EDITORIAL ANALYSIS

Time: 10 min **Date: 11-09-2023**

Need for climate-smart Agriculture in India

Syllabus: GS3/ Agriculture

In Context

- Climate-smart agriculture has the potential to assure food security, empower farmers, and protect our delicate ecosystems.

Climate change and food insecurity

- **About:**
  - The two most important issues facing humanity in the 21st century are climate change and food insecurity.
- **Challenge of climate change:**
  - Some of the ongoing effects of climate change, such as heat waves, flash floods, droughts, and cyclones, are negatively influencing lives and livelihoods.
  - The world's southern continents are reportedly experiencing severe drought due to climate change, which negatively impacts agricultural production and farmers' livelihoods.
- **Threats of Climate change for agriculture:**
  - As a result of climate change, traditional farming practices are becoming less productive.
    - Farmers are taking a variety of adaptation measures to reduce the negative effects of climate change.
  - The future impacts of climate change on agricultural productivity could be substantial.
    - In India, crop yield decline owing to climate change (between 2010 and 2039) could be as high as 9%.
- **Concerns of food insecurity:**
  - Both population expansion and dietary changes are contributing to an increase in the demand for food.
  - The need for a holistic strategy is driven by **climate change's dual challenges of adaptation and mitigation**, and the pressing need for **agricultural production to rise** by 60% by 2050 in order to **fulfil food demand**.

Climate-smart agriculture (CSA)

- **What is Climate-smart agriculture?**
    - Climate-smart agriculture is an approach for transforming food and agriculture systems to support sustainable development and safeguard food security under climate change.
    - CSA comprises three pillars or objectives:
        - sustainably increase agricultural productivity and incomes;
        - adapt and build resilience to climate change; and
        - reduce/remove GHG (greenhouse gases) emissions, where possible.
- **Dimensions of climate-smart practices include:**
    - Water-smart, weather-smart, energy-smart, and carbon-smart practices.
    - They improve productivity, deal with land degradation, and improve soil health.
- **How?**
    - Improvements in agroforestry, sustainable water management, and precision agriculture are all concrete examples of CSA ideas in action, and they are not limited by any one country.
    - CSA promotes crop diversification, increases water efficiency, and integrates drought-resistant crop types, all of which help lessen the disruptive effects of climate change.
    - There has been a worldwide uptick in community-supported agriculture efforts.
        - These efforts are made in an attempt to create agricultural systems that are both resilient and environmentally friendly.
- **CSA in India:**
    - The National Action Plan on Climate Change emphasises the role of climate-resilient agriculture in **India's adaptation measures**.
    - **Government initiatives in India focusing on CSA:** The National Adaptation Fund for Climate Change, National Innovation on Climate Resilient Agriculture, Soil Health Mission, Pradhan Mantri Krishi Sinchayee Yojana, Paramparagat Krishi Vikas Yojana, Biotech-KISAN, and Climate Smart Village are a few examples of government initiatives in India focusing on CSA.
    - **Public and private sector initiatives:** Various public and private sector entities such as farmer-producer organisations and NGOs are also working towards the adoption of CSA.

<u>Significance of CSA:</u>

- **Enhanced output with ecological stability:**
    - The importance of CSA lies in its ability to increase agricultural output while maintaining ecological stability.

    - This correlation is not only a desired consequence but rather essential for long-term food security and sustainable resource usage in a warming planet.
- **Increased resilience:**
    - By reducing exposure to climate-related dangers and shocks, CSA increases resilience in the face of longer-term stressors like shorter seasons and erratic weather patterns.
- **Economic stability:**
    - In addition to these benefits, a significant outcome of CSA implementation is the increasing economic autonomy of farmers.
    - CSA causes a dramatic change in farming communities' economic and social structure by distributing information about and providing access to climate-resilient methods.
- **Uplifting disadvantaged farmers:**
    - As the climate changes, farmers, significantly those already disadvantaged, can gain enormously from adopting climate-smart techniques.
    - The majority of Indian farmers are small or marginal. Therefore, CSA can play a significant role in helping them increase their profits.
- **Reduced GHG emissions:**
    - The agricultural sector also produces a large amount of GHGs. The sector's share in GHG's emissions in 2018 was 17%.
    - Therefore, CSA implementation is crucial for lowering GHG emissions and protecting biodiversity.
    - Furthermore, it aids in enhancing farmland carbon storage.

Way ahead

- The most challenging aspect of dealing with global warming is to **create localised responses**.
    - Therefore, investing in **capacity-building** programmes and providing **practical CSA tools and knowledge** is essential.
- **Agroforestry and carbon sequestration** are two examples of CSA measures that could help India meet its international obligations and contribute to the global fight against climate change.
- The intersection of climate vulnerability and agricultural importance places India at a unique juncture where **CSA adoption is not merely desirable but essential**.

Daily Mains Question

[Q] Adoption of Climate-smart agriculture (CSA) in India is not merely desirable but essential. Analyse.