

Sustainable Agricultural Development in Bharat and Alternative Paradigm for Sustainable Agricultural Transformation

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वैद्यम् ज्ञानम् अनन्तम्

Abstract:

At present, efforts are being made for balanced development through various means of development. Dualism is being seen in the economy and society on a very large scale. On the one hand, the blind rush of development and on the other, the concepts of saturated development; on the one hand, the increase in privatisation; and on the other hand, the development plans of the marginalised people on the margins of society. Growing urbanisation on one side and the concept of a self-independent village on the other. Such conceptions of development and ideas and the best options for rural development enriched in reality and its development and expansion are very necessary. The present research paper elaborates on what could be the best options for sustainable rural transformation, especially in the context of sustainable agricultural development. The research paper presented is largely based on the transformation model of sustainable agricultural development adopted in various countries as well as in Bharat. The entire research paper is divided into three parts. The first part includes the research methodology; the second part includes the options for change in sustainable agricultural development and the third part includes the conclusion and suggestions.

Introduction:

The Bruntland Commission released its report, *Our Common Future*, in 1987, with the aim of establishing a connection between economic development and environmental stability. Present research paper presented the frequently referenced definition of sustainable development as "Development that satisfies the requirements of the current generation without jeopardising the capacity of future generations to fulfil their own requirements (Holden et al., 2014)." Currently, Bharat is facing different paths of rural development. Influence of urbanisation on one hand, and agricultural development on the other also the changing attitudes of people towards agriculture on the other. The change in the mind-set of rural people has shattered the concept of sustainable rural development. It is difficult for any small scale industry, small and cottage industries in rural areas to maintain their distinctiveness and survive for a long period of time. Surviving the growing global competition is a major challenge facing local rural industries and artisans. Currently, the government is also running a Swadeshi campaign in this regard, as well as calling for local production capacity and skills to be put on a global scale. The government today is working to promote the overall development of the country through various schemes or incentives like Skill India, Digital India schemes Innovation, etc., which is commendable and welcomed. But still, for the best option for sustainable rural development, there is no other option than to adopt a Gandhi-based decentralised development strategy or a self-based development strategy. The polluter pays principle asserts that governments should mandate polluting entities to assume the financial burden of their pollution, rather than transferring these

costs onto others or the environment (*Sustainable Development as a Framework for National Governance 49 Case Western Reserve Law Review 1998-1999*, 1998).

On one hand the market development has increased the range of choices for goods and services. That has made the product or service more affordable to the consumer but at the same time, the increasing market area and the growing materialistic attitude of the people have changed the order of consumer preference. A big question is whether most choices are now made on the basis of choices given in economics.

The modern development taking place in Bharat, more emphasis is being placed on the capital-intensive production method. The effects of development seem to be limited to a few people; on one side, the government is running various schemes and activities to reach the marginalised sections of society, while on other hand, capitalist development is taking place very quickly. Expecting sustainable development with this two-pronged development process is futile.

Objective of the Study

The main objective of the present research paper is to discuss what kinds of alternative changes are reasonable and acceptable for sustainable development of agriculture in Bharat and to discuss the various issues or problems, challenges and prospective that exist in fulfilling such alternatives.

Research Methodology

The present research paper is based on secondary data; most of the data are qualitative, present research is conceptual and evaluation-based research. Some good and success experiments have been done in some countries around the world and in different areas of Bharat. The present study has been carried out keeping in mind the different types of paradigms.

Sustainable development and sustainable agricultural development

Development refers to the improvements in the condition of human life. In modern times, the terminology of development has taken a big turn. The definition of development has undergone major changes over time. In modern times, the definition of human development has gained momentum, which is directly related to overall development. In the modern era, much emphasis is placed on sustainable development, which is known as the concept of 'Samposhit Vikas' as per Gandhi's thinking. It is very important to recognise the concept of sustainable development and plan accordingly. This is the utmost and fundamental pre-condition for economic development in the right direction.

In ancient times, farmers, artisans, and traders themselves stuck to their businesses and they were the main managers of the economy. At that time it can be said that the village of

Bharat was the centre of a socio-economic organisation. To a large extent, the village was self-sufficient, but in modern times, the village is not self-sustainable. Villages now have to depend on cities for most of the essentials of village life, which shows that the concept of sustainable development is eroding day by day. It is also a fact that the economic population is apparent but it is based on. Earlier, since the villages were self-sufficient, except for drought, scarcity, etc., they used to meet their own needs, which was a very good thing. Due to the agricultural system of that time, village industry, local businesses, etc., the balance of supply and demand was naturally maintained in the rural economy, and life in the villages was easy, but independence is not seen in modern villages. Even though we have developed, we sometimes feel that we have missed something in the direction that should be achieved. The precautionary principle dictates that in cases where there is a risk of significant or irreversible harm, the absence of complete scientific knowledge should not be used as a justification for delaying cost-effective actions aimed at preventing environmental deterioration (Batt & Short, 1992).

It is very important to know some important things related to the population of any country in the world, including the needs of the population, consumption and its quality also how much satisfaction the society gets. The basic goal of development is to satisfy the various needs of human life, and for that purpose, means of production are used. In this context, classical, neo-classical and modern economists have tried to explain different concepts of development among which the concept of sustainable development is the best. There are many philosophers who believe in sustainable development who have talked about sustainable development as the right direction of development.

Concept of Sustainable development

The concept of sustainable development has been the foundation of the concept of sustainable development in that every class of society can live a good life, and it must be remembered that the means of production must be linked to the use of natural resources with the production process in such a way that future generations are not burdened. Necessary planning has to be done with future generations in mind, development of one at the expense of the other is against the principle of sustainable development. “Sustainable development is a process of change: the use of resources, the direction of investment, the orientation of technological development and institutional change move in harmony with each other and enhance the capabilities of today and tomorrow to meet the needs and aspirations of human beings”¹. Michael Porter and Claas

van der Linde proposed a theory that suggests “Pollution is an indication of ineffective utilisation of resources”. Consequently, by implementing enhancements that decrease pollution in manufacturing processes, we can seize mutually beneficial chances for both the environment and the economy (Wubben, 2000).

The present definition provides an overview of the definition of sustainable development, where the choice of technology, property rights management and institutional framework, social benefits and their distribution, etc. are considered. It becomes imperative to understand the various forms of development, which can be understood through the given table below:-

Table -1 : Forms of development²			
Growth	Development	Social development	Sustainable Development
Inclusive Concepts			
Efficiency	Efficiency	Efficiency	Efficiency
	Equal distribution	Equal distribution	Equal distribution
		Appropriate assessment	Appropriate assessment
			Think of natural resources as quantities
			Staying power
Non-inclusive concepts			
Equal distribution	Appropriate assessment	Think of natural resources as quantities	
Assessment	Staying power	Staying power	
Think of natural resources as quantities	Think of natural resources as quantities		
Staying power			
Note: It can be seen in the history of development that the form of development is gradually taking the form of sustainable development.			

Sustainable development includes everything from the interests of the general section of society to the preservation of the environment. Although Gandhiji was not an economist himself, he explained the basics of economics in simple terms. In which he has discussed basic issues such as the theory of antyodaya, the importance of labour, the development of villages, the development of cottage and small scale industries, the labor-based production system, the concept of full employment, the development of village-centric technology, etc.

Swaminathan is known as the father of the green revolution; he stated in 2003 that the green revolution should be replaced by a 'Sustainable Green Revolution' or 'Ever Green Revaluation'. In the original research of the 'Green Revolution', the common man used to prepare food before the plant, which had a smaller number of grains because in the process of light analysis, the plant got was bigger and the grain was smaller. In which the use of chemical fertilisers increased the growth of grains instead of vegetative growth in which pests came in, so the production increased in a short time due to the use of pesticides and more irrigation, etc. But its effects have not been seen for a long time and now we are facing the limitations or problems of the green revolution. Sustainable agriculture is concerned with freedom and grain, not the market. In modern farming, starting costs from day one and not knowing what the prices will get or who will harvest the crops have increased production costs and uncertainties in farming. Farming risk increased by 100 percent due to commercial farming (one crop only), while sustainable farming had much lower risk. Modern farming has become more and more expensive and as a result, the number of farmer suicides is on the rise.

Earlier, animals were given priority along with agriculture, but due to changing cropping patterns both animal husbandry and agriculture have become separate occupations. Pre-cattle manuring stopped and chemical fertilisers increased, which reduced soil fertility and increased the amount of trace elements in the soil, reduced soil porosity leading to reduced water storage capacity, increased soil erosion, and reduced water storage capacity leading to irrigation systems. There was no land that could be worked with cattle; now the tractors have come and with it the problems of fuel, etc. have arose. In the green revolution, we sent labour to the market, making agriculture dependent on it, which is a major challenge facing farmers in Bharat today. The green revolution brought us benefits for a certain period of time, but it did not last long. Swaminathan conducted an experiment on paddy at a research centre in 1995–96 and came to the conclusion that sustainable agriculture can bring about an 'Evergreen Revaluation'. Exploitation-free agriculture and treating can create an exploitation-free society because it is said that food is like belching. A society in which there is no pollution and no exploitation can never be backward.

Sustainable Agricultural Development

Bharat is known as an agricultural nation. Agriculture has had an important place in the concept of economic development, although there seems to have been a neglect of the agricultural sector during the planning period. An eminent economist like Prof.B. R. Shinoy has clearly stated that if Bharat is to develop in the right direction and in a proper manner, it is very

necessary to keep agriculture at the centre but in the blind rush of development, we have been neglecting agriculture.

Concept of Sustainable Agricultural Development:

Defining sustainable agricultural development is difficult. Because different economists look at it from different perspectives. The concept of sustainable development in Bharat is indirectly found in Gandhiji's writings and his lifestyle. Globally, it is defined as sustainable development. Bunderland also defined sustainable development in 1987. Since then, many economists have given several definitions with different common denominators. According to the views of some economists, the economy should remain at the stage of development once it reaches; some shows development that don't degrade the environment and natural resources as sustainable development, some show it as lasting forever. Thus there is no specific definition of sustainable development.

Different economists have provided many different definitions of agricultural development and agricultural practices. Hence there is a general and very thin line of distinction and some definitions are given from completely different perspectives. Different economists use different terms to explain sustainable development and the definition of the basic agricultural system. Attempts have been made to point out the definition of agricultural systems, keeping in mind agricultural production and the possibilities and usefulness of mechanisation, etc.

Some economists use the terms alternative agriculture, sustainable agriculture, resource conservation agriculture, bioke agriculture, environmental conservation agriculture, bio-experimental agriculture, low-input sustainable agriculture, low-input agriculture, etc. While the term 'Sustainable Cultivation' or 'Enriched Cultivation Method' is used as a synonym, here we will consider the term 'Sustainable Cultivation' to be more realistic as it is seen in a broader form.

“Sustainable agriculture is a method of agricultural production that conserves the various sources of agricultural productivity, makes full use of local production potential or resources, Provides environmental and economic benefits to society and the nation. It also supports rural development though sustainable development is also known as the method of agricultural development.” In short, “sustainable agriculture is a farming system that sustains and enriches the farmer and nature.”

Goals of Sustainable Agriculture:

From the experience of 75 years of independence, we can see that we have been using more and more external means of production (chemical fertilisers, pesticides, machines, tractors, and irrigation, here we talk about mega project of irrigation) to increase agricultural production during the planning period. Due to which its consumption has increased in a massive way, which has disturbed the natural laws, due to which various diseases, environmental imbalance, acid rain, decrease in soil fertility, etc. have created problem in human life. Modern production methods have taken the place of natural farming's methods. The tools of production that were used in earlier productions have become useless in modern agriculture.

The fundamental challenge for sustainable agriculture is to make the most judicious and optimal use of internal productive resources and to minimise the use of modern inputs so as to overcome the fundamental problems posed by modern agriculture. The goals of sustainable development can be stated as follows:

- (1) Maintaining ecological balance.
- (2) Making the village Sarvodaya (Self-Supporting).
- (3) To make efficient utilisation of local production capacity or resources.
- (4) Enhance the genetic potential of plants, animals, and their subspecies.
- (5) Using internal sources of production.
- (6) Economic development with social justice.

Sustainable Farming System and Modern Farming System (Green Revolution):

It becomes essential to know the difference between the production process carried out by sustainable agriculture and the farm production method carried out by modern external equipment. By which the conclusion of an efficient farming method can be reached. Prof. Jules Petty³ discusses internal and external sources of agroecology in his book Resuscitation Agriculture. Which is shown in the table below.

Table – 2: Internal and External Sources of Agro-ecology		
	Internal Sources and Process	External Sources and Process
Sun	Major source for energy	Fueled by fossil fuels
Water	Mainly rainfed and small irrigation schemes	Large dams, concentrated distribution and shallow wells
Nitrogen	Fixed from the air and derived from the cycle of soil organic matter	Primarily from inorganic compost
Mineral	By releasing and recycling from landfills	Mining, processing and importing
Weed and crop protection	Biological, mechanical, physical and locally available materials	By using chemical pesticides and herbicides
Energy	Farm-to-farm and some farm-produced	Derived from fossil or mineral fuels
Seeds	Produced on the farm	All bought
Managerial decisions and information acquisition	Farmers community gathers regularly at local places	Through input providers, researchers and extension services
Varieties of plants	Grows in light soils and with little water	Inputs should be more
Labor	Most of the work is done by hand – requiring more labor by families living on the farm and farm laborers	Most of the work is done by machines, hired laborers
Investment	Initial capital from family, additional income investment from local community	The start-up capital has to be borrowed from outside or profits go out through equity funds.

The above table show the resources used in modern agriculture and sustainable agriculture production method. Production methods carried out by internal sources and processes do not have adverse effects on the environment or soil fertility, while external sources and processes show that they create environmental imbalances. Which has adverse effects on people's lives on a large scale and depletes the resources of the future. There is an endless debate between welfare economists and environmentalists versus modernists.

The term green revolution is used here as a synonym for modern agriculture. Although Green Revolution instruments have increased production and productivity, they have been limited to certain crops, and modern farming systems have created large-scale environmental and social impacts, particularly:-

1. Increased pollution in the air, land, and water
2. Adverse effects of hybrid production on human health and ecosystem

3. Adverse effects on forests and other natural resources
4. Issues like Environmental Imbalance, Ozone Depletion, Acid Rain, Global Warming
5. Depletion of ground water
6. Threat to industries created by modern agriculture
7. Hras in traditional rituals and customs
8. Entry of non-farmers into cultivation

Important issues like the above have arisen with the development of the Green Revolution or Modern agriculture development, so that it has become a threat to sustainable agricultural development, and that's why we must move on sustainable agricultural development.

There is two side of coin, with Modern agriculture we improve production of agriculture commodity in some extent, but other side this method does not have capacity to sustain for long time, for this is the reason to except methods of sustainable agricultural farming methods for sustainability. Sustainability in agriculture in Bharat we must have to move with some modification of our ancient agriculture or farming system or organic farming or natural farming.

Problems of Sustainable Agriculture Development:

Although sustainable agricultural development has been successfully experimented and used all over the world: There are very few areas and very few farmers think that the concept of sustainable agricultural development is acceptable. There are several fundamental issues of sustainable agricultural development that are responsible for its low awareness and underdevelopment. like.....

- (1) The growing trend of global new capitalism
- (2) Expansion of market-based economic practices
- (3) Commercialization of agriculture
- (4) Entry of non-farmers into agriculture
- (5) Failure of politicians and modern economists to understand the roots of village development

- (6) Secondary position given to villages and development of the concept of city or urban-based development
- (7) Neglect to focus given to the agricultural sector during the planning period in Bharat
- (8) Misconceptions about agriculture
- (9) Failure in the structure of the cooperative sector
- (10) Environmental imbalances etc.

Alternative Paradigm for Sustainable Agricultural Transformation:

Organic farming and natural farming is a characteristic of sustainable development but cannot be disseminated on a wider scale due to the lack of infrastructure to promote it. Also, due to the lack of information among the people about organic products, it is difficult to divert the farmers in that direction. In present paper try to give some best practices accrued by Government, NGOs, Educationist, Researchers or a person in various part of Bharat.

- (1) Our Hon. Prime Minister Shree Narendra Modoji emphasis on Millets, with his steps UN declor 2023-2024 as a Millet years, due to his positive stapes numbers of program organised in various part of Bharat, and we found result that numbers people are aware about organic products and local farmers earn or get higher price of them agricultural products.
- (2) Dr. Anil Gupta, an IIM professor in Ahmedabad, has however taken the initiative in this area. It started with organising a ‘Vishrati Vanagi Mela’ where organic farmers in Ahmedabad could set up stalls to sell their produce and also sell traditional dishes from different regions. By 15 years, the awareness of the residents of Ahmedabad regarding organic products has increased, as a result of which they are willing to pay a higher price for organic products compared to the products of chemical agriculture.
- (3) In Surat Hon. Vice chancellor Dr. Kishorsinh N. Cahavda of Veer Narmad South Gujarat University, Surat, start to encourage organic farmers and rural local artisan in various programmes during 2022–23 and 2023-24, farmers and artisans stalls are set up for organic farming and crops grown in tribal areas, and various dishes are made from them, bringing producers directly in front of consumers, thus eliminating the question of middlemen (intermediates) in the market. It was removed. A great success is seen in the present experiment.

Such activities are not only limited to the state of Gujarat, but today farmers in areas like Himachal Pradesh, Kashmir, Nagaland, and Sikkim have also been able to provide a market for organic products with reasonable returns. This is a successful experiment that can be used in other areas as well. So that the producers (farmers) come into direct contact with the consumers, the producers get better prices, and the consumers get organic products at lower prices.

Conclusion:-

It becomes imperative for modern economists, political leaders, and policymakers to understand the concept of sustainable development; otherwise, it is difficult to link values with development. In our thinking and imagination, the development industry has become overwhelming to the nation, so our belief is that a village person goes to the city or urban and from the city to the foreign country, which is fundamentally wrong and absurd. It becomes increasingly important for current policymakers to know what technologies support sustainable agricultural development. When it comes to sustainable development, you want development to happen by yourself; self-sustainable development increases its life span. In dependent development, the development breaks down when it is independent but if it is self-sustainable, it has a sustainable element. The technology that does not sustain the village and the technology that comes from elsewhere destroy the wealth or nature of the village. The idea of sustainable development, or sustainable agricultural development, will take shape only when society and policymakers develop with all these things in mind. The concept of 'Gram Swaraj' has to be associated with agriculture and village development. Our country became independent, but the village has not been self-sufficient, so efforts should be made to make the village self-sufficient.

Nowadays, we find the market in the process of development and the market is never sustainable. There are big changes in it and the market never allows anyone to survive, so market-based development can never lead to right direction. There is an urgent need to move away from this market-based development model. It is very necessary to abandon the larger concept of development by price or market system. It is the urgent need of the current era that development should go to the village. Villages should be the centre of development in sustainable development. A farmer's concept of development if a farmer is developed, if I get all my needs from my agriculture, then that farmer is said to have developed sustainably. If a farmer ripens one crop well, sells the rest, and fulfils his financial needs, it can be said that it is not a step for the farmer in sustainable development. From farmer to village, from village to

taluk, from taluk to district, and up to state and nation, sustainable development is said to be possible.

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