

AGENDA AND AGENDA NOTES
73rd MEETING OF THE
TECHNICAL ADVISORY COMMITTEE (TAC)
OF NIH

17 December 2019
AT 1100 Hrs
NIH, Roorkee



NATIONAL INSTITUTE OF HYDROLOGY ROORKEE-247667

AGENDA AND AGENDA NOTES FOR THE 73rd MEETING OF THE TAC OF NIH

AGENDA ITEMS

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ITEM # 73.1**Opening Remarks by the Chairman****ITEM # 73.2****Confirmation of the minutes of 72nd meeting of the TAC**

The 72nd meeting of the TAC was held at New Delhi on June 3, 2019. The minutes of the meeting were circulated to all the members and invitees vide email dated 25.07.2019. A copy of the minutes of the 72nd meeting of TAC is given in **Appendix-73.2.1[Page # 1 (Vol.-II)]**. Since no comments were received from the members on the circulated minutes, the minutes may please be confirmed.

ITEM # 73.3:**Action taken on the decisions/ recommendations in the previous meeting**

The ATR is as follows:

| S N | Item# | Suggestion | Action Taken |
|----------------|------------------|---|------------------------------------|
| 1 | General Comments | <ol style="list-style-type: none"> 1. Path breaking studies of NIH to be reviewed by experts 2. Strengthen hydromet manpower at NIH 3. NIH should plan integrated projects in identified high priority areas with involvement of scientists from different Divisions/RCS 4. Draft report of spring related studies may be sent to ACWDAM, Pune for suggestions/comments | To be reported during the meeting. |
| 2 | 72.4 | The Chairman desired that the report and published papers (if any) on the study 'Development and regionalization of unit hydrograph for runoff modeling on Indian catchments' under SWH Division may be sent to CWC. | |
| 3 | 72.4 | Er N K Mathur (CWC) advised to link the study on 'Snow cover variability in the Upper Yamuna basin' with water availability. | |
| 4 | 72.5 | The Chairman desired that salient recommendations of WG and RCC meetings should be presented in bullet points for each Division/RC. | Noted |

ITEM # 73.4:**Status and progress of the work programme for the year 2019-20**

The approved 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, and details are provided in **Appendix 73.4.1[Page # 21 (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

APPROVED WORK PROGRAM FOR THE YEAR 2019-2020

ENVIRONMENTAL HYDROLOGY DIVISION

Work Program for 2019-20

| SN | Study | Study Team | Duration/Status |
|-------------------------------------|---|--|---|
| Sponsored Projects (Ongoing) | | | |
| 1. | 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) Project Cost: Rs. 2.25 Crore Status: In-progress |
| 2. | 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 |
| 3. | 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 (09/17-08/20) Sponsored by: NHP-PDS Project Cost: Rs. 65.6 Lakh Status: In-progress |
| Internal Study (Ongoing) | | | |
| 4. | Water quality assessment of Haridwar District | R.K. Nema (PI) Rajesh Singh J. V. Tyagi Pradeep Kumar | 3 years (05/19-04/22) Project cost: 17.10 lakh Status: In-progress |
| Sponsored Projects (New) | | | |
| 5. | 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 Sponsored by: NHP-PDS Status: New PDS approved |
| Internal Study (New) | | | |
| 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) Project cost: 43.02 lakh |

Training Programs 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 |

GROUND WATER HYDROLOGY DIVISION

Work Program for 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 |
| 2. NIH/GWH/NIH/19-20 | The Regional Hydrological Impact of Farm-Scale Water Saving Measures in the Gangetic Plains | Sumant Kumar (PI), C. P. Kumar, Archana Sarkar, Surjeet Singh, P. K. Mishra | 1 year (08/19 – 07/20) <i>Status: In progress</i> | Internal Study (in collaboration with CSIRO, Australia) |
| Sponsored Projects | | | | |
| 3. 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 |
| 4. 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 |
| 5. 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 <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 |
| 6. NIH/GWH/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 |

| | | | | |
|-------------------------------|--|--|--|---|
| 7. NIH/GWH/P DS/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 | 4 years (12/17-11/21) <i>Status: In progress</i> | Sponsored by NHP under PDS |
| 8. NIH/GWH/P DS/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 (12/17-11/22) <i>Status: In progress</i> | Sponsored by NHP under PDS |
| 9. NIH/GWH/DS T/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 |
| 10. NIH/GWH/DS T/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 <i>Other Indian Partners:</i> IIT Ropar, IIT Jodhpur <i>UK Partner:</i> School of Water, Energy and Environment, Cranfield University <i>Project Partners:</i> Water Harvest, Excellent Development (UK based NGOs) | 3 years (01/18 - 12/20) <i>Status: In progress</i> | DST-Newton Bhabha-NERC- India-UK Water Quality Research Programme |
| 11. NIH/GWH/CE HM/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 <i>Partner Organizations:</i> Water Resources & Irrigation Dept. Haryana, Groundwater Dept. UP, Yamuna Basin Organization, CWC, New Delhi | 4 years (04/18-03/22) <i>Status: In progress</i> | Special Project under “Centre of Excellence” (NHP) |

| | | | | |
|---------------------------------|---|---|---|--|
| 12. NIH/GWH/DS T/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, Nitesh Patidar (Lead: CAZRI Jodhpur, Partners: NIH Roorkee, IISWC Dehradun, CSWRI Bikaner, CIAH Bikaner, NIAM Jaipur) | 5 years (03/19 - 02/24) <i>Status: In progress</i> | Sponsored by DST |
| 13. NIH/GWH/N MCG/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 |
| 14. NIH/GWH/M oES/19-19 | Improving our Understanding of the Aquifer Systems in Sunderbans | Gopal Krishan (PI), C. P. Kumar (Co-PI) | 6 months (06/19 - 11/19) <i>Status: In progress</i> | Sponsored by India-UK Water Centre (MoES & NERC) |
| Other R & D Projects | | | | |
| 15. NIH/GWH/CE HM/18-21 | Development of Groundwater Module for Integrated Hydrologic Model | Anupma Sharma (PI), B. Chakravorty, Surjeet Singh, Suman Gurjar, Sumant Kumar, Nitesh Patidar | 3 years (08/18 -07/21) <i>Status: In progress</i> | CEHM, NHP |
| Consultancy Projects | | | | |
| 1. | Assessment of Saline and Freshwater Zone in Faridkot, Fazilka and Muktsar Districts of Malwa Region of Punjab | Gopal Krishan (PI) | 10 months (03/19-12/19) <i>Status: In progress</i> | Punjab Government |
| 2. | Expansion of Salinization in Aquifers in Punjab | Gopal Krishan (PI) | 1.5 year (03/19-09/20) <i>Status: In progress</i> | Punjab Government |
| 3. | Water Availability Study based on Hydrological Investigations and Rainfall-Runoff Modeling of Upper Hindon Basin | Anupma Sharma (PI) | 12 months (04/19-03/19) <i>Status: In progress</i> | Irrigation Deptt., Saharanpur |
| 4. | Hydro-geological Study of Goindwal Sahib Area of Tarn Taran District, Punjab | Surjeet Singh (PI) | 6 months (09/19-02/20) <i>Status: In progress</i> | GVK Power Ltd., Tarn Taran (Punjab) |

HYDROLOGICAL INVESTIGATIONS DIVISION

Work Program 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) | Continuing Study |
| 2 | Isotope fingerprinting of precipitation over Indian Region | Nidhi Kalyani (PI) Sudhir Kumar MS Rao Scientists from RC's | 3 years (04/19-03/22) | Continuing 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 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) <i>Proposed to be extended till Mar 2020</i> | Continuing Study Project with GBPIHE |
| 3. | Dating very old ground waters of deeper aquifers in Ganga Plains, India | MS Rao (PI) Sudhir Kumar C.K. Jain S.K. Verma | 3 Years (06/16 -05/19) | Continuing Study IAEA under CRP |
| 4. | Chemical & Isotopic Characterization of Deep Aquifer Groundwater of Middle Ganga Basin | Sudhir Kumar (PI) C.K. Jain 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 A. R. Senthil Kumar 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 SM Pingale BK Purandra YRS Rao | 1 year (04/19 – 03/20) | MoES through NCESS |
| 8. | Groundwater Rejuvenation As Climate change Resilience for marginalized and gender sensitive Ganges (GRACERS) | Sudhir kumar MS Rao SM Pingale | 2 years (06/19 – 5/21) | IIT Bombay, Mumbai |

SURFACE WATER HYDROLOGY DIVISION

Work Program for 2019-20

| ONGOING STUDIES (SPONSORED) | | | |
|------------------------------------|--|---|---------------------------------------|
| S. No. & Ref. Code | Title | Study Team | Duration |
| 1.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) |
| 2.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) |

| ONGOING STUDIES (INTERNAL) | | | |
|-----------------------------------|--|--|---|
| S. No. & Ref. Code | Title | Study Team | Duration |
| 3.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 Suman Gurjar | 3-years (May 2019 to March 2022) |
| 4.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) |
| 5. 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) |
| 6.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) Proposed to be extended up to March 2020 |
| 7.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) |

| | | | |
|-------------------|--|---|---------------------------------------|
| 8.NIH/SWHD/18-21 | Evaluation of seasonal extreme rain events across river India in 3D global temperature change | Ashwini Ranade Archana Sarkar | 3 years (April 2018 to March 2021) |
| 9.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) |
| 10.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 Reena Rathore | 2 years (Oct 2018 to sept. 2020) |

WATER RESOURCES SYSTEMS DIVISION

Work Program for 2019-20

| SN | Title | Study Team | Duration | Funding (Rs. Lakhs) |
|-----------------------------------|---|--|--|-------------------------------------|
| Completed Internal Studies | | | | |
| | Development of window based software for hydrological data processing and Unit Hydrograph Analysis | D. Chalisgaonkar A. K. Lohani M. K. Goel | 1 year (04/18-03/19) | |
| 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 modelling framework | Vishal Kumar A. K. Lohani Sanjay K. Jain | 2 years 2018-2020 | |
| 4. | Development of window based software for Flood Estimation | D. Chalisgaonkar A. K. Lohani M. K. Goel | 1 year (04/19-03/20) | |
| Ongoing Sponsored Studies | | | | |
| 1. | Mass and Energy balance of Phuiche and Khardung glaciers, Ladakh range | Renoj J. Thayyen Farooq Azam P.G. Jose A.P. Dimri | 3 years (03/16-02/19) Extended up to March 2020 | 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; S. Singh; P. Mani; A. Sarkar; M. K. Nema; P. K. Mishra | 5 years (01/16-12/20) | DST (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 (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 (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 P. K. Mishra M. Arora AP Dimri (JNU) | 5 years (01/16-12/20) | DST 51.43 (NIH) + 28.29 (JNU) |

| | | | | |
|--|--|---|---|---|
| 6. | 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) |
| 7. | 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. Kumar | 5 years (01/16-12/20) | DST (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) Extended up to March 2020 | NMHS-MoEF (58.76 lakh) |
| 9. | 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) Extended up to December 2020 | 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 (2016-2020) | MOES-NERC, Newton-Bhabha project (11.59 Lakh) |
| 11. | 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 (50.23 Lakh) |
| 12. | 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 |
| New Internal/ Sponsored Studies | | | | |
| 1. | 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 Kumar Suman Gurjar | 3 years (11/19-11/22) | NMHS-MoEF (143 Lakh) |
| 2 | Assessment of seasonal variations in Hydrology and Cryosphere of upper Ganga Basin | Renoj J. Thayyen A. P. Dimri (JNU) Sanjay K. Jain | 3 years (11/19-11/22) | NRDMS-DST (46.39 Lakh) |
| 3 | Permafrost mapping and characterisation of Ladakh Region | Renoj J. Thayyen A. P. Dimri (JNU) G. Jeelani (KU) V. Agnihotri (GBPNI) | 3 years (11/19-11/22) | NMHS-MoEF (197 Lakh) |

RESEARCH MANAGEMENT AND OUTREACH DIVISION

Work Program for 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) | Completed |
| 2 | 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 |
| 3 | 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, Rohit Sampatrao Sambare, N R Allaka | Apr 2018- Mar 2020 | On-going |
| Sponsored Projects | | | | | |
| 1 | Vulnerability assessment of identified watersheds in Neeranchal Project States | Shifted from NNWP to Plan | Jyoti P Patil (PI) | Jul 2017- Jun 2019 | Completed |
| 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 | MoJS-sponsored 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 | MoJS-sponsored project (through Plan Budget) | Omkar Singh (PI), Rajesh Singh, V C Goyal, Digambar Singh, Subhash Kichlu, Rajesh Agrawal, Rakesh Goel, | Jan. 2018- Dec. 2020 | On-going |

| | | | | | |
|---|--|--------------------------------|--|-------------------|----------|
| | | | NR Allaka & Project Staff | | |
| 5 | Development of water allocation plan for identified watersheds in Kanker district (Chhattisgarh) | Shifted from NNWP to Plan | A R Senthil kumar (PI) T R Nayak, Jyoti P Patil, Rohit Sampatrao Sambare, Rajesh Agarwal | Apr 2018-Mar 2020 | On-going |
| 6 | Innovation Centre for Eco-Prudent Wastewater Solutions (IC-EcoWS) | DST (GoI), Cost: Rs. 5.1 Crore | V.C. Goyal (PI), Omkar Singh, Rajesh Singh, Jyoti P. Patil, Rohit Sampatrao Sambare Partners: NIH, MNIT-Jaipur, IIT-Bombay, IRMA-Ahmedabad | Apr 2019-Mar 2024 | On-going |

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 | | |

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 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 resources management’ | 8 th Int. Groundwater Conference on Sustainable Management of Soil-Water Resources | IIT- Roorkee | Roorkee | 21-24 Oct, 2019 |
| 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 with UNESCO, New Delhi | New Delhi | 22 Mar 2020 |

REGIONAL CENTRE, BELAGAVI

Approved Work Program for 2019-20

| Sl No. | Title of the Study | Study Group | Duration | Funding |
|------------------|--|--|------------------------------------|---|
| ON-GOING STUDIES | Impact of Land use/Land cover Changes on Ground water – A Case | BKP & BV | 3 years (April 17- March 20) | MoES |
| | Studies on Occurrence, Distribution and Sustainability of Natural Springs for Rural Water Supply in parts of Western Ghats, India | BKP (PI), SK, NV, Abhilash, & Ujwal, | 3 years (4/17-3/20) | PDS under NHP |
| | Climate Change Impact assessment for Jayakwadi Reservoir | BV (PI), and officers from WRD, Govt. Maharashtra) | 3 years (05/18-3/21) | Internal |
| | Development of prediction tools for Assessment of Water Resources in Ungauged catchments of West Flowing Rivers of Western Ghat Region | CMT(PI), BV and CK & Officer from WRDO | 3 years (4/18-3/21) | Internal |
| NEW STUDIES | Estimation of Submarine Groundwater Discharge in parts of Karnataka | BKP, SK, JVT and NV | 2 year (2019 to 2021) | NCESS (MoES) |
| | Groundwater Model Development In Micro Basin Of Hard Rock In Krishna And Godavari River Basins Of Telangana | BV, MKJ, Anupama Sharma and Abhilash, and Officials form TSGWD | 3 years (2019 to 2022) | PDS under NHP (submitted for approval) |
| | Flood Vulnerability Assessment and developing mitigation plan for Thiruvananthapuram City, Kerala | CM, BV, MKJ and CS | 2 years (2019 to 2021) | Internal |
| | Study on the impact of extensive sand extraction on the river environment and aquifer regime in Godavari basin | MKJ, BV, CMT NV Abhilash and Officials form TSGWD | 2 years (2019 to 2021) | Internal |
| CONSULTANCY | Flood Review in Kali and Sharavathy river basin, Dam Break analysis, inundation mapping and preparation of Emergency Action Plan for Dams in Kali, Sharavathi and Varahi river basin | BV (PI) | 2 years | Karnataka Power Corporation Limited, Govt. of Karnataka |
| | Preparation of Emergency Action Plan (EAP) and Study of Tail Channel Design Flood Carrying Capacity of Ambazari Lake, Nagpur | BV (PI) | 1 year | Irrigation Department, Nagpur Go Maharashtra |

JVT : J.V. Tyagi, Scientist G

BV : B.Venkatesh, Scientist F

CMT : Chandramohan T., Scientist D

NV : N Varadarajan,PRA

SK : Sudhir Kumar, Scientist G

BKP : Purandara, Scientist F

MKJ : Mathew K. Jose, Scientist D

CK : Chandra Kumar S., SRA

REGIONAL CENTRE, JAMMU

Approved Work Program for 2019-20

| S. No. | Title of Study | Team | Duration | Remarks |
|--|--|--|---|--|
| Internal Studies | | | | |
| 1. | Assessment of Hydrological Characteristics of a Western Himalayan river | D. Khurana P. G. Jose S. S. Rawat R. V. Kale | 24 months (June 2018 to May 2020) | Ongoing |
| 2 | 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) | Ongoing |
| 3. | Statistical evaluation of global precipitation estimates over data scarce Western Himalayan Region of India | D. S. Bisht V. Singh, S. S. Rawat, P. G. Jose, D. Khurana | 02 Years (Sept. 2019 to Sept. 2021) | New Proposal (revised) |
| PDS under National Hydrology Project (NHP) at NIH | | | | |
| 1. | 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 P. G. Jose S. P. Rai S. Gurjar R. V. Kale | 04 years (Apr 2017 to Mar 2021) | Ongoing PDS under NHP |
| 2. | Entropy based discharge monitoring technique application for Himalayan rivers [New Study under PDS] | NIH Team R. V. Kale M. K. Goel P. G. Jose D. S. Bisht CWC Team Bhopal Singh A. K. Singhal | 04 years | Yet to start [recommended proposal, pending final approval at DoWR, RD & GR] |
| Externally funded R & D Studies | | | | |
| 1. | Integrated Studies of Himalayan Cryosphere using Space Based Inputs (ISHC) | P. G. Jose R.J. Thayyen | 02 years Sept 2017 to Sept 2019 | Ongoing Funded by SAC/ISRO Ext. up to Mar. 2020 |
| 2. | “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 19 to March 22) | Ongoing |
| Consultancy Projects | | | | |
| 1 | Establishment of Silt Observation Post (SOP) in the Baglihar HEP catchment | P. Kumar P. G. Jose S. S. Rawat | 06 months (Mar 2016 to Oct 2016) | Ongoing/ Ext. upto Sep 2017 |

REGIONAL CENTRE, BHOPAL

Approved Work Program for 2019-20

| S.No. | Name of the project | Duration | Study Group | Status |
|-------|--|----------|--|---------------------------------------|
| 1. | Evaluation of impacts of Rabi irrigation in Ganga river sub basin of Madhya Pradesh | 3 years | PI- Er. R.V.Galkate, Co-PI Er. R. K. Jaiswal Dr. T.R. Nayak Dr. T. Thomas Ms.S.P. Indwar | Started in Oct 2017 to Sept 2020 |
| 2. | Impacts of Upcoming Irrigation Projects and Climate Change on the Droughts and Desertification Scenario for Chambal Basin in Western Madhya Pradesh. | 4 years | PI- Dr. T. Thomas Co-PI Dr. P.C. Nayak Dr. Surjeet Singh Dr. B. Venkatesh Er. R.V. Galkate Dr. R. K. Jaiswal Ms. S.P. Indwar | Started in Dec, 2017 to Nov 2021 |
| 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 | PI- Dr. T. Thomas Co-PI Dr. Surjeet Singh, Dr. B. Venkatesh, Dr. P. C. Nayak, Dr. ArchanaSarkar, Er. Manish Nema, Dr. Prabhash Mishra, Er. S. P. Indwar Dr. Sharad Jain, Dr. N.C. Ghosh, Dr. J. V. Tyagi, Dr. Sanjay K. Jain, Dr. M. K. Goel, | Started in Feb 2018 to Jan 2023) |
| 4. | Modelling of Narmada using GWAVA | 4 years | Dr. Sanjay Jain (PI) Co-PI Dr. T. Thomas, Dr. P K Mishra, Er. Manish Nema Dr. Sharad Jain | Started in April 2015 to March 2019) |
| 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 | PI- Dr. T. Thomas Co-PI Dr. Sandeep Goyal, MPCST, Bhopal Dr. Vivek Bhatt, WALMI, Bhopal. Dr. Jyoti Patil, NIH, Delhi | Started in July-2017 to December 2019 |

| | | | | |
|----|---|---------|---|---------------------------------------|
| 6. | Modelling of Tawa Reservoir Catchment and Development of Tawa Reservoir Operation Policy | 3 Years | <u>PI-</u> Er. S. P. Indwar <u>Co-PI</u> Dr. T.Thomas Dr. T.R. Nayak Er. R.V. Galkate Er. R. K. Jaiswal | Started in September 2017-August 2020 |
| 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 | <u>PI-</u> Dr. R. K. Jaiswal <u>Co-PI</u> Dr. T.R. Nayak Er. R.V. Galkate Er. S. P. Indwar Sh. Akhilesh Verma WRD Raipur | Started in April 2019 to March 2020 |
| 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 | <u>PI-</u> Er. R. K. Jaiswal <u>Co-PI</u> Er. R.V. Galkate Dr. T.R. Nayak Dr. T.Thomas Er. S. P. Indwar Dr. D.S. Rathore Dr. A.K. Lohani Dr. Sudheer Kumar Dr. Surjeet Singh | Started in April 2019 to March 2023 |
| 9. | Development of Decision Tool for Efficient Utilization of Water Resource in Parwati Canal & Dholpur Piped irrigation Project of Rajasthan. | 3 Years | <u>PI-</u> Dr. R. K. Jaiswal <u>Co-PI</u> Er. R.V. Galkate Dr. T.R. Nayak Dr. A.K. Lohani Er. S. P. Indwar | Started in April 2019 to March 2022 |

REGIONAL CENTRE, KAKINADA

Approved Work Program 2019-20

| S.No | 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-June 2020 | Approved by NHP 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, R V Ramana S V Vijaya Kumar | Dec.2017-Nov. 2020 | Approved by NHP PDS (Rs 61.09 lakhs) (SP-28/2017-2018/PDS-13) |
| 3 | Forecasting of Flash flood and Management for east flowing rivers of India's Subzone 4(a) | R. V. Ramana (PI) Y.R. Satyaji Rao V.S. Jeyakanthan S.V. Vijaya Kumar T.Vijay | Dec 2017-Nov 2020 | Internal (NIH) |
| 4 | Study of the behavior 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 J.V.Tyagi Y R Satyaji Rao T Vijay | April 2018- March 2021 | Approved under NHP as PDS (partnership With AP SGW &WA Dept. |
| 5 | Dam break studies of Somasila, Kandaluru and Pulichintala dams in Andhra Pradesh | P.C.Nayak Y.R.Satyaji Rao | 2019-20 to 2021-22 | Uunder NHP-PDS |
| II. Sponsored Projects | | | | |
| 6 | River bank Filtration (RBF) studies in coastal alluvium of A.P | Y R Satyaji Rao T Vijay | April 2016 – December 2019 | Under Peya Jal Suraksha Project |
| 7 | High Performance Advanced Septic System for Villages and Roadside Restaurants | Y R Satyaji Rao T Vijay | April 2018 - March 2020 | Funded by IC-IMPACT, Canada |
| 8 | Unravelling Submarine Groundwater Discharge (SGD) Zones along A.P and Odisha States (Mission SGD)-Pilot Study | Y R Satyaji Rao T Vijay | April 2019 to March 2020 | Funded by MoES through NCESS SP-35/2018-20/HID |

CFMS-GUWAHATI

Approved Work program for 2019-20

| S.No. | Title | Study Group | Duration (Month/Year) | 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) | 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) | On-going |
| 3. | Linear Hydrological routing using Satellite precipitation datasets for flood forecasting in parts of Brahmaputra Basin | Gulshan Tirkey, S. K. Sharma, P. Mani, G.Arun | 3 years (4/18 to 3/21) | On-going |
| 4. | Impact of Climate Change on Runoff and Sediment Yield for a Major Tributary of River Brahmaputra | Swapnali Barman, J.V. Tyagi, R.K. Bhattacharya, Waikhom Rahul Singh | 3 years (11/18 to 10/21) | On-going |
| 5. | Groundwater Quality Assessment of Morigaon district of Assam with emphasis on Arsenic & Fluoride Contamination | S.K. Sharma Rajesh Singh G. Tirkey Waikhom Rahul Singh | 2 years (4/19 to 3/21) | New Study |
| 6. | Comparison of Hydrological Behaviour of two mid-sized Mountainous Catchments under the influence of Climate and Land Use Changes | Waikhom Rahul Singh, A.K .Lohani, A. Bandyopahdyay Swapnali Barman Nitesh Patidar | 3 years (7/19-3/22) | New Study |

CFMS-PATNA

Approved Work program for 2019-2020

| SI | 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 (02/16-03/20) |
| 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 (04/16-03/20) |
| 3 | Drought Studies for Selected Districts in South Bihar. | SR Kumar (PI) | 3 year (4/19 – 3/22) |
| 4 | Bank erosion of river Bhagirathy-Hoogly upto Bujbuj and its morphological changes | NG Pandey (PI) | 2 year (04/19-03/21). |
| Sponsored Study (PDS/NHP) | | | |
| 5. | 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) |

The list of research papers published by the scientists and scientific staff of the Institute during April – Nov. 2019 is given in **Appendix 73.4.2 [Page # 321 (Vol.-II)]**. The list of workshops/training courses/seminar/symposia organized during April – Nov. 2019 is given in **Appendix 73.4.3 [Page # 330 (Vol.-II)]**. The progress of laboratory work done during April – Nov. 2019 is given in **Appendix 73.4.4 [Page # 333 (Vol.-II)]**.

| S.No. | Item | Published/ Accepted |
|-------|--|------------------------|
| 1. | International Journal | 42 |
| 2. | National Journal | 13 |
| 3. | International Conference/ Seminar/ Symposium | 47 |
| 4. | National Conference/ Seminar/ Symposium | 14 |
| 5. | Books/Chapters | 02 |
| | Total | 118 |

| S.No. | Item | Total |
|-------|--------------------------------------|-------|
| 1. | Workshops/Training Courses organised | 30 |

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 73.4.5 [Page # 336 (Vol.-II)]**.

| S.No. | Programs Organised | Total |
|-------|-------------------------|-------|
| 1. | Mass Awareness Programs | 11 |

The TAC may please consider the progress and status of the Work Programme of the Divisions and RC/CFMS of NIH for the year 2019-2020.

ITEM # 73.5: Report of proceedings of the Working Group and RCC Meetings

The 49th meeting of the Working Group of NIH was held at NIH, Roorkee, during 4-5 Nov 2019. The Working Group considered the status of the work programme of the year 2019-20 under two categories: (i) internally funded projects, and (ii) sponsored/consultancy projects.

The approved minutes of the 49th meeting of the NIH Working Group are given in **Appendix 73.5.1 [Page # 338 (Vol.-II)]**.

The general comments/suggestions during the 49th meeting of WG are as follows:

- Explore use of high-resolution data available from IMD
- Avoid overlap among studies
- Ensure data availability while proposing a new study
- Improve NIH website; metadata on NIH website
- Scientists may write popular articles for common users
- Improve presentation

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

RCC meetings

| | |
|----------------|----------------------------|
| DRC, Kakinada | - 28th RCC – 10 June, 2019 |
| CFMS, Patna | - 18th RCC – 11 June, 2019 |
| CIHRC, Bhopal | - 17th RCC – 5 Aug., 2019 |
| HRRC, Belagavi | - 29th RCC – 29 Aug., 2019 |
| WHRC, Jammu | - 23rd RCC – 11 Oct., 2019 |
| CFMS, Guwahati | - 14th RCC – 15 Nov., 2019 |

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

ITEM # 73.6: 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 broadly focusing on “Hydrological Aspects of Climate Change”. The conference deliberations will be held under 14 broad themes. 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 and attend the conference.

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

The sixth National Water Symposium in Hindi on the focal theme of “Water and Environment” is being organized by the Institute during 16-17 December 2019. The outcome of the conference will be of immense help to the policy maker in this sector.

ITEM # 73.7: Reporting Items:

LIST OF ONGOING CONSULTANCY PROJECTS IN NIH (As on 10.12.2019)

| SN | Title of Project | Consultancy No. | Sponsoring Agency | Name of PI |
|----|---|------------------------------|---|-------------------------------|
| 1 | Water Availability Studies for Chilika Lake | CS68-2014-2016/NIH(SWHD) | NPCIL Mumbai | Dr. Rakesh Kumar, Sc G |
| 2 | Area Drainage Study including hydrological design of site area drainage for chutka lake | CS69-2014-2016/NIH(SWHD) | NPCIL Mumbai | Dr. Rakesh Kumar, Sc G |
| 3 | Water loss study for Pushkar Sarovar, Ajmer | CS-74/ 2015-16/NIH(SWHD) | Executive Engineer NLCP, Pushkar ADA, Ajmer | Dr (Mrs) Archana Sarkar, Sc E |
| 5 | Establishment of silt conservation post in the Bagalihar HEP catchment | CS-94/2016-17/NIH(Jammu) | Deptt of soil & Water conservation, Narwal, Jammu | Dr Pradeep Kumar, Sc D |
| 6 | Hydro-geological investigations in MRM Campus | CS96/2016-17/NIH (Belgaum) | MRPL Mangalore | Dr. B. K. Purandara, Sc F |
| 7 | Hydrological study/ Water Availability Study of Brahmani River at 2x600 MW power station Odisha | CS/99/2016-16/NIH(Kakinada) | LANCO Gurgaon | Dr P. C. Nayak, Sc D |
| 8 | 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 G |
| 9 | Land use planning of Farakka Barrage Project area: Land use mapping | CS-113/2017-18/NIH(WRSD) | Farrakka barrage project MOWR | Shri D. S. Rathore, Sc F |
| 10 | CEIA study for less than 10 MW HEP (Part II) for Satluj basin | CS-114/2017-18/NIH(WRSD) | AHEC, IIT Roorkee | Dr Sanjay K Jain, Sc G |
| 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 | Dr B. Venkatesh, Sc F |

| | | | | |
|----|--|--------------------------|--|--------------------------------|
| 12 | Downstream Impacts of Water Withdrawal by TTPS from Brahmanai River | CS-127/2018-18/NIH (EHD) | NTPC Ltd Angul | Dr. Pradeep Kumar, Sc D |
| 13 | Preparation of Working Table for Multiple Reservoirs of Bina Complex | CS-129/2018-18/RC-BH | BODHI, Bhopal | Dr T. R. Nayak, Sc E |
| 14 | 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 | Dr B. K. Purandara, Sc F |
| 15 | Hydro Geological Study for Darlipali STPP of NTPC Ltd | CS-135/2015-18/HID | NTPC | Dr Sudhir Kumar, Sc G |
| 16 | Dam break analysis for Teesta low dam-IV Dam TLD power station Kalijhora | CS-137/2017-19/SWH | NHPC LTD | Dr. Pankaj Mani, Sc F |
| 17 | Hydro Geological Study for dewatering of Jhamkotra mines, Udaipur | CS-138/2017-21/HID | Rajasthan State Mines and Mineral Ltd Udaipur | Dr Sudhir Kumar, Sc G |
| 18 | Water Quality and isotopic analysis of groundwater along paleo-channels of Saraswati river in Haryana State | CS-142/2017-18/HID | WAPCOS Ltd | Dr M. S. Rao, Sc F |
| 19 | 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 | Dr. Rakesh Kumar, Sc G |
| 20 | Preparation of strategic land and water management plan for rejuvenation of Rispana River Basin | CS-146/2018-19/SWH | Irrigation Department Uttarakhand | Dr. R. P. Pandey, Sc G |
| 21 | Hydrological modelling of a river system | CS-149/2018-19/SWH | ----- | Dr. Rakesh Kumar, Sc G |
| 22 | Hydrological aspects of proposed Song drinking water dam project | CS-150/2018-19/SWH | Irrigation Department Dehradun | Dr. R. P. Pandey, Sc G |
| 23 | Engineering Services for Carrying out area drainage studies for proposed 4x700 MW Mahi Banswara Rajasthan Atomic Power project | CS-154/2018-19/SWH | NPCIL Ltd | Dr. Rakesh Kumar, Sc G |
| 24 | 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 | Dr. B. Venkatesh, Sc F |
| 25 | Design of flood protection walls for proposed Kaiga 5&6 Project at Kaiga Site in Karnataka | CS-165/2018-19/SWH | NPCIL Ltd Mumbai | Dr. Rakesh Kumar, Sc G |
| 26 | Pollution Source identification using stable isotopic studies in and around chemical division, Nagda, MP | CS-166/2018-22/HID | NEERI Hyderabad | Dr Sudhir Kumar, Sc G |
| 27 | Environmental Flow and power potential Studies for Bhilangana-HEP-III | CS-173/2019-19/SWH | Bhilangana Hydropower Ltd., Noida | Dr. A K Lohani,, Sc G |

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| 28 | Groundwater conditions in Punjab- a case study on assessment of saline aquifers and Malwa region Punjab | CS-175/2019-20/GWH | PSFC, Punjab | Dr. Gopal Krishna, Sc C |
| 29 | Water availability study based on Hydrological investigation & rainfall runoff modelling of Upper Hindon Basin | CS-176/2019-19/GWH | Up Irrigation Saharanpur | Dr. (Ms) Anupma Sharma, Sc F |
| 30 | Hydrological Studies of two operational Hydro projects in Himachal Pradesh | CS-177/2019-19/WRS | JSW HE ltd | Dr. Sanjay K. Jain, Sc G |
| 31 | Assessment of Saline & Fresh water zones in Faridkot, Fazika and Muktsar districts of Malwa Region of Punjab | CS-178/2019-20/GWH | Department of Agriculture, Punjab | Dr. Gopal Krishna, Sc C |
| 32 | Planning of Rainwater Harvesting work at IIT Indore | CS-179/2019-19/RC(BH) | CPWD, IIT Indore | Dr. Ravi Galkate, Sc E |
| 33 | Water Availability Study at Hirakund Barrage- Pre and Post Construction of 3 multipurpose projects in Upper Yamuna Basin | CS-180/2019-20/WRS | UJVNL Dehradun | Dr. M. K. Goel, Sc G |
| 34 | Vetting of Hydrology of Nawatha Barrage Major Lift Irrigation Project | CS-181/2019-19/RC(BH) | EE, WRD Burhanpur | Dr. Rahul Jaiswal, Sc D |
| 35 | Flood routing in the reach between Rajghat and Matatila dam in Betwa River basin for the proposed Dhurwara dam project | CS-182/2019-20/WRS | IWRD Govt of UP | Dr M K Goel Sc G |
| 36 | Hydro-geological study of Goindwal Sahib Area of Tarn Taran Distt Punjab | CS-183/2019-20/GWH | GVK Power Ltd Tarn Taran Punjab | Dr Surjeet Singh, Sc F |
| 37 | Preparation of Report on Hydrology of Kalasanala and Bhanduranala Diversion Scheme for Drinking Water Supply in KKhanpur Taluka, Belgaumn, Karnataka | CS-184/2019-20/RC-BE | EE, KNNL, Kalasa Project Div , Khanpur | Dr B Venkatesh, SC F |
| 38 | Hydrogeological Study for Assessment of Impact of Mining on Bearma River and other water bodies in the study area and its mitigation plan at S.M.P.I. limestone mine area at village Kolkarhiya, Pawai Tehsil Panna Distt MP | Cs-185/2019-20/HID | M/s Springway Mining Pvt Ltd Damoh MP | Dr Sudhir Kumar, Scientist G |

ITEM # 73.8: Any Other Item