

# MEMORANDUM OF UNDERSTANDING

Between



**CSIR – INSTITUTE OF MICROBIAL  
TECHNOLOGY (IMTECH),**

**CHANDIGARH**

*and*



**HARYANA SPACE APPLICATIONS CENTRE  
(HARSAC), CITIZEN RESOURCES  
INFORMATION DEPARTMENT,  
GOVT. OF HARYANA  
HISAR**

This Memorandum of Understanding is executed on this the 23<sup>rd</sup> day of August 2026, [hereinafter referred to as the "**Effective Date**"] by and between: -

**CSIR-Institute of Microbial Technology (IMTECH)**, Chandigarh, Sector 39A, 160036, a constituent unit of the Council of Scientific and Industrial Research (CSIR), a Society registered under Societies Registration Act (XXI of 1860) having its registered Office at Anusandhan Bhavan, 2 Rafi Marg, New Delhi – 110001, hereinafter referred to as CSIR-IMTECH, represented by, The Director, CSIR-IMTECH, Chandigarh 160036, India

and

**Haryana Space Applications Centre (HARSAC)**, Hisar, 125004, a Citizen Resources Information Department (CRID), Government of Haryana is a nodal agency for Remote Sensing (RS), Unmanned Aerial Vehicle (UAV) Mapping, and Geographic Information System (GIS) applications, providing implementation, research and training in the areas of RS and GIS, hereinafter referred to as HARSAC, represented by, The Director, HARSAC, Hisar, Haryana, India.

Here in after referred to individually as 'Party' and collectively as 'Parties'

## 1. PREAMBLE

NOTING CSIR-IMTECH is a premier National Research Laboratory having expertise in the area of microbiology and biotechnology. The institute has a national facility of microbial repository, Microbial Type Culture Collection and Gene Bank (MTCC), and expertise in the areas of microbiological analysis, antimicrobial resistance, organic pollution studies of environmental samples.

NOTING that HARSAC is the nodal agency in the state of Haryana for RS, GIS, GPS and UAV-based activities in the State, advising the user agencies and disseminating the GIS technology at the operational level and to organize training, lectures, seminars and symposia for advanced study and research in remote-sensing technology and its applications.

RECOGNISING that the Parties have a common interest, they have entered into this Memorandum of Understanding (MOU) regarding a cooperative Programme of mutual interest.



Director  
Haryana Space Applications Centre (HARSAC)  
Citizen Resources Information Department,  
(CRID), Haryana, CCSHAU Campus, Hisar-125004

## 2. BACKGROUND

- 2.1. CSIR-IMTECH is a national center for excellence in microbial sciences and was established in 1984 under the aegis of Council of Scientific and Industrial Research. IMTECH's vision and mission are to create translational ecosystem strengthened by fundamental discoveries and to address unmet healthcare and industrial needs with state-of-the-art processes and platforms respectively.
- 2.2. Haryana Space Applications Centre (HARSAC), Hisar, 125004 a Citizen Resources Information Department (CRID), formed by the Government of Haryana in 1986 is involved in the development of technology-based solutions in the field of Remote Sensing (RS), Unmanned Aerial Vehicle (UAV) Mapping and Geographic Information System (GIS) concerning the state Haryana. HARSAC provides/organizes research and training in the areas of RS and GIS.
- 2.3. CSIR-IMTECH and HARSAC plan to collaborate with each other in carrying out the academic programmes and technological research activities involving students and faculty members in their institution as detailed in article 3 of this MoU.

## 3. AREAS OF COOPERATION

- 3.1. **Joint Research and Development:** Undertake collaborative research on groundwater quality assessment through integrated analysis of physicochemical parameters, microbial diversity, microbial contamination, antimicrobial resistance (AMR), heavy metals and organic pollutants across diverse ecological niches including ground/surface water bodies, agricultural zones, industrial belts and soil ecosystems and possible Remote Sensing, GIS and GPS applications.
- 3.2. **Geospatial Mapping and Decision Support:** IMTECH to provide microbiological, phenotypic, and environmental datasets, including metadata from repository holdings, multi-omics platforms, to integrate with HARSAC for geospatial, remote sensing, GIS, and AI-based technologies. This data fusion will drive comprehensive environmental mapping, ecosystem health assessment, and the development of predictive decision-support systems. This includes creating geo-tagged healthcare utilities, smart sanitation dashboards, and mobile-GIS applications for emergency services to trace disease outbreaks, monitor active point-source contamination, and optimize the deployment of healthcare resources.



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- 3.3. **Scientific Data Generation and Resource Sharing:** Exchange scientific knowledge, research methodologies, non-confidential data, laboratory facilities (subject to institutional policies), and technical expertise to facilitate collaborative research and innovation. This encompasses the mutual sharing of advanced instrumentation, bioinformatics pipelines, and high-performance computing assets to bridge molecular biology with terrain modeling, as well as utilizing spatial estimations of regional biomass residues to optimize the siting, logistics, and field deployment of scaling-up fermentation, bio-refinery, and bioremediation technologies.
- 3.4. **Capacity Building and Human Resource Development:** Organize joint training programmes, workshops, field surveys, seminars, student internships, and researcher exchange programmes to strengthen scientific capacity in environmental quality assessment, molecular bioinformatics, satellite remote sensing, and geospatial analytics. This will focus on developing cross-disciplinary skills at the intersection of data science and biotechnology, creating specialized training modules for data-driven environmental surveillance, and offering joint mentorship opportunities for researchers addressing regional challenges.

#### 4. TECHNOLOGY DEVELOPMENT AND KNOWLEDGE DISSEMINATION

Collaboratively develop scientific publications, databases, microbial safety indices, decision-support tools, and technologies for sustainable environmental management, public health administration, and industrial bioprocess optimization, subject to mutually agreed intellectual property and publication policies. This includes co-developing field-deployable biosensor assays, establishing a secure, state-level bio-resource informatics platform archiving environmental health indices, and generating data-driven frameworks to support government policymaking in public health, sanitation, and agricultural resilience. CSIR-IMTECH retains sole administrative control over its HPC clusters and network security protocols.

#### 5. FUNDING

Each party will bear its expenditure for meeting its commitments and requirements under this MoU, and there shall be no exchange of funds between the parties. The signing of this MoU does not imply any financial commitment for the parties.

This MOU is a declaration of purposes, which seeks to promote the development of a joint relationship and academic cooperation for the mutual



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benefit of the Parties. Each party will bear its own expenditure for meeting its commitments under this MoU. This MoU does not imply any financial commitment or exchange of funds between the parties. Notwithstanding anything contained elsewhere in this document, **Clauses 5 (Intellectual Property Rights), Clauses 6 (Exchange of Information), and Clauses 11 (Governing Law and Dispute Resolution)** are intended by the Parties to be legally binding and enforceable upon execution.

## 6. INTELLECTUAL PROPERTY RIGHTS

- 6.1 All foreground intellectual property rights including the property rights of the modification/improvements/alterations/additions related to the development covered under this MoU shall be jointly owned by both Parties.
- 6.2 All the parties acknowledge that nothing in this MoU shall affect ownership of any background intellectual property rights.
- 6.3 Both the Parties shall share with each other the information generated under the scope of this MoU, free of cost.
- 6.4 Any publication/announcement with respect to the collaboration under the scope of this MoU shall be made only with the prior formal approval of the Parties. These publications (papers, reports etc.) shall be in the names of research workers, wherein it will be duly acknowledged that the work has been carried out under the collaborative programme between the parties. Authorships and credits will be based on the actual inputs and contributions in the work element. The use of the name, logo and/or official emblem of the parties on any publication, document and/or paper will require prior permission of both the parties. It may however be ensured that the official emblem is not misused.
- 6.5 Both the Parties retain the rights to use the R&D results generated during the collaboration for their R&D programs without any obligation to the other.
- 6.6 In case research is carried out solely and separately by any Party or the research results are obtained through the sole and separate effort of the Party outside the scope of this MoU, the Party concerned alone shall apply for the grant of IPR, and the IPR will be solely owned by the Party concerned.
- 6.7 The underlying source code, algorithms, customized processing logs, and proprietary bioinformatics pipelines developed independently by



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CSIR-IMTECH prior to or during the collaboration shall remain the sole intellectual property of CSIR-IMTECH. Joint ownership shall only apply to the final analytical outputs and reports, not the computational tools used to generate them.

## 7. EXCHANGE OF INFORMATION

7.1 All information, whether in oral, written, graphic, electronic or other form (including copies thereof), including, but not limited to, information, data, formulas, processes, product ideas, know-how, a sample or model, that is disclosed by or on behalf of a Party (the "Disclosing Party") to the other Party (the "Receiving Party") under this Agreement, shall be deemed to be "Confidential Information". For purposes of this MOU, "Confidential Information" means any and all information or material of a Party, including but not limited to the terms of this MOU, know-how, product dossier, patent (whether application or granted), trademarks, intellectual property (whether or not protectable), clinical trial data/information, reports, technical, scientific, regulatory or business strategy, plans source code, databases, digital infrastructure architecture, computational algorithms and information or other activity of either Party that is disclosed to the other Party in connection with this MOU in writing or in any form or media (or orally or visually) whether or not marked confidential. Notwithstanding the foregoing, Confidential Information shall not include any information that:

- a. Is or becomes part of the public domain through no wrongful act, Fault or negligence on the part of the receiving Party;
- b. Is available from other sources who are not under any obligation of confidentiality with respect to the information;
- c. Has been made available by the providing Party to others without any obligation of confidentiality;
- d. Is already in the possession of the receiving Party at the time of disclosure, as evidenced by documentation or other competent evidence; or
- e. Has been independently developed by or for the receiving Party without reference to the providing Party's Confidential Information, as evidenced by documentation or other competent evidence.
- f. Publications—Each Party shall be free to publish reports/articles, etc., by giving due credit and acknowledgement to the contribution of the other Party, and authorship rights shall apply based on the contributions of the Parties.
- g. Return of Confidential Information – All copies of the information, except one copy for legal archive, shall be returned to the original owner within 30 days of expiration or termination of this MOU.



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## **8. LAWS AND REGULATIONS**

### **8.1 General Compliance:**

The activities under this MoU shall be conducted in accordance with the national laws and regulations of the parties and will be subject to the availability of funds appropriated for these purposes.

## **9. REPRESENTATION**

Each Party hereby represents and warrants to the other Party that:

(a) It has the requisite power and authority to enter into this MOU and to perform according to its terms, and that the official signing this MOU has the authority to do so;

(b) the execution, delivery and performance by the Party of this MOU do not and will not contravene or conflict with the governing documents of the Party or any applicable laws, or constitute a default in any material respect under any agreement or instrument to which the Party is a party; and

(c) It is financially able to satisfy all commitments made under this MOU.

## **10. DAMAGE TO PERSONS AND PROPERTY**

The signatory institutions shall waive any claim for compensation against each other, for damage to persons and property caused by exchange students, professors or researchers welcomed within the framework of this MoU. If this damage results from gross or intentional negligence or misconduct, the personal liability of the person causing the damage may be committed. Damage to third parties shall be under the general law.

## **11. REPRESENTATIVES OF THE PARTIES**

Each Party will identify its representative as a point of contact for participation in this MoU. Each institution shall designate an academic staff member to lead the relationship between the two institutions by developing, co-coordinating and reporting on the specific activities agreed upon for each institution.

The designated academic Leaders are as follows.

For CSIR-IMTECH: (i) Dr. Vemuluri Venkata Ramana, Scientist-F  
For HARSAC: (i) Dr. Dharmendra Singh, Senior Scientist

## **12. GOVERNING LAW AND DISPUTE RESOLUTION**

This Agreement shall be interpreted and enforced in accordance with the laws of India, without regard to the conflict of law provisions, exclusively by the



courts of competent jurisdiction at Chandigarh Any dispute that may arise between the institutes will be settled amicably, failing which the dispute shall be referred to arbitration. The arbitration shall be conducted in accordance with the Indian Arbitration and Conciliation Act 1996. The seat of the arbitration shall be Delhi International Arbitration Centre (DIAC), New Delhi, and the arbitration shall be conducted in English

The arbitration shall be conducted by sole arbitrator mutually appointed by the institutes and the arbitral award shall be in writing, state the reasons for the award, and be final and binding on the Parties. The cost of arbitration, and specifically the fees and expenses of the arbitrators, shall be shared equally by the institutes unless the award otherwise provides. Neither institute shall disclose the existence, content, or results of any arbitration hereunder without the prior written consent of each of the other Party.

### 13. ENTRY INTO FORCE, DURATION AND TERMINATION

This MoU shall enter into force from the date of the last signature by the representatives of both Institutions and shall remain in force for an initial period of five (5) years. The MoU will be reviewed not less than six (6) months prior to the termination of the period of validity and may be renewed for further periods of five years each through written agreement between the parties.

At any time, all the provisions of this MoU may be modified by written amendments with mutual consent of both parties and signed by the parties. At any time during the course of validity, either party may terminate the MOU by providing a six-month written advance notice. However, the termination of this MoU will in no way interrupt the activities undertaken and still in process. Students or Faculty members participating in this exchange at the time of the intended termination will be permitted to complete the agreed-upon exchange period at the host institution.

### 14. MISCELLANEOUS.

**14.1. Waiver** - No failure or delay on the part of either party in exercising any right, power, or privilege under this MOU will operate as a waiver thereof, nor will any single or partial exercise of any such right, power, or privilege operate as a waiver of any subsequent exercise thereof.

**14.2 Notices** - All notices under this MOU shall be in writing and shall be deemed to be given when personally delivered or when sent by confirmed e-mail or when sent by post to the address of the party set out in this MOU. Each Party shall maintain sole and



  
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exclusive control over its personnel and operations. Neither Party shall have the power to bind or obligate the other Party in any manner.

**14.3 Entire MOU** - This MOU constitutes the entire agreement between the Parties pertaining to the subject matter hereof and supersedes all prior oral or written agreements, understanding, negotiations and discussions between the Parties pertaining to such subject matter.

**14.4 Severability** - In the event that any provision of this MOU is deemed illegal, invalid or unenforceable under present or future laws, it shall be ineffective to the extent of such invalidity, illegality or unenforceability without affecting in any way the remaining provisions or conditions of this MOU. The Parties shall remain legally bound by the remaining terms of this MOU and shall strive to reform the MOU in a manner consistent with the original intent of the Parties.

**14.5 Force-majeure** - If at any time during the existence of this MOU, either party is unable to perform whole or in part any of its obligations because of war, hostility, military operations of any character, acts of Government, sabotage, fire, floods, explosions, epidemics, strikes and any other matter which are beyond human control, then the date of any obligation under this MOU shall be postponed during the time for which such circumstances are operative.

**14.6 Counterparts; Facsimile Execution** - This MOU may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

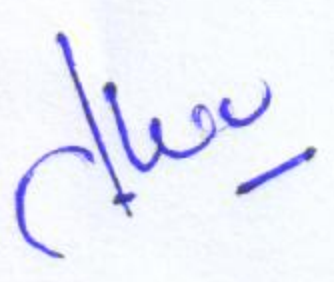
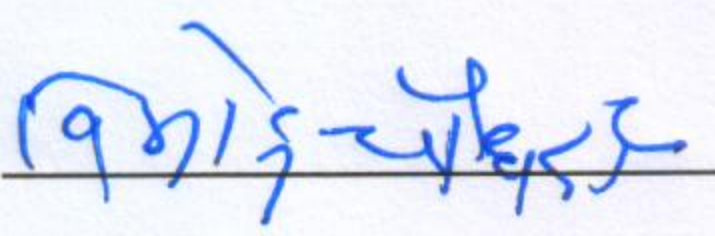
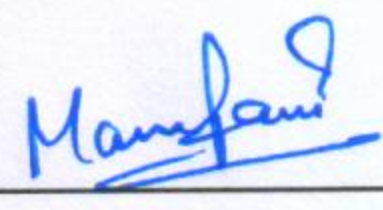
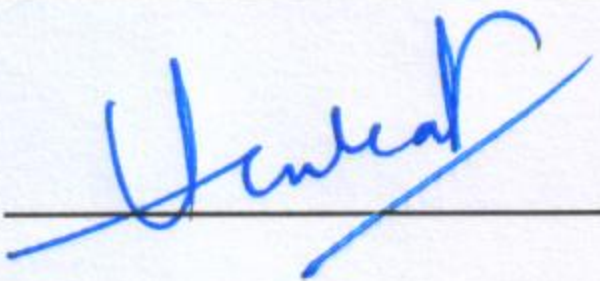


  
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The Parties have caused this MOU to be duly signed by the authorised representatives and executed in counterparts.

This Memorandum of Understanding has been drawn up in two (2) original copies written in English, one (1) for each signatory Institution.

**IN WITNESS WHEREOF** the undersigned being duly authorised representatives of the respective parties have signed this MoU.

|                                                                                                       |                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>For CSIR-Institute of Microbial Technology (IMTECH)</b>                                            | <b>For Haryana Space Applications Centre (HARSAC)</b>                                                                                                                                                  |
|                     |                                                                                                                    |
| <b>The Director</b><br>CSIR-IMTECH, Chandigarh.                                                       | <b>The Director</b><br>HARSAC, Hisar, Haryana.<br>Director<br>Haryana Space Applications Centre (HARSAC),<br>Citizen Resources Information Department,<br>(CRID), Haryana, CCSHAU Campus, Hisar-125004 |
| <b>Witness 1:</b>  | <b>Witness 1:</b>                                                                                                 |
| <b>Witness 2:</b>  | <b>Witness 2:</b>                                                                                                 |
| <b>Date:</b> <u>23.08.2026</u>                                                                        | <b>Date:</b> <u>23.08.2026</u>                                                                                                                                                                         |