Mains Practice Question

Q. How far can carbon farming and regenerative agriculture provide India with both climate resilience and export competitiveness? Discuss. (150 words)

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Approach:

- Introduce the answer by briefing about the significance of carbon farming and regenerative agriculture for India
- Delve into their Role in Enhancing Climate Resilience and Enhancing Export Competitiveness
- Highlight Challenges and Limitations along with measures for Scalable Transformation
- Conclude suitably.

Introduction

India, as an agrarian economy, faces the twin challenge of **climate vulnerability** and the need to **enhance farm incomes through global competitiveness**. In this context, **carbon farming** (generating carbon credits by adopting climate-smart practices) and **regenerative agriculture** (restoring soil health and ecosystem services) are being promoted as pathways that could

Body:

Role in Enhancing Climate Resilience

- **Soil Health Improvement:** Enhances **organic carbon, reduces erosion, and improves drought/flood tolerance.**
- **Lower Input Dependence:** Reduces reliance on chemical fertilizers and pesticides → lowers vulnerability to input price shocks.
- **Biodiversity Gains:** Promotes **crop diversification, agroforestry, and natural pest regulation.**
- **Water Security:** Improved soil moisture retention helps in drought-prone regions like Bundelkhand or Marathwada.
- **Climate Mitigation:** Contributes to India's **NDC target** of creating a carbon sink of 2.5–3 billion tonnes of CO_2 equivalent by 2030.

Role in Enhancing Export Competitiveness

- **Rising Global Demand:** EU's **Carbon Border Adjustment Mechanism (CBAM)** and demand for **sustainably produced agri-goods** create market incentives.
- **Carbon Credits Market:** Farmers can monetize climate-positive practices by trading credits in voluntary/global carbon markets.
- **Premium Branding: "Carbon-neutral" or "sustainably farmed**" labels enhance India's agro-exports like tea, coffee, spices, and basmati rice.
- **Comparative Advantage:** Large smallholder base offers scope for aggregation through **FPOs** and cooperatives.

Challenges and Limitations

- **Measurement and Verification:** Lack of **reliable MRV (Monitoring, Reporting, Verification) frameworks** for carbon credits.
- **High Transition Costs:** Farmers may face yield uncertainty during **shift from conventional to regenerative practices.**
- **Awareness and Equity Concerns:** Limited farmer knowledge of carbon markets and certification processes.
    - Small farmers may be left out if **only large farms access carbon markets.**
- **Export Barriers:** Compliance with stringent sustainability standards **(like EU's Green Deal)** may be difficult for fragmented Indian agriculture.

Towards Scalable Transformation:

- **Institutional Support:** Establish a **National Carbon Farming Mission** with robust MRV protocols.
- **Capacity Building:** Use Krishi Vigyan Kendras (KVKs) and FPOs to train farmers in regenerative techniques.
- **Incentives:** Link MSP/PM-KISAN/insurance benefits with adoption of regenerative practices.
- **Market Access:** Facilitate carbon credit trading platforms and support certification for export markets.
- **International Partnerships:** Collaborate with EU, FAO, and private sector for knowledge sharing and finance.

Conclusion:

Carbon farming and regenerative agriculture offer a **synergistic pathway** for India to achieve **climate resilience** in agriculture while also boosting **export competitiveness** in a sustainability-conscious global market along with achieving **SDG 2, 12, 13, and 15.**