GUIDELINES

&

FORMAT

FOR

SUBMISSION OF

PROJECT PROPOSALS

<u>UNDER THE SCHEME</u>

"Science and Heritage Research Initiative (SHRI)"

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY

TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI-110016

Science and Heritage Research Initiative (SHRI)

Technology Development and Transfer

Background:

Heritage science refers to the "fascinating, rich and diverse range of scientific challenges" associated with conservation and maintenance of movable and immovable heritage. Its significance has grown steadily in recent times for culturally rich, knowledge based economies.

Since the very beginning, for investigation, preservation, and conservation-restoration of our cultural heritage, science and technology has been playing an important role. It includes documentation, study of materials & technology across the era, understanding degradation processes and current state of works of art, as well. Eventually, it leads to development and evaluation of new materials and methods for interventions in both, movable and immovable art works. In the past decades, the booming developments in chemical science, especially in analytical, organic, environmental chemistry, electronics and computer science has brought new tools and methods of great perfection for analysis, diagnosis and protection of art and cultural objects.

Overview:

The societal connections with cultural heritage can be nurtured by preservation and valorisation of legacy through scientific methods and technologies, thereby converting it into a resource.

The imaging, diagnosis, and preservation techniques for cultural heritage can be optimized through interdisciplinary collaboration and technology transfer to expand the "tool kit" whilst inspiring researchers to explore beyond boundaries.

Science and Heritage Research Initiative (SHRI), a new programme on Heritage Research, plans to engage experts from diverse fields for data capture and analysis, to form new collaborations, and provide viable technology to address cultural heritage related issues.

Aims and Objectives:

SHRI has been envisaged to -

1. Build capacity in human resources and encourage new researchers to work in these areas.

2. Promote scientific R&D activities for conservation of Heritage objects which may include material deterioration process, preservation techniques, intervention technologies, new materials, processes for restoration and diagnostic technologies.

3. Safeguard the use, representations, expressions, knowledge and techniques, communities, groups and in some cases, individuals, recognised as an integral part of our cultural heritage.

4. To explore new approaches, state-of-art technology to preserve the heritage and art works of former generations, which witnessed the evolution and growth of human civilization.

5. Promote application of advanced knowledge of archaeometric science in a range of fields.

6. Promote R&D activities and technological advancement in Tribal Arts for value addition.

Scope:

To strengthen the dissemination of research activities with a specific focus on developing a relationship between heritage science researchers and industry. Sensitize policymakers to promote heritage science innovations for enhancing the contribution of our rich heritage towards culture and economy of the Nation.

The envisaged thrust areas are -

- Study of Heritage Materials/Metals.

- Remote sensing Techniques for Detection of Archaeological Residues.

- *In situ* non-invasive imaging of sub-surface microstructure of object, sustainable radiography for heritage materials, etc.

- Heritage Textiles – New technologies in yarn treatment, weaving, printing, Eco friendly dyes, Cement Clothing etc.

- Salts and synthetic coatings for wall paintings: for example, the application of surface science to artists' acrylic emulsion paint films

- Health monitoring of ancient artefacts.

- Tribal Arts/Heritage

- New Materials development

- Conservation Technologies

- Development of Tools/process for conservation

- Any other area related to Heritage other than mentioned above

Implementation Approach:

The implementation approach taken is:

- Pro-active Identification of challenges, research problems/topics and mobilisation of thematic proposals.

- Design of activities through stakeholders' consultation;

- Coordinated effort through strong linkage with line ministries;

- Gainful collaboration through creation of knowledge networks to evolve solutions through tapping the country's scientific strengths and linking global expertise

Components/ Nature of Projects to be Supported under SHRI:

1. **Basic Research/Technology Development Projects**:

   This includes the development of new technologies to help conservation and preservation of cultural heritage, research on material deterioration process, preservation techniques, intervention technologies, new materials, processes for restoration and diagnostic technologies. restoration and sampling methods to develop the tools/ advancement on chemical treatment and preservation of protected monuments/world heritage monuments.

2. **Skill DevelopmentProgramme**.
   This aims to create the trained manpower on heritage skills and help them with ownership of developed patterns. The skills may include Leather Painting, Bricks making, Design Innovation, Heritage sari making, Boat Building, Mirror making, Traditional Painting and animation, Heritage medicine and Foods. etc.

3. **Demonstration or Diffusion of technologies**
   Small group of peoples working on heritage products or technologies may not be able to afford the cost of electronic promotion and publicity, so positioning their products on right place and helping them on ownership of patterns and Design innovation with IP protections. Diffusion of new tool/techniques/processes to artisans and other users will be assisted.

4. **Specific studies to understand the scientific phenomenon behind the degradation and preservation**

   Studies on selected Heritage Objects to understand the phenomenon behind the degradation and propose preservation accordingly.

Beneficiaries:

Depending on the objectives of the activities specified in the call for proposal launched from time to time, the projects could be proposed by:

1. Academicians and scientists working in public/private/ voluntary sector, S&T based voluntary organization;

2. Academic and R&D Institutions, State Government bodies such as S&T Councils, Autonomous bodies working in Heritage sector; and

3. Network of individuals/ institutions will be considered favorably in the event where project activities require multi-disciplinary multi-institutional participation. Several such possible options could include research work by academic/R&D institutions in association with Industry/ NGO, demonstration in consortia mode involving R&D institution/industry/NGO, state government line departments, S&T field groups and local panchayats.

The Initiative envisages to implement the programme throughout the nation.

Timeline:

Proposals under SHRI will be entertained only against specific calls. The priorities and commitments of the SHRIwill be articulated in the "**Call for Proposals**", which would appear on DST website after specified intervals. The criteria for evaluation and evaluation procedure will be part of call document. Interested applicants may apply against the Call. However, the next phase of projects supported earlier, which are essential for logical conclusion of the project, will be considered beyond the call domain.

GUIDELINES FOR FORMULATING PROPOSALS

1. The proposal should clearly establish linkage of S&T to Cultural Heritage.

2. DST encourages formulation of proposals through consultative process. Preliminary proposals giving brief information on concept, idea, proposed activity etc may also be submitted. These preliminary proposals could be further refined through mutual discussions, expert advice etc.

3. The proposals should be based on innovative technologies/ ideas. The training programmes should be on specific technologies/ themes. Routine training programmes will **not** be entertained.

4. Proposals should have specific, concrete, quantifiable objectives.

5. The proposal objective may be oriented to few specific outputs, which could be possible in duration of 18 to 36 months (max).

6. The scientific and technical details should be clearly spelt out.

7. Results of ongoing and completed projects of the organization must be reflected while the formulating new proposals.

All correspondence, including proposals may be sent to the following address:
Dr. Neeraj Sharma
Advisor & Head
(Technology Development &Transfer Division
& PolicyReserach Cell)
Department of Science & Technology
Ministry of Science & Technology
Room No. 1-B, Main Building
Technology Bhawan,New Mehrauli Road
New Delhi – 110 016
(Telefax: 011 -26862512)
Email: neerajs@nic.in

LAST DATE OF SUBMISSION THROUGH e-PMS (www.onlinedst.gov.in) is February 16, 2018.

GENERAL TERMS AND CONDITIONS

1. The Principal Institution assumes financial and other administrative responsibilities of the project.

2. In case of multi-institutional project, formal agreement from the collaborating institutions/ scientists should support the proposal.

3. International travel is not permissible under the project.

4. The manpower recruited for the project should be paid as per the rules of the Institute and guidelines of the Government of India.

5. The proposals will be considered for approval/rejection by the Project Evaluation Group (PEG) in DST. The group may seek expert opinion, wherever required.

6. It is the policy of DST to maximize the use of an equipment. In this light, Investigator shall permit the use of spare or idle capacities of equipment procured under the project by bonafide users (research workers in other DST funded projects or other projects of the institute)

DOCUMENTS/ENCLOSURES REQUIRED WITH THE PROPOSAL:

(a) Endorsement from the Head of the Institutions (on letter head) Certificate from Investigator(s)

(b) Details of the proposals (03 copies)

(c) Name and address of experts/Institutions who may be interested in the subject/outcome of the project (circulation list).

(d) Registration Certificate, Memorandum of Association and Rules and Regulation of the Institution.

(e) Balance sheet, Audited Statement of accounts and the annual report (pertaining to the last two financial years).

INSTRUCTION FOR FILLING UP THE PROFORMA

1. Please use papers of A-4 size (21 cms x 29 cms).

2. Please type as per the layout given in the format on both sides.

3. Please do not skip reproduction of any section even if the answer is "nil" or given elsewhere.

4. Project title should be precise and should not exceed normally 20 words within two lines.

5. Expected total duration of the project should normally be 18 months and in no case should exceed 36 months.

6. If project is to be executed by more than one institution /States (which is welcomed) and /or requires regular inputs from other scientists, names of collaborating institutions/scientists/ State S&T Councils may be listed.

7. Use telegraphic language to the maximum extent possible for objectives, work plan, methodology, expected outcome etc.

FORMAT FOR SUBMISSION OF PROPOSALS

"Science and Heritage Research Initiative (SHRI)"

(*To be filled by Project Investigator*)

A. IDENTIFICATION

1. Project title
   ....
   ....
   ....
   Key Words
   ....

2. State :....................

3. Broad Area:- (Please tick mark($\sqrt{}$)
(i)	Basic Research/Technology Development Projects	( )
(ii)	Skill DevelopmentProgramme	( )
(iii)	Fellowships	( )
(iv)	Conferences/Workshops/Seminars	( )
(v)	Demonstration or Diffusion of technologies	( )
(vi)	Specific studies to understand the scientific phenomenon behind the degradation and preservation)	

4. Duration: (number of months)

5. Total Cost:
   - (i)   Recurring
   - (ii)   Non-recurring

6. Principal Investigator:

   6.1   Name:

   6.2   Department:

   6.3   Designation:

   6.4   Organisation/Institution Name:

   6.5   Address (Including Telephone (Off &Res.), E-mail, Fax) Pin:

   6.6   Date of Birth:

   6.7   Sex (M/F):

7. Co-Investigator:

    7.1   Name :

    7.2   Designation:

    7.3   Department:

    7.4   Organisation/Inst. Name:

    7.5   Address: (Including Telephone (Off &Res), E-mail, Fax), Pin:

    7.6   Date of Birth:

    7.7   Sex (M/F):

8. Capability of the Organisation:

(a) Expertise available:

(b) List of on-going and completed projects giving the following details:

Project Title	Start date	Completion date	Project cost	Sponsoring organisation

B. TECHNICAL DETAILS

1. Background

    1.1 Description of problem
    1.2 Review of work already done
    1.3 Rationale for taking up the project
    1.4 Relevance to Heritage Science.
    1.5 Financial resources committed at Host Institute/Industry(if any)

2. Challenge & Constraints
(Please identify strengths and weaknesses of the implementers vis-à-vis current project in terms of technical expertise, team building, past record etc. Also list the perceived opportunities and threats and describe how PI/Organisation proposes to capitalise on them or avert them.)

3. Description of Proposal

    3.1   Objectives of the project. (Brief and to the point)

    3.2   Preliminary Investigations done by organisation. (if any)

    3.3   S&T component in the project.

    3.4   Linkage with S&T Instts./NGO,s/resource persons/ R&D organisation/ Industry for technical backup.

    3.5   Other organisations working in this area

    3.6   Methodology detailing stepwise activities and sub-activities.

4. Work Plan
(Phase-wise plan of action upto post project activities detailing time schedule Milestones may clearly be indicated. PERT/GANTT chart may be attached.)

5. Output of the Project
(Attempt may be made to quantify output in measurable parameters.)

6. Likely Impact (Please attempt to quantify)

7. Parameters for monitoring effectiveness of project

8. Suggested Post Project Activities

C. BUDGET ESTIMATES: SUMMARY

(In Rupees)

Item	BUDGET			
	1st Year	2nd Year	3rd Year	Total
A. Recurring				
1. Salaries/ Wages				
2. Consumables				
3. Travel				
4. Other Costs				
B. Non-Recurring Permanent Equipment				
Grand Total (A+B)				

- Financial Year: April to March.
- Count six months from submission of the proposal to arrive at expected time point for commencement of the project.
- Please provide brief justification for each head (100 words for each).

BUDGET FOR SALARIES/WAGES

(In Rupees)

Designation (number of persons)	Monthly Emoluments	BUDGET			
		1st yr. (m.m.)	2nd yr. (m.m.)	3rd yr. (m.m.)	Total (m.m.)*
Full time i) ii)					
Part time i) ii)					
Total					

- m.m. man months to be given within brackets before the budget amount.

BUDGET FOR CONSUMABLES

(In Rupees)

Items	BUDGET			
	1st Year	2nd Year	3rd Year	Total
Total				

BUDGET FOR TRAVEL

(In Rupees)

Items	BUDGET			
	1st yr.	2nd yr.	3rd yr.	Total
Travel 1. Local *				
2. Out Station *				
Total				

* Please specify.

BUDGET FOR OTHER COSTS

(In Rupees)

Items	BUDGET			
	1st yr.	2nd yr.	3rd yr.	Total
a. Contingencies				
b. Others				
Total				

BUDGET FOR PERMANENT EQUIPMENT

(In Rupees)

Sl. No.	Name of equipment *	Estimated cost
1.		
2.		
Total		

- Please give justification for each equipment.

D. PROFORMA FOR BIODATA OF INVESTIGATORS

A. Name:

B. Date of Birth:

C. Institution:

D. Whether belongs to SC/ST:

E. Academic career:
    Professional career:

F. Award/prize/ certificate etc won by the investigator:

G. Publication (Numbers only):
    Books   Research Paper, report   General articles

    Patents   Others (please specify)

H. List of completed and ongoing projects

Sl. No.	Title of project	Duration		Total cost	Funding Agency
		From	To		

I. Projects submitted

Sl. No.	Title of project	Name of Organisation
Status		

                                            (Name & Signature)

Date..........................

Place........................

ENDORSEMENT FROM THE HEAD OF INSTITUTION
(TO BE GIVEN ON LETTER HEAD)

PROJECT TITLE:

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1. Certified that the Institute welcomes participation of Dr./Shri/Smt/Km.-- as the Principal Investigator and Dr./Shri/Smt/Km.------------------- --as the Co-Investigator for the project and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility of the fruitful completion of the project (with due intimation to DST (GOI).

2. Certified that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant, will be extended to investigator(s) throughout the duration of the project.

3. Institute assumes to undertake the financial and other management responsibilities of the project.

4. Institute will provide the infrastructure facility for the installation of the Plasma pyrolysis system for Plastic / Biomedical waste management and over take responsibility of maintaining the system after installation.

Name and Signature of Head of Institutions

Date : ....

Place : ....

REMARKS
(In regard to research proposals emanating from scientific institutions/ laboratories under various scientific departments the Head of the institution is required to provide a justification indicating clearly whether the research proposal falls in line with the normal research activities of the institution or not and if not, the scientific reasons which merit its consideration by Department of Science & Technology.)

CERTIFICATE FROM THE INVESTIGATOR

PROJECT TITLE:

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1. I/We agree to abide by the terms and conditions of the DST grant.

2. I/We did not submit this or a similar project proposal elsewhere for financial support.

3. I/We have explored and ensured that equipment and basic facilities will actually be available as and when required for the purpose of the project. I/We shall not required financial support under this project, for procurement of these items.

4. I/We undertake that spare time on permanent equipment will be made available to other users.

5. I/We have enclosed the following materials.

ITEMS	NUMBER OF COPIES
(a) Endorsement from the Head of the Institution (on letter head)	One
(b) Details of the proposals	Three
(c) Registration certificate, Memorandum of Association, rules and regulations of the Institution, audited Balance sheet and Annual report of previous two years. (applicable only for NGOs, field groups registered societies)	

Name & Signature of Investigator

Date :....................................

Place:....................................