

**Department of Science and Technology**

**Climate Change and Clean Energy Division (C3E)**

**Funding Announcement Opportunity 2023 for RD&D in the area of CCUS**

**PREAMBLE**

Mission Innovation (MI) is a global initiative of 24 countries and the European Union to dramatically accelerate global clean energy innovation. Mission Innovation was announced on November 30, 2015, as world leaders came together in Paris to undertake ambitious efforts to combat climate change. India is one of the founding members of the Mission Innovation. As part of the initiative, participating countries have committed to clean energy research and development (R&D) investments, while encouraging greater levels of private sector investment in transformative clean energy technologies. These collective efforts envisage to dramatically accelerate the availability of the advanced technologies that will define a future global energy mix that is clean, affordable, and reliable.

 Mission Innovation 1.0 was kick-started in 2017 with 8 identified challenges including **Carbon Capture, Utilisation and Storage (CCUS) Innovation Challenge** (IC#3] as one. In 2018, DST–DBT India launched a Joint Funding Opportunity Announcement (FOA) for inviting proposals on **IC#3 Carbon Capture, Utilization and Storage (CCUS) under Mission Innovation (MI)**. The objective of this Call was to undertake joint Research & Development with member MI countries to identify and prioritize breakthrough technologies in the field of CO2 capture, separation, storage and value addition. Under this call, DST has supported **19 CCUS projects** (Capture: 9, Utilisation: 7 and Storage: 3) in collaboration with **8** MI member countries.

Mission Innovation (MI) 2.0 launched a Carbon Di-Oxide Removal (CDR) Mission to accelerate international collaboration in developing the CDR approaches. The Mission’s focus is to enhance the systems that lead to negative emissions through an emphasis on durable CO2 storage and/or conversion into long-lived products. Engagement in a Mission is entirely voluntary and has been built around a coalition of interested MI members. Under the Mission, global calls are being designed aimed at accelerating research, development, and demonstration (RD&D) in technology areas where MI members believe increased international attention would make a significant impact in our shared fight against climate change. The Missions roadmap covers the entire spectrum of RD&D; from early stage research needs assessments to technology demonstration projects.

CCUS is a necessary component of a broad portfolio of Climate Change solutions. In the near term CCUS can further deep decarbonization efforts. Countries are making significant efforts to meet their Paris commitments, appropriately emphasizing deep decarbonisation. CCUS is needed to achieve economy-wide net-zero emissions commitments by counterbalancing emissions from the hardest to decarbonize sectors in the mid-term, and decrease atmospheric concentrations of CO2 in the long term—gradually reversing some aspects of climate change.

India presented its five-point National Commitments “ Panchamarit” during the COP-26 meet in Glasgow, Scotland to become carbon neutral and achieve net zero emissions by 2070. The two major paths to achieve net zero are (1) to reduce the total projected carbon emission by one billion tonnes and (2) to reduce the carbon intensity of the economy to less than 45% by 2030. CCUS has gained significant relevance in light of the Net Zero commitments and accelerating the trajectory of CCUS technologies has become one of the focused areas both in National as well as global context.

 DSTplays a pivotal role in the promotion of Science & Technology in the country. The Department has wide-ranging activities ranging from promoting high-end basic Research and Development of cutting-edge technologies, on one hand, to service the technological requirements of the common man through the development of appropriate skills and technologies on the other. Along with other mandates and responsibilities of DST, DST is continuously working on the identification and adoption of the right balance of the portfolio of emission curtailment technologies. Carbon Capture, Utilization, and Storage (CCUS) are among such key pathways to reduce emissions while continuing to develop sustainably at an unprecedented pace. CCUS clearly aligns with five of the seventeen Sustainable Development Goals (SDGs), namely, climate action; clean energy; industry, innovation, and infrastructure; responsible consumption and production; and partnerships to achieve the goals

# OBJECTIVES:

There is a strong need to continue RD&D in areas of Carbon Capture, Utilization and Storage, and effective cooperation between researchers of MI countries is one of the best way to speed up these developments.

The objective of the call is to advance CCUS technology development with the goal of reduced costs and improved performance, identify and prioritize breakthrough technologies, as well as recommend R&D pathways and collaboration mechanisms.

**This call also envisages to undertake Joint Research & Development with member MI countries** to identify and prioritize breakthrough technologies in the field of CO2 Capture, Separation, Storage and CO2 value addition. CCUS is one of the key technologies able to achieve significant decarbonisation of fossil fuel based economies, particularly in hard to abate carbon-intensive sectors such as Cement, Iron and Steel production. Carbon Capture, Utilization and Storage offer important insights into the technical capabilities, policy and financing mechanisms, and permitting frameworks with special focus on:

* RD&D for Improving material performance to capture CO2 at a greater capacity, with longer lifetimes and reducing the cost.
* Nascent R&D for Direct Air Capture of CO2
* Techno-economic assessment (TEAs &LCA) and deployment of CO2 Utilisation/Conversion technologies for accelerating to higher TRLs.
* Applied R&D for Reducing potential environmental impacts of CCUS.
* Understanding Energy and resource needs. Crosscutting routes to reduce energy requirements.
* R&D for enhanced in-situ mineralization: Kinetics of mineral carbonation in basalts.
* Remote sensing techniques to measure carbon cycle impacts.

*PURPOSE:* The purpose of this call on Carbon Capture will be to discover scalable methods for Carbon capture, Conversion, Utilization and Storage for value addition. Also the purpose is to conduct Research, Development and pilot scale Deployments to foster technology innovations that are technically feasible, robust and cost-effective for CCUS focusing on following Technical thematics:

1. **Capture and Utilization/ Conversion**
* Development of more efficient and cost-effective capture methods and materials, such as solvents, sorbents, and membranes.
* RD&D for Advancing post-combustion capture, pre-combustion capture, and oxyfuel combustion technologies to higher TRL levels for pilot scale deployments/Commercialization
* Innovative and cost-effective technologies for Direct Carbon capture from flu gases or Direct Air Capture as focal themes.
* RD&D for Innovative , Energy efficient, and cost-effective technologies for CO2 conversion to chemicals, (MeOH, EtOH, DME), building materials, polymers , fuels for accelerating the technologies in terms of TRLs: efficiency, scalability, and commercial viability of these technologies.
* Chemical conversion of CO2 in liquid phase
* CO2 conversion using electrochemical means.
* Waste to wealth: CO2 as C1 feedstock for high-value chemical synthesis
* Development of High-Performance Materials and Technologies for Turning CO2 into Transport Fuels, Electro fuels-ultra low carbon fuels.
1. **Storage and Sequestration**
* CO2 Source-sink matching, modelling tools, LCA, and techno-feasibility of CCS, including source-sink matching.
* Developing advanced technologies for monitoring, verification of CO2 storage, assessing the environmental impacts, and ensuring long-term storage integrity.
* Develop improved technologies for detecting and monitoring leaks and control along the CO2 transport infrastructure as well as developing emergency response techniques.
* CH4-CO2 replacement in natural gas hydrate reservoirs.
* Assessment of the basalt and offshore CO2 storage potential. identification of suitable sites, monitoring and evaluation of process efficiency and sustainability.
* Enhanced in-situ mineralization: Kinetics of mineralisation, detection of the amount of CO2 removed by mineralization etc, and understanding the benefits and risks.

**3. Streams**

 3.1 **Applied Research Stream**: Leading to establishment of Proof-of Concept.

**Concept:** Proposal should explore innovative ideas with a view to showcase the unique advantages of the idea over existing alternatives and to demonstrate that their innovative idea has the ability to address a significant end user need. This has to be substantiated by clear articulation of need supported by quantitative performance statement from the participating user. The proposed work should enable the acceleration of Technology from TRL 2-3.

**Eligibility:** The proposals are to be led by faculties/ scientists working in regular position in recognized Academic Organizations /Public funded R&D Institutions/ Laboratories, Central and state government autonomous organisations state S & T councils.

**Project Cost:** Not exceeding `**1 crore** (indicative) where equipment cost is not expected to exceed 30% of the project cost. Overheads are admissible as per DST norms above these costs.

**Duration:** 36 Months

* 1. **Technology Assessment Stream:** Leading to Pilot Scale Demonstration for technology in field setting.

**Concept:** The stream also includes grants to academic/R&D institute(s), for setting up of pilot demonstration plant, provided the partnering user demonstrates willingness to validate the technology through providing tangible inputs to the project. The proposed work should enable the acceleration of Technology from TRL 3-6.

**Eligibility:** The proposals are to be led by faculties/ scientists working in regular position in recognized academic institutions, public funded R&D Institution/ Laboratories in partnership with other academic, R&D organisations, DSIR recognized R&D organizations, industries and Users. Industry participation in the Technology Assessment stream is encouraged.

**Duration:** 36 Months

**Project cost:** Not exceeding `**2 crore** (indicative) where equipment cost is not expected to exceed 30% of the project cost. Overheads are admissible as per DST norms above these costs

* 1. Other Eligibility Criteria: The institutions/industries of Mission Innovation (MI) member countries are welcome to join the partnership with the lead Indian institute/ organization to carry out collaborative work. While there is no restriction on the upper number of participating MI countries (kindly visit <http://mission-innovation.net/our-members/> for the list of MI countries), participation of at least one organization (institution/industry/utility) from MI country is mandatory.

*The funding under this call will be provided to successful Indian researchers / Institutes who are expected to draw common R&D programs in the listed areas with researchers/ institutes of MI member countries. The MI member countries are encouraged to take part in this call. The participating MI organization has to be a legal entity as per the statute of the host country.*

4.0 COMPONENTS OF FUNDING:

* Additional research manpower especially hired for the project in India (existing research manpower will not be eligible for funding).
* Travel (domestic and international) for research mobility. Maximum two International visits per project per year (one from Indian and one from MI Partner side) are allowed for the project
* Dissemination activities and stakeholder workshops.
* Contingent expenditure such as stationery, incidentals etc.
* Permanent Equipment (not exceeding 30 % of project cost) Where possible, researchers are advised to make use of existing facilities and equipment. If equipment is needed as part of the research proposal, applicants must follow DST norm for requesting equipment which will be made available only on the basis of strong dedicated requirement for the project.

**5.0 Call Dates:**

**Call Opening Date: 24th July 2023**

**Call Closing Date: 24th September 2023**

**6.0 Proposal Formulation:**

The call has been formulated and evolved through phase wise consultation with stakeholders to identify current & emerging challenges and gaps in the area of CCUS technologies. Thematics identified under the call are in line with the National Net Zero Commitments and global Climate goals. The relevance of the work proposed should be based on the identified thematics of the call. The applicants are advised to indicate TRL level of the technology proposed at the onset and end of the project.

The below given Call Formulation guidance is not exhaustive, but is designed to help interested organizations to develop proposals.

* Proposed work should necessarily be in line with the National Net Zero Commitments and Climate goals. The proposed work should be truly innovative and transformational and should be relevant to the Technical thematic of the call. Proposals should make clear how they are adding value and not duplicating an existing solution; multiple forms of innovation are eligible and will be considered. Proposals should also clearly illustrate how the work proposes to overcome technical barriers of the current issues in carbon capture, storage and utilization for value addition.
* Proposed work should be for Applied research and Technology Assessment establishing the proof-of-concept in the early stages of development, defined broadly as the critical transition phase of idea/ concept to development thus making support from this grant most impactful.
* The maximum duration of the project should not be more than 36 months. Each project is subject to review at key milestones to ensure continued funding.
* In case of the Collaborating partner being from an institute/organization in MI member countries, a supporting document will be needed from the competent authority in the participating MI researchers/ institutes regarding their support to the project.
* The grant places strong emphasis on evidence-based results. Proposals must clearly define the indicators of success in the proposed work to be also exhibited as quantified tangible benchmarks within target timelines during the project lifecycle. Intellectual Property (IP) Generation should be one of the focused deliverable of the proposed work. The grant also places a strong emphasis on sharing the results more widely.
* Project implementing organizations will be required to maintain an Open Access Policy.
1. **Criteria for evaluation :**The proposals would generally be evaluated based on the following criteria.
However, weightage of each of these criterions will vary depending upon the anticipated output of each stream:
2. Relevance of the proposal with the Call
3. Demand or need of proposed work
4. Credibility Track Record and commitment of the Project Team
5. Novelty, feasibility, and scientific merit of proposed work
6. Superiority of proposed work over existing alternatives. (not applicable for applied research stream)
7. Proposal formulation should bring out clearly Expected outcomes with defined and tangible benchmarks within target timelines, Details of Technology to be developed or deployed, why it is important, what are the expected impacts of the proposed work, clear articulation of methodology and delineation of roles and responsibilities of various partners and collaborators.
8. Technical, environmental and economic viability of the proposed work.

**DST at the behest of Expert Panel may introduce any other criteria considered to be critical for successful implementation of the project.**

**Proposal Formats and Submission:** Proposals may be submitted at e-PMS (<https://onlinedst.gov.in/Login.aspx> ) in prescribed format of Individual proposal before the closing date of the call.

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**Proposal for Support Under**

**Funding Announcement Opportunity 2023 for RD&D in the area of CCUS under Mission Innovation 2.0**

**PROJECT TITLE**

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|  |  |  |
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| V. | Undertaking from the Investigator |  |
| VI. | Endorsement from The Head of Institution |  |
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| **Annexures** |
| 1. | Budgetary Quotes for Equipment’s/consumables  |  |

**I. Proposal Summary *(To be limited to singleA-4 page)***

|  |  |  |
| --- | --- | --- |
| **I** | **Project Title** |  |
| **II** | **Project cost *(Amount in lakhs)*** | **DST:** Rs. Lakhs  | **Collaborator:**Rs. Lakhs |
| **III** | **Duration *(in months)*** |  |
| **III** | **PI Name (Date of Birth)** |  |
| **IV** | **Co-PI Name (Date of Birth)** |  |
| **V** | **Lead Organizations** |  |
| **VI** | **Lead Organization Status** |  |
| **VII** | **Collaborator Name(s),**  |  |
| **VIII** | **Collaborators' Status** |  |
| **IX** | **Objectives** |  |
| **X** | **Methodology**  |  |
| **XI** | **Deliverables** |  |

**Budget Details:**

|  |  |  |  |
| --- | --- | --- | --- |
| **A.** | **Project Manpower** **(Post & Nos)****(*As per* *DST OM No. 33/(14)/PFC-II/2018 dated 21.06.2023******and*** ***DST OM. No. SR/S9/Z-05/2019* *dated 31.08.2019*)** | **DST:**  | **Collaborator:**  |
| **B.** | **List of Equipments****required**  | **DST:**  | **Collaborator:** |
| **C.** | **Details of Fabricated Plant /prototype, if any**  | **DST:**  | **Collaborator:**  |
| **D.** | **Nature of Contribution from Collaborator/stakeholder**  | **In Cash & Kind *(Please elaborate)*** |

**BUDGET ESTIMATE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.**  | **Item Head** | **1st Year****DST Share** | **2nd Year****DST Share** | **3rd Year****DST Share** | **Total (Rs. Lakhs)** |
| **A** | Non-recurring (Capital Items) |
| **1** | **Permanent Equipments\*** |  |  |  |  |
| **2.** | **Plant cost /Fabricated systems/ demonstration models** |  |  |  |  |
| ***A’*** | ***Sub total (capital items)*** |  |  |  |  |
| **B** | **Recurring Items (General)** |
| **1.** | **Manpower****(*As per* *DST OM No. 33/(14)/PFC-II/2018 dated 21.06.2023******and*** ***DST OM. No. SR/S9/Z-05/2019* *dated 31.08.2019*)** |  |  |  |  |
| **2.** | **Consumables** **Miscellaneous** |  |  |  |  |
| **3.** | **Contingencies**  |  |  |  |  |
| **4.** |  **Travel**  |  |  |  |  |
| **5.** | **Other Cost (Outsource work etc), if any (Civil, E&C)** |  |  |  |  |
| **6.** |  **Overhead (as per DST norms*, OM .NO. SR/S9/Z-11/2013 dated 24.02.2015*)** |  |  |  |  |
| ***B’*** |  ***Sub total (General)*** |  |  |  |  |
| **C** | **Total cost of the project (A’+B’)** |  |  |  |  |

**\**Permanent Equipment cost is not expected to exceed 30% of the total project cost.***

**Total DST Share:**

**Total Collaborator Share:**

**Total Project Cost:**

**II. CORE PROPOSAL**

1. **Project Title:**
2. **Principal Investigator (PI)**

**Name:**

**Designation:**

**Partner institution (in India) \***

*if applicable, and what skills and experience they will contribute to the implementation and scale of the project:*

1. **Co-Principal Investigator (Co-PI)**

**Name:**

**Designation:**

1. **Collaborating Indian Agencies/Industries *(If any)*:**
2. **Details of the MI partner country, Name, Affiliation, etc.**

5.1 Partnering Research Organization/Institute/Academia from MI Country/ Countries

5.2 MI Country Industry Partner (if any)

5.3 if applicable, and what skills and experience they will contribute to the implementation and scale of the project

**6. Target Beneficiaries (not required for basic research proposals)**

**7. Objectives of the Proposal**

***(Precise and quantified, use bullet form)***

**8. Critical Review of Status Identifying Gaps (include references & IPR survey)**

**8.1 National Status Review**

**8.2 International Status Review**

**9. Outline of the Project *(with schematics, where possible)***

 **(*Define the problems and give technical details and uniqueness in approach)***

**9.1 Abstract of the current project**

**9.2 Rationale and need of the proposed work**

**10. Methodology *(Please highlight how success in the project execution will be ensured`)***

**11. Deliverables of the project *(brief description)***

1. *New/Upscaled Process or Technologies*
2. *Acceleration of the Technology to higher TRLs.*
3. *New/ Upgraded System*
4. *Techno-economic or LCA analysis*
5. *List specific results and Indicators you will use to measure success of this project towards achievement of impacts and outcomes. Examples are given here: you may develop additional indicators as needed that best reflect goals and performance. Contribution to Cost effectiveness and access are paramount importance.*

**12. Role of the MI Partner in the project:**

**13. Expected outcomes and Impacts of the work**

**14. Work Plan**

**15. Names of 5 Experts/Agencies/ Institutions working in the similar area**

 ***(Please give complete Name, Designation, Address with pin code, telephone numbers & e-mail)***

**16. Any other information relevant to the Project proposal/ execution of the project**

 ***(Group strength, site details, economic analysis, company details etc.)***

**Details of Itemized Budget**

***(Ensure to mention the detailed justification)***

**A. Non-recurring (Capital Items)**

**A1. Equipment\***

**Budget for Permanent Equipment (To be borne by DST)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description of Equipment** |  **Unit Landed Price (CIF+ Custom Duty/ Taxes + others charges etc.) ( Rs.in lakh)** |  **Nos. of** **Equipment** | **Total Rupees****(Rs.in lakh)** | **Quotation at Annexure- / page no\* indicating total cost of equipment in Indian rupees** |
|  |  |  |  |  |
|  |  |  **Gross total =** |

***\*Sheet indicating the total landed cost in Indian rupees (mention currency conversion rate considered including freight, taxes, spares, special installation, etc.)***

**\**Permanent Equipment cost is not expected to exceed 30% of the total project cost.***

**Justification in relation to project (for each item mentioned above)**

**A2. Fabrication system: Tailor made models/ experimental set up (if any).**

1. **Budget for Fabrication system/Tailor made items**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description of fabricated system** | **Unit Landed Price (CIF + Custom Duty+ others )** | **Nos.** **of** **Equipment** | **Total Rupees****(Rs. in lakh)** | **Enclosed Quotation at Annexure- / page no\* indicating total cost of equipment in Indian rupees** |
|  |  |  |  |  |
|  | **Gross total:**  |

**ii) Justification in relation to project for each item mentioned above and details of derived cost**

1. **Name of the equipment: (*Detailed justification)***

|  |  |
| --- | --- |
| **Description of fabricated system** | **Justification** |
|  |  |

**B. Recurring Items (General)**

**B1. Manpower**

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation\***  | **Educational Qualification** | **Experience** ***in years, if applicable*** | **Justification** |
|  |  |  |  |

**\*Refer Latest guidelines at DST website:** [**http://dst.gov.in/whats\_new/main-new.htm**](http://dst.gov.in/whats_new/main-new.htm)

 **(Guidelines for Research fellow, Scientist and Assistant)**

**Manpower Budget\***

 **JRF /SRF/ RA, Project Associates etc. Details (applicable for the given category)**

**a. Fellowship amount per month : Rs. \_\_\_\_\_ (1st year), Rs.\_\_\_\_\_ (2nd year), Rs\_\_\_\_\_( 3rd year)**

**b. Research fellows allowances per month ie (HRA etc.), if applicable: Rs. \_\_\_\_\_ (1st year), Rs.\_\_\_\_\_ (2nd year), Rs\_\_\_\_\_( 3rd year)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Designation** |  **Total Emoluments (in Rupees) lakhs** | **No. of persons** | **Total** **Amount****(Rs. Lakhs)** |
| **1st Year**  | **2ndYear**  | **3rd year**  | **Total**  |
|  |  |  |  |  |  |  |
|  | Gross amount required for manpower budget head = |  |

**\**As per* *DST OM No. 33/(14)/PFC-II/2018 dated 21.06.2023*, *and DST OM. No. SR/S9/Z-05/2019* *dated 31.08.2019***

**B2. Consumables**

 **Budget for Consumable Materials (To be borne by DST)**

|  |  |  |
| --- | --- | --- |
|  **Items**  | **Amount** **(Rs. in lakh)** | **Justification**  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| Gross total =  |

**Part –II Justification for expensive consumable, if applicable)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the item**  | **Unit price****(Rs. Lakhs)**  | **Qty needed** | **Amount****(Rs. Lakhs)**  | **Enclosed Quotation at annexure**  |
|  |  |  |  |  |
|  |  |  |  |  |

**B3. Contingencies:**

**Budget for Contingencies (To be borne by DST)**

|  |  |  |
| --- | --- | --- |
| **Items** **(unforeseen expenses, patents, report preparations etc)** |  **Amount****(Rs. in lakh)** | **Justification**  |
|  |  |  |
| **Total**  |  |  |

**B4. Domestic and International Travel\***

 **Budget for Domestic and International Travel (To be borne by DST)**

|  |  |  |
| --- | --- | --- |
| **Items** **(to attend)** | **Total Amount** | **Detailed Justification (In case of extensive field visits needed in the project indicating breakup of cost w.r.t. to journeys, mode and class of transport needed)** |
|  |  |  |
| **Total**  |  |

 **(\*) International travel is limited to one per year from both sides. For international travel project team has to obtain due permissions from DST before undertaking any international visits from both sides and provide relevant justification. Class and mode of transportation should be as per the Government of India rules.**

**B5. Other Costs, if applicable**

**Budget for Other Costs (To be borne by DST)**

|  |  |  |
| --- | --- | --- |
| **Item** | **Total****( Rs. in lakh)** |  **Detailed Justification ( derived cost calculation and relevant Quotation at Annexure- / page no\* )** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| **Gross total =** |  |

Submit similar above detail breakup for each collaborator.

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Basic cost** | **Taxes/duties\*\*** | **Total** |
|  | **Main system** | **Sub system** |  **Rs. Lakhs** |
|  |  |  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Total (Rs. Lakhs)** |  |

 **Organization details:**

1. **Designation of the officer in organization who is vested with financials power:**
2. **Whether Beneficiary organization registered with Govt. of India Central Plan Scheme** Monitoring System\* (CPSMS): Yes/ No

\*(refer website: <https://pfms.nic.in/Users/LoginDetails/NewLayoutLogin.aspx>)

1. **If not get it registered at website (to receive the grant from GOI), If yes, inform Agency code registered at CPSMS**
2. **Whether beneficiary organization has opened a Zero Balance Account in Union Bank of India linked with the 1819 scheme (Innovation Technology Development and Deployment) of DST.**

 **Website:**

**IV. Proforma for Bio-Data of Principal Investigator (PI)**

**1. Name :**

**2. Gender :**

**3. Category :**

**4. Date of Birth :**

**5. E-mail ID and Mobile No. :**

**6. Qualifications:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Degree** | **Institution** | **Year** | **Division/Class** |
|  |  |  |  |  |

**7. Employment Experience**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Position & Organisation** | **Nature of Job** | **Period** |
|  |  |  |  |

**8. List of Publications *(For last 5 years only)*  *(Only journal publications with impact factor)***

**Journals/Book Chapters**

**9. Patents filed/Granted with details:**

**10. Books Published /Chapters contributed:**

**11. (a) Sponsored Research Projects**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No** | **Title** | **Sponsoring Agency and Officer Concerned** | **Period** | **Amount** | **Achievements** |
|  |  |  |  |  |  |

**(b) Consultancy Projects**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No** | **Title** | **Sponsoring Agency** | **Period** | **Amount** |
|  |  |  |  |  |

**(c) Sponsored Research/Consultancy Projects submitted for approval**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Title** | **Agency to whom submitted** | **Duration** | **Amount** |
|  |  |  |  |  |

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

**1. Name :**

**2. Gender :**

**3. Category :**

**4. Date of Birth :**

**5. E-mail ID and Mobile No. :**

**6. Qualifications:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Degree** | **Institution** | **Year** | **Division/Class** |
|  |  |  |  |  |

**7. Employment Experience**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Position & Organization** | **Nature of Job** | **Period** |
|  |  |  |  |

**8. List of Publications *(For last 5 years only)***

 ***(Only journal publications with impact factor)***

**9. Patents filed/Granted with details**

**10. Books Published /Chapters contributed**

**11. (a) Sponsored Research Projects**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No** | **Title** | **Sponsoring Agency and Officer Concerned** | **Period** | **Amount** | **Achievements** |
|  |  |  |  |  |  |

**(b) Consultancy Projects**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No** | **Title** | **Sponsoring Agency** | **Period** | **Amount** |
|  |  |  |  |  |

**(c) Sponsored Research/Consultancy Projects submitted for approval**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.No.** | **Title** | **Agency to whom submitted** | **Duration** | **Amount** |
|  |  |  |  |  |

**V. UNDERTAKING FROM THE INVESTIGATOR(S)**

**Project Title:**

1. I/We have carefully read the terms and conditions of the Clean Energy Research Initiative (CERI) Programme and I/We agree to abide by them.
2. I/We have not submitted this or a similar Project proposal elsewhere for financial support.
3. I/We have explored and ensured that the equipment and the basic facilities described in the Research Proposal, will actually be available as and when required for the purpose of the Project. I/We shall not request financial support under this project, for procurement of these items.
4. I/We undertake that spare or idle capacity of the permanent equipment procured under the Project will be made available to other legitimate users from parent and other organizations.
5. **I/We have enclosed the following:**

|  |  |  |
| --- | --- | --- |
| ~~a~~ | Endorsement from the Head of the Institution*(on letter head)* |  |
| b | Undertaking from the Collaborator(s)  |  |
| c |  Complete Project Proposal with all enclosures *(1 soft copy as .doc file/pdf)* |  |

**VI. ENDORSEMENT FROM THE HEAD OF THE ORGANISATION**

**(***To be typed on the letter-head of the organization***)**

**Project Title**

1. Certified that the organization welcomes the participation of Dr/Mr/Mrs ……………….. as the PI and Dr/Mr/Mrs………………as the Co-PI for the project and that 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 the DST
2. Certified that the equipment, other basic facilities and other administrative facilities as per the terms and conditions of the award of the Project, will be extended to the investigator(s) throughout the duration of the project
3. The Organization shall ensure that financial and purchase procedures are followed as per the prevailing norms of the organization, within the allocated budget.
4. The Organisation shall provide timely the Statement of Expenditure and the Utilisation Certificate of the grant as required by the DST in the prescribed format.

**(Head of the Institute)**

**Seal/Stamp**

**Date**

**Place**

**VII. Endorsement from Indian collaborating Industry/ Agency**

(*if an*y)

*(On the official letter head)*

I have gone through the Project proposal entitled………….. submitted by ……………*(Name of Collaborator )* …of…………….*(Name of the Institute)* for DST funding and noted the obligations and responsibilities indicated in our name which are as below :

1. Contribution in financial terms *(mention amount in Rs.)*

2. Contribution in Kind *(list activities)*

 I hereby affirm that my organization/industry is committed to participate in the Project to the full extent as indicated including financial liabilities accruing therefrom as detailed above. A brief profile of my organization is summarised below:

Name of Organisation

Line of Business

No. of employees

Annual Turn over

 The Annual Report for the last financial year is enclosed.

**(Head of the Organisation)**

**Seal/Stamp**

**Date:**

**Place:**

**VIII. Endorsement from Mission Innovation collaborating Organisation/Industry**

 *(On the official letter head)*

I have gone through the Project proposal entitled………….. submitted by …………… *(Name of Collaborator )*…of…………….*(Name of the Institute)* for DST funding and noted the responsibilities indicated for our organisation/Institute/University/Industry.

 I hereby affirm that my organization/industry is committed to participate in the Project to the full extent as indicated in the proposal.

**(Head of the Organisation)**

**Seal/Stamp**

**Date:**

**Place:**

**Annexure-1**

**Budgetary quotes**