

FIRST CIRCULAR ■■■

NATIONAL SEMINAR

Soil Data to Solutions: Transferring Soil Management for Resilient Agriculture and Food Security

October 7-9, 2026, Kolkata



Organized by

INDIAN SOCIETY OF SOIL SURVEY & LAND USE PLANNING (ISSLUP)

And

ICAR-NATIONAL BUREAU OF SOIL SURVEY AND LAND USE PLANNING

Regional Centre, Kolkata - 700 091

Background

The integration of conventional soil surveys with digital soil mapping and advanced technologies enables a comprehensive land resource inventory framework aligned with India's SDG and LDN commitments. In precision agriculture, spatial soil information supports site-specific input management, reducing input costs and environmental externalities while enhancing farmer incomes. In carbon management, high-resolution soil carbon maps provide the evidence base for climate-smart agriculture, carbon sequestration initiatives, and reporting under national climate commitments. In land degradation assessment, integrated soil and remote sensing data enable identification of degradation hotspots and monitoring of restoration outcomes, directly supporting SDG Indicator 15.3.1 and India's LDN targets. Furthermore, soil data support the assessment of soil ecosystem services, including water regulation, nutrient cycling, and biodiversity support, reinforcing the role of soils as a critical component of natural capital in national planning. This emphasises the strategic importance of integrating **Geographic Information Systems (GIS), Remote Sensing (RS), spectroscopy, hyperspectral technologies, Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT)** with conventional soil survey methods to develop a modern, digital land resource inventory system. The integrated approach enables **Digital Soil Mapping (DSM)**, real-time soil monitoring, and predictive analytics that directly support India's SDG indicators—particularly SDG 2 (Zero Hunger), SDG 13 (Climate Action), SDG 15 (Life on Land), and SDG 12 (Responsible Consumption and Production).

Moreover, advanced soil information systems are essential for tracking **SDG Indicator 15.3.1 (Proportion of degraded land over total land area)**, identifying land degradation hotspots, prioritising restoration interventions, and monitoring progress toward LDN targets. At the same time, high-resolution soil data underpin precision agriculture, climate-smart land management, soil carbon sequestration initiatives, and the valuation of soil ecosystem services. Thus, the policy relevance of emerging technologies in land resource inventory provides actionable recommendations to strengthen institutional coordination, data harmonisation, and implementation capacity across national and state levels.

Hence, achieving India's Sustainable Development Goals and Land Degradation Neutrality targets requires a decisive shift toward integrated, technology-enabled land resource inventory systems. By converging GIS, remote sensing, spectroscopy, hyperspectral sensing, artificial intelligence, machine learning, and IoT with the conventional soil survey approach, India can transform soil data into actionable policy intelligence. Such systems will strengthen resilient agriculture, climate action, ecosystem conservation, and long-term food security, ensuring that soil and land resources continue to support inclusive and sustainable development.

Therefore, this seminar will focus on the following themes and sub-themes:

Theme 1: Soil Data Generation and Digital Characterisation of Land Resources

Sub-themes

1. **Land Resource Inventory, Digital Soil Mapping and Soil Data Systems**
 - Conventional and digital land resource inventory
 - Soil surveys, soil databases, and spatial soil information systems
 - Spatial prediction of soil properties and functions
2. **Spectroscopy and Hyperspectral Technologies for Soil Assessment**
 - Visible–NIR–SWIR spectroscopy for soil properties
 - Hyperspectral imaging for soil organic carbon, nutrients, and degradation indicators

Theme 2: Data-Driven Soil Intelligence Using AI, ML, and Smart Technologies

1. **Artificial Intelligence and Machine Learning in Soil Science**
 - AI/ML models for soil property prediction
 - Explainable AI for soil management decisions
2. **Internet of Things (IoT) and Real-Time Soil Monitoring**
 - Smart soil monitoring networks for irrigation and nutrient management
 - Integration of sensor data with decision support systems
3. **Precision Agriculture and Site-Specific Soil Management**
 - Precision soil management for resource-use efficiency

Theme 3: Soil-Based Solutions for Resilient Agriculture, Carbon Sequestration, and Food Security

1. **Soil Carbon Sequestration and Climate-Smart Agriculture**
 - Mapping and monitoring soil organic carbon
 - Soil management practices for carbon storage
 - Role of soils in climate change mitigation and adaptation
2. **Land Degradation Assessment and Sustainable Land Management**
 - Digital assessment of land degradation and restoration planning
 - Soil conservation strategies and policy support
3. **Soil Ecosystem Services, Resilient Agriculture, and Food Security**
 - Soil functions supporting productivity, water regulation, and biodiversity
 - Soil health indicators for resilient cropping systems
 - Translating soil knowledge into farmer-centric solutions and food security outcomes

Lead papers will be invited (for oral presentations) from eminent Scientists, planners and administrators on the aforesaid themes.

Call for Abstracts

Abstracts of original research papers on any topic relevant to the seminar's focal themes, are invited from researchers, students, and planners for oral or poster presentation and should be sent via email (isslupnatsem2026@gmail.com).

Presentation of an Abstract

An abstract should be self-contained, stating briefly the objective(s), methodology and major findings. Tables or illustrations will not be accepted. Abstracts should be tightly worded, avoiding superfluous description of experimental details, and should not be too brief either.

Guidelines for preparation of Abstract

Title: The title should be in **14-point/Times New Roman Bold**. Except for prepositions, conjunctions, pronouns and articles, the first letter of each word should be in a capital letter. It should be short and attractive, and include keywords and phrases that indicate the paper's contents. Jargon and telegraphic words should be avoided. Scientific name of the crop, soil and animal/organism studied should be given.

Text of the Abstract: The abstract comprises a brief and factual summary or salient points of the contents and conclusions of the investigation reported in the paper and should refer to any new information therein. As the abstract is an independent entity, it should convey the paper's gist in a concise manner. The abstract, as concise as possible, **should not exceed 400** words in length and be in **12 point/Times New Roman**. Everything that is important in the paper must be reflected in the abstract. It should include the name of the study and year of the study briefly (if applicable), the rationale, objectives or hypothesis, methods, results and conclusions of the study described in the paper. Do not include references, figures or tables. At the first mention in the abstract, give the complete scientific name for plants and other organisms, the full names of chemicals and the description of soil series. Any such names or descriptions from the abstract need not be repeated in the text. Only SI units and symbols should be used.

Author/ Authors

The name(s) of author(s) should be in 12 point/Times New Roman Bold, typed in capital letters one space below the title and should be centralised.

The matter/content should be in 12 point/Times Roman and should come a line below

the name(s) of the author(s). Name of the Laboratory/Department, followed by the name of the Institution / Organisation/University where the work reported in the paper was carried out, shall come below the names of author(s). The complete postal address, including city/town, district, state, and country, followed by the PIN (postal) code, is to be furnished. In case any author has changed his/her affiliation, this should be indicated as footnote.

Email ID: Give the Email address of the corresponding author as a footnote.

Acceptance of Abstracts

Only those abstracts meeting the above requirement and found suitable, subsequent to peer review, will be accepted for presentation.

Posters

Each accepted abstract will be presented as a SINGLE POSTER on a 90 cm x 120 cm (portrait) board. Poster papers will be accepted based on technical originality and the quality of their technical content.

Memorial Lectures

- The following three memorial lectures will be delivered by eminent scientists of the country on different contemporary issues of Soil Science.
- Dr S.V. Govindarajan Memorial Lecture
- Dr J.L. Sehgal Memorial Lecture
- Dr B.B. Roy Memorial Lecture

Accommodation

- Modest accommodation will be arranged for the delegates (only against specific requests) (with room tariff up to Rs. 1200-1500 per day on a twin sharing basis) or in Hotels (with room tariff ranging from Rs. 3000 per day on a twin sharing basis).
- Delegates requesting accommodation are required to make advance payments through a bank draft drawn in favour of the Organising Secretary, National Seminar, payable at Nagpur.

Important Dates

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|-----------------------------|--------------------|
| • Submission of Abstracts | August 15, 2026 |
| • Acceptance of Abstracts | September 15, 2026 |
| • Advance for Accommodation | August 25, 2026 |
| • Registration Fees | August 15, 2026 |

Categories	Early registration Up to September 15, 2026	On-the-spot registration/ October 6, 2026 onwards
Members	6000/-	6500/-
Non-members	6500/-	7000/-
Students	3500/-	4000/-
Research fellow/SRF	4000/-	4500/-

Registration:

Members of the Society willing to register themselves for the seminar should send the duly filled-in Registration Form along with the requisite registration fee, as mentioned below, either through a bank draft drawn in favour of the Organising Secretary, National Seminar, payable at Nagpur, or directly online/bank transfer:

Beneficiary Name	Indian Society of Soil Survey and Land Use Planning
Account No.	10164836330
IFSC Code	SBIN0007504
Branch Code	7504
Bank	State Bank of India (SBI, Ravinagar Branch, Nagpur)

Online register link:

Subsequently, the registration fee will be accepted only in cash at the Seminar venue from 6 October 2026 onwards. Registration fee, once paid, will neither be refunded nor transferred to any other purpose or person

Final Circular

The final circular containing information on the programme and the National Seminar will be sent only to those who register for the seminar.

About the hosting city (Kolkata)

Kolkata, formerly Calcutta, is the capital of West Bengal and the primary commercial and financial hub of Eastern India. Famously known as the "City of Joy," it is celebrated as the country's cultural and intellectual capital. It is renowned for its rich literary history, grand colonial architecture, passion for football, vibrant street food, and the UNESCO-recognized Durga Puja festival. The city's former name, Calcutta, is an Anglicised version of the Bengali name Kalikata, which is derived from the Bengali word Kalikshetra, meaning "Ground of (the goddess) Kali." It has a subtropical climate with a seasonal regime of monsoons (rain-bearing winds). It is warm year-round, with average high temperatures ranging from about 27 °C in December and January to nearly 38 °C in April and May.

Kolkata, with its many attractions, invites people from all over the world to explore it. The Victoria Memorial, the palace of Queen Victoria, is the biggest attraction in Kolkata. Kolkata also showcases a great deal of colonial and modern architectural marvels that are loved and praised by people worldwide.

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