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# TECHNOLOGIES TO ENHANCE AND MONITOR SOIL CARBON FOR AFRICAN COUNTRIES

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# Workshop Overview



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- CTCN conducted training workshop on technologies for soil carbon enhancement in African Countries in partnership with International Centre for Research in Agroforestry (ICRAF), a CTCN consortium partner.
- **Participants;** 26 participants which included National Designated Entities (NDEs) to the Technology Mechanism and representatives from the Ministries of Agriculture of respective countries
- **Regional representation;** 14 countries in Eastern and Southern Africa where Agriculture is key to countries economies and has been highly prioritized for climate action in their NDCs.

## **Countries;**

Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Uganda, Rwanda, South Sudan, Swaziland, Tanzania, Zambia, and Zimbabwe.

# Why Build Capacity on Soil Carbon Technologies



- **One-third of global greenhouse gas emissions come from agriculture**
  - **Need to prioritize climate action in this sector to meet our climate goal of <math><2^{\circ}\text{C}</math> pre-industrial level.**
- **Soil carbon sequestration has a huge potential for climate change mitigation from agriculture sector**
- **Soil carbon sequestration also offers high synergy in climate change mitigation and adaptation**
- **It present a Win-Win Solution for Mitigating Climate Change and increased resilience**



# The Objectives of the Workshop



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- Expose the participants to the global carbon cycle, basic concepts of soil carbon sequestration and challenges in enhancing soil carbon storage;
- Present the latest technologies having potential to enhance soil carbon stock in Africa, and provide an overview of modern soil carbon monitoring tools and approaches at field, farm, district/province and national levels;
- Discuss possible assistance required from countries for increasing soil carbon sequestration based on their national climate priorities in line with their Nationally Determined Contributions (NDCs).

# Workshop Main Components & Technologies Discussion



- Understanding soil carbon: basic concepts of carbon sequestration, challenges in enhancing soil carbon storage
- Technologies having potential to enhance soil carbon stock in Africa:
  - ***Application of Biochar***
  - ***Agroecological approaches and Agroforestry, Social Forestry, Plantation Management***
  - ***Organic agriculture***
  - ***Area Closures and reserves***
  - ***Conservation Agriculture with and without trees***
  - **Advance Approaches to Monitoring and visualizing Soil Carbon stock**
    - ***Spectroscopic Approaches and Living Soils Labs demonstrations***
    - ***Geospatial Tools for Soil Health Monitoring***
- Technology adoption, scaling and impacts
- Matching soil enhancement technological potential with country NDCs

# Key Training Outcome



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- Training manual – ‘A Compendium of Carbon Enhancing Technologies, Approaches and Practices for African Soils’ developed
  - *facilitate knowledge sharing*
  - *facilitate possible replication of the event in other regions*
- Discussions generated TA request interests mainly on:- Modern information systems for mapping and monitoring aspects of soil (spectroscopic analysis and geospatial tools for monitoring the health of soils )
- Kenya has requested CTCN for TA on development of Agroforestry strategy

*All material related to the workshop including the training manual are available on CTCN website that can be accessed through the link below;*

<https://www.ctc-n.org/calendar/events/ctcn-training-workshop-technologies-enhance-and-monitor-soil-carbon-african>

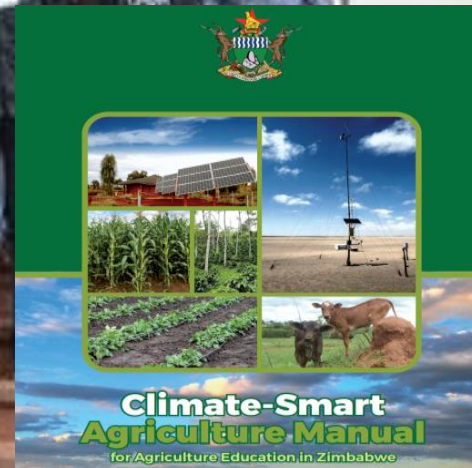


# Relevance to Zimbabwe & developing countries



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- Potential to enhance agricultural production (SDG).
- It's a CSA practice in most of Africa's Agric NDCs
- Developing countries are empowered to make TAs that address soil carbon e.g. Kenya on Agrofores or Zw
- Increasing carbon storage in soils is a solution to improving soil fertility and improving agricultural productivity as well as to decreasing CO<sub>2</sub> and mitigating climate change.
- Needs include nation-wide sub-national measurements and monitoring of soil condition, potential and requirements.
- Potential to reduce land under cultivation, role back deforestation & land degradation (CBD, UNCCD)







# CTCN

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