

R&D Program Implementation Guidelines

Introduction

1.1 R&D Programme of MoWR

Ministry of Water Resources (MoWR) provides financial assistance to promote research work in the field of Water Resources Engineering. The assistance is provided by way of grants to academicians/experts in the Universities, IITs, recognised R&D laboratories, Water Resources/ Irrigation departments of the Central and State Governments and NGOs. Research proposals of applied nature as well as basic research are considered for MoWR support.

1.2 Indian National Committees

Considering wide range of topics covered by Water Resources Engineers, five committees called Indian National Committees (INCs) have been constituted to co-ordinate the R&D programme. The five INCs are listed below :

a) INC for Hydraulics Research (INCH)

Chairman:	Member (D&R), Central Water Commission
Member-Secretary:	Director (FE&SA) Central Water Commission Room Number 716 (S) Sewa Bhavan R K Puram, New Delhi 110 066 Tel 011-6101017 Fax 011-6104104 email - feandsa@niccwc.delhi.nic.in

Subject Domain

- Management of Floods
- 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

b) INC for Hydrology (INCOH)

Chairman:	Chairman, Central Water Commission
Member-Secretary:	Scientist "F", National Institute of Hydrology Roorkee University Campus Roorkee, (UP) Pin 247667 Tel: 01332-72906 X 215 Fax 01332-72123

email kksb@cc.nih.ernet.in

Subject Domain

- Meteorology
- Surface Water Hydrology
- Evaporation Control
- Ground Water Hydrology and Management (Excluding Ground Water Hydraulics)
- Instrumentation
- Real Time Systems
- Application of GIS and Remote Sensing

c) INC for Irrigation & Drainage (INCID)

Chairman:	Chairman, Central Water Commission
Member-Secretary:	Consultant, Water & Power Consultancy Services (I) Ltd. 301, 303 Ansal Chambers II 6, Bhikaji Cama Place New Delhi 110 066 Tel: 011-6182348, 6169758 Fax 011-6194393 email wappower@ndb.vsnl.net.in

Subject Domain

- Irrigation
- Drainage
- Agronomy
- Water Management
- Environmental Impact and Socio-Economic Aspect of Water Resources Projects
- Plasticulture Development
- Geo-textiles

d) INC for Geo-technical Engineering (INCGE)

Chairman:	Director CSMRS
Member-Secretary:	Joint Director (Rock Mechanics) Central Soil and Materials Research Station Olof Palme Marg, Hauz Khas New Delhi 110016 Tel: 011-6967 768 Fax 011-6853108 email csmrs@hub.nic.in

Subject Domain

- Rock Mechanics

- Application of High Technology and Instrumentation and Measurement Techniques

e) INC for Construction Materials & Structures (INCCMS)

Chairman:	Director CSMRS
Member-Secretary:	Chief Research Officer (Concrete) Central Soil and Materials Research Station Olof Palme Marg, Hauz Khas New Delhi 110016 Tel: 011-6962608 Fax 011-6853108 email csmrs@hub.nic.in

Subject Domain

- Soil and Materials
- Structures

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

The R&D Division in the Ministry of Water Resources acts as the Ministry's interface with INCs. Address of the R&D Division is:

Director R&D Division,
Ministry of Water Resources,
Wing No. 4, Ist Floor, West Block No.1,
R.K. Puram, New Delhi - 110066.
Tel: 26104082
Fax. 26181267

e-mail rddte@hotmail.com

2.0 General Instructions

2.1 Research Categories

Research and related activities for which grant-in-aid from MoWR can be sought shall cover one or more from the following list.

- Basic Research
- Applied Research
- Action Research
- Education & Training
- Mass Awareness on Water Resources Development
- Infrastructure Development
- Creation of Centres of Excellence

2.2 Who can be funded

Funding is provided to following:

- R&D institutes/labs of the Central or State Government
- Organisations under MoWR
- Universities and Educational institutes, engineering and agricultural colleges; IITs
- WALMIs, NGOs, non-profit making private R&D institutions/ organisations.

MoWR also welcomes the involvement of eminent scientists and engineers including retired personnel to carry out special research, monograph writing, preparation of state-of-the-art report etc. In such cases the retired personnel should encourage younger engineers/scientists from their group to submit the research proposal with which they could be associated. Honorarium to retired personnel based on their retirement benefits etc. should be indicated in the proposal.

Note: Before a grant is released to an NGO the grantee will be required to execute a bond with two sureties to the President in accordance with the provisions of Rule 149 (4) (i) of the GFR.

2.3 What items can be funded

Funding can be provided for purchase of equipment; purchase of books and journals; development of other infrastructure necessary for the research; for the salaries of research staff in the grades of JRF/SRF/RA; for the cost of conducting the experiment including cost of consumables; and for travel in connection with the research. If the host institute is providing any facilities - infrastructure or staff - then overheads upto 15 % of the total cost can also be charged to the project cost.

Funding is not provided for foreign travel; salary of the PI, other investigators and non-research staff who are regular employees of the institute; honorarium or cash incentives in any form for the investigators and research staff. Purchase of computers and peripherals may be allowed only in rare cases where the importance of the work so demands.

2.4 Application

Application for research grants can be submitted at any time of the year. The proposal is to be submitted on a prescribed proforma given in **Appendix 1**. Five copies of the application should be submitted to the INC in whose domain the topic of the research is covered. In case of doubt the application can also be submitted to the R&D Division who will forward it to the appropriate INC.

The proposal should be well written clearly stating a synopsis of the work already done, nationally and internationally; the objectives; methodology; and deliverables. Proposals which clearly identify the new aspect of a technology to be investigated 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.

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 that are site specific, proposals which confine to laboratory studies only and do not include a plan for field trials; proposals where the end-user of the new technique is not clearly identified; will be given lower priority.

2.5 Procedure for Approval

The proposal is initially examined by the INC. On the basis of this examination, the Principal Investigator (PI) may be asked to modify the proposal. Eventually, the proposal is placed before the INC for a final decision on recommendation. If the members of the INC have some doubts that are not clarified by correspondence, then the PI may be asked to attend the meeting of the INC for an interaction with the members of the INC. Return fare by rail AC-2T can be reimbursed to one person for attending the meeting of the INC, if so requested. However advance is not provided and the fare will be reimbursed only on submission of a bill on completion of return journey. The proposals recommended by the INC are sent to R&D Division who process the proposal for final acceptance and issues sanction orders.

2.6 Operation of Sanctioned Schemes

Funds are provided by sending a DD in favour of Accounts Officer, or similar appropriate authority, of the Institute. The proforma for submission of new proposals requires the PI to identify significant stages/mile stones of work and funds to be released on completion of these stages. A progress report is required to be sent to the monitoring INC twice a year; a proforma report in the month of October and a detailed report in the month of April. Release of subsequent instalments of funds is subject to satisfactory progress of work.

3.0 Guidelines for Preparation of Estimate

3.1 Permissible Expense Heads (Components)

All expenditure to be incurred on the research scheme shall be classified under the following components, also called sub heads. While formulating the scheme/project, the guidelines for various components that follow shall be adhered to:

1. Salary
2. Travel Expenses (TE)
3. Infrastructure / Equipments
4. Experimental charges
 - * Consumables
 - * Non-research personnel
 - * Third party services (typing of report, lab analysis etc.)
5. Contingency
6. Overhead charges

3.2 Salary

- a. The primary responsibility of conducting the research is that of the investigators (PI and other co-investigators). The salaries of the investigators are to be paid out of the regular budget of the institute where they are employed and no part of their salaries can be charged to the estimate.
- b. The reward for the investigators 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/journals and purchase of equipment. A provision of honorarium or other such cash incentives to the investigators is not permissible.
- c. A limited number of research personnel, called Research Staff, may be employed to assist the investigators in conducting research. There are only four designations for the research personnel.

- Junior Research Fellow (JRF)
- Senior Research Fellow (SRF)
- Research Associate (RA)
- Consultant

The last named category, Consultant, is for retired scientists and engineers. It may be pointed out that MoWR prefers to encourage involvement of younger personnel in the category JRF, SRF and RA. Retired persons in the category of Consultants shall be allowed only for highly distinguished scientists and engineers whose association with a project is considered absolutely essential.

- d. Stipend and other emoluments for these personnel are given in Appendix 6.
- e. Eligibility and selection criteria for appointment as JRF/SRF/RA is given in Appendix 7. After the scheme is sanctioned the PI will be required to give a certificate to the INC concerned that persons satisfying the prescribed eligibility criteria have only been appointed under the R&D scheme.
- f. No other designations, like computer operator, data entry operator, lab assistant etc. are allowed under the "Salary" head. Working level personnel engaged in research are expected to be proficient with the use of a computer and are expected to work at the key board themselves. Other tasks, like lab assistant, will be performed by the regular staff of the institute. Manual labour and semi-skilled persons, if required for the scheme, will be provided under "Experimental Charges"

3.3 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. Places intended to be visited, number of visits, purpose, mode/class (air/rail/road) with approximate fares should be given.
- b. Provision should be made for one long distance journey by one person once a year for attending the R&D session or meeting of the INC for presentation of the work done. The provision made on this account should be indicated separately and will be retained or deleted by the INC depending on the importance of the scheme.

3.4 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; and creation of laboratory or other similar facilities. Items of minor equipment costing less than one thousand rupees, pipelines, fixtures, general tools etc., although of permanent or semi-permanent nature, need not be booked under this head and should be booked under experimental charges.
- b. The estimate for the bought out items of equipment should be based on proforma invoices or budgetary quotations for all the items except minor items costing a few hundred rupees. The proforma invoices should be enclosed with the proposal.
- c. Purchase of computers and peripherals may be allowed where the importance of the work so demands.

3.5 Experimental charges.

- a. This represents the expenditure for actually conducting the research and comprises cost of engaging any labour, cost of all consumables, cost of any construction and cost of minor equipment/tools etc. as above.
- b. Provision for a nominal honorarium or over time to non-research staff such as lab assistants, typists etc. can also be made under this head. The provision should not be lump sum, it should list the personnel to be so rewarded and magnitude of incentive for each and should be in accordance with the rules of the host institute. Further, one person can be so rewarded for such extra work only from one scheme at a time. The PI should give a certificate to this effect.
- c. Salary for personnel not engaged directly in research may be allowed under "Experimental Charges" only if following two conditions are fulfilled.
 - The said staff is recruited 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 for the same. Salary of the lab assistant, helper and other such personnel who are employees of the institute even in absence of the said research project, can not be charged to the project. Their inputs are covered under the Over Heads.

- d. Provision may be made for printing only 10 copies of the report. Only five copies need to be sent to the INC. If the report is found to be useful and worthy of wider distribution, the INC will make arrangement to print more copies. If the PI or the institute need more than five copies then the institute should provide for the same.

3.6 Contingency

- a. There are only four sub-heads for expenditure, namely Salary, Travel Expenditure, Infrastructure and Experimental charges. A provision of upto 5 % of the total cost of these can be made for contingency.
- b. It must be emphasised that contingency is not a separate head of expenditure. Whether at the time of preparation of estimates or at the time of preparing statement of expenditure, all expenditure must be estimated and grouped under one of the four sub-heads mentioned above. Contingency is only a budget provision for unforeseen situations; for possible errors in estimation of four main sub-heads. Therefore, while the contingency head is visible in the estimate, it is not visible in the expenditure statement. Expenditure can not be booked under contingency. All expenditure is booked under one of the four sub-heads. If the collective deviation is upto 5 % then the provision for contingency would cover it. If the collective deviation is more than 5 % then a revised estimate should be prepared and submitted for approval.

3.7 Overhead charges

- a. A provision for upto 15% of the total cost, including contingency, can be made for over head charges of the host institute.
- b. Booking of expenditure for over head expenses will not be automatic. The funds released every year shall only cover the four sub-heads of Salary, Travel Expenditure, Infrastructure, Experimental Charges and contingency on these items. Over head expenses shall actually be paid to the institute only after completion of the project and acceptance of the completion report by MoWR.

3.8 Schedule of Release of Funds

Funds will be released in instalments commensurate with the progress of work. For this purpose the progress milestones and the amount to be released after achieving of each milestone should be clearly identified. A time schedule indicating months from start of work when each of the milestone is likely to be reached should also be provided.

4.0 Operation of Sanctioned Schemes

4.1 General Instructions

All correspondence in connection with the execution of the scheme should be carried out with the concerned INC. The INC is PI's window to the MoWR. Under normal circumstances, the MoWR will not act on any request received directly from the PI.

After the sanction by the MoWR, the SMD will issue an administrative sanction order and a separate order to release the first instalment of the funds. The starting date for the scheme shall be taken as the date on which the first activity is initiated on the scheme which however shall not be later than three months from the receipt of Bank Draft by the Research Institute/organisation. This date shall be intimated by the

Principal Investigator to SMD and the INC. Sanctioned duration shall be counted from this date.

It is the responsibility of the PI to ensure following:

- a. The work is completed at the earliest and within the sanctioned duration.
- b. There should be no deviation from the stated objectives.
- c. Expenditure on each subhead should not exceed sanctioned amount.
- d. Submit various periodic returns to the MoWR through INC.
- e. Ensure compliance with the "Conditions of Grant" given in Appendix 8 of this document.

The accounts of the grant are open to test check by the Comptroller and Auditor General of India under Government of India Decision No. 2 below Rule 149 of G.F.R. 1963.

4.2 Periodic Returns

The PI is required to submit only one periodic report, an annual progress report to the INC. Proforma for the annual progress report, which is also the proforma for service requests of funds release, time extension etc. is given in Appendix 2. The annual progress report should reach the INC in the month of April. The annual report comprises following documents.

- a. A proforma (Appendix 2).
- b. A very brief narrative report. (Two copies only)
- c. Utilisation Certificate
- d. GFR 19(Appendix 4)

4.3 Service Requests

The four commonly required services are:

- a. Release of funds
- b. Revalidation of funds
- c. Time extension
- d. Revision of estimate.

The proforma for progress report (Appendix 2) includes service requests. Depending on the service required, the documents to be enclosed with this proforma are shown in the table below.

Service Request	Progress Proforma (Appendix 2)	UC	GFR -19
Funds Release	Yes	Yes	Yes
Revalidation	Yes	No	No

Time Extension	Yes	No	No
Estimate Revision	Yes	No	Yes

It will be seen that the service request will often comprise of all the documents submitted in April with the annual report. It is therefore preferable if the PIs schedule their work so that the requests for funds etc. are clubbed with the annual report.

Important

Funds: The first instalment of funds is released along with the sanction order. Subsequent instalments are released on achieving milestones as indicated at the time of sanction.

Revalidation: The funds released in a financial year are meant for utilisation during that year only. Any unspent balance has to be **revalidated** for utilisation during the next year.

Time Extension: Funds can be released only during the validity of the scheme. Not only that, depending on the amount sought, there should be sufficient time between the release of funds and the currently sanctioned completion date. Time extension is always without additional financial liability. If there is an additional financial liability, that is considered as a revision of estimate which may or may not be coupled with extension of time.

Revision of Estimate: Any change in the estimate as sanctioned, whether resulting in an overall increase in cost, or whether a transfer of funds from one subhead to other, is considered a revision of the estimate.

5.0 Completion

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.

5.1 Completion Report

Final completion report should be prepared only on receipt of comments from the INC. Five copies of final report in print and one copy on a 3.5 inch 1.44 MB IBM PC floppy should be sent to the INC. The report should be typed in MS Word or WordStar. Graphs etc. should be Lotus 123 or MS Excel. A separate unbound set of all hand drawn figures and photographs should also be supplied.

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 magnetic medium (3.5 inch 1.44 MB Floppy)
- c. Executable file in magnetic medium (3.5 inch 1.44 MB Floppy)
- d. User manual in print medium
- e. User manual in magnetic medium as a .DOC file on 3.5 inch 1.44 MB Floppy

The format for the completion report, whether draft or final, is given in **Appendix 5**.

5.2 Final Statement of Accounts

The final statement of accounts should consist of following:

- a. Final utilisation certificate
- b. Expenditure statement
- c. Statement of equipment purchased in GFR 19 and their condition/scope for further use etc.

5.3 Refund of Unused funds

Any unspent balance after the completion should be refunded by a **Crossed Demand Draft** in favour of the PAO from whom funds were received. The DD should however be sent to the INC and not to the SMD or the PAO directly.

6.0 Intellectual Property Rights

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. 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. 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. on the MoWR funded projects. 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.

It is expected that research papers and publications based on the results of the research project will acknowledge the assistance by the Ministry of Water Resources. Copies/reprints of the papers published should be sent to the INC along with the annual progress report.