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Sustainable Development in India with Reference to Agricultural Sector

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ABSTRACT

India has been witnessing a blinding pace of growth and development in recent times. There is talk of the country leapfrogging into the league of developed nations sooner than later. But this growth has raised concerns from sundry quarters as regards its basic texture and health. Experts are now calling for "sustainable development" and the term has gained currency in the last few years. In spite of fast growth in various sectors, agriculture remains the backbone of the Indian economy. This paper attempts to tackle and explore the issue of sustainable development in agriculture in India. Further it aims to compare the sustainable agriculture system with the traditional system and the current system in practice, across the dimensions of ecological, economic and social sustainability .It also tries to give long term solutions to solve the problems plaguing the system so that sustainable practices can be promoted and practiced. Keywords: Sustainable Development, Agriculture, Ecological Sustainability, Economic Sustainability, Social Sustainability

KEYWORDS: Sustainable Development, Agricultural Sector, Social Sustainability, Ecological Sustainability

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INTRODUCTION

Agriculture occupies the most important position in Indian economy, as it is one of the largest private enterprises in India, which continues to dominate the change in economy through its links of various sectors of production and markets. The role of agricultural sector in Indian economy can be seen through its contribution to GDP (Gross domestic Product) and employment. This sector also contributes significantly to sustainable economic development of the country.

The sustainable agriculture development of any country depends upon the judicious mix of their available natural resources. In fact agriculture determine the fate of a country like India where about two-thirds of the population still lives in rural India with agriculture as its livelihood, in spite of the increasing urbanization that has been taking place since many decades. Therefore if agriculture goes wrong, it will be really bad for the economy as the falling of agricultural growth not only affects employment but GDP too (thus increasing poverty)[1].

The larger objective for the improvement of agriculture sector can be realized through rapid growth of agriculture which depends upon increasing the area of cultivation, cropping intensity and productivity. But for a country like India, increasing productivity is more important than the rest of the two. This is simply because of increasing urbanization, industrialization and the limited land size of the country.

The productivity can be increased by two ways. First, increasing output by efficient utilization of available resources. Second, increasing output by variation of input. The first method is better with respect to productivity and sustainability. But due to increasing population, this method can not provide a permanent solution. Thus we can go for the second method which may potentially cause environmental degradation in the economy and affect its sustainability[2].
Therefore there is need to tackle the issues related to sustainable agriculture development.

Sustainable Agriculture Development

The issues of sustainable development can be discussed under three broad types of farming systems viz. traditional production system, modern agriculture system and sustainable agriculture system. Further we can compare them across three dimensions, ecological, economic and social sustainability.

Ecological Sustainability

Most of the traditional and conventional farm practices are not ecologically sustainable. They misuse natural resources, reducing soil fertility causing soil erosion and contributing to global climatic change. But sustainable agriculture has some major advantages over traditional practices:[3]

Soil Fertility: Continuous fall in soil fertility is one of the major problems in many parts of India. Sustainable agriculture improves fertility and soil structure.

Water: Irrigation is the biggest consumer of fresh water, and fertilizer and pesticides contaminate both surface and ground water. Sustainable agriculture increase the organic matter content of the top soil, thus raising its ability to retain and store water that falls as rain.

Biodiversity: Sustainable agriculture practices involve mixed cropping, thus increasing the diversity of crops produced and raising the diversity of insects and other animals and plants in and around the fields.

Health & Pollution: Chemicals, pesticides and fertilizers badly affect the local ecology as well as the population. Indiscriminate use of pesticides, improper storage etc. may lead to health problems. Sustainable agriculture reduces the use of hazardous chemical and control pests.

Land use Pattern: Over-exploitation of land causes erosion, land slides and flooding clogs irrigation channels and reduces the arability of the land. Sustainable agriculture avoids these problems by improving productivity, conserving the soil etc.

Climate: Conventional agriculture contributes to the production of green house gases in various ways like reducing the amount of carbon stored in the soil and in vegetation, through the production of Methane in irrigated field and production of artificial fertilizers etc. By adopting sustainable agriculture system, one can easily overcome this problem.

Economic Sustainability: For agriculture to be sustainable it should be economically viable over the long term. Conventional agriculture involves more economic risk than sustainable agriculture in the

long term. Sometimes governments are inclined to view export-oriented production systems as more important than supply domestic demands. This is not right. Focusing on exports alone involves hidden costs: in transport, in assuring local food security, etc. Policies should treat domestic demand and in particular food security as equally important to the visible trade balance. It is a popular misconception that specific commodities promise high economic returns[3,4].

But market production implies certain risks as markets are fickle and change quickly. Cheap foreign food may sweep into the national market, leaving Indian farmers without a market. As a World Trade Organization signatory, the Indian government is under pressure to deregulate and open its economy to the world market so it cannot protect its farmers behind tariff walls. The main source of employment for rural people is farming.

Trends towards specialization and mechanization may increase narrowly measured "efficiency", but they reduce employment on the land. The welfare costs of unemployment must be taken into account when designing national agricultural support programs. Sustainable agriculture, with its emphasis on small-scale, labor-intensive activities, helps overcome these problems.

Social Sustainability

Social sustainability in farming techniques is related to the ideas of social acceptability and justice. Development can not be sustainable unless it reduces poverty. The government must find ways to enable the rural poor to benefit from agriculture development. Social injustice is where some section of the society is neglected from development opportunities. But having robust system of social sustainability can bridge the gap between “haves” and „have-nots”. Many new technologies fail to become applicable in agriculture sector due to lack of acceptability by the local society[5].

Sustainable agriculture practices are useful because it is based on local social customs, traditions and norms etc. Because of being familiar the local people are more likely to accept and adopt them .Moreover, sustainable agriculture practices are based on traditional know-how and local innovation. Local people have the knowledge about their environment crops and livestock.

Traditional agriculture is more gender oriented, where woman bear the heaviest burden in terms of labor. Sustainable agriculture ensures that the burden and benefits are shared equitably between man and woman. While conventional farming focuses on a few commodities, sustainable agriculture improves food security by improving quality and nutritional value of food, and also by producing bigger range of products throughout the years[6].

Traditional farming was also driven by the caste and wealth oriented people. The rich and higher castes benefitted more, while the poor and lower castes are left out. Sustainable agriculture attempts to ensure equal participation which recognizes the voice and speech of every people.

INDIAN AGRICULTURE SECTOR

Agriculture is one of the most preeminent sectors of the Indian economy. It is the source of livelihood for almost two third of the rural population workforce in the country residing in rural areas. Indian agriculture provides employment to 65% of the labor force, accounts for about 27% of GDP, contributes 21% of total exports and raw material to several industries. The livestock sector contributes an estimated 8.4% to the country GDP and 35.85% of the agriculture output. In India about 75% people are living in rural areas and are still dependent on agriculture, about 43% of India‟s geographical area is used for agriculture activities[7]. The estimated food grain production is about 211.17 metric tons in the country. India‟s position in world‟s agriculture is given in the table below:

Table 1(Source NIC)

Total Area	*7th*
Irrigated Area	*1st*
Population	*2nd*
Economically active population	*2nd*
Total Cereals	*3rd*
Wheat production	*2nd*
Rice Production	*2nd*
Milk	*1st*
Livestock (Buffaloes, Castles)	*1st*
Fish	*7th*
Production of Inland Fish	*2nd*

The total geographical area comes under the agriculture are 329 MH out of which 265MH represent varying degree of potential production. The net sown area is 143 MH out of which 56MH are net irrigated area in the country. India is a vast country with variety of land forms, climate, geology, physiographic and vegetation[8]. India is endowed with regional diversities for its uneven economic and agriculture development on account of

- Agro-Climate Environment.
- Agro-Ecological Regions.
- Agro-Edaphic regions.
- Natural resource Development.
- Human Resource Development.
- Level of Investment.
- Technological Development.

AGRICULTURAL PRODUCTION IN INDIA

Indian Agriculture production in most part of the country is closely related to the optimum use of available natural and human resources of the country. Therefore riding on the back of agro climatic condition and rich natural resource base, India today has become the world‟s largest producer of numerous commodities.

The country is a leading producer of coconuts, mangoes, milk, bananas, dairy products, ginger, turmeric, cashew nut, pulses and black pepper[9]. It is also the second largest producer of rice, wheat, sugar, cotton, fruit and vegetables. Indian agriculture production is closely related to sufficient and wise water management practices. Most of the agriculture practices in India confined to a few monsoon months.

During the monsoon season, India is usually endowed with generous rainfall; although not infrequently, this bountiful monsoon turns into terror, causing uncontrollable floods in different parts of the country and ultimately affecting agriculture production.

MILE STONES IN INDIAN AGRICULTURE

Policy makers and planners, concerned about national independence, security and political stability realized that self sufficiency in food production was an absolute pre requisite for sustainable agriculture development. The policies considered to be a mile stone in agriculture development of the country are[10]:

1. Green Revolution (1968): This revolution includes packages of programs like, Intensive Agriculture District Program (IADP) which eventually led to the Green Revolution. The National Bank for Agriculture Development (NABARD) was set up. The emphasis was on high yielding varieties along with other modern inputs like chemicals, fertilizers, pesticides and mechanization and also on how productivity could be raised in agriculture sector without having substantial influences on increasing area under cultivation.

2. Ever Green Revolution (1996): Father of India‟s Green revolution, Prof. M.S. Swaminathan claims to be pro-woman, pro-nature and pro-poor. The conservation of biodiversity, maintaining soil fertility, increasing the climate resistance of food crops combined with better and more education and technological innovation are the key to the ever green revolution. The main aim of this revolution is to produce more using less land, less water and less fertilizer. The recent visit of US President in New Delhi in March 2010, announced a new partnership with India in an agriculture sector for an evergreen revolution to achieve global food security.

3. White and Yellow Revolution: The Green Revolution generated a mood of self confidence in our agriculture capability, which led to the next phase characterized by the Technology Mission. Under this approach, the focus was on conservation, consumption, and commerce. An end-to-end approach was introduced involving attention to all links in the production-consumption chain, owing to which progress was steady and sometimes striking as in the case of milk and egg production.

4. Blue Revolution (Water, Fish): It has been brought about in part by a trend towards healthier eating which has increased the consumption of Fish. Additionally the supply of wild fish is declining. This revolution could give landless laborers and women a great opportunity for employment which empowered them.

5. Bio-Technology Revolution: India is well positioned to emerge as a significant player in the Global Bio-tech Arena. Agriculture biotech in India has immense growth opportunity and the country could become the fore runner in the transgenic production rise and several other genetically engineered vegetables by 2010.In agri-biotech sector India has been growing at a blinding rate of 30% since the last five years. The food processing sectors which is considered to be prime drivers of Indian economy is currently growing at 13.5%.

IMPACT OF ECONOMIC REFORM ON INDIAN AGRICULTURE

The Indian agriculture sector has been undergoing economic reform since 1990s in a move to liberalize the economy to benefit from globalization. India, which is one of the largest agriculture based economies, remained closed until the early 1990s. In 1991, the new economic policies stressed both external sector reforms in the exchange rate, trade and foreign investment policies and internal reform in areas such as industrial policies, price and distribution controls, and fiscal restructuring in the financial and public sector.

India's economic reforms were initiated in June 1991, but it was observed that the expected increase in exports due to liberalization did not occur. In addition, the agriculture sector‟s output growth decreased during 1992-1993 to 1998-1999. The reason behind this was the decline in the environmental quality of land which reduced the marginal productivity of the modern inputs. Agriculture sector is the mainstay of the Indian economy around which socio-economic privileges and deprivation revolve, and any change in its structure is likely to have a corresponding impact on the existing pattern of social equality.

No strategy of economic reform can succeed without sustained and broad based agriculture development, which is critical for raising living standards, alleviating poverty, assuring food security, making substantial contribution to the national economic growth. Since agriculture continues to be a tradable sector, this economic liberalization and reform policy has a far reaching effect on

- Agricultural exports and imports
- Investment in new technologies
- Pattern of agricultural growth

- Agricultural income and employment
- Agricultural price
- Food security

Reduction in Commercial Bank credit to agriculture, in lieu of this reforms process and recommendations of Khusro Committee and Narasimham Committee resulted in fall in farm investment and impaired growth. Liberalization of agriculture and open market operations enhance competition in "resource use" and "marketing of agriculture production", which forces the small and marginal farmers to resort to " distress sale" and seek off farm employment for supplementing income.

ISSUES & CHALLENGES

The central issue in agricultural development is the necessity to improve productivity, generate employment and provide a source of income to the poor segments of population. Studies by FAO have shown that small farms in developing countries contribute around 30-35% to the total agricultural output. The pace of adoption of modern technology in India is slow and the farming practices are too haphazard and unscientific. Some of the basic issues for development of Indian agriculture sector are revitalization of cooperative institutions, improving rural credits, research, human resource development, trade and export promotion, land reforms and education.

FUTURE PROSPECTS AND SOLUTION FOR INDIA

Agriculture sector is an important contributor to the Indian economy around which socio-economic privileges and deprivations revolve and any change in its structure is likely to have a corresponding impact on the existing pattern of social equity. Sustainable agricultural production depends upon the efficient use of soil, water, livestock, plant genetics, forest, climate, rainfall and topology.

Indian agriculture faces resource constraints, infrastructural constraints, institutional constraints, technological constraints and policy induced limitations. Sustainable development is the management and conservation of the natural resource base and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for the present and future generations.

Such sustainable development (in the agriculture, forestry and fisheries sector) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable. So, to achieve sustainable agriculture development the optimum use of natural resources, human resources, capital resources and technical resources are required. In India the crop yield is heavily dependent on rain which is the main reason for the declining growth rate of agriculture sector. These uncertainties hit the small farmers and laborers worst which are usually leading a hand to mouth life. Therefore something must be done to support farmers and sufficient amount of water and electricity must be supplied to them as they feel insecure and continue to die of drought, flood, and fire. India is the second largest country of the world in terms of population; it should realize it is a great resource for the country.

India has a huge number of idle people. There is a need to find ways to explore their talent and make the numbers contribute towards the growth. Especially in agriculture passive unemployment can be noticed. The sustainable development in India can also be achieved by full utilization of human resources.

A large part of poor population of the country is engaged in agriculture, unless we increase their living standard, overall growth of this country is not possible. If we keep ignoring the poor, this disparity will keep on increasing between classes. Debt traps in country are forcing farmers to commit suicides. People are migrating towards city with the hope of better livelihood but it is also increasing the slum population in cities. Therefore rural population must be given employment in their areas and a chance to prosper. India has been carrying the tag of “developing” country for quite long now; for making the move towards “developed” countries we must shed this huge dependence on agriculture sector.

CONCLUSION

The agricultural technology needs to move from production oriented to profit oriented sustainable farming. The conditions for development of sustainable agriculture are becoming more and more favorable. New opportunities are opening the eyes of farmers, development workers, researchers and policy makers like agri related businesses, dairy farming, poultry farming castle farming and fisheries. Now the time is to see the potential and importance of these practices not only for their economic interest but also as the basis for further intensification and ecological sustainability. To

conclude, a small-farm management to improve productivity, profitability and sustainability of the farming system will go a long way to ensure all round sustainability.

REFERENCES

1. Bhattacharya B.B., *"Trade Liberalization and Agricultural Price Policy in India since Reforms", Indian Journal of Agricultural Economics,* 2003; *58,(3): 144- 48.*
2. Braun Joachim von, Gulati A., Hazell P., Mark W. Rosegrant and Ruel, Marie, *Indian Agriculture and Rural Development- Strategic Issues and Reform Options.* 2005.
3. Dev S. Mahendra , *Inclusive Growth in India, Agriculture, Poverty and Human Development, Oxford University Press, New Delhi,* 2008.
4. Evenson R.E.; Pray C. and Rosegrant M.W., *Agricultural Research and Productivity Growth in India. Research Report No 109. International Food Policy Research Institute, Washington, D.C.* 1999.
5. GOI, *Report of the Steering Committee on Agriculture for 11th Five Year Plan, Yojana Bhavan, New Delhi.* 2007.
6. GOI, *Agricultural Strategy for the Eleventh Plan: Concerns and Way ahead, Yojana Bhavan, New Delhi.* 2007a.
7. Gulati Ashok, *"Emerging Trends in Indian Agriculture: What can we learn from these?" Prof. Dayanath Jha Memorial Lecture, National Centre for Agricultural Economics and Policy Research, New Delhi.* 2009.
8. Gulati Ashok., Meinzen-Dick. Ruth, and Raju K.V., *Institutional Reforms in India Irrigation, Sage Publication.* 2005.
9. Raju K.V., *"Productivity and Sustainability in Agriculture: An Application of LPP Model"* International Journal of Management Research and Technology, *July-Dec 2008; 2(2): 245 -52.*
10. *K*umar Praduman and Mittal Surabhi. *"Agricultural Productivity Trends in India: Sustainability Issues" Agricultural Economic Research Review.* 2006; *19:71-88.*