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**REVIEW ARTICLE**

**SUSTAINABLE RURAL DEVELOPMENT THROUGH AGRICULTURE: AN ANSWER TO ECONOMIC DEVELOPMENT IN INDIA**

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**ABSTRACT**

Rural Development is a process of changes carried out deliberately for the uplift of the Rural People. It is generally refers to the process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas. Changes in global production networks and increased urbanization have changed the character of rural areas. Increasingly tourism, niche manufacturers, and recreation have replaced resource extraction and agriculture as dominant economic drivers. Agriculture, with its allied sectors, is unquestionably the largest livelihood provider in India, more so in the vast rural areas. Indian agriculture and allied activities have witnessed a green revolution, a white revolution, a yellow revolution and a blue revolution. The sector accounts for 18 per cent of India's gross domestic product (GDP) and employs just a little less than 50 per cent of the country's workforce. This sector has made considerable progress in the last few decades with its large resources of land, water and sunshine. Sustainable agriculture, in terms of food security, rural employment, and environmentally sustainable technologies such as soil conservation, sustainable natural resource management and biodiversity protection, are essential for holistic rural development. This paper mainly focuses on the need for rural communities to approach development from a wider perspective which has created more focus on a broad range of agricultural developmental goals. Education, entrepreneurship, physical infrastructure, and social infrastructure all play an important role in developing agricultural regions. Rural development is also characterized by its emphasis on locally produced economic development strategies. What is needed in this hour is not to go on introducing new and ongoing schemas for rural agricultural development and creating awareness among the people about the related problems. For this it is essential that the public, private and civil sectors must work together coherently and efficiently for sustainable rural development by improving Agricultural sector of the county.

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**INTRODUCTION**

The Indian agriculture sector accounts for 18 per cent of India's Gross Domestic Product (GDP) and employs just a little less than 50 per cent of the country's workforce. This sector has made considerable progress in the last few decades with its large resources of land, water and sunshine. India is presently the world's largest producer of pulses and the second largest producer of rice and wheat. The country is also the largest producer, consumer and exporter of spices and spice products in the world and overall in farm and agriculture outputs, it is ranked second. From canned, dairy, processed, frozen food to fisheries, meat, poultry, and food grains, the Indian agro industry has plenty of areas to choose for business. The Department of Agriculture and Cooperation under the Ministry Of Agriculture is the nodal organisation responsible for the development of the agriculture sector in India. Under it, several other bodies such as the National Dairy Development Board

(NDDB) work for the development of the other allied agricultural sectors. Rural development generally refers to the process of improving the quality of life and economic well-being of people living in relatively isolated and sparsely populated areas. Rural development has traditionally centered on the exploitation of land-intensive natural resources such as agriculture and forestry. However, changes in global production networks and increased urbanization have changed the character of rural areas. Increasingly tourism, niche manufacturers, and recreation have replaced resource extraction and agriculture as dominant economic drivers. The need for rural communities to approach development from a wider perspective has created more focus on a broad range of development goals rather than merely creating incentive for agricultural or resource based businesses. Education, entrepreneurship, physical infrastructure, and social infrastructure all play an important role in developing rural regions. Rural development is also characterized by its emphasis on locally produced economic development strategies. In contrast to urban regions, which have many similarities, rural areas are highly distinctive from one another.

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## Literature Review

A few empirical studies exist in the literature, which have examined the relative performance of Agricultural and rural market in India. The data gives the information from the previous research done on the performance of Agricultural and Rural development in India. Vijay Paul Sharma Discuss in his paper on India's Agrarian Crisis and Smallholder Producers' Participation in New Farm Supply Chain Initiatives: A Case Study of Contract Farming it gives detail analysis of socio-economic implications of corporate-led initiatives in agriculture (mainly contract farming). Juha I Uitto discuss on rural development: participation and diversity for sustainability this paper review about the global population trends that put pressure on use of labor, water and land resources. John Meyer, of TANGO International, conducted a study with the gracious support of IFAD staff in Rome, Delhi, Shillong and Tura. This case study was carried out as part of a larger review on "Sustainability of rural development projects. This study is designed to examine sustainability through these lenses: political, social, institutional, economic/financial and environmental sustainability, as well as the degree of ownership felt by beneficiaries.

## Research Statement

Changes in global production networks and increased urbanization have changed the character of rural areas. Increasingly tourism, niche manufacturers, and recreation have replaced resource extraction and agriculture as dominant economic drivers. Therefore the statement of Problem for this research would be Sustainable Rural development through Agriculture as an Answer to Economic Development in India.

## Research Methodology

### Objectives of the study

- To explore the Agricultural and Rural Market in India.
- To know the importance of Agriculture in Rural Development.
- To study the challenges for Promoting Sustainable Agriculture and Rural Development.
- To Study the present and future Indicators of Sustainable Agriculture and Rural Development.

## Research Data

### Secondary Data

- The primary source of the information in this research study is the secondary data. The available information on internet used to complete the dissertation report.
- All the available Journals, Articles, papers, Books provided necessary information to the research study.

## Agriculture sector in India

Agriculture is the primary source of livelihood for 58 per cent of the country's population. Total food grains production in

India reached an all-time high of 259 million tonnes (MT) in FY13. At 157.35 million hectares, India holds the second largest agricultural land globally. All the 15 major climates are found in India and the country also possess 45 of the 60 soil types in the world. India is the largest producer of pulses, milk, tea, cashew and jute, and the second largest producer of wheat, rice, fruits and vegetables, sugarcane, cotton and oilseeds. The country is among the 10 leading exporters of agricultural products in the world, with total agricultural exports expanding at a compound annual growth rate (CAGR) of 22.3 per cent to US\$ 42.37 billion over FY07-13.

The Government of India has planned outlay for various schemes under the Department of Agriculture and Cooperation (DAC) which has been fixed at US\$ 11.8 billion. Allocation to the Rashtriya Krishi Vikas Yojana (RKVY) in the FY14 budget was increased to US\$ 2.1 billion, a rise of about nine per cent from the previous financial year. Agricultural exports are expected to rise to US\$ 45 billion this financial year. With government aid, there is scope for an increased use of hybrid seeds and improved farm machinery to better the yield of crops. Huge opportunities exist in introducing contract farming to agriculture as well as increasing cold storage capacity from the present level of 24 MT. GDP of agriculture and allied sectors in India has been growing at a compound annual growth rate (CAGR) of 3.3 per cent.

The Indian agricultural services and the agricultural machinery sectors have cumulatively attracted foreign direct investment (FDI) equity inflows to the tune of US\$ 365.79 million in the period April 2000-September 2014, according to the Department of Industrial Policy and Promotion (DIPP). In 2013-14 India achieved a record food grain production of 264 Million Tonnes (MT), beating the previous year's (2012-13) 257 MT, according to data provided by Department of Economics and Statistics (DES). India is the second largest producer of sugar in the world and the government has aimed to increase the exports from 1.3 MT in 2013 to an average of 2 MT in 2014 and 2015. Spice exports from India are expected to reach US\$ 3 billion by 2016-17, on the back of creative marketing strategies, innovative packaging, strength in quality and a strong distribution network. India is the largest producer of milk since 1998 and accounts for about 17 per cent of the world's milk production. The average growth in milk production in the country in the last decade was 4.2 per cent as against the world average of 2.2 per cent, indicating a healthy trend. The procurement target for rice during Kharif Marketing Season (KMS) 2014-15 has been finalised as 30.05 Million Tonnes (MT).

The government's liberal FDI policies have opened the doors for several foreign companies to set up operations in India. The 12th Five-Year Plan's estimates of expanding the storage capacity to 35 MT and the target of achieving an overall growth of four per cent will help in improving the growth of the agriculture sector.

## Mile Stones in Indian Agriculture

The policies considered to be a mile stone in Sustainable agriculture development of the country are:

- 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.
- Ever Green Revolution (1996): 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. In the recent visit 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.
- White and Yellow Revolution: white revolution or operation flood relates to the rapid development in milk production that took place in India after mid 1960s. The growth, development and adoption of new varieties of oilseeds and complementary technologies nearly doubled oilseeds production from 12.6 mt in 1987-88 to 24.4 mt in 1996-97, catalyzed by the Technology Mission on Oilseeds, brought about the Yellow Revolution.
- 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.
- 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 this sector India has been growing at a blinding rate of 30% since the last five years.

#### **Investments: The major investments and developments in agriculture in the recent past are as follows**

- Metahelix Life Sciences has launched a new variety of maize hybrid seeds for improved productivity. The new hybrid MM 2100 has plant structure with upright leaves that allows higher growth and the cob size does not get reduced due to less gap between plants.
- The International Crops Research Institute for Semi-Arid Tropics (ICRISAT) and Ramoji Film City (RFC) have signed a MoA (Memorandum of Agreement) on Sustainable Management of Water Resources and Sustainable Agriculture Development through the establishment of an Agriculture Theme Park at RFC.
- Tata Global Beverages (TGB) has initiated research and development (R&D) under Project Sustainable Plant Protection Formulation (S-PPF) to evaluate the viability of biological or non-pesticidal methods for plant protection

of tea crops. The project is a collaborative effort between TGB, Rallis and Tata Chemicals.

- ICRISAT plans to invest US\$ 5 million in upgrading research infrastructure in Africa. The funds will also be used for building scientific skills in sub-Saharan Africa.
- The Agricultural and Processed Food Products Export Development Authority (APEDA) has signed a Memorandum of Understanding with Maharashtra State Warehousing Corporation (MSWC) for setting up of infrastructure for cold storage at Gultekdi, the wholesale market yard in Pune. The proposed project involves facilities for cold storage, pre-cooling and blast freezing.

#### **Strategies to Promoting Sustainable Agriculture and Rural Development**

Due to poor productivity of land, water resources and livestock and inefficient use of forests along with lack of capabilities and inadequate resources, it is difficult for small farmers to earn their livelihood. Realising this serious situation, poverty alleviation has been the major agenda of the Government of India. Thus, various community development programmes were initiated to build the capabilities of the poor. These programmes provided skill-oriented training and supplied critical agricultural inputs either free or at subsidized cost. However, most of these programmes did not succeed due to lack of people's participation. While there are plenty of opportunities for small farmers to improve their livelihood through various on- farm and non-farm activities making use of appropriate technologies, it is necessary to establish backward and forward integration to develop series of value chains involving all the stakeholders on a common platform. This can bring down the cost of production and value addition for the commodities produced by small farmers. It is also necessary to build the confidence and capabilities of these farmers to take active part in agricultural development and sustain the operation beyond the project period. Agriculture being the main source of rural employment for small and marginal farmers, it is necessary to develop a suitable farming system which can generate year-round employment and substantial income to sustain their livelihood. However, increasing agricultural production on small farms is a challenge because even under well established irrigated conditions, the growth of the agriculture sector itself has been almost stagnant for the last 8-10 years. Therefore, we need to take a fresh look at the present scenario and plan for another Green Revolution with a new focus.

#### **The Challenges of Sustainable Rural and Agricultural Development**

The Challenges 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:

- **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**

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. Governments are inclined to view export-oriented production systems as more important than supply domestic demands. 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. 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**

In farming techniques is related to the ideas of social acceptability and justice. Development cannot 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. Many new technologies fail to become applicable in agriculture sector due to lack of acceptability by the local society. 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

### **Future Prospects and Solution for Sustainable Agricultural and Rural Development in 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 and Rural Development.

### 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 because of rural Development. New opportunities are opening the eyes of farmers, development workers, researchers and policy makers like agri related businesses, dairy farming, poultry farming, fish 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 and Rural development.

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