DEVELOPMENTAL IMPACT OF RURAL INFRASTRUCTURE IN AGRICULTURE SECTOR

Ajay Kumar Sharma, Research Scholar, Shri Mata Vaishno Devi University, Katra, Jammu
Roop Lal Sharma, Assistant Professor, Shri Mata Vaishno Devi University, Katra, Jammu
Dr. Meenakshi Gupta, Assistant professor, Shri Mata Vaishno Devi University, Katra, Jammu

ABSTRACT

Agriculture in any country is considered as a lifeline of the economy because it contributes to the growth of the economy. There are three sectors in the economy that are primary, secondary and tertiary. Primary sector is based on agriculture activities, while the secondary sector is based on construction and manufacturing activities and the tertiary sector is based on the service sector. Without agriculture none of this sector can exist because agriculture is a main producer that belongs to the primary sector. The goods produced from agriculture are given to the secondary sector as a raw material for manufacturing. To live it is necessary to eat and that can be obtained by agriculture. Every country wants to become self-sufficient in agriculture. That means they can fulfil their population by their own country's production. To increase the production in agriculture, infrastructure plays an important role. There are various types of infrastructure which are needed in agriculture that have been studied in this paper. This paper also tells the need of that infrastructure in agriculture. Various initiatives that the government has taken for the development of agriculture infrastructure and the effect of those initiatives have been collected. The paper also describes the role of infrastructure development in agriculture.

INTRODUCTION

Agriculture sector is considered as one of the important factors in India. Almost 50% of the total population in India is engaged in agricultural activities. The contribution of agriculture to the GDP of the country has been declining due to the rise in secondary and tertiary sectors. After independence, India's focus on agriculture has increased. For this India has brought two policies i.e. Land reforms and High yielding seed which is called as green revolution. The green revolution has increased the productivity of agricultural land1. Before the green revolution, India was dependent on other countries to import agricultural goods. The food grain produced in India was not sufficient enough to fulfil the needs of their own population. But the green revolution has changed the scenario and India became self-sufficient in the field of agriculture. The productivity has increased. But initially the cost of good quality of seeds was not affordable for the farmer. For this the government has given subsidies to the farmer, has started various loan schemes. India has become a top producer in various food grains for example in wheat, rice, pulses, cotton, sugarcane, etc. India is top in the world for the production of milk. India ranks second for the producer of fruits and vegetables. 25% of the total world pulses production is done in India, while that for rice is 22% and wheat 13%. Similarly 25% of cotton is produced in India and becomes the second highest cotton exporter nation all over the world.

But still the agriculture in India is not up to the mark because of lack of required infrastructure for the agriculture.

In India agriculture is mostly dependent on the rain. Various agricultural places don't have proper electricity, tractors, good quality of seed, irrigation facilities, etc. In short, various rural areas lack infrastructure.

Types of Agricultural Infrastructure Needed

Electricity- Electricity plays an important role for the development of agriculture. Various equipment like tractors, machines run on electricity. But still many villages are either having shortages of electricity and even in some areas no electricity. Therefore electricity plays an important role for agriculture. So it is necessary to improve the supply of electricity in the rural area

Connectivity of the Road- Road connectivity plays an important role in agriculture. It is stated that as per various studies 15% of agricultural produce has been lost in transportation of goods from farm gate to the proper place. Poor quality of roads in rural areas limits the trader from reaching the farmer and farmer to reach to the trader. The better roads improve the production and productivity of agriculture, transportation cost is reduced and farmers get good selling prices. Therefore, it is needed to construct good quality roads in rural areas.

Irrigation- Indian agriculture is dependent on the rain. Underutilisation of irrigation is a serious problem. Irrigation helps the farmer for the water supply. Hence it is necessary to improve the irrigation facilities in the rural areas.

Use of High-Yield Improved Seed- India has seen the Green Revolution that has brought high yield seed for agriculture. It helps the farmer in production. The productivity of the land rises. Productivity means quantity of grains per hectare. But many farmers are not able to buy those seeds, as their prices are high. For this the government of India has given subsidies to the farmers. But that is not reaching the farmer properly. Also this seeds increases the further costs like cost of fertilizer, pesticides, etc. Many areas face the problem of availability of these seeds. Therefore, it is needed to have proper supply of the agricultural seed to the farmer; also the financial assistance for this is needed.

Fertilizers & Pesticides- For every agriculture, fertilizer and pesticides play an important role. They are used to improve the productivity of land and also for killing the insects on the farms. It is necessary to have proper soil testing labs that can provide the proper guidance on used fertilizers on the soil.

Storage & Warehouse- Goods are produced once in a year in agriculture, but consumed throughout the year. Most common problem these farmers are facing is the problem of storage of goods. When crops are cut from the farm it needs a proper place to store them. Not only a place but a good facility that can maintain the quality of the crops. For example some crops may need cold storage. Some crops may need a large place to store. But farmers in India don't have a proper place to store, and if they had it is not proper. The storage should protect the crops from external environments, such as rain, moisture, air, etc. Huge quantity of food grain get damaged due to improper and poor quality of storages for the agriculture products.

Literacy Level- The literacy rate in the rural area is very low, that is to be improved. The farmer should be given the various knowledge about the use of finance, use of various infrastructural things, use of seeds, pesticides, fertilizers, etc.

Availability of Financial Institutions- Every activity needs to have finance. But many rural areas don't have sufficient financial institutions like banks. Many times due to lack of money and funds, the farmers face problems like purchasing seeds, fuel for tractors, etc. So the banks that provide the finance for the farmer should be started in rural areas.

Weather Forecasting- Various satellites have been launched which forecast the weather. But it is necessary to communicate that information to the rural people. So for this, the way of communication should be developed in rural areas, from where they can get information about various things such as development of mobile towers, internet facilities, free TV channels, etc.

Agricultural Machinery- Machinery makes the work easy and fast. Various machinery has been developed in many countries at work for various agricultural activities like harvesting, ploughing, threshing, irrigation. Development and usage of such machinery will save the time and energy of the farmer and increase the productivity.

Various Initiatives Taken by the Government of India for the Infrastructure Development

India has abandoned natural, physical and biological resources like land, water, manpower, climate, solar energy, wind energy, good climate, ocean, forestry, fishery, etc. But the country is not even using its 25% potential for agricultural development. But for a long time the government of India has taken various initiatives after independence.

The government of India has introduced the land reforms, where they tried to eliminate the zamindari system by allocating the land to the poor farmer and keeping the land ceiling which means to have a maximum size of land that one farmer should possess.

The government in their various plans brought the Rural Electrification Corporation, where they targeted to increase the electric supply in the rural area. The ninth five year plan has given importance for the rural infrastructure mainly in irrigation, road, etc. But for this infrastructure there is a need for finance. For this the government of India has started Rural Infrastructure Development Fund (RIDF) which is managed by the NABARD5. In the budget of 1995-96 the RIDF-I was announced of Rs.20 billion, which was utilised for giving credit facilities and lowering the interest rate for the agricultural loan, irrigation projects, flood protection, construction of roads, bridges and dams, etc. 85% of the RIDF was used for all the states except the hilly states of Northern India.

As of 2010-11 only 51% of total agriculture area was covered by irrigation and the remaining was dependent on the rainfall7. The other sources of irrigation include wells, tube wells, canals, tanks, etc. But the ground water level was worse in various states like Haryana, Rajasthan, Punjab, etc8 in Table 1.

Table 1
SOURCES OF IRRIGATION (AS OF 2010-11)

Source of Irrigation	% share of Holdings	Number of holdings
Tube wells	44.2%	31,722
Canals	25.7%	18,414
Wells	19.7%	14,101
Other sources	8.4%	6,046
Tanks	5.8%	4,180

In 2011 and 2013 the government released Model Bills for Ground Water Management. The model bills were based for the public interest and that cannot be used for private ownership. The bill provides the institutional framework for the protection and management of groundwater.

Soil is an important element of agriculture. So it is important to maintain its fertility. For this in 2015, the government launched the soil health card scheme, in which the farmers were issued soil health cards every 3 years9. It contains useful information on the quality of

the soil and gives recommendations of the dose of nutrients to be provided for the improvement of soil. Till February 2017, around 2.9 crore farmers were covered under these schemes. The government has also taken various steps to increase the use of fertilizer and pesticides. For this the government has given the subsidy for the farmers10. More than Rs.70000 crore was allocated for the fertilizer subsidy11.

To improve and increase the storage facility the Government of India has started Central warehousing Corporation. By this system the farmers are allowed to store their product in the government warehouse at a very nominal cost. The Government of India has also developed some cold storage facilities. To support agriculture the government has introduced a minimum support price strategy in which the farmer has to get a minimum amount of price12. For the development of roads the government has introduced Prime Minister Gram Sadak Yojana which was launched on 25th December 2000. Other similar programs such as Bharat Nirman Programs, etc. were launched13.

Various organisations like NABARD, SIDBI have been established by the government to finance agriculture. The government has started the Kisan Credit Card, Low interest rate schemes for the farmers. This helps the farmer, as they can get the finance from this for their agriculture.

For providing the information to the farmers, the government has launched various satellites that gathered accurate weather related information. Also a mobile tower has been established in the village area. The government of India has launched a free DD Kisan Channel, which provides all the information to the farmer such as information of various prices of crops area wise, agriculture techniques, information about various seeds, fertilizer, pesticides, etc. It also communicates various government schemes.

Infrastructure Increase Agricultural Production and Productivity

Various infrastructure helps the farmer in agriculture. The land productivity and production rises due to this infrastructure. For example, the availability of proper water supply helps to increase productivity. Further, Electrification also helps to increase productivity. Fertilizer increases the quality and nutrients of soils.

The good quality of soil means a rise in productivity of that soil. Therefore, the Infrastructure helps to raise agricultural production and productivity.

Infrastructure Reduces Cost of Production

Infrastructure needs a huge amount of finance. But it is one time finance. Also in some cases it is recurring. But if infrastructure is improving and increasing productivity then the cost of production can also be reduced. For example if water is stored, irrigation facilities are used, the cost of purchasing the water from a tanker gets reduced.

Infrastructure also reduces the per piece price for example suppose a farmer was farming without use of high quality of seed, fertilizer, he were used to produce the 1000 kg Rice at Rs.10000 cost then the price of 1 Kg rice will be Rs.10. If the farmer uses the high quality of seed and fertilizer then his cost will increase to Rs.12,000 but the production will increase, supposed to increase to 1500 kg of rice at the same piece of land then, cost per kg rice would be Rs.8 per kg.

Infrastructures Improve Social Benefits

Agriculture infrastructure like Electrification of rural areas, building of water storage and irrigation facilities. This infrastructure helps the agricultural, but also helps to benefit the

social life. Improves the standard of living. Infrastructure helps to raise the productivity that increases the farmer's income. The rise in income can be used for improving the quality of life. For example, the construction of roads helps to transport crops from farm places to various trader places. But that construction of roads can be used for other purposes also. For example, in the case of a health emergency, those roads are useful, and electricity is useful. Similarly agriculture helps and gives social benefits.

Infrastructure Increases the Welfare of Producer and Consumer

The infrastructure is benefiting both producer and consumer. The information increases productivity which means the quantity of food grain produced in agriculture arises that can be enough to satisfy the consumer demand. The good quality of soil, gives the consumer the good quality of food grain. Infrastructure is also benefiting the producer as they are getting a good amount of income. Therefore infrastructure raises the welfare of producer and consumer both.

Infrastructure Benefits the Country

After having various Infrastructure, productivity has risen. This has helped to increase the GDP of the country. Previously, India was importing various agricultural products from outside, but after various infrastructure India has become self-sufficient in the production of food grains. Various products which India used to import are now exporting to various other countries. This has helped the country to improve balance of payment and foreign exchange.

CONCLUSION

After independence India was lagging behind in the agricultural sector. India realised the need to develop the agriculture sector and various infrastructure relating to it. Various types of infrastructure like rise of electricity supply, improving the connectivity of the road, improving the irrigation facilities, use of High Yield seeds, use of fertilizer, use of pesticides, availability of the storage and warehouse14. The infrastructure plays an important role for the development of agriculture. This infrastructure benefits all that is to farmers, society, traders, government, consumers, etc. For this the government has taken various initiatives for this development. But still India has not yet reached the sufficient level. The government should make sure the benefits are reaching the farmers properly. Many times, it is seen that government benefits are not reaching properly. Infrastructure plays a vital role in the growth of agriculture. Advancement in infrastructure benefits all.

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