

Evergreen Revolution, Meaning, Features, Importance, Challenges in India

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Evergreen Revolution refers to an approach in agriculture that aims to increase food production in a sustainable and long-lasting way without harming the environment. It focuses on using natural resources wisely so that farming can continue productively for future generations.

Background Evergreen Revolution

- The idea of the Evergreen Revolution developed as a response to the earlier **Green Revolution of the 1960s and 1970s**. During that time, countries like **India, Mexico, and the Philippines** were facing serious food shortages.
- The **Green Revolution** brought **major changes in agriculture** by introducing **high-yielding seeds (HYVs)**, increased use of chemical **fertilizers** and pesticides, better irrigation systems, and modern machines. This helped in rapidly increasing food production and made many countries self-sufficient in food.
- Although it solved the problem of hunger, **over time several serious environmental problems began to appear:**
 - Soil started **losing its natural fertility**

- Excessive use of water led to **groundwater depletion**
- Overuse of chemicals caused **pollution**
- Growing only a few crops (monoculture) **reduced biodiversity**
- To overcome these issues, agricultural scientist **M. S. Swaminathan** introduced the concept of the **Evergreen Revolution**.
- He defined it as **increasing agricultural production continuously without causing harm to the environment or society**.
- The Evergreen Revolution does not reject the achievements of the Green Revolution but **aims to improve and make them sustainable in the long run**.
- Core Idea Behind Evergreen Revolution
 - The main goal is **to ensure that agriculture remains productive, environmentally safe, and sustainable for future generations**.
 - It focuses on a **balanced approach** where growth in food production goes hand in hand with conservation of natural resources.

Key Drivers of Evergreen Revolution

- **Ecological Sustainability**
 - Encourages farming **methods that protect nature**
 - **Promotes organic farming**, natural fertilizers, and reduced use of harmful chemicals
 - Helps in **maintaining soil fertility** and protecting ecosystems
- **Efficient Use of Resources**
 - Aims to produce **more output using fewer resources**
 - Promotes **better use of water** (like drip irrigation), land, and energy
 - **Reduces wastage and increases efficiency** in farming practices
- **Climate Resilience**
 - Focuses on crops that **can survive climate change and extreme weather conditions**
 - **Helps farmers adapt** to problems like droughts, floods, and temperature changes
- **Nutritional Security**
 - Moves beyond just producing enough food to **ensuring healthy and nutritious food**
 - Encourages **cultivation of diverse crops** like millets, pulses, fruits, and vegetables instead of only wheat and rice

Objectives of Evergreen Revolution

- The Evergreen Revolution aims to **increase agricultural productivity while protecting natural resources** like **soil**, water, and biodiversity, ensuring long-term sustainability.
- It **promotes environment-friendly farming methods** such as organic farming, bio-fertilizers, and integrated pest management to reduce dependence on harmful chemicals.
- A key objective is to **ensure food and nutritional security**, focusing not just on enough food but also on healthy and diverse diets.

- It seeks to **empower small and marginal farmers** by improving access to technology, knowledge, markets, and fair prices, thereby helping to increase their incomes and living standards.
- The **approach encourages efficient use of resources** like water and land through **modern techniques** such as drip irrigation, rainwater harvesting, and precision farming.
- It **focuses on climate-resilient agriculture**, promoting crops and practices that can withstand changing weather conditions like droughts and floods.
- It **supports crop diversification**, encouraging farmers to grow a variety of crops, including high-value and nutritious crops, instead of relying only on a few staples.
- It also emphasizes the **use of modern technology and digital tools (ICT)** to provide farmers with information about weather, prices, and farming practices for better decision-making.

Key Features of Evergreen Revolution

- The Evergreen Revolution focuses on **sustainable farming**, where soil health, water conservation, and protection of biodiversity are given top priority **to ensure long-term productivity**.
- It promotes **eco-friendly agricultural practices** such as organic fertilizers, bio-pesticides, crop rotation, and reduced use of harmful chemicals to maintain ecological balance.
- A key feature is the **use of modern technology, including biotechnology, information technology**, and tools like remote sensing, to make farming more precise and efficient.
- It emphasizes **climate-resilient agriculture**, encouraging methods like agroforestry, conservation farming, and water-saving techniques (such as drip irrigation) to deal with climate change and extreme weather.
- The approach **supports efficient water management**, including rainwater harvesting and proper use of water resources, instead of over-exploiting groundwater.
- It promotes **nutritional security by encouraging the cultivation of a variety of crops** such as millets, pulses, fruits, and vegetables, rather than focusing only on cereals.
- The **Evergreen Revolution is inclusive in nature**, giving importance to small and marginal farmers, as well as women farmers, by improving their access to technology, training, and market opportunities.
- It **encourages active participation of farmers in decision-making, innovation, and resource management**, making them key stakeholders in agricultural development.
- Another important feature is **balanced and equitable growth**, ensuring that the benefits of agricultural progress reach all sections of society.

Components of Evergreen Revolution

- The Evergreen Revolution is built on a combination of sustainable practices, modern technology, and farmer-focused development to improve agriculture in a balanced way.
- **Sustainable Resource Management**
 - Focuses on improving **soil health and fertility through organic manures**, crop rotation, and proper residue management.
 - Encourages **efficient use of water** by adopting methods like drip irrigation, rainwater harvesting, and watershed management instead of overusing groundwater.

- Promotes **agroforestry and mixed farming**, which help maintain ecological balance, reduce soil erosion, and improve biodiversity.
- **Scientific and Technological Innovation**
 - Uses **biotechnology and improved seeds** (including high-yielding and pest-resistant varieties) to increase productivity in a sustainable way.
 - **Applies modern tools like GIS, remote sensing, and precision farming** for better crop monitoring and decision-making.
 - Encourages the use of **renewable energy and climate-smart practices** to make farming more efficient and environmentally friendly.
- **Diversification of Agriculture**
 - Promotes a **shift from monoculture** (single crop farming) to multi-cropping, including pulses, oilseeds, fruits, vegetables, and millets.
 - Supports **integrated farming systems**, where crops are combined with livestock, fisheries, and horticulture to increase income and reduce risks.
- **Ecological and Climate-Focused Practices**
 - **Encourages biodiversity conservation** by protecting traditional seed varieties and promoting diverse cropping patterns.
 - **Promotes integrated pest management (IPM)** using natural methods instead of heavy chemical use.
 - **Supports climate-resilient agriculture** with drought-resistant and flood-tolerant crops.
- **Human and Institutional Development**
 - **Focuses on training and educating farmers** through extension services, farmer field schools, and **“lab-to-land” demonstrations**.
 - **Strengthens farmer groups, cooperatives, and self-help groups** to improve access to resources, markets, and knowledge.
 - Aims to **empower small and marginal farmers**, ensuring inclusive growth and better livelihoods.
- **Policy Support and Governance**
 - Requires **supportive government policies** like fair pricing, subsidies, and market reforms to encourage sustainable farming.
 - **Promotes public-private partnerships** for better research, infrastructure, and technology distribution.

Relevance of Evergreen Revolution in Indian Agriculture

- The Evergreen Revolution is very important for India because the country has a large and growing population, while farmland is decreasing and natural resources are under pressure.
- **Tackling Major Agricultural Problems**
 - Helps deal with issues like **overuse of groundwater and chemical fertilisers, which harm the environment**.
 - Addresses **declining soil fertility and falling productivity** over time.
 - Provides solutions to **climate-related problems** such as droughts, floods, and unpredictable rainfall.
 - Aims to **reduce inequality in agriculture**, so that small farmers also benefit, not just large ones.

- **Focus on Sustainable Growth**
 - **Encourages increasing food production** without damaging natural resources like soil and water.
 - **Promotes farming methods that are eco-friendly and long-lasting**, instead of short-term gains.
- **Climate-Resilient Agriculture**
 - Supports **the use of drought-resistant and flood-tolerant crops** to handle changing weather conditions.
 - **Improves water management** through better irrigation and watershed practices.
- **Improving Soil Health and Ecology**
 - Works towards restoring soil by using **organic methods, crop rotation, and agroforestry**.
 - Reduces dependence on harmful chemicals through natural pest control methods (IPM).
 - Helps maintain ecological balance and biodiversity.
- **Ensuring Nutritional Security**
 - Goes beyond just producing more food by **focusing on nutritious crops**.
 - Promotes biofortified and diverse crops to fight malnutrition in India.
- **Efficient Use of Resources**
 - **Encourages smart farming techniques** like drip irrigation and rainwater harvesting.
 - **Focuses on getting more output from less land and water**, which is crucial for India.
- **Improving Farmers' Livelihoods**
 - **Helps farmers by reducing input costs** and increasing income through diversified farming.
 - Provides **better access to technology, knowledge, and markets**.
 - Supports **long-term rural development and stability**.
- **Role of Vision and Government Initiatives**
 - The idea was strongly promoted by Dr. M. S. Swaminathan, who called for a sustainable **“Second Green Revolution.”** Government programs like:
 - **National Mission for Sustainable Agriculture (NMSA)**
 - **Paramparagat Krishi Vikas Yojana (PKVY) (organic farming)**
 - **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** (irrigation and water use) follow the same principles of sustainability.

Roadmap for Evergreen Revolution by NITI Aayog

- The NITI Aayog prepared a **three-year plan to improve agriculture with a focus on better farmer income and higher productivity**.
- The plan **promotes fair and remunerative prices** to ensure farmers get proper returns for their produce.
- The **National Food Security Mission (NFSM-Pulses)** aims to increase pulses production through better farming practices and improved seeds.
- Farmers are supported with **high-yielding varieties (HYVs), modern techniques, and training to boost productivity**.
- New steps like seed **hubs, breeder seed production, and minikit distribution** help improve seed quality and availability.
- The **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** focuses on using wasteland and rainfed areas through better irrigation and water management.

- The **Seed Village Programme** encourages farmers to use and produce quality seeds locally with financial support.
- **Farmers receive subsidies on seeds (50-60%)** to make high-quality seeds affordable.
- The programme also promotes **certified seed production, especially for pulses, oilseeds, and fodder crops.**
- **Financial assistance up to 75%** is provided for producing certified seeds to improve crop output.
- The **Model Contract Farming Act** aims to create fair agreements between farmers and buyers, ensuring better market access.
- These **schemes are demand-driven**, meaning they are implemented based on farmers' needs at the local level.
- State governments and agencies play an important role in **executing and managing these programs.**
- The overall goal is to achieve sustainable agricultural growth, improve farmer livelihoods, and ensure food and nutritional security in the country.

Challenges of Evergreen Revolution

- **High initial cost of adopting modern and sustainable technologies** makes it difficult for small and marginal farmers.
- **Lack of awareness and training among farmers** about eco-friendly practices and new techniques slows down adoption.
- **Limited access to quality seeds and technology**, especially in remote and rural areas.
- **Overdependence on traditional methods** makes farmers hesitant to shift to new sustainable practices.
- **Water scarcity and poor irrigation facilities** continue to affect implementation in many regions.
- **Climate change impacts** like irregular rainfall, droughts, and floods create uncertainty in farming.
- **Declining soil health** due to past excessive use of chemicals makes recovery slow and challenging.
- **Weak market linkages and lack of proper pricing systems** reduce farmers' motivation to adopt sustainable farming.
- **Fragmented landholdings** in India make it difficult to implement large-scale modern practices efficiently.
- **Insufficient institutional** support such as extension services and financial assistance in some areas.
- **Policy implementation gaps** between central plans and ground-level execution reduce effectiveness.
- **Balancing productivity with sustainability** remains a challenge, as farmers often prefer short-term gains over long-term benefits.
- **Limited research and innovation** reach at the grassroots level slows progress.
- **Socio-economic inequalities** prevent equal benefits for all farmers, especially smallholders and women farmers.

Difference Between Green Revolution and Evergreen Revolution

The Green Revolution and the Evergreen Revolution are two important approaches in the development of agriculture. The key differences between these two approaches are discussed below.

Aspect	Green Revolution	Evergreen Revolution

Main Focus	Focused on increasing crop production quickly , especially food grains.	Focuses on increasing production in a sustainable and eco-friendly way .
Approach	Relied heavily on chemical fertilizers, pesticides, and irrigation .	Uses a balanced mix of organic methods and modern science .
Impact on Environment	Led to soil degradation, water depletion, and pollution over time.	Aims at protecting and improving soil, water, and biodiversity .
Type of Farming	Encouraged monoculture (growing one crop repeatedly).	Promotes diversified farming with multiple crops and systems.
Beneficiaries	Mostly benefited large and resource-rich farmers .	Designed to support small and marginal farmers as well .
Technology Used	Based on HYV seeds, fertilizers, and irrigation systems .	Uses biotechnology, IT tools, renewable energy, and climate-smart practices .
Water Usage	Required large amounts of water , often leading to overuse.	Encourages efficient water use like drip irrigation and rainwater harvesting.
Soil Health	Often ignored long-term soil health, causing fertility loss .	Focuses on improving and maintaining soil fertility naturally .
Sustainability	More short-term productivity oriented .	Focuses on long-term sustainability and resilience .
Goal	Achieve food security (enough food production).	Achieve sustainable food and nutritional security for future generations.

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