

CLIMATE-SMART AGRICULTURE (CSA)

Suhail Quyoom Wani

Research Scholar, Plant Pathology, SKUAST- Kashmir

ARTICLE ID: 07

INTRODUCTION

Climate change is influencing agricultural production worldwide with negative effects more than the positive effects according to Intergovernmental Panel on Climate Change (IPCC). The recurrence and intensity of harsh events like heavy rainfall, drought, floods and increasing temperatures are accelerating in many regions. Climate change poses a serious challenge to food access in both urban and non-urban populations. So, under the realities of stressor of climate change, climate- smart agriculture (CSA) or climate change resilient agriculture is an approach to transform and reorient agricultural systems to promote food security. CSA term was coined by Food and Agricultural Organization (FAO) in the document prepared for 2010 Hague Conference on Food Security, Agriculture and Climate Change.

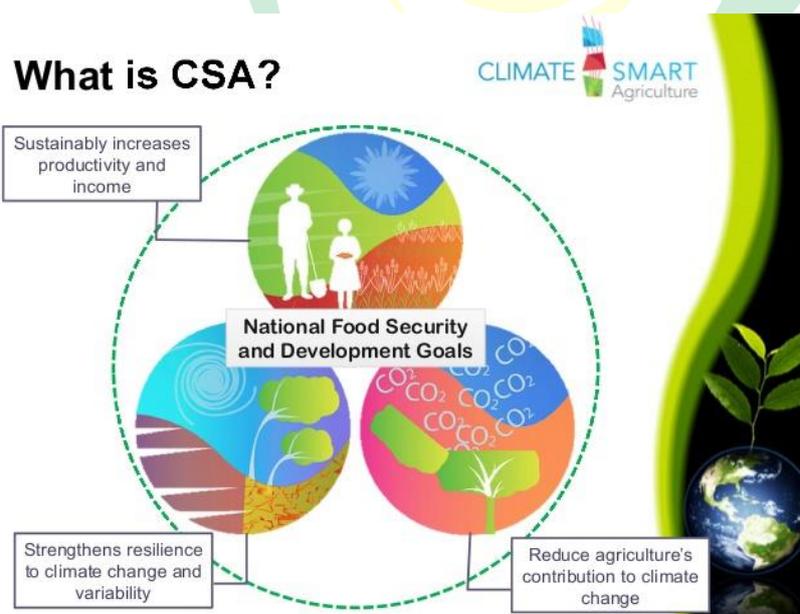


Image Source: Irina Papuso and Jimly Faraby, Seminar on climate change and risk management, May 06, 2013.



OBJECTIVES OF CSA

Three objectives are outlined for CSA which are often referred to as three pillars of CSA:

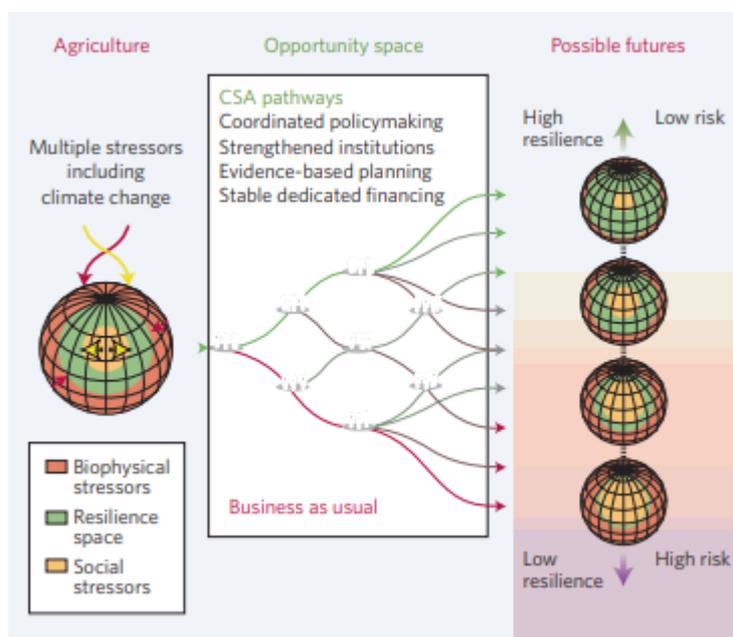
- Sustainably increasing crop productivity to support equitable increment in food security, incomes and development
- Building and adapting resilience to climate change from farm level to national level.
- Developing opportunities to reduce greenhouse gas emissions from agriculture.

To sum it up, increased productivity, enhanced resilience and decreased emissions are the prime objectives of CSA. The consideration of all these three objectives is required by CSA to develop locally accepted solutions.

ELEMENTS OF CLIMATE-SMART AGRICULTURE

Climate-Smart Agriculture does not include a set of operations and practices that can be universally implemented but rather an approach that consists of multiple elements in the local contexts. CSA blends climate change into the planning of sustainable agricultural strategies and their subsequent implementation. It identifies synergies and trade-offs among food security, adaptation and mitigation as a basis to inform and reorient policies at local, national and international levels. It involves integration of the following elements:

- Management of resources like, farms, crops, livestock, aquaculture, etc. in such a way that produce more with less while enhancing resilience.
- Management of landscape and ecosystem services to increase the resource efficiency.
- Provision of services for farmers and other stakeholders to make them able to implement the required changes.



Climate-resilient transformation pathways for agriculture

Image Source: IPCC Summary for Policymakers *Climate Change* 2014

ACTIONS NEEDED TO IMPLEMENT CLIMATE-SMART AGRICULTURE

- Although farmers have always dealt with variability and uncertainty in weather patterns, the increased uncertainty and intensity that climate change calls for more rapid and flexible response capacity. Transformative or incremental actions are involved in building resilience. Transformative changes involve paradigm shifts in crop production or sources of livelihoods. Incremental changes include provision of better information, timely access to agricultural inputs, shifts in production techniques for enhancing ecosystem services and maintain productivity under climate shocks.
- An integrated, evidence-based and transformative approach to address food and climate security at all levels, from research to policies and investments and across private, public and civil society sectors to achieve the scale and rate of change required.
- Extension agencies can play a pivotal role in supporting CSA through technology development, information dissemination, strengthening farmers' capacity and advocacy and policy support. Through innovative approaches such as digital green, plant clinics, climate smart villages, climate workshops and trainings, etc., they contribute their bit in CSA.



- With the right practices, investments and policies, the agriculture sector can move onto CSA pathways, resulting in reduced food insecurity and poverty in the short run and in the long run, contributing to reducing climate change as a serious threat to food security.

REFERENCES

Leslie Lipper¹, Philip Thornton, Bruce M. Campbell, Tobias Baedeker, Ademola Braimoh, Martin Bwalya, Patrick Caron, Andrea Cattaneo, *et al.* (2014) Climate-smart agriculture for food security. *Nature Climate Change*. 1068–1072.

Climate smart Agriculture, 15 October, 2021. Innovative approaches and tools. Land Use. <https://unfccc.int/blog/climate-smart-agriculture>. Retrieved on 05 May, 2022.

Climate-Smart Agriculture. Food and Agricultural Organization of the United Nations. <https://www.fao.org/climate-smart-agriculture/en/>. Retrieved on 30 April, 2022.

IPCC Summary for Policymakers Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects (eds Field, C. B. *et al.*) (Cambridge Univ. Press, 2014).