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Impact of Koyna Dam Irrigation on Agriculture in Sangli District

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Abstract

Koyna Dam is one of the most important dams in Maharashtra known for its irrigation and hydroelectricity generation. The irrigation system of Koyna Dam has brought about significant changes in the agricultural development of Sangli district. For this study, the irrigation facilities of Koyna Dam and the changes in cropping pattern have been analyzed from 1971-72 to 2011-12. The study was based on secondary data, in which District Socio-Economic Survey 1971-72 and 2011-12 have been used. The study shows that there has been an increase in both the irrigated area and the total area under crops. The area of cash crops has increased rapidly, with sugarcane showing the highest increase. On the contrary, crops like millet and pulses have decreased. These changes make it clear that due to the irrigation of Koyna Dam, agriculture in Sangli district has shifted towards cash crops. The irrigation facilities of Koyna Dam have brought about significant changes in the agricultural sector of Sangli district. Irrigation has ensured regular availability of water for agriculture, which has increased the productivity of crops and has also led to changes in the crop choices of farmers. As farmers have started growing commercial crops, their economic condition has improved, and positive changes are also being seen in the agricultural production and economy of the district.

Key words: *Dam, Irrigation, Agriculture, Cropping Pattern, Surface Irrigation, Well Irrigation, Lift Irrigation Schemes*

Introduction

Agriculture is considered to be the spine of the Indian economy. Agriculture has a big share in the national income of the country, about 58 percent of the population depends on agriculture. Irrigation contributes to the agricultural development of the country. The production and productivity of the agriculture mainly depends on the availability of water. Irrigation is one of the main factors that affect the crop method. If there is a water supply for agriculture in abundance, the crop method can be changed. Sangli district in Maharashtra is important in terms of agriculture, due to the weather, soil fertility and agricultural resources, this district is remarkable in terms of agricultural production. The main cash crop here is sugarcane, besides various crops like pulses, cereals, orchards and vegetables are found here. However, drought conditions occur in the south and east of the district. The irregularities of the rainfall and inadequate water are adversely affecting the income of the farmers by fluctuating production.

In such a case, the Koyna Dam has become a boon for the farmers of Sangli district. Water is released from the Koyna Dam to the Krishna river basin and then water supply is provided to many talukas in Sangli district through Krishna-Koyna Upas Irrigation Scheme and Tembu Irrigation Scheme. These schemes started to provide regular and stable supply of water for agriculture. As a result, farmers began to turn to traders and cash crops such as sugarcane, pulses, fruits and vegetables, not just relying on traditional crops. This shows significant changes in the crop system. Irrigation has not only increased productivity but also has a positive impact on the financial income of the farmers, living, employment generation and rural economy.

Review Of Literature

Gajhans D. S., Ausarmal D. V. (2016) He has studied the impact of the changing crop method of irrigation facilities in Nirava taluka. The main goal of the researcher is to study irrigation facilities in the field of study and analyze the crop method.

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According to statistics in secondary sources, irrigation has increased significantly by the well in this study. Also, the area under the sorghum has decreased and the area under wheat has increased. This study shows positive correlations in irrigation facilities and crop system.

Dr. D. D. Shinde (2017) He studied the changes in irrigation and crop system in the state of Maharashtra during the period from 1960-61 to 2015-16. The entire study is based on secondary sources. Their conclusion shows that during the study period, both positive and negative changes have been made in the crop system. The irrigation area increased from 5.99 lakh hectares to 21.95 lakh hectares. The area under the sorghum and millet decreased by 48.80% and 51.00% respectively, while rice, pulses, cotton, oilseeds and sugarcane areas increased. Due to irrigation facilities, the trend of farmers has increased to commercial crops.

Nasir M., Khan A., Alam S., Akhtar S. (2017) The main purpose of the study is to calculate the impact of land use, crop method, irrigation system, crop producing and income at Moja Fort due to the Palai dam. It is based on primary and secondary sources. The duration of the research is 2008-09 (before building the dam) it is 2013-14 (after the dam is completed). The study of the Palai dam is usually based on the comparative period of 5 to 6 years. According to their conclusion, irrigation - dependent irrigation irrigation, which was widely changed by irrigation of the canal, increased from170.8.5% to 261.28%. Farmers' trend towards commercial crops appears to increase. Small dams like Palai are extremely beneficial, but farmers' organizations need to avoid proper management of water, water allocation. He has said that.

Khan S., Shah S., Ullah I., Ibrahim M., Khan S (2018) He has studied the consequences of land allocation, production of wheat and gram due to irrigation projects, changes in crop methods and growth in animal husbandry. The researcher has collected the preliminary information through questioning and secondary information from the report. According to their conclusion, irrigation facilities increased the production of wheat and gram under cultivation. Also, sugarcane and vegetables and dairy animals increased. This increased the income of the farmers. In the study, the government has recommended providing irrigation infrastructure, training to farmers, financial assistance for dairy.

Objective

1. To study the Koyna Dam irrigation facilities in the study area.
2. To analyze the changes in cropping patterns due to Koyna Dam irrigation.

Study area

Sangli district is primarily an agricultural district located in the Krishna River basin. The total area of Sangli district is 8,572 square kilometers. To the north, it is bounded by Satara and Solapur districts, while to the south lie Kolhapur and Belgaum districts. To the east, it is bordered by Bijapur district. The district extends 205 km from east to west and 96 km from north to south. Sangli is one of the southern districts of Maharashtra, situated between 16043 and 17038 north latitudes and 73041 and 75041 east longitudes.

Research Methodology

This study is comparative in nature and mainly secondary sources have been used in this study. To understand the impact of the use of water available due to Koyna Dam irrigation on agriculture in Sangli district, District Statistical Reports 1971-72 and 2011-12 as well as various research articles have been used. The collected information has been presented in the form of tables and graphs.

Results & Discussion

Koyna Dam Irrigation

Koyna Dam is the largest dam in Maharashtra, and the main objectives of this dam are hydroelectricity and irrigation. The construction of the dam began in 1954 and was completed in 1967. There are two independent lift irrigation schemes under the Krishna Koyna Lift Irrigation Project, namely Takari and Mhaisal. The planned water consumption for these schemes is 19.07 TMC from Koyna Dam and 7.71 TMC from Krishna River. The total water consumption is 26.78 TMC, of which 9.34 TMC of water is planned to be lifted for Takari scheme and through this it is planned to provide irrigation benefits to Khanapur, Tasgaon, Miraj Palus, Kadegaon and Walwa talukas of Sangli district. And for Mhaisal scheme, 17.44 TMC of
water is proposed to be provided to Miraj, Kavathemahankal, Tasgaon and Jat talukas of Sangli district. (महाराष्ट्र शासन, २०१७)

Table: 1 Area under irrigation in Sangli District (Area-in hectors)

Area	Year	Irrigation Area		Net Area Irrigation	Total Gross Area Irrigation
		Surface Irrigation	Well Irrigation		
Sangli District	1971-72	15384	43177	58561	67534
	2011-12	41810	102327	1441137	159440
	Change	**+26426**	**+59150**	**+85576**	**+91906**

Source: The socio - economic abstract of Sangli district,1971.2011

It is seen from Table No. 1 that in 1971-72, the area of surface irrigation in Sangli district was 15384 hectares, while irrigation through wells was 43177 hectares. In 2011-12, the area of surface irrigation was 41810 hectares, while irrigation through wells was 102327 hectares. During this 40-year period, there was an increase in surface irrigation by 26426 hectares and in well irrigation by 59150 hectares. There was an increase in net irrigation area by 85576 hectares, while the total irrigation area increased by 91906 hectares.

This shows that the area under irrigation in Sangli district has increased. The amount of irrigation through wells has increased. This change has had a positive impact on the cropping pattern of the area under crop in the district.

Table: 2 Changes in cropping pattern in Sangli District (Area in hectors)

Sr.No.	crops	1971-72	2011-12	change
1	Rice	16147	17686	+1539
2	Wheat	15221	28883	+13662
3	Jowar	223568	271849	+48281
4	Bajra	111804	42546	-69258
5	Sugarcane	19910	55270	+35360
6	Pulses	66252	91907	-25655
7	Oil Seeds	88527	111718	+23191
8	Fruits and Vegetables	2923	25752	+22829
	Gross cropped area	**544352**	**645611**	**101259**

Source: The socio - economic abstract of Sangli district

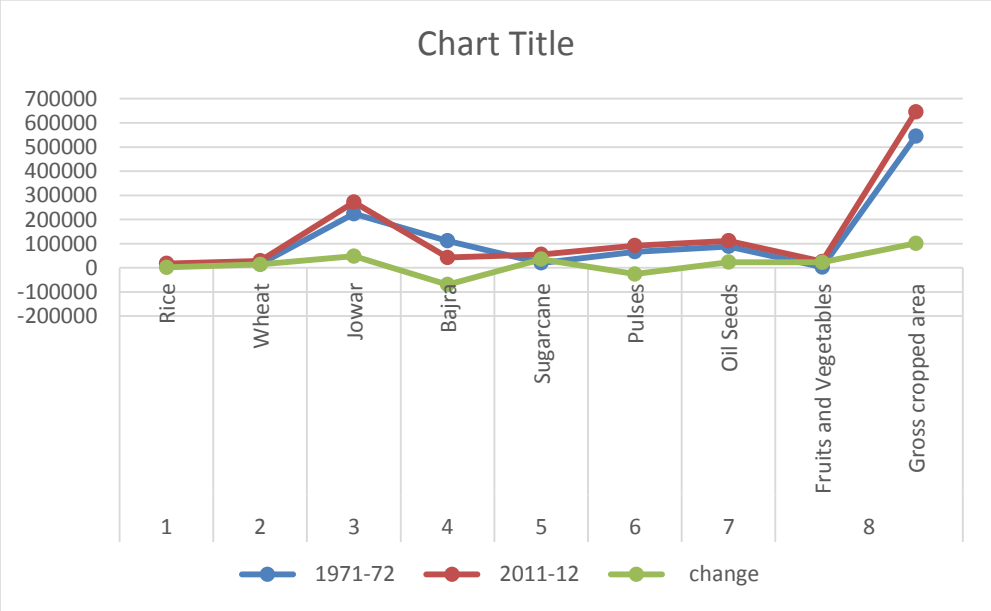

Table 2 shows that there have been changes in cropping patterns between 1971-72 to 2011-12. There has been an increase in the area under rice, wheat, jowar, oilseeds, fruits and vegetables. However, the area under millet has decreased by 69258 hectares. Sugarcane has shown the highest increase. It has increased from 19910 hectares in 1971-72 to 55270 hectares in 2011-12. The area under pulses has decreased by 25655 hectares. The total area under crops has increased from 544352 hectares in 1971-72 to 645611 hectares in 2011-12.

Conclusion

There has been an increase in the area under surface and well irrigation in Sangli district. In 1971-72, surface irrigation was 15384 hectares. And in 2011-12 it increased to 41810 hectares. Also, well irrigation increased from 43177 hectares in 1971-72 to 102327 hectares in 2011-12.

During the study period, positive and negative changes are observed in cropping patterns. Positive changes are observed in rice, wheat, jowar, sugarcane, oilseeds and fruits and vegetables, while negative changes are observed in millet and cereal crops. In particular, the area under cash crop sugarcane increased from 19910 hectares to 55270 hectares. There is an increase of 101259 hectares in the total area under cropping.

The Koyna Dam has brought about significant changes in agriculture in Sangli district. The availability of irrigation has given a boost to cash crops, fruits and vegetables, and oilseeds, leading to an increase in the commercialization of the agricultural sector.

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Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of this paper.

References
1. Gajhans D. S., Ausarmal D. V. (2016) 'Impact of Irrigation Facilities on Changing Cropping Pattern in Newasa Tahsil, District Ahmednagar (MS), Indian Streams Research Journal, ISSN:2230-7850, Vol.6, Issue-5
2. Golop V. S., Nalawade D. B. (2021) " Impact Of Irrigation Systems On Agricultural Development : A Study Of Satara District (Maharashtra)", UGC Care Listed, International Research Journal, ISSN: 2229-4929, Volume- IV
3. Khan S. A., Shah S.A., Ullah I., Ibrahim M., Khan S. (2018) 'Impact of Gomal Zam Dam Irrigation Project on Agriculture and Welfare of Farming Community in Southern Districts of Khyber Pakhtunkhwa- Pakistan', Asian Journal of Agriculture and Rural Development, Vol.7, Issue-10 (2017): 212-128
4. Kamble S. D. (2023) 'Impact of Wakurde Irrigation Project on Agriculture: A Geographical Analysis', International Journal of Advance and Applied Research, Vol.11, No.1, ISSN-2347-7075
5. Nasir M. J., Khan A. S., Alam S., Akhatar S. (2017) ' Impact of Palai Dam on Land Use and Cropping Pattern of Mouza Qila, District Charsadd, Khyber Pakhtunkhwa, Pakistan', Sarhad Journal of Agriculture, Vol. 33, Issue-1
6. Purandare V., Dr. Bajaj V. H. (2017) "Economic Appraisal Of Lift Irrigation Schemes – Benefit Cost Ratio & Internal Rate Of Return: Case Study Of Mhaisal Lift Irrigation Scheme", IOSR Journal Of Humanities And Social Science, e- ISSN: 2279-0837, P- ISSN: 2279-0845, Volime 22, Issue 1
7. Rajmane S. B. (2019) "A Study Of Irrigation Setup In Sangli District", IJRAR- International Journal Of Research And Analytical Reviews, e ISSN 2348- 1269, Print ISSN 2349- 5138, Volume 6, Issue 1
8. Shinde D. D. (2017) 'Geographical Analysis of Irrigation Facilties and Changing Cropping Pattern in Maharashtra (India), International Journal of Advance and Applied Research (IJAAR), ISSN-2347-7075, Vol.5, No.1
9. Socio Economic Review of Sangli District 1971-72
10. Socio Economic Review of Sangli District 2011-12महाराष्ट्र शासन जलसंपदा विभाग शासन निर्णय क्रमांक : कृकोसिं१२१६/प्र.क्र.८५९/१६/मोप्र-१