

## Memorandum of Understanding

Between

**The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT),  
Patancheru 502 324, Telangana State, India**

and

**Indian Institute of Technology Kharagpur (IITKgp)  
West Bengal, India**

The International Crops Research Institute for the Semi-Arid-Tropics (ICRISAT), a member of CGIAR Consortium, is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics has over 2 billion people, with almost 650 million of these the poorest of the poor. ICRISAT and its partners help empower these poor people to overcome poverty, hunger and a degraded environment through better agriculture.

ICRISAT is headquartered in Greater Hyderabad, Telangana State, India, with two regional hubs and six country offices in sub-Saharan Africa.

Indian Institute of Technology Kharagpur in West Bengal, India (hereinafter referred to as "IITKgp"). Indian Institute of Technology Kharagpur is the oldest of the seventeen IITs in India. The IITs were created with a vision for excellence in Science and Engineering. IITKgp offers the maximum number of engineering disciplines to choose from. The objectives of the proposed study are:

1. To measure soil hydraulic properties for red and black soils
2. To develop pedotransfer functions for estimating soil hydraulic properties from easily measurable soil properties
3. To forecast soil moisture contents for crop root zone using mechanistic models of water flow for the scaling-up sites in India
1. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Indian Institute of Technology Kharagpur (the Institutions) desire and intend to develop co-operation and collaboration in research for development, particularly the area of watershed scale hydrology at scaling-up sites particularly in soil moisture forecast for crop root zone, using water flow model, capacity building of scientists and students, and other agreed activities that further the aims and objectives of the Institutions to improve livelihoods of small farm holders in India through developing climate resilient agricultural systems through sustainable intensification as follows:
  - 1.1. To encourage, and use their reasonable endeavours to effect, within the limitations of the Institutions' resources, policies and procedures, visits from one Institution to the other by members of the academic, research and other staff for the purpose of participating in teaching, training, research for development programs and other agreed activities.
  - 1.2. To develop within the limitations of the Institution's resources, policies and procedures, collaborative work plans that specify the activities to be undertaken, objectives and targets, implementation mechanisms, roles and responsibilities, and resource contributions.
  - 1.3. To jointly explore external funding opportunities through project proposal development, thus enabling both Institutions to expand and extend their collaborative activities.
  - 1.4. To provide, within the limitations of the Institutions' resources, policies and procedures, qualified students hosted by one institution access to research opportunities and/or degree programs at the other institution.

- 1.5. To encourage the exchange of scientific materials, publications and information. The actual exchange of materials will be done on a purely voluntary basis and subject to required institutional Material Transfer Agreements.
2. The Institutions acknowledge that all visits of staff and the admission of students will be subject to compliance with Institutions' requirements in respect of admission and staff appointments.
3. The Institutions acknowledge that in the absence of any specific agreement to the contrary, all expenses of salary, travel, living and allied costs will be determined at the discretion, and be the responsibility of the visitor's home Institution.
4. This document is not intended to create legal or binding obligations on either Institution. It serves only as a record of the Institutions' current intentions. Before any of the activities set out in this Memorandum of Understanding (MOU) are implemented, to ensure the activities can be accomplished in conformity with the law and so as to enable the principles set out in this MOU to be implemented, the Institutions shall enter into a formal and binding separate agreement or agreements with each other which will detail the specific form and content of the activities and cover the responsibilities and rights of each Institution. Such agreements will be negotiated in good faith.
5. This MOU commences from the date of last signing and shall be in force for five (5) years. The MOU may be terminated at any time by mutual consent or by 6 months' notice by either Institution. It may be amended, modified, extended, or renewed only by the written consent of both Institutions. The Institutions agree to review this MOU six months prior to end of the five-year term.
6. The specific terms of this MOU do not preclude the development of future collaborative ventures or projects not mentioned in this document.

*On behalf of the*  
**International Crops Research Institute  
for the Semi-Arid Tropics (ICRISAT)**

*Dr David Bergvinson*  
**Dr David Bergvinson**  
 Director General

Dated: ..... 19 Aug 2015 .....



*On behalf of the*  
**Indian Institute of Technology Kharagpur  
(IITKgp)**

*Sunando DasGupta*  
**Name:**  
**Designation:**  
 Dated: ..... 26 Aug 2015 .....

**प्री. सुनंदो दासगुप्ता**  
**Prof. Sunando DasGupta**  
  
 संकायाध्यक्ष / Dean  
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