



**Invitation for proposals from MSEs/ Innovators for working in the Common Research and Technology Development Hub (CRTDH) established at CSIR-IITR Lucknow**

**Vision:** supporting industries on reducing pollution burden for safeguarding public health and environment.

**Motto:** Environmental sustainability and clean/green technological solutions to industry.

**Mission:** Provide solutions to MSEs for water and effluent treatment as well as air pollution abatement.

**Aims and objectives**

CSIR-Indian Institute of Toxicology Research (CSIR-IITR), a leader in translational research has been providing S&T interventions for environmental sustainability for more than five decades. The institute is establishing “Environmental Intervention Hub” supported by DSIR-Common Research and Technology Development Hubs (CRTDHs) in 2019.

The Environmental Monitoring and Intervention Hub will promote and mentor R&D startups/MSEs as well as develop trained human resource with the following objectives,

- Drinking water disinfection and water quality assessment technologies,
- Technologies for treatment of industrial effluent from Pulp & Paper industries,
- Build predictive models including source apportionment for air quality as well as pollution abatement,
- Develop customized training programmes / workshops for specific cluster to generate trained human resource.
- Developing indigenous and effective scientific solutions for environmental monitoring, water treatment and effluent management
- Serve MSEs on the air/water and effluent management sector
- Developing trained human resource thorough various skill development and workshop programmes

## **Focus Areas of DSIR-CSIR-IITR**

Small scale enterprises are a vital part of the economy. However, small production plants work against economy of scale required for cost-effective environmental pollution control. In order to address environmental concerns in the small scale sector, CSIR-IITR backed up with interdisciplinary expertise is working on an integrated approach with cross-sectoral fertilization of ideas with vigorous interaction with stakeholders as well as state and central government regulatory agencies.

The DSIR-CRTDH-IITR has been set up in the area of Environmental Interventions to carry out R&D that can help MSME improve their environmental performance through better designed treatment plants, through more accurate data on wastes and emissions, through process interventions that reduce consumption of raw materials and energy.

## **Facilities available at DSIR-CRTDH-IITR, Lucknow**

Common Research & Technical Facilities for MSEs available in CSIR-IITR - <http://iitrindia.org/emih/>

Facilities of this hub are utilized for (i) Water treatment and monitoring (ii) Effluent treatment and (iii) Air pollution abatement. Hub include, infrastructure for MSEs, state of the art analytical facility and well equipped laboratories, IT and high end computational infrastructure, Prototyping lab, Meeting room and training facility.

## **Sophisticated Analytical Instrumentation Facility**

- LC MS/MS: Quadrupole based ultra performance
- liquid chromatography mass spectrometer
- Gas Chromatography- MS/MS
- High Performance Liquid Chromatography
- Atomic Absorption Spectrophotometer
- Atomic Florescence Spectrophotometer
- FTIR Spectrometer
- Zeta sizer nano ZS
- Multimode Plate Reader

### Advanced Imaging Facility

- Transmission Electron Microscope( Tecnai™ G2 spirit, FEI, The Netherlands)
- Scanning electron Microscope (Quanta450 FEG, FEI, The Netherlands)
- Atomic Force Microscope (AFM - NTMDT, INTEGRA, Russia)
- Confocal Microscope (Zeiss LSM-880 with live cell imaging and airy scan)

### Dedicated Hub Instrumentation Facilities

- Incubation Shaker-Stackable Multiple Model
- Third Generation Sequencer
- COD analyzer
- Cooling centrifuge
- BOD sensor system
- Ultrafine particle (PM1) sampler
- Flue gas analyzer
- Real time ammonia analyzer from ambient air
- Real time SO<sub>2</sub>, CO<sub>2</sub>, CO, ozone and particulate analyzer
- Hydrocarbon analyzer methane and non methane
- VOC Monitor
- Bacteria and fungi sampler
- Electro spinning coater
- 3 D printing facility
- Denaturing gradient gel electrophoresis (DGGE) system
- Pilot plant (2000-L capacity)
- BET surface area analyzer
- Size distribution analyzer
- Sensor system for water quality assessment
- Biosafety cabinet
- Sonicator
- Mercury Sampler

## Working models

a. **Flexible/ Virtual Model:**

The MSEs/Innovator may use DSIR-CRTDH-IITR to develop their innovations for improving their environmental performance or opt for virtual presence through technical support from the professionals at CSIR-IITR. The equipment/facilities can be used by themselves after qualification of training or seek necessary help from Scientists of CSIR-IITR in consultation with the principal investigator for the DSIR-CRTDH-IITR project. Intellectual Property remains with the MSEs/Innovator. The patent cost will be borne by the company.

b. **Licensing Model:**

MSEs in any industrial sector facing environmental issues may approach CSIR-IITR for developing solutions. CSIR-IITR may undertake the development for problems that are common to a sector and carry out prototype / pilot / demonstration plant in collaboration with a MSME lead user unit. After proving, the technology will be available on license to other user units or to MSMEs that provide environmental services for implementation in user units. The Intellectual Property remains with CSIR-IITR.

c. **The Joint Venture Model:**

Two or more MSEs can agree to pool their resources for the purpose of development of a new product/process/service. CRTDH will provide R&D support to MSEs for developing innovative products and to build confidence, strengthening and competitiveness by extending technical assistance. The IP will be jointly shared by the MSEs and CSIR-IITR for joint development of the product/process.

## How to Apply?

Proposals from MSEs/startups/innovators are invited by DSIR-CRTDH-IITR as per the enclosed Application Proforma. The filled proforma can be submitted anytime during the year to CSIR-IITR. The proposals shall be considered by a Management Committee (MC) constituted under the scheme. The proposals approved by the MC shall be allowed access to the facility and undertake project work on the agreed terms and conditions as per CSIR-IITR for development of innovative products and processes.

## Charges for carrying out development work at DSIR -CRTDH-IITR

The charges for carrying out development work shall comprise of only direct expenses towards the following:-

- a) Cost of manpower of CSIR staff deployed and temporary project staff deployed.
- b) Cost of consumables/raw-material components.
- c) Cost of physical inputs/services/utilities.
- d) Equipment usage cost.
- e) Contingencies including extra payment envisaged e.g. for hiring infrastructure facilities, experts, computer time, information etc.
- f) Others (if any)

**APPLICATION PROFORMA FOR SUBMITTING PROPOSAL UNDER DSIR-CRTDH-IITR**

1. **Project title:**
2. **Name and Address of the Applicant/Company:**
3. **Company's Legal Status:**
4. **Name of Principal Investigator(PI):**
5. **Educational Qualification and experience of PI:**
6. **Annual Turnover of the company (preferably last 3 years, to be supported with Annual Report):**
7. **Team & Expertise available:**
8. **Likely time-frame for occupation:**
9. **Number of staff likely to be positioned at CRTDH:**
10. **Status of the work already carried out by the PI such as:**
  - a. Technology already developed and tested
  - b. Technology demonstrated at pilot scale
  - c. Patents filed
  - d. Technology certificate on received
  - e. Market survey and business plan completed
  - a. Consumers/ users feedback received, if any
11. **Technology/Products details**
  - i. Need and justification for the proposed project:
  - ii. Innovation merit and uniqueness of the technology/product:
  - iii. Category of technology/innovation (specify process/product/new Application):
  - iv. If the idea involves use of existing intellectual property, give details of the owner and arrangements of sourcing the innovation and terms of its commercialization:
  - v. Project summary giving broad details of the activities to be

undertaken, action plan, major milestones/timelines, patenting, photographs of Innovation and expected duration of completion etc.

**12. Please comment on the environment and safety aspects of the project / product:**

**13. List of facilities available at DSIR-CRTDH-IITR proposed to be used under your project:**

**14. List of facilities available at CSIR-IITR campus proposed to be used under your project:**

**15. End Product/Outcomes/Deliverables:**

**16. Any such products available in the market:**

**17. Market size and marketing strategy:**

**18. Any other information that you wish to share with us to help us in judging your application.**



**Declaration:**

I/We declare that all the statements made in this application are true, complete and correct to the best of my/our knowledge and belief. In the event of any information, found false or incorrect, my/our candidature will stand cancelled and all my/our claims will be forfeited.

Place:

Date:

(Signature of the applicant)





**Terms & Conditions to be agreed upon by MSEs/ Startups/ Innovators/ Industry for under taking project work and usage of facilities under DSIR-CRTDH-IITR**

1. The MSEs/innovators shall acknowledge the utilization of DSIR-CRTDH-IITR facility on the package of products developed under the programme and marketed.
2. The marketed product packaging will clearly state that the CSIR-IITR and DSIR will not be responsible for the quality and efficiency of the goods and that the sole responsibility of the product rests with the MSE/Innovators with respect to quality and efficiency.
3. In case of any dispute arising out of the scope of work in terms of physical targets, the decision of Director CSIR-IITR shall be binding upon by MSME.
4. DSIR will in no way be responsible and/or undertake any liability that may arise on account of any man power that may be engaged /deployed for work by MSME.
5. All the project related activities of MSEs will be open to the Management Committee and DSIR Officials for monitoring and inspection. Concerned officers of DSIR may visit the CRTDH for ascertaining the progress of work and attempt to resolve any difficulties that might be encountered in the course of implementation.
6. The MSE/Innovator shall maintain separate project experimentation records and accounts that shall be available for review by the Management Committee members/ Government Auditors.
7. The assets/equipment acquired by MSMEs and brought to the CRTDH facility shall need the approval of Director CSIR-IITR.
8. The approved MSEs/Innovators shall seek training from the concerned official on facilities and equipment at CRTDH before usage.
9. The usage of the equipment/ facilities at CRTDH should be booked beforehand for usage and registered in the Log Book available at CRTDH after usage.
10. DSIR/IITR will not have any liability towards the manpower appointed by the MSMEs working in the CRTDH for implementation of the project.

11. DSIR/IITR will have no responsibility in case of any loss is caused to any life or property due to accident, fire or any other reasons. The Host Institute IITR is required to provide appropriate safety and insurance measures to safeguard against any loss to human life and property related to CRTDH. The participating MSMEs working in the CRTDH are bound to adopt the safety measures put in place by CSIR-IITR to safeguard human life and property of CRTDH.
12. DSIR/IITR will have no liability on account of any omission or commission of regulatory/statutory requirement by participating MSMEs/innovators and their companies.
13. It shall be the responsibility of the participating MSME to handle the effluents that are likely to be generated with reference to quality and quantity, and their handling provisions, bio-risks, gene containment facilities (if relevant) and commitment of compliance within the rule of the law, especially that of the state regulatory authorities. DSIR shall have no liability on the above.
14. DSIR/IITR will not have any liability towards the manpower appointed by the MSMEs working in the CRTDH for implementation of the project.
15. DSIR/IITR will have no liability on account of any omission or commission of regulatory/statutory requirement by participating MSMEs/innovators and their companies.
16. It shall be the responsibility of the participating MSME to handle the effluents that are likely to be generated with reference to quality and quantity, and their handling provisions, bio-risks, gene containment facilities (if relevant) and commitment of compliance within the rule of the law, especially that of the state regulatory authorities. DSIR shall have no liability on the above.

**17. MONITORING:**

The project work of MSEs will be periodically monitored by MC constituted by DSIR.

**18. KNOW HOW/ INTELLECTUALPROPERTY:**

The MSE/Innovator shall have the full rights on the intellectual property

(IP) generated on the technology/product/process developed at DSIR-CRTDH-IITR. In case the technology/product/process developed jointly with the host institute/CSIR, the IP shall be shared as per mutually agreed terms and conditions based on CSIR guidelines.

**19. DISPUTES:**

The DSIR, MoST does not own any responsibility for disputes arising out of IPR issues, however, the rules and regulations of CSIR shall apply and Director, IITR is empowered to take a view as deemed fit.

**20. MONITORING OF PROGRESS:**

The progress of the approved project taken up by MSEs shall be periodically reviewed by the Management Committee.

**21. TERMINATION OF THE PROJECT:**

The MSEs/Innovators are free to terminate the project by way of written communication at any stage on payment of direct cost incurred on the project.

**22. MODIFICATION OF TERMS & CONDITIONS:**

The above terms and conditions may be modified by the competent authority of DSIR, MoST only. The MSEs/Innovators can seek approval of DSIR through IITR for any deviation in the terms and conditions with proper justification.

**23. ARBITRATION:**

Any dispute arising during the course of the project shall be referred to the sole arbitrator appointed by Secretary, DSIR and the arbitration proceedings shall take place under the “Indian Arbitration Act, 1940”

**24. REGULATORY APPROVALS:**

All the regulatory and statutory approvals for the product/process development and for marketing should be taken by the MSE/Innovator. DSIR and CSIR/IITR shall not hold any responsibility for delay and denial of approvals.



**UNDERTAKING OF THE INNOVATOR/ MSE/ INDUSTRY**

I / We agree to the above terms and conditions in connection with usage of facilities and undertaking work in the DSIR-CRTDH-IITR facility for our project concerning “\_\_\_\_\_”

Name : Signature

Designation and : Thumb Impression

Organization

(If representing the organization)

