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The changing aspects of agriculture in the border area of Kolayat Tehsil

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ABSTRACT

The development of agriculture started with the development of human civilization. As humans develop, the development of agriculture also changes accordingly. In the beginning, humans used to do traditional farming. Traditional farming was done with less resources but as technology developed, the form of agriculture also kept changing. At present, farmers get maximum production with less resources. Agriculture has got new momentum from the research being done in the present time, due to which it has moved towards commercial agriculture. Farmer's income has increased due to commercial agriculture. Kolayat tehsil located in the desert of Tha is currently moving from traditional farming to modern farming. Government schemes and technology have established new dimensions of agriculture in this area. The means of education, medicine and communication have increased due to the income from agriculture in this area.

INTRODUCTION

Kolayat tehsil, located in the west of Bikaner district of Rajasthan, is a division located in the India-Pakistan border area. This area located in the desert region remains hot and dry. Most of the time famine and drought conditions persist in this area. The agricultural system here is mainly dependent on rain. Agriculture plays a major role in the economy of this region, but in the last few decades, due to the influence of Indira Gandhi Canal Project, government schemes, modern agricultural technology, a significant change has been seen in the nature of agriculture in this region. This research paper analyses this changing scenario of agriculture in Kolayat tehsil. In which crop diversification, development of irrigation facilities, impact of climate change, and changes in the socio-economic condition of the people have been discussed in detail. This study has been prepared through secondary sources. And the conclusions obtained from this can prove to be helpful for policy makers and agricultural scientists. Who can play a key role in the development of this region.

2. Geographical and social introduction of Kolayat Tehsil

Kolayat Tehsil is spread over an area of 7957.62 square kilometers between 27° 27' to 28° 23'[1]north latitude and 72° 29' to 73° 13'[2]east longitude. This area mainly falls in the dry part of the Thar Desert. This area receives very little rainfall ranging between 200 -300 mm. This is always uncertainty of rainfall in this area. Wherever there is rainfall it is either too much or too less. Due to which there is always a situation of famine and drought here. This area has sandy soil which has very low water holding capacity. Hence, the little rainfall that occurs also seeps into the ground and becomes underground. No river flows in this area and there is no dam. Due to which this area is completely dependent on rain. Being a desert area, very less population density is seen there. The total population of this area is 261028[3], in which 138124 are men and 122904 are women. Sex ratio is 890 and literacy is 45.90 in which the literacy rate of men is 55.98 and that of women is 34.56 percent. The distribution of population can be gauged from the fact that only 32 persons are found per square kilometer here.

3. Traditional form of agriculture

Humans have been doing agriculture since ancient times. In the initial phase, humans used to do agriculture with organic fertilizers and seeds. Kolayat tehsil is located in the desert region, hence the farmers here used to do farming with camels and bulls. The farmers here used to do only that much agriculture which was enough to sustain themselves and their families. Agriculture was not done on commercial level. This agriculture was done with less water and limited resources. In this region, crops based on less rainfall like millet, moth, guar, sesame etc. were mainly grown. This region is a sandy soil area, hence crops requiring less water have been easily produced here. A lot of human labour was seen in the ploughing, sowing and harvesting of these crops. Due to lack of means of irrigation, farmers used to adopt famine crop system, due to which a low level of agriculture is seen.

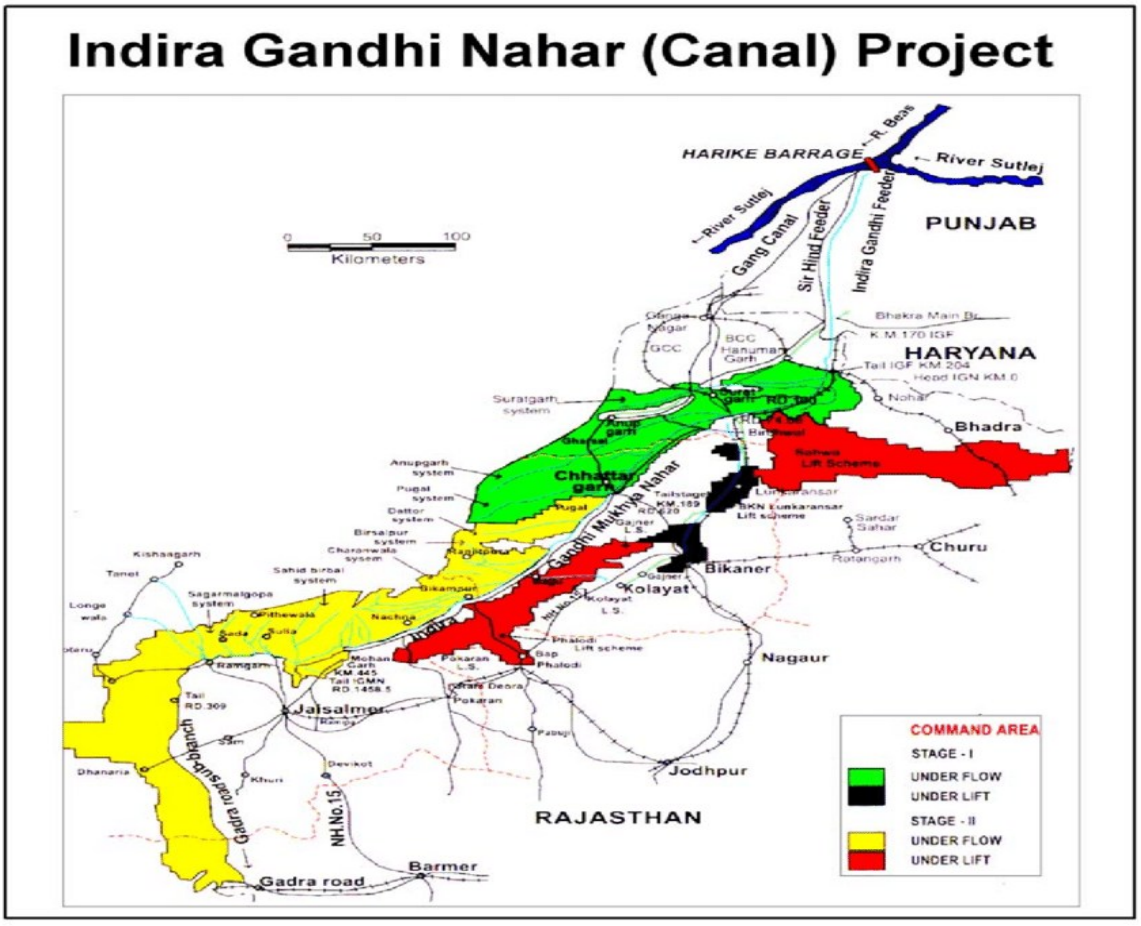
4. Impact of Indira Gandhi Canal Project

This canal, known as Rajasthan Canal, was constructed between 1952 and 2010. It is the longest canal in India. The actual construction work of this canal started in 1983. Initially, the total length of this canal was kept at 445 km. But later this project was extended by 210 km and extended to 650 km till Gadhra Road in Barmer. This canal originates from Harike Barrage Dam located at the confluence of Sutlej and Beas rivers. This canal is divided into two parts.

1 It is known as Rajasthan Feeder Canal, which flows in the states of Punjab and Haryana. But the states of Punjab and Haryana cannot use its water. Feeder Canal has been built for 169 km in Punjab and Haryana and 34 km in Rajasthan.

2. The second part of this project is known as Rajasthan Canal. This is the main part of this canal. In 1984, its name was changed to "Indira Gandhi Canal Project". This canal enters Rajasthan from Masitawali Head in Hanumangarh district. The length of this canal is 445 kilometers. It provides drinking water and irrigation

facilities to Churu, Hanumangarh, Ganganagar, Bikaner, Jodhpur, Jaisalmer and Barmer districts of Rajasthan. Nine branches have been distributed on the canal project. And seven lift canals have been constructed. This project was constructed by the Government of India with the help of the World Bank. The length of its distributaries is about 9060 kilometers. The construction of this canal has made the desert land, which was thirsty for centuries, green. This project has brought about rapid development in this entire desert region. Due to this project, the strong storms blowing in this region have reduced considerably. This project has developed the means of irrigation in this area. There is an increase in animal husbandry. Apart from this, many positive results are seen like additional employment to millions of people, increase in milk production etc. Through this canal project, major irrigated agriculture in this region is done like groundnut, cotton, gram, wheat, mustard, malta etc.



Source ResearchGate uploaded By Rajesh Bhakar[4]

5 Modern Agricultural Technology and Crop Diversification

Ever since the development of technology, there has been a change in the development of agriculture. Earlier, farmers used to depend on rain. But at present, farmers have been able to get maximum production with modern technology by using the means of irrigation. In this technology, the use of drip irrigation, sprinkler system, tractor, thresher, advanced seeds, pesticides and fertilizers has increased. With the Indira Gandhi Canal Project, farmers have made pits and collected water and ensured irrigation as per the need. In this way, by constructing pits, more crops can be produced by irrigating with less water. Farmers of this region are no longer limited to traditional agriculture. Rather, commercial farming has also started cultivating vegetables, cotton, cumin, fruits, dates etc.

Crop diversification has proved to be helpful in increasing the income of farmers. It also reduces the risk of climatic change. At present, the trend of farmers has started moving towards cash crops. These cash crops mainly include cotton, cumin, mustard, groundnut, truck farming etc. Due to increase in education, farmers have become aware of agriculture. Now farmers are selling their crops directly in the markets. And they have also started adopting new marketing techniques like farm to market model. In this way, the inclusion of business thinking is being seen in the local agricultural system.

6 Climate change and environmental impact

For the past few years, the effect of climate change has been seen a lot. Kolayat tehsil is spread in the desert area. The climate of this area is dry and hot. This area has a harsh climate in itself. The effect of climate change is clearly visible on agriculture. In this area, incidents like untimely rains, extreme fluctuations in temperature, unseasonal hailstorms are affecting agricultural production. Apart from this, the fall in underground water level, deterioration in soil quality, canal closure, problem of beans etc. have also become a matter of concern in this area.

To deal with such problems, farmers are moving towards the trend of water conservation. They are storing water by constructing pits in the fields. At the same time, they are giving priority to rainwater harvesting, mulching technique and low water crops. But still the risk of environmental uncertainty on agriculture always remains.

7 Government schemes and farmer welfare

Being located in the desert area, the schemes of the central and state government are being run for the farmers in this tehsil. So that along with the increase in agricultural production of the farmer, his income can also increase. Some of the major schemes among these schemes are as follows

- Chief minister Kisan Samman Nidhi[5]
  In this scheme, the government provides direct cash assistance to the farmer.
- Pradhan Mantri Fasal Bima Yojana[6]
  In this scheme, crop loss due to natural calamities is insured.
- Agricultural Mechanization Scheme[7]
  Under this scheme, farmers are provided subsidy on the purchase of tractors and agricultural equipment.
- National Agricultural Development Scheme[8]
  Modern technology is promoted in this scheme.

- Krishi Vigyan Kendra, Bikaner[9]
  In Krishi Vigyan Kendra, farmers are informed about the schemes of training and demonstration related to agriculture.
- Rajasthan Krishak Samarthan Yojana[10]
  Under this yojana a bonus amount has been paid by the state government at the rate of Rs, 125/- per quintal over the MSP.
- Mukhymantri Beej Swavlamban Yojana[11]
  To promote production of quality seeds at their own fields by farmers and use by themselves is the key objective of the scheme.
- Namo drone Didi Yojana[12]
  Financial assistance, capacity building and support is provided to women self-help groups for spraying nano urea and pesticides through this technology.
- Small and Marginal old Farmers Samman Pension Scheme[13]
  Under this scheme small and marginal old age farmers woman whose age is 55 years and above & farmer men whose age is 58 years and above, Rs, 1150 per month is being given.

In this way, the government provides assistance to farmers from time to time through various schemes. Due to which farmers are not only getting financial assistance but they are also getting encouragement to adopt innovation.

8 Change in the socio-economic status of farmers

This desert region of Rajasthan has seen a lot of changes with time. The desert region used to be desolate. At present, positive changes are being seen in the Kolayat tehsil of this desert. The changing nature of agriculture has led to an increase in the income of farmers in this rural region. This has led to an improvement in their lifestyle. There has been an increase in education, medical and communication services in this region. Participation of women in activities like animal husbandry, vegetable production and dairy has increased. The development of agriculture has led to an increase in agriculture-related industries. This has led to a decrease in migration from this region. Along with an increase in the means of local employment, an increase in income is also seen.

Every coin has two sides. There are advantages of technology and some negative consequences also come up. Some challenges also remain with this kind of technological development in agriculture. Water crisis, debt, low support price, uncertainty in market price, decrease in fertility of land due to excessive use of chemical fertilizers, problem of beans etc. are some of the examples due to which agriculture has declined.

CONCLUSION

Agriculture is considered to have started with human life. Continuous changes have been seen in agriculture. Agriculture has developed differently in different areas. Agriculture has come a long way in the last few decades in Kolayat tehsil of Rajasthan. Agriculture in this area has travelled from traditional rain-fed farming to modern diversified and commercial farming. Many ups and downs are seen in this area due to frequent famines and droughts. Indira Gandhi Canal Project has given new life to this area, due to which agriculture has developed in this area. Various schemes of the central and state government have positively supported the farmers in this area. The area has been developed through Krishi Vigyan Kendra, Agricultural University, Agricultural College and various institutions working in this area. Technical awareness has led the farmers towards innovation. However, challenges like climate change, water crisis, uncertainty of marketing system still remain obstacles in agricultural development in this area. Nevertheless, overall this changing form of agriculture has been successful in strengthening the socio-economic condition of the local farmers. Therefore, it is necessary that the government, scientific institutions and local communities together make such strategies that can ensure sustainable agricultural development in this region. Also, the border region can also be connected to the main stream of prosperity.

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