Years 18/1)– (20/12)	NHP (under PDS)

SURFACE WATER HYDROLOGY DIVISION
Work Programme 2018-19

S.No. & Ref. Code	Title	Study Team	Duration	Funding
SPONSORED STUDIES (ongoing)				
1.NIH/SW HD/NIH/1 5-18	WaterRAIN-Him: Changes in water Resources and Adaptation options in Indian-Himalayan basins	Archana Sarkar Sanjay K Jain	Ongoing 3 years (1 Jan 2015 to 31 Mar. 2018) Total Cost: 188000 SEK	SMHI, Sweden
2.NIH/SW HD/NIH/1 4-18	Effect of Changing Global Tropospheric Temperature on Asia-Pacific Monsoon Circulation and Rainfall Fields across India	Ashwini Ranade	Ongoing 3.5 years (Oct. 2014 to May 2018) Total Cost: 12.6 Lac	DST- SERB
3.NIH/SW HD/NIH/16 -20	Hydrological modeling in Alaknanda basin and assessment of climate change impact	A.K. Lohani Sanjay K. Jain Archana Sarkar V.S. Jeyakanthan L.N. Thakural	Ongoing 5 years (Jan. 2016 to Dec. 2020) Total Cost: 42.296 Lac	DST under NMSHE
INTERNAL STUDIES (ongoing)				
4.NIH/SW HD/NIH/1 5-19	Study of Hydrological Changes in selected watersheds in view of climate change in India	L.N. Thakural D.S. Rathore Surjeet Singh Sanjay Kumar Jain Shard Kumar Jain	Ongoing 4 years (April 2015 to March 2019)	NIH
5.NIH/SW HD/NIH/1 6-18	Snow cover variability in the Upper Yamuna Basin	Naresh Kumar Manohar Arora Rakesh Kumar	Ongoing 2 years (April 2016 to June 2018)	NIH
6.NIH/SW HD/NIH/1 7-19	Development and regionalization of unit hydrograph for runoff modeling on Indian catchments	Sushil K. Singh	Ongoing 1 years (April 2017 to March 2019)	NIH
7.NIH/SW HD/NIH/1 7-21	Development of regional relationships for water availability analysis and flood estimation for lower Godavari basin (3f)	Sanjay Kumar Rakesh Kumar J. P. Patra Pankaj Mani	Ongoing 4 years (April 2017 to March 2021)	NIH
8.NIH/SW HD/NIH/1 7-20	Development of regional methods for design flood estimation in Uttarakhand	J.P.Patra Rakesh Kumar Pankaj Mani Sanjay Kumar	Ongoing 3 years (April 2017 to March 2020)	NIH

WATER RESOURCES SYSTEMS DIVISION
Work Programme 2018-19

SN	Title	Study Team	Duration	Funding (Rs. in Lakhs)
Ongoing Internal Studies				
1.	Catchment scale evaluation of cold-arid cryospheric system Hydrology, Ganglass catchment, Ladakh	Renoj J. Thayyen, S. P. Rai, Sanjay K. Jain Sudhir Kumar	3 years (04/14-09/18)	NIH
2.	Runoff modeling of Shyok River, Karakorum Range	Renoj J.Thayyen Sanjay K.Jain	3 years (12/14-09/18)	NIH
3.	Hydrological process and characterization of Lesser Himalayan Catchments	M. K. Nema Sharad K. Jain Sanjay K. Jain Renoj J.Thayyen P. K. Mishra P. K. Agarwal	5 years (12/14-12/19)	NIH+
Ongoing Sponsored Studies				
1.	Mass and Energy balance of Phuuche and Khardung glaciers, Ladakh range	R.J. Thayyen Farooq Azam P.G. Jose A.P. Dimri	3 years (03/16-02/19)	SERB (65.14)
2.	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 Surjeet Singh P. Mani, A. Sarkar M. K. Nema, P. K. Mishra	5 years (01/16-12/20)	DST (under NMSHE) (52.15)
3.	Real-time snow cover information system for Upper Ganga basin (Sub-project – 2)	D. S. Rathore D. Chalisgaonkar V. S. Jeyakanthan L. N. Thakural	5 years (01/16-12/20)	DST (under NMSHE) (48.83)
4.	Glacial Lakes & Glacial Lake Outburst Flood (GLOF) in Western Himalayan Region (Sub-project – 3)	Sanjay K. Jain A. K. Lohani Sudhir Kumar P. Thakur (IIRS)	5 years (01/16-12/20)	DST (under NMSHE) (36.79)
5.	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 S. P. Rai P. K. Mishra M. Arora AP Dimri (JNU)	5 years (01/16-12/20)	DST (under NMSHE) 51.43 (NIH) + 28.29 (JNU)
6.	Observation and modelling of various hydrological processes in a small watershed in Upper Ganga basin	Sharad K. Jain Renoj J.Thayyen Sanjay K. Jain S. P. Rai	5 years (01/16-12/20)	DST (under NMSHE) (54.07)

	(Sub-project – 5)	Surjeet Sing M. K. Nema P. K. Mishra P. K. Agarwal AP Dimri (JNU)		
7.	Water Census and Hotspot analysis in selected villages in Upper Ganga basin (Sub-project – 11)	P. K. Mishra M. K. Nema R. J. Thayyen P. K. Sachan	5 years (01/16-12/20)	DST (under NMSHE) (90.99)
8.	Dynamics of Himalayan Ecosystem and its impact under changing climate scenario-Western Himalaya	Renoj J.Thayyen P. K. Mishra	3 years (03/17-03/19)	NMHS-MoEF (58.76 lakh)
9.	Measurements and Modeling of Evapotranspiration and other Hydrological Processes in Lesser Himalayas	M K Nema Renoj Thayyen Sharad K. Jain Sanjay K. Jain P. K. Mishra AP Dimri (JNU)	3 years (2016-19)	MOES (Rs. 98 Lakh)
10.	Sustaining Himalayan Water Resources in a Changing Climate (SusHi-Wat)	Sanjay K. Jain (PI) Sharad K. Jain CSP Ojha (PI, IITR)	3 years (2016-2019)	MOES-NERC, Newton-Bhabha project (11.59 Lakh)
11.	Design and development of generic Decision Support System-Hydrology platform for Neeranchal Project	D. S. Rathore Deepa Chalisgaonkar Jyoti Patil	2 years (04/17-03/19)	DoLR (NNWP)
New Sponsored Studies				
1.	Investigating Water Stress using Hydro-meteorological and Remote Sensing data	D. S. Rathore L. N. Thakural Sanjay Kumar B. Venkatesh M. K. Jose T. Chandramohan	3 years 2017-2020	PDS (under NHP)
2.	Seasonal Characterization of Gangotri Glacier melt runoff and simulation of streamflow variation under different climate scenarios	M. Arora Sanjay K. Jain	3 years 2018-2021	NIH/ DST
3.	Water availability analysis of Subarnarekha basin	M. K. Goel D. S. Rathore P. K. Singh P. K. Mishra	1 year 10/17-09/18	MOWR, RD & GR (10.45)

RESEARCH MANAGEMENT AND OUTREACH DIVISION (RMOD)

Work Programme 2018-19

SN	Title of Project/Study	Study Team	Duration	Funding
1	Study on effect of climate change on sediment yield to Pong reservoir	A R Senthil kumar (PI) J V Tyagi, S D Khobragade	Apr 2015- Sep 2018	NIH
2	Effect of climate change on evaporation at point scale	Digamber Singh (PI) A R Senthil Kumar, Manohar Arora	Jun 2014- Jun 2018	NIH
3	Bathymetric survey and water quality monitoring of selected ponds in Bundelkhand region for development of water management plan	Digamber Singh (PI) Omkar Singh, Subhash Kichlu, N R Allaka	Apr 2018- Mar 2020	NIH
4	Conservation of ponds in Ibrahimpur- Masahi Village and performance evaluation of natural treatment system	NIH: Omkar Singh (PI) V C Goyal, Digamber Singh, Subhash Kichlu, NR Allaka IITR: Himanshu Joshi CEH: Laurence Carvalho, Mike Clarke	Apr 2018- Mar 2020	NIH, CEH (UK) & IITR
Sponsored Projects				
1	Vulnerability assessment of identified watersheds in Neeranchal Project States	Jyoti P Patil (PI) + RCs	Jul 2017- Jun 2019	DoLR (under NNWP)
2	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	DST (under NMSHE)
3	Rejuvenation of village ponds for identified villages in Muzaffarnagar and Meerut districts	V C Goyal (PI) Omkar Singh, Digamber Singh, Rajesh Singh, Subhash Kichlu, Rakesh Goel	Apr 2017- Mar 2020	MoWR, RD & GR
4	Development of water allocation plan for a Neeranchal watershed in Chhattisgarh	A R Senthil kumar (PI) T R Nayak, Jyoti P Patil Rajesh Agarwal	Apr 2018- Mar 2020	DoLR (under NNWP)
5	Development of Innovation centre for EcoPrudent Wastewater Solutions	V C Goyal (PI), Jyoti P Patil, Amrendra Bhushan + from NIT Jaipur, IIT Bombay and IRMA Anand	5 Years	DST

REGIONAL CENTRE, BELGAUM
Work Programme 2018-19

SN	Title of Project/Study	Study Team	Duration	Funding
INTERNAL STUDIES				
1	Assessment of Water Resources in Ungauged Catchments of West Flowing Rivers of Karnataka	CMT(PI) & Sc. HRRC	3 years (4/17-3/20)	NIH
2	Climate Change Impact assessment for Jayakwadi Reservoir	BV (PI), and officers from WRD, Govt. Maharashtra)	3 years (01/18-3/21)	NIH
3	Analysis of Spatio-temporal Characteristics of Sediment Carrying Capacity of Rivers of Karnataka State	M K J (PI)	2 Years (4/2018- 3/20)	NIH
SPONSORED PROJECTS				
4	Clean and safe drinking water supply to rural community using river bank filtration techniques in hard rock regions of Krishna basin, Karnataka, India.	BKP (PI) & SK	Apr 2016 – Mar 2019	DST
5	Studies on Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply in parts of Western Ghats, India	BKP (PI) & Sc. HRRC,	3 years (4/17-3/20)	NHP
6	Hydrological evaluation of existing water conservation/ harvesting structures in selected watersheds of Amravathi and Ahmed Nagar districts, Maharashtra state	CMT (PI)	1 year (10/17-10/18)	DoLR (under NNWP)
7	Water Balance Studies in selected Watersheds of Nalgonda and Mehaboob Nagar Districts of Telangana	M K J (PI)	1 year (10/17-10/18)	DoLR (under NNWP)
8	Impact of Land use/Land cover Changes on Ground water – A Case Study (<i>submitted for sponsorship from MoES, and is approve in principal and sanction letter awaited</i>)	BKP & BV	3 years (April 16-March 19)	MoES

REGIONAL CENTRE, JAMMU
Work Programme 2018-19

No.	Study	Team	Duration	Funding	Status
Internal Studies					
1.	Hydrological Investigation of Natural Water Springs of Baan Ganga watershed in Jammu & Kashmir State	SSRawat P Kumar SP Rai RV Kale*	02 years 11 months (May 2015 to Mar 2018)	NIH	Ongoing/ Extension requested for 06months
2.	Performance evaluation of 2D-VPMM and 2D-explicit schemes for two-dimensional overland flow simulation.	RV Kale MK Goel M. Perumal	12 months (Apr 2017 to Mar 2018)	NIH	Likely to complete by April 2018
3	Hydrologic and hydraulic modeling for floodplain inundation mapping under future climate change scenarios: A case study of Tawi River, India.	RV Kale MK Goel PG Jose SSRawat R Sharma	03 years (Apr 2018 to Mar 2021)	NIH	New proposal
4.	Estimation and Assessment of Hydrological Characteristic of a Western Himalayan river	D Khurana MK Goel PG Jose SSRawat RV Kale	12 months (Apr 2018 to Mar 2019)	NIH	New proposal
5.	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”	SSRawat PG Jose SP Rai RV Kale	04 years (Apr 2017 to Mar 2021)	NHP (69.00 Lakh)	Ongoing
6.	Integrated Studies of Himalayan Cryosphere using Space Based Inputs (ISHC)	PG Jose RJ Thayyen	02 years Sept 2017 to Sept 2019	SAC/ISRO	Ongoing

REGIONAL CENTRE, BHOPAL
Work Programme 2018-19

S.No.	Name of the project	Team	Duration	Funding
Sponsored Projects				
1.	Modeling of Tawa Reservoir Catchment and Development of Tawa Reservoir Operation Policy under Climate Change	Shashi P.Indwar (PI) T. Thomas T.R. Nayak R.V. Galkate R.K. Jaiswal N.C. Ghosh Sumat Kumar	3 Years Started in Sept. 2017	PDS (under NHP)
2.	Evaluation of impact of Rabi irrigation in Ganga River sub-basin of Madhya Pradesh	R.V. Galkate (PI) R.K. Jaiswal T.R. Nayak T.Thomas Shashi P. Indwar	3 years Started in Nov. 2017	PDS (under NHP)
3.	Impacts of Upcoming Irrigation Projects and Climate Change on the Droughts and Desertification Scenario for Chambal Basin in Western Madhya Pradesh	T.Thomas (PI) R.V. Galkate R.K. Jaiswal Shashi P.Indwar P.C. Nayak Surjeet Singh B.Venkatesh	4 years Started in 12/2017	PDS (under NHP)
4.	Modelling of Narmada using GWAVA. (International Collaborative Project with CEH Wallingford, UK)	Sanjay Jain (PI) T.Thomas P K Mishra Manish Nema Sharad Jain	2 years Started in 04/2015	World Bank
5.	Revival of Village Ponds through Scientific Interventions in Sagar District	T.Thomas (PI) S.Goyal, Vivek Bhatt Jyoti Patil	2 years Started in 09/2017	DST
6.	Development of water allocation plan of a Neeranchal watershed in Chhattisgarh	A.R. Senthil T.R. Nayak Jyoti Patil Rajesh Agrawal	2 years (04/2018— 3/2010)	DoLR (under NNWP)
7.	Hydrological evaluation of existing water conservation/ harvesting structures of Jashpur and Kanker districts of Chattisgarh	T.R. Nayak (PI) R.V. Galkate T. Thomas R.K. Jaiswal	2 years (04/18- 03/20)	DoLR (under NNWP)
8.	Hydrological evaluation of existing water conservation/ harvesting structures of Dewas and Jabalpur districts of Madhya Pradesh	R.V. Galkate (PI) T.R. Nayak (PI) R.K. Jaiswal T.Thomas	2 years (04/18- 03/20)	DoLR (under NNWP)
9.	Hydrological evaluation of existing water conservation/ harvesting structures of Kuchch and Surendra Nagar districts of Gujarat	T.Thomas (PI) R.K. Jaiswal R.V. Galkate T.R. Nayak	2 years (04/18- 03/20)	DoLR (under NNWP)
10.	Hydrological evaluation of existing water conservation/ harvesting structures of Jodhpur and Udaipur districts of Rajasthan	R.K. Jaiswal (PI) T.R. Nayak T.Thomas R.V. Galkate	2 years (04/18- 03/20)	DoLR (under NNWP)

REGIONAL CENTRE, KAKINADA
Work Programme 2018-19

S.N.	Title of the Project	Team	Duration (Start date and End date)	Funding
I. Internal Studies				
1	Sedimentation Study of Hirakud Reservoir, Odisha using Optic and Microwave Remote Sensing Technology	V.S. Jeyakanthan(PI) J.V. Tyagi Y.R. Satyaji Rao S.V. Vijaya Kumar R. Venkata Ramana P.C. Nayak	July 2017- March 2020	NHP (under PDS) (Rs.51.19 lakhs) (SP-28/2017-18/PDS-3)
2	Groundwater salinity source identification in Godavari delta, Andhra Pradesh	Y R Satyaji Rao(PI) T Vijay JV Tyagi S V Vijaya Kumar V S Jeyakanthan P C Nayak R V Ramana	Dec.,2017- March 2020	NHP (under PDS) (Rs 61.09 lakhs) (SP-28/2017-2018/PDS-13)
3	Forecasting of Flash flood and Management of East Flowing Rivers of India's sub Zone 4 (A)	R. V. Ramana (PI) Y.R. Satyaji Rao V.S. Jeyakanthan S.V. Vijaya Kumar P.C. Nayak T.Vijaya	Dec.,2017- March 2020	NIH
4	Hydrological Evaluation and Modeling for Water Resources Management in Baitarani basin in Odisha State	Dr. P C Nayak (PI) J.V. Tyagi Y.R. Satyaji Rao S.V. Vijaya Kumar R. Venkata Ramana P.C. Nayak	2018-2023	NHP (under PDS) Total Cost of Project: Rs 2,43,98,352.00
II. Sponsored Projects (Ongoing)				
1.	Hydrological evaluation of existing water conservation/ harvesting structures in identified IWMP watersheds in Chitturu and Ananthapur district (AP)	Y. R. Satyaji Rao R. Venkata Ramana V.S.Jeyakanthan	April 2017- March 2019	DoLR (under NNWP)
2	Hydrological evaluation of existing water conservation/ harvesting structures in identified IWMP watersheds in Pulbani and Khandamal district (Odisha)	Y. R. Satyaji Rao V.S.Jeyakanthan R. Venkata Ramana	April 2017- March 2019	DoLR (under NNWP)
3	River bank Filtration (RBF) studies in coastal alluvium of Andhra Pradesh	Y R Satyaji Rao (Co-PI) T Vijay	April 2016 - March 2019	Under Peya Jal Suraksha Project

CFMS, GUWAHATI
Work Programme 2018-19

S.N.	Title of the Project	Team	Duration	Funding
Internal Studies				
1.NIH/CF MS-G/17- 19	Estimation of Runoff for Kulsi River Basin using NRCS Curve Number and Geographic Information System	S. K. Sharma, GulshanTirke y G. Arun	Ongoing, 1 year (04/17 to 03/19)	NIH
2.NIH/CF MS-G/17- 19	Evaluation of Ground Water Quality in Shillong – the Capital City of Meghalaya	C. K. Jain M. B. Ritshong S. K. Sharma Babita Sharma	Ongoing, (04/17 to 03/19)	NIH
3.NIH/CF MS-G/17- 19	Morphometric Analysis of Kulsi Basin using different Digital Elevation Models (DEMs)	GulshanTirke y S. K. Sharma	Ongoing, (04/17 to 03/19)	NIH
4.NIH/CF MS-G/18- 21	Flood Inundation Modelling of Beki River Basin of Assam	S. K. Sharma Rakesh Kumar Pankaj Mani J. P. Patra G. Arun	3years (04/18 to 03/21)	NIH
5.NIH/CF MS-G/18- 21	Development of regional methods for design flood estimation for North Brahmaputra Subzone 2 (a)	S. K. Sharma Rakesh Kumar Pankaj Mani J. P. Patra G. Arun	3 years (04/18 to 03/21)	NIH
6.NIH/CF MS-G/18- 21	Linear hydrological routing using Satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin	GulshanTirke y S. K. Sharma Pankaj Mani G. Arun	3 years (04/18 to 03/21)	NIH

CFMS, PATNA
Work Programme 2018-19

S.N.	Title of the Project	Team	Duration	Funding
I. Internal Studies				
1.	Demonstration scheme on Riverbank Filtration in Gangetic plain of Bihar	B. Chakravorty (PI) N. G. Pandey	3 years (02/16-03/19)	NIH
2.	Development of Relationships between Reference Evapotranspiration (ET _o) of Penman-Monteith and other Climatological methods	S.R. Kumar (PI)	3 years (04/16-03/19)	NIH
3.	River shifting analysis and flow modelling study of Ganga river from Rishikesh to Anupshahar	Pankaj Mani (PI) Rakesh Kumar, J. P. Patra	3 years (04/16-03/19)	NIH
II. Sponsored Projects				
1.	Water balance estimation in identified watersheds of Ranchi and Dhanbad districts of Jharkhand	B. Chakravorty (PI) N. G. Pandey	2 Years (04/18-03/20)	DoLR (under NNWP)

The list of research papers published by the scientists and scientific staff of the Institute during April 2018 – March 2019 is given in **Appendix 72.4.2 [Page # 290 (Vol.-II)]**. The list of workshops/training courses/seminar/symposia organized during April 2018 – March 2019 is given in **Appendix 72.4.3 [Page # 302 (Vol.-II)]**. The progress of laboratory work done during April 2018 – March 2019 is given in **Appendix 72.4.4 [Page # 305 (Vol.-II)]**.

S.No.	Item	Published
1.	International Journal	52
2.	National Journal	25
3.	International Conference/ Seminar/ Symposium	61
4.	National Conference/ Seminar/ Symposium	12
5.	Books/Chapters	10
	Total	160

S.No.	Item	Total
1.	Workshops/Training Courses organised	36

Various activities carried out under Information, Education and Communications (IEC) programme, to create mass awareness among the people regarding water conservation, harvesting, quality of water, etc., is given in **Appendix 72.4.5 [Page # 323(Vol.-II)]**.

S.No.	Programs Organised	Total
1.	Mass Awareness Programs	26

The TAC may please consider the progress and status of the Work Programme of the Divisions and RC/CFMS of NIH for the year 2018-19.

ITEM # 72.5: Report of proceedings of the Working Group meeting

The 47th & 48th meetings of the Working Group of NIH were held at NIH, Roorkee, during 8-9 Feb. 2018 & 2-3 May 2019, respectively, under the Chairmanship of Director, NIH. The Working Group considered the status of the work programme of the year 2018-19 and also the proposed work programme for the year 2019-20 under two categories: (i) internally funded projects, and (ii) sponsored/consultancy projects.

The approved minutes of the 47th & 48th meetings of the NIH Working Group are given in **Appendix 72.5.1 & 72.5.2 [Page # 313 & 337 (Vol.-II)]**.

The TAC may please note the proceedings of the meeting of the Working Group.

ITEM # 72.6: Work programme for the year 2019-20

The proposed Work Programme of the Divisions at the Headquarters and RC/CFMS of the Institute for the year 2019-20 is given in the tables below.

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, Belgaum
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

ENVIRONMENTAL HYDROLOGY DIVISION

Work Program for the Year 2019-20

SN	Study	Study Team	Duration/Status
Internal Studies (Continuing)			
1.	Development of Habitat Suitability Curves for the Aquatic Species of Western Himalayan Streams and Assessment of Environmental Flows	Pradeep Kumar (PI)	3 Years (04/16-05/19)
Internal Studies (New)			
2.	Water Quality Assessment of Haridwar District	R.K. Nema (PI) Rajesh Singh, J. V. Tyagi Pradeep Kumar	3 years (05/19-04/22)
Sponsored Projects (Continuing)			
3.	Environmental Assessment of Aquatic Ecosystem of Upper Ganga Basin	M. K. Sharma (PI) Manohar Arora, Pradeep Kumar, Rajesh Singh D. S. Malik (GKU)	5 Years (04/16-03/21) Sponsored by: DST (NMSHE)
4.	Ground Water Quality Assessment with Special Reference to Sulphate Contamination in Bemetara District of Chhattisgarh State and Ameliorative Measures	M. K. Sharma (PI) Surjeet Singh, Pradeep Kumar Partner: WRD, Raipur, CGWB, Raipur	3 Years (09/17-08/20) Sponsored by: NHP-PDS Project Cost: Rs. 25.4 Lakh Status: In-progress
5.	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: Water Resources Organisation, Punjab	3 Years (09/17-08/20) Sponsored by: NHP-PDS Project Cost: Rs. 65.6 Lakh Status: In-progress
Sponsored Projects (New)			
6.	Leachate Transport Modeling for Gazipur landfill site for suggesting ameliorative measures	Anjali (PI) Sudhir Kumar J. V. Tyagi M. K. Sharma Nitesh Patidar Partner: CGWB (Delhi unit)	3 Years Project cost: Rs. 76.10 Lakh Status: PDS proposal submitted to NHP, yet to be approved by Review committee
7.	Study of Emerging Pollutants and Geochemical Processes Responsible for the Groundwater Contamination in and around Raipur Agglomerate, Chhattisgarh and Suggestive Ameliorative Measures	M. K. Sharma (PI) J. V. Tyagi Surjeet Singh Pradeep Kumar Rajesh Singh WRD, Raipur	3 Years Project cost: Rs. 77.32 Lakh Status: PDS proposal submitted to NHP, yet to be approved by Review committee

Training Programmes During 2019-20

SN	Topic	Duration	Place
1.	Hydrologic Modelling using SWAT (Coordinator: Dr. J. V. Tyagi)	Two weeks 20-31 May 2019	Roorkee

2.	Ground Water Quality Monitoring & Assessment under NHP-PDS (Coordinator: Dr. M. K. Sharma)	5 Days 3-7 June 2019	Roorkee
3.	Water Quality Assessment & Management under NHP-PDS (Coordinator: Dr. Rajesh Singh)	5 Days 17-21 June 2019	Roorkee
4.	Water Quality: Concepts and Analysis under NHP (Coordinator: Dr. Pradeep Kumar)	5 Days Oct. 2019	Roorkee

GROUND WATER HYDROLOGY DIVISION

Work Program for the Year 2019-20

S. No.	Project	Project Team	Duration & Status	Funding Source
Internal Studies				
1. NIH/GWH/ NIH/19-21	Application of Satellite Data Products for Water Resources Assessment	Suman Gurjar (PI), Vishal Singh, Surjeet Singh, C. P. Kumar, P. K. Singh	2 years (05/19 - 04/21) <i>Status: In progress</i>	Internal Study
Sponsored Projects				
2. NIH/GWH/ NIH/15-19	Peya Jal Suraksha - Development of Six Pilot Riverbank Filtration Demonstrating Schemes in Different Hydrogeological Settings for Sustainable Drinking Water Supply	Surjeet Singh (Lead), B. Chakravorty, Y. R. S. Rao, Anupma Sharma, Sumant Kumar, Gopal Krishan, Suman Gurjar, Anju Chaudhary, Sanjay Mittal	2.5 years (11/15–12/19) Extended till Dec. 2019 <i>Status: In progress</i>	Sponsored by MoWR, RD & GR under Plan Fund
3. NIH/GWH/ NMSHE/16-20	Study of River - Aquifer Interactions and Groundwater Potential at Selected Sites in the Upper Ganga Basin up to Dabrani	Surjeet Singh (PI), C. P. Kumar, R. J. Thayyen, Sudhir Kumar, Manohar Arora, Gopal Krishan, Nitesh Patidar, Anjali	5 years (01/16 - 12/20) <i>Status: In progress</i>	Sponsored by DST under NMSHE SP-8
4. 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 <i>From: BGS, UK</i> Dr. Dan Lapworth (PI) Prof. Alan MacDonald	3 years (12/17-11/20) <i>Status: In progress</i>	Sponsored by BGS, UK
5. NIH/GW H/PDS/17-20	Hydro-geochemical Evolution and Arsenic Occurrence in Aquifer of Central Ganges Basin	Sumant Kumar (PI), Sudhir Kumar, Rajesh Singh, Gopal Krishan, Anju Chaudhary <i>Partner Organization:</i> MWRD, Bihar <i>Collaborator:</i> Brijesh Yadav, IIT Roorkee and N.S Maurya, NIT Patna	3 years (12/17-11/20) <i>Status: In progress</i>	Sponsored by NHP under PDS

6. NIH/GW H/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, S. K. Verma <i>IIT-Roorkee:</i> M. L. Kansal, Brijesh Yadav (PI) <i>Sehgal Foundation,</i> <i>Gurgaon:</i> Lalit Mohan Sharma	3 years (12/17-11/21) <i>Status: In progress</i>	Sponsored by NHP under PDS
7. NIH/GW H/PDS/17 -21	Ganges Aquifer Management in the Context of Monsoon Runoff Conservation for Sustainable River Ecosystem Services - A Pilot Study	Surjeet Singh (PI), C. P. Kumar, Sudhir Kumar, Suman Gurjar, Gopal Krishan	4 years (12/17-11/21) <i>Status: In progress</i>	Sponsored by NHP under PDS
8. 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 <i>Other India Partners:</i> IITR, IITKg, MCS, Patna <i>UK Partners:</i> Univ. of Manchester, BGS, Salford University, Univ. of Birmingham	3 years (01/18 - 12/20) <i>Status: In progress</i>	DST-Newton Bhabha-NERC- India-UK Water Quality Research Programme
9. NIH/GWH/ DST/18-20	Impact of Rainwater Harvesting on Groundwater Quality in India with Specific Reference to Fluoride and Micro-pollutants	Anupma Sharma (Indian Lead), Sumant Kumar, Gopal Krishan, Suman Gurjar, M. K. Sharma <i>Other Indian Partners:</i> IIT Ropar, IIT Jodhpur <i>UK Partner:</i> Cranfield University School of Water, Energy and Environment; Cranfield University <i>Project Partners:</i> Wells for India and Excellent Development, UK based NGOs together with their Indian offices and local NGO partners in Rajasthan	3 years (01/18 - 12/20) <i>Status: In progress</i>	DST-Newton Bhabha-NERC- India-UK Water Quality Research Programme

10. NIH/GWH/ CEHM/18- 22	Integrated Management of Water Resources for Quantity and Quality in Upper Yamuna Basin up to Delhi.	Anupma Sharma (PI) Sanjay K. Jain, Archana Sarkar, M. K. Sharma, L. N. Thakural, Sumant Kumar, Suman Gurjar, Vishal Singh, Nitesh Patidar <i>Partner Organization:</i> C.E, IWRD Haryana, Tech. Coord., GWD UP, S.E. YBO, CWC New Delhi	4 years (04/18-03/22) <i>Status: In progress</i>	Special Project under "Centre of Excellence" (NHP)
11. 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), Nitesh Patidar (Lead: CAZRI Jodhpur, Partner: NIH)	4 years (03/19 - 02/23) <i>Status: In progress</i>	Sponsored by DST
12. NIH/GWH/ NMCG/19- 20	Environmental Flow Assessment for Yamuna River from Hathnikund Barrage to Okhla Barrage	Anupma Sharma (PI), Sharad K. Jain, Manohar Arora, Pradeep Kumar, Rajesh Singh, Vishal Singh	1 year (04/19 - 03/20) <i>Status: In progress</i>	Sponsored by NMCG
13. NIH/GWH/ MoES/19- 19	Improving our Understanding of the Aquifer Systems in Sunderbans	Gopal Krishan (PI), C. P. Kumar (Co-PI)	5 months (05/19 - 09/19) <i>Status: In progress</i>	Sponsored by India-UK Water Centre (MoES & NERC)
Other R & D Projects				
15.	Development of Groundwater Model for Integrated Hydrologic Model	Anupma Sharma, B Chakravorti, Surjeet Singh, Suman Gurjar, Sumant Kumar, Nitesh Patidar	3 years (08/18 -07/21) <i>Status: In progress</i>	CEHM, NHP
16.	DSS Planning & Management in Selected States	Anupma Sharma, D S Rathore and Team	6.5 years (06/19 -11/25) <i>Status: to start</i>	NHP

HYDROLOGICAL INVESTIGATIONS DIVISION

Work Programme for 2019-20

SN.	Project Title	Study Team	Duration	Remarks
INTERNAL STUDIES:				
1	Integrated hydrological investigations of natural water springs in lesser Himalaya, Uttarakhand	S M Pingale (PI), Sudhir Kumar, S. D. Khobragade, Soban Singh Rawat, Rajeev Gupta	3 years (04/19-03/22)	New Study
2	Isotope fingerprinting of precipitation over Indian Region	Nidhi Kalyani (PI) Sudhir Kumar, MS Rao; Scientists from	3 years (04/19-03/22)	New Study

		RC's		
SPONSORED PROJECTS:				
1.	Understanding of hydrological processes in Upper Ganga basin by using isotopic techniques	Suhas Khobragade (PI), Sudhir Kumar, Rajesh Singh, M. Arora, R. J. Thayyen, S.K. Verma	5 Years (04/16-03/21)	Continuing Study under NMSHE Project
2.	Rejuvenation of Springs and Spring-fed Streams in Mid-Himalayan Basin using Spring Sanctuary concept	Sudhir Kumar (PI) S.K. Verma	3 Years (06/16 -05/19)	Continuing Study Project with GBPIHE
3.	Dating very old ground waters of deeper aquifers in Ganga Plains, India	MSRao (PI) Sudhir Kumar, S.K. Verma	3 Years (06/16 -05/19) Extended till Dec. 2021	Continuing Study IAEA under CRP
4.	Chemical & Isotopic Characterization of Deep Aquifer Groundwater of Middle Ganga Basin	Sudhir Kumar (PI) M.K. Sharma, M. Someshwar Rao, S.K. Verma	3 ½ year (1/18 – 6/21)	Continuing Study PDS under NHP
5.	Integrated Study on groundwater dynamics in the coastal aquifers of West Bengal for sustainable groundwater management	M. Someshwar (PI), Sudhir Kumar, S.K. Verma, Nidhi Kalyani, V. S. Jeyakanthan	3 ½year (1/18 – 6/21)	Continuing Study PDS under NHP
6.	Development of a comprehensive plan for conservation and sustainable management of Bhimtal and Naukuchiatal lakes, Uttarakhand	Suhas Khobragade, Sudhir Kumar	3 Years (1/18 – 12/20)	Continuing Study PDS under NHP
7.	Unravelling Submarine Discharge (SGD) zones along the Indian subcontinent and its islands (Mission SGD) – Pilot Study	Sudhir Kumar, MS Rao, Nidhi Kalyani BK Purandra YRS Rao	1 year (04/19 – 03/20)	MoES through NCESS

SURFACE WATER HYDROLOGY DIVISION

Work Programme for the Year 2019-20

ONGOING STUDIES (SPONSORED)			
S. No. & Ref. Code	Title	Study Team	Duration
1.NIH/SWHD/17-20	Water efficient Irrigation by using SCADA system for medium irrigation Project (MIP) Shahnehar (PDS-NHP).	R.P. Pandey J.P. Patra Rajesh Singh N.K. Bhatnagar	3 years (Dec 2017 to Dec 2020)
2.NIH/SWHD/16-21	Hydrological modeling 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 March 2021)

ONGOING STUDIES (INTERNAL)			
S. No. & Ref. Code	Title	Study Team	Duration
3.NIH/SWHD/17-21	Development of regional relationships for water availability analysis and flood estimation for lower Godavari basin (3f)	Sanjay Kumar Rakesh Kumar J.P. Patra Pankaj Mani	4 years (April 2017 to March 2021)
4.NIH/SWHD/15-19	Study of hydrological changes in selected watersheds in view of climate change in India	L.N. Thakural D.S. Rathore Surjeet Singh Sanjay K. Jain Sharad K. Jain	4 years (April 2015 to March 2019) extended up to March 2020
5.NIH/SWHD/17-20	Development of regional methods for design flood estimation in Uttarakhand	J.P. Patra Rakesh Kumar Pankaj Mani Sanjay Kumar	3 years (April 2017 to March 2020)
6.NIH/SWHD/18-21	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 March 2021)
7.NIH/SWHD/18-20	Assessment of climate change impact on water availability and agriculture in part of Banas basin.	Archana Sarkar Surjeet Singh Suman Gurjar Sunil Gurrapu	2 years (Nov 2018 to October 2020)
8.NIH/SWHD/18-21	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 March 2021)
9.NIH/SWHD/18-20	Evaluation of water quality of Government schools in Roorkee block, District Haridwar	N.K. Bhatnagar M.K. Sharma L.N. Thakural	2 years (Oct 2018 to Sept. 2020)

NEW STUDIES (INTERNAL)			
S. No. & Ref. Code	Title	Study Team	Duration
10.NIH/SWHD/19-22	Development of drought monitoring system for early warning and preparedness for a selected region in India	R.P. Pandey, D.S.Rathore, Ravi Galkate, Sunil Gurrapu	Proposal to be revised based on comments in the 48 th Working Group meeting

WATER RESOURCES SYSTEMS DIVISION

Work Programme for the Year 2019-2020

SN	Title	Study Team	Duration	Funding (Rs. in Lakhs)
Ongoing Internal Studies				
1.	Hydrological process and characterization of Lesser Himalayan Catchments	M. K. Nema Sharad K. Jain, Sanjay K. Jain, Renoj J.Thayyen, P. K. Mishra	5 years (12/14-12/19)	
2.	Developments of Water Accounts for Subarnarekha Basin Using Water Accounting Plus (WA+) Framework	P. K. Singh P. K. Mishra, M. K. Goel, Suman Gurjar	2 years 2018-2020	
3.	Real time flood modelling using HEC-RTS framework	Vishal Kumar A. K. Lohani, Sanjay K. Jain	2 years 2018-2020	
Ongoing Sponsored 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, P. Mani, P. K. Mishra	5 years (01/16-12/20)	DST (52.15)
2.	Real-time snow cover information system for Upper Ganga basin (Sub-project – 2)	D. S. Rathore D. Chalisgaonkar, V. S. Jeyakanthan, L. N. Thakural	5 years (01/16-12/20)	DST (48.83)
3.	Glacial Lakes & Glacial Lake Outburst Flood (GLOF) in Western Himalayan Region (Sub-project – 3)	Sanjay K. Jain A. K. Lohani, Sudhir Kumar, P. Thakur (IIRS)	5 years (01/16-12/20)	DST (36.79)
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, P. K. Mishra, M. Arora, AP Dimri (JNU)	5 years (01/16-12/20)	DST 51.43 (NIH) + 28.29 (JNU)
5.	Observation and modelling of various hydrological processes in a small watershed in Upper Ganga basin (Sub-project – 5)	Sharad K. Jain Renoj J.Thayyen, Sanjay K. Jain, Surjeet Singh, M. K. Nema, P. K. Mishra, P. K. Agarwal, AP Dimri (JNU)	5 years (01/16-12/20)	DST (54.07)
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, P. K. Sachan	5 years (01/16-12/20)	DST (90.99)
7.	Dynamics of Himalayan Ecosystem	Renoj J.Thayyen	3 years	NMHS-MoEF

	and its impact under changing climate scenario-Western Himalaya	P. K. Mishra	(03/17-03/19)	(58.76 lakh)
8.	Measurements and Modeling of Evapotranspiration and other Hydrological Processes in Lesser Himalayas	M K Nema Renoj J. Thayyen, Sharad K. Jain, Sanjay K. Jain, P. K. Mishra, AP Dimri (JNU)	3 years (2016-19)	MOES (Rs. 98 Lakh)
9.	Sustaining Himalayan Water Resources in a Changing Climate (SusHi-Wat)	Sanjay K. Jain (PI) Sharad K. Jain CSP Ojha (PI, IITR)	3 years (2016-2019)	MOES-NERC, Newton- Bhabha project (11.59 Lakh)
10.	Investigating Water Stress using Hydro-meteorological and Remote Sensing data	D. S. Rathore L. N. Thakural, Sanjay Kumar, B. Venkatesh, M. K. Jose, T. Chandramohan	3 years 2017-2020	PDS under NHP
11.	Seasonal Characterization of Gangotri Glacier melt runoff and simulation of streamflow variation under different climate scenarios	M. Arora Deepak Singh Bisht, Sanjay K. Jain	3 years 2018-2021	NIH
New Internal Studies				
1	Development of windows based software for Flood Estimation	D. Chalisgaonkar A. K. Lohani, M. K. Goel	1 year (04/19-03/20)	

RESEARCH MANAGEMENT AND OUTREACH DIVISION (RMOD)

Work Programme for the Year 2019-20

SN	Title of Project/Study	Funding	Study Team	Duration	Status
Internal Study					
1	Study on effect of climate change on sediment yield to Pong reservoir	NIH	A R Senthil kumar (PI) J V Tyagi, S D Khobragade , Manohar Arora	Apr 2015- Mar 2018 (extended upto June 2019)	On-going
2	Bathymetric survey of identified ponds in the districts of Muzaffarnagar, Meerut, Ghaziabad and Baghpat (UP) for development of water management plan	NIH	Digambar Singh (PI) Omkar Singh Rajesh K.Nema Hukam Singh N R Allaka	Apr 2018- Mar 2020	On-going
3	Conservation of ponds in Ibrahimpur- Masahi Village and performance evaluation of natural treatment system	NIH,CEH (UK)	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- Mar 2020	On-going
4	Development of DSS for Watershed Hydrology	NIH	V C Goyal (PI) Jyoti Patil, Rohit	May 2019- Aug 2019	New

Sambare					
Sponsored Projects					
1	Vulnerability assessment of identified watersheds in Chhatisgarh	NNWP (under NIH scheme)	Jyoti P Patil (PI)	Jul 2017- Jun 2019	On-going
2	Hydrological modelling in Bhagirathi basin up to Tehri dam and assessment of climate change impact	DST (under NMSHE)	A R Senthil kumar (PI) J. V. Tyagi, M. K. Goel, S. D. Khobragade, P. C. Nayak, Manohar Arora	Mar 2016- Mar 2021	On-going
3	Rejuvenation of village ponds for identified villages in Muzaffarnagar and Meerut districts of UP	MoWR-funded project-Through INCSW	V C Goyal (PI) Omkar Singh, Digambar Singh, Rajesh Singh, Subhash Kichlu, Rajesh Agrawal, Rakesh Goel, NR Allaka & Project staff	Apr 2017- Mar 2020	On-going
4	Rejuvenation of village ponds in identified villages of Baghpat, Ghaziabad and Meerut districts of Uttar Pradesh	MoWR-funded project (through Scheme funds)	Omkar Singh (PI), Rajesh Singh, V C Goyal, Digambar Singh, Subhash Kichlu, Rajesh Agrawal, Rakesh Goel, NR Allaka & Project Staff	Apr 2017- Mar 2020	On-going
5	Development of water allocation plan for identified watersheds in Kanker district (Chhattisgarh)	NNWP (under Scheme funds)	A R Senthil kumar (PI) T R Nayak, Jyoti P Patil, Rajesh Agarwal	Apr 2018- Mar 2020	On-going
New Sponsored Project					
6	Innovation Centre for Eco-Prudent Wastewater Solutions (IC-EcoWS)- establishment and operation of 'Live Laboratory' in a rural setting near Roorkee	DST (GoI), Cost: Rs. 5.1 Crore	Partners: NIH, MNIT-Jaipur, IIT-Bombay, IRMA-Ahmedabad V.C. Goyal (PI), Omkar Singh, Rajesh Singh, Rohit Sambare	Jun 2019-Mar 2024	New Project

Proposed Trainings/Workshop/Activities:

S.No.	Name of activity	Funding	Team/Div.	Period	Venue
1	Inception cum-Need Assessment of IC-EcoWS Project	DST (GoI)	V.C. Goyal (PI), Omkar Singh, Jyoti Patil, Rajesh Singh, Rohit Sambare	24-25 Jun, 2019	NIH Roorkee/MNIT Jaipur
2	Networking Project on Rejuvenation of Ponds-Review Meeting	DST (GoI)	T. Thomas (PI), Jyoti Patil	14-15 Jun, 2019	NIH Roorkee
3	National Workshop on Scientometrics	NIH	V C Goyal (PI), Archana Sarkar, Rohit Sambare, Furqan Ullah, Charu Mishra	Feb 2020	NIH Roorkee

Expected Outreach Activities:

S.No.	Name of activity	Funding	Team/Div.	Period	Venue
1	India Water Week	NIH	RMOD	24-28 Sep 2019	Vigyan Bhawan, New Delhi
2	India International Trade Fair	NIH	RMOD	14-27 Nov 2019	New Delhi
3	Indian Science Congress	NIH	RMOD	3-7 Jan 2020	UAS, Bangalore
4	Any other Outreach activity on demand/assigned	NIH	RMOD		

List of proposed activities under INC-IHP during 2019-20**Meetings to be organised/ attended**

1. Meeting of INC-IHP, during May/June 2019, after obtaining approval on re-constitution of committee from the Ministry
2. 24th session of the InterGovernmental Council (IGC) of the International Hydrological Programme of UNESCO, Paris, France
3. 27th meeting of the IHP Regional Steering Committee for Asia and the Pacific, to be held at Myanmar in 2019
4. Participation in Asian GWADI meeting
5. Participation of Indian nominees in various UNESCO meetings

Thematic Trainings:

1. Training course on 'Water Security Assessment' during July 2019 (Location: New Delhi/ Roorkee)
2. Training course on 'Water Education- Key for Water Security' during March 2020 (Location: New Delhi/ Roorkee)

Brainstorming sessions/ exhibitions during conferences/ summits

S. N.	INC-IHP proposed event	Conference/ Summit	Host Organisation	Location	Date
1.	Exhibition on R&D in Hydrology, Wastewater treatment	3 rd World Water Summit 2019	Energy and Environment foundation	New Delhi	21-23 Aug, 2019
2.	Brainstorming session on Theme-V 'Ecohydrology- Engineering Harmony for a Sustainable World'	Water future Conference	IISc, Bengaluru	Bengaluru	24-27 Sep, 2019
3.	Session on 'Enhancing sustainable groundwater	8 th Int. Groundwater Conference on Sustainable Management of Soil-Water	IIT- Roorkee	Roorkee	21-24 Oct, 2019

	resources management'	Resources			
4.	Theme- Water-related Disasters and Hydrological Changes	Int. Conference on Soil and Water Resources Management for Climate Smart Agriculture, Global Food and Livelihood Security	Soil Conservation Society of India (SCSI), New Delhi	New Delhi	5-9 Nov, 2019
5.	Theme- Game-changing approaches and technologies	Int. Conference on Future Cities	IIT- Roorkee	Roorkee	11-13 Dec, 2019
6.	Theme- Promoting innovative tools for safety of water supplies and controlling pollution	HYDRO-2019 (Hydraulics, Water Resources and Coastal Engineering)	Osmania University, Hyderabad	Hyderabad	18-20 Dec, 2019
7.	Theme- Water Education- Key for Water Security	Roorkee Water Conclave 2020	IIT- Roorkee and NIH	Roorkee	26-28 Feb, 2020
8.	Celebration of World Water Day		NIH, jointly with UNESCO New Delhi	New Delhi	22 Mar 2020

REGIONAL CENTRE, BELAGAVI

Proposed Work Program for the Year 2019-2020

Sl No.	Title of the Study	Study Group	Duration	Funding
1	Impact of Land use/Land cover Changes on Ground water – A Case Study	B K Purendra, B Venkatesh	3 years (April 17-March 20)	INTERNAL / MoES
2	Studies on Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply in parts of Western Ghats, India	B K Purandra (PI)	3 years (4/17-3/20)	PDS under NHP
3	Assessment of Water Resources in Ungauged catchments of West Flowing Rivers of Western Ghat Region	Chandramohan T (PI); Officer from WRDO	3 years (4/18-3/21)	Internal
4	Climate Change Impact assessment for Jayakwadi Reservoir	B Venkatesh (PI); officers from WRD, GoMah.)	3 years (04/18-3/21)	Internal
6	Estimation of Submarine Groundwater Discharge in parts of Karnataka	B K Purendra and N Vardarajan	2 year (2019 to 2021)	NCESS (MoES)

7	Groundwater Model Development In Micro Basin Of Hard Rock In Krishna And Godavari River Basins Of Telangana	B Venkatesh, M K Jose and Scientist from HQ	3 years (2019 to 2022)	PDS under NHP
---	---	---	-------------------------	---------------

REGIONAL CENTRE, JAMMU

Proposed Work Program for 2019-20

No.	Study	Team	Duration	Status
Internal Studies				
1.	Hydrologic and hydraulic modeling for floodplain inundation mapping under future climate change scenarios: A case study of Tawi River, India	R. V. Kale P. G. Jose S. S. Rawat	03 years (August 2018 to March 2021)	PI on deputation Since Sept. 2018 in Japan; study to be effectively initiated on joining at WHRC
2.	Assessment of Hydrological Characteristics of a Western Himalayan River	D. Khurana P. G. Jose S. S. Rawat R. V. Kale	24 months (August 2018 to May 2020)	Ongoing
Sponsored Studies				
3.	Inventory and Dynamics of Springs for Sustaining Local Water Demand in Ravi catchment, Himachal Pradesh	S S Rawat, P G Jose, Sudhir Kumar, R V Kale	04 years (April 2017 to March 2021)	Ongoing PDS under NHP
4.	Integrated Studies on Himalayan Cryosphere using Space Based Inputs	P. G. Jose R. J. Thayyen	02 years (Sep 2017 to Aug 2019)	Ongoing Study funded by SAC/ISRO
5.	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, Suman Gurjar	03 Years Apr 2019 to March 2022	New Study under NMHS, MOEF&CC
6.	Entropy based discharge monitoring technique application for Himalayan rivers	R. V. Kale P. G. Jose M. K. Goel S. S. Rawat	04 years	New Study under NHP_PDS [revised proposal submitted on 31.3.2019]

REGIONAL CENTRE, BHOPAL

Proposed Work Program for the Year 2019-20

S.No.	Name of the project	Duration	Study Group	Funding
1.	Evaluation of impacts of Rabi irrigation in Ganga river sub basin of Madhya Pradesh	3 years Oct 2017 to Sep 2020	R.V. Galkate (PI), R. K. Jaiswal, T.R. Nayak, T. Thomas	NHP-PDS
2.	Impacts of Upcoming Irrigation	4 years	T. Thomas (PI)	NHP-PDS

	Projects and Climate Change on the Droughts and Desertification Scenario for Chambal Basin in Western Madhya Pradesh.	Dec 2017 to Nov 2021	P.C. Nayak, Surjeet Singh, B. Venkatesh, R.V. Galkate, R. K. Jaiswal	
3.	Integrated Assessment of the Impacts of Climate Change and Land use Change on the Hydrology of the Narmada basin through Hydrological Modelling Approaches	5 Years Feb 2018 to Jan 2023	T. Thomas (PI) Surjeet Singh, B. Venkatesh, Manish Nema, Prabhash Mishra, S. P. Indwar, Sharad Jain, J. V. Tyagi, M. K. Goel	Special PDS under NHP
4.	Modelling of Narmada using GWAVA	4 years Apr 2015- Mar 2017	T Thomas (PI) Sanjay Jain, P K Mishra, Manish Nema, Sharad Jain	NIH
5.	Revival of Village Ponds through Scientific Interventions in Sagar District (Sponsored R&D Project by Department of Science & Technology, Govt. of India)	2 years Jul 2017 to Jun-2019	T. Thomas (PI) Sandeep Goyal, MPCST, Bhopal, Vivek Bhatt, WALMI, Bhopal, Jyoti Patil, NIH, Delhi	DST
6.	Modelling of Tawa Reservoir Catchment and Development of Tawa Reservoir Operation Policy	3 Years Sep 2017 to Aug 2020	S. P. Indwar (PI) T.Thomas, T.R. Nayak, R. K. Jaiswal	NHP-PDS
7	Estimation of Revised Capacities in Reservoirs of Chhattisgarh State using Digital Image Processing technique: Part-III (Sikasar, Pipariya, Miniyarim Chhirpani and Khutaghat reservoirs)	1 Year Apr 2019 to Mar 2020	R. K. Jaiswal (PI) T.R. Nayak, R.V. Galkate, S. P. Indwar Sh. Akhilesh Verma WRD Raipur	
8	Hydrological Modelling for Evaluation of Return Flow and Irrigation Planning for Optimal Utilization of Water Resources in the Command of Sanjay Sagar Project in Madhya Pradesh	4 Years Apr 2019 to Mar 2023	R. K. Jaiswal (PI) R.V. Galkate, T.R. Nayak, T.Thomas, S. P. Indwar, D.S. Rathore, A.K. Lohani, Sudhir Kumar, Surjeet Singh	
9	Development of Decision Tool for Efficient Utilization of Water Resource in Parwati Canal & Dholpur Piped irrigation Project of Rajasthan.	3 Years Apr 2019 to Mar 2022	R. K. Jaiswal (PI) R.V. Galkate, T.R. Nayak, A.K. Lohani, S. P. Indwar	

REGIONAL CENTRE, KAKINADA

Proposed Work program for 2019-20

S. No	Title of the Project	Team	Duration	Funding	Status
1	Groundwater Salinity Source identification in Godavari Delta, A.P	Y R SatyajiRao (PI) J V Tyagi, T Vijay, R VenkataRamana	Dec. 2017- March 2020	NHP-PDS Rs 61.09 lakhs (SP-28/2017-18/PDS-13)	
2	Sedimentation Study of Hirakud Reservoir, Odisha using Optic and Microwave Remote Sensing Technology	V.S. Jeyakanthan(PI) J.V. Tyagi, Y.R. SatyajiRao, S.V. Vijaya Kumar, R. VenkataRamana, P.C. Nayak	July 2017- March 2020	NHP PDS Rs.51.19lakhs (SP-28/2017-18/PDS-3)	
3	Study of the behaviour of Multi-Aquifer system & Aquifer mapping for an effective Groundwater Management in Gunderu Sub-basin, West Godavari District, A.P.	S V Vijaya Kumar (PI) Anupama Sharma Y R SatyajiRao T Vijay	April 2018- March 2021	NHP PDS (partnership with AP SGW &WA Dept.)	
4	Forecasting of Flash flood and management for east flowing rivers of India's Subzone 4(a).	R VenkataRamana Y R SatyajiRao	Dec 2017- Nov.2020	Internal Study	
5	Dam break studies of Somasila, Kandaleru and Pulichintala dams in Andhra Pradesh State	P C Nayak (PI) Y R S Rao A K Lohani	April 2019 – March 2022	NHP PDS (partnership with WRD, AP)	New Study
II SPONSORED PROJECTS					
1	River bank Filtration (RBF) studies in coastal alluvium of Andhra Pradesh	Y R SatyajiRao T Vijay	April 2016 - March 2019	Peya Jal Suraksha Project	
2	High Performance Advanced Septic System (HPAS) along the villages and Roadside Restaurants	Y R SatyajiRao T Vijay	April 2018- March 2020	IC-IMPACTS (Indo Canada Project)	
3	Unravelling Submarine Discharge (SGD) Zones along the Indian Subcontinent and its islands (Mission SGD)- Pilot Study	Y R SatyajiRao T Vijay	April 2019 to March 2021	Sponsored by NCESS	New Study

CFMS-GUWAHATI

Proposed Work program for 2019-20

S.No.	Title	Study Group	Duration (Month/Year)	Funding	Remarks
1.	Flood Inundation Mapping of Beki River Basin of Assam	S.K Sharma, Rakesh Kumar, Pankaj Mani, Jagadish Prasad Patra, G. Arun	3 years (4/18 to 3/21)	NIH	On-going
2.	Development of regional methods for design flood estimation in North Brahmaputra subzone 2 (a).	S.K Sharma, Rakesh Kumar, Pankaj Mani, Jagadish Prasad Patra, G. Arun	3 years (4/18 to 3/21)	NIH	On-going
3.	Linear Hydrological routing using Satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin	Gulshan Tirkey, S. K. Sharma, G.Arun	3 years (4/18 to 3/21)	NIH	On-going
4.	Groundwater Quality Assessment of Morigaon district of Assam with emphasis on Arsenic & Fluoride Contamination	S.K. Sharma R.Singh G. Tirkey	2 years (4/19 to 3/21)	NIH	New Study
5.	Impact of Climate Change on Runoff and Sediment Yield for Puthimari Tributary of River Brahmaputra	Swapnali Barman (PI), J. V. Tyagi, & R.K. Bhattacharya (IITG)	3 Years (11/18-10/21)	NIH	On-going
6.	River basin planning and reservoir operations in Teesta, Rangit & tributaries	Swapnali Barman (PI), M K Goel, Deepti Rani, G Arun Partner: WRD, Sikkim	3 Years (02/19-01/22)	NHP-PDS	New Study

CFMS-PATNA

Proposed Work program for 2019-20

Sl	Title	Study Team	Duration
Internal Studies			
1.	Demonstration scheme on Riverbank Filtration in Gangetic plain of Bihar	B. Chakravorty (PI) N. G. Pandey	On going (02/16-03/19) Proposed for extension of one year

2.	River shifting analysis and flow modelling study of Ganga river from Rishikesh to Anupshahar	Pankaj Mani (PI) Rakesh Kumar, J. P. Patra	On going (04/16-03/19) Proposed for extension of one year
Sponsored Study (PDS/NHP)			
3.	Modelling and management of erosion and sedimentation processes in alluvial river using morphodynamic modeling	Pankaj Mani (PI) Rakesh Kumar, J. P. Patra B. Chakravorty & WRD Bihar	New study proposed under PDS (04/19-03/22)

ITEM # 72.7: Major projects and activities of national importance:

I. ROORKEE WATER CONCLAVE 2020

National Institute of Hydrology Roorkee (NIH) and Indian Institute of Technology Roorkee (IITR) jointly decided to organize regular international conference every 2 years in the area of various facets of water, to be known as “Roorkee Water Conclave”. The first Roorkee Water Conclave will be organized during 26 – 28 February, 2020 at Roorkee broadly focusing on “Hydrological Aspects of Climate Change”.

The conference deliberations will be held under 14 broad themes. The information brochure for the conclave has already been released (placed on table). Detailed information about the conference can be obtained from the conference website (<https://www.iitr.ac.in/rwc2020/index.html>) as well as www.nihroorkee.gov.in.

TAC members are invited to contribute papers to the conference and attend.

II. 6th National Water Symposium (राष्ट्रीय जल संगोष्ठी) during 16-17 December, 2019, NIH, Roorkee

Fresh water is crucial to human society and it is expected to become increasingly scarce in the future, and this is partly due to climate change. The environment plays a crucial role in management and regulation of water availability and water quality, strengthening the resilience of watersheds. Clearly the water issues have become very important and combined efforts are needed to better understand these complex interactions between water and environment in changing climate. To discuss these issues and to promote the use of Rajbhasha Hindi in water sector, the National Institute of Hydrology organizes National Water Symposium in Hindi at Roorkee once in 4 years.

The sixth National Water Symposium is scheduled to be organized by the Institute during 16-17 December 2019. The focal theme of the symposium is “Water and Environment”. The symposium is expected to provide a platform to the researchers and stakeholders to share their researches, experiences and innovative practices in Hindi. The outcome of the conference will be of immense help to the policy maker in this sector.

TAC members are invited to contribute papers to the symposium and attend.

ITEM # 72.8: Reporting Items:

LIST OF COMPLETED CONSULTANCY PROJECTS IN 2018-19

SN	Project Name	No.	Sponsoring Agency	PI
1	Desk Study of Dam Break Analysis for Kudgi STPP, Stage-I	CS-64/2014-15/NIH (SWHD)	NTPC Noida	Dr Rakesh Kumar Sc G
2	Project wise water availability and integrated operation analysis of major projects in Krishna Basin	CS-72/2015-15/NIH(WRSD)	Irrigation & CAD Department, Govt of Andhra Pradesh	Dr Sharad K Jain, Sc G
3	GIS Map for the entire catchment of Sapta Kosi High dam Multipurpose Project and Sun Kosi Storage-cum-diversion Schem, Nepal	CS-73/ 2015-15/NIH(WRSD)	Project Manager, JPO-SKSKO, Nepal	Dr Sanjay K Jain, Sc F
4	Hydro geological study of Katwa Super Thermal Power Project of NTPC Ltd.	CS-79/2015-16/NIH(HID)	NTPC Gadawada	Dr Sudheer Kumar(Sc G)
5	Hydro geological study of Gadawada Super Thermal Power Project of NTPC Ltd.	CS-80/2015-15/NIH(HID)	NTPC Gadawada	Dr Sudheer Kumar(Sc G)
6	Preparation of emergency action plan for NSRSP and inundation map associated with dam break analysis in AP	CS-81/2014-16/NIH (SWHD)	CE, NSRSP, Hyderabad	Dr. A K Lohani, Sc-F
7	Hydro-Dynamic flow Analysis in Kuakhai and Kathajodi River System	CS-82/2015-16/NIH (SWHD)	Vishontek Consultancy Services, Bhubneshwar	Dr. A K Lohani, Sc-F
8	Mathematical model Development for Vishwamitri River System in Vadodara City	CS-83-2015-2017/NIH(SWHD)	Vadodara Mahanagar Sewa Sadan, Vadodara	Shri Rakesh Kumar Scientist F
9	Hydro geological study of Khargone Super Thermal Power Project of NTPC Ltd	CS-86/2015-16/NIH(HID)	NTPC Gadawada	Dr. Sudhir Kumar, Scientist 'F
10	Hydro geological study for Harduaganj, 1x660 MW HTPS Distt Aligarh, UP	CS-87/2015-16/NIH(HID)	UPRVUNL Ltd	Dr. Sudhir Kumar, Scientist 'F
11	Hydrological Study for development of Dheerpur and Rohin campuses of Ambedkar University	CS-89/2015-17.NIH(SWHD)	Ambedkar University Delhi	Dr Rakesh Kumar Sc G
12	Isotopic/Hydro geological investigation of 1x660 MW PTPS Distt Kanpur, UP	CS-90/2015-16/NIH(HID)	UPRVUNL Ltd	Dr. Sudhir Kumar, Scientist 'F

13	Study on Ash Disposal from Telangana STPP into Mine Void of Medipalli Open Cast Mines	CS-97/2016-17/NIH (EHD)	NTPC Ltd Telangana	Dr. C K Jain, Scientist 'G'
14	Dam Break Analysis for Dulhasti Dam	CS100/2016-16/NIH(SWHD)	NHPC Ltd	Dr Rakesh Kumar Sc G
15	Dam Break Analysis for Dhauliganga Power Station	CS103/2016-17/NIH(SWHD)	NHPC Ltd	Dr Rakesh Kumar Sc G
16	Infiltration, Percolation test and isotopic analysis of groundwater under mega recharge scheme of groundwater in Tapi Alluvial Basin, Maharashtra	CS-105/2016-17/NIH(HID)	WAPCOS	Dr. S.P.Rai, Sc- E
17	Infiltration Test and Chemical Analysis of groundwater of Kanpur Nagar Nigam Area	CS-107/2016-17/NIH(HID)	WAPCOS	Dr. S.P.Rai, Sc- E
18	A field based research study for Management Planning of Coastal Wetlands in Gujarat	CS/111/2017-17/NIH(Kakinada)	KPMG Gurgaon	Dr Y R S Rao Sc F
19	Aquifer mapping for Agra Nagar Nigam Area	CS-115/2017-17/NIH(HID)	WAPCOS New Delhi	Dr S P Rai Sc F
20	Hydrological Studies of Bokang-Baing HEP on Dhauliganga river Distt Pithoragarh	CS118/2017-17/NIH(WRSD)	THDC Ltd	Dr Sanjay K Jain Sc G
21	Preparation of Emergency Action Plan for six projects of MP Water Resources Deptt	CS119/2017-18/Bhopal	Bodhi, WRD Bhopal	Dr T R Nayak, Sc F
22	Estimation of Yield for Bembla Project in Maharashtra	CS-121/2017-18/RC-BE	EE, Lower Penganga Division, Yevatmal, Maharashtra	Dr B Venkatesh, SC F
23	Preparation of Emergency Action Plan for Three projects of M. P. WRD	CS/122/2017-18/RC-BH	BODHI-WRD Bhopal	Shri R K Jaiswal, Sc D
24	Technical wetting of Tawi River front Development Project: Hydrology and Hydraulic (Model Study) Report	CS/123/2017-18/RCJ	JDA, Jammu	R V Kale, Sc C
25	Preparation of DPR for Building Climate Resilience through Participatory GWM in Burhanpur and Ratlam distt of MP	CS/125/2017-18/RC-BH	IPE Global Ltd New Delhi	Dr N C Ghosh, SC G
26	Power Potential Study for Bokang-Baling Hydrol Electric Project	CS128/2018-18/WRS	THDC , India Ltd Rishikesh	Dr M K Goel, Sc G
27	Study of Conservation Remedial and Management Measures for Nainital Lake Uttarkhand	CS-131/2017-18/HID	Uttarakhand Irrigation Deptt	Dr Sudheer Kumar(Sc G)
28	Identification of sources of seepage in the villages surrounding the Ash dykes of Barh STPP	CS-132/2016-18/HID	NTPC Barh	Dr Sudheer Kumar(Sc G)
29	Estimation of Water Level in Aghinashini River for Manikatta Saline Embankment	CS-133/2018-18/RC-BE	Principal Secretary, Revenue Deptt Govt of Karnataka Bangalore	Dr B Venkatesh, SC F
30	Hydro Geological Study for 2x660MW JTPP UP	CS-134/2015-18/HID	UPRVUNL	Dr Sudhir Kumar Sc G
31	Hydro Geological Study for Kudgi STPP of NTPC Ltd	CS-136/2015-18/HID	NTPC	Dr Sudhir Kumar Sc G
32	Area Drainage Study for 3x800 MW Odhisha TPP	CS-139/2018-19/SWH	NLC India LTD	Shri J P Patra

33	Evaluation of Centrally Sponsored River Basin Management Scheme	CS-140/2017-18/SWH	MoWR,RD & GR	Dr A K Lohani, Sc G
34	Hydro-geological study of Nabinagar super thermal powerplant (3*660) MW site	CS-141/2017-18/SWH	NPGC Patna	Dr Rakesh Kumar Sc G
35	Carrying out Hydrological study for the proposed Erach Multipurpose Dam project	CS-144/2018-18/SWH	SE UP Irrigation Department Mahoba(UP)	Dr A K Lohani, Sc G
36	Impact of Metro Railroads Viaduct on Groundwater recharge in NCT Delhi	CS-145/2018-18/GWH	DMRC New Delh	Dr Gopal Krishna Sc C
37	Hydrological aspects of Saraswati river rejuvenation and heritage development project: review and observation of study reports & hydrological analysis of balancing reservoir	CS-147/2018-18/WRS	HSHDB & Haryana Irrigation & Water Resources Development	Dr M K Goel Sc G
38	Investigation of physical ground water table and ascertaining its fluctuation and trend in strch from chainage 59+600 m to 67+300 m in Rewari to Dadri of CTP-14 package of western dedicated freight carrier projects	CS-148/2018-18/GWH	Larsen & Tourbo Ltd Faridabad	Dr N C Ghosh, Sc G
39	Dam break Analysis for Parbati-III Power Station Dam	CS-151/2018-19/SWH	NHPC Ltd	Dr A K Lohani, Sc G
40	Estimation of Water Availability and Flood estimation studies for the Parbati project in MP	CS-152/2018-18/RC-BH	WRD, Govt of MP	Dr T Thomas, Sc D
41	Hydrological Studies for Major Bridges in Rishikesh-Karnprayag New Rail Line project	CS-153/2017-18/SWH	RVNL Rishikesh	Dr Rakesh Kumar Sc G
42	Vetting of Hydrology of Jhirmiti Barrage Medium Irrigation Project	CS-156/2018-18/RC-BH	WRD Madhya Pradesh	Dr Rahul Jaiswal Sc D
43	Hydrological Studies for major bridges in Char Dham Rail Connectivity Project	CS-157/2017-19/SWH	RVNL Rishikesh	Dr Rakesh Kumar Sc G
44	Concurrent Evaluation of Flood Management Scheme of Ganga (Distt Haridwar) (Scheme code UK-18)	CS-159/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G
45	Concurrent Evaluation of Flood Management Scheme of Solani River (Scheme code UK-13)	CS-160/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G
46	Concurrent Evaluation of Flood Management Scheme of Ganga (Bhogpur to Baliwala) (Scheme code UK-16)	CS-161/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G
47	Concurrent Evaluation of Flood Management Scheme of Ganga & Banganga (Scheme code UK-14)	CS-162/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G
48	Concurrent Evaluation of Flood Management Scheme of Solani River (Scheme code UK-15)	CS-163/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G
49	Validation of modelling studies for assessing surface flow during lean season on left bank of River Ganga at Brajghat, Gajraula	CS-167/2018-19/HID	M/s Jubliant life science Ltd Noida	Dr Sudhir Kumar Sc G
50	Concurrent Evaluation of Flood	CS-168/2018-	Uttarakhand	Dr A K Lohani,

	Management Scheme of Village Shaheedwala Grant, Buggawala, Nukra grant etc. In Distt Haridwar (Under C.S.S.R)	19/SWH	Irrigation Deptt Roorkee	Sc G
51	Concurrent Evaluation of Flood Management Scheme of Village Dariyapur Dayalpur, Rahmatpur, Badheri Rajputan etc. in Distt Haridwar (Under C.S.S.R)	CS-169/2018-19/SWH	Uttarakhand Irrigation Deptt Roorkee	Dr A K Lohani, Sc G
52	Concurrent Evaluation of River Training Works on Solani River for Flood Protection scheme of Village Chhangamajri in Bhagwanpur Block in Distt Haridwar (Under C.S.S.R)	CS-170/2018-19/SWH	Uttarakhand Irrigation Deptt Roorkee	Dr A K Lohani, Sc G
53	Concurrent Evaluation of Flood Protection works on the banks of solani river for protection of Solani Bund. Bhogpur Balawali Bund, Khanpur Bund etc. in Distt Haridwar (Under C.S.S.R)	CS-171/2018-19/SWH	Uttarakhand Irrigation Deptt Haridwar	Dr A K Lohani, Sc G

LIST OF ONGOING CONSULTANCY PROJECTS DURING 2019-20

SN	Title of Project	Consultancy No.	Sponsoring Agency
1	Water Availability Studies for Chulka Lake	CS68-2014-2016/NIH(SWHD)	NPCIL Mumbai
2	Area Drainage Study including hydrological design of site area drainage for chutka lake	CS69-2014-2016/NIH(SWHD)	NPCIL Mumbai
3	Water loss study for Pushkar Sarovar, Ajmer	CS-74/ 2015-16/NIH(SWHD)	NLCP, Pushkar ADA, Ajmer
5	Establishment of silt conservation post in the Bagalihar HEP catchment	CS-94/2016-17/NIH(Jammu)	Deptt of SWC, Jammu
6	Hydro-geological investigations in MRM Campus	CS96/2016-17/NIH (Belgaum)	MRPL Mangalore
7	Hydrological study/ Water Availability Study of Brahmani River at 2x600 MW power station Odissa	CS/99/2016-16/NIH(Kakinada)	LANCO Gurgaon
8	A field based research study for Management Planning of Coastal Wetlands in Gujarat	CS/111/2017-17/NIH(Kakinada)	KPMG Gurgaon
9	Land use planning of Farakka Barrage Project area: Land use mapping	CS-113/2017-18/NIH(WRSD)	Farrakka barrage project MOWR
10	CEIA study for less than 10 MW HEP (Part II) for Satluj basin	CS-114/2017-18/NIH(WRSD)	AHEC, IIT Roorkee
11	Dam break Analysis for dams in Kali Basin and Flood Review of Kali and Sharavathi Basins	CS-120/2017-18/RC-BE	KPCL Bangalore
12	Water Availability and Water Budgeting Study of Kalsi Micro-Watershed, Uttarakhand	CS/126/2017-18/NIH(GWH)	Watershed Management Directorate, Dehradun
13	Downstream Impacts of Water Withdrawal by TTPS from Brahmanai River	CS-127/2018-18/NIH (EHD)	NTPC Ltd Angul
14	Preparation of Working Table for Multiple Reservoirs of Bina Complex	CS-129/2018-18/RC-BH	BODHI, Bhopal
15	Hydrological and Water Quality investigations in the Solar Power Project Sites in Part of Northern Karnataka	CS-130/2018-18/RC-BE	Rays Power Infra Pvt Ltd Jaipur
16	Hydro Geological Study for Darlipali STPP of NTPC Ltd	CS-135/2015-18/HID	NTPC
17	Dam break analysis for Teesta low dam-IV Dam TLD power station Kalijhora	CS-137/2017-19/SWH	NHPC LTD
18	Hydro Geological Study for dewatering of Jhamkotra mines, Udaipur	CS-138/2017-21/HID	Rajsthan State Mines and Mineral Ltd Udaipur
19	Water Quality and isotopic analysis of groundwater along paleo-channels of Saraswati river in Haryana State	CS-142/2017-18/HID	WAPCOS Ltd
20	Studies for estimation of design basis flood and safe grade elevation for the inland nuclear power plant site at Kaiga in Uttara Kannada district of Karnataka	CS-143/2016-19/SWH	NPCIL Mumbai
21	Preparation of strategic land and water management plan for rejuvenation of Rispana River Basin	CS-146/2018-19/SWH	Irrigation Department Uttarakhand
22	Hydrological modelling of a river system	CS-149/2018-19/SWH	-----

23	Hydrological aspects of proposed Song drinking water dam project	CS-150/2018-19/SWH	Irrigation Department Dehradun
24	Engineering Services for Carrying out area drainage studies for proposed 4x700 MW Mahi Banswara Rajsthan Atomivc Power project	CS-154/2018-19/SWH	NPCIL Ltd
25	Dam Break Analysis for TCFRD Dam at Gurej, Kishanganga, HEP	CS-155/2018-19/RCP	NHPC Ltd
26	Preparation of EAP and study of tail channel design flood carrying capacity of Ambazon lake Nagpur	CS-158/2018-19/RC-BE	SE, CADA, Nagpur
27	Design of flood protection walls for proposed Kaiga 5&6 Project at Kaiga Site in Karnataka	CS-165/2018-19/SWH	NPCIL Ltd Mumbai
28	Pollution Source identification using stable isotopic studies in and around chemical division, Nagda, MP	CS-166/2018-22/HID	NEERI Hyderabad
29	Environmental Flow and power potential Studies for Bhilangana-HEP-III	CS-173/2019-19/SWH	Bhilangana Hydropower Ltd. Noida
30	Estimation of surface runoff and groundwater recharge using SWAT for micro watersheds in Maharashtra & Gujarat	CS-174/2018-19/RMOD	ADI, Mohali
31	Groundwater conditions in Punjab- a case study on assessment of saline aquifers and Malwa region Punjab	CS-175/2019-20/GWH	PSFC, Punjab

ITEM # 72.9: Any Other Item: