



Food Security and Growing Population in India

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Food security is crucial for a healthy life, and the United Nations estimates that the world will have 8.5 billion people by 2030, 9.7 billion by 2050, and 11.2 billion by the end of the century. The Malthusian theory of population suggests that population growth will outpace food availability, leading to a decline in food availability per person. India's population growth has outpaced its agricultural sector, requiring over 4.5% annual increase in agriculture and 7% annual growth in the economy to maintain food security. Solutions to population explosion and food security include promoting sustainable agriculture, investing in social safety nets, fostering economic development, and enhancing food delivery infrastructure. To combat inequality and poverty, steps like job and education opportunities, progressive tax laws, population management strategies, and climate change mitigation are essential. The Vision 2020 strategy focuses on relevance of research, diversified agriculture, and sustainability of the environment. These strategies aim to promote equity, decentralization, and sustainable practices in agriculture, ensuring food security for all.

Introduction

According to the Food and Agriculture Organization (FAO), food security is achieved "when all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life." This concept encompasses the following dimensions: availability, which refers to the amount of food produced domestically, imported food, and stock kept in government granaries; accessibility, which denotes that food is available to all without discrimination; and affordability, which denotes having enough money to purchase sufficient, safe, and nutritious food to meet one's personal needs.

Food security and growing population

- The United Nations estimates that there are presently 7.8 billion people on the planet.
- It is projected that by 2030, there will be 8.5 billion people on our planet, 9.7 billion by 2050, and 11.2 billion by the end of the century.
- The surge in demand for resources like water and food is linked to this rapid expansion.
- The unsustainable effects of food production on the environment include soil health degradation, climate change, and the fast depletion of arable land.

Malthusian Theory of Population

- Thomas Robert Malthus was the one who first put forth the hypothesis.

- The hypothesis of exponential population increase and arithmetic growth in the food supply is known as the Malthusian theory of population.
- Preventive and positive inspections, according to him, can achieve a balance between population increase and food availability.
- The population grows faster than the food supply. In other words, there won't be as much food available in a few years.

Impact of population explosion on food security

- After independence, India's population growth outpaced the expansion of its agricultural sector.
- Over 4.5% annual increase in agriculture and over 7% annual growth in the whole economy are needed to maintain a balance between population and food.
- Currently, the yearly growth rate in agriculture is a significantly lower 3.5 percent.
- The average holding size has reduced to less than 1.5 hectares (1.41 ha in 1995–96; 1.08 ha in 2015–16) as a result of the impact of the fast population expansion.
- The amount of food available per person has been steadily declining.

Solutions to Population Explosion and Food Security Issues

- Encourage the use of agro ecological techniques and safeguard important ecosystems as ways to advance sustainable agriculture.
- Investing in social safety nets, fostering economic development, and enhancing food delivery infrastructure are some ways to increase access to food.
- In order to combat inequality and poverty, steps like encouraging job and education possibilities and enacting progressive tax laws can be taken.
- Population management strategies: Two-child policy
- Identify and mitigate climate change by implementing strategies including cutting greenhouse gas emissions, endorsing climate-resilient farming practices, and allocating resources towards renewable energy sources.

Management strategy in agriculture

1. **Relevance of Research:** The use of a bottom-up strategy to research planning and prioritizing would promote equity, a participative approach to research, decentralization of agricultural research management, and the elimination of regional disparities in institutional infrastructure and human resources.
2. **Diversified Agriculture:** Focus on horticulture, livestock, fisheries, and agroforestry; Pay particular attention to post-production technology, value-addition, agri-business management, and trade efficiency; Develop a research system with resources that add value for investment and provide sufficient social benefits per unit of research inputs; Achieve precision farming and small-scale farm mechanization; • Ensure that women in agriculture are empowered technologically
3. **Sustainability of the Environment:** One area of focus for system-based multidisciplinary study is the preservation and efficient use of life-support systems, such as soil, water, plants, animals, and the atmosphere. Other areas of concern include organic recycling, waste management, and byproduct usage, as well as addressing global climate change.
4. **Resource:** Instruction in cutting-edge sciences, technology, and agricultural research administration Improvement of vocational skills; Focus on manpower planning; Partnership; Harmony in research initiatives between national and international institutions and agencies; Public-private sector connections; and The productive

involvement of stakeholders (Farmers' Associations, NGOs, Public and Private sectors, etc.).

- 5. Infrastructure:** Establish effective infrastructure for agricultural education, research, and extension.

Conclusion

Food security is achieved when all people have access to sufficient, safe, and nutritious food to meet their dietary needs and preferences for an active and healthy life. The United Nations estimates that the world will have 8.5 billion people by 2030, 9.7 billion by 2050, and 11.2 billion by the end of the century. The Malthusian theory of population suggests that preventive and positive inspections can balance population growth and food availability. However, India's population growth outpaced its agricultural sector, requiring over 4.5% annual increase in agriculture and 7% annual growth in the economy to maintain food security. Solutions to population explosion and food security issues include promoting sustainable agriculture, investing in social safety nets, fostering economic development, and enhancing food delivery infrastructure. To combat inequality and poverty, steps like job and education opportunities and progressive tax laws can be taken. Population management strategies, such as the Two-child policy, can help address climate change. The Vision -2020 strategy includes a bottom-up approach to research planning, diversified agriculture, sustainability of the environment, resource education, and infrastructure for agricultural education, research, and extension.

References

1. Official website of Ministry of Agriculture & Farmers' Welfare (<https://agriwelfare.gov.in>)