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Article

Challenges and Opportunities of IT in Indian Agriculture Sustainability

Adarsh Patel[1], Sandeep Prajapati[2]

[1,2]Research Scholar, MCA, Thakur Institute of Management Studies, Career Development & Research (TIMSCDR) Mumbai, India.

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Corresponding Author:
Adarsh Patel, MCA, Thakur Institute of Management Studies, Career Development & Research (TIMSCDR) Mumbai, India.
E-mail Id:
adarsh4313@gmail.com
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A B S T R A C T

Agriculture is the sole greatest main and significant living sector for masses in India. International Food Policy Research Institute (IFPRI) unconfined report on Global Hunger. According to that report India has expatriate from preceding 97th place to 100 in 2017 and the value is 31.4 shows the place of our country originate in serious category. The neighbor countries Nepal, and Sri Lanka are better in hunger score. In direction to have constant expansion in Indian sustainable agriculture is a primary requirement. Forthcoming of Indian agriculture seriously depends on the current circumstances of agriculture and trends of various indicator.

Keywords: Sustainable Agriculture Development, Food Grain Production, GDP

Introduction

Agriculture is most significant private business in India as long as income and service occasion to more than half of the population. More than 70 per cent of the rural households be contingent on agriculture. Indian economy counts Agriculture is a vital sector as it underwrites about 17% to the total GDP and gives employment to over 60% of the Indian population. A study shows that Indian agriculture has impressively grown over last few decades as the food grain production has increased from 51 Million Tons (MT) in 1950- 51 to 250MT during 2011-12 highest ever since independence.

The agriculture sector donates 17% in country's Gross Value Added. Government of India has been occupied several steps for sustainable agriculture development. The existing effort like development in soil fertility on a sustainable basis through introduced Soil Health Card Scheme, 'Pradhan Mantri Krishi Sinchai Yojana' for efficient access of irrigation and increased water efficiency. To support organic farming system through the 'Paramparagat Krishi Vikas Yojana' and reduce risk in agriculture sector a new scheme "Pradhan Mantri Fasal Bima Yojana has been propelled and implemented for Kharif crop from 2016. Sustainable Agriculture practice promotes social and economic equity by balancing environmental health and economic profitability. Therefore, stewardship of both natural and human resources is very importance. In general.

Sustainable Agriculture involves the processes that would enable us to meet the current and long term societal needs for food, fiber and other resources, IT is also include in agriculture. The Technology has played a big role in developing the agricultural industry. Today it is possible to grow crops in a desert by use of agricultural biotechnology. With this technology, plants have been engineered to survive in drought conditions. Through genetic engineering scientists have managed to introduce traits into existing genes with a goal of making crops resistant to droughts and pests.

Literature Review

L.L. Samantaray (2015) in his study titled "A Study on the Current Trend of Agriculture Productivity in India and its

future prospects" discusses about the linkage amongst structural, methodical and official policy reforms, which are accountable for successive agriculture development. The researcher has collected and analyze secondary data Agriculture, Industry and Service sector, he has explored some major disadvantage of farm sector in India, and showing to government that it should give priorities to key segments like marketing, price mechanism, research and advance. He has been observed that the support of Govt. and privet interference the sustainable growth can be attained.

Sangeet, Sukhpal Singh, Shruti Bhogal (2013) in their research study entitled "Agriculture for Sustainable growth of India" he traced on Agriculture and associated its dissimilar sizes like service age band production and productivity, food grain obtainability. The study shows that more than 60% population has dependent on agriculture which has not sustainably grown. The authors suggest that sustainable expansion is a vision and that is a time to think about the scare and limited resources and it's used optimally and efficiently for preserving environment.

Saroj Kumar Singh and Ankita Parihar in his study titled "Challenges of Sustainable Agriculture Development in India". The role of agricultural sector in Indian economy can be seen through its contribution to GDP (Gross domestic Product) and Employment. This sector also donates meaningfully to sustainable economic development of the country. The sustainable agriculture upsurge of any country be contingent upon the sensible mix of their available natural resources. In detail farming regulate the fate of a country like India where about two-thirds of the population immobile survives in rural India with agriculture as its livelihood, in spite of the increasing urbanization that has been taking place since many decades. Consequently if farming goes incorrect, it will be actually bad for the economy as the dwindling of agricultural development not only affects employment but GDP too (thus increasing poverty). The bigger unbiased 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 imperative than the rest of the two. This is merely because of increasing urbanization, industrialization and the limited land size of the country.

The productivity can be augmented by two ways. First, growing 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 cannot 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. Therefore there is need to tackle the issues related to maintainable agriculture development.[13]

Challenges Before Indian Agriculture

The agriculture sector has the most challenging sector in respect of economically, environmentally and socially. The Indian agriculture sector faced various traditional as well as new global challenges the key challenges addressed as follows.[3]

1. The conservation and enhancement of ecological foundations for sustainable agriculture, which encompassed land, water, biodiversity, and marine resources. Urbanization and non-agricultural land uses to create tremendous challenge before agriculture.
2. Food processing and distribution sector needs to be strengthened by evolving policies for larger private sector participation in the entire value chain
3. The 80 percent farmers in India having small size of land. They are not economically sound and lack of market attachment. The contribution of private sector in agriculture investment quite low and declined trend of public investment in agriculture after 2000.

Ref [1],[2] and[3] The fall in the ground water level generate more pressure on other irrigation facilities and create hurdles in the way of agriculture change in India.

4. Lack of competitiveness in Indian farmers is another hurdles rise in between improve agriculture development.
5. The farmers are less risk bearing and unskilled which adversely impact on their income from agriculture. Natural hazard in agriculture is a common phenomenon but most of the farmers not get benefits of crop insurance arrangement. The agricultural insurance schemes are inefficient to overcome various risk in agriculture sector.

Low profitability is a main cause behind the farmer's indebtedness and suicide problem existed in many state of India in the last few years. The spending on agriculture subsidy has augmented year by year but problem remains same and continuously grow-up.

6. The central issue in agricultural development is the necessity to improve efficiency, produce employment, and provide a source of income to the poor segments of population. Studies by FAO have shown that small farms in emerging countries donate around 30-35% to the total agricultural output. The pace of acceptance of contemporary skill in India is slow and the farming practices are too haphazard and intuitive. Some of the rudimentary issues for growth of Indian agriculture sector are revitalization of cooperative institutions, improving.[8,9,10]

7. Use of machines on farms. Now a farmer can cultivate on more than 2 acres of land with less labor, and can cut costs even more when they are looking for a used tractor and other harvesting knowledge, versus novel tackle. The use of planters and harvesters makes the process so easy. In agriculture, time and production are so significant; you have to plant in time, harvest in time and deliver to stores in time. Modern agricultural technology allows a small number of people to grow vast quantities of food and fiber in a shortest period of time.[12]
8. Contemporary transportation: This helps in creation goods obtainable on markets in time from the farm. With modern conveyance, consumers in Dubai will consume fresh carrots from Africa with in the same day that carrot lives the garden in Africa. Contemporary transportation expertise conveniences help agriculturalists easily transference fertilizers or other farm crops to their farms, and it also speeds the supply of agricultural products from farms to the markets where consumers get them on a daily basis.
9. Cooling facilities: These are used by farmers to deliver tomatoes and other perishable crops to keep them fresh as they transport them to the market. These cooling facilities are installed in food transportation trucks, so harvests like tomatoes will stay fresh when distributed. This is a win-win condition for both the consumers of these agricultural products and the farmers. How the customer's gets these harvests while still fresh and the farmer will sell all their products since the request will be high.
10. Irrigation of plants. In dry areas like deserts, farmers have embraced technology to irrigate their crops. A good example is in Egypt, were farmers use water pumps to collect water from river Nile to their crops. Most of these farmers grow rice which needs a lot of water, so they manage to grow this rice using irrigation methods enhanced by advanced technology. Advanced water sprinklers are being used to irrigate big farms and this helps the crops get enough water which is essential in their growth. Some farmers mix nutrients in this water, so also improves on the growth of these crops.

Opportunities for Indian Agriculture

1. It appears nearly implausible that one-third of food manufacture all over the world each year goes to waste. But if the current state of agricultural practices is inspected more closely, this fact begins to make more and more sense. From the vices of large- scale industrialized farming to the illiteracy and lack of awareness in farmers, agriculture as an industry is plagued with a multitude of problems. It is these problems that contribute towards inefficient farming practices leading to waste.
2. Increasing agricultural productivity is a key challenge for ensuring national food security. To increase production, exploiting the potential of existing yield gaps offers a tremendous opportunity.[7]

Therefore, 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 deeply reliant on on rain, which is the main reason for the deteriorating development rate of agriculture sector. These reservations hit the small farmers and laborers worst, which are usually leading a hand to mouth life. Consequently, somewhat necessity be done to sustenance farmers and enough quantity of water and electricity must be abounding to them as they impression apprehensive and remain to die of drought, flood, and fire. India is the additional main country of the world in footings of population; it should understand 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 use of human resources. A large part of poor populace of the country is engaged in agriculture, unless we upsurge 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. Persons are migrating to city with the hope of better livelihood, but it is also cumulative the slum population in cities. Therefore, rural population must be given service in their areas and a chance to prosper. India has been loud the tag of "developing" country for quite long now; for creation the move towards "industrialized" countries, we must shed this huge requirement on agriculture sector ref.[8,9,10]

Agriculture sector is an significant contributor to the Indian economy around which socio-economic civil liberties and deficiencies revolve and any change in its structure is likely to have a conforming influence on the standing decoration of social equity. Sustainable agricultural production be contingent upon the well-organized use of soil, water, livestock, plant genetics, forest, climate, rainfall and topology. Indian agriculture faces resource constraints, infrastructural constrictions, established constraints, technological constraints and policy persuaded limits. Sustainable growth is the organization and upkeep of the natural resource base and the orientation of technical and institutional change in such a manner as to ensure the achievement and sustained satisfaction of human needs for the present and future generations. Such supportable expansion (in the agriculture, forestry and fisheries sector) conserves land, water, plant and animal genetic resources,

is environmentally non- degrading, theoretically suitable, frugally viable and socially satisfactory.

Conclusions

In short, after the brief discussion on current position of Indian agriculture, the main test is to secure sustainability of agriculture. Global warming and climate change all adversely impact on overall agriculture productivity and production in India. The future demand for food grain and raw material will not be satisfied from agriculture sector. Less production from agriculture and expansion in demand create bourdon on agriculture production and food inflation in India. But another side is that the agriculture manufacture, efficiency, effectiveness of marginal farmers has declined. On that ground the sustainable agriculture development is only way to overcome this problem and further development.

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