



## HIGH - END WORKSHOP (KARYASHALA)

on

"State-of-the-art instrumentation for appraising soil biogeochemical processes and microbial diversity with respect to soil-climate feedback response"

(Sponsored by Science and Engineering Research Board)

4-13 March, 2024

Event Organizer  
Dr. Sudeshna Bhattacharjya

Course Coordinators  
Drs. K Bharati, Asha Sahu,  
Asit Mandal, J K Thakur,  
M Homeshwari Devi,  
Abinash Das

Organized by

ICAR-INDIAN INSTITUTE OF SOIL SCIENCE  
Nabibagh, Berasia Road, Bhopal-462038  
Madhya Pradesh, India

## About the Institute

The Indian Institute of Soil Science (ICAR-IISS) is a research institute under the Indian Council of Agricultural Research (ICAR) under the Ministry of Agriculture and Farmers' Welfare, Government of India. The Institute was established on 16<sup>th</sup> April, 1988 at Bhopal with a mandate of “Enhancing Soil Productivity with Minimum Environmental Degradation”. To accomplish the mandate of the institute, it has given the priority to soil health related issues faced by farmers and other stakeholders. IISS has emerged as a leader in basic and strategic research on soils in the country. It has achieved significant success in the areas of integrated nutrient management, impact on soil under long-term cropping, technology for preparation of enriched composts, soil test based nutrient prescriptions, generation of district-wise GIS based soil fertility maps, organic farming practices, carbon sequestration in soils, sink capacity of soils for heavy metal pollutants, recycling of wastes, soil microbial diversity and biofertilizers, quality standards for municipal solid waste composts etc.

## About the Karyashala Scheme

KARYASHALA is an effort by the Science and Engineering Research Board (SERB), Government of India via Accelerate Vigyan to improve research productivity of promising PG and Ph.D. students from universities and colleges through High-end workshops on specific themes. This program aims to provide opportunities to acquire specialized research skills.

### Objectives:

This workshop aims to

- Impart knowledge and improve competency in analysis and interpreting soil biogeochemical pathways pertaining to soil macro and micronutrients and trace elements under climate change scenario.
- Enhance perception and provide hands-on-training on soil functional diversity, ecotoxicity under intensive/sustainable agriculture and polluted soil conditions.
- Improve their efficacy in analyzing and interpreting data generated through remote sensing, GIS, simulation modelling and advanced statistical tools.

### Who can apply:

The program has been designed aiming at capacity building and skill development of M.Sc. and Ph.D. students pursuing their degree in agricultural, agroforestry as well as environmental sciences. M.Sc. and Ph.D students of soil science/agronomy/soil physics/agroforestry/environmental science from AICTE approved Central and State agricultural University under NARS system as well as ICAR-Deemed university and ICAR-IARI hubs can apply for this workshop. Twenty five (25) participants (M.Sc and Ph.D. students) will be selected for the training on first cum first serve and merit. There is no registration fees for the participants.

### Submission of application

Interested candidates can register through google form link and upload application form duly signed by the Head of the Department/Institute so as to reach on or before 25 December 2023.

[https://docs.google.com/forms/d/e/1FAIpQLSdbffSpyJHXfzGzueE2Ar1i9btVOBLWZUDoHczRdY-kbzU9hQ/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSdbffSpyJHXfzGzueE2Ar1i9btVOBLWZUDoHczRdY-kbzU9hQ/viewform?usp=sf_link).

Only selected candidates will be informed by email/phone; therefore, the candidates must provide valid E-mail IDs and phone while doing the online registration. The selected candidates will have to acknowledge the acceptance of the offer for participating in the workshop through return email, failing which the waitlisted candidates will be considered for the workshop.



## Course content

Hands-on laboratory experience will be provided on the following:

- ✓ Advanced microbiological technologies,
- ✓ Genomic and metagenomic techniques for soil biodiversity and microbial community analysis
- ✓ Analysis of GHG using Gas chromatography
- ✓ Phytoremediation techniques involving endophytes
- ✓ Advanced instrumentation related to analysis of nanotechnology
- ✓ Heavy metal analysis through ICP-OES
- ✓ Micronutrient analysis through Atomic Absorption Spectrophotometer
- ✓ Instrumentation and processes related to water quality assessment, ecological impact assessment of mine affected soils
- ✓ Exposure to Free-Air Concentration Enrichment with respect to climate change studies
- ✓ Application of geostatistics and GIS technique
- ✓ Application of advanced statistical software for data processing and interpretation
- ✓ Advanced instrumentation related to soil health analysis
- ✓ Advanced rapid composting methods
- ✓ Infrared spectroscopy for studying soil nutrient dynamics
- ✓ Soil nutrient sensors
- ✓ Soil C modelling
- ✓ Agricultural Drone

## Registration, Boarding and Lodging

In accordance with SERB regulations, the participants will be provided with transportation fees, boarding and lodging. The organisers will offer lodging in the ICAR-IISS/CIAE guest house on a room-sharing basis. Participants are requested not to bring any family members. All required stationery and supplies for the session will be given to the attendees. Upon successful completion of the workshop, each participant will get a certificate. Please visit the Accelerate Vigyan website for further information.

## All correspondence should be addressed to

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**Scientist & Event Organizer**

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**Website: [www.iiss.icar.gov.in](http://www.iiss.icar.gov.in); <https://www.acceleratevigyan.gov.in>**

## Important Dates:

- 1. Last date for receipt of application: 25 December, 2023**
- 2. Confirmation of participation: 29 December, 2023**



# Application Form

## **DST-SERB Sponsored High-End Workshop “KARYASHALA”**

Organized by: ICAR-Indian Institute of Soil Science, Bhopal

on

**"State-of-the-art instrumentation for appraising soil biogeochemical processes and microbial diversity with respect to soil-climate feedback response"**

**(15 - 24 January, 2024)**

Full Name (in BLOCK letters):	
Date of Birth:	
Gender (Male/Female/Other):	
Department and University Name:	
Pursuing degree and specialization:	
E-mail for correspondence:	
Mobile Number (Preferably WhatsApp number):	
Address for correspondence:	
Research Interest:	
Whether you have participated in any training/workshop organized by ICAR/DST/SERB/DBT. If yes, give details	
How does this workshop suit your academic career:	

Degree	Year	Major	University / Institution	Grade
Bachelor's degree (3 years/4 years)				
Master degree				
Doctoral degree				
Any other degree/diploma/certificate obtained				

**Signature of Applicant with date**

**Signature of Head of the Department/ Institute along with date and Seal**

