



Government of India
Ministry of Water Resources, RD&GR

Guidelines
for
Implementation of R&D Programme
(Sponsoring & Coordinating research in Water
Sector)

Part-I: Instructions for Investigators

R&D Division
October, 2013

Vision

Providing solutions to the problems related to water sector through effective R&D for achieving sustainable development and self-reliance of the water resources development in India

Mission

To carry out the research in water sector through various organizations of MoWR, RD&GR and provide financial assistance to promote research work in the field of water resources engineering through academicians /experts in Universities, IITs, recognized R&D laboratories, Water Resources / Irrigation Departments of central and state Governments and NGOs.

Goals & Objectives

- To meet out the budgetary targets set during the planning stage.
- Expediting the completion of ongoing research schemes and ensuring the achievement of desired output.
- Facilitating the sanctioning of the new research schemes, through SAC
- Creating a positive work environment in the Division by ensuring the welfare of the officers / staff.

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Guidelines for Formulation and Submission of Research Proposals under R&D Programme of MoWR

1.0 Introduction

1.1 R&D Programme of MoWR- Scope & Objectives

Ministry of Water Resources (MoWR) provides financial assistance to promote research work in the field of Water Resources under activity “Sponsoring and Coordinating Research in Water sector” of R&D Programme during XII Plan. The assistance is provided by way of grants to academicians/experts (investigators) in the Universities, IITs, recognized R&D laboratories, Water Resources/ Irrigation departments of the Central & State Governments and NGOs.

Considering the peculiarities and large variation in the nature of problems associated with water resources planning and development, the issues involved in research related to particular region and specific project, the Ministry of Water Resources is sponsoring research proposals of applied nature along with basic and action research. The research activities of such nature are implemented through Indian National Committees (INCs) involving the academicians/experts (investigators).

R&D Division, MoWR is Subject Matter Division (SMD) for coordination of above research activities which acts as the Ministry's interface with INCs as well as Secretariat to Standing Advisory Committee (SAC) of MoWR for approval of research proposals recommended by INCs.

Guidelines for formulation and submission of the research proposals and other related instructions are given in this document along with its Appendices & Annexure. The research proposal may be submitted at any time during the year to concerned INC.

1.2 Indian National Committees (INCs)

In order to coordinate the research activities, Ministry of Water Resources has constituted three Indian National Committees (INCs) viz: on Surface Water, Ground Water and Climate Change. The subject domain / priority areas of research for INCs are given at **Appendix-1**. The Member Secretaries, and addresses of the INC Secretariats for sending the proposals other related correspondence are given below:

D) Indian National Committee on Surface Water (INCSW)

Member Secretary: Chief Engineer (EMO), Central Water Commission

Secretariat : R&R Dte, Room No. 412 (S), Sewa Bhawan, Central Water Commission, R. K. Puram, New Delhi-66

Phone: 011-26102894/26106849 Fax: 26106849

Email: rrdte@nic.in / ceenvtmgmt@nic.in

*Updated vide order no. 41/1/2012-R&D dtd 22.07.16

II) Indian National Committee on Ground Water (INCGW)

Member Secretary : Superintending Hydrogeologist/OIC SUO,
Central Ground Water Board

Secretariat : Central Ground Water Board, Gallery No. 18/11,
Jamnagar House, Mansingh Road, New Delhi-11
Phone: 011-23383824, Fax: 011-23386743
Email: msincgw-cgwb@nic.in
Website: http://cgwb.gov.in/RandD_scheme.html

***Updated vide order no. GW-1-1(A/INCGW (New) / CGWB / 2013 dtd 02.11.15**

III) Indian National Committee on Climate Change (INCCC)

Member Secretary: Director, National Institute of Hydrology,
Roorkee

Secretariat : National Institute of Hydrology, Roorkee-247667,
Phone: 01332-272106,
Fax: 01332-272123 / 273976
Email: nihmail@nih.ernet.in
Website: www.nih.ernet.in

***Updated vide order no. 40/1/2012-R&D dtd 09.12.16**

1.3 R&D Division, MoWR (Subject Matter Division)

The R&D Division is Subject Matter Division (SMD) in the Ministry of Water Resources for coordinating the 'R&D Programme in Water Sector'. The contact detail of the R&D Division is given below:

Director, R&D Division

Ministry of Water Resources
Wing No. 4, I Floor, West Block No.1
R.K. Puram, New Delhi - 110066.
Tel/Fax: 011-26104082
Email: watrnd-mowr@nic.in

2.0 General Instructions

2.1 Research Categories

Research and related activities for which Grants-in-Aid from MoWR can be sought shall cover one or more from the following list:

- Basic Research
- Applied Research
- Action Research

2.2 Types of Research Proposals

There are two types of research proposals considered for funding by the Ministry.

i) Sponsored Research Proposals

Sponsored Research proposal/ schemes are those which are not invited by the MoWR and the investigator submits a proposal on his own through his Institute. The topics of the sponsored R&D schemes should fall within the subject domain/priority areas related to INC as listed in **Appendix-1**. The proposals on other topics may also be considered for funding if the INC considers that doing so is in the interest of the water resources sector.

ii) Invited Research Proposals

The proposals which are invited by Ministry directly for research in the priority areas and other areas of substantial importance in water sector are termed as Invited Research Proposals.

2.3 Investigators, PI & CO-PI

The academicians / experts responsible for conducting research are called Investigators. Depending upon the magnitude and nature of research involved, scheme may have more than one investigator and in such a case, the first investigator shall be known as Principal Investigator (**PI**) and other as Co-Principal Investigator (**CO-PI**). Association of Co-PI in a research scheme is desirable.

2.4 Institution & Lead Institution

Any technical, scientific, academic establishment or research organisation where research work is carried out through funding by Central / State Government and where PI is working, is to be known as **Institution**.

In the event of multi institutional (collaborative) proposals involving two or more institutions, the institution taking lead in the research will be termed as **Lead Institution**.

2.5 Who can be funded:

The academician/ experts from the following Indian Organisations/ Institutions would be considered for funding:

- IITs, recognized Universities, recognized Engineering and Agricultural Colleges, WALMIs
- Organisations under MoWR
- R&D Institutes/Labs of the Central or State Government
- Indian NGOs registered under relevant Society Act, non-profit making recognized Indian Private R&D Institutions/ Organizations registered with Department of Scientific and Industrial Research (DSIR) having adequate infrastructure and facilities to carry out R&D work

2.6 Items that can be funded

The following items may be considered for funding:

- i) Remuneration / Emoluments for research personnel in the grades of Junior Research Fellow (JRF)/ Senior Research Fellow (SRF)/Research Assistant (RA) as per eligibility and scales given in **Appendix-2**
- ii) Cost of conducting the experiment including cost of consumables, books, journals reference manuals/codes.
- iii) Travel in connection with the research.
- iv) Purchase of equipment and development of infrastructure necessary for the research as approved
- v) Overhead charge limited to 15% if the host institute is providing any facilities like infrastructure, staff, water, electricity communication etc. as per DST guidelines.

2.7 Items that cannot be funded

Funding is not provided for the following items:

- i) Foreign travel
- ii) Salary of the PI, other investigators and non-research staff who are regular employees of the Institute
- iii) Honorarium or cash incentives in any form for the investigators and research staff
- iv) For infrastructure such as construction, maintenance and repair of buildings, purchase of vehicle, ACs etc.

3.0 Preparation of Research Proposal

The proposal should be well written clearly stating a synopsis of the work already done nationally and internationally, the objectives, methodology, estimated cost, duration of scheme, milestones and phasing of physical & financial progress, deliverables and outcomes.

Proposals which clearly identify the new aspect of a technology/ innovation to be made and propose to take the investigation to its logical conclusion including field trials; proposals where the probable users of the new technology are not only identified but also join the R&D work, stand a better chance of acceptance. The PI should ensure that the proposed research have not been done elsewhere to avoid duplication.

Note: Proposals that do not undertake investigation of any new techniques, which are more in nature of data collection and application of known techniques to the data; proposals where the end-user of the new technique is not clearly identified will not be considered for funding.

3.1 Components / Expenditure Heads of Estimate

The expenditure to be incurred on the research scheme may be kept under the following expenditure heads /components while preparing the estimate:

1. Remuneration/ Emoluments for Manpower
2. Travel Expenses (TE)
3. Infrastructure / Equipments
4. Experimental charges
 - Consumables

- Non-research personnel
 - Third party service (typing of report, lab analysis etc.)
5. Contingency
 6. Overhead charges

The proposal should contain year wise physical and financial phasing of each component. The provisions for above expenditure heads/ components as elaborated in the following Para should strictly be adhered to while formulating the proposal:

3.1.1 Remuneration/ Emoluments for Manpower

- a. A limited number of research personnel, called Research Staff, may be engaged to assist the investigators in conducting research. There are only three categories for the research personnel allowed in the research scheme:
 - Junior Research Fellow (JRF)
 - Senior Research Fellow (SRF)
 - Research Associate (RA)
- b. Eligibility and Remuneration / Emoluments for research personnel (JRF, SRF and RAs) would be as per **Appendix-2** or orders issued by MoWR from time to time.
- c. The components of Remuneration / Emoluments for research personnel should be indicated in the estimate in terms of man-months and all financial outgo for it should be indicated year /phase-wise in the estimate.
- d. Though the primary responsibility of conducting the research is that of the PI and Co-PIs, no part of their salaries can be charged to the estimate. The salaries of the investigators (PI and Co-PIs) are to be paid out of the regular budget of the institute where they are employed.
- e. No provision for honorarium or other such cash incentives to the Investigators is permissible.
- f. The reward for the investigators (PI and Co-PIs) is indirect by way of opportunity for pursuit of academic excellence and its attendant benefits; travel grants; opportunities to participate in seminars/workshops; grants for purchase of books and journals.

3.1.2 Travel Expenditure (TE)

- a. Provision can be made in the estimate for travel expenses connected with research. The entitlement for TE for each category will be as per the rules of host institute. The estimate should not be lump sum. The places intended to be visited, number of visits, purpose, mode / class (economy class by air/ AC-II tier by rail/by road restricted to AC-II tier of rail fare) should be given.
- b. The mode of journey allowed (air/rail/road) will be as per the TE entitlement rules of the host institute and limited to rates admissible under Govt. of India rules and directions issued by Ministry of Finance from time to time.
- c. Provision should be made for one long distance journey by one person once a year for attending R&D Session or Meeting of the INC for presentation of work done. The provision made on this account should be indicated separately.

3.1.3 Infrastructure

- a. Infrastructure comprises purchase of equipment of a permanent nature and its installation; purchase of software; purchase of data like the meteorological data from IMD or the satellite imageries from NRSA. The provision for infrastructure/equipment etc. should be linked with the actual requirement at

the start of relevant phasing subject to provision of Para 2.7. Separate details indicating year-wise / phase-wise requirement of infrastructure and equipment need to be indicated in the proposal.

- b. The estimate for equipment to be purchased should be based on proforma invoices or budgetary quotations for all the items except minor items costing up to Rs1000/-. The proforma invoices should be enclosed with the proposal.
- c. Purchase of computers and its peripherals may be considered only in rare cases where the importance of the work so demands.
- d. NGOs and Private Institutions would have to bear 50% of the equipment cost.

3.1.4 Experimental charges

- a. Experimental charges include the expenditure for actually conducting the research and comprises cost of engaging any labour, cost of all consumables, cost of any construction related to research activity sanctioned in the scheme.
- b. Cost of minor items/equipment up to Rs. 1000/- such as pipelines, fixers, general tool etc. even of permanent or semi permanent nature may also be booked under this head instead of 'infrastructure'
- c. Wages for non- research personnel/ staff (laborers etc) engaged for research scheme may be allowed under "Experimental Charges" only if following two conditions are fulfilled:
 - The said staff is engaged specifically for the purpose of said research.
 - The said staff will be working full time only for the purpose of said research.

In case such provision is made, the **PI should provide justification and Certificate (C1) for the same along with the expenditure statement.**

- d. No salary of the lab assistant, helper, typists and other such personnel who are employees of the institute, can be charged to the research scheme. However, a provision for a nominal honorarium to such non-research staff of the Institute may be made under experiment charges for their extra work done for the research scheme. Only one person may be so considered for such extra work from one scheme at a time. The PI should give a certificate to this effect.
- e. Provision for printing of only 10 copies of the Final Report may be made under this head. Five copies of the report need to be sent to the INC along with its soft copy and five copies may be kept with the PI/Institute. If the report is found to be useful and worthy of wider distribution, the INC will make arrangement to print more copies. And if the PI or the institute needs more than five copies then the institute should bear the cost for the same.

3.1.5 Contingency

- a. Contingency is only a budget provision for unforeseen situations; for any variation in estimation of four main sub-heads. A provision of upto 5% of the total cost of these or Rs 1.00 lakh, whichever is less can be included in the estimate.
- b. It is emphasized that contingency is not a separate head of expenditure. There are only four heads for expenditure, namely Remuneration/Expenditure for

Manpower, Travel Expenditure, Infrastructure and Experimental charges. Therefore, the contingency is not visible in the expenditure statement, whereas it may be visible in the estimate.

3.1.6 Overhead charges

- a. Overhead charge is provided to the host Institute for providing its facilities like infrastructure, staff, water, electricity, communication etc. for conducting research during operation of the scheme.
- b. For proposals costing upto Rs. 1.00 crore overhead charge and contingency (taken together) would be restricted to 10% of the total cost subjected to a maximum of Rs. 3.0 lakh for public funded institutes. For the proposals costing beyond Rs. 1.00 crore, a maximum of Rs. 5.0 lakh as overhead charge and contingencies would be admissible [Refer Department of Science and Technology OM No. 349/DS (F)-2012 dated 19th June 2013].
- c. Overheads to Private Institutions/ Universities would not be provided.
- d. In case of multi institutional proposals, the entire fund / grant would be released only to the Lead Institution. The lead institution may pass on suitable share of admissible ‘Overhead Charges and contingencies (taken together)’ to the other participating/ collaborating institution(s) as per the consent given by them to lead Institution at the time of submission their research proposal.
- e. Booking of expenditure for ‘Overhead expenses’ will not be automatic. The funds released every year shall only cover the four heads of estimate i.e. Remuneration for research personnel, Travel Expenditure, Infrastructure and Experimental Charges. Over head expenses shall actually be paid to the institute by MoWR only after completion of the research scheme and acceptance of the final report by MOWR.

3.2 Views of End Users

PI will identify the end users and obtain their views on outcome of the research in respect of the both sponsored as well as invited research proposals. **A Certificate (C2) in this regard from such end users be enclosed with the proposal at the time of submission.**

3.3 Proposals in Hand with the PI

The PI should indicate the number of proposals already in hand and pending along with their funding agencies. The request of PI for sanction of a new research proposal would be considered only after completion of previous on-going project funded by MoWR, if any. Only one research proposal would be considered at a time from one PI. The details should be provided as per the **Annexure-1**.

3.4 Consent of Collaborating Institutions

In case of multi-institutional proposals, the PI from the lead institution has to submit the consent of Collaborating Institutes regarding their contribution in research work, estimated cost, amount of contingency and share of over head charges in the prescribed format given at **Annexure-2**.

4.0 Submission of Research Proposals

The research proposals (Invited as well as Sponsored) for Grants-in-Aid can be submitted by (PIs) dully recommended by their Head of the Institute/Organisation at any time during the year. The proposal is to be submitted in five copies in a prescribed proforma as given in **Appendix 3** along with soft copy in PDF & Word format to the concerned INC. In case of doubt, the proposal can be submitted to the R&D Division (SMD) for forwarding to the appropriate INC.

5.0 Terms and conditions of the Grants

The terms and conditions of the Grants should strictly be followed by the PI and his Institute as given in the **Appendix-4**.

6.0 Approval/Sanction of new Research Proposals

After examination, INCs would consider the proposals in its meetings and recommend for approval of MoWR through SMD. On the approval of competent authority, the administrative approval/sanction orders would be issued by the SMD i.e. R&D Division.

7.0 Operation of Approved / Sanctioned Schemes

7.1 Date of start of the scheme

The starting date for the scheme shall be taken as the date on which the first activity is initiated which however shall not be later than one (1) month from the date of receipt of payment (through Bank Draft/electronic transfer) by the Research Institute/organisation. This date shall be intimated by the Principal Investigator to the INC. The approved period for completion of the scheme shall reckon from this date.

7.2 Schedule of Release of Funds

- a. The release of first installment of the funds would be processed by SMD only after receipt of the acceptance of the 'Terms and Conditions of Grant' as given in **Appendix-4** by the PI duly endorsed by the Head of the institution of PI. It is the responsibility of the PI and his Institute to ensure the compliance of the 'Terms and Conditions of Grants'.
- b. First installment may include 30% amount of Remuneration/Expenditure for Manpower, Travel Expenditure & Experimental Charges and 100% of the admissible amount for Infrastructure/ Equipment to be utilized during the financial year.
- c. Funds would be provided by transfer of Money directly in the account of appropriate authority in the Institute/ organization of PI as indicated in the proposal.
- d. Further funds would be released in installments commensurate with the progress of work and actual requirements of the Infrastructure/ Equipment to be utilized during that financial year. For this purpose, Annual Progress Report (**Appendix-5**) indicating the amount to be released, identified milestones achieved along with UC of previous year in prescribed Form 19(A) (Appendix 6) and statement of head wise Expenditure as on 31st March should be submitted to concerned INC by the PI on or before 30th June.

- e. INC will examine the request submitted by PI for release and send it to MoWR for release of fund through SMD.
- f. Final installment including Overhead Charges would be released on the completion of the scheme and acceptance of the final report of the scheme by the MOWR.

7.3 Other Service Requests

All service requests are to be submitted by PI to concerned INC. The same will be processed and recommended by the concerned INC to R&D Division for approval / release of fund. The other commonly required service requests are:

- a. **Revalidation:** The funds released in a financial year are meant for its utilisation during that year only. Any unspent balance of previous Financial Year has to be revalidated for utilisation during the next Financial Year. The request of PI for revalidation of fund should invariably reach INC on or before 30th June.
- b. **Time Extension:** Funds can be released only during the validity of the scheme i.e. sanctioned duration. The extension beyond the sanctioned duration may be considered in few deserving cases depending on the progress made and need of the scheme. Time extension is always without additional financial liability. In no case the total time extension should exceed by two years. PI should submit the request for time extension at least six months in advance to the sanctioned completion date giving reasons for delay and full justification for extension sought.
- c. **Revision of Estimate:** Any change in the estimate as sanctioned, whether resulting in an overall increase in cost, or involving a transfer of funds from one head to other is considered a revision of the estimate.

Depending on the service request, the required documents to be enclosed with the progress report are shown in the table below:

S. No.	Service Request	Progress Proforma (Appendix 5)	UC in GFR 19(A) (Appendix 6)	Statement of Equipment Purchased (Appendix 7)
1	Funds Release	Yes	Yes	Yes
2	Revalidation	Yes	Yes	No
3	Time Extension	Yes	No	No
4	Estimate Revision	Yes	Yes	Yes

It is advisable that the PIs should schedule their works so that the requests for funds etc. are clubbed with the annual report.

d. Change of PI

In the unforeseen and legitimate event of discontinuation by the PI, the Co-PI will assume full responsibility for completion of the project. In such cases the PI/Institute should evolve steps to ensure successful completion of the Project and Institute should nominate any one of the Co-PI as PI for the remaining work, before

relieving the existing PI. Proposal to this effect by the Head of the Institution, will promptly be sent to the INC/MoWR for seeking approval.

7.4 Monitoring and Periodic Returns

For the purpose of monitoring, release and other service requests, the PI is required to submit an annual progress report as on 31st March to the INC on or before 30th June. Proforma for the annual progress report, which is also the proforma for service requests such as release and revalidation of fund, time extension etc. is given in **Appendix-5**. The periodic returns / documents required to be submitted are:

- a. A brief narrative report. (Two copies only)
- b. A proforma for progress (**Appendix-5**).
- c. Utilisation Certificate **GFR19-A (Appendix-6)**
- d. A proforma for Statement of Equipment purchased (**Appendix-7**)

8.0 Completion of research scheme

Completion of the work and completion of the scheme are two different things. On completion of the work as envisaged by the PI, a draft report only should be prepared and five copies should be sent to the INC. The INC may send the draft report to experts for comments and depending on the comments of experts some further work/analysis may be necessary.

8.1 Completion & Acceptance of Report

Final completion report should be prepared, as per **Appendix-8**, only on receipt of comments of the experts sent by INC. Five copies of final report in print and soft copy should be sent to the INC. Final report of the scheme is to be accepted by MOWR

For any software/computer programmes that are developed as a part of the project, following shall be supplied to the INC concerned.

- a. Complete source code with detailed comments on the code in print medium.
- b. Complete source code with detailed comments on the code in soft copy.
- c. Executable file in soft copy.
- d. User manual in print medium.
- e. User manual in soft copy.

8.2 Final Statement of Accounts

The final statement of accounts consisting of the following should be submitted with final Report:

- a. Final utilisation certificate
- b. Expenditure statement
- c. Statement of equipment purchased and their condition/scope for further use etc.

The accounts of the grant are open to test check by the Comptroller and Auditor General of India as also audit by I.A.O./CA (WR).

8.3 Refund of Unused funds

Any unspent balance / unused fund along with interest accrued/payable if any, after the completion of the scheme should be refunded by a Crossed Demand Draft in

favour of the PAO, MoWR. The DD should however be sent to the INC and not to the PAO, MoWR directly.

8.4 Return of Equipment Purchased

All the Assets acquired from the grant will be the property of MoWR, Government of India and should not be disposed off or encumbered or utilised for purposes other than those for which the grant had been sanctioned, without the prior sanction of MoWR.

On conclusion/ termination of the project, MoWR will be free to sell or otherwise dispose off the assets which were acquired from the funds of Government of India. The Institute shall render the necessary facilities for arranging the sale of these assets. The MoWR has the discretion to gift the assets to the Institutions or transfer them to any other Institution if it is considered appropriate.

9.0 Dissemination and Publication of Research Findings

- i) The data pertaining to the project should be systematically collected, scientifically documented and submitted to INC.
- ii) Investigators are required to publish some research papers emerging out of the research scheme in leading National/International Journals with prior approval of MoWR. If the results of research are to be legally protected, it should not be published without securing legal protection and approval of MoWR.
- iii) Investigators wishing to publish technical/ scientific papers based on the results of research scheme should acknowledge the assistance received from MoWR.
- iv) The research findings of the scheme on its completion would also be disseminated by PI through presentation in workshop/ seminar etc conducted by INC.
- v) The Investigator(s) should not enter into collaboration with a foreign party (individual/ industry) without prior approval of MoWR.

10.0 Intellectual Property Rights and Transfer of Technology

With a view to encourage the institutions to file patent applications on their innovations, motivate them to transfer their technologies for commercialisation, and to facilitate them to reward their inventors, the following instructions are to be followed:

- i. The PI should seek permission from the concerned INC before proceeding to take out any patent, copyright or otherwise commercially exploit the results of a MoWR funded R&D project.
- ii. The Principal Investigator will be recognised as the inventor on the findings of the scheme but the title to the patent, copyright and other Intellectual Property Rights shall be the property of the Government of India.
- iii. The Government may, in its discretion, allow a portion of such receipts to be retained by the inventor which is undertaking the project. It is the responsibility of the institute to process the case for obtaining the patent.

- iv. On behalf of the Government, the INC concerned shall monitor the progress in this respect and shall enter in to an agreement with the PI regarding sale of know-how, collection and distribution of royalty/premium, ratio of sharing etc. of the MoWR funded projects.

11.0 TOR for Invited Research Proposals

For invited research proposals the TORs, outcomes and deliverables provided by INCs at the time of inviting the proposals should also be followed along with these guidelines.

12.0 Instructions for NGOs and Submission of bond by them

The NGOs will be required to execute a bond with two sureties to the President of India in accordance with the concerned Rule of the GFR before release of the grants to them. Specific instructions for NGOs along with the format of bond as given at **Appendix-9 and Appendix 9.1** should also be followed along with these guidelines.

Appendix-1: Subject Domain/Priority Areas of Research for INCs

The areas for research under the three INCs are listed below. However, these are only indicative and not exhaustive.

I) Indian National Committee on Surface Water (INCSW)

Subject Domain:

- Surface Water Hydrology
- Evaporation Control
- Ground Water Hydrology and Management (Excluding Ground Water Hydraulics)
- Instrumentation
- Real Time Systems and Application of GIS and Remote Sensing.
- Management of Floods
- Irrigation
- Drainage
- Agronomy
- Water Management
- Environmental Impact and Socio-Economic Aspect of Water Resources Projects
- Plasticulture Development & Geo-textiles
- Meteorology
- Hydraulic Structures (including masonry and concrete structures)
- River and Estuarine Hydraulics
- River Morphology
- Ground Water Hydraulics
- Instrumentation for Seismic and Geophysical Measurements

- Open Channel Flow
- Pipe Flow
- Hydraulic Machinery
- City Water Supply
- Ports and Harbours
- Rock Mechanics
- Application of High Technology and Instrumentation and Measurement Techniques
- Soil and Materials
- Structures

II) Indian National Committee on Ground Water (INCGW)

Subject Domain

- Ground Water Recharge
- Ground Water Quality
- Impact of Climate Change on Ground Water
- Ground water-Surface water interrelation
- Ground water management
- GIS & Remote sensing
- Geophysical Investigation
- Mathematical /Simulation modeling

III) Indian National Committee on Climate Change (INCCC)

Subject Domain:

- Downscaling of climate change models
- Assessment of impact of climate change on water resources.
- Adaptation strategies for changing climate scenario.
- Studies proposed in Strategy - I.5 under Goal 1- ‘Comprehensive Water Database in Public Domain and Assessment of the Impact of Climate Change on Water Resources’ of National Water Mission as indicated below.

Strategy-I.5 under Goal 1 of National Water Mission

Research and studies on all aspects related to impact of climate change on water resources including quality aspects of water resources with active collaboration of all research organizations working in the area of climate change:

Research and studies specifically for projection of impact of climate change on surface and ground water including its water quality in areas of (i) Basin efficiency, (ii) Possibilities of increasing dam heights, (iii) Identification of minor tanks where FRL can be raised without raising dam

heights by installing gates and evaluation of the same, (iv) Identification of tanks and water bodies which can be effectively de-silted, where silt has commercial value and evaluation of the same, (v) Improving intra-national equity in usable water for drought management like conducting economics considering land, water and livelihood to plan how much water is necessary to yield reasonable income, (vi) Water harvesting, provided this is socially desirable and provided that corresponding water saving is possible elsewhere in the region, (vii) Impact on Intensity-Duration-Frequency relationships in urban areas, (viii) Impact on Magnitude-Duration-Frequency of drought (agricultural, meteorological and hydrological), (ix) Study of Water-energy-Climate Change relationships, (x) Planning tidal embankments to protect against tides and increased flood frequency and increased sea level, (xi) Effect to sea level rise on ground water salinity and prospective measures like groundwater recharge, (xii) Possible tidal channels for fresh water storage, (xiii) Preparation of sediment budgets and accounts for each basin, (xiv) Review the interpretation of regime maintenance on Ganga, after climate change, (xv) Isotope applications in GW dating and contaminant transport, (xvi) GW basin models for conjunctive use of SW & GW and application of RS/GIS in GW management, (xvii) Assessment and strategies for development potential of deeper aquifers, (xviii) Coastal aquifer management including use of hydraulic barriers for control of sea water ingress, (xix) Assessment of feasibility and viability of rainwater harvesting in existing domestic and commercial buildings, (xx) Supporting researchable issues specifically of (xxi) Atmospheric Science Groups towards downscaling of GCM or RCM to basin/project level and also understanding the effect of climate change on monsoons, (xxii) Supporting water and climate related researches towards studying the sensitivity of different hydrologic types of water projects to different climate change scenarios and improvements required in hydrometric networks to incorporate climate change, (xxiii) Building a Universal Soil Loss model depicting erosion and sediment transport etc. Proving the model based on sediment flow and reservoir sedimentation data, Actuating the above model for changed rainfall regime and changed management practices, (xxiv) Developing, through R&D effort, a combined unsteady flow hydraulics-cum-sediment transport model capable of depicting river erosion in each flood event. Using the model to test river management works, (xxv) Water quality modeling for each major river and aquifer, (xxvi) Hydro chemical and solute transport modeling in areas vulnerable for seawater ingress and water quality, (xxvii) Developing urban storm water drainage models with due consideration to the topographical features and the urban layouts, and (xxviii) Developing criteria and guidelines to ensure urban storm water drainage improvements.

Appendix-2 Remuneration / Emoluments for JRF/SRF/RA

The Remuneration / Emoluments and other service conditions for research personnel engaged by PI/ Institutes for carrying out research work under R&D programme of MoWR are based on Department of Science and Technology (DST) Guidelines [Refer A.20020/11/97-IFD dated 31.03.2010] as given below:

i) Junior Research Fellow(JRF)/Senior Research Fellow(SRF)

Designation & Qualification	Revised Emoluments per month for first 2 years	Emoluments per month after 2 years/SRF
<u>Junior Research Fellow (JRF) leading to PhD</u> Post Graduate (PG) Degree in Basic Sciences and NET qualified OR Graduate Degree in Professional Courses and GATE or equivalent qualification	Rs. 16000/-	Rs. 18000/-
<u>Junior Research Fellow (JRF) leading to PhD</u> Post Graduate(PG) Degree in Basic Sciences who have NET qualified for Lectureship.	Rs.12000/-	Rs 14000/-
<u>Junior Research Fellow (JRF) leading to PhD</u> Post Graduate Degree in Professional Courses	Rs. 18000/-	Rs.20000/-

The local institution should review the performance of the fellow after two years through an appropriate review Committee constituted by the Head of the Institution. The fellowship in the slab after 2 years of research experience may be provided after successful assessment by this review committee.

In programmes where there is a need to engage research personnel at a level higher than JRF/SRF and such need has been accepted by the funding agency, the remuneration for such personnel may be fixed as indicated below.

ii) Research Associates (RA)

Research associates may be fixed at a consolidated amount at one of the 3 pay levels given below, depending upon the qualifications and experience. The Institute/ Organisation concerned may decide the level in which a particular associate should be placed based on the experience.

Sl. No.	Category/level	Revised Emoluments per month
1	Research Associate-I (RA-I)	Rs. 22000/-

2	Research Associate-II (RA-II)	Rs. 23000/-
3	Research Associate-III (RA-III)	Rs. 24000/-

Note: The stipend of research fellow/associate is exempt from the payment of income tax under 10(16) of IT Act, 1961

Essential Qualifications:

The Essential Qualification (EQ) for RA are Doctorate (PhD/MD/MS/MDS) or equivalent degree or having 3 years of research, teaching and design and development experience after MVSc/MPharm/ME/MTech will be eligible for award as RA.

Service Conditions:

- 1. DA and CCA:** JRFs, SRFs and Research Associates will not be entitled to these allowances.
- 2. House Rent Allowance (HRA):** All research fellows may be provided hostel accommodation wherever available and those residing in accommodation provided by the Institute will not be eligible for drawing HRA. Wherever provision of hostel accommodation is not possible, HRA, may be allowed to all the above categories viz, JRF, SRF and RA as per Central Government norms applicable in the city/location where they are working. The fellowship amount may be taken as basic for calculating the HRA.
- 3. Medical Benefits:** The research fellows and research associates (JRF/SRF/RA) will be entitled for medical allowance as applicable in the implementing institution.
- 4. Leave and other entitlement benefits:** The JRF/SRF are eligible only for casual leave while Research Associates are entitled to leave as per rules of the host institution participation of any of these categories (JRF/SRF/PA). In any scientific event workshop in India or abroad will be treated as "on duty". The travel entitlement for JRF/SRF/RA for participation in scientific events/workshops in India will continue to be the same as earlier i.e 2nd AC by rail, Maternity leave as per Govt. of India instructions issued from time to time would be available to female candidates in all categories.
- 5. Bonus & Leave Travel Concession:** JRFs, SRFs and Research Associates will not be entitled to these allowances.
- 6. Retirement Benefits:** JRFs, SRFs and Research Associates will not be entitled to these benefits.
- 7. Publication/Patent:** The results of JRF/SRF/RA's research work may be published in standard refereed journals at the discretion of the Fellow or his

Guide. It should be ensured by the fellow that the assistance provided by the funding agency of Government of India is acknowledged in all such publications.

8. **Encouragement for pursuing higher degree:** Students selected as JRF/SRF may be encouraged to register for higher degrees and the tuition fees to undertake these studies may be reimbursed to the student from the contingency grant sanctioned under the project grant, if required.

9. Obligations of JRF/SRF/RA :

- a) He/She shall be governed by the disciplinary regulations of the host Institute where he/she is working.
- b) The JRF/SRF/RA must send a detailed consolidated report of the research work done during the entire period of Fellowship on completion of the tenure/ resignation of the Fellowship at the earliest.

10. Age Limit

The upper age limit for JRF/SRF/RA is 28, 32 and 35 years respectively on the day on which application is made. A small relaxation can be considered for suitably qualified and experienced candidates if so recommended by a selection committee. The upper age limit is relaxable for SC/ST/OBC/Women and physically handicapped candidates as per DST Guidelines.

11. Only **Indian citizens** are eligible for research fellowships/associateships.
12. The award of research fellowships/associateships does not imply any employment guarantee by MoWR or at the institute where he/she is working.

Appendix-3: Proforma of Application for Research Proposal for Grants

(To be filled by PI and submitted to concerned INC)

(Please read carefully the guidelines to investigators before filling this proforma)

1 Project Title (*keep it as short as possible*)

2 Principal Investigator (PI)

Name

Designation

Address

Telephone& Mobile No.

Fax

e-mail

3 Research Station / Institution (Lead Institute in case of Multi-Institutional proposal)

Name of the Institution

Head of the Institution

Address

Telephone

Fax

e-mail

Nearest Rail head/Airport

4 Collaborating Institution, if any

Name of the Institution

Head of the Institution

Address

Telephone

Fax

e-mail

Nearest Rail head/Airport

4 Co- Principal Investigators (Co-PI) including if from Collaborating Institution

Name

Designation

Address

Telephone& Mobile No.

Fax

e-mail

5 Brief Bio-data of the Investigators

(Enclose at the end of the proposal as per format given at Annexure-1)

7 If the scheme is sanctioned, the authority in whose name the payment is to be authorized:

- i) Name of authorized person holding account with complete address:
- ii) Organisation Name as per Bank records :
- iii) Bank Account No.
- iv) IFSC Code:

- v) MICR Code :
- vi) Bank Name:
- vii) Bank Branch Address:
- viii) Unique Agency code of the Organisation and Institute:
- ix) Telephone & Mobile No.

8 Category of R&D Activity (Tick those which are applicable)

- a. Basic Research
- b. Applied Research
- c. Action Research

9 Description of the Proposal

(Describe the research proposal, the background, how the idea originated etc.)

10 Objectives. Classify the objectives of proposed research under one or more of following and explain the objectives briefly.

- a. Finding answers to as yet un-answered questions. (List the questions)
- b. Development of a new computational procedure. (State the purpose of the procedure)
- c. Development of a new software/application. (State the purpose of the software/application)
- d. Development of a new field technique. (State the purpose of the proposed technique)
- e. Design and/or develop a new device. (State the purpose of the device)
- f. Investigation of the behaviour of a natural process. (state what new aspects are to be investigated and why)
- g. Any other (Specify and explain)

11. Contribution to Water Resources Development

(Describe very briefly the contribution envisaged to be made by the proposed R&D activity to the Water Resources Sector)

12 Putting the Research to Use

- a. Identify the possible end-users for the results of proposed research. (A certificate is to be attached from two (2) end users by PI)
- b. List the actions that will be necessary to put the results to use.
- c. List the difficulties/problems that may be encountered in putting the results to use.
- d. Are the possible end users being involved in the research ? If yes then describe how, if not then explain why not.

13 Present State of Art

- a. Describe the work that has already been done at International Level
- b. Describe the work that has already been done at National Level
- c. Explain how the work proposed to be done by you will be different from the work already done by others at National and International levels.
- d. List the references examined by you to reply to a) and c) above

14 Methodology

(Describe clearly the experiment; observations and data collection; and analysis)

15 Cost Estimates

15.1 Total Cost of the project including over head charges (if any)

15.2 Head wise Abstract

S. No	Head	Amount (Rs.)
1	Remuneration / Emoluments for Manpower	
2	TE	
3	Infrastructure /Equipments	
4	Experimental Charges	
	Sub Total	
5	Contingency	
	Total	
6	Over heads	

(Note: Provide yearwise & phasewise details of each head in separate table.)

15.3 Justification for Institutional Over Head charges.

(Institutional over head charges, if sanctioned, will be paid only on successful completion of the project subject to para 3.1.6 of the guidelines)

15.4 Amount sought to be released at the start of the work with justification.

(It includes 30% amount of Remuneration/Emoluments for Manpower, Travel Expenditure, Experimental Charges and 100% of the admissible amount for Infrastructure/ Equipment to be utilized during the financial year)

15.5 Heads wise Details

Remuneration/Emoluments for Manpower

Designation	Year 1			Year 2			And so on
	Rate/month	Months	Amount	Rate/month	Months	Amount	
And so on							

Totals

Grand Total for Remuneration/Emoluments for Manpower

15.6 Man-months utilisation table.

(For each of the research staff, list the activities and the months (from start) in which he/she will be carrying out each of these activities thus justifying the total man-months)

Designation:

Total Man-months:

Months from Start -->

Activities	1	2	3	4	5	6	And so on
And so on							

15.7 Travel Expenditure (TE)

(Give the break-up for the provision for TE indicating the places to be visited, purpose, number of visits to each place by air/ rail/ road with approximate fares for each type of journey).

15.8 Infrastructure (Purchased items of a permanent nature like equipment, software or data etc.)

(Give details indicating specifications, quantity and rate. Estimated cost for all items of commercial nature should be supported by proforma invoices.)

15.9 Experimental Charges

List the items and estimated cost.

16 Work Schedule

- a. Probable Date of Commencement
- b. Duration of Study
- c. Stages of Work and Milestones:

Identifiable Milestones of progress	Months from start	Amount to be released
Start	0	<i>(Amount of first installment)</i>
1		
2		
And so on		

Notes:

- a. The work should be divided into quarterly milestones.
- b. The milestones are mainly for the purpose of monitoring of progress and release of funds. The funds to be released on achieving various milestones should be indicated.
- c. Normally there may be only one release of funds in a financial year.

17 Declaration

1. I have carefully read the terms and conditions of the research grant and agree to abide by them.
2. This is to certify that I have neither submitted this proposal elsewhere for financial support nor have undertaken it at the request of any commercial agency or as a consultancy.
3. I/We have enclosed the following:
 - a. Complete Research Proposal (5 copies)
 - b. Views of End Users
 - c. Undertaking from the Collaborating Institution(s)

Date:

Place:

Signature of PI

Name

Designation

18 Endorsement from the Head of the institution

1. The Institute / Organisation welcomes the participation of Dr/Mr/Mrs as the PI and Dr/Mr/Mrs as the Co-PI for the above research scheme. In the unforeseen and legitimate event of discontinuation by the PI, the Co-PI will assume full responsibility for completion of the project. Information to this effect, endorsed by me, will promptly be sent to the INC/MoWR.
2. The necessary equipment and institutional support as described in the proposal will be made available as and when required for the purpose of the project to ensure that the work is taken up on priority and completed on schedule.
3. In the event of foreclosure /discontinuation /cancellation of the scheme for any reason, the entire amount released for the scheme will be fully refunded to the MoWR along with the interest prescribed till the date of return by the institute/ organisation.
4. The Register of permanent and semi-permanent assets acquired out of grants from MoWR will be maintained as per **Appendix-7**.
5. The Organization shall ensure that financial and purchase procedures are followed as per the prescribed norms of the organization, within the allocated budget.
6. The Organisation shall provide timely the Statement of Expenditure and the Utilisation Certificate (UC) for the grant issued by the MoWR in the prescribed format.
7. The assets acquired out of this grant shall be transferred to the desired destination in good & working condition as and when required.

Date:

**Seal &Signature of the head of
Organization**

Place:

** The term "assets" mean (i) immovable property (ii) movable property of a capital nature where the value exceeds Rs. 1,000/ (one thousand).*

Appendix 4: Terms and Condition of Grant
(To be submitted to INC on receipt of Sanction Order of the scheme)

1. All correspondence in connection with the execution of this scheme/project should be carried out with the INC.
2. Approval of the Research Scheme is for specific purpose with defined objectives and outcomes. The grant released for the sanctioned Research Scheme should exclusively be spent on the sanctioned items within the stipulated period.
3. **The Project is considered to have commenced as soon as the first activity is initiated.** This date should be intimated by the Institution authorities/ Principal Investigator to the INC. The date of commencement, in no case be later than one (1) month from the date of receipt of payment by the Institution.
4. The Institution will not entrust the implementation of the work (except the out-sourced part as approved) for which the Grant is being sanctioned to any other institution nor will it divert the Grant receipts to other institutions as assistance. In case the Institution is not in a position to implement or complete the Project, it should, forthwith, refund the entire grant received by it or the balance Grant with it to MoWR through draft in favour of PAO MoWR.
5. The Remuneration / Emoluments and other service conditions for research personnel engaged under the scheme shall be governed by the norms issued by MoWR as given in **Appendix-2**. They are not to be treated as employees of the Government of India and MoWR will have no liability, whatsoever, for the project staff after the completion of the Project.
6. No consultants/coordinators/staff other than those shown in the final approved estimate shall be engaged / deployed for the scheme.
7. The PI shall furnish a **Certificate (C3)** to the effect that research staff has been engaged in accordance with the provisions of **Appendix-2**.
8. Before a grant is released to an NGO, the grantee will be required to execute a bond with two sureties to the President of India in accordance with the concerned Rule of the GFR.
9. A separate account should be maintained in respect of this grant. The amount of interest accrued on it should be intimate to INC and the same will be taken as part of Grants-in-Aid.
10. The organisation shall follow a proper system of accounting, reporting and auditing of expenditure in respect of this Grant.
11. All procurement will be in terms of standard rules of the Government of India and all expenses shall be fully vouchered and booking of all expenditure shall be as per actual.
12. **The accounts will be subject to audit by I.A.O./CA (WR). The accounts will also be open to audit by the Comptroller and Auditor General of India.**
13. Transfer of funds from one expenditure head to other is not allowed.

14. Each installment of funds is to be utilised in the financial year for which it is sanctioned. Any unspent balance carried over to next financial year is got to be revalidated before its utilisation. Application for revalidation of unspent balance as on 31st March should be submitted to the INC on or before 30th June along with the reasons for non utilization/under utilisation of fund.
15. For permanent, semi-permanent assets acquired solely or mainly out of the project Grant, an audited record in the form of a register shall be maintained by the Institute as per **Appendix-7**. The Institute is required to send a list of assets acquired from the Grant to INC. All equipment procured from this grant should prominently display a label “FUNDED BY MoWR” or “PURCHASED WITH FINANCIAL ASSISTANCE FROM MoWR”.
16. All the assets acquired from the Grant will be the property of MoWR, Government of India and should not be disposed off or encumbered or utilised for purposes other than those for which the Grant had been sanctioned, without the prior sanction of MoWR.
17. The Grant shall not be utilised for construction works unless specific provision is made for that purpose. Full infrastructural facilities by way of accommodation, water, electricity, communication, etc. for smooth implementation of the project shall be provided by the Institute.
18. For monitoring of the physical and financial progress of the scheme, an Annual Report (from 1st April to 31st March) is to be submitted to INC by the PI on or before 30th June.
19. During the implementation of the Scheme, the Institution will provide all facilities to the visiting team to review the progress and suggest suitable measures by way of accommodation, etc. at the time of their visit.
20. For release of next installment and other service requests, the PI has to submit the following documents to INC:
 - a) Physical and financial annual progress report (1st April to 31st March) and Service Request (**Appendix-5**) on or before 30th June. The report should specify in detail the achievements of the research work vis-a-vis amount spent, purpose etc.
 - b) Utilisation Certificate (UC) in the prescribed proforma “FORM GFR 19-A” as given in **Appendix-6**.
 - c) Details of amount sought may be provided in various heads of the sanctioned estimate on the date of seeking next installment.
21. **The MoWR reserves the right to terminate the project at any stage if it is convinced that the Grant has not been properly utilised or satisfactory progress is not being made.**
22. In case of foreclosure /discontinuation /cancellation of the scheme for any reason, the entire amount released for the scheme will be fully refunded to the MoWR along with the interest prescribed till the date of return by the institute/organisation.

23. On closure of scheme on completion, MoWR will be free to sell or otherwise dispose off the assets which were acquired from the fund of Government of India. The Institute shall render to the Government necessary facilities for arranging the sale of these assets. MoWR has the discretion to gift the assets to the Institutions or transfer them to any other Institution if it is considered appropriate.
24. In the unforeseen and legitimate event of discontinuation by the PI, the Co-PI will assume full responsibility for completion of the project. In such cases the PI/Institute should evolve steps to ensure successful completion of the Project and Institute should nominate any one of the Co-PI as PI for the remaining work, before relieving the existing PI. Proposal to this effect by Head of the Institution, will promptly be sent to the INC/MoWR for seeking approval.
25. Investigators are required to publish some research papers emerging out of the research scheme in leading National/International Journals with prior approval of MoWR. If the results of research are to be legally protected, it should not be published without securing legal protection and approval of MoWR.
26. Investigators wishing to publish technical/ scientific papers based on the results of research scheme should acknowledge the assistance received from MoWR.
27. The research findings of the scheme on its completion would also be disseminated by PI through presentation in workshop/ seminar etc conducted by INC.
28. The Investigator(s) should not enter into collaboration with a foreign party (individual/ industry) without prior approval of MoWR.
29. The research institutes/organisations have to furnish a **Certificate (C4)** to the effect that 'this Grant does not relate the same staff structure for which a Grant under some other schemes has been allowed'.
30. After completion of the scheme, any unutilized amount alongwith interest accrued/payable if any should immediately be reported to the concerned INC and the same be surrendered to MoWR through an account payee demand draft in favour of PAO, MoWR.
31. PI will ensure that the research work is completed within the prescribed duration. Any financial liability on account of delay in completion of research work on the part of the Institute will be that of the Institute.

Acceptance of the Conditions of the Grant by PI & Head of the Institute

I,, being a Principal Investigator (PI) of the research scheme entitled “.....”, do hereby accept all the ‘Terms and Conditions of Grants’ as mentioned above.

Signature with Seal

Signature with Seal

Name of Head of the Institute
Designation
Date
Place

Name of Principal Investigator
Designation
Date
Place

Appendix 5 Annual Progress Report and Service Requests

For the financial year:

Name of the Institute:

Title of the scheme:

Financial Progress:

Year	Opening Balance	Grant Received	Total	Expenditure	End Balance

Head wise Expenditure:

Head of Expenditure	Expenditure till the end of previous year	Expenditure during the current year	Total
Remuneration/Emoluments of Manpower			
TE			
Infrastructure			
Experimental Charges			
Total			

Man months utilization: For each of the research staff, indicate following:

Designation	Man-months sanctioned	Cumulative Man-months utilised	Is the work done proportionate to man-months utilised? (Yes/No)

Work Progress

Indicate the progress against the agreed Work Schedule (As per the item 16 of the sanctioned proposals)

Funds to be released: Amount Rs. _____

Date of Completion: (a) Scheduled Date (b) Expected Date

If there is a delay then state reasons for delay.

Any **Revision of Estimate**? If yes, then enclose details with justifications.

Enclosures (tick): UC Appendix-7 Narrative Progress Report

Signature of Principal Investigator

Name

Date

Appendix 6 Utilization Certificate

FORM GFR 19- A Utilization Certificate [See Rule 212 (1)]

SI. No.	Letter No. and date	Amount
	Total	

Certified that out of Rs _____ (Rupees _____) of grants-in-aid sanctioned during the year _____ in favour of _____ Under this Ministry / Department Letter No. given in the margin and Rs _____ (Rupees _____) on account of unspent balance of the previous year, a sum of Rs _____ (Rupees _____) has been utilized for the purpose of _____ for which it was sanctioned and that the balance of Rs _____ (Rupees _____) remaining unutilized at the end of the year has been surrendered to Government (vide No _____, dated _____) / will be adjusted towards the grants-in-aid payable during the next year _____.

2. Certified that I have satisfied myself that the conditions on which the grants-in-aid was sanctioned have been duly fulfilled / are being fulfilled and that I have exercised the following checks to see that the money was actually utilised for the purpose for which it was sanctioned.

Kinds of checks exercised

- 1.
- 2.

Signature

Designation

Date

Appendix-7 Statement of Equipment Purchased

Assets acquired wholly or substantially out of Government grants Register maintained by grantee Institution

Name of Sanctioning Authority _____

Serial No	
Name of Grantee Institution	
No. and date of sanction	
Amount of the sanctioned grant	
Brief purpose of the grant	
Whether any condition regarding the right of ownership of Government in the property or other assets acquired out of the grant was incorporated in the grant-in-aid sanction.	
Particulars of assets actually Credited or acquired	
Value of the Assets as on (Date)	
Purpose for which utilised at Present	
Encumbered or not	
Reasons if encumbered	
Disposed of or not	
Reasons and authority, if any, for disposal	
Amount realised on disposal	
Remarks	

Principal Investigator

Head of the Department

Appendix 8: Format for Completion Report

1. Title of the scheme
2. Name and addresses of the PI and other investigators
3. Name and address of the Institute
4. Financial details (Sanctioned cost; amount released; expenditure; unspent balance (if any) and return of unspent balance)
5. Utilisation Certificate
6. Statement of equipment purchased under the scheme
7. Original objectives and methodology as in the sanctioned proposal.
8. Any changes in the objectives during the operation of the scheme.
9. All data collected and used in the analysis with sources of data.
10. Methodology actually followed. (observations, analysis, results and inferences)
11. Conclusions/ Recommendations
12. How do the conclusions/recommendations compare with current thinking
13. Field tests conducted.
14. Software generated, if any.
15. Possibilities of any patents/copyrights. If so, then action taken in this regard.
16. Suggestions for further work

Signature

(Head of the Department)

Name

Date

Signature

(Principal Investigator)

Name

Date

Appendix 9: Specific Instructions for sanction of Grants to NGOs under these Guidelines

Specific instructions for sanction of R&D Grants to Non-Governmental Organisations (NGOs)

1. What constitutes an NGO

An Indian non-profit making agency, which is registered under Indian Societies Registration Act or Indian Charitable Trusts Act, including societies or trusts created by the Central or State Government.

Recognized academic institutions and professional associations and profit making NGOs shall be excluded from this definition.
2. Draft format for the bond

The format of the bond is enclosed at **Appendix 9.1**.
3. Who are acceptable as sureties

Only those persons/entities are acceptable as sureties whose fixed deposits/assets are more than the proposed grant-in-aid to the concerned NGO. Certified copies of bank statement/audited accounts of sureties are required to be submitted.
4. Duration of the bond

 - Initially the duration of the bond shall be for 365 days beyond the scheduled date of completion.
 - If a time extension becomes necessary during the operation of the scheme, then the duration of the bond should also be extended to 365 days after the revised scheduled date of completion. Extension of bond would be a pre-requisite for such time extension.
5. If the scheme is not completed satisfactorily

The entire funds released should be refunded to the Ministry within one month from Ministry conveying to the NGO to do so. If the NGO fails to do so, then the Government would proceed to recover the amount from the sureties.
6. Financial limits for sanction of grant-in-aid to NGOs

The estimate will be examined on its merits. But,

 - The expenditure under Equipments Head should be restricted to absolute minimum and if possible, 'nil'.
 - The payment of salary to the personnel of the NGOs should not exceed Rs. 25,000/- per annum in each case.

7. Conditions of Grant-in-Aid
- Apart from requirements under GFR, 2005, the grant-in-aid should conform to the pattern of assistance or rules governing such grants as approved by Ministry of Finance/ IF Wing.
 - The grant-in-aid should not be used to meet any administrative expenditure of NGO.
 - The account of the grantee NGO shall be open to inspection by the sanctioning authority/ audit.
 - The grantee NGO should ensure that its accounts are audited by C&AG of India/Chartered Accountants as per the provisions of GFR 2005 in respect of the expenditure out of the grants received and a copy of the audited accounts should be made available to the government as required.
8. Requirements regarding registration of the NGOs
- The NGO must be registered, either under the Indian Societies Act or Indian Charitable Trusts Act. No funding shall be provided to un-registered NGOs.
9. Other qualifying criteria
- NGO should generally have an all India character and should satisfy well-defined criteria regarding their resources, activities and personnel and their activities help promote the welfare schemes and programmes of the Government. Exceptions can be made in the case of highly deserving isolated organizations whose credibility and ability to achieve social objectives is accepted.
 - The NGO should be in operation for not less than three years after date of registration.
 - The NGO should supply a copy of their Memorandum of Association and rules and regulations.
 - The NGO should have submitted to the Registrar of Societies or Registrar of Trusts, as the case may be, audited accounts every year for last three financial years. A certificate to this effect from the appropriate Registrar should be enclosed.
 - The NGO should also enclose a copy of their income tax returns for the previous three financial years.
 - The NGO should have already existing

premises/office in the State where it wishes to work.

- The NGO must have office premises either of its own or rented in the name of the NGO in the State where it wishes to work. There should be at least minimum necessary furniture and office equipment;
- The NGO should have at least one full time specialist relating to field of activities and at least one full time person for administration/financial management. The governing body of the NGO must have at least 35% members with background in the field of activity;
- The NGO must have sufficient fixed/ cash assets to establish that it is an organization of substance;
- Before the first project is assigned to NGO, its credentials and assets should be verified by an independent agency to establish its bonafides.

10. Black listing of NGOs An NGO blacklisted by any Ministry/Deptt. of Govt. of India will not be sanctioned any R&D project.
The NGO would furnish an affidavit that they have not been blacklisted by any other government agency. In the event it comes to notice that an NGO has submitted a false affidavit in this respect, apart from available legal recourse, the NGO and all the executive members of the said NGO shall be blacklisted by MoWR and the same shall be conveyed to all the central government agencies.
11. Providing R&D funds to private companies No funds will be provided to a private company, the definition of a company being an agency registered under the Companies Act.
12. Format for Submission of Proposal The proposal should be submitted as per the format given in Appendix-3. In addition, a BOND and a Certificate is to be submitted as mentioned in Para 2 and Para 10 above respectively.

Appendix 9.1: Format of Bond and Certificate to be submitted by NGOs

BOND

This bond is made this _____ day of _____ (month) and _____ (year) between _____

_____ an association registered under the Societies Registration Act, 1860

_____ and having its office at _____

_____ (full address) in the State of _____

_____ hereinafter called the 'obligor' (which expression shall, unless excluded by or repugnant to the context, be deemed to include its successor-in-interest) of the First Part through its current office bearers

(1) Shri/Smt. _____ (name of 1st office bearer) son/daughter/ wife of Shri/Smt. _____ resident of _____

(2) Shri/Smt. _____ (name of 2nd office bearer) son/daughter/ wife of Shri/Smt. _____ resident of _____

_____ hereinafter called the signatories (which expression shall, unless excluded by or repugnant to the context be deemed to include their respective heirs, executors, administrators and legal representatives) and the President of India (hereinafter called the Government) of the Second Part.

Whereas at the request of the obligor, the Government have sanctioned a grant-in-aid of Rs. _____ (Rupees

_____) vide their letter No.

_____ dated _____

(hereinafter referred to as "the said letter") which forms an integral part of these presents and a copy whereof is annexed hereto for the purpose of and on condition of the obligor executing a bond in favour of the Government on the terms and conditions and in the manner hereinafter contained which the obligor has agreed to do.

Whereas the signatories are the current office bearers of the obligor and are authorised to operate upon and bind the funds of the obligor.

Now this bond witnesseth and it is hereby agreed and declared as follows:

(1) That the obligor shall utilise the said grant-in-aid of Rs. _____ (Rupees

-) only for the purpose specified in the said letter and for no other purpose whatsoever.
- (2) That the obligor shall abide by all the terms and conditions specified in the said letter and the General Financial Rules, 1963 as amended from time to time and any orders or instructions that may be issued by the Government from time to time.
- (3) That in the event of any failure on the part of the obligor to abide by any of the terms and conditions of the Grant-in-aid specified in the said letter or its/their committing any breach thereof or in the case of misuse or use for indifferent purposes of the grant-in-aid money or any material/information coming to light leading to cancellation of grant, the Government will be at liberty to order the obligor and or the Authorised Signatories or either of them to repay in full forthwith the entire grant-in-aid amounting to Rs. _____ (Rupees _____) with interest thereon as may be fixed by the Government and decision of the Secretary to the Government of India in the Ministry of Water Resources about the amount so to be repaid shall be final and binding on the obligor and the sureties. In the event of failure on the part of the obligor and or the signatories or either of them to repay the amount so ordered by the Government, the Government shall reserve the right to recover the amount from the obligor and or the signatories or either of them as deemed appropriate.
- (4) The obligor agrees and undertakes to surrender/pay to Government the monetary value of all such pecuniary or other benefits which it may receive or derive/have received/ derived through unauthorised use such as letting out of the premises of the property/building created/acquired/constructed largely from/ out of the Government Grant for adequate or less than adequate consideration or use of such premises for any purpose other than that for which the grant was intended. The decision of the Secretary to the Government of India in the Ministry of Water Resources as regards the monetary value aforementioned to the surrendered/paid to the Government shall be final and binding on the obligor.
- (5) Upon the obligor utilising the grant-in-aid only for the purpose specified in the said letter and abiding by fulfilling and performing all the terms and conditions of the said letter, the written obligation shall be void and of no effect but otherwise it shall be and remain in full force effect and virtue.

Provided always and it is hereby agreed and declared that the decision of the Secretary, Ministry of Water Resources as to whether the obligor has or has not performed and observed the obligations and conditions herein before received shall be final and binding.

Provided further that the liability of the two Signatories hereunder shall not be impaired or discharged by reasons or time being granted or any forbearance, act or, omission of the Government or any person authorised by them (whether with or without the knowledge or consent of the signatories) nor shall it be necessary for the Government to sue or take action against the obligor before suing or taking action against the signatories or either of them.

The stamp duty on the bond shall be borne by the Government.

IN WITNESS WHEREOF these presents have been signed by
Shri/Smt. _____ (name of the office bearer)
and Shri/Smt. _____ (name of the office
bearer) for on behalf of the obligor

Signed by (1) _____ Dated _____
(Signature of office bearer of the obligor)

Name and Address:

(2) _____ Dated _____
(Signature of office bearer of the obligor)

Name and Address:

in the presence of

1. Witness _____
(Signature)

Name _____ and _____ Address _____

2. Witness _____
(Signature)

Name _____ and _____ Address _____

Signed by Shri/Smt. _____ and
on behalf of the President of India in the presence of _____

(Signature)
Designation:

1. Witness _____
(Signature)

2. Witness _____
(Signature)

(EACH PAGE OF THIS BOND HAS TO BE SIGNED BY THE TWO OFFICE
BEARERS OF THE INSTITUTION WHO ARE AUTHORISED TO OPERATE
UPON AND BIND THE FUNDS OF THE INSTITUTION)

Certificate

Certificate/ Undertakings to be given by _____

_____ in
terms of Ministry of Water Resources, Government of India, New Delhi's sanction
letter No. _____ dated

1. We undertake that our Organization namely

_____ agrees to
the conditions of the grant as laid down in the above mentioned letter and
Annexure to this letter.

2. We certify that our organisation is not involved in any proceedings relating to the
account or conduct of any of its office bearers.

3. We certify that all the Rules and Regulations are being followed and the
prescribed documents are being maintained.

4. We certify that the office bearers signing undertakings are duly authorised to
operate upon and bind the funds of the organisation.

5. We certify that our organisation namely

_____ is not
engaged in any corrupt practice.

6. We certify that our organisation namely

_____ has
not received from any other department of the Central/ State Government for the
same purpose during the period of the grant.

7. We undertake to bear the prescribed percentage under the scheme towards total
project cost from our resources.

Signature of the Authorised
Person

Date

Signature of the Authorised
Person

Date

Proforma for Bio-Data of Principal Investigator (PI) and Co- Principal Investigator (Co-PI)

1. Name
2. Date of Birth
3. Date of Retirement
4. Institute
5. Full address for correspondence
6. Phone and e-mail ID
7. Educational /Professional Qualifications*

S.No.	Degree	Institution	Year of passing	Division/Class

*Commencing from latest

8. Employment Experience*

S.No.	Position & Organisation	Nature of Job	Period

*Commencing from latest

9. List of Publications (*For last 5 calendar years wise only*)

9.1 Journal Publications

9.2 Conference Presentations

10. Patents filed/Granted with details
11. Books Published /Chapters contributed
12. Track Record and Workload Assessment of the PI

List all the research *and consultancy* schemes, whether funded by MoWR or any other agency, in which the present PI is/was Principal Investigator, in following groups.

12.1 Sponsored Research / Consultancy Projects – Completed

S. No	Title	Sponsoring Agency and Officer Concerned	Period		Amount (Rs in lakh)	Achievements
			From	To		

12.2 Sponsored Research / Consultancy Projects - In-hand/ Ongoing

S. No	Title	Sponsoring Agency and Officer Concerned	Period		Amount (Rs in lakh)	Achievements
			From	To		

12.3 Research Schemes foreclosed with reason

S. No	Title	Sponsoring Agency and Officer Concerned	Period		Amount (Rs in lakh)	Reasons of foreclosure
			From	To		

12.4 Sponsored Research/Consultancy Projects submitted for approval of sanction of Grants

S. No.	Title	Agency to whom submitted	Duration	Amount (Rs in lakh)

Endorsement from collaborating Institution/Agency

I have gone through the Research proposal entitled.....
submitted by(*Name of PI*) of.....(*Name of the
collaborating Institution/Agency*) for MoWR funding and noted the
obligations and responsibilities indicated in our name which are as below :

- a. Proposed activities of research work (list activities)
- b. Estimated cost for the proposed activities (mention amount in
Rs.)
- c. Share of Overhead charges and Contingency(Taken together)

I hereby affirm that my organization is committed to participate in the
research scheme to the full extent with above mentioned obligations and
responsibilities.

**(Head of the collaborating Institution/Agency
Seal/Stamp**

**Date
Place**



Government of India

Ministry of Water Resources, RD&GR

Guidelines

for

Implementation of R&D Programme

(Sponsoring & Coordinating research in Water Sector)

Part-II: For use of Indian National Committees

R&D Division

October, 2013

1.0 Introduction

1.1 R&D Programme of MoWR- Scope & Objectives

Ministry of Water Resources (MoWR) provides financial assistance to promote research work in the field of Water Resources under activity “Sponsoring and Coordinating Research in Water sector” of R&D Programme during XII Plan. The assistance is provided by way of grants to academicians/experts (investigators) in Indian Universities, IITs, recognized R&D laboratories, Water Resources/ Irrigation departments of the Central & State Governments and Indian NGOs.

Considering the peculiarities and large variation in the nature of problems associated with water resources planning and development, the issues involved in research related to particular region and specific project, the Ministry of Water Resources is sponsoring research proposals of applied nature along with basic and action research. The research activities of such nature are implemented through Indian National Committees (INCs) involving the academicians/experts (investigators).

R&D Division, MoWR is Subject Matter Division (SMD) for coordination of above research activities which acts as the Ministry's interface with INCs as well as Secretariat to Standing Advisory Committee (SAC) of MoWR for approval of research proposals recommended by INCs.

Instructions for formulation and format for submission of research proposals and other related instructions to PI along with the subject domain/priority areas of INCs are given in Part-1 of the Guidelines. The instructions in this part of Guidelines are for use of INCs for implementation of ‘Sponsoring and Coordinating Research in Water sector’ of R&D Programme of MoWR during XII Plan.

2.0 Functions of Indian National Committees (INCs) of MoWR

The Functions of Indian National Committees (INCs) of MoWR are listed below:

- a. To co-ordinate and recommend funding for research proposals/schemes to be taken up by the research institutions/ organization/ R&D labs in the country on basic research, applied research and action research, along with other areas of research in the subject field.
- b. To review the R&D programme in the subject area; identify topics which need immediate attention and encourage the national institutions to take up research on these topics. The INCs committee may also identify and recommend the institutions for taking up research on specific topics.
- c. Preparation of TOR for research proposals to be invited by the Ministry.
- d. To encourage voluntary professional bodies and Non-Governmental Organizations (NGOs) to take up R&D activities, in the subject area
- e. To maintain effective co-ordination to avoid overlaps in the research programmes of the different institutions.

- f. To disseminate research findings by publishing journals, research news/ digests; arranging and conducting seminars/ conferences/workshops etc.
- g. To encourage indigenous industry to take up technology development in the subject area.
- h. To promote and co-ordinate effective participation of India in the International programmes related to the subject area and to act as national committee for such International bodies where required.
- i. To review the state of the art in the country in different branches of the subject area by collecting relevant information from national and international organizations and publish 'State of the art Report'.

3.0 Constitution of Indian National Committees (INCs)

3.1 The INCs are constituted by the MoWR. The subject domain/priority areas, Member Secretaries and addresses of INCs are given in Part-1 of the Guidelines. The composition of the INCs comprises the members of permanent and non permanent nature. Some members are from MoWR & its offices and others are representatives from different Ministries, Research Institution/ organization, Universities/Academic Institutes, NGOs and Experts. The compositions of three INCs are given below:

A. Composition of Indian National Committee on Surface Water (INCSW)

1. Chairman, Central Water Commission (CWC), New Delhi	Chairman
2. Member (D&R), CWC or his representative not below the rank of Chief Engineer	Member (Permanent)
3. Representative of PP Wing, MoWR not below the rank of Director	Member (Permanent)
4. Director, National Institute of Hydrology, Roorkee	Member (Permanent)
5. Director, Central Soil and Material Research Station (CSMRS)	Member (Permanent)
6. Director, Central Water and Power Research Station (CWPRS)	Member (Permanent)
7. Representative of Finance Wing, MoWR not below the rank of Director	Member (Permanent)
8. Representative of Ministry of Agriculture not below the rank of Director	Member (Permanent)
9. Representative of DST/DSIR/CSIR not below the rank of Scientist 'F'/Director	Member (Permanent)
10. One Representative of State Governments/	Member (Non-Permanent)

	Water and Land Management Institutes (WALMIs) not below the rank of Chief Engineer	
11.	One Representative of a Professional Society/NGO having relevant technical expertise	Member(Non-Permanent)
12&13.	Two eminent experts/ academicians	Member(Non-Permanent)
14.	Chief Engineer (EMO), CWC, New Delhi	Member-Secretary (Permanent)

***Updated vide order no. 41/1/2012-R&D dtd 22.07.16**

Note: Members at S. No. 10 to 13 will be nominated by MoWR on the recommendation of INC for a 3 years term. The INC may co-opt any other expert/ official as and when considered appropriate.

B. Composition of Indian National Committee on Ground Water (INCGW)

1.	Chairman, Central Ground Water Board	Chairman
2.	Member (SML), Central Ground Water Board	Member (Permanent)
4.	Representative of Central Water Commission, New Delhi not below the rank of Chief Engineer (to be nominated by Chairman, CWC)	Member (Permanent)
5.	Representative of PP Wing, MoWR not below the rank of Director	Member(Permanent)
6.	Representative of Finance Wing, MoWR not below the rank of Director	Member(Permanent)
7.	Representative of Geological Survey of India not below the rank of Director (to be nominated by Director General, GSI, Kolkata)	Member(Permanent)
8.	Representative of National Institute of Hydrology, Roorkee, not below the rank of Scientist 'F' (To be nominated by Director, NIH)	Member(Permanent)
9.	Representative of Central Pollution Control Board, New Delhi not below the rank of	Member(Permanent)

	Director (To be nominated by Chairman, CPCB)	
10.	Representative of Ministry of Environment and Forest not below the rank of Director	Member(Permanent)
11.	One Representative of State Research Institutes not below the rank of Chief Engineer	Member(Non-Permanent)
12.	One Representative of a Professional Society/NGO having relevant technical expertise	Member(Non-Permanent)
13&14.	Two (2) eminent experts/ academicians	Member(Non-Permanent)
15.	Superintending Hydrogeologist, CGWB	Member Secretary(Permanent)

***Updated vide order no. GW-1-1(A/INCGW (New) / CGWB / 2013 dtd 02.11.15**

Note: Members at S. No. 11 to 14 will be nominated by INC for a 3 years term. The INC may co-opt any other expert/ official as and when considered appropriate.

C. Composition of Indian National Committee on Climate Change (INCCC)

1.	Mission Director, National Water Mission	Chairman
3.	Director, IITM, Pune or his representative	Member (Permanent)
4.	Advisor (Technical), National Water Mission	Member (Permanent)
5.	Advisor, National Mission for Strategic Knowledge for Climate Change	Member (Permanent)
6.	Representative of PP Wing, MoWR not below the rank of Director	Member(Permanent)
7.	Representative of Finance Wing, MoWR not below the rank of Director	Member(Permanent)
9.	One Representative of IIT Delhi not below the rank of Professor	Member(Non-Permanent)
10.	One Representative of IISC Bangalore not below the rank of Professor	Member(Non-Permanent)

11.	One Representative of IIT Kanpur not below the rank of Professor	Member(Non-Permanent)
12.	One Representative of a Professional Society/NGO having relevant technical expertise	Member (Non-Permanent)
13.	Director, National Institute of Hydrology, Roorkee	Member Secretary(Permanent)

***Updated vide order no. 40/1/2012-R&D dtd 09.12.16**

Note: Members at S. No. 9 to 12 will be nominated by INC for a 3 years term. The INC may co-opt any other expert/ official as and when considered appropriate on non-financial terms.

- 3.2 Before expiry of three year term, the INC should submit a proposal to the SMD (R&D Division, MoWR) for nomination of new members for next three years. The proposal should indicate the members retiring on completion of their term and a panel of new members consisting of three times the number of retiring members for next term.
- 3.3 The case for reconstitution should be submitted to the SMD about three months before the end of the current three year term. However the committee is not automatically dissolved at the end of three year term and in the unlikely event of a delay in reconstitution, the committee should continue to function with its current membership.
- 3.4 Consent of the proposed members should be obtained by INC before proposing their names.

4.0 Secretariat Expenditure for INCs

- 4.1 The INC should plan all the activities for the financial year at the beginning of it and prepare an estimate to cover expenses of all such activities under the Secretariat Expenses of INC. The estimate may include the following items:
- a) Operational expenses (consumables, communication, expenditure for holding the meetings)
 - b) TE for PIs and non-official members: A provision to be made in the TOR of INC for the payment of Travel Expenses (TE) to the members of the INCs for travel in connection with the work of the committee as indicated in the table given below:

Members employed in offices/ organizations under Central or State Government, PSUs, private companies, associations of manufacturers and traders.	TE will not be paid by MoWR
---	-----------------------------

Members from educational institutions	TE to be paid preferably by the employer institute. But if the institute is not in a position to do so, TE can be paid by MoWR. This should be indicated in the proposal for reconstitution.
Members in their individual capacities as non-official, representing NGOs other than associations of manufacturers and traders	TE can be paid by MoWR if the member so desires. This should be indicated in the proposal for nomination/reconstitution.

Where TE will not be paid by the MoWR, this should be brought to the notice of the prospective member while seeking his consent. Members from educational institutes should be asked to confirm whether or not their institute will pay for the TE.

- c) Cost for holding R&D sessions and workshops/seminars, sponsoring events for dissemination of research findings
- d) Honorarium to experts: The INC may engage experts for examination of the new proposals and project completion reports. The amount of the honorarium may be kept as Rs. 3000/- per proposal or as decided by the MoWR from time to time.
- e) Cost of the items/office equipment which are necessary for the working of the INC and not provided by the parent office of the Member-Secretary.
- f) Cost of printing reports, publishing journals etc.

4.2 Once the estimate is sanctioned for Secretariat expenditure, the funds will be placed at the disposal of the PAO of the parent office of the Member Secretary. Further expenditure from these funds may be incurred by INC as per the GOI rules.

4.3 At the end of the financial year the Member Secretary of should submit an expenditure statement and a Utilization Certificate(UC) as on 31st March to SMD on or before 30th June. The estimate for the next year will be sanctioned only after receipt of the expenditure statement of accounts and UC for the previous year.

5.0 Policy and TOR for Invited Research Proposals

5.1 MoWR will invite research proposal in the priority areas and other areas of substantial importance in water sector. Short listing of the topics for invited research may be based on deliberations/minutes of the meetings of the SAC, workshops and seminars etc.

5.2 Final identification of the topics, objectives, methodology and the institutes to be invited for submission of proposals should all be discussed in the meeting of the SAC.

- 5.3 For invited research proposals INC will prepare TOR for deliverables & outcomes of the research and request PIs to submit the proposals in accordance with R&D Guidelines and TOR so prepared.
- 5.4 The invited schemes would be processed and recommended by the concerned INC for consideration of SAC for approval of MoWR through SMD. After approval of scheme by MoWR, the administrative approval order/releases will be processed by the SMD.

As a sample, the TORs formulated by INCCC for proposals related to impact assessment of climate change and down scaling studies of river basins are enclosed at **Appendix-1**.

6.0 Examination of Research Schemes (both Sponsored as well as Invited)

- 6.1 As soon as a new research proposal is received, the INC secretariat should examine whether the topic of the proposal is within its domain and adheres to the guidelines. It should also be checked whether the given annexure, documents /certificates are as required. If not, then the proposal may be returned to the PI with its observations. The PI may revise and resubmit it to the INC. It is the responsibility of the INC to examine all aspects of the proposal, including estimates.
- 6.2 INC should ensure that no research proposal from any of its members as PI is considered for funding.
- 6.3 If the proposal satisfies above requirements then INC will allot an identification number for reference and send soft copy of the proposal to 2-3 experts/ reviewers for its peer review and to all its members for their views if any.
- 6.4 Comments received from all the sources should not individually be sent to the PI for compliance/replies. The INC Secretariat may consolidate all the comments and send these to the PI in one go.
- 6.5 The source of each comment is to be kept confidential from the PI.
- 6.6 On receipt of the views from reviewers, INC may ask the PI to submit the revised proposal after incorporating the views of the experts/ reviewers and the observations of INC, if any.
- 6.7 For verification that there is no duplication of study/ research proposal, INC will obtain views of DST/DSIR/CSIR, Ministry of Earth Sciences, Ministry of Environment & Forest and Ministry of Agriculture etc on the proposal within a month from date of issue of such letter from INC. The respective National Missions under the National Action Plan on Climate Change are also to be consulted prior to consideration of the proposal/inviting proposal on the topic selected in the case of INCCC.
- 6.8 The entire process of examination and evaluation should be completed within 6 months.

7.0 Procedure for approval of research schemes (both Sponsored as well as Invited)

- a. After completing the process of examination as discussed in Para 6 above, the INC may hold its meeting and invite PIs to present their proposals before the Committee for discussion. On the basis of discussion, INC may take a view on the schemes to recommend or not for further consideration.

- b. The sponsored proposals amounting up to Rs. 1.00 crore would be recommended by INCs and send to SMD i.e. R&D Division in prescribed Proforma (**Appendix-2**) for APPROVAL/SANCTION OF MOWR for funding.
- c. The Sponsored proposals costing more than Rs. 1.00 crore and all invited proposals would be recommended by the INCs for further consideration by SAC through SMD for APPROVAL/SANCTION OF MOWR for funding.

8. Monitoring of Progress of Research Schemes

The method of monitoring of progress (both physical & financial) of research scheme should be indicated by INC while making recommendation of the scheme for Approval/Sanction of MoWR. For the monitoring of progress, an annual progress report (from 1st April to 31st March) of ongoing schemes is required to be submitted by PI to the INC on or before 30th June of the following financial year. Each INC will identify the schemes requiring specific monitoring depending upon the cost involved and importance/ urgency of outcome. The remaining schemes could be monitoring based upon the periodic reports submitted by PIs.

8.1 For monitoring the progress of the ongoing research schemes each INC should conduct the R&D session at least once a year with following objectives:

- a. Mid-term and peer review of ongoing schemes.
- b. Identification of areas that are neglected and which need attention.
- c. General brainstorming.

8.2 The session should involve not only the members of INC, officers from MoWR and organization under MoWR but also the reputed academicians and practicing engineers, technology leaders. Young scientists and engineers will find it encouraging if some of them, down to the level of RA/SRF/JRF, from some select schemes are involved.

8.3 Each INC will identify the schemes requiring specific monitoring depending upon the cost involved and importance/ urgency of outcome. For the purpose of specific monitoring, INC may prepare a panel of experts to visit the institute periodically to review the progress of work being carried out and to suggest suitable measures to ensure realization of the objectives / outcomes of the project.

8.4 Annual progress report (from 1st April to 31st March) of ongoing schemes is required to be submitted by INC to the SMD within 15 days of the receipt of the same from PI. Status of pending progress reports would be reported by the INC to SMD by 31st July of the following financial year.

9. Release of funds, time extension, revalidation etc.

9.1 All service requests for release of funds, revalidation, revision of estimate etc. in respect of ongoing schemes will be examined and recommended by concerned INCs per the check list (**Appendix-3**) for processing by SMD.

9.2 The approval for time extension for completion of the projects will be granted by INC subject to fulfillment of conditions, upto six months from the original date of completion. Any further time extension would be referred with recommendations to SMD.

9.3 Requirements to be fulfilled for obtaining further installments of funds, revalidation of unused funds, time extension etc. and procedure to be followed are given in Part 1- of the Guidelines.

10 Closure on completion /Premature closer

10.1 Mostly the PI would complete the work and the scheme would be closed in the normal course. As indicated in Part-1 of the Guidelines, the PI will first send only a draft report to the INC. The INC will then get the draft report examined by members of INC, officers from the organizations under MoWR and if necessary, external experts.

10.2 The draft report would be examined in the context of stated objectives, outcomes and methodology as given in the original proposal. The purpose is to verify if the stated methodology has been followed. The draft report should thereafter be accepted, if necessary with minor modifications, and the PI can proceed with final report.

10.3 If it is felt that the PI has not made sincere efforts to achieve the stated objectives then it needs to be considered whether any useful purpose can still be achieved within the remaining funds (if any) by insisting on more work. If this is not possible then the scheme may be prematurely closed.

10.4 When a scheme is to be terminated prematurely, the case should be examined by the concerned INC with reasons and justification for premature termination. It is proposed that all the grant should be recovered then the INC may write to the PI without approval from the MoWR but if it is proposed to recover only the unspent balance then the case should be submitted to the MoWR with justification for not recovering the entire amount. In such case, the adverse comments should be taken into account when evaluating the track record of the institute and the PI the next time he submit a new proposal.

10.5 In cases where the experts evaluating the results consider that some more work will significantly improve the outcome, the matter may be discussed with the PI for continuing the scheme with additional funding if necessary, or for submission of a new proposal.

10.6 Approval from MoWR is not necessary to close the scheme on its completion. However, following documents should be kept by INC for dissemination/record and a copy of the same may be sent to R&D Division:

- Two copies of the final completion report in print format.
- The soft copy of the report.
- Comments on draft report by the evaluators.
- A brief assessment by the INC indicating the action to be taken on the outcome of the work.
- Final statement of account, all Utilisation Certificates.

10.7 The demand draft for unspent balance receipt from PI should be sent to PAO, MoWR by INC under intimation to R&D Division with photocopy of the draft.

10.8 Printing of Reports and Dissemination of Research Outcomes

Necessary provision may be made in the annual budget of the INC for printing extra reports if required. Also, when the INC prints the report due credit should be given to

the authors of the report, the PI and other investigators who worked on that project. INC should device methodology for effective dissemination of outcome of research. A copy of report should be uploaded on the website of the INC and MoWR.

Note: These guidelines should be read with the “Part 1 Instruction for Investigators”.

Appendix 1 Terms of Reference (TOR) for Invited Proposals

(Sample Downscaling and Impact assessment of Climate Change for River Basins for R&D Proposals under INCCC)

TOR-1 : TOR for R&D Project proposals of INCCC: Downscaling Studies

TASK 1: Project formulation and monitoring

TASK 2: Data collection and data base development

TASK 3 : Selection of GCMs

TASK 4: Bias Correction

TASK 5: Statistical Downscaling

Task 6: Dynamic downscaling

TASK 7: Downscaling of Extremes

TASK 8 : Uncertainty Analysis

TASK 9: Presentation of Results

DELIVERABLES

- Baseline data, information and past studies considered for downscaling.
- GCM simulations used for downscaling with Bias correction.
- Downscaled output of minimum five GCM simulations in CMIP5 for climatological variables in a compact grid format, at different temporal scales (preferably at daily interval) projected up to the years 2100, for the basin using statistical/dynamic down scaling techniques and to be made available to all the PIs within one year.
- Outputs may be projected at basin scale and also at State/UT scale so that the results could become direct inputs to the basin level impact studies and State level action plan being prepared by other agencies.
- Downscaled output for hydrological extremes for the basin projected up to the years 2100.
- Outputs of uncertainty analysis of various downscaling
- Organisation of Workshop/Trainings on downscaling.

TOR-2 : TOR for R&D proposals on Impact Assessment of Climate Change

TASK 1: Project formulation and Monitoring

TASK 2: Data collection and data base development

TASK 3: Downscaling

TASK 4: Calibration and Validation of Hydrological Models

TASK 5: Assessment of climate change impacts

TASK 6: Conclusions and Adaptation options

DELIVERABLES

- Base line data, information and past studies
- Results of parametric/non-parametric tests for trend detection for hydro-meteorological and hydrological variables.
- Calibrated and validated hydrological model(s)
- Impacts on water availability at various gauging sites within the basin (in terms of change in flow duration curves),
- Impacts on irrigation water demands,
- Identification of hydrological extremes based on the base line data
- Impacts on meteorologic/hydrologic droughts (in terms of change in frequencies of occurrence), Analysis of uncertainties in the impacts. The impacts and the associated uncertainties must be assessed for near-future (2015-2040) and for distant future (2040-2100), and
- Recommendations for adaptation measures/options
- Additional deliverables (optional) depending on their importance for the basin and the available expertise in the investigating team.

Note: This is a sample of TOR prepared by INCCC for ‘Downscaling’ and ‘Impact assessment of Climate Change for River Basins’ and given here for illustrative purpose only. The actual TORs and deliverables would be communicated by INCs at the time of inviting the proposals.

Appendix2: Proforma for submission of new research schemes for Approval of Standing Advisory Committee (SAC)

1. Name of Scheme :		
2. Name of PI :		
3. Institute :		
4. INC :		
5. Total Cost :		
6. Duration :		
7. Amount of first installment :		
8. Objectives:		
9. Methodology:		
10. Abstract of Cost:		
No.	Head	Amount in Rs.
i.	Remuneration/ Emoluments	
ii.	Travel Expenditure	
iii.	Experimental Charges	
iv	Infrastructure	
	<i>Sub Total</i>	
v.	Contingencies	
	<i>Total</i>	
vi.	Institutional Overhead Charges	
	<i>Grand Total</i>	
11. Identified end users of outcome of the research and their views/ recommendation:		
12. Duplicity Check from DST, DSIR &CSIR:		

Appendix 3: Check List for Service Request for Ongoing Schemes

1. Title of the Scheme:
2. Name of PI:
3. Sanctioned cost:
4. Sanctioned Duration:
5. Starting date of the Scheme:
6. Schedule completion date:
7. Services Recommended by the INC:

Year wise amount released so far	Year	Amount Released	Expenditure Incurred	Balance
	Total			
Release of further installment	Amount:			
Revalidation of unspent balance	Amount:		For Year:	
	Amount:		For Year:	
Time Extension (enclose a note on reasons for delay and justification for time extension)	Scheduled Date of Completion:			
	Time Extension up-to:			
Revision of estimate	Current Sanctioned Cost			
	Revised Cost			
Any other?				

8. Enclosures

Yes/No/Not Applicable

Utilization Certificate	
Subhead wise expenditure statement, indicating deviation if any and justification for the deviations.	
Details of permanent equipment purchased with GFR 19	

9. Progress

Yes/No/Not Applicable

Monitoring. Is it satisfactory?	
Is progress of work satisfactory?	
Is it commensurate with expenditure, particularly on salary and TE?	
Is it commensurate with utilization of man-months?	
If release of fund is being recommended then confirm whether the corresponding mile stones have been achieved.	
Cost of permanent equipment. Is it prima facie reasonable?	
Deviations of expenditure from sanctioned cost. Are the deviations and justifications for the same acceptable?	

Signature of the Member-Secretary of INC

14. Check List for processing the release of funds for the new research proposal

S. No.	Items to be checked	Yes/No
1.	Research proposals on invited topics should be submitted to respective Indian National Committees implementing R&D Scheme of MoWR, RD & GR.	
2.	INC sect. examine the proposal as per the R&D Guidelines	
3.	The proposal found appropriate as per the R&D Guidelines are put-up by the INC sect. before INC for consideration.	
4.	INC discusses the proposal and on finding it appropriate recommends to R&D Division for processing.	
5.	R&D Division put-up the proposal to Standing Advisory Committee (SAC) for consideration and approval.	
6.	The proposals recommended by the SAC are processed by respective INCs with the PI/Institutes for getting the MoU signed.	
7.	Proposals recommended by the SAC are processed by the R&D Division in the Ministry for getting approval of Secretary, WR, RD&GR (<i>through IFD of MoWR, RD&GR</i>) for Administrative Approval of the proposal and Expenditure Sanction for release of 1 st installment.	
8.	R&D Division issue Order for release of funds to the PI/Institute.	

15. Check List for processing the release of funds for the on-going research proposal

S. No.	Items to be checked	Yes/No
1.	UCs of the previous releases is submitted.	
2.	The proposal is in the prescribed proforma.	
3.	The proposal is recommended by the concerned INC.	
4.	Adequate Budget is available to fund the scheme.	
5.	Deviation from the Administrative Approval issued by the R&D Division.	
6.	Escalation of cost (if yes, case need to be referred to SAC for consideration)	
7.	Time extension (if yes, than its justification)	
8.	Concurrence of IFD for releasing the funds	
9.	Approval of Secretary for releasing the funds	

After the completion of above formalities R&D Division will issue the Order for releasing the funds for the ongoing research proposal.

Government of India
 Ministry of Water Resources
 River Development & Ganga Rejuvenation
 P P Wing - R&D Division
 1st floor, Wing-4, West Block-I, R.K. Puram, New Delhi-110066
 Telefax: 011-26104082 E-mail: watrmd-mowr@nic.in

No. 18/30/2015-R&D/ 710-722

Dated: 30.07.2015

OFFICE MEMORANDUM

Subject: Invited Research Proposals only on the identified topics by the Ministry of WR, RD & GR, for consideration of funding under Plan Scheme 'Research & Development Programme in Water Sector'.

Approval of the competent authority is hereby conveyed for the consideration of only Invited Research Proposals on the identified topics (*Proposals which are invited by the Ministry of WR, RD & GR*), for funding under Plan Scheme 'Research & Development Programme in Water Sector'.

The Guidelines for the Implementation of R&D Programme, 2013 will stand modified to this effect.

This issues with the concurrence of Integrated Finance Division, Ministry of WR, RD & GR vide its Diary No. FTS dated 03.06.2015.

27/5/15
 30.7.15
 (S K Gangwar)
 Director (R&D)

To

1. Chairman, Central Water Commission & Chairman (INCSW), Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. Additional Secretary, MoWR, RD & GR & Chairman (INCCC), Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
3. JS&FA, MoWR, RD & GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
4. JS (PP), MoWR, RD & GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
5. Chairman, Central Ground Water Board, Jam Nagar House, Man Singh Road, New Delhi-110011.
6. Director, Central Water & Power Research Station, Khadakwasia, Pune-411024.
7. Director, Central Soils & Materials Research Station, Olof Palme Marg, Hauz Khas, New Delhi - 110016
8. Director (NIH) & Member-Secretary (INCCC), Jal Vigyan Bhawan, Roorkee-247667.
9. Member-Secretary (INCSW) & Chief Engineer (EMO), CWC, Room No. 413(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
10. Member-Secretary (INCGW) & Superintending Hydrogeologist, CGWB, 18/11, Jam Nagar House, Man Singh Road, New Delhi - 110011.

Dr. S. K. Gangwar
 A
 3/8
 P
 dissend

- 2 -

11. Director (R&R), CWC, Room No. 403(S), Sowa Bhawan, R.K. Puram, New Delhi-110066.
12. Guard File of R&D Division, MoWR, RD & GR.

Copy for information to:

1. PPS to Secretary, MoWR, RD & GR & Chairman, Standing Advisory Committee for implementation of Research & Development Programme under the Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.

Government of India
Ministry of Water Resources
River Development & Ganga Rejuvenation
P P Wing - R&D Division
1st floor, Wing-4, West Block-I, R.K. Puram, New Delhi-110066
Telefax: 011-26104082 E-mail: watrnd-mowr@nic.in

No. 18/30/2015-R&D/524-541

Dated: 18.06.2015

OFFICE MEMORANDUM

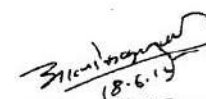
Subject: Revised rate of Overhead Charges for the research proposals funded under R&D Programme of MoWR, RD & GR.

Approval of the competent authority is hereby conveyed for the revised rates of overhead charges similar to the overhead charges as mentioned at the sub para (iii) of para-1 of DST OM No. SR/S9/Z-11/2013 dated 24.02.2015 (copy enclosed as Annex - I, titled "Norms for individual centric Extramural Research Project funded by Department of Science & Technology, Government of India") for the research proposals funded under R&D Programme of MoWR, RD & GR.

This issues with the concurrence of Integrated Finance Division, Ministry of WR, RD & GR vide its Diary No. FTS dated 03.06.2015.

Encl.: As above

o/c


(Alok Kumar Maurya)
Assistant Director (R&D)

Copy to:

1. Chairman, Central Water Commission, Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. JS&FA, MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
3. JS (PP), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
4. Commissioner (SPR), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
5. Commissioner (Pen-R), MoWR, RD&GR, Shastri Bhawan, New Delhi-110 001.
6. Commissioner (FM), MoWR, RD&GR, 8th floor, Block No. 11, CGO Complex, New Delhi-110 003.
7. Commissioner (Indus), MoWR, RD&GR, 8th floor, Block No. 11, CGO Complex, New Delhi-110 003.
8. Commissioner (B&B), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
9. Chairman, Central Ground Water Board, Jam Nagar House, Man Singh Road, New Delhi-110011.
10. Director, Central Water & Power Research Station, Khadakwasla, Pune-411024.
11. Director, Central Soils & Materials Research Station, Olof Palme Marg, Hauz Khas, New Delhi - 110016

Contd....2

12. Director, NIH, Jal Vigyan Bhawan, Roorkee-247667.
13. Member-Secretary (INCSW) & Chief Engineer (EMO), CWC, Room No. 413(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
14. Member-Secretary (INCCC) & Director, NIH, Jal Vigyan Bhawan, Roorkee-247667.
15. Member-Secretary (INCGW) & Superintending Hydrogeologist, CGWB, 18/11, Jam Nagar House, Man Singh Road, New Delhi – 110011.
16. Director (Finance), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
17. Director (R&R), CWC, Room No. 403(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
18. Under Secretary (FD-I), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.

No. SR/S9/Z-11/2013
Government of India
Ministry of Science & Technology
Department of Science & Technology

Technology Bhawan
New Delhi - 110016

Dated: 24 February, 2015

OFFICE MEMORANDUM

Subject: Norms for individual centric Extramural Research Project funded by Department of Science & Technology, Government of India.

The question of framing revised norms for the Individual Centric Extramural Research (EMR Projects) has been under consideration of the Department for quite some time. In supersession of earlier instructions on this subject, it has now been decided that the following norms will be applicable to individual centric EMR projects (i.e. proposals submitted by an individual researcher or a group of researchers including proposals for establishing Centres, Units etc.) funded by the Department of Science & Technology, Government of India.

(i) Equipment:

Full cost of equipment/s which is/are specifically recommended/approved by Project Advisory Committee (PAC) be provided without discriminating the type of institutions (Public, Private, NGO etc.). Ownership of such equipments shall vest in the Government and these shall not be disposed of without obtaining prior approval of the authority which sanctioned the grant-in-aid. At the end of the project a specific request be made by the grantee institution for retention/transfer of these equipments to the Institute subject to the institute in ensuring proper upkeep of these equipments and making these available to the other researchers on recommendation of DST. A list of such equipments be placed in the website of the concerned institute.

(ii) Emoluments:

The emoluments for manpower (other than JRF, SRF, RA and Research Scientist) to be fixed as per the norms adopted by the implementing institutions. In instances where the norms are not available in the institution, the norms framed by Department will be applied.

(iii) Overheads:

Towards meeting the cost of *academic* expenses including infrastructural facilities, an amount of:

- a) For projects costing upto Rs. 1 crore, 10% of the total cost for educational institutions and NGOs and 8% for laboratories and institutions under Central Government Departments/Agencies;

b) for projects costing more than Rs. 1.0 crore and upto Rs. 5.0 crore, overheads of Rs. 15.0 lakh or 10% of total cost whichever is less;

c) for projects costing more than 5.0 crore and upto Rs. 20.0 crore, Rs. 20.0 lakh will be provided as overheads; and

d) for projects costing more than Rs. 20.0 crore, the quantum will be decided on a case to case basis.

(iv) Travel & Contingencies:

Rs.50,000/- each per annum will be provided for Travel and Contingencies. Higher amount, based on the recommendations of the Expert Committee, to be provided where the research work involves field work or/and project has many investigators / institutions and larger manpower. The contingency amount may also be used for paying Registration Fees for attending international conferences.

(v) Consumables / Supplies & Materials:

The amount may be fixed based on the recommendations of the Expert Committee.

(vi) Flexibility in Recurring budget:

a) Though different allocations are made under various heads in recurring budget such as manpower, consumables, contingency, travel, etc., the investigator has been given flexibility to use upto 10% funds sanctioned under each recurring heads (consumables, travel, contingency etc, but not manpower budget) *The PI will inform the Programme Division accordingly. The Programme Division in such cases will issue the revised sanction within the said limit of 10 percent and overall recurring budget allocation.*

b) The Investigator will have the flexibility to appoint more or lesser number of staff and change the designation of manpower within the sanctioned manpower budget.

(vii) Entitlement of travel and accommodation by non-official members:

a) Non-official members invited for the official meetings be provided economy class air fare. Specific approval of Secretary, DST be taken for travel by executive/higher class where a non-official is or was entitled to travel by executive class.

(viii) Honorarium:

Sitting fee / Honorarium to non-official members will be provided @ Rs.2,500/- per day for the meeting day.

(ix) Extension of Projects:

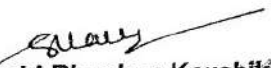
Extension of project upto six months can be granted by the Head of Programme Division, at the specific recommendations of PAC, if it does not involve increase in the cost of the project. Extension beyond the period of six months, should be granted only with the concurrence of IFD.

(x) Transfer of PI from one Institute to another Institute

The change of the host institute on account of PI moving from one host institute to another host institute will be considered in DST subject to the present host institute giving its no objection certificate and the prospective institute agreeing to the terms and conditions of sanctioning of the grant. In such cases, the equipment etc and the balance of funds will be transferred from the present institute to the proposed institute.

2. This OM comes into effect immediately. Cases in which the sanctions have already been issued will not be reopened.

3. This issues with the approval of Secretary, DST vide Dy. No.718 dated 5 February 2015 and concurrence of JS&FA vide his Dy. No. 2106 dated 17 February 2015


(Shashi Bhushan Kaushik)
Director

Copy to:

1. All Divisional Heads, DST.
2. PPS to Secretary, DST.
3. PS to JS & FA, DST.
4. COA, DST.
5. DS(IFD), US(IFD), IFD, DST.
6. DDO, DST

Government of India
Ministry of Water Resources
Ganga Rejuvenation & River Development
P P Wing - R&D Division
1st floor, Wing-4, West Block-I, R.K. Puram, New Delhi-110066
Telefax: 011-26104082 E-mail: watrnd-mowr@nic.in

No. 16/10/2002-R&D/207-224

Dated: February 27, 2015

OFFICE MEMORANDUM

Subject: Revised guidelines on emoluments and other conditions of service for research personnel etc.


In continuation to this Ministry OM No. 16/10/2002-R&D/2000-28 dated 16.09.2010 regarding the above subject, it has been decided that the "Revision of emoluments and guidelines on service conditions for research personnel employed in R&D programme of Central Government Departments /Agencies" issued vide Department of Science and Technology OM No. SR/S9/Z-09/2012 dated 21.10.2014 (enclosed as Annex - I) will be applicable to the research schemes in the R&D programme of the MoWR, RD&GR subject to the condition that extensions under R&D scheme no additional costs/outgoes on accounts of payments to JRF/SRF/RAs are incurred.

The Revised Guidelines will be applicable with effect from 1.10.2014.

This issues with the approval of Secretary (WR, RD&GR).

Encl.: As above

क.प.


27/2/15
(Kayum Mohammad)
Director (R&D)

Copy to:

1. Chairman, Central Water Commission, Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. JS&FA, MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
3. JS (PP), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
4. Commissioner (SPR), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
5. Commissioner (Pen-R), MoWR, RD&GR, Shastri Bhawan, New Delhi-110 001.
6. Commissioner (Ganga), MoWR, RD&GR, 8th floor, Block No. 11, CGO Complex, New Delhi-110 003.
7. Commissioner (Indus), MoWR, RD&GR, 8th floor, Block No. 11, CGO Complex, New Delhi-110 003.
8. Commissioner (B&B), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
9. Chairman, Central Ground Water Board, Jam Nagar House, Man Singh Road, New Delhi-110011.
10. Director, Central Water & Power Research Station, Khadakwasla, Pune-411024.

Contd....2

11. Director, Central Soils & Materials Research Station, Old Palam Marg, Hauz Khas, New Delhi – 110016
12. Director, NIH, Jal Vigyan Bhawan, Roorkee-247667.
13. Member-Secretary (INCSW) & Chief Engineer (EMO), CWC, Room No. 413(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
14. Member-Secretary (INCCC) & Director, NIH, Jal Vigyan Bhawan, Roorkee-247667.
15. Member-Secretary (INCGW) & Superintending Hydrogeologist, CGWB, 18/11, Jam Nagar House, Man Singh Road, New Delhi – 110011.
16. Director (Finance), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
17. Director (R&R), CWC, Room No. 403(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
18. Under Secretary (FD-I), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.

SR/S9/Z-09/2012
Government of India
Ministry of Science & Technology
Department of Science & Technology

Technology Bhavan
New Mehrauli Road
New Delhi-110016

Dated: October 21, 2014

OFFICE MEMORANDUM

Subject: Revision of emoluments and guidelines on service conditions for research personnel employed in R& D programme of the Central Government Departments/Agencies

Attention is invited to the Office Memorandum (O.M.) No. A-20020/11/97-IFD dated 31.03.2010 issued by the Department of Science and Technology, Government of India on the above subject. The matter has been further considered by the Government and the following revised emoluments have been approved. The O.M. is applicable to the research personnel working on R&D programmes funded by the Central Government Department/Agencies.

1) **Emoluments:**

A. **Junior Research Fellow (JRF) / Senior Research Fellow (SRF)**

Sl. No.	Designation & Qualification	Revised Emoluments per month
I	Junior Research Fellow (JRF) Post Graduate Degree in Basic Science with NET qualification or Graduate Degree in Professional Course with NET qualification or Post Graduate Degree in Professional Course	Rs.25,000/-
II	Senior Research Fellow (SRF) Qualification prescribed for JRF with two years of research experience	Rs.28,000/-

The local institution shall review the performance of JRF after two years through an appropriate Review Committee constituted by the Head of the Institution. The fellow may be awarded SRF after successful assessment by the Review Committee.

B. **Research Associate**

Research associates may be fixed at a consolidated amount at one of the 3 pay levels given below depending upon the qualification and experience. The Institute/Organization

concerned may decide the level in which a particular associate should be placed based on the experience. The Essential Qualification (EQ) for RA is as follows:

Ph.D/MD/MS/MDS or equivalent degree or having 3 years of research, teaching and design and development experience after MVSc/M.Pharm/ME/M.Tech with at least one research paper in Science Citation Indexed (SCI) journal.

Sl. No.	Category	Revised Emoluments per month
I	Research Associate –I	Rs.36,000/-
II	Research Associate –II	Rs.38,000/-
III	Research Associate –III	Rs.40,000/-

2. Service Conditions:

- (i) **DA:** JRFs, SRFs and Research Associates will not be entitled to DA.
- (ii) **House Rent Allowance (HRA):** All research fellows may be provided hostel accommodation wherever available and those residing in accommodation provided by the institute will not be eligible for drawing HRA. Wherever provision of hostel accommodation is not possible, HRA may be allowed to all the above categories viz. JRF, SRF and RA as per Central Government norms applicable in the city/location where they are working. The fellowship amount may be taken as basic for calculating the HRA.
- (iii) **Medical Benefits:** The research fellows and research associates (JRF/SRF/RA) will be entitled for medical allowance as applicable in the implementing institution.
- (iv) **Leave and other entitlements:** The JRF/SRF are eligible only for casual leave while Research Associates are entitled to leave as per rules of the host institution. Participation of any of these categories (JRF/SRF/RA) in scientific event/workshops held in India or abroad will be treated as "on duty". The travel entitlement for JRF/SRF/RA for participation in scientific events/workshops in India will continue to be the same as earlier i.e. 2nd AC by rail. Maternity leave as per the Govt. of India instructions issued from time to time would be available to female candidates in all categories.
- (v) **Bonus & Leave Travel Concession:** JRFs, SRFs and Research Associates will not be entitled to these allowances.
- (vi) **Retirement Benefits:** JRFs, SRFs and Research Associates will not be entitled to these benefits.
- (vii) **Publication/Patent:** The results of JRF/SRF/RA's research work may be published in standard refereed journals at the discretion of the Fellow or his/her Guide. It should be ensured by the fellow that the assistance provided by the funding agency of Government of India is acknowledged in all such publications.
- (viii) **Engagement for pursuing higher degree:** Students selected as JRF/SRF may be encouraged to register for higher degrees and the tuition fees to undertake these studies may be reimbursed to the student from the contingency grant sanctioned under the project grant, if required.

No. 15/1/2014-R&D/167-187

Dated: 26.2.2015

ORDER

Sub: Reconstitution of Standing Advisory Committee (SAC) for implementation of Research & Development Programme under the Ministry of Water Resources.

In partial modification of earlier order No. 15/1/2004-R&D/1164-85 dated 26.06.2009, the Standing Advisory Committee (SAC) for implementation of R&D Programme under the Ministry of Water Resources is hereby reconstituted with the following composition and terms of reference.

I. Composition of SAC:

S.No	Officials/ Members of SAC	
1	Secretary (WR, RD & GR)	Chairman
2	Chairman, INCSW (Chairman, CWC)	Member
3	Additional Secretary (WR, RD & GR)	Member
4	Chairman, INCCC (Mission Director, NWM)	Member
5	Chairman, INCGW (Chairman, CGWB)	Member
6	Joint Secretary & Financial Advisor	Member
7	Joint Secretary (PP)	Member
8	One representative of Department of Science & Technology (DST) <i>not below the rank of Scientist 'G'</i>	Member
9.	One professor in relevant discipline from IITs	Member
10.	One Scientist form Department of Space	Member
11.	Director(R&D), MoWR, RD & GR	Secretary

I. Terms of Reference (TOR):

The TORs for the proposed SAC are as follows:

1. To consider sponsored proposals amounting more than Rs. 1.00 crore and all invited proposals received from various Indian National Committees and making recommendations for their approval by MoWR.
2. To make necessary suggestions in respect of priority areas of research where the proposals need to be invited under R&D programme.
3. To carry out 6 monthly reviews and to provide necessary guidance & directions from time to time on effective implementation of R&D Programme of the Ministry.
4. The SAC will meet as and when required but at least once in six months.
5. The SAC may co-opt any other expert/official as when considered appropriate.
6. The Non-official members will be entitled for TA as per rule.

This issues with the approval of Secretary (WR, RD&GR).


(Kayum Mohammad)
Director(R&D)

To
✓ All Members of SAC, MoWR, RD&GR.

Copy to :

1. Secretary, Ministry of Science & Technology, Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110016 with request to nominate a Scientist.

2. Dean, Research & Devilmnt I.I.T Delhi. Hauz khas, New Delhi with request to nominate one Professor in the field of Water Resources.
3. Director, P&PR Unit, Antariksha Bhawan New BEL Road Bangalore 560231 with the request to nominate a Scientist associated with water resources projects.
4. Commissioner SPR/Pen-R/Ganga/B&B/Indus, MoWR
5. Director (CSMRS)/Director (CWPRS)/Director (NIH).
6. Director (Finance), MoWR.
7. Member-Secretary, INCSW/INCGW/INCCC.
8. All other concerned.

Copy for kind information to :

1. PPS to Secretary (WR, RD&GR), MoWR, RD&GR, Shram Shakti Bhavan, Rafi Marg New Delhi.
2. PPS to Additional Secretary (WR, RD&GR), MoWR, RD&GR, Shram Shakti Bhavan, Rafi Marg, New Delhi.

Government of India
Ministry of Water Resources, RD & GR
P P Wing – R & D Division
1st Floor, Wing 4, West Block-I, R.K. Puram, New Delhi-110066
Telefax: 011-26104082 E-mail: watrnd-mowr@nic.in

No. 41/1/2012-R&D/ 1434-1439

Dated: 22.7.2016

Subject: Nomination of Director, INCSW Sectt. as Member Secretary, INCSW.

The approval of Ministry of Water Resources, RD&GR is conveyed (on the proposal of CWC sent vide INCSW letter No. 01/01/2013-INCSW/337 dated 30.06.2016) for designation of Director, INCSW Sectt. as Member Secretary, INCSW in placed of Chief Engineer (EMO). Copy of the relevant extracts of notes containing the approval of competent authority is enclosed for record.

Encls: As above

215/17 22/7/16
(S. K. Gangwar)
Director (R&D)

To:

- ✓ 1. Member-Secretary (INCSW) & Chief Engineer (EMO), CWC, Room No. 413(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.

Copy to :

1. Chairman, CWC & Chairman (INCSW), Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. JS (PP), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
3. Member-Secretary (INCCC) & Director (NIH), Jal Vigyan Bhawan, Roorkee-247667.
4. Secretary, CWC, 313 (S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
5. Member-Secretary (INCGW), Scientist 'D', CGWB, Bhujal Bhawan-NH-IV, Faridabad-121001.



[Signature]
22-7-16

Government of India
Central Water Commission
INCSW Secretariat & RR Directorate

Room No. 412 (S), Sewa Bhawan, R. K. Puram, New Delhi-66.
Tel -26102894/26711025, Email: incid-cwc@nic.in

No. 01/08/2014-INCSW/25-142

Dated: 19/05/2015.

Order



Sub: Constitution of Indian National Committee on Surface Water (INCSW) of MoWR, RD & GR.

In pursuance of Min of WR order no. MoWR OM No. 18/30/2011-R&D/740-751, dated 28.10.2013, and 41/1/2012-R&D/202-203, dated 27.02.2015 the Indian National Committee on Surface Water (INCSW) of MoWR is constituted, after getting nomination of experts from various departments / Institutions, which is as under –

- | | |
|--|------------------------------|
| 1. Chairman, Central Water Commission, (CWC), New Delhi | Chairman |
| 2. Member (D&R), CWC or his representative (not below the rank of Chief Engineer) | Member (Permanent) |
| 3. Director, R&D Dn., MoWR RD&GR, New Delhi (Representative of PP Wing, MoWR, RD & GR) | Member (Permanent) |
| 4. Director, National Institute of Hydrology, Roorkee | Member (Permanent) |
| 5. Director, Central Soil and Material Research Station (CSMRS) | Member (Permanent) |
| 6. Director, Central Water and Power Research Station (CWPRS) | Member (Permanent) |
| 7. Representative of Finance Wing, MoWR, RD & GR (not below the rank of Director) | Member (Permanent) |
| 8. Shri A.B. Rath, Additional Commissioner, RFS Dn., Deptt. Of Agriculture & Cooperation (Representative of Ministry of Agriculture) | Member (Permanent) |
| 9. Dr. Neeraj Sharma, Scientist 'G', DST (Alternate – Dr. Sanjay Bajpai, Scientist 'F') (Representative of DST/DSIR/CSIR) | Member (Permanent) |
| 10. Shri H.T. Mendhegiri, DG, WALMI, Aurangabad (Representative of State Governments/WALMI) | Member (Non-Permanent) |
| 11. Shri A.C. Gupta, Director, CBIP, New Delhi (Representative of a Professional Society/NGO) | Member (Non-Permanent) |
| 12. Dr. S. Dey, IIT, Kharagpur (eminent expert/ academician) | Member (Non-Permanent) |
| 13. Dr. E.J. James, Water Institute, Karunya University, Coimbatore (eminent expert/ academician) | Member (Non-Permanent) |
| 14. Chief Engineer (EMO), CWC, New Delhi | Member-Secretary (Permanent) |

- Note:
1. Members at S. No. 10 to 13 will be nominated by MoWR on the recommendation of INC for a 3 years term.
 2. The INC may co-opt any other expert/official as and when considered appropriate

Rupaeham

(R.K. Pachauri)

Chief Engineer (EMO) & Member Secretary

Copy for information to –

1. PPS To Secretary (WR), Min of Water Resources River Development & Ganga Rejuvenation Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
- ✓ 2. PPS To Chairman, Central Water Commission, Sewa Bhawan, R.K.Puram, New Delhi.
3. PPS to Additional Secretary, MoWR, RD & GR / Member (D&R), CWC/ Member (RM), CWC Member (WP&P), CWC
4. Jt. Secretary (PP), MoWR, RD & GR, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001 Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
5. Joint Secretary & Financial Advisor, MoWR, RD & GR, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001. Shram Shakti Bhawan, Rafi Marg, New Delhi 110001
6. The Director, Central Soil & Material Research Station, Outer Ring Road, Olof Palme Marg Hauz Khas, New Delhi - 110 016
7. Director, Central Water & Power Research Station, Khadakwasla, Pune-411024
8. The Director, National Institute of Hydrology, Roorkee – 247667
9. The Director (R&D), R&D Division, MoWR, RD & GR, 1st floor, Wing-4, West Block – I, R.K Puram, New Delhi-110 066.
10. Shri A.B. Rath, Add. Commissioner, RFS Dn., Deptt. Of Agriculture & Cooperation, 356, Krish Bhawan, New Delhi 110 001
11. Dr. Neeraj Sharma, Scientist 'G' & Head, Technology Mission - Water & Clean Energy, Govt. of India, Deptt. of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi 110016.
12. Shri H.T. Mendhegiri, D.G., WALMI, Aurangabad
13. Shri A.C. Gupta, Director, Central Board of Irrigation & Power Malcha Marg, Chanakyapuri New Delhi – 110021.
14. Prof. S. Dey, Prof. and Head, Deptt. Of Civil Engineering. IIT, Kharagpur 721 302.
15. Dr. E. Joseph James, Distinguished Professor, Water Institute, Karunya University, Coimbatore 641114

Government of India
Ministry of Water Resources
PP Wing - R&D Division

1st Floor, Wing 4, West Block-I, R.K. Puram, New Delhi-110066
Tel/Fax: 011-26104082, E-mail: watrnd-mowr@nic.in

No. 18/30/2011-R&D/1478-1502

Dated: June 15, 2012

Order

Sub: New R&D Guidelines and Constitution of New Indian National Committees (INCs) of MoWR.

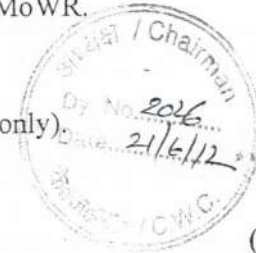
The R&D Guidelines and Constitution of New Indian National Committees (INCs) of MoWR have been approved by Secretary (WR) and are enclosed herewith for implementation with immediate effect.

2. Former INCs (INCID, INCOH, INCH and INCGECM) to transfer all records pertaining to new and ongoing research schemes to newly constituted INCSW Secretariat as per the prescribed proforma (ANNEX-I) under intimation to R&D Division, MoWR. Transfer of all records to be completed latest by 5th July 2012.

3. New INCs to finalise their members as per the approved Constitution latest by 29th June 2012 under intimation to R&D Division, MoWR.

Encl.

1. Approved R&D Guidelines, Part-1&2.
2. Approved Constitution of INCs (for new 3-INCs only).
3. Proforma (ANNEX-I for former 5-INCs only).



(Sher Singh)
Director (R&D)

To

1. Chairman, CWC/ Member D&R, CWC/ Chairman, CGWB/ Director, CSMRS/ Director, CWPRS/ Director, NIH.
2. Jt. Secretary & Financial Advisor, MoWR.
3. Senior Joint Commissioner (PP)/ Director (F), MoWR.
4. PAO, MoWR / PAO, CWC / AO, CWC / FAO, CGWB / FO, NIH, Roorkee.
5. Member-Secretary, INCSW/ INCGW/ INCCC.
6. Former Member-Secretary, INCH/ INCID/ INCOH/ INCGECM/ INCGW. Please inform to all PIs of ongoing schemes to submit service requests and take up all their matters with the concerned new INC.
7. Section Officer, IT Cell, MoWR. with the request to post R&D Guidelines on the Website of the Ministry immediately.
8. All others concerned.

Copy for kind information to:

1. PPS to Secretary (WR), Shram Shakti Bhawan, New Delhi.
2. PS to Additional Secretary (WR), Shram Shakti Bhawan, New Delhi.
3. PS to JS (A&PP), MoWR, Shram Shakti Bhawan, New Delhi.

Pl. discuss
21.6
MS/18/15
22/6
A.D.

No. 1-1(A)/ INCGW(New)/CGWB/ 2013 - 1628
Indian National Committee on Ground Water
Ministry of Water Resources,
18/11, Jam Nagar House, Man Singh Road,
New Delhi 110011.
Ph. 23383824, Fax: 23386743 / 23382051

Dated: 02-11-2015

CONSTITUTION ORDER

Sub :- Constitution of Indian National Committee on Ground Water (INCGW)

As per the Guidelines for implementation of the R&D Programme of Ministry of Water Resources conveyed vide R&D Divn order No. 18/30/2011-R&D/740-751 dated 28-10-2013, the Indian National Committee on Ground Water (INCGW) is hereby constituted for implementation of R&D Programme of Ministry of Water Resources during XII Plan with the following compositions, functions and related provisions.

I. Composition

- | | |
|---|--------------------|
| 1. Sh. K.B. Biswas
Chairman, Central Ground Water Board (CGWB) | Chairman |
| 2. Dr. K.C. Naik
Member (RGI), Central Ground Water Board | Member (Permanent) |
| 3. Sh. R.K. Jain
Chief Engineer (BPMO),
Central Water Commission, New Delhi | Member (Permanent) |
| 4. Sh. S.K. Gangwar
Director (R&D), Ministry of Water Resources | Member (Permanent) |
| 5. Sh. M. Tripathi
Director (F), Ministry of Water Resources | Member (Permanent) |
| 6. Dr. Sreemati Gupta
Superintending Geologist, Geological Survey of India,
DG Camp Office, New Delhi | Member (Permanent) |

- | | | |
|-----|---|---------------------------------|
| 7. | Dr. N.C. Ghosh
Scientist F, Ground Water Hydrology Division,
National Institute of Hydrology, Roorkee, | Member (Permanent) |
| 8. | Sh. R.M. Bhardwaj
Scientist E (Additional Director) & In-charge Pollution
Assessment, Central Pollution Control Board,
New Delhi | Member (Permanent) |
| 9. | Dr. Vinod Kumar Singh
Scientist D, National River Conservation Directorate,
Ministry of Environment and Forests, New Delhi | Member (Permanent) |
| 10. | Dr. Uma Kapoor
OIC, SUO, Delhi | Member Secretary
(Permanent) |

Non permanent members will be included in the committee after approved nominations are received from the Ministry.

II. Subject Domain

Consideration of Invited Research Proposals as per the identified Priority Areas.

III. Functions of the Committee

1. To co-ordinate and recommend funding for the research proposals/schemes to be taken up by the research institutions/organization/R&D labs in the country on basic research, applied research and action research, along with the other areas of research in the subject field.
2. To review the R&D programme in the subject area; identify topics which need immediate attention and encourage the national institutions to take up research on these topics. The INC committee may also identify and recommend the institutions for taking up research on specific topics.
3. Preparation of TOR for research proposals to be invited by the Ministry.
4. To encourage voluntary professional bodies and Non Governmental Organization (NGOs) to take up R&D activities in the subject area.
5. To maintain effective co-ordination to avoid overlaps in the research programmes of the different institutions,

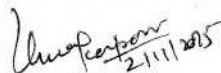
6. To disseminate research findings by publishing journals, research news/digests; arranging and conducting seminars/conferences/workshops etc.
7. To promote and co-ordinate effective participation of India in the International programmes related to the subject area and to act as national committee for such International bodies where required.
8. To review the state of the art in the country in different branches of the subject area by collecting relevant information from national and international organizations and publish 'State of the art Report'.

IV. Secretariat

The Secretariat of INCGW will be under the administrative control of Chairman, CGWB.

V. Expenditure

1. Expenditure on account of TA/DA to Members of INCGW which are employed in the offices/organizations under Central or State Government will be met from the source from which they draw their salaries and TE will not be paid by Ministry of Water Resources.
2. TA/DA will also be paid to the PIs invited for the presentation before the INCGW committee member as per their entitlement.
3. Expenditure on account of activities of secretariat shall be chargeable to R & D Plan Provisions.


 (Dr Uma Kapoor)
 Member Secretary, INCGW

Distribution :

1. Sh. K.C. Naik, Member (RGI), CGWB, NH-IV, Faridabad.
2. The Chief Engineer (Basin Planning Management Organization), Central Water Commission, Room No. 901(S), Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Director (R&D), Ministry of Water Resources, PP Wing-R&D Division, 1st Floor, Wing 4, West Block -I, R.K. Puram, New Delhi 110066.
4. The Director (F), Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi.
5. Dr. N.C. Ghosh, Scientist F & Head, Ground Water Hydrology Division, National Institute of Hydrology, Roorkee-247667, Uttarakhand
6. Sh. R M Bhardwaj, Scientist E (Additional Director) & In-charge Pollution Assessment, CPCB, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.
7. Smt Sreemati Gupta, Superintending Geologist, Geological Survey of India, DG Camp Office, NC-II Block, Pushpa Bhawan, 2nd Floor, Madangir Road, New Delhi-110062
8. Dr. Vinod Kumar Singh, Scientist D, National River Conservation Directorate, Ministry of Environment Forests & Climate Change, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.
9. PS to Chairman, CGWB, Faridabad.

Government of India
Ministry of Water Resources, RD & GR
P P Wing – R & D Division
1st Floor, Wing 4, West Block-I, R.K. Puram, New Delhi-110066
Telefax: 011-26104082 E-mail: watrnd-mowr@nic.in

No. 40/1/2012-R&D/4185-91

Dated: 09.12.2016

Office Memorandum

Subject: Nomination of Member Secretary, INCCC.

The approval of Ministry of Water Resources, RD&GR is hereby conveyed for nomination of Dr. R.P. Pandey, Scientist 'F', NIH Roorkee as Member Secretary, INCCC in place of Director NIH Roorkee. The above decision has been taken on the proposal of NIH to nominate Member Secretary, INCCC from the panel of NIH Scientists.

21/5/7 9/12/16
(S. K. Gangwar)
Director (R&D)

To:

1. Director (NIH), Jal Vigyan Bhawan, Roorkee-247667
2. Dr. R. P. Pandey, Scientist 'F', NIH Roorkee & Member Secretary, INCCC, Jal Vigyan Bhawan, Roorkee-247667

Copy to :

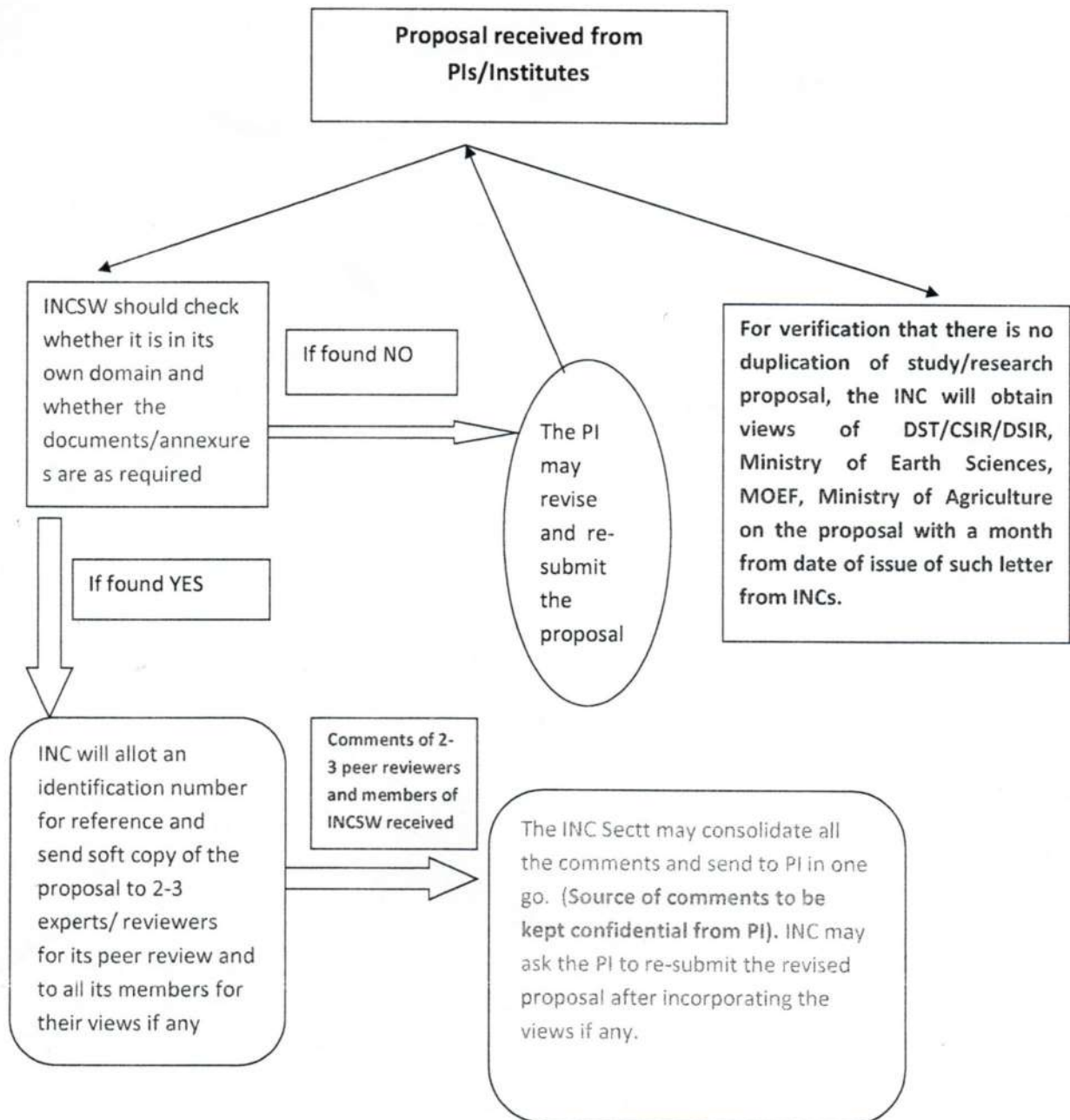
1. Chairman, CWC & Chairman (INCSW), Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. MD, NWM & Chairman (INCCC), 2nd Floor, Block No. 3, CGO Complex, Lodhi Road, New Delhi-110003.
3. Chairman (CGWB) & Chairman (INCGW), Bhujal Bhawan-NH-IV, Faridabad-121001.

Copy for information to :

1. JS (PP), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.
2. JS (Admn. & GW), MoWR, RD&GR, Shram Shakti Bhawan, Rafi Marg, New Delhi-110 001.

Examination of Research Schemes (both Sponsored as well as Invited)

Action of INCSW



*** INCSW should ensure that no research proposal for any of its members as pi is considered for funding***

*** The entire process of examination and evaluation should be completed within 6 months***

INVITED RESEARCH

Research Needs in Water Resources

Version 1.4.2019

1. Hydraulics Domain

- The impact of flood control marginal embankments on river regime, the possibility of aggradation, drainage congestion on the land side of the embankments.
- River control and management, prevention of bank erosion, hydraulics of alluvial river mechanics of meandering.
- Hydraulic roughness of sediment transporting channels subject to changing bed formations.
- Real time simulation, flood plain zoning and hazard mitigation
- Use of ANN for risk based analysis.
- Design of less costly sedimentation chambers for hydro stations.
- Evaluation of plunge pools cascades ramps with friction elements for energy dissipation.
- Evaluation of three-dimensional seepage under relatively narrow long structures.
- Three dimensional dynamic analysis for rigid and embankment dams for earthquake conditions. Other problems which cannot be foreseen may emerge while designing a project and will then require specific research effort.
- Uncertainties and risk based design of hydraulic structures
- Research in the field of plugging of tunnels under high head
- Quantum of minimum flows in rivers from environmental considerations and right of water users on the banks
- Hydraulic roughness of sediment transporting channels subject to changing bed formations.
- Siltation of estuaries and the quantum of flow or other measures needed to flush them.
- Computation fluid dynamics such as one dimensional and two dimensional flows in rivers and flood plains respectively.
- Integration of scale effect between hydrology and hydraulic phenomena
- Soil erosion in catchment area under sediment yield of river
- Decision support systems for morphological behavior of rivers
- Development of water level sensor for measurement of river stages and design of installation structure

2. Hydrology Domain

- E-Flows
- Modification in basic concepts, objectives, evaluation criteria and development approach for sustainable development of water
- Development of computer oriented decision support system in view of uncertainties, non-linear interlinkages and differences about valuations.
- Reassessment of water availability (representation of the hydrological cycle and of the utilizable quantity and its quantification through the modelling of the hydrological cycle)
- Impact of human interventions on quantity and quality of water
- Contribution from snowmelt and glaciers
- Assessment of the return flows
- Study of climatic change on the hydrological cycle
- Desalination of saline and sea water (improvements in membrane technology)
- Estimate of habitat demand
- Estimate of the demand in the long term
- System studies for each river basin to determine the sustainable development policy
- Improvement in development policy to account for Climate Change
- Forest hydrology – impact of tree cover on peak flows, low season flows.
- Assessment of groundwater and its interlinkage with surface water
- Research for Basic concepts, local application, adaptation and upgradation in respect of:
 - Promoting water infiltration and reducing soil erosion by watershed treatment
 - Ground water recharge by ponds, recharge wells and through unlined khariff irrigation channels
 - Rainwater harvesting and watershed development
 - Revival of traditional systems of water harvesting and storage
- Rights on ground water
- A realistic assessment of availability of water, its time distribution and long term changes in its characteristic
- Assessment of groundwater and its interlinkage with surface water
- Assessment of the return flows
- Ground water recharge by ponds, recharge wells and through unlined Khariff irrigation channels
- Rainwater harvesting and watershed development
- Assessment of the potential of traditional systems of water harvesting and storage
- Study of Climate Change with regard to its impact on water resources
- Inflow forecasting

3. Irrigation & Drainage Domain

- Impact of Automation in the operation of existing and new canal systems.
- Deficit irrigation
- Lining of canals under running water conditions
- Various techniques for prevention and relief of water logging, reclamation of saline lands.
- Bio-drainage System for maintenance of salt and water balance on long-term sustainability
- Soil nutrient management with a balanced use fertilizer
- Genetic engineering (to produce transgenic material of traits pertaining to shorter growing season, resistance to pests and viral infections, improved nutritional or flavor characteristics, longer shelf life etc.
- Estimation of water demand and its implications on water quantity and quality
- Management of water demand, through technology, policy and specifications
- Rationalization and optimization of demands in Agriculture Sector
- Improvement in productivity per unit of water
- Research to provide guidance to the farmers for Crop planning
- The equity aspect of water (Do the disparities in income really increase in an irrigated area?)
- System of operation and management of large canal system
- Participatory Irrigation Management
- Crops and Crop Planning for Flooded and Flood Prone Areas
- Pilot demonstration of growing paddy with less irrigation water
- Improvement of efficiency in Irrigation System
- Development of indigenous technology for automated irrigation under controlled environment using modern methods, Drip and Micro Sprinkler
- Rainwater harvesting, conservation in command area for use in supplementing canal waters
- Improvement in water use efficiency through effective water management technologies and human resources development through Participatory Irrigation Management (PIM)
- Comprehensive integrated and multi-disciplinary planning for disposal of large quantity of saline water effluents, sewerage and industrial waste, its reuse and impact on soil health and environment
- Actual observed impact of existing high dams and other irrigation systems on the environment
- Assess the impact of large scale inter basin transfers on donor and donee basins
- Regular post evaluation studies for major and medium Irrigation projects including primary, secondary and tertiary benefits
- Integrated Control of aquatic weeds

- R&D Strategy in Dams regarding Green House Gases – rotting vegetation in Dams – Global Warming

4. Geo-technical Engineering Domain

- Comparison of DEM technique with FEM technique for analysis of various underground structure
- Fracture mechanism in rocks.
- Well foundation analysis of tilting foundations
- Field evaluation of blasting patterns
- Software development for rock mechanics problem
- Strength Behavior of weakly cemented rock
- Blast induced Damage to rocks
- Long term measure for solution to land slide problem
- Centrifuge modeling of problems related to water resources development projects
- Use of GIS software for sub-surface data collection.

5. Construction Materials & Structures Domain

- Cost effective canal linings including materials and techniques.
- New materials/coatings to resist cavitation and abrasion.
- Prestressed concrete technology including stress corrosion.
- Durability of construction materials/concrete.
- Non-destructive techniques: Applications/reliability.
- Micropiles: Materials/techniques.
- Geo Textiles/ Polymers: Materials and application techniques.
- Chemical grouts: Materials and application techniques.
- Admixtures for concrete: Materials and efficacy.
- Alkali-aggregate reaction.
- Corrosion of reinforcement
- Roller Compacted Concrete (RCC) technology: Materials and techniques.
- Fibre Reinforced Concrete for hydraulic structures: Materials/techniques.
- Ferrocement: Materials/techniques.
- High Strength Concrete: Materials/techniques and performance monitoring
- Evaluation and research on emerging construction technologies and new construction materials.
- Safety of water resources structures: Instrumentation and performance monitoring.
- Repairs/rehabilitation strategies for hydraulic structures: Materials compatibility and techniques.
- Design, construction, inspection, repairs and safety of Concrete & Masonry Dams:
 - Analysis and design: Defining and reviewing parameters like factors of safety, allowable stresses for analysis, reviewing models for dynamic analysis etc.
 - Construction practices: Improvement of existing practices and the development of new techniques for the economical heightening of concrete/ masonry dams and assessment of the performance of dams constructed, using new techniques like RCC and new composites.
 - Inspection & monitoring: Improving underwater inspection techniques and to evolve a quantified rating system for preliminary inspections.
 - Repair & maintenance: Evaluation of commercial polymer systems and the development of a rating system for their performance and the development of better abrasion resistant composite materials.
 - Earthquake Consideration
 - The influence of construction joints
 - The concrete rock contact
 - Pressurized cracks
 - Fracture mechanics for triaxial structures and loads
 - Fracture Mechanics for dynamic loads (speed, fatigue)
 - Numerical analysis

6. Water Law, Conflicts

- Water Administration in Federal setup
- Water Law
- Water Sector Conflict
- Water Governance

7. Water Management, Economics

- Innovative Financing in water sector
- Water harvesting, watershed development and revival of traditional water storage structure.
- Water Pricing

8. Hydro Environment, Water Quality, Reusability& Rejuvenation

- Recycling of treated sewage/ wastes water for industrial use and irrigation
- Estimate of demand and return flows of water in respect of Industrial and thermal energy requirements
- Impact on water quality and environmental conservation in respect of Industrial pollution requirements
- Recycling, Recovery and reuse of waste water
- Desalination of saline water
- River Rejuvenation

9. River Development

- River Linking
- River Development Issues

10. Social Dimensions, Gender Issues & Miscellaneous

- History of Water Resources Projects/Dams
- Water & social issues
- Water & Gender issues
- Assessment of impact on income, employment and acquisition of household goods due water resources development and management
- The impact on the workload and status of women of farming families and the changes in their quality of life

