

## 1.

### ENVIRONMENTAL RESEARCH

#### 1.1. INTRODUCTION:

The Ministry of Environment and Forests, is classified as a 'Scientific Ministry' under the Government of India. Since its inception in 1985, the Ministry has funded research by diverse research institutions in several disciplines concerned with environmental protection. Some indicative areas include: forest conservation, wildlife protection, biodiversity inventories, R&D in environmental management technologies, climate change, public health impacts of environmental degradation, etc. The present Guidelines set forth the Objectives of research support, the Thrust Areas for research support, procedures for inviting/receipt and processing proposals for funding support, norms for funding, conditions of support and dissemination of research findings.

#### 1.2. OBJECTIVES:

The objectives of research support are as follows:

- To generate information and knowledge required for developing strategies, techniques, and methodologies for better environmental management.
- To find practical solutions to problems of environmental management.
- To strengthen scientific manpower in the multidisciplinary and emerging areas of environment conservation.
- To promote infrastructure facilities for undertaking Environmental Research.

To generate, document, and analyze information for taking policy decisions relating to environment and natural resources, including international negotiations.

#### 1.3. SUO-MOTO, INVITED, AND COMMISSIONED RESEARCH PROPOSALS:

Under each Research Programme, proposals may be considered in the following modes:

- (a) **Suo-moto Proposals:** Such proposals may be submitted by the proposer at any time of the year to the Contact Person in respect of each Programme (**details provided in Annexure-I**).
- (b) **Invited Proposals (Competitive):** Proposals may be invited under each Research Programme by the Ministry, depending upon need, from a set (or network) of research institutions identified on the basis of recognized capabilities in the concerned area, depending upon specific needs of policy making, including preparations for international negotiations, and implementation of Plan Schemes. Selection among the proposals received in response is made competitively, on the basis of technical soundness (including research credentials of the proposed research team).
- (c) **Commissioned Proposals (Non-competitive):** The Ministry, may directly commission research studies to one or a network of research institutions, identified on the basis of recognized capabilities in the concerned area, depending upon specific needs of policy making, including preparation for international negotiations, and implementation of Plan Schemes.

#### 1.4. THRUST AREAS

The following is the *Order of Priority* of broad research themes to be supported:

**Table 1: Thrust areas for research support**

<b>Priority</b>	<b>Category of Research</b>	<b>Sub-Category</b>	<b>Thrust Areas</b>
1	Policy Research	Supporting policy making	Afforestation Strategies
1	Policy Research	Supporting policy making	Wildlife population estimation and management
1	Policy Research	Supporting policy making	Environmental Cost Benefit analysis
1	Policy Research	Supporting policy making	Economic Valuation of Environmental resources
1	Policy Research	Supporting policy making	Economic instruments forenvironmental regulation
1	Policy Research	Supporting policy making	Access and benefit sharing of genetic resources and traditional knowledge
1	Policy Research	Supporting policy making	Supporting negotiations on multilateral environmental agreements
1	Policy Research	Technology evaluation	Economic utilization of waste, control of pollution
1	Policy Research	Modeling/validation of models	Climate Change and pollution models
1	Policy Research	Modeling/validation of models	Natural resources management
1	Policy Research	Survey & Analysis, hypothesis testing	Health and toxicology
1	Policy Research	Survey & Analysis, modelling	Inventory of Pollution Sources, Monitoring and analysis of environmental quality
1	Policy Research	Supporting Policy Making	Animal Welfare Issues
2	Applied Research	R&D of Technologies	Pollution control technologies and Clean production technologies <sup>1</sup>
2	Applied Research	Survey & Analysis	Natural resource inventories and mapping
2	Applied Research	Methodologies	Restoration of Degraded Ecosystems
2	Applied Research	Methodologies	Conservation and management of various Ecosystems
2	Applied Research	Technology evaluation, hypothesis testing, and modelling	Sustainable Development & Environmental Impact studies

<sup>1</sup> Support will be limited to amounts needed to leverage funding from other sources, which should constitute the bulk of the R&D funding requirements.

2	AppliedResearch	Risk Analysis	Dose response curves; impacts of pollution on natural ecosystems
2	AppliedResearch	VeterinaryTechniques	Wildlife Management, Animal Welfare
3	Basic Research	Taxonomy	Identification, Classification, Cataloguing flora and fauna
3	Basic Research	Taxonomy	Inventorizing ethnobiology knowledge

It needs to be kept in mind that environmental research is typically multidisciplinary in nature, and research proposals in each thematic area may involve several distinct sets of Primary, Secondary, and Tertiary skills.

### 1.5. PROCEDURE FOR APPRAISAL OF PROPOSALS FOR RESEARCH SUPPORT:

The following procedures will apply to all suo-moto and invited (competitive) proposals, *but not for commissioned research (non-competitive) proposals.*

**Step 1: Submission of proposals for support for environmental research:** Suo-moto proposals for research support may be made at any time, and invited (competitive) research proposals upon invitation, to the designated Contact Person for the Research Programme in question. The applications should clearly identify the research questions, methodologies involved, and data sources. It should identify the complete Team of Investigators, and provide their detailed resume, highlighting their academic backgrounds and publications record. It should also specify the additional personnel support required, both scientific and support staff. It should provide a detailed break-up of the costs consistent with the Funding Norms (Section 6 below). It should detail the equipment (including computers and peripherals) and instrumentation available, and that specially required for the project. It should provide the project time lines and milestones, and an indication of the Outputs of the project. Proposals should be made in the prescribed application format (**Annexure-II**) in hard and soft copy.

Proposals prepared by the Principal Investigator (PI) should be forwarded by the Head of the Institution. In case a research proposal involves a network of research institutions, the PI would identify the Lead Investigator from each of the participating Institutions with the approval of the Heads of these Institutions.

**Step 2: Scrutiny by the Contact Person:** Proposals received by the Contact Persons, will be acknowledged within 5 working days. The Contact Persons will determine the Order of Priority of the proposal in terms of the Thrust Areas (Table 1).

**Step 3: Initial Appraisal by Thematic Peer Group<sup>2</sup>:** The proposal will be placed before the concerned Thematic Peer Group by the Contact Person, in terms of the “*Good Practices for Regulation*” Guidelines of the Ministry. The Group will determine if the proposal generally meets expectations of technical competence of the research team, completeness, and may result in useful research outputs which is potentially publishable in a peer reviewed publication of standing. If not, the proposal may be recommended for rejection at this stage. If not so rejected, the Group will identify a minimum of 3 and maximum of 5 Expert Peer Reviewers, having expertise in the specific research topic, to whom the technical proposal, as well as the proposed level of effort (“person-months”) may be sent for evaluation.

<sup>2</sup> See Section 4 below.

**Step 4: Expert Peer Review:** The technical proposals will be independently reviewed by the Expert Peer Reviewers within 45 days of receipt. All reviews which are received within this period will be placed before the Thematic Expert Group.

**Step 5: Final Appraisal by Thematic Peer Group:** The Thematic Peer Group will consider the reviews received from the Expert Peer Reviewers in each case, and determine whether or not the technical proposal may be accepted. They will also indicate whether the proposed level of effort (“person-months”), and equipment/infrastructure to be created by the project are reasonable and necessary.

**Step 6: Sanction by Ministry:** The Contact Person will consider the recommendations of the Thematic Peer Group, scrutinize whether the financial proposal is consistent with the funding norms and the level of effort accepted by the Thematic Peer Group, and within 15 days of receipt of the recommendations from the Thematic Peer Group submit the proposal for expenditure sanction by the Ministry.

*With respect to commissioned (non-competitive) research projects, sanction will be based on such technical evaluation of the proposals as the Ministry may consider appropriate in each case.*

#### 1.6. NORMS OF FUNDING:

The following table gives the norms for funding different components of research projects in respect of all categories (Suo-moto, Invited (competitive) and commissioned (non-competitive):

**Table 2: Norms for Funding Research Projects:**

Item	Type of Research Institution	Funding norm
Pay and allowances of research staff (investigators)	Establishment costs are covered by direct budgetary/grant support by the Government	Nil
Honorarium to retired professors/senior scientists	Establishment costs are covered by direct budgetary/grant support by the Government	Maximum of Rs. 10,000/ p.m. subject to other Govt. rules.
Pay and allowances of research staff (investigators)	Establishment costs are not covered by direct budgetary/grant support by the Government	As for equivalent University teaching and research staff under the prevailing UGC scales. However, in case of Institutions of National eminence, the pay and allowances will be applicable as per the norms approved by the competent authority for institutions like IITs and IIMs.
JRF/SRF/Emeritus Scientists	All institutions	As per CSIR guidelines

Support staff(Technical/ non-technical) especially recruited for the project.	Establishment costs are <b>not</b> covered by direct budgetary/grant support by the Government	Actuals subject to maximum 25% of pay and allowances of Research staff(inc. JRF/SRF) even if these costs are met by Government under any other scheme
Equipment/instruments (inc. Computers, software and peripherals) necessarily required for dedicated use in the project and are not available in the Department/institution or are available in the Department/Institution but are not available for dedicated use in the project.	All institutions	100% on competitive bidding
Equipment/instruments (inc. Computers, software and peripherals) not for dedicated use by project	All institutions	Covered under “Institutional charges”
Travel (inc. essential international travel)	All institutions	As per UGC norms for travel entitlements [for personal level of staff]
Expendables and Field Survey	All Institutions	100% as per verified estimates subject to actuals
Contingencies	All Institutions	Project cost upto one crore; 5% of the total Project Cost (excluding institutional charges)Project cost > one crore: the quantum will be decided on a case to case basis.
Institutional Charges	All Institutions	Project cost < Rs 20 lakhs: 20% of Project cost.Project cost >= Rs 20 lakhs to Rs.50 lakhs: 15% of Project cost subject to a minimum of Rs. 4 lakhs.Project cost > Rs. 50 lakhs: the quantum will be decided on a case to case basis.

## 1.7. Terms and Conditions for Sanction of Research Projects:

- A. A Project will normally be sanctioned for a maximum of three years. The grant will be payable in two installments each year on submission of Utilization Certificates, Expenditure Statement and Progress Reports. In the case of collaborative research carried out by a network of institutions, the Coordinating Institution would be responsible for submission of the Utilization Certificate and Expenditure Statement (**Appendix II & III**) and Progress Reports covering all the partners. The authorities of the institution(s) where the research activities are to be carried out would receive the grants and be responsible for their disbursement, administration, and maintenance of accounts.
- B. In case any Investigator (including Lead or Principal Investigator) leaves the institute, responsibility for completion of the project may be entrusted to another equally qualified Investigator by the Head of the Institution with approval of the Ministry, at no additional cost.
- C. All accounts in respect of the project will be subject to audit by the institution auditors. On termination of the project, the duly audited accounts shall be submitted and the unspent balance, if any shall be refunded to the MoEF within six calendar months of completion of the project. Full and final payment will be made after the acceptance of all the financial certificates, audit reports and final technical reports of the project. Ten (10) percent of the sanctioned amount will be released only on completion of all closure formalities.
- D. During the course of implementation of the project, the MoEF may depute its staff or scientists from other institutions to visit the research institution(s) concerned to review progress.
- E. The selection, and appointment of JRFs/SRFs/Emeritus Scientists/Support Staff for the project may be made by the Principal/Lead Investigator in terms of the procedures of the concerned Institutions for periods not exceeding the sanctioned duration of the project. The Qualification and experience should be followed as per the DST guidelines.
- F. Staff appointed for the research project will be subject to the administrative control and service rules as applicable at the institute where they are appointed.
- G. In respect of particular research projects, *at the time of sanction*, the Ministry may prescribe requirements of prior approval by the Ministry before submitting for publication or conference presentation, papers or articles based on the Project.
- H. In the event, after due enquiry, the Ministry concludes that the progress of a research Project is highly unsatisfactory and cannot be improved, it may terminate the Project. Upon such termination, full audited accounts and refund of all unspent balances will have to be made promptly to the Ministry.
- I. All equipment and stores purchased out of the grant would remain with the institution concerned unless otherwise specified in the sanction. However, the grantee organization will submit the list of assets acquired under the project as per the prescribed proforma (**Appendix-** ). The terms "Assets" here means (a) immovable property and (b) movable property of a capital nature where the value exceeds Rs. 10,000/-.
- J. International travel, even if provided for in the project budget, will require prior approval of the Ministry of Environment & Forests.
- K. The Research Fellows and Investigators may pursue a research degree while working on the project. They may utilize the research outputs of the project towards their degree requirements, except in cases where the sanction would provide that the research results are classified.
- L. The project will become operative with effect from the date of receipt of the First Demand Draft by the grantee organization. The date of receipt of the Demand Draft will be intimated by the

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Principal Investigator to the Ministry of Environment and Forests.

M. The projects will be sanctioned normally for a specified period (maximum three years). Extension may be granted in exceptional cases upto a maximum period of one year. Any request for extension of the project should be sent by PI to the Ministry at least three months before the closing date. The PI should not make any expenditure after the closing date without specific approval of the Ministry or till the extension is conveyed to him. If such extension does not involve change in scope of the project, no additional funds would be sanctioned.

N. Sharing of Intellectual Property Rights between the Government of India and the Institution(s) and research staff participating in the project would be specified in the sanction order based on Guidelines of the CSIR.

O. The Principal Investigator shall submit three hard copies and one soft copy of the progress report of the project at the end of the each year to the Contact Person for Annual Review of the project.

P. The grantee organization(s) will furnish 5 copies of the Final Technical Report, including Executive Summary, alongwith a soft copy, to the Ministry. The FTR will be subject to review by the Thematic Peer Group.

Q. Non-Governmental Organizations seeking financial assistance for research projects shall execute a Bond in the prescribed format (**Appendix-V**).

R. All correspondence is to be addressed to the Contact Person specified for the concerned Research Programme.

S. The Peer reviewers will be given honorarium @ Rs. 600/- per project for providing expert comments on the project.

### **1.8. Dissemination of research findings**

Unless restricted, wide dissemination of research findings would be encouraged. Apart from professional journals/books, final technical reports of completed projects may be disseminated through one or more of the following channels, as appropriate:

- Web site of the Ministry.
- Enviro News
- Website of ENVIS Centres/Nodes through EI Division
- Websites of Major Universities (through UGC)
- Websites of State Pollution Control Boards
- Professional and Policy-makers' Workshops



## RESEARCH PROGRAMMES

The programmes under which environment related research is supported by the Ministry are as follows:

### I. Environmental Research Programme (ERP)

The ERP specifically deals with the “Brown Issues”, i.e. problems related to pollution, hazardous waste management, agro-chemicals, waste minimization and reuse, carrying capacity studies, development of eco-friendly and cleaner technologies and providing scientific inputs to address policy problems relating to environmental pollution control and management.

(Contact Person: Dr. T. Wangdi, Joint Director)

### II. Ecosystems Research Scheme (ERS)

The Ecosystem Research Scheme (ERS) is an inter-disciplinary programme which emphasizes the ecological approach to the study of inter-relationships between man and the environment and seeks to generate scientific knowledge needed to manage natural resources wisely.

(Contact Person: Dr. Naseem Ahmad, Additional Director)

### III. Eastern and Western Ghats Research Program (E&WGRP)

The Research programme on Eastern and Western Ghats is intended to evolve scientific inputs and technology packages for solving location specific problems in the fragile areas of Eastern and Western Ghats.

(Contact Person: Shri Ashok Bhatia, Additional Director)

### IV. Man & Biosphere Reserves

The term “Man & Biosphere Reserves (MAB)” is a term used by UNESCO for putting man at centrestage along with Biosphere Reserves namely representative parts of natural and cultural landscapes extending over large areas of terrestrial or coastal/marine ecosystems or their combinations. BRs are designated to deal with important questions of reconciling the conservation of biodiversity with sustainable economic and social development and maintenance of associated cultural values.

(Contact Person: Dr. R.K. Rai, Additional Director)

### V. Mangroves and Coral Reefs

This programme supports research for conservation and management of mangroves and coral reefs ecosystems from degradation, afforestation of degraded mangrove areas, maintenance of genetic diversity, especially of the threatened and endemic species and ‘coral reefs’ restoration and artificial regeneration and creation of awareness among the people on importance of mangroves and coral reefs ecosystems.

(Contact Person: Dr. J.R. Bhatt, Director)



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## VI. Wetlands

Wetland resources having significant biological diversity are of great ecological, economic and aesthetic importance. Research support relates to various aspects of conservation and management of wetlands including enhancement of their productivity & utility for supporting floral and faunal diversity and anthropogenic benefits.

**(Contact person: Dr. S. Kaul, Director)**

## VII. National Natural Resources Management System (NNRMS)

The programme supports research aimed at optimal utilization of remote sensing alongwith conventional data for addressing key environmental and ecological issues such as management of forests, grasslands, faunal resources, wetlands, coastal areas including mangroves and coral resources, land degradation, impact of developmental activities etc.

**(Contact person:Dr. R.K. Suri, Additional Director)**

## VIII. National River Conservation Programme

This programme supports research on site specific and scheme specific research which could result in water quality improvements or which could be dovetailed into the existing schemes for pollution abatement. Water quality monitoring and modeling, impact analysis, estimation & treatment of non-point pollution, Phytoremediation etc, are some of the thrust areas relevant to the pollution abatement programme taken up under NRCP. Besides these, development of low cost treatment technologies and tertiary treatment for disinfection of treated sewage are given priority. Capacity building also forms a part of R&D under which an M.Tech. Programme on Conservation of Rivers and Lakes has already been initiated at IIT, Roorkee since 2004-05.

**(Contact person:Dr. R. Dalwani, Director)**

## IX Wildlife Conservation

Wildlife Division supports research proposals/studies and surveys related to wildlife conservation in the country under the scheme of “Strengthening of Wildlife Division and Consultancies for Special Tasks”. Proposals may include population surveys, species/ecosystem specific studies including threat perception, habitat ecology and management aspects etc.

**(Contact person: Dr. Anmol Kumar, DIG(Wildlife))**

## X Climate Change

This programme supports *commissioned* research relevant to international negotiations on Climate Change. It includes all research/data collection and other activities as warranted on need basis under various bilateral and multilateral agreements on Climate Change including Asia Pacific Partnership and Research related to impact assessment/advance preparedness of the country to deal with all issues related to climate change.

**(Contact person: Dr. R.K. Sethi, Director)**

## XI. Biodiversity Conservation

This programme supports commissioned research projects on issues relevant to the Convention on Biological Diversity and Biosafety Protocol.

**(Contact person: Dr. Sujata Arora, Additional Director)**

**Application for Grant for Research Project**

(To be completed by the Principal Investigator)

1. Title of the Project :
2. Name, Designation and Addresses of Principal and Lead Investigators :
3. Date of superannuation of PI :
4. Name(s), Designation and Address(es) of Co- Investigators:
5. Institution where the project will be implemented (Lead Institution in case of a network) :
6. Names of Network Partners (if project is to be carried out by a network) :
7. Duration of the project (years, months) :
8. Total amount of Grant required :

9. **Annexures:**

**Annexure II(A): Project Brief**

A brief summary of the project (not exceeding one page)

**Annexure II(B): Project Investigators:**

(a) CVs of all research staff, covering academic qualifications (Degrees, Year, University, Thesis Title for research degrees), Peer Reviewed research publications, and Institutions where previously located.

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(b) Details of project grant proposals submitted by (all participating) Institutions to Ministry/ all other funding organizations which are currently under consideration.

**Annexure II (C): Technical Proposal**

- (a) Specification of research question(s)
- (b) Survey of literature relating to the project:
  - Existing relevant literature on the subject – 2 pages note on key findings, gaps in knowledge. :
  - Relevant sites on Internet – 2 pages Note on key Internet findings :
- (c) Justification for the proposed project : in relation to the Thematic Priorities
- (d) Outline of research methodology
- (e) Data sources
- (f) Surveys to be conducted
- (g) Equipments and Infrastructure Available
- (h) Equipments and Infrastructure required
- (i) Support staff available (Technical/Non-Technical)
- (j) Additional Support staff required (Technical/Non-Technical)
- (k) Time Schedule of the project (PERT-Chart): giving annual monitorable targets
- (l) Envisaged deliverables from the projects/ Professional Publications
- (m) Modalities for dissemination of Research Outputs :

**Annexure II (D): Project Budget:**

**A. Person-months to be spent on the project:**

Name of Investigator/ JRF/SRF/Emeritus Scientist/Support staff	Person months Year 1	Person months Year 2	Person months Year 3
<b>Totals:</b>			

**B. Salaries<sup>3</sup> and Benefits<sup>4</sup> (scaled to person-months to be spent on the project by each):**

Name of Investigator/ JRF/SRF/ Emeritus Scientist/S upport staff	Salary For Year 1	Benefits For Year 1	Total Year 1	Salary For Year 2	Benefits For Year 2	Total Year 2	Salary For Year 3	Benefits For Year 3	Total Year 3
<b>Totals:</b>									

**C. Capital costs of Equipment/Infrastructure<sup>5</sup>:**

Equipment/ Infrastructure	No. required	Unit costs	Cost in Year 1	Cost in Year 2	Cost in Year 3	Total cost
<b>Totals</b>						

<sup>3</sup> Salary: Includes Pay and Dearness Allowance

<sup>4</sup> Benefits includes all other Allowances and estimated reimbursements (except travel related)

<sup>5</sup> Includes computers, software, and peripherals

**D. Consumables (Chemicals, Glassware):**

Year 1:

Year 2:

Year 3:

Total :

**E. Travel costs:**

Name of Investigator/ JRF/SRF/ Emeritus Scientist	TravelEvents Year 1	TravelEvents Year 2	TravelEvents Year 3	Total No. of trips National	Total No. of trips International
<b>Totals</b>					

Name of Investigator/ JRF/ SRF/ Emeritus Scientist	Travel Year 1	Per-Diem Year 1	Total Year 1	Travel Year 2	Per-Diem Year 2	Total Year 2	Travel Year 3	Per-Diem Year	Total Year 3	Project Total
<b>Totals</b>										

**F. Contingencies**

**G. Institutional charges**

**H. Grand Total for Project:**

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**Annexure II (E): CERTIFICATE**

To:

Contact person of the programme  
Ministry of Environment & Forests  
Paryavaran Bhawan  
CGO Complex, Lodhi Road  
New Delhi-110 003.

Sir,

1. A research project entitled,"

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is forwarded herewith for consideration of grant funding by the Ministry.

2. It is certified that the same project or another project with similar objectives has not been submitted to any other funding agency by the Investigator(s).
3. We have carefully read the terms and conditions of sanctioning the project and agree to abide by them.
4. The organization will provide all necessary infrastructural facilities (both laboratory and administrative) if the project is sanctioned.
5. The organization is fully responsible in regard to matters pertaining to the project.
6. Certified that the equipment/instruments proposed in the project are not at all available in the Department/institution or are available in the Department/Institution but are not available for dedicated project use.

Yours faithfully,

(Registrar/Director/Head of the Organisation)

Place:

Date: