



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY



Training Programme on Harnessing Carbon Farming and Regenerative Agricultural Practices for Climate Resilience Future

Duration: 7-11 December 2026

Organized by:

**Centre of Excellence on Sustainable Land Management
Indian Council of Forestry Research and Education
P.O. New Forest-248006, Dehradun, Uttarakhand**

Sponsored by:

**Department of Science & Technology, Govt. of India
Technology Bhavan, New Mehrauli Road,
New Delhi-110016**

Background & Rationale

Modern agriculture faces the dual challenge of meeting growing food demands while addressing climate change, land degradation, declining soil health, and greenhouse gas emissions. Carbon farming and regenerative agriculture provide promising approaches to address these challenges by enhancing soil organic carbon, restoring soil health, improving water retention, reducing emissions, and strengthening the resilience of agricultural systems.

These approaches involve a range of sustainable practices, including conservation tillage, diversified cropping, agroforestry, biochar application, integrated nutrient and water management, and effective crop residue management. Scientific tools, remote sensing, and modelling approaches further support the measurement, monitoring, assessment, and verification of carbon sequestration and associated environmental outcomes.

The emerging carbon market and carbon credit mechanisms offer new opportunities for farmers to generate economic value from sustainable land management practices. However, challenges related to verification, market access, policy frameworks, and technical capacity need to be addressed for wider adoption. This training aims to strengthen knowledge and capacities for implementing, monitoring, and scaling carbon farming and regenerative agriculture practices from farm and community levels to landscape-scale, climate-resilient agricultural systems.

Learning Objectives

- Understand the principles of carbon farming, regenerative agriculture, and agroecological carbon dynamics.
- Apply regenerative and climate-resilient practices for soil health, carbon sequestration, and emission reduction.
- Use scientific tools, remote sensing, and modelling approaches for carbon measurement, monitoring, and verification.
- Understand carbon credits, emerging carbon markets, policies, and economic opportunities for farmers.
- Develop strategies to scale carbon farming initiatives from farm and community levels to landscape-scale interventions.

Target Groups

Scientists/ technologists holding scientific posts / working in Scientific Ministries/ Departments of Govt. of India and State Governments, Autonomous Institutions/ Public Sector Undertakings of Central / State Governments, Research and Development Institutions/ Research Laboratories of Central / State Governments, Central /State Universities, State Science & Technology Councils.

Nominations

Interested candidates may submit their duly filled-in nomination forms, duly recommended and forwarded by the Controlling Authority, through the DST Training Portal: <https://training.dst.gov.in/>

Age Limit

Not more than 55 years as on 1 July of the current financial year.

Travel Cost

The to-and-fro travel expenses shall be borne by the nominating institutes/organizations.

Boarding and Lodging

Boarding and lodging facilities shall be provided by the host institution during the training programme.

About the Venue: ICFRE

The Indian Council of Forestry Research and Education (ICFRE), an autonomous body under the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India, is a premier institution for forestry research, education, capacity building, and sustainable natural resource management. With its multidisciplinary expertise and network of research institutes, ICFRE contributes to forest conservation, ecosystem restoration, climate change mitigation and adaptation, biodiversity conservation, and sustainable land management, while strengthening technical capacities, promoting knowledge sharing, and supporting evidence-based approaches to sustainable natural resource management. The training will be held at ICFRE Headquarters, Dehradun, Uttarakhand, providing participants with an appropriate institutional setting for knowledge exchange, technical learning, and professional interaction. In December, temperatures typically range from 10°C to 15°C during the day and 5°C to 8°C at night. Participants are advised to carry warm clothing and jackets.

Harnessing Carbon Farming and Regenerative Agricultural Practices for Climate Resilience Future

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Course Outline

- Concepts and Principles of Carbon Farming and Regenerative Agriculture
- Carbon Dynamics and Soil Health in Agroecological Systems
- Regenerative Soil Management Practices
- Crop Diversification and Biodiversity for Regenerative Agriculture
- Integrated Nutrient and Water Management for Regenerative Farming
- Agroforestry and Integrated Farming Systems for Climate Resilience
- Biochar and Other Carbon-Building Practices for Sustainable Land Management
- Low-Emission Agricultural Practices and Greenhouse Gas Mitigation
- Scientific Tools and Techniques for Measuring and Monitoring Carbon
- Modelling, Measurement, Reporting and Verification of Carbon Sequestration
- Carbon Credits, Carbon Markets and Economic Opportunities
- Policy Perspectives, Institutional Frameworks and Case Studies
- Scaling from Farm-Level Initiatives to Landscape-Level Climate-Resilient Agriculture
- Field Visits

About CoE-SLM, ICFRE, Dehradun

The Centre of Excellence on Sustainable Land Management (CoE-SLM) was established at ICFRE, Dehradun, following the Hon'ble Prime Minister of India's announcement at the 14th Conference of the Parties (COP14) to the United Nations Convention to Combat Desertification (UNCCD) in 2019 and was formally inaugurated on 20 May 2023. The Centre serves as a national hub for promoting Sustainable Land Management (SLM) and supporting India's efforts towards achieving Land Degradation Neutrality (LDN) through technical support, capacity building, research, policy inputs, knowledge exchange, and dissemination of best practices. Leveraging ICFRE's multidisciplinary expertise and extensive research network, CoE-SLM facilitates collaboration among government institutions, research and academic organisations, practitioners, and other stakeholders. The Centre focuses on strengthening stakeholder capacities, promoting science-based approaches to land restoration, and facilitating the adoption of sustainable and locally appropriate land management practices. It also contributes to knowledge generation and policy-oriented research on emerging challenges related to land degradation, climate change, and ecosystem resilience. At the international level, CoE-SLM promotes South–South cooperation by facilitating training programmes, workshops, technical consultations, and knowledge-sharing initiatives with partner countries and institutions. Through these efforts, the Centre contributes to the exchange of experiences, technologies, and good practices for sustainable, productive, and climate-resilient landscapes.

For more information, contact:

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