



सत्यमेव जयते

Department of Science & Technology (DST)  
Technology Development & Transfer (TDT) Division

Project Proposal under  
Waste Management Technology (WMT) Program

Project Title:	
Category	
Research Area	
Principal Investigator	
Lead Institution	
Date of Submission	

The Project Proposals may be submitted (1 hard copy + soft copy of proposal in PDF) between Dec.1, 2016 and Jan.15, 2017 to:

TDT Division, Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi- 110016.

Attention:

Mr. Sajid Mubashir, Scientist G (Email: (sajid@nic.in) or  
Dr. Krishna Kanth Pulicherla, Scientist C (kkpulicherla.dst@gov.in)

## Research Areas:

- A) **E-Waste** (Electrical & Electronics Waste): Recycling & Recovery
  1. Development of simple indigenous material recovery technology for specific applications (precious & other metals, plastics, glass and rare earths) in collaboration with industry.
  2. Green Product development and Design for recycling.
- B) **Industrial Hazardous & non-hazardous Wastes**
  1. Mining Waste: Overburden, Tailing Pond
  2. Metallurgical Waste
  3. Cost effective treatment of refractory organics
  4. Recycling/recovery of value added materials from hazardous/non-hazardous wastes
  5. Solid Waste from Chemical Industry (such as adsorbents like ion exchange resins, activated carbon, clays, membranes)
  6. Membrane rejects and Salts
  7. Industrial sludges
  8. Industrial spent solvents and chemicals
- C) **Newer technologies for Biomedical Waste**
- D) **Urban & Rural Solid Waste, including Plastic Waste**
  1. Existing Landfills: Gas Extraction, Leachate Treatment, Material Mining, Remediation, Value-added Material Recovery
  2. Non-recyclable packaging material.
  3. Household hazardous waste
  4. Construction & demolition debris
  5. Co-digestion of sewage sludge

## Project Categories in WMT Program:

It is proposed to support projects in three categories, as below:

**Level-I: Proof of Concept/ Seeding Projects** of up to 1-year duration, to generate new technology ideas & develop prototypes. Level-I category is open to research establishments. Level-I projects will not be provided equipment money; Research Associates at post doc can be utilized.

**Level-II: Joint Technology Projects** between Research Institutions and Industry for (a) Technologies already developed at some level, but yet to be implemented at scaled up level, & (b) Technology adaptation, in projects led by academic institutions, with the participation of industry.

**Level-III:** Scaling up of proof of concepts or existing pilot plants by a factor of 10 to 25.

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## Section-1. Overview of the Project

### 1.1. Project Title:

### 1.2. Lead Investigators

#### 1.2.1. Principal Investigator (PI)

Name	
Designation	
Agency & address	
Telephones (Mobile; Landline)	
E-mail	
Date of birth	

#### 1.2.2. Co-Principal Investigator (Co-PI)

Name	
Designation	
Agency & address	
Telephones (Mobile; Landline)	
E-mail	
Date of birth	

### 1.3. Details of Collaborating Institutes and Industry

#### 1.3.1. Partner-1

Name	
Designation	
Agency & address	

Telephones (Mobile; Landline)	
E-mail	
Date of birth	

**1.3.2. Partner-2**

Name	
Designation	
Agency & address	
Telephones (Mobile; Landline)	
E-mail	
Date of birth	

**1.4. Please give names of 5-6 Area Experts**

(Please give complete postal address, telephone numbers and e-mail addresses)

1.4.1.

1.4.2.

1.4.3.

1.4.4.

1.4.5.

1.4.6.

## Section-2. Forwarding Letters

### 2.1. Undertaking from Principal Investigator

1. I have enclosed a print-copy and a soft-copy (PDF) of the Project Proposal titled: \_\_\_\_\_, complete in all respect, along with (a) Endorsement from the Head of the Organisation (on letter head), and (b) Undertakings from the Collaborating Industries/Agencies
2. I have not submitted this Project Proposal titled : \_\_\_\_\_ or similar work, elsewhere for financial support.
3. I shall ensure that if an equipment is available for use in my Organization, it will not be proposed to be purchased under the Project.

Name & Designation:	Date:
Signature:	Place:
Stamp/ Seal:	

## 2.2. Endorsement from Head of Organisation

1. Name of Agency: \_\_\_\_\_
2. I, on behalf of the organization, welcome the participation of Dr/Mr/Ms \_\_\_\_\_ as the Principal Investigator (PI) and Dr/Mr/Ms \_\_\_\_\_ as the Co-PI for the Project Proposal titled: \_\_\_\_\_.
3. 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 be promptly sent to DST
4. The equipment and facilities (including administrative) available with the institute and those being procured under the project will be made available to the Investigator(s) throughout the duration of the Project.
5. I will ensure that the financial and purchase procedures in the project will be as per the prevailing norms, and that the Organisation shall provide timely the Statement of Expenditure and the Utilization Certificate of the Funds under the Grant as required by DST in the prescribed format.

Name & Designation:	Date:
Signature:	Place:
Stamp/ Seal:	

### 2.3. Undertaking from collaborating Industries/ Agencies

1. Name of Agency: \_\_\_\_\_
2. I have gone through the Project Proposal entitled \_\_\_\_\_ submitted by Dr./Mr./Ms. \_\_\_\_\_ of \_\_\_\_\_ (Name of the Organization) for DST funding and I hereby affirm that my Organization/ Company is committed to participate in the Project to the full extent as indicated in the Project Proposal including the technical and financial commitments described in the project proposal.

Name & Designation:	Date:
Signature:	Place:
Stamp/ Seal:	



## Section-3. Relevance of Proposed Project

### 3.1. Current Status of the technology

#### 3.1.1. Internationally

#### 3.1.2. Indian scenario and technological gap

#### 3.1.3. Development status at the participating agencies

### 3.2. Significance of the project

#### 3.2.1. Major applications of the proposed technology

#### 3.2.2. Target Beneficiaries & Expected Impact

#### 3.2.3. What further works will required after the project, for commercial exploitation of technology?

## **Section-4. Project Work Summary**

### **4.1. Detailed Objectives**

#### **4.1.1. Specific Objectives**

#### **4.1.2. Scientific Basis and Methodology**

### **4.2. Technical Details**

#### **4.2.1. Targeted level of development under the project**

(Describe the Prototypes/ Process Demonstration; preferably with reference to Technology Readiness Levels)

#### **4.2.2. Proposed target specifications & performance standards**

#### **4.2.3. Innovative Elements/Components of the Project**

### **4.3. Project Work Plan**

- a) Milestones with Dates, Work Elements & Organization responsible for it
- b) Schedules/ Work-Packages

## Section-5. Budget Summary (in ₹ lakhs)

	Item	1 <sup>st</sup> Year		2 <sup>nd</sup> Year		3 <sup>rd</sup> Year		Total	
		DST	Partners	DST	Partners	DST	Partners	DST	Partners
1.	Manpower								
2.	Consumables								
3.	Contingency								
4.	Other Costs*								
5.	Travel								
6.	Permanent Equipment								
7.	Overhead Charges								
	Total								

(\*Outsourced work, Fabrication & Testing)

Total Project Budget = ₹            lakhs,  
Request for DST Grant= ₹            lakhs,  
Partners Contributions= ₹            lakhs,

Research Manpower to be engaged in the project:

JRF (₹ 25,000 +HRA)	SRF (₹ 28,000 +HRA)	RA-I (₹ 36,000 +HRA)	RA-II (₹ 38,000 +HRA)	RA-III (₹ 40,000 +HRA)

### **Norms for Manpower, Travel, Contingency & Overheads**

#### Manpower

<b>Nomenclature &amp; Emoluments</b>	<b>Qualification</b>
Junior Research Fellow (₹25,000/- + HRA)	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
Senior Research Fellow (₹28,000/- + HRA)	Qualification prescribed for JRF with two years of research experience
Research Associate-I (₹36,000/- + HRA)	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. The Research Associate Scale may be decided by the institute/ organization based on the experience of the candidate.
Research Associate-II (₹38,000/- + HRA)	
Research Associate-III (₹40,000/- + HRA)	

## Travel & Contingency

₹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.

## Overheads

Overhead amount is towards meeting the cost of academic expenses including infrastructural facilities at the host institutes, and is permissible as given below: :

- a) For projects costing upto ₹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 ₹1 crore and upto ₹5 crore, overheads of ₹15 lakh or 10% of total cost whichever is less;
- c) For projects costing more than ₹5 crore and upto ₹20 crore, ₹20 lakh will be provided as overheads; and
- d) For projects costing more than ₹20 crore, the quantum will be decided on a case to case basis.

## Section-6. Itemised Budget

### 6.1. Manpower

#### 6.1.1. Budget for Salaries - DST Grant

Designation	Qualification	Salary per month	Number of Persons	Amount (in ₹ lakhs)	Role Description
				₹ lakhs	

#### 6.1.2. Budget for Salaries - Partner Contribution

Designation	Qualification	Salary per month	Number of Persons	Amount (in ₹ lakhs)	Justification
				₹ lakhs	

### 6.2. Consumables

Please provide the quantified list of consumables along with cost estimates/quotations in the Annexure  
(Item, Quantity & Unit cost)

#### 6.2.1. Budget for Consumable Materials - DST Grant (in ₹ lakhs)

1st Year	2nd Year	3rd Year	Total
₹	₹	₹	₹
₹	₹	₹	₹
₹	₹	₹	₹

#### 6.2.2. Budget for Consumable Materials (Partners Contribution ) (in ₹ lakhs)

1st Year	2nd Year	3rd Year	Total
₹	₹	₹	₹
₹	₹	₹	₹
₹	₹	₹	₹

### 6.3. Contingencies

Please provide the basis of cost estimates in the Annexure.

#### 6.3.1. Budget for Contingencies- DST Grant (in ₹ lakhs)

1st Year	2nd Year	3rd Year	Total
₹	₹	₹	₹
₹	₹	₹	₹
₹	₹	₹	₹

#### 6.3.2. Budget for Contingencies (Partners Contribution) (in ₹ lakhs)

1st Year	2nd Year	3rd Year	Total
₹	₹	₹	₹
₹	₹	₹	₹
₹	₹	₹	₹

### 6.4. Other Costs (Outsourcing/ Fabrication/ Testing/ Patenting)

Please provide the basis of cost estimates/quotations in the Annexure.

#### 6.4.1. Budget for Other Costs-DST Grant (in ₹ lakhs)

Item	1st Year	2nd Year	3rd Year	Total
Outsourcing	₹	₹	₹	₹
Fabrication	₹	₹	₹	₹
Testing	₹	₹	₹	₹
Others	₹	₹	₹	₹

#### 6.4.2. Budget for Other costs- Partners Contribution (in ₹ lakhs)

Item	1st Year	2nd Year	3rd Year	Total
Outsourcing	₹	₹	₹	₹
Fabrication	₹	₹	₹	₹
Testing	₹	₹	₹	₹
Others	₹	₹	₹	₹

### 6.5. Domestic Travel – from – DST Grant (in ₹ lakhs)

Please provide the basis of cost estimates in the Annexure. (journeys, purpose)

1st Year	2nd Year	3rd Year	Total
₹	₹	₹	₹
₹	₹	₹	₹
₹	₹	₹	₹

### 6.6. Equipment proposed to be procured

Please provide justification in Annexure on the use of equipment in project. Provide supporting Quotation

#### 6.6.1. Budget for Permanent Equipment – DST Grant

Description of Equipment	Foreign/ Indigenous	Unit Landed Cost (CIF, Custom Duty etc.)	Number of Items	Total (in ₹ lakhs)
		₹		₹
		₹		₹
		₹		₹

#### 6.6.2. Budget for Permanent Equipment - Partner Contribution

Description of Equipment	Foreign/ Indigenous	Unit Landed Cost (CIF, Custom Duty etc.)	Number of Items	Total (in ₹ lakhs)
		₹		₹
		₹		₹
		₹		₹

### 6.7. List of equipment available with participating agencies, relevant to the project

Description of Equipment	Foreign/ Indigenous	Agency where it is located

## **Section-7. Annexure: Justification for Itemized Budget**

Please provide justification against each sub-heading below, along with supporting Quotation.

### **7.1. Consumables**

### **7.2. Contingency & Travel**

### **7.3. Other Costs**

### **7.4. Permanent Equipment**



## Section-8. Biodata of Investigators

### 8.1. Principal Investigator (1):

8.1.1. Name, Designation, Agency:

8.1.2. Gender & Date of Birth:

8.1.3. Qualifications:

8.1.4. Employment Experience (Last 10 years):

8.1.5. Publications (Last 5 years):

8.1.6. Patents:

8.1.7. Research Thesis Guided:

### 8.2. Investigator (2):

8.2.1. Name, Designation, Agency:

8.2.2. Gender & Date of Birth:

8.2.3. Qualifications:

8.2.4. Employment Experience (Last 10 years):

8.2.5. Publications (Last 5 years):

8.2.6. Patents:

8.2.7. Research Thesis Guided:

8.3. Investigator (3):

8.3.1. Name, Designation, Agency:

8.3.2. Gender & Date of Birth:

8.3.3. Qualifications:

8.3.4. Employment Experience (Last 10 years):

8.3.5. Publications (Last 5 years):

8.3.6. Patents:

8.3.7. Research Thesis Guided:

8.4. Investigator (4):

8.4.1. Name, Designation, Agency:

8.4.2. Gender & Date of Birth:

8.4.3. Qualifications:

8.4.4. Employment Experience (Last 10 years):

8.4.5. Publications (Last 5 years):

8.4.6. Patents:

8.4.7. Research Thesis Guided: