Boarding, Lodging and TA

The selected participants will be provided free boarding and lodging in the institute guest house. Food expenses will be borne by the organizers as per ICAR norms. All participants will be reimbursed to and fro travel fare for the journey to Bhopal by rail or bus by shortest route. The payment will be made as per the entitled class of travel, but restricted to the maximum of AC-II tier train fare/bus fare (as per actuals). Local participants are not eligible for boarding and lodging, however, they will be provided lunch and inter-session tea. Participants are requested to not to bring family members with them, as the institute has limited hostel facilities. No DA will be paid to participants.

Location and climate

Bhopal, a sprawling and picturesque capital city of Madhya Pradesh, is well connected by air, rail and roadways to different parts of country. Participants travelling by train/bus should alight at Bhopal railway station/Bhopal bus stand from where taxi/ auto-rickshaws can be hired to reach ICAR-IISS Campus located near Karond Chowraha on Berasia Road at a distance of 8 km from railway station and 7.5 km from Bus Stand. The Raja Bhoj Airport is located at a distance of 11 km from the campus. The participants are advised to make their return journey reservations in advance before leaving for Bhopal. The climate is pleasant during the month of December, moderate (~26°C) during day time and cool in the night (~11°C).

Important Dates

1. Last date for receipt of application : 15-10-2019
2. Intimation of selection of participants : 20-10-2019

All correspondence should be addressed to

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or

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Background

Soil is the largest terrestrial carbon pool, encompassing approximately two-thirds of the carbon (C) in ecosystems. Also, mean residence time (MRT) of soil organic carbon pools have the slowest turnover rates in terrestrial ecosystems and thus C sequestration in soils has the potential to mitigate raising concentration of CO$_2$ in the atmosphere. Soil C sequestration is the process whereby C is transferred from the atmosphere into soils. Furthermore, higher carbon stabilization in soil is benefitting the other ecosystem functioning like improvement in soil structure, water holding capacity, nutrient retention, buffering capacity and greater availability of substrates for soil organisms. Increasing carbon content in the soil through better management practices produce a number of benefits in terms of soil biodiversity, soil fertility and soil water storage capacity and hence productivity. Soil C sequestration through the restoration of soil organic matter can further reverse land degradation and restore soil health through rejuvenating soil biota and the array of associated ecological processes. In particular, through improved soil water storage and nutrient cycling, land use practices that sequester C will also contribute to stabilizing or enhancing food production and optimizing the use of synthetic fertilizer inputs, thereby reducing emissions of nitrous oxides from agricultural land. It also constitutes a valuable win-win approach combining mitigation (removal of CO$_2$ from the atmosphere) and adaptation, through both increased agro-ecosystem resilience to climate variability and more reliable and better yields (production and income generation). Under climate change scenarios, increased temperature may enhance soil organic matter mineralization in colder regions of the world, releasing carbon dioxide from soils (FAO, 2008). Improved soil management will mitigate the effects of global warming through improved and permanent soil cover. One of the main options for greenhouse gas (GHG) mitigation identified by the IPCC is the sequestration of carbon in soils. Improving organic carbon content of terrestrial carbon pool by different agronomic measures like residue retention, application of organics, conservation agriculture and reducing soil erosion have been documented by several authors.

Mechanisms for C stabilization in soils have received much interest recently due to their relevance in the global C cycle. The global soil organic carbon storage corresponds to 615 Gt C in the top 0.2 m depth and 2344 Gt C at depths of up to 3 m, which is more than the combined C content of biomass and atmospheric CO$_2$. In 1992, the Kyoto Protocol on climate change demanded the fundamental understanding of the stabilization of carbon in soils. The evolving theory of soil carbon saturation suggests that the difference of stabilization deficit should be the priority tool for selection or prioritization of land for soil carbon sequestration strategy. The proportion of carbon stabilized would be greater in soils with larger carbon stabilization deficits and the relative stabilization efficiency would decrease as soil carbon level would increase. The importance of the agriculture sector, including rainfed and irrigated croplands, pasture & rangelands and agroforestry in mitigating climate change cannot be overlooked.

ICAR-Indian Institute of Soil Science has pioneered in research on various aspects of soil carbon and climate change mitigation. It has an excellent faculty to train researchers on soil carbon sequestration and stabilization for mitigating the adverse effect of climate change. The laboratories of the institute are well equipped with modern instruments. The scientific and technical staff is experienced with state of the art analytical methods and techniques.

Objectives

1. Newer concepts and mechanisms of soil carbon stabilization
2. Soil carbon sequestration for mitigation of climate change
3. Management practices for soil carbon storage
4. Practical exposure to determination of soil C pools and use of C simulation models

Course Content

- Relevance of soil carbon research
- Factors controlling buildup of soil organic carbon
- Newer concepts of soil carbon stabilization mechanisms
- Soil carbon saturation and practical implications
- Carbon pools and their retention in soil
- Carbon sequestration and mitigation of climatic change
- Conservation agriculture and carbon sequestration
- An overview of global carbon models
- Methods of computing carbon sequestration in soil & plant

Eligibility

The officers in the cadre of Scientists / Assistant Professors / Subject Matter Specialists or equivalent and above from ICAR institutes, SAUs, CAUs, Agricultural faculty of AMU, BHU, Vishwa Bharati and Nagaland University who are actively engaged in research, teaching and extension in the areas of Soil Science, Agronomy, Soil Physics, Microbiology, Environmental Sciences and other relevant Agriculture subjects are eligible to attend the short course training. The total number of participants will be restricted to 25. For speedy disbursement of selection letters, participants are requested to apply online at CBP portal of ICAR and provide email ID and FAX number.

Duration of short course

Duration of the Short Course Training is 10 days with effect from 10-19 December 2019 (both days inclusive). The participants are expected to arrive at ICAR-IISS, Bhopal latest by the evening of 9th December and can leave after 17:00 hrs on 19th December 2019.

Application and Registration

Participants are requested to apply online at CBP vortal (https://cbp.icar.gov.in/)

A. Create account on CBP vortal, if your account is not created on CBP vortal:
- Click on 'Create New Account' button on home page.
- Fill the form.
- Click on 'Create Account' button. User will get the message 'Successfully created account' after account is created on the CBP vortal.

B. Login on CBP vortal:
- Enter the 'User Id' and 'Password' in the candidate login window on the home page.
- Click on 'Login' button.

C. Participate in training programme:
- After login, click on 'Participate in Training' button/menu, list of trainings will be displayed.
- Click on 'Training Title - "Recent Advances in Soil Carbon Sequestration and Stabilization for Soil health Improvement and Climate Change Mitigation"'.
- Click on 'Apply' link.
- Fill the 'Academic details' and 'Experience details' information. Click on 'Next' button.
- Fill 'Draft/Postal' order for Rs. 50/- drawn in favour of ICAR unit IISS Bhopal and click on 'Next' button.
- Advance Application form will be generated in system and click on 'print' link. Submit this print out copy in your office for approval of competent authority. Click on 'Submit' button, advance copy will be submitted to course director.
- After approval from competent authority, upload the scanned copy of duly approved application form and click on 'Next' button.
- Click on 'Upload Approved Application File' button to upload signed 'Advance Application form' (Approved Application Form) in pdf/ doc/ jpeg/ jpg/ docx and click on 'Submit' button for final submission.

Additionally, interested candidates may send their applications in the prescribed format duly nominated / forwarded by the competent authority to Dr. Pramod Jha, Course Director, ICAR-Short Course Training or Director, ICAR-IISS, Bhopal.