



Sustainability Concerns in India's Agricultural Export Growth

For Prelims: [Tea](#), [Sugar](#), [Cropping patterns](#), [National Mission on Sustainable Agriculture](#), [Paramparagat Krishi Vikas Yojana \(PKVY\)](#), [Sub-mission on AgroForestry \(SMAF\)](#), [Rashtriya Krishi Vikas Yojana](#).

For Mains: **Challenges Related to Sustainable Agriculture in India**, Government initiatives related to sustainable agriculture.

[Source: TH](#)

Why in News?

India's surge in agricultural exports, particularly [tea](#) and [sugar](#), has significantly contributed to its **economic growth**. However, this rapid increase **raises critical sustainability concerns** regarding **environmental impact**, resource management, and labour conditions.

Note:

India is **one of the world's largest agricultural product exporters**, with exports valued at USD 53.1 billion in 2022-2023, up from **USD 8.7 billion in 2004-2005**, a six-fold increase in less than two decades.

- Exports play a significant role in strengthening India's economy, but the rapid surge poses challenges to the sustainability of the production, processing, and distribution systems.
- **Tea:** India is the **world's fourth-largest tea exporter**, with exports valued at **USD 793.78 million** in 2022-2023, primarily to destinations like the United Arab Emirates, Russia, Iran, United States, and United Kingdom.
- **Sugar:** India, the **world's second-largest sugar producer**, accounts for about **20% of global production**.
 - Sugar exports grew from USD 1,177 million in FY 2013-14 to USD 4,600 million in FY 2021-22, marking a **64.90% increase**. **It exports to 121 countries**.
 - **Economic Impact:** Employs about **50 million farmers and an additional 500,000 workers in sugar factories**. The industry has an annual turnover of approximately Rs 1 lakh crore, according to [NITI Aayog \(National Institution for Transforming India\)](#).

What does Sustainability in Agriculture Mean?

- **Economic Sustainability:** While exports are economically beneficial, sustainability goes beyond profitability. It involves maintaining **long-term productivity without depleting resources**.
- **Ecological Sustainability:** Protecting **natural ecosystems, minimising chemical use, and managing water resources** effectively are crucial to ensuring that agricultural systems do not harm the environment.
- **Social Sustainability:** Addressing issues such as **labour rights, fair wages**, and safe working conditions is essential for creating equitable and sustainable agricultural systems.
- **The Lifecycle Approach:** Sustainability must be considered throughout the entire lifecycle of a commodity, from pre-sowing to **post-harvest stages**, not just during production.

What are Sustainability Concerns in India's Agriculture Sector?

- **Sustainability Concerns in Tea Production:**
 - **Human-Wildlife Conflicts:** **70% of tea plantations are near forests**, resulting in frequent **conflicts with wildlife**, such as **elephants**, causing damage to crops and plantations.
 - **Chemical Use:** The widespread use of synthetic pesticides in tea cultivation, including harmful chemicals like **Dichlorodiphenyltrichloroethane (DDT)** and **Endosulfan**, poses **health risks and increases chemical residue** in the final product.
 - **Labour Issues:** With women constituting over half of tea plantation workers, **low wages, hazardous working conditions**, and inadequate enforcement of labour laws remain significant challenges.
 - The **Plantations Labour Act, 1951**, mandates worker safety, but its provisions are rarely fully enforced.
- **Sustainability Concerns in Sugar Industry:**
 - **Water Management:** Sugarcane, requiring 1,500 to 2,000 litres of water per kg of sugar, **strains India's water resources**. Despite covering 25% of the cropped area, sugarcane and **paddy** consume 60% of irrigation water, limiting availability for other crops.
 - **Impact on Biodiversity:** Expansive sugarcane cultivation in Karnataka and Maharashtra has **replaced grasslands and savannahs, causing biodiversity loss** and disrupting wildlife habitats.
 - **Labour and Working Conditions:** Sugar industry workers, often trapped in **debt cycles**, face long working hours in harsh conditions. Rising temperatures further exacerbate their physical and mental well-being.
- **Sustainability Concerns India's Agricultural Exports:**
 - **Supply Chain and Logistics:** In India, inefficient storage, inadequate **rural cold chain infrastructure**, and logistical bottlenecks lead to significant **post-harvest losses**, affecting export quality and increasing costs.
 - These challenges also raise sustainability concerns, **contributing to food wastage and resource depletion**. In 2022, India incurred food losses worth Rs 1.53 lakh crore (USD 18.5 billion).
 - **Climate Change:** Climate change exacerbates sustainability concerns, with extreme events like **droughts, floods, and heatwaves** disrupting production.
 - Soil degradation and water scarcity further reduce productivity, **impacting export quantity and quality**.

What Needs to Be Done to Address Sustainability Challenges?

- **Sustainability in Tea Industry:** Use **climate-resilient tea varieties** and implement agroforestry practices to mitigate climate risks.
 - Ensure farmers receive a **fair share of profits through direct market access and premiums** for certified products.
 - Improved practices **to manage human-wildlife interactions** around plantations. And stricter monitoring of maximum residue limits for safer tea production is needed.
 - Integrate sustainable farming techniques such as precision

agriculture, [agroforestry](#), and **integrated pest management (IPM)** to improve yield and minimise environmental harm.

- **Sustainability in Sugar Industry:** Transitioning to sustainable irrigation methods like [drip irrigation to conserve water](#).
 - Adopting drip irrigation can **reduce water usage by 40-50%, making cultivation more resource-efficient**.
 - Using **sugarcane by-products like bagasse (for bioenergy), vinasse (as fertilizer), and cane trash (for biomass or animal feed)** reduces waste and improves resource efficiency, thereby promoting a [circular economy](#).
 - Sugar mills can transition to **biorefineries**, where waste products are used for **energy generation**, making the industry more self-sufficient and reducing reliance on [non-renewable energy sources](#).
 - Ensuring better working conditions, fair wages, access to healthcare, education, and social safety nets for farm labourers and mill workers.
- **Sustainability in Agricultural Exports:**
 - **Encourage Sustainable Crop Selection:** Promote resilient crops like [millets](#), a sustainable choice for boosting domestic use and exports, thriving in harsh conditions, enhancing soil health, and ensuring nutritional security with minimal inputs.
 - India's millet exports grew from **USD 26.97 million in 2020-21 to USD 75.45 million in 2022-23**, underscoring their value as an eco-friendly crop that supports economic growth.
 - **Dual Demand Base Management:** India's agricultural sector supports a large domestic market and a growing export market, driving economic growth. Balance exports with domestic **needs to avoid stressing natural resources or over-reliance on specific commodities**.
 - **Strengthen Supply Chain Dependencies:** Address supply chain dependencies impacting sustainability. Foster collaboration and transparency to integrate sustainability goals across the chain.
 - **Environmental Safeguards:** Emphasise environmental conservation to maintain sustainable production levels without exhausting natural resources.
 - Implement eco-friendly practices such as **reduced water usage, [organic farming methods](#), and soil health preservation**.

Drishti Mains Question:

How can India achieve sustainable economic growth in agriculture, considering both the need for export-driven growth and the necessity to conserve natural resources?

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. In the context of India, which of the following is/are considered to be practice(s) of eco-friendly agriculture? (2020)

1. Crop diversification
2. Legume intensification
3. Tensiometer use
4. Vertical farming

Select the correct answer using the code given below:

(a) 1, 2 and 3 only

(b) 3 only

(c) 4 only

(d) 1, 2, 3 and 4

Ans: (a)

Mains:

Q. India is well endowed with fresh water resources. Critically examine why it still suffers from water scarcity. **(2015)**

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