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## Farming in a warming world : Agriculture and Climate Change

### Rise in Global Warming:-

- The Sixth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) on “**Global Warming at 1.5°C**” distinctly propagates the need to strengthen and enhance existing coping capacity and to remain committed to the objectives of the Paris Agreement.
- The achievement of objectives of the Paris Agreement depends on in-situ attributes and the level of developments.
- Moreover, for such a change in global warming, indigenous populations and local communities dependent on agricultural or coastal livelihoods are very vulnerable to the climate impacts.

### Indian Agriculture and Climate Change:-

- India, with its diverse agro-climatic settings, is one of the most vulnerable countries.
- Its agriculture ecosystem, distinguished by **high monsoon dependence**, and **with 85% small and marginal landholdings**, is highly sensitive to weather abnormalities.
- There has been less than normal rainfall during the last four years, with 2014 and 2015 declared as

- drought years. Even the recent monsoon season (June-September) ended with a rainfall deficit of 9%, which was just short of drought conditions.
- Research is also confirming **an escalation in heat waves**, in turn affecting 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 without any policy interventions.

### **What should be done:-**

- There is a need to foster the process of **climate adaptation in agriculture**, which involves reshaping responses across both the micro- and macro-level decision-making culture.

### **Micro Level Effort:-**

- Corroborating traditional wisdom, religious epics and various age-old notions about weather variations still guide farmers' responses with climate assessments and effective extension and promoting climate resilient technologies, which will enhance their efficiency.
- Adoption of **agronomic management practices** such as inter and multiple cropping and crop-rotation; shift to non-farm activities; insurance covers; up-scaling techniques such as solar pumps, drip irrigation

- and sprinklers.
- Issues in Government initiative to address the micro level effort- The process of adoption of climate change in agriculture remains slow.
  - For instance, the **NSS 70th round** indicates that a very small segment of agricultural households utilised crop insurance due to a lack of sufficient awareness and knowledge.
- Solution- Hence there is an urgent need to educate farmers, reorient Krishi Vigyan Kendras and other grass-root organisations with specific and more funds about climate change and risk-coping measures.

### Macro Level Effort:-

- Climate adaptations are to be mainstreamed in the rural developmental framework (which is still at a nascent stage, as acknowledged in the Economic Survey 2017-18) because agriculture is closely intertwined with rural developmental interventions.
- Mainstreaming adaptation into the policy apparatus demands coherence across multiple policy scales as required for developing possible synergy between micro-macro levels and addressing several cross-cutting issues.
- Moreover, this enables identification of several barriers that prevent up-scaling efforts and adaptation by farmers.

**Suggestions towards building greater resilience in agriculture:-**

- Expansion of extension facilities,
- improving irrigation efficiency,
- promotion of satellite-enabled agriculture risk management,
- creating micro-level agro-advisories,
- providing customised real time data, and
- capacity building of stakeholders

**Government initiative:-**

- Interventions such as the Pradhan Mantri Krishi Sinchayee Yojana, Pradhan Mantri Fasal Bima Yojana, Soil Health Card, Paramparagat Krishi Vikas Yojana, National Agriculture Market, or e-NAM, and other rural development programmes are positive interventions that can address the vulnerability of farmers and rural households.
- National Innovations on Climate Resilient Agriculture (NICRA), the National Mission for Sustainable Agriculture (NMSA), the National Adaptation Fund, and the State Action Plan on Climate Change (SAPCC) are some Climate exclusive intervention.

**Way Ahead:-**

- It is desirable to have a **cultural change** wherein some of the components under mentioned schemes can be converged with major rural developmental programmes, which will further enhance their effectiveness at the grass-root level.
- The SAPCC is an important platform for adaptation planning but it needs to evolve further in terms of **climate-oriented regional analysis** to capture micro-level sensitivity and constraints.
- Moreover, convergence of climate actions with ongoing efforts and several Central schemes with similar mandates is a must.
- Greater expertise and consultations are required for a systematic prioritisation of actions and fiscal prudence for building climate resilient agriculture.

**THANK YOU**

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