5. Emerging Perspectives in Agriculture and Government Initiatives with Special Reference to India

SPECIFIC PROBLEMS IN INDIAN AGRICULTURE AND THEIR MANAGEMENT AND PLANNING

- **Instability:**
  - Agriculture in India is largely depends on monsoon. As a result, production of food-grains fluctuates year after a year.
  - A year of abundant output of cereals is often followed by a year of acute shortage.
- **Cropping Pattern:**
  - The crops that are grown in India are divided into two broad categories: food crops and non-food crops.
  - While the former comprise food-grains, sugarcane and other beverages, the latter includes different kinds of fibers and oil seeds.
- **Land Ownership:**
  - Inequality in land distribution is also due to the fact that there are frequent changes in land ownership in India.
  - It is believed that large parcels of land in India are owned by a- relatively small section of the rich farmers, landlords and money-lenders, while the vast majority of farmers own very little amount of land, or no land at all.

- **Sub-Division and Fragmentation of Holding:**
  - Due to the growth of population and breakdown of the joint family system, there has occurred continuous sub-division of agricultural land into smaller and smaller plots.
  - At times small farmers are forced to sell a portion of their land to repay their debt. This creates further sub-division of land.
- **Land Tenure:**
  - The land tenure system of India is also far from perfect.
  - In the pre-independence period, most tenants suffered from insecurity of tenancy. They could be evicted any time.
  - However, various steps have been taken after Independence to provide security of tenancy.
- **Conditions of Agricultural Labourers:**
  - The conditions of most agricultural laborer's in India are far from satisfactory.
  - There is also the problem of surplus labor or disguised unemployment.
  - This pushes the wage rates below the subsistence levels.

- **Irrigation:**
  - Although India is the second largest irrigated country of the world after China, only one-third of the cropped area is under irrigation.
  - Irrigation is the most important agricultural input in a tropical monsoon country like India where rainfall is uncertain, unreliable and erratic.
  - India cannot achieve sustained progress in agriculture unless and until more than half of the cropped area is brought under assured irrigation.

- **Lack of mechanization:**
  - In spite of the large-scale mechanization of agriculture in some parts of the country, most of the agricultural operations in larger parts are carried on by human hand using simple and conventional tools and implements like wooden plough, sickle, etc.
  - Little or no use of machines is made in ploughing, sowing, irrigating, thinning and pruning, weeding, harvesting threshing and transporting the crops.

- **Manures, Fertilizers and Biocides:**
  - Indian soils have been used for growing crops over thousands of years without caring much for replenishing.
  - This has led to depletion and exhaustion of soils resulting in their low productivity.
  - The average yields of almost all the crops are among the lowest in the world.
  - This is a serious problem which can be solved by using more manures and fertilizers.
- **Inadequate transport:**
  - One of the main handicaps with Indian agriculture is the lack of cheap and efficient means of transportation.
  - Even at present there are lakhs of villages which are not well connected with main roads or with market centers.
- **Agricultural Marketing:**
  - Agricultural marketing essentially involves the buying and selling of agricultural produce.
  - Its dynamic functions are of primary importance in promoting economic development.
  - In the absence of sound marketing facilities, the farmers have to depend upon local traders for the disposal of their farm produce which is sold at throw-away price.

EMPLOYMENT IN THE AGRICULTURAL SECTOR

- **Farming:**

  This includes positions such as farm manager, crop or livestock farmer, horticulturist, agronomist, and farm labourer.

- **Agricultural Engineering:**

  Opportunities exist in designing and developing farming machinery, irrigation systems, and other agricultural infrastructure. Roles may include agricultural engineer, machinery technician, or irrigation specialist.

- **Agricultural Research and Development:**

  This field involves conducting research to improve crop yield, develop new agricultural technologies, and enhance sustainable farming practices. Job titles can include agricultural researcher, plant breeder, soil scientist, and agricultural economist.

- **Food Processing and Technology:**

  This sector involves processing, packaging, and preserving agricultural products. Job roles can include food scientist, quality control technician, production supervisor, and food engineer.

- **Agricultural Education and Extension:**

  This field focuses on educating farmers and the public about agricultural practices, providing training, and disseminating agricultural knowledge. Positions may include agricultural educator, extension officer, or agricultural consultant.

- **Agricultural Policy and Advocacy:**

  These roles involve working in governmental or non-governmental organizations to shape agricultural policies, promote sustainable farming practices, and advocate for the interests of farmers. Job titles can include agricultural policy analyst, lobbyist, or agricultural advocate.

- **Agribusiness and Marketing:**
  - These roles focus on the business side of agriculture, including marketing agricultural products, managing supply chains, and analysing market trends.
  - Job options include agricultural sales representative, marketing specialist, supply chain manager, and agricultural economist.
- **Agri-tourism and Farm-to-Table:**
  - With the growing interest in farm-to-table experiences and Agri-tourism, there are opportunities to work on farms that offer tours, educational programs, and direct sales of agricultural products.
  - Positions may include farm tour guide, farm shop manager, or farm event coordinator.

MODERNIZATION IN AGRICULTURE

NUTRITIONAL AND SUSTAINABLE AGRICULTURE

- Sustainable agriculture is the practice of producing enough food to meet current needs without jeopardizing future generations' ability to meet their own needs, such as by depleting soil fertility or irreversibly harming the environment.
- It combines three major objectives: environmental health, economic profitability, and social equity.
- It is regarded as a method of farming that uses manure, rotates the crops, uses little tillage, and relies as little as possible on artificial fertilizers, pesticides, and antibiotics.
- Plants require some nutrients in large quantities called macronutrients while some in smaller quantities known as micronutrients.
- Its main aim is the maintenance of soil fertility and the supply of plant nutrients in adequate amounts.
- It is ecologically, socially and economically viable.

PRINCIPLES

- **Environmental Sustainability:**

  Sustainable environmental practices include safeguarding, recycling, replacing, and sustaining the natural resource base, which includes the land (soil), water, and animals.

- **Economic Sustainability:**

  Economic sustainability is achieved through enhancing crop rotation and soil management, which increases yields.

- **Social Sustainability:**

  Maintaining social justice and cultural unity is essential for achieving social sustainability.

GOVERNMENT INITIATIVES IN INDIA

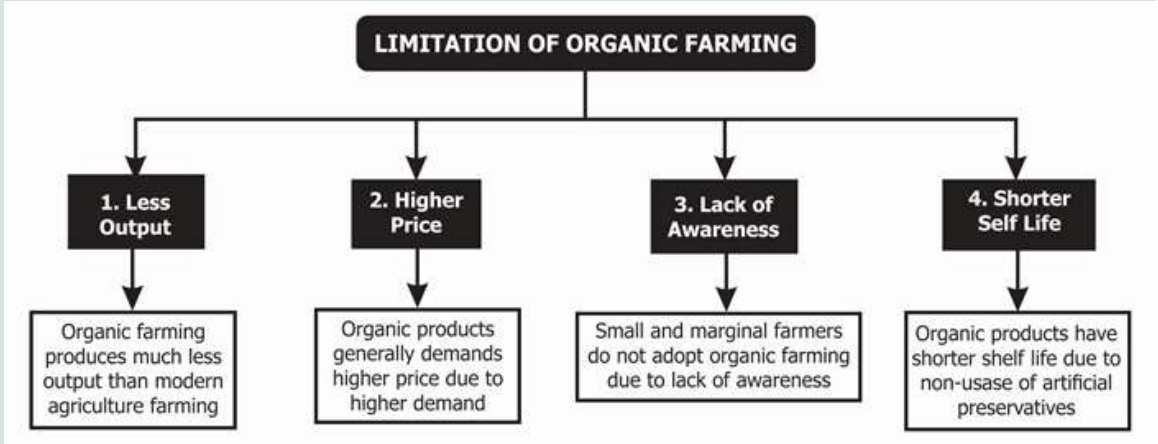
- *National Mission on Sustainable Agriculture:*
  - One of the eight objectives listed in the National Action Plan on Climate Change (NAPCC) is the National Mission on Sustainable Agriculture.
  - Its goal is to increase agricultural productivity, particularly in rainfed regions, by emphasizing integrated farming, managing soil health, and coordinating resource conservation.

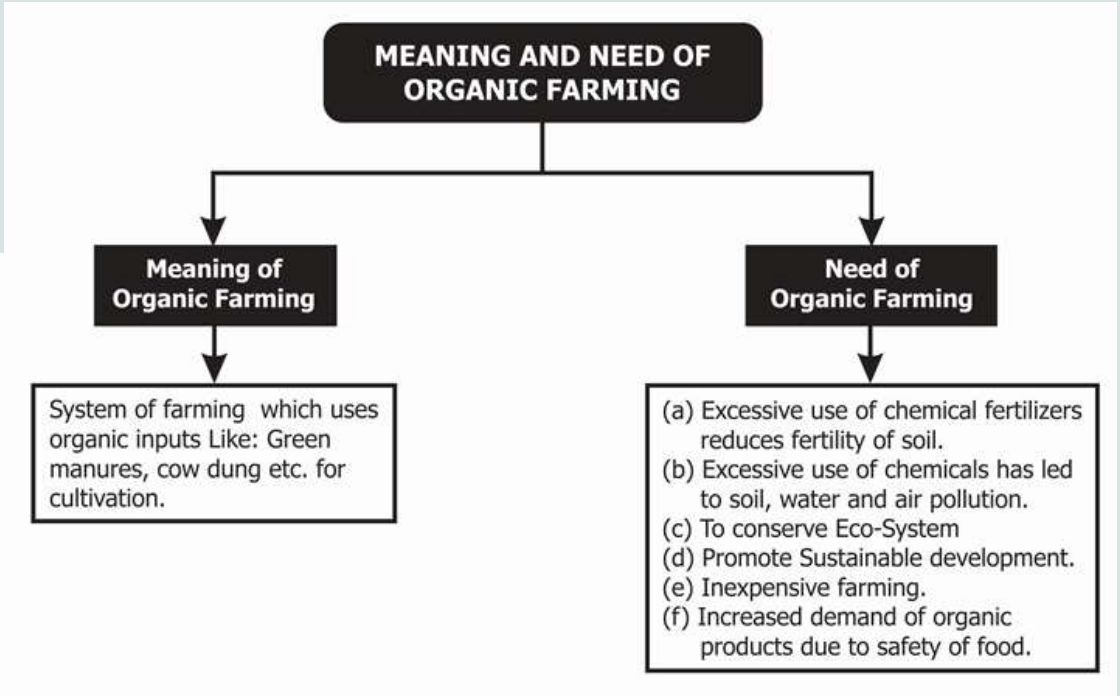
- *Paramparagat Krishi Vikas Yojana (PKVY):*
  - The PKVY program intends to encourage commercial organic production by involving a group of farmers certified in organic farming (cluster farming).

- *Network Project on Organic Farming of ICAR:*
  - The Network Project on Organic Farming of the ICAR aims to compare the performance of significant agricultural systems that are peculiar to a given place under organic and conventional farming and evaluates the agronomic effectiveness of various production methods.

ORGANIC FARMING

- Organic farming can be defined as an agricultural process that uses biological fertilizers and pest control acquired from animal or plant waste.
- Organic farming was actually initiated as an answer to the environmental sufferings caused by the use of chemical pesticides and synthetic fertilizers.
- In other words, organic farming is a new system of farming or agriculture that repairs, maintains, and improves the ecological balance.
- Organic farming is divided into two types namely,
    1. Integrated organic farming
    2. Pure organic farming





Organic Farming

Pros

- Improvement in health levels
- Avoidance of soil pollution
- Less groundwater pollution
- Protection of insects
- More sustainable
- Organic garbage can be composted and reused
- Organic food may taste better
- Better nutrition values on average
- Saving money if you grow your own organic plants
- No use of GMOs (genetically modified organisms)
- Better for our climate
- Better for the health of farmers
- More original form of farming
- Pollination may be easier

Cons

- Significant costs at the beginning
- May not be suitable for growing on a large scale
- Pest issues
- Products may be too expensive for poor people
- Regulatory standards may be hard to meet
- High certification costs
- Small farmers may go out of business
- Organic farming can be time-consuming
- Organic farming needs plenty of knowledge
- Unpleasant smell
- High variance in yield and quality

BENEFITS OF ORGANIC FARMING

1. Environment Friendly
- Promotes Sustainable development
- Does not cause harm to environment

2. Inexpensive Process
- It uses organic inputs
- Does not require expensive inputs

3. Heathiest and Tastiest Food
- Organically grown food has more nutritional value.

4. Source of Employment
- Organic farming is more Labour intensive. Hence, generates more employment

5. Generates Income
- Demand for organic food is very high
- Generated income through exports.

POLY HOUSE AGRICULTURE

- A greenhouse, often known as a polyhouse, is a building or house made of polyethylene.
- This translucent glass-like substance allows plants to thrive and flourish in controlled environmental conditions.
- Polyhouse farming allows you to cultivate a wide range of crops. Strawberries, papayas, and other fruits are among them.
- Tomatoes, spinach, onion, coriander, chilies, cauliflower, radish, capsicum, bitter gourd, and cabbage are just a few of the vegetables that may be grown with this farming method.
- The polyhouse has a protected structure and technology that continually monitors the crop's development and growth.
- Polyhouse farming allows you to maintain industry-level quality requirements.

AGRO PROCESSING

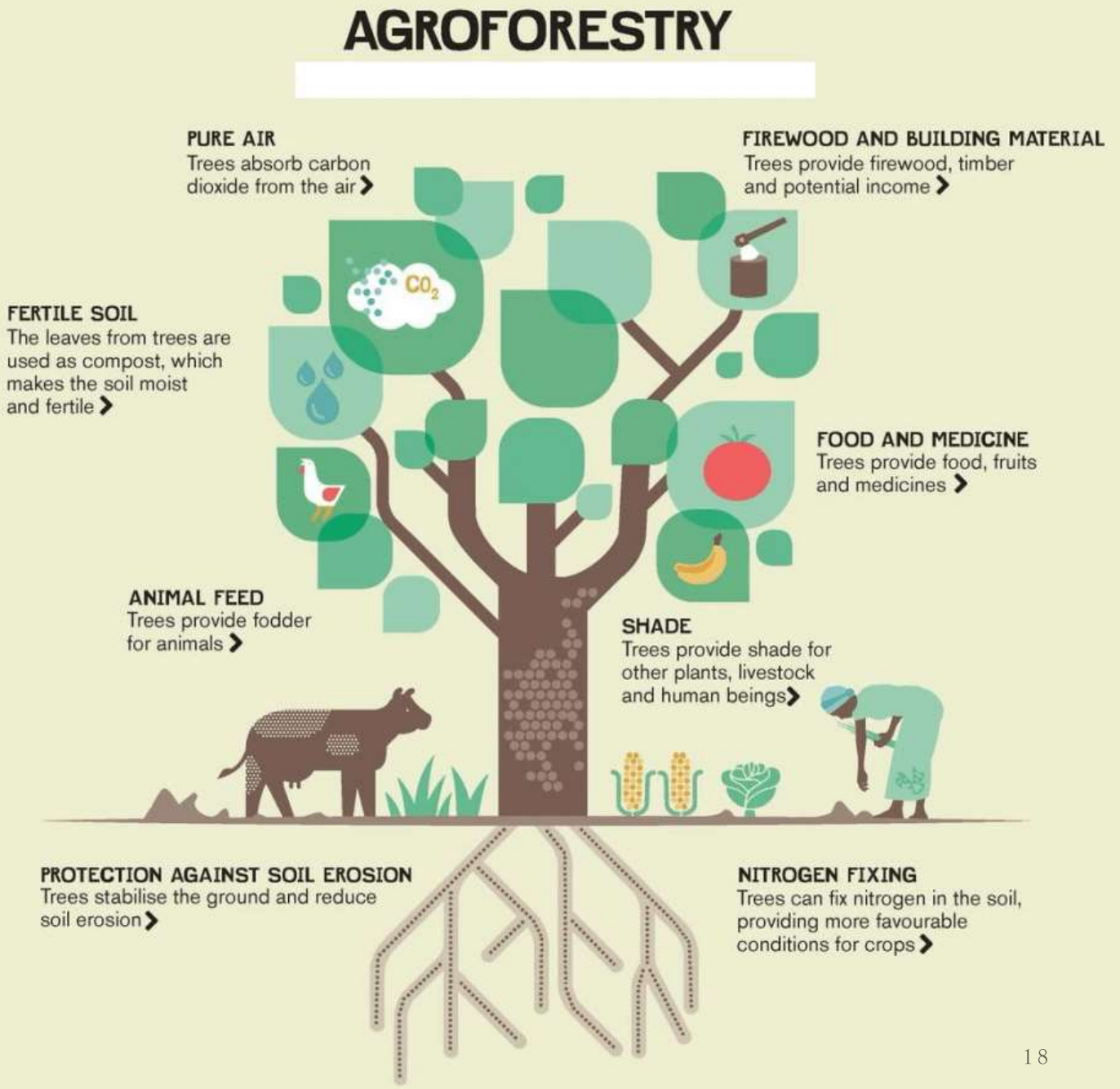
- Agro processing is defined as set of techno–economic activities, applied to all the produces, originating from agricultural farm, livestock , aquaculture sources and forests for their conservation, handling and value-addition to make them usable as food, feed, fibre, fuel or industrial raw materials.
- Agro processing sector is one of the most important sectors to reach new levels of growth and development.
- The conversion of basic food stuff to premium food quality product has not only given stability to the processed food industries but also benefited the farmers by increasing their income.
- Finished goods will be entirely different from their original raw material.
- Example-Sugar factories, bakery, solvent extraction units, textile mills, etc.

AGRO TOURISM

- Agri-tourism provides producers with an extra source of income as well as a channel for direct marketing to consumers.
- It boosts the tourist business by boosting the number of visitors and the length of their stay in a certain location.
- Agri-tourism has the ability to improve local tax bases and create new job possibilities for communities.
- Agri-tourism also gives public educational opportunities, aids in the preservation of agricultural areas, and allows states to build corporate businesses.
- Agri-tourism may be described as the convergence of tourism and agriculture.
- Agri-tourism is a type of commercial operation.
- It combines agricultural production and processing with tourism in order to attract tourists to a farm, ranch, or other agricultural venture for the goal of entertainment and education and in return it provides revenue to the owner of a farm or company.

AGRO FORESTRY

- Agroforestry is a type of land management where trees or shrubs are planted around or pastureland.
- Agroforestry activities can boost soil and vegetation biomass carbon reserves.
- Agroforestry can help mitigate climate change while also providing adaptive advantages.
- *India's National Agroforestry Policy* is a detailed policy framework aimed at improving agricultural livelihoods and minimizing climate change by boosting agricultural production.
- The initiative was announced by the Indian government in *February 2014* at the World Congress on Agroforestry in New Delhi.



Thank You