

India's Approach toward Sustainable Agriculture: a Review of Government's Initiatives

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Abstract

There are two major challenges before Indian Agriculture-ecological and economical. Agriculture is the backbone of Indian economy as well as society because of its high share in employment generation and livelihood creation. About 43% India's geographical areas are used for agricultural activities. The sector is a supplier of food, fodder and raw material for a vast segment of industry. Recognizing these facts Government of India has taken various initiatives at national and regional levels for healthy growth of agriculture. Despite of this agriculture's share in GDP has declined rapidly in the recent past. Indian farmers are suffering from multiple issues such as high input cost, low profitability, land degradation, depleting water table and risks related to climate change.

Sustainable agriculture has the potential to tackle most of the socio-economic and environmental problems originated out of unsustainable farm practices. The concept of sustainable agriculture revolves around three main goals-environmental health, economic profitability and socio-economic equity. Aware of this, Government of India has launched numerous policies and schemes which cater the needs for key inputs in a sustainable manner. The present paper aims to enlist and assess major initiatives of India such as National Mission on Sustainable Agriculture, Parampragat Krishi Vikas Yojna, PM Krishi Sinchayi Yojna, PM Fasal Bima Yojna, Soil Health Card scheme etc. The objective of the study is to analyze the efforts and approach of India for the development of sustainable agriculture.

Key Words-Sustainable Agriculture, Environment, Ecological balance, Food security, Initiatives, Degradation, Economy, Farmers' welfare, Strategy.

1. Introduction

India is a unique country from agricultural point of view due to vast geographical and cultural diversity. The physical factors such as enormous expanse of level plains, rich soils, wide climatic variety and long growing season provide a solid base to Indian Agriculture. If one looks at the overall performance of agriculture over last six decades, it looks like a reasonable good success story. The production of food grains, cash crops and other allied products has increased many folds. In spite of all this, the agriculture's share in GDP has declined to 14.0% from 53.1% during this period. Increasing agricultural production with limited natural resources in a sustainable manner for ensuring food security and providing income security to farmers are major challenges before the government.

Green Revolution has played a vital role in defining the course of Indian agriculture leaving behind positive and negative implications. Along with surplus food grain production, it has left deep impacts on regional development and environmental conditions. According to ICAR's reports, a staggering 37 per cent of India's total geographical area of 328.32 million hectare is affected from land degradation. Similarly, Water resources of the country are also getting degraded. Only about 47.6 % of the net sown area is irrigated out of which ground water accounts for 60% of the irrigated area in the country. The subsidies provided for electricity led to wasteful use of both energy and groundwater. Consequently, this has led to depletion of water table and deterioration of water quality. It has become imperative to find ways to overcome socio economic and

environmental problems arising from unsustainable farm practices. The sustainable agriculture can mitigate the socio- economic and environmental problems of chemical fertilizer based farming.

2. Objectives and Research Methodology of the Study-The present study is based on the secondary sources such as Government reports, newspapers, magazines, journals and internet portals etc. The research aims to find the answers of following question:-

- (i) Why there is need to promote sustainable agriculture?
- (ii) What's the approach adopted by Government of India for development of sustainable agriculture?
- (iii) Which major initiatives have been taken so far to promote it?

3. Concept of Sustainable Agriculture

The concept of 'Sustainable Agriculture' advocates the same principle of sustainability that we must meet the needs of present without compromising the ability of future generations to meet their own needs. The conservation of natural resources is critical not only for agriculture sector but also for sustenance of life on earth.

Sustainable agriculture is the production of food, fiber, plant or animal products with the farming techniques which protect the environment, public health, human and animal welfare. It incorporates many environmentally safe agricultural practices which are least toxic and least energy intensive and yet maintain productivity and profitability. Organic farming, Mixed cropping or diverse cropping, crop rotation, mixed farming, strip farming etc. are examples of such agricultural practices. Among these, organic farming is being considered as the most effective and popular practice.

4. India's Approach and Initiatives

The world is concerned about globalised problems like climate change, global warming, environmental degradation, burgeoning population and prevalent food insecurity etc. In this background, India has followed a comprehensive approach for the welfare of its citizens along with the protection of environment to meet commitment of international agreements like Paris Climate Change Agreement (2015). India has adopted a multi-pronged strategy which will not only help in revival of agricultural sector but also lead to development of sustainable agriculture, directly or indirectly.

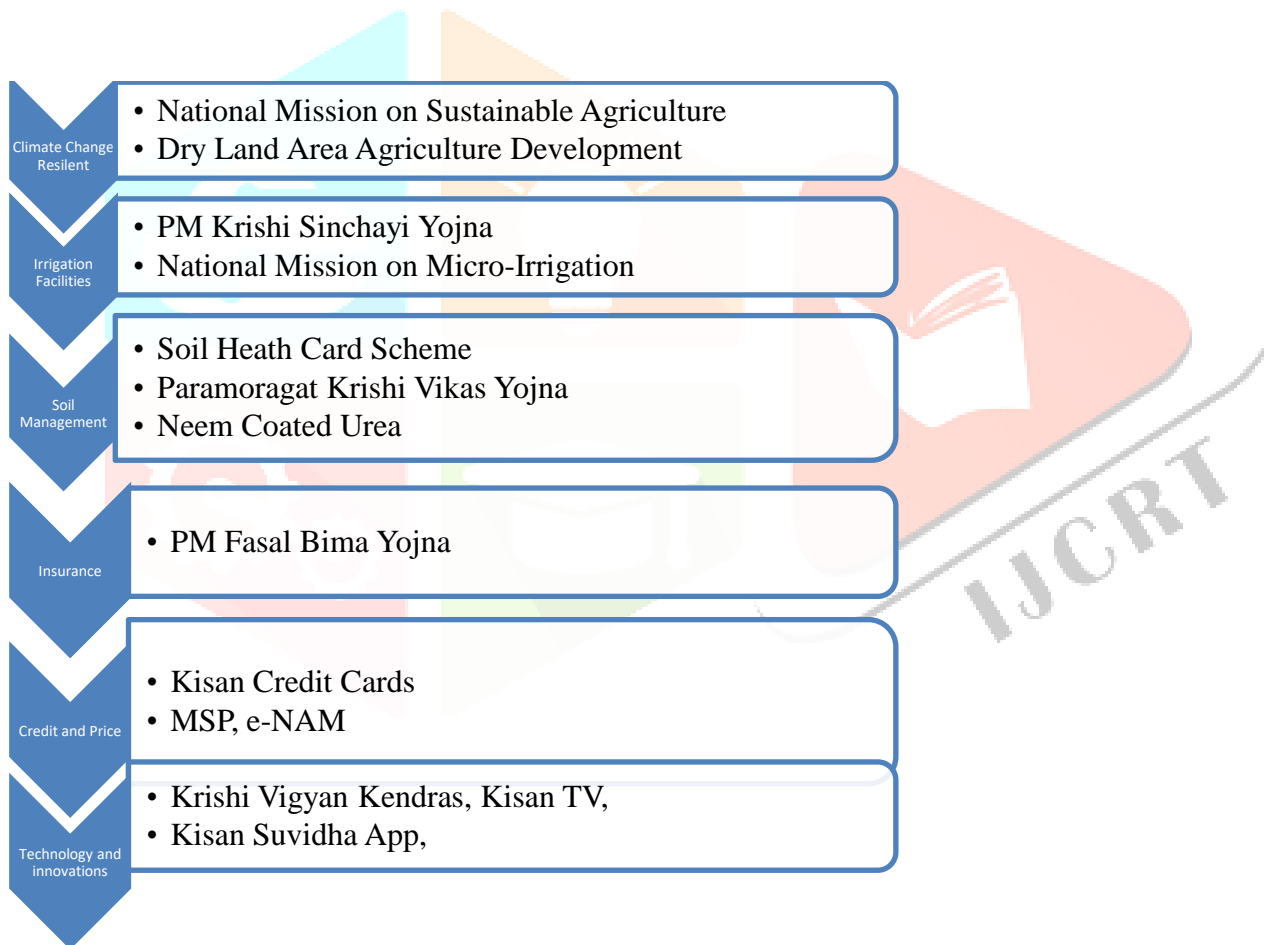
Figure No. 1-Key Areas of India's Approach



The approach adopted by India focuses on key factors like local climatic conditions, regional physiographic, availability of water resources, accessible technology mainly revolves around developing climate resilient agriculture which is suitable to local climatic conditions reviving natural methods of farming such as organic farming, mixed farming, crop rotation and harnessing the potential of dry land area or rain fed area agriculture in India. Apart from this Government of India has emphasized more on sustainable development of irrigation facilities with water use efficiency through promotion of micro-irrigation techniques.

Apart from this, Government is promoting farmers to diversify and adopt other agricultural activities such as animal husbandry, poultry, goat farming, bee keeping and timber plantation. The farmers of the hilly regions especially North –Eastern India and Western Himalayan states are provided with financial aid to practice horticulture in a sustainable manner. The schemes related to dairy farming, food processing and infrastructure development fund reduce the farmers' dependence on agriculture.

Figure No.2 Government's Major Initiatives



National Mission on Sustainable Agriculture-It is one of the 8 missions outlined under National Action Plan for Climate Change. The Mission seeks to address issues regarding 'Sustainable Agriculture' in context of risks associated with climate change. It seeks to transform agriculture into an ecologically sustainable climate resilient production system by devising appropriate adaptation and mitigation strategies for ensuring food security, equitable access to resources enhancing livelihood opportunities leading to economic stability at the national level. The mission has identified ten key dimensions for promoting the sustainable agricultural practices by implementing a Programme of Action (PoA) which cover both adaptation and mitigation measures.

It focuses on four functional areas, namely Research and Development, Technologies, Products and practices, Infrastructure and Capacity Building.

Pradhan Mantri Krishi Sinchai Yojna (PMKSY)-The Union Government launched this scheme on 1st July, 2015 with the motto of 'Har Khet Ko Paani'. PMKSY envisages amalgamation of ongoing schemes like Accelerated Irrigation Benefit Programme, Integrated Watershed Management Programme, On Farm Water Management etc. It aims to provide end to end solutions in irrigation supply chain, viz. water resources, distribution networks and farm level applications. It not only focuses on creating sources for assured irrigation but also creating protective irrigation by harnessing rain water at micro-level through 'Jal Sanchay' and 'Jal Sinchan'. The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation and improve on-farm water use efficiency to reduce wastage of water. It also focuses to enhance the adoption of precision irrigation and other water saving technologies (Per Drop, More Crop), enhance recharge of aquifers and introduce sustainable water use conservation practices.

National Mission on Micro-Irrigation-It was launched to promote and develop micro-irrigation facilities. Under this programme, the area under micro-irrigation has almost doubled, growing from 3.09 million hectare in 2005 to 6.14 million hectare in 2012. Micro-irrigation helps in reduction of input consumption and increase the productivity of the crop by various means to improve the water use efficiency by saving water and brings down the overall irrigation cost by saving water, electricity and labour. Sprinklers and drip irrigation are some techniques of micro-irrigation. Therefore, micro-irrigation is also a way to promote sustainable agriculture.

Soil Health Card Scheme-The government has launched a nation-wide Soil Health Card scheme in 2015 to rejuvenate India's exhausted soils. Under this scheme farmers are provided with soil health cards which carry crop wise recommendations of nutrients or fertilizers required for farms. It aims at promoting Integrating Nutrient management (INM) through judicious use of chemical fertilizers including secondary and micro-nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity.

Pradhan Mantri Fasal Bima Yojna-To help farmers to cope with crop losses, the Government of India has launched this flagship scheme in 2016. It seeks to provide farmers with uniformly low premium that would help them sustain agriculture in case of crop losses arising out of vagaries of weather, natural calamities and climate change. PMFBY aims at supporting sustainable production in agriculture sector through financial support to farmers suffering from crop loss or damage arising out of unforeseen events. It also encourages farmers to adopt innovative and modern agricultural practices for stabilization of their incomes and development of sustainable agriculture.

Role of Organic Farming- The organic farming has emerged as an alternative system of farming which not only address the quality and sustainability concerns, but also ensure profitable livelihood option for rural community of India. The rigorous reliance on chemical fertilizers and pesticides always questions the concept of sustainability in its all aspects. It harms environment and the food chain. Organic agriculture avoids all kinds of practices which damages agro-ecosystem. It provides healthy food while establishing an ecological balance to prevent soil fertility or pest problems. India is blessed with all natural and human factors essential for development of organic farming. Therefore, Government is working on organic farming as an effective way to promote sustainable agriculture.

Parampragat Krishi Vikas Yojna (PKVY) - It is a cluster based programme to encourage the farmers for adopting organic farming. Under this project a group of fifty or more farmers having 50 acre land is formed to take up the organic farming. In this way during three years 10,000 clusters will be formed covering 5 lakh acre area under organic farming. Organic farming will be promoted by using traditional resources in an environment friendly way.

5. Conclusion

Undoubtedly, Government of India has a well- defined array of schemes to meet almost all the needs and issues related to the development of sustainable agriculture. But the solution and success lies in the seamless implementation of these programmes. Agriculture is a state subject in India which lead to politicization and fragmentation of actions and solutions related to it. On the national front there is need to develop a consensus with the states for executing a national agenda on sustainable agriculture. Further, institutions of higher education could contribute towards ecologically sustainable agriculture by educating and facilitating farmers in adopting sustainable farming practices. The progress in sustainable agriculture depend more on the development of organic farming. It's high time to take strategic and effective steps to overcome the constraints in the way of organic farming. There is a need for a comprehensive framework that integrates organic farming with bottom up responses. It should also address technology diffusion with reciprocal knowledge flow from farmers' institutions.

Recently the government of India has come up with the resolve of doubling farmers' income by 2022 though a seven point strategy. The strategy focuses on irrigation, quality seeds, post-harvest management, marketing, insurance and ancillary activities. This strategy has to be incorporated with the principles of sustainable agriculture which only can help in achieving the goals of environmental health, economic profitability and socio-economic equity .India must swiftly adopt climate smart agricultural practices which calls for using renewable sources such as bio-fuels and solar, nitrogen-smart nutrient management, organic farming, agro forestry, ICT based agro –advisories and so on.

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