



Impact of Irrigation on Cropping Pattern in Osmanabad District

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Abstract

Exercise of artificial water supply by canals, wells, tube wells, major, medium, minor irrigation project to the agriculture field for the crops production is known as irrigation. It is the main axis around, which the whole agriculture actions revolves. Irrigation in agrarian economy assumes the same significance as blood in the human body. Cropping pattern means the proportion of area under various crops at a point of time. Cropping pattern is a dynamic concept as it changes over space and time. To study the impact of irrigation on Cropping Pattern in Osmanabad District, I have selected seven crops, including Wheat, Total Jawar, Gram, Pigeon Pea, Black gram, Sugarcane, Fruits & Vegetable and Soyabean. In the year of 2018, there were 948807 hectares total cropped area and total irrigation area were 120283 hectares in the district. Main objective of this paper is to assess the impact of irrigation on Cropping Pattern in Osmanabad District. Secondary data has been used in this research paper. I have used statistical method to calculate cropping pattern and growth rate.

Keywords: 1. cropping pattern, 2. Irrigation, 3. Impact assessment.

Introduction:

Agriculture is the approach which should be always changed as per space and time water sources are major variable affecting on agricultural. Hence water sources of Manjra, Terna, Benithora, Sina, Bori, Bhogawati and Harni increases agricultural productivity in the district. Irrigation fundamentally means the watering of land to make it ready for agricultural purposes. An irrigation system is the providing of water via artificial canals and channels to rising Crops and Plants in a field. Water is vital for the growing of plants. There can be no plants or crops if they do not have access to water in some form. It is, consequently crucial to supply of water to crops and plants, periodically and as per their requirement. So irrigation is this intermittent and proper supply of water to plants. Irrigation has a huge impact on cropping patterns. To study the impact of irrigation on Cropping Pattern in Osmanabad District, I have selected seven crops, including Wheat, Total Jawar, Gram, Pigeon Pea, Black gram, Sugarcane, Fruits & Vegetable and Soyabean.

Objective:

- To assess the Impact of irrigation on Cropping Pattern in Osmanabad District.

Database and Methodology:

Present study generally depends on the secondary data. Collected through census handbook of Osmanabad District, District statistical Department, current status of all irrigation schemes of Osmanabad district and socio-economic abstract of Osmanabad District. The data collected by statistical techniques.

Used this formula for calculate cropping pattern.

$$\text{Cropping Pattern} = \frac{Ca}{N} \times 100$$

CP = Cropping Pattern.

Ca = area under the 'A' crop in the study area.

N = Total cropped area in the study area.

Used this formula for calculate irrigation growth rate

$$\text{Growth Rate} = \frac{\text{Current Years} - \text{Base Year}}{\text{Base Year}} \times 100$$

Study Area:

Osmanabad district is one of the 8 district of Marathwada region. The district lying between 170 35' N to 180 40' North Latitude and 750 16'E to 760 40' East longitude situated in Balaghat plateau region. It has total geographical area of 7512.4 Sq. Km. the district of Osmanabad has following sub-divisions like Osmanabad, Tuljapur, Omerga, Paranda, Kalamb, Boom, Lohara and Washi. It is bounded by Sholapur District to the South-west, Ahemadnagar to the North West, Beed to the North, Latur to the East and North -East, Bidar & Gulbarga district of Karnataka state to the South.

Cropping Pattern:

Cropping pattern means the proportion of area under various crops at a point of time. Cropping pattern is a dynamic concept as it changes over space and time. The cropping pattern of a region or area unit may be determined on the basis of area strength of individual crops. The first, second and third ranking crops of an aerial unit may be called as the dominant crops.

Impact assessment of irrigation on cropping pattern:

The impact of irrigation on Cropping pattern is best understood, Irrigation in the year 1991, Irrigation in the district were recorded 98988 (100%) hectares and Cropping Pattern of Wheat were recorded 3.02, Cropping Pattern of Total Jawar were recorded 38.6, Cropping Pattern of Gram were recorded 3.56, Cropping Pattern of Pigeon Pea were recorded 13.28, Cropping Pattern of Black gram were recorded 2.55, Cropping Pattern of Sugarcane were recorded 2.89, Cropping Pattern of Fruits and Vegetable were recorded 1.3 and Cropping Pattern of Soyabean in the year 1991, not recorded in the Osmanabad district.

In the year of 2018, Irrigation in the district were recorded 120283 (100%) hectares and Cropping Pattern of Wheat were recorded 2.29, Cropping Pattern of Total Jawar were recorded 29.92, Cropping Pattern of Gram were recorded 5.18, Cropping Pattern of Pigeon Pea were recorded 7.25, Cropping Pattern of Black gram were recorded 4.63, Cropping Pattern of Sugarcane were recorded 4.18, Cropping Pattern of Fruits and Vegetable were recorded 1.64 and Cropping Pattern of Soyabean were recorded 20.15 in the Osmanabad District.

In the district 1991 to 2018 irrigation area were increased 21295 (21.51%) hectares and Cropping Pattern of Wheat were decreased 0.73, Cropping Pattern of Total Jawar were decreased 8.68, Cropping Pattern of Gram were increased 1.62, Cropping Pattern of Pigeon Pea were decreased 6.03, Cropping Pattern of Black gram were increased 2.08, Cropping Pattern of Sugarcane were increased 1.34, Cropping Pattern of Fruits and Vegetable were increased 0.34 and Cropping Pattern of Soyabean were increased 20.15 in Osmanabad district.

Conclusion:

Researcher observation of the study area irrigation area were increased 21295 (21.51%) hectares and Cropping Pattern of Wheat were decreased 0.73, Cropping Pattern of Total Jawar were decreased 8.68 and Cropping Pattern of Pigeon Pea were decreased 6.03 but Cropping Pattern of Gram were increased 1.62, Cropping Pattern of Black gram were increased 2.08, Cropping Pattern of Sugarcane were increased 1.34, Cropping Pattern of Fruits and Vegetable were increased 0.34 and Cropping Pattern of Soyabean were increased 20.15 in Osmanabad district. Considering the overall study area, it was observed that the area under Cash crops Gram, Black gram, Sugarcane, Fruits and Vegetable, Soyabean has increased in the study area, while the area under food crop Wheat, Total Jawar, Pigeon Pea has decreased in the study area. That is impact of irrigation on cropping pattern in Osmanabad district.

Impact of irrigation on Cropping Pattern in Osmanabad District

Crop	Year	Paranda	Bhoom	Washi	Kalamb	Osmanabad	Tuljapur	Lohara	Omerga	district
Irrigation	1991	18942	7947	0	11591	17652	31685	0	11171	98988
	2018	22037	15260	3701	14724	24615	22788	4429	12729	120283
	1991 to 2018	3095	7313	-7946	3133	6963	-8897	-6729	1558	21295
	1991 to 2018	16.34	92.02	68.22	-27.03	39.45	-28.08	-60.31	13.95	21.51
Wheat	1991	2.69	1.71	0	1.08	5.31	3.59	0	2.53	3.02
	2018	2.88	2.52	2.08	2.2	1.93	2.43	3.75	1.5	2.29
	1991 to 2018	0.19	0.81	2.08	1.12	-3.38	-1.16	3.75	-1.03	-0.73
Total Jawar	1991	56.79	28.88	0	47.18	56.5	21.04	0	24.02	38.6
	2018	48.69	40.14	28.89	26.94	19.72	29.97	33.95	32.79	29.92
	1991 to 2018	-8.1	11.26	28.89	-20.24	-36.78	8.93	33.95	8.77	-8.68
Gram	1991	2.24	3.19	0	2.19	6.82	3.21	0	2.85	3.56
	2017	7.27	9.1	6.48	3.65	2.94	3.23	7.22	7.3	5.18
	1991 to 2018	5.03	5.91	6.48	1.46	-3.88	0.02	7.22	4.45	1.62
Pigeon Pea	1991	12.62	10.96	0	12.95	7.72	15.33	0	19.41	13.28
	2018	10.71	7.92	12.41	4.41	4.14	9.62	7.69	7.79	7.25
	1991 to 2018	-1.91	-3.04	12.41	-8.54	-3.58	-5.71	7.69	-11.62	-6.03
Black gram	1991	0.22	2.99	0	2.77	1.53	2.41	0	5.4	2.55
	2018	4.61	3.87	2.4	3.17	4.54	5.16	6.7	6.73	4.63
	1991 to 2018	4.39	0.88	2.4	0.4	3.01	2.75	6.7	1.33	2.08
Sugarcane	1991	2.12	0.63	0	1.41	1.2	2.29	0	3.07	2.89
	2018	3.19	1.37	2.71	2.1	1.65	3.33	1.39	2.45	4.18
	1991 to 2018	1.07	0.74	2.71	0.69	0.45	1.04	1.39	0.38	1.29
Fruits & Vegetable	1991	0.41	1.06	0	0.16	0.3	4.49	0	0.66	1.3
	2018	1.62	1.75	1.79	0.9	1.75	3.11	0.79	1.19	1.64
	1991 to 2018	1.21	0.69	1.79	0.74	1.45	-1.38	0.79	0.53	0.34
Soyabean	1991	0	0	0	0	0	0	0	0	0
	2018	6.12	13.36	18.36	26.22	29.77	18.1	16.19	13.35	20.15
	1991 to 2018	6.12	13.36	18.36	26.22	29.77	18.1	16.19	13.35	20.15

Source: 1. Socio-Economic Review and District Statistical Abstract. Osmanabad District. 199, 2018.

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