International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 02 | Feb 2020 www.irjet.net p-ISSN: 2395-0072

A Geographical Study of Nilwande Canal in Ahmednagar District, Pravara River, M.S, India

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ABSTRACT: Pravara River is a tributary of the Godavarri River. Various factors affected on rainfall such as the Topography, Temperature and forest etc. The types of irritation systems, canal position, dam etc. depend on the rainfall situation. Drinking-water supply has a primary objective of protecting human health, including ensuring access to adequate quantities of safe water. Climate of Ahmednagar district is generally hot and dry. In Maharashtra, Ahmednagar district is known mainly as a drought prone area. Ahmednagar district has an uneven rainfall and the distribution of rainfall is uneven. Average rainfall in the western part of Akole and Sangamner tahsil is higher than other tahsils. But it's not always regular. This study is geographically studied and this study relies on secondary data.

KEY WORDS: Irrigation, Nilwande Canal, Pravara River, Pravara Left and Right Canal, Cultural Command Area (CCA).

INTRODUCTION:

Development of agricultural in any region depends on the rainfall as well dam location (**Anil A. Landge (2020)**. There are many environmental issues in India. Watershed Management (**Kudnar, N.S**. & Rajasekhar, M, 2020) Air pollution, water pollution (**Kudnar N. S**., 2019), river drainage problem, river water pollution, variation of rainfall, temperature, garbage domestically prohibited goods and pollution **(Kudnar, N. S**., 2018) of the natural environment are all challenges for India. Nature is also causing some drastic effects on India **(Kudnar, N. S**., 2015). The situation was worse between 1947 through 1995. According to data collection and environment assessment **(Kudnar, N. S**., 2019) studies of World Bank experts, between 1995 through 2010, India has made some of the fastest progress in addressing its environmental issues and improving its environmental quality in the world. Still, India has a long way to go to reach environmental quality similar to those enjoyed in developed economies. Pollution remains a major challenge and opportunity for India **(Kudnar,** N. S., 2017). The most importance reason why the forest area is decaling day by day is increasing population and industrialization (**Gadekar Deepak.J.,** 2016 and **Gulave S.D., 2008**). The human beings are a resource, but human beings are subject to huge environmental changes (**Gadekar Deepak J.**, 2016). Agricultural productivity depends on the environmental factors with Human factors (**Gadekar Deepak** J., 2016). Water pollution in the river is the highest for human causes (**Gadekar Deepak** J., 2020). The soil ecosystem has greatly damaged because of use chemical and fertilizers in agricultural sectors (**Sonawane** V. R 2020). Akole thasil is the westernmost thasil of Ahmednagar district situated on the crest of Sahyadri Hills. The tallest peak in the Sahyadri (Maharashtra State) Mountains in this Thasil. Ahmednagar district has the highest rainfall due to this mountain range. Ahmednagar district receives less rainfall from west to east. The length of this dam is 533 mts. and the height is 74.50 mts. In this dam 8.32 TMC (236.00 MCM) water will be saturates and under it 1, 11,090 hect. Total area, 86,100 hect cultivable area and 64,260 hect. Land will be under irrigation as well as 11 MW electricity can be generated. Two Branches of these canal i.e. left and Right. Left canal are another two branch- first Talegaon Branch (length is 14.50 km) and second Kopargaon Branch (length is 14 km). Left canal work of acquiring land is in progress in Akole tahsil of 2 to 26 km in the village mehanduri of chain no. 4000 to 8700 mts of acquiring land. The proposal for the same is send to Hon. District Collector, Ahmednagar. And combined survey and measurement of village Rede i.e. chain no. 17090/17139 mts to 18800 mts is completed in the year 1987. Right canal work is in progress 1 km on Upper Pravara Right Canal. Even the combined survey and measurement of Akole is also completed in the year 1987. But the acquired land of this town is increased due to which re-survey is required for the same. **Back Canal** length is 16.50 km. **Minor Distribution t**hese projected length of 22 km. Up to 6 to 22 km (17km) work of this canal is completed under Employment Guarantee Scheme. Work is in progress after survey between 0 to 6 km lengths. Remaining 6 to 22 km work and acquiring the land for the same is completed and the land is fully owned by the irrigation department. The Pravara River is one of the important tributaries of Godavari in Maharashtra. The current study focuses on assessment of the various irrigation projects in the Pravara river Basin in Ahmednagar District with special Nilwande Canal.

STUDY AREA:

The study area extends from source of river Pravara to Akole tahsil between $73^0$37'east to $74^0$05' east longitude and $19^0$28' north to $19^0$39' north latitudes. The height of dam is 593 mts. (ASL), total area is 1, 11,090 hect., lowest foundation is 73.91 mts. (242.5 ft) and length 583 mts (1913 ft). The length of this dam is 533 mts. and the height is 74.50 mts. In this dam 8.32

TMC (236.00 MCM) water will be saturates and under it 1, 11,090 hect. Total area, 86,100 hect cultivable area and 64,260 hect. Land will be under irrigation as well as 11 MW electricity can be generated. Two Branches of these canal i.e. left and Right.

OBJECTIVE:

The main objective of study area is A Geographical Study of Nilwande Canal in Ahmednagar District. The supported objectives of in first to Geographical study of Nilwande canal and second Examine the current situation of study area.

METHODOLOGY:

This study is geographically studied and this study relies on secondary data. The information is collected from the irrigation department Akole, sub division office of Sangamner and Irrigation Department of Ahmednagar. Also this information is obtained from various Government Departmental website.

RESULT AND ANALYSIS:

The rainfall is major for water available for river and effected topography **(Gadekar Deepak J 2018).** The present study of A Geographical Study of Nilwande Canal in Ahmednagar District, Pravara River, is secondary data base. This study classify in current situation of Nilwande canal with Right and Left canal position. Water is the key to any city's development (**Gadekar D.J** 2011). The following way theoretical study of canal systems but this study based on secondary study. There for this information does not belong to the researcher, this information will not be removed depending on the nature of the matter.

Current Situation of Canal:

Under these project 182 villages of Ahmednagar and Nashik district will get irrigated and approximately 64,260 hect. Land will be covered under irrigation. Central water commission has permitted for 9.49 BMC water for domestic use. So, for this project, revised cropping pattern has been sanctioned by the government. For the same, two important canals are proposed to construct i.e. upper Pravara Left and Right Canal. Availability of water eliminates regional inequalities because water contributes to the development of agricultural and industry **Gadekar Deepak J.**2017).

Table no. 1:Canal and Tahsil wise Irrigated Area

Sr. No	District	Tahsil	Upper Pravara Left Canal		Upper Pravara Right Canal		Total	
			No. of Villages	Irrigated Area	No. of Villages	Irrigated Area	No. of Villages	Irrigated Area
1	Ahmednagar	Akole	13	1964	11	2271	24	4235
		Sangamner	43	15393	37	10035	80	25428
		Kopargaon	11	5666	--	--	11	5666
		Rahata	37	17231	--	--	37	17231
		Shrirampur	03	999	--	--	03	999
		Rahuri	---	---	21	8089	21	8089
2	Nashik	Sinnar	06	2612	---	---	06	2612
Total			**113**	**43865**	**69**	**20395**	**182**	**64260**

(Source: Report Upper Pravara Project-II, Sub-Division,Sangamner)

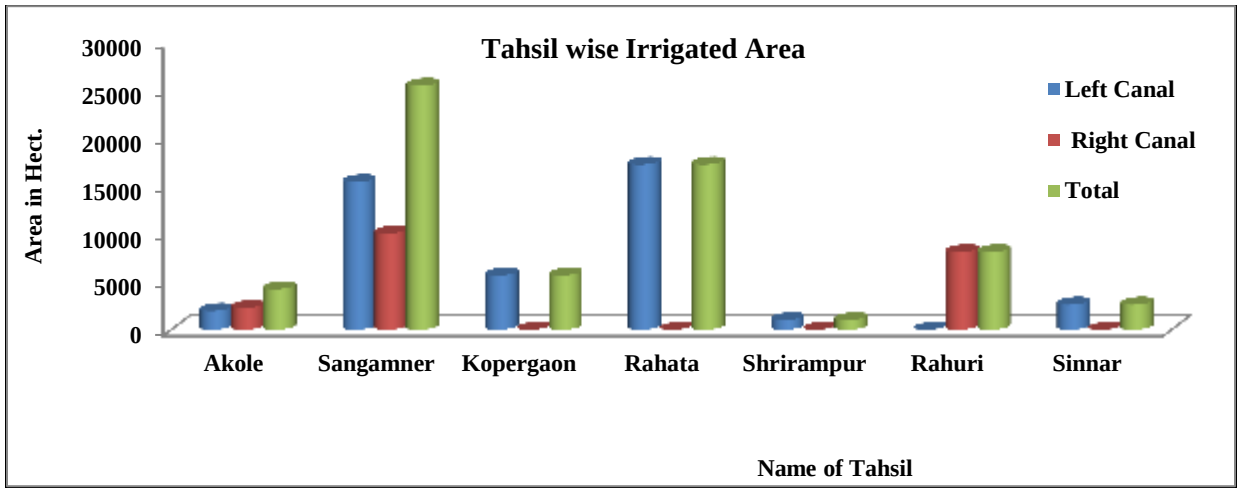

Fig. no. 1: **Tahsil wise Irrigated Area**

The present project is spread maximum benefit of irrigation to the scarcity affected area from Ahmednagar and Nashik districts. The project is carried out on the river Pravara near village Mhaladevi tehsil Akole but it is vigorously opposed by affected people and site of dam shifted near the village Nilwande in 1970.The total catchment area of the dam is 202.21 Sq. Km. The cultural command area is 86100 ha and capacity of the dam is 236 M. Cum (8.32 T.M.C.). It has two canals one is right bank canal (ICA 43886 ha) and other is left bank canal (ICA 20374 ha). The proposed irrigated area of the project is 64260 ha of Akole, Sangamner, Kopargaon, Shrirampur, Rahata, RahuriTehsil from Ahmednagar district and Sinnartahsil of Nashik district. Water is the most importance factors in the development of the citys and industry as well as Agricultural. Water is the most importance factors for development (Gadekar Deepak J. 2015). The

Left Canal of Upper Pravara:

The projected length of this canal is 85 km and the flowing capacity is 41.05 cm/s (1450 qu). This canal is divided into four sub-canals i.e. i) **Talegaon Branch** (length 14.50 km) ii) **Kopargaon Branch** (length 14 km) iii) **Upper Canal** (16.50 km) and iv) **Low Level Short Distributary** (length 22 km). After this work, Upper Pravara Left Canal is in progress. Under this canal, the length of the main left canal is 85 km. Out of it, officials of the department has given the permission to the foot level up to 01 to 85 km. The works of this canal between 36 to 50, 53, 60 to 63, 69 to 75, 79 to 81 and 83 to 89km is completed through Employment Guarantee Scheme. The expenditure for the canals and their branches are completed through Employment Guarantee Scheme up to 3/99.

Right Canal of Upper Pravara:

The total length of this canal is 97 km. Near Nilwande in Akole tahsil has the main stonny dam (chain no. 900mts) where on the left bank of this canal a combine electric D P is proposed. From this electric D P to 135 mts, the electric house and other works are in progress. Upper Pravara Right Canal is form from chain no. 2706 mts of Upper Pravara Left Canal and after crossing Pravara River, next region will be get available for irrigation. The flowing capacity of left canal is 26.40 cubic meter/ second (932 qu). The length of right canal is 97 km and the flowing capacity is 14.38 c.m. /s (508qu). There is no branch of canal under this but only distribution system is proposed. The following table shows the special features of the main dam and constructions on both the canals as well as work, which is completed and work in progress.

Model of Bridges and Tunnels:

a. **Left Canal:**

The proposed on chain no. 3080, 12290 and 14852 mts is completed. Chain no. 37400 mts on river Adhala and chain no. 40500 mts on river Mhalungi, the works of proposed bridge models are in progress and chain no. 26415 to 27120 in village Kalas. Preparation of the model of the tunnel is completed.

b. Right Canal:

Model of bridge between chain no. 1988 and 6923mts is completed and handover to the department of irrigation from Central Model Organization, Nashik. Along with it, the model of tunnel 29 to 30 km is also completed. Survey is required between chain no. 65330 to 67580 mts.

Current Situation of the work of Canal:

The work of Upper Pravara Right Canal between 29 to 36 km and 46 to 54 km is in progress and work 36 to 41 km is nearly completed. As well as this canal between 41, 42 and 66 to 75 km is in progress. Out of it, the work of left canal, 74 and 75 km work is nearly completed. Work of distributaries no. 3 and 4 work of 34.55 BMC are completed up to 2005. The bridge on left canal chain no. 675.00 mts. Right Canal at 0 to 1475 mts is completed. Soil works and construction of Upper Pravara Left Canal between 2 to 27 km and tunnel between 27 to 27 km as well as soil works and construction of Upper Pravara Right Canal is completed. After completion of above work, 4265 hect. Area of Akole tahsil will immediately under irrigation.

High Level Canal:

It is expected by farmers and representative that the area from foothills of mountain to survey boundary should under irrigation. But this area is not under the basic irrigational canal (610.40 mts). So, as for option plotting of separate high level canal is the best way for irrigation and the survey is also completed for the same. For this area, according to Penmen method 334 TMC water is required. It is expected that up to 15th January, the irrigation will get start through this high level canal. Due to percolation of high level canal, the water level of nearby wells will increase and it will be possible to irrigate the agricultural land in Rabbi Season also. It is proposed that the length of 1 to 8.100 km of high level left canal and 1 to 4 km of right canal is taken through high pressure pipe canal and for these canals, up to chain no. 2706 mts 1200 mm diameter PSP pipes and for left canal 900 mm as well as for right canal 1100 mm diameter pipes are proposed. For left high level pipes of 1 to 8 km and for right pipe canal of 1 to 4 km. From this canal to ahead, the *open channel* having width of 1.50 mts is proposed. It is expected that through both the canals, totally 1572 hect. Area of agriculture will be under irrigation.

CONCLUSION:

As Ahmednagar district of Maharashtra State is one of the drought pone districts. Various irrigation projects are proposed for the reducing the intensity of drought. So, Govt. of Maharashtra has been introduced various irrigation projects. Under the same, Upper Pravara Canal (Nilwande-II) is one of it. If the project will works on its success nearly 4265 hect. Area of Akole tahsil will immediately under irrigation. As well as water table level will also increase in nearby area and it will be possible to irrigate the agricultural land in Rabbi as well as Kharip season. If Right and the Left Canals will get completed within time limits through high level pipe canals, totally 1572 hect. Agricultural land will be get additionally irrigated under this project. So, Upper Pravara Canal (Nilwande-II) should get completed by the department of Irrigation and state Government as early as possible.

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