

SUSTAINABLE DEVELOPMENT IN INDIAN AGRICULTURE

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Abstract

Sustainable development is a process of change in which exploitation of resources, the direction of interests, orientation of technological development and the institution change are in harmony and enhanced both current and future potential to meet human needs and aspirations. Sustainable agriculture is the system of raising crops for greater human utility through utilization of resources with better efficiency with out disturbing, imbalancing or polluting the environment. India has achieved green revolution due to the increased use of high yielding variety seeds. But intensive use of land without taking enough care to maintain its productive capacity leads to loss of top solid due to erosion, loss of organic matter, loss of poras soil structure and water logging and build up of toxic salts and chemicals. Over use of pesticides caused localized health hazards. Indiscriminate use of modem technology may endanger ecological security and imbalance the environment.

The paper highlights the sustainability in Indian agriculture through the prevention of diversification of land suitable for farming to non farm uses, integrated forest management, through preserving genetic resources and management of marine resources. To achieve sustainable agricultural development in India some policy measure are suggested.

Keywords: *Sustainable development, technological development, Indian agriculture, agricultural development, investment on irrigation, green revolution*

Introduction

Sustainable development means, development at present meets the needs of the present generation without compromising the ability of future generation to meet their own demand.

Sustainability in agriculture means the land and resources that use for agriculture today should be handed over to the future generations in a sustainable form so that they can continue to practice agriculture and have food security. This means that we have to use lands, water resources, etc in such a manner that the future generations are also will be able to have sustainable development.

Sustainable agriculture is the system of raising crops for greater human utility through utilization of resources with better efficiency without disturbing imbalancing or polluting the environment. Sustainable agriculture is ecologically sound, economically viable, socially just and human.

Status of Agricultural Development in India

After independence, India has achieved phenomenal increase 10 agricultural production. In India, the expected GDP growth rate of 9.3 percent registered in the first quarter of 2007-2008 is partly attributed to a modest revival in agriculture. According to

CSO agriculture grew by 3.8 percent compared to 2.8 percent a year ago.

India is expected to be the most populous of the world by 2050 if the present growth rate perpetuates. In order to meet the growing needs of the expanding population, it is compelled to produce more than 210 million tonnes of food grains per year.

India has not only met its domestic requirement but is also exporting to other countries. It also has a respectable buffer stock of about 40 million tonnes of food grains. The achievement of green revolution was due to the increase in yields through the increased use of high yielding variety seeds. But intensive use of land without taking enough care to maintain its productive capacity leads to loss of top soil due to erosion, loss of Organic matter, loss of porous soil structure and water logging and build up of toxic salts and chemicals. Deficiencies in micro nutrients such as zinc, iron, and manganese have also increased in Indian soil. Overuse of pesticides have caused localized health hazards. Indiscriminate use of modern agriculture technology may endanger ecological security and imbalance the environment.

Both farmers and government have made huge investment on irrigation. These investment have not only brought inadequate results but also the use of its improper management system has led to enormous water losses and problems such as soil erosion and compaction, water salinity, acidity and alkalinity.

Though we have more than 100 million holdings hardly 4 percent of the total area is under pasture and grasses. The area under forest, pasture and grazing land has considerably declined over the times. The present social forestry programmes often have tended to be government foresting for the people rather than people own foresting for meeting their needs.

Thus Indian agriculture has problems related to sustainability viz. Marketed deterioration of renewable resources and of environment and (ii) levelling of agricultural yield despite increasing doses of new inputs and high yielding technology.

Improving the Sustain Ability in Indian Agriculture

1. Agriculture

Diversification of land suitable for farming to non-farm uses should be prevented by legislation. The soil with diminishing biological potentials should be improved through the efficient adoption of the principle of restoration of ecology. Uncultivated land must be revegetated. Efforts must be taken towards arresting soil erosion, conservation of water and biological diversity. The consumption of mineral fertilizers and chemical pesticides must be reduced. The integrated pest management system involving crop rotation, green water potentials must be effectively used to save research and training to achieve sustainability in agriculture, think nationally but plan and act locally.

2. Forest

A Scheme of integrated forest management which can take care of the triple needs of conservation, community needs and commercial needs will have to be developed.

3. Protecting Environment

Measures such as removal of subsidies on pesticides, development of pest resistant varieties and implementation of integrated pest management must be adopted by the Government.

4. Preserving Genetic Resources

A special programme is necessary for the collection, conservation, evaluation and enhancement of crop genetic resources directly related to the promotion of sustainable advances in crop productivity.

5. Other Needs

a) Removing subsidies which encourage excessive use of fossil fuels, irrigation water pesticides and excessive logging.

b) Acceleration of provision of sanitation and clean water, agricultural extension credit and research.

6. Aquaculture

Use of eco-system approach to the management of marine resources. No single satisfactory indicator is available to study the short run progress towards sustainable agricultural development, because it involves value judgements such as the level of genetic diversity necessary to ensure crop security and the level of soil microbiological activity necessary for the health of the soil. However indicators like soil organic matter can be used for long-term measurements. To achieve sustainable agriculture development in India the following policy measures are suggested.

Policy Measures

1. Declare a National policy for sustainable agriculture.
2. Establish a National strategy for integrated pest management.
3. Prioritize research into sustainable agriculture.
4. Grant farmers appropriate property right.
5. Direct subsidies and grants towards sustainable technologies.
6. Link: support payments to resources conserving practices.
7. Penalize polluters.
8. Provide better information for the consumers and the public.
9. Encourage the adoption of natural resource accounting.
10. Establish appropriate standards and regulations for pesticides.
11. Support farmers' training schools.

12. Strengthen the capacities of NGOs to scale up.
13. Rethink: the project culture.
14. Scientific method of cultivation with best inputs including credit must be provided.

Conclusion

For achieving success in promoting sustainable development in agriculture attention must be focused on land, water energy, nutrient supply, genetic diversity, pest management, systems approach and location of specific research and development.

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