



General Studies-3; Topic: Topic: Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security

Climate Smart Agriculture

Introduction

- **FAO defines Climate-smart agriculture (CSA)** as "agriculture that sustainably increases productivity, enhances resilience, reduces/removes GHGs where possible, and enhances achievement of national food security".
- **Climate-smart agriculture (CSA)** is an approach for transforming agricultural production systems so that they support sustainable development and can ensure food security under climate change.

India's vulnerability

- India's agricultural is highly monsoon dependent and with 85% small and marginal landholdings, it is highly sensitive to weather abnormalities.
- There are reports of heat waves, which in turn affects crops, aquatic systems and livestock.
- The Economic Survey 2017-18 has estimated **farm income losses between 15% and 18% on average, which could rise to 20%-25% for unirrigated areas.**
- There will be an increased **risk of pests and diseases due to change in the pattern** of host and pathogen interaction.
- For every two-degree rise in temperature, the agriculture GDP of India will reduce by five percent.
- Poor agricultural performance can lead to inflation, farmer distress and unrest, and larger political and social disaffection.
- It will force farmers to either adapt to challenges of climate change or face the risk of getting poorer.

Relevance of CSA

- **Increased productivity:** Produce more food to improve food and nutrition security.

- **Enhanced resilience:** Reduce vulnerability to drought, pests, disease, and other shocks.
- **Reduced emissions:** Pursue lower emissions for each calorie or kilo of food produced, avoid deforestation from agriculture and identify ways to suck carbon out of the atmosphere.
- The climate-smart agriculture approach seeks to reduce trade-offs and promote synergies to make agricultural system more productive and more sustainable.
- Ecosystem and landscape management to conserve ecosystem services that are important for food security, agricultural development, adaptation and mitigation.

Concerns / Challenges

- With patchy rains, there is hardly any greenery in many villages, making it difficult for farmers to even maintain cattle.
- Quick adaptation for new changes is hard, with farmers varying and mixing crops across seasons, along with heavy investments in borewells, tractors, and threshers.
- Because of continuous crop failures, farmers are increasingly abandoning their lands and heading to nearby towns to find work as laborers.
- With India's climate expected to become warmer, intra seasonal and inter-annual weather variability is expected to increase.

Way Forward

- Farmers, especially smallholder farmers, need handholding during their scaling up to adopt CSA.
- Mobile telecommunication systems are increasingly cost-effective and an efficient way of delivering weather-based agro-advisories to farmers at a large scale.
- Weather-based agro-advisories must be locale-specific, crop-and farmer-specific.
- On-site training and awareness campaigns, technology demonstrations, farmer-specialist interactions, and engagement with local governance bodies.
- Closer collaboration between public, civil society, and private technology and financial service providers so that farmers get access to accurate information, and affordable technologies.

Conclusion

- Climate-smart agriculture is not a new agricultural system, nor a set of practices.
- It is an innovative approach for charting development pathways that can make the agriculture sectors more productive and sustainable and better able to contribute to climate change adaptation and mitigation.