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IMPACT OF WATER RESOURCES UTILIZATION AND CROPPING PATTERN OF AHMEDNAGAR DISTRICT- A CASE STUDY OF PARNER TAHASIL

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ABSTRACT

Irrigation has key factor for agricultural development. Irrigation becomes essential part due to the variation of monsoon and uneven distribution of rainfall throughout the year. Even those crops, which are grown during rainy season, also depend upon irrigation because farmers try to irrigate the crops in

time so that crops might be ready in time and give higher yield. In present study Parner tahsil was selected as a study area which came under rain shadow region. The irrigation water resource availability and management practices were consider from study area in relation with a cropping pattern during 1961 to 2001. Mostly the irrigation practices increases chronologically with change in land use and cropping. The monsoon pattern mostly influencing on land use and cropping pattern. The scarcity and availability of water resources influenced the ground water utilization rate.

KEYWORDS :Water resources utilization, Land use, Cropping Pattern, Irrigation Facilities.



INTRODUCTION :

IMPORTANCE OF THE STUDY:

Irrigation has become an significant aspect of agriculture. Recently irrigation becomes most essential and without irrigation the majority crops cannot be grown. Irrigation becomes essential part due to variation of rainfall and irregular distribution of rainfall throughout the year. Even those crops, which are grown during rainy season, also depend upon irrigation because farmers try to irrigate the crops in time so that crops might be ready in time and give higher yield. In case of failure of rainfall use of irrigation becomes much more essential areas raising multiple crops need intensive irrigation

facilities. Rainwater is considered as base of irrigation. Inadequate rainfall disturbs the ground water availability in the resources and rivers, canals, get dry and farmers became replace the importance of rainwater. Irregularities in monsoon pattern in space and time, makes the artificial irrigation practices are necessary for most of the crops cultivated in the region. Whereas sugar cane, groundnuts etc are totally depend on artificial irrigation.

The surface water irrigation practices like the tank, river, canal, and lake play vital role in irrigation. Whereas underground is also during, the underground water is also being tapped by dug and tube wells and these became important due to reliance.

HYPOTHESIS:

This research paper has taken the following hypothesis concerning the water resource utilization and cropping pattern. There are different factors related to rural development, out of them irrigation, electricity, agriculture and social amenities are considered.

- 1) Whether irrigation is responsible to development in rural area.
- 2) Whether the land use pattern and changes in cropping pattern impact on rural development.

OBJECTIVE:

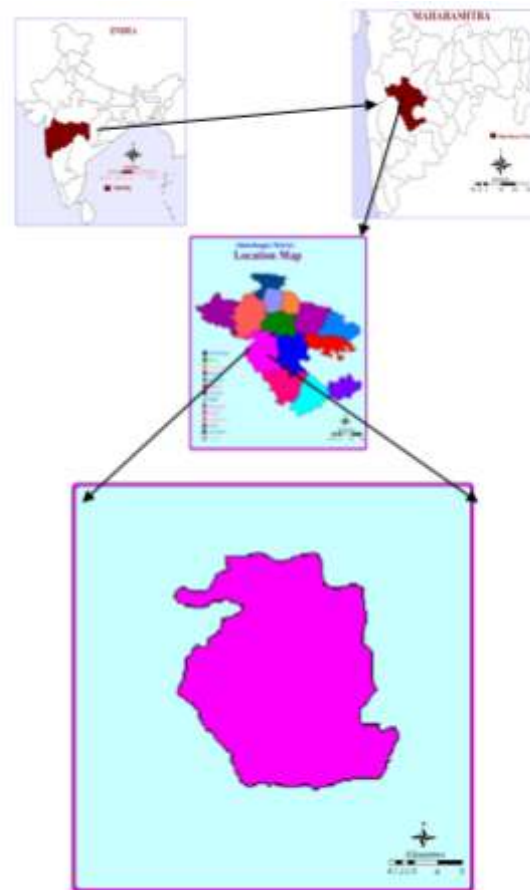
The main objective of the present study is to find out that ways and means to solve the problems related cropping pattern of the tahsil.

- 1) To know the geographical situation of Tahsil.
- 2) To study the cropping pattern of study area.
- 3) To study the changes in irrigational pattern of study area

STUDY AREA:

Parner tahasil is located in the western part of Ahmednagar district between 180 49'40"N to 19021'13"N.Latitude and 740 10'22"E to 74038'34"E Longitude. Physically the tahasil forms a part of Deccan Plateau in general and the Balaghat plateau in particular, to the east of the sahyadris. The occupies the western part of the Balaghat plateau also known as Ahmednagar Plateau, along with a narrow strip to the west of plateau rim occupied by the Kukady river basin. It is the largest tahasil with a total area of 1930 sq. k.m.accounting for 11.32% of the district area and a population of 246535 forming 6.10% of the district with the lowest population density. (150/sq K.M.) More than 76 percent area is under agriculture of the tahasil. Mostly the people are engaged in agricultural practices.

Map-No. I- Location of Study Area



DATABASE AND METHODOLOGY:

The present paper is primarily based on secondary data. The data on census year have been collected from Department of Irrigation, Socio-Economic Review and Statistical Abstract of Ahmednagar District. The data pertaining to the period from 1960-61 to 2000-01.

Further all sorts of published and unpublished data were processed and then suitable maps and diagrams, represented data, choropleth maps, graphs have been constructed and interpreted. Suitable diagrams are prepared and interpreted the text to show the changing cropping pattern.

RESULT AND DISCUSSION

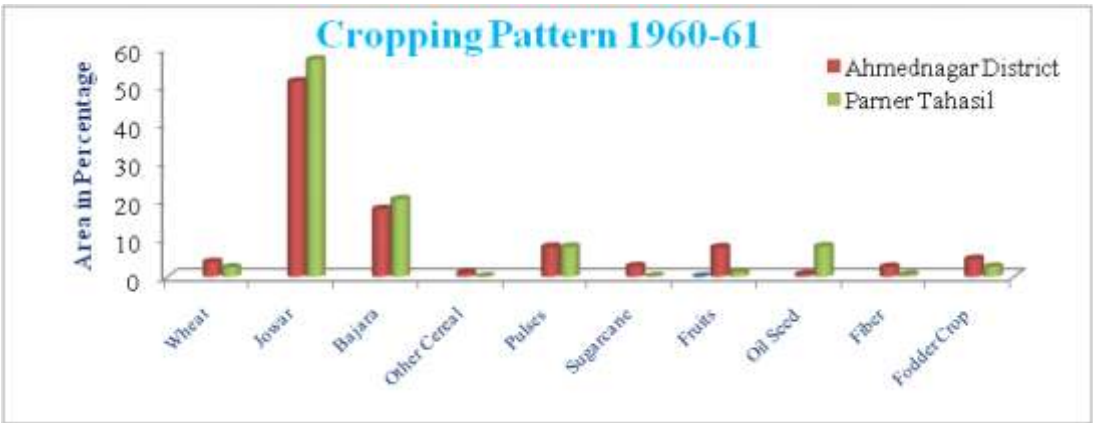
Table No-1- Area under Different Crops in Percentage

Area	Year	Wheat	Jowar	Bajara	Other Cereal	Pulses	Sugarcane	Fruits Vegetable	Oil Seed	Fiber	Fodder Crop
Ahmednagar District	1960-60	3.84	51.23	17.76	0.98	7.83	2.76	7.71	0.63	2.59	4.65
	1970-71	3.98	64.01	14.40	1.36	2.85	4.34	0.53	7.62	0.59	0.30
	1980-81	4.00	48.10	19.08	0.81	6.96	6.01	6.16	0.75	1.11	6.96
	1990-91	3.96	46.15	26.84	0.61	5.82	4.73	1.17	5.01	0.18	5.50
	2000-01	6.73	40.19	27.55	0.14	7.40	5.42	2.23	5.83	0.32	4.14
Parner Tahasil	1960-61	2.42	56.95	20.32	0.04	7.83	0.11	1.20	7.93	0.55	2.62
	1970-71	0.45	71.24	14.13	0.05	3.04	0.04	0.30	10.17	0.19	0.25
	1980-81	1.49	55.99	20.94	0.006	8.43	0.92	0.81	6.37	0.12	4.90
	1990-91	2.16	48.72	28.22	0.01	7.58	0.30	2.34	6.04	0.003	4.60
	2000-01	2.64	55.40	20.21	0.21	9.49	3.29	3.13	5.31	0.00	0.32

Table No-II- Area under Irrigation by Different Sources

Area	Year	Total Irrigated Area	Net Irrigated Area	% to Total Irrigated Area	Source of Irrigation	
					Surface	Well
Ahmednagar District	1960-61	154472	135824	87.92	34.14	65.86
	1970-71	174209	147030	84.39	29.30	70.70
	1980-81	287289	243772	84.85	28.50	71.50
	1990-91	311178	246391	79.18	33.86	66.14
	2000-01	382807	321663	84.02	21.73	78.28
Pamer Tahasil	1960-61	12077	8536	70.67		100
	1970-71	3398	2863	84.25	-	100
	1980-81	13129	10730	81.72	-	100
	1990-91	14727	10729	72.85	-	100
	2000-01	23347	16075	68.85	56.20	43.80

Figure No-I



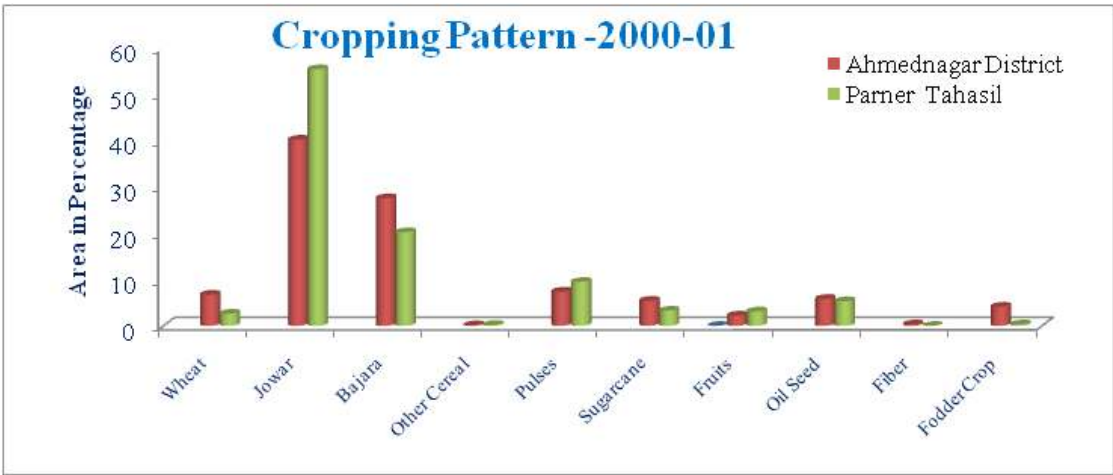


Figure No-I- Sources of Irrigation

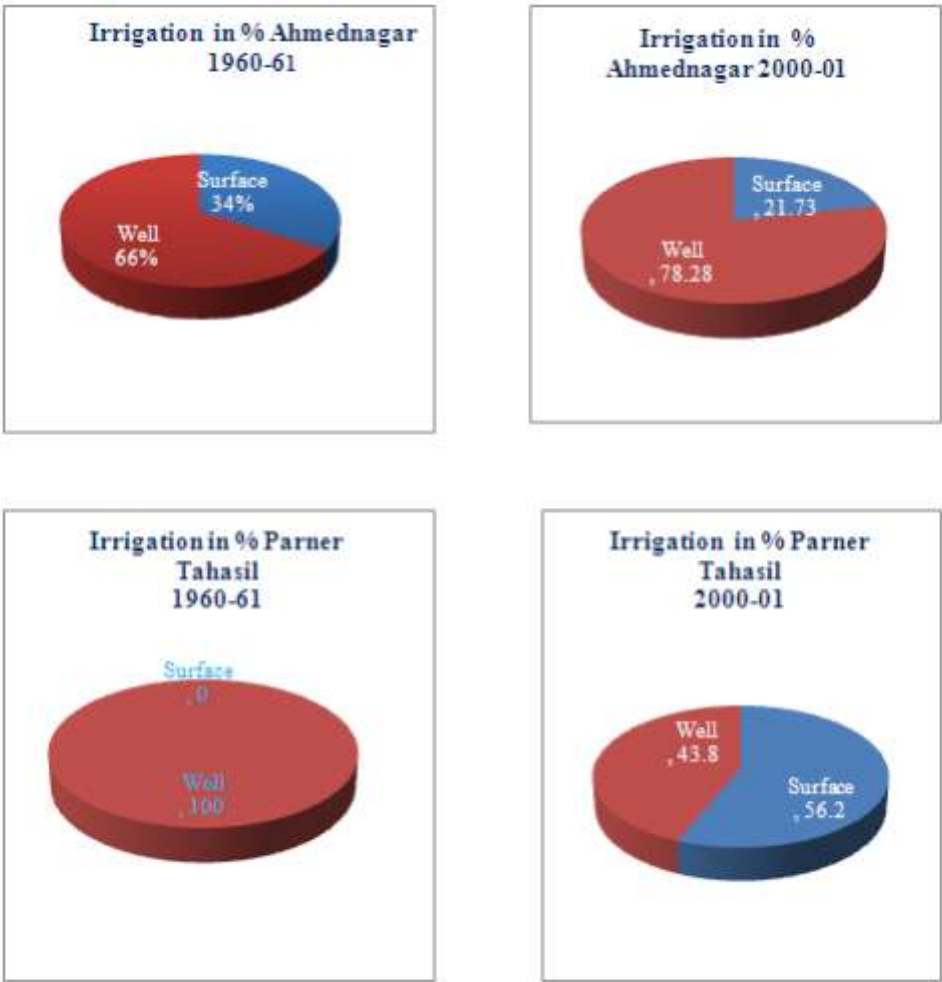


Table no I is the showing the area under food crops was 87 percent whereas the area under cash crop was 13 percent in the total cultivated area of the district during 1960-61. Food crops included mostly jowar, bajara, wheat, pulses and oil seeds etc. Jowar and Bajara is the highest area under cultivation. Cash crops included sugarcane and fruits, vegetables etc. In 2000-01 the area under food

crops has been increased by 5.04 percent and reached 91.98 percent whereas cash crop decreased by 6.09 percent of the district cultivated area during the study period.

In area under food crops found 98.14 percent whereas the area under cash crop observed only 1.86 percent in the total cultivated area of the Parner tahasil during 1960-61. In 2000-01 the area under food crops has been decreased by 4.63 percent and reached 93.48 percent whereas cash crop increased by 4.56 percent of the total cultivated area during the study period.

Table no II showing the area under irrigation by different sources. Net irrigated area is observed increasingly decade wise in hectares in Ahmednagar district. i.e. 135824 hectares in 1960-61, 147030 hectares in 1970-71, 243772 hectares in 1980-81, 246391 hectares in 1990-91 and 321663 hectares in 2000-01. The net area under irrigation is unevenly or flexible. After forty year it is showing increasingly.

In Parner tahasil area under net irrigation was 8536 hectares. It was 70.67 percentage of the total irrigated land of the tahasil. After forty year it is showing increasingly up to 16075 hectares. It is also flexible.

SUMMARY AND CONCLUSION:

In the Ahmednagar district the northern part having surface irrigation whereas Parner tahsils area mostly depend on ground water irrigation practices. The availability of irrigation facilities reflects the land use and cropping pattern. The study area has short term cropping pattern i.e. cereal crops were abundant is comparatively at the district level. Parner tahasil has decreased of food crop from 98.98 to 93.48 percent whereas cash crops increased from 1.86 to 6.42 percent of the total cultivated area. The cash crops cultivation practices were increased due to availability of Kukady canal project in the south west part of the tahasil. This situation has showing that the availability of surface water facilities are directly influencing for the changes in cropping pattern and the agricultural economy.

In the present study the reveals the cropping pattern and the irrigation practices in the study area. The data from 1960-61 to 2000-01 of the irrigation practices reflects cropping pattern of the district. The main irrigation project are constructed in the northern part of the district i.e. Mula dam, Bhandardara dam, Nilwande dam etc. The study area comes under rain shadow area. So the uneven and irregular characteristic of Monsoon the study area mostly depends on tube well and dug well for irrigation. Cash crops are replaced on food grain where the surface irrigation facilities are developed in limited area. In this area sugarcane, fruits, onion, groundnut these crop are growing recently as a cash crop.

In the study area irrigation facilities are not been developed in all over area in the district. The availability of farm technology, electrification of well, positive changes of the farmers' attitude, availability of finance by different sources, literary of the farmers etc due to this well irrigation has been adopted by the farmers. Surface irrigation is available in limited area in study area. It should be developed more area. It will be beneficial for the changes in cropping pattern

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