

An Article on Climate Smart-Agriculture: Unlocking Sustainable Food Systems

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What is Climate Smart- Agriculture?

An approach called climate-smart agriculture (CSA) directs measures to change agri-food systems toward environmentally friendly and climate-resilient practises. CSA is in favour of achieving internationally recognised objectives including the sustainable development goals (SDGs) and the Paris Agreement.

It strives to address three key goals: sustainably raising agricultural output and incomes, adapting to climate change and enhancing resilience, and lowering and/or eradicating greenhouse gas emissions.

Why climate-smart agriculture is necessary?

Objectives for combating global climate change must start with agricultural production and food security. A strategy to address food security, climate change adaptation, and mitigation is called climate-smart agriculture (CSA). When land conversion and other food system processes are taken into consideration, the total contribution of the food system might be as high as 29%. Agriculture directly produces roughly 13% of all greenhouse gas (GHG) emissions. In accordance with the Paris Agreement, nations have committed to limiting the rise in the average world temperature to well below 2°C above pre-industrial levels and promoting low-emissions development without endangering food supply. 90% of Nationally Determined Contributions (NDCs) give priority to agricultural adaptation to climate change, while 80% of NDCs promise to take action on agricultural GHG mitigation.

The three foundational principles of climate smart agriculture (CSA) represent these various objectives:

- Reducing GHG emissions and/or strengthening removals.



- Sustainably raising agricultural production to enable equitable improvements in farm incomes, food security, and development.
- Improving the agriculture and food security systems' resilience to climate change.

CSA Approach

The FAO Strategic Framework 2022–2031 is supported by CSA because it is built on the Four Betters: greater production, better nutrition, a better environment, and a better living for everyone. A CSA approach depends on the local socioeconomic, environmental, and climate change conditions and is context-specific. The FAO suggests that the strategy be put into practise through five action points: increasing the body of CSA-related evidence, promoting enabling policy frameworks, bolstering national and local institutions, improving funding and financing options, and putting CSA practises into practise at the field level.

On June 25, 2020, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) held a virtual round-the-world relay event to introduce a new manifesto for changing food systems in response to climate change, with the support of over 100 partner organisations. After a year, the project is fulfilling the goals it set for a future with a low carbon footprint. In four action areas - reroute, de-risk, reduce, and realign - the "Initiatives to Transform Food Systems Under Climate Change" study offered 11 transformative actions.

Governments, food and agriculture businesses, as well as public and private investors, need to better recognise and handle the numerous climate-related risks they face as a result of how climate change affects food systems. Major food and cash crop species yields can drop by 5–10% for every 1°C increase in average temperatures.

Furthermore, more frequent extreme weather conditions and natural disasters are predicted to have a detrimental effect on food systems that are least prepared to overcome these shocks: between 2003 and 2013, the agriculture sector in low-income countries absorbed 25% of the impact of climate-related disasters. By 2050, it is anticipated that the effects of climate change will result in price rises of 37 percent for rice, 55 percent for maize, and 11 percent for wheat.

Roles of CSA in Unlocking Sustainable Food Systems

1. Sustainably increases productivity and income
2. Increases resistance to variation and climate change



3. Reduces agriculture's contribution to climate change conservation agriculture-greenhouse gas emissions + carbon storage on farmlands.

Examples- Conservation agriculture, Agroforestry, Integrated-forest, farm and fish systems.

Conclusion

Responding to the effects of climate change and helping to mitigate them requires combining forestry, fishery, agriculture, and livestock systems at the landscape level with an ecosystems approach. At all levels, inter-sectoral methods and coordinated policies are required for agriculture, food security, and climate change. For those who depend on agriculture, fishing, and the forest to survive, institutional and financial support is required. Some successful climate-smart practises already exist and might be expanded, but this is only possible with significant expenditures in knowledge base development and technological advancement. Investments in sustainable development agendas must include climate financing and link financial opportunities from the public and private sectors.

References

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