



Tehsil-wise Irrigation Status of Kolhapur Type Weir Projects in Ahmednagar District. (M. S.)

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Abstract:

Dams, Reservoirs and weirs play their significant role by providing the numerous facilities for social and economic development. These Water resource projects provided water for irrigation, Drinking, industrial activity, hydro-power and recreation etc. Water availability is the most important parameter for the success of any water resource project. In case of failure of rainfall use of irrigation becomes much more essential areas growing multiple crops need intensive irrigation facilities. Irrigation is a key component of agricultural development of an economy.

In present study Ahmednagar district is selected as a study area which came under rain shadow and semi-arid region. This paper discusses tehsil wise water utilization for irrigation of K.T. weir projects in Ahmednagar district is observed for 2010 and 2015. The data regarding Water Storage (gross and live), Irrigated Area, no. of K.T. weir projects and water use for Irrigation by K.T. weir project has been collected from Irrigation Department, Ahmednagar. This paper tries to contemplate the impact of K. T. weir projects on agriculture and concluded that it's contributed to development of agriculture in the district.

Key Words: Water Resources, Water storage, Irrigation, Irrigated area, Water utilization, K.T. Weir project.

Introduction:

Irrigation is one of the important factors governing proper and healthy growth of different crops. The efficiency of an irrigation scheme largely depends on its ability to provide adequate, assured and economical means of supplying of water for crops.

Irrigation, from the experts' angle, is broadly of two types. One is major, under which head reservoirs, dams, canals etc. are grouped. The minor ones include small and medium tanks, ponds, their distribution channels, irrigation projects, wells, weirs etc.¹

Conceptual Definition:

1. Reservoir:

The term reservoir includes many different types of constructed lakes and storage facilities. Reservoirs are a practical way of storing surface water during times of plenty for later use during times of scarcity.

Many reservoirs fulfill multiple roles, such as hydro-power generation, water supply for industrial, agricultural and domestic consumption, recreational use and fisheries production. Reservoirs are located in both water-poor and water-rich regions.²

2. Dam:

A dam is defined as a barrier or structure across a stream, river or waterway to confine and then control the flow of water. Dams vary in size from small earth embankments, often for farm use, to high massive concrete structures generally used for water supply, hydro-power and irrigation.

Dams and reservoirs are essential structures that are critical for providing us with some of our basic needs. Dams are structures built to retain water by forming a reservoir behind the structure. These are usually built across, or near, naturally flowing water to manage the water for human use.³

3. Kolhapur type weir irrigation project:

The Kolhapur type weirs (K. T. weirs) and bridge-cum-barrages built across dams and rivers are used to regulate the water flow and storage, which is significant for tackling drought.⁴

Significance of the study:

Insufficient, uncertain and irregular rain causes uncertainty in agriculture. The period of rain is restricted to only four months in a year, June to September, when monsoon arrives. The remaining eight months are dry. There is some rainfall during the months of December and January in some parts of the country.

Even during monsoon, the rainfall is scanty and undependable in many parts of the country. Sometimes the monsoon delayed considerably while sometimes they cease prematurely. This pushes large areas of the county into drought conditions. With the help of irrigation droughts and famines can be effectively controlled.⁵

Adequate, timely and guaranteed irrigation is of para-mount importance in agriculture production. Irrigation facility is regarded as a key element of agriculture sector. Dams and canal systems are the main components of irrigation system. The irrigation facility enables the farmers to grow at least two seasonal crops on a piece of land.⁶

Objective:

1. To study the tehsil wise water utilization for irrigation of K. T. weir projects in Ahmednagar District.
2. To analyze gross and live water storage data of K. T. weir projects in Ahmednagar District.
3. To contemplate the impact of K. T. weir projects on agriculture in Ahmednagar District.
4. To evaluate the proportional development and K.T. weir projects in Ahmednagar District.

Data collection Research Methodology:

The present study relies upon secondary data. Secondary data includes numerical Kolhapur type weir irrigation projects water data like Water Storage (gross and live), Irrigated Area, no. of K.T. weir projects and water use for Irrigation by K.T. weir project has been collected from Irrigation Department, Ahmednagar, District statistical abstract, census handbook, journals of well reputed research institutions, standard reference books and journals on water resources etc. the data collected and used for 2010 and 2015. The collected data is processed and tabulated and then suitable graphs have been constructed and interpreted.

Study Region:

Ahmednagar district is situated partly in the upper Godavari basin and partly in the Bhima basin occupying a somewhat central position in Maharashtra State. It extends between 18⁰ 10' and 20⁰ 00' North latitudes and 73⁰ 30' and 75⁰ 37' East longitudes. The District is irregular in shape and resembles a slanting cross with a length of 200 km and a breadth of 210 km. It is surrounded by Nashik District to the North, Aurangabad District to the North-East, Bid District to the East, Osmanabad and Solapur District to the South, Pune District to the West and Thane District to the North-West.

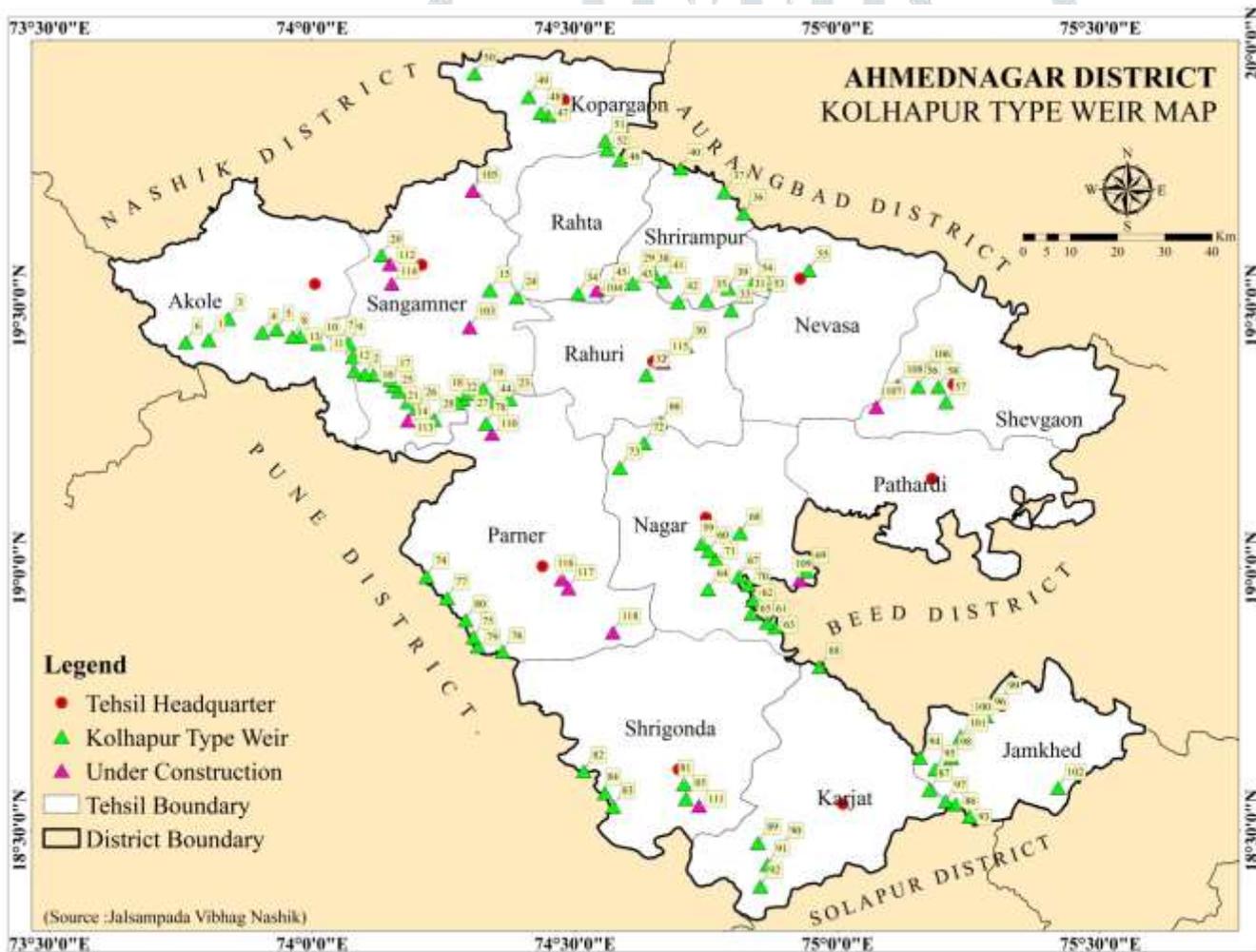
The district has an area of 17,048 sq. km., and a population of 45, 43,159 persons as per 2011 Census. While the area of the district accounts for 5.54 percent of the total area of the State, the Districts population constitutes 4.04 percent of the total population of the State. The density of Population is 266 persons per sq.km. Among the 35 Districts of the State, the District ranks 1st in terms of area, 6th in terms of population and 22nd in terms of density.⁷

Discussion:

Water is one of the principal resources essential for human existence and it is required for various purposes such as drinking and domestic water needs, agriculture, industry, hydro and thermal power generation, survival of environment and many others.

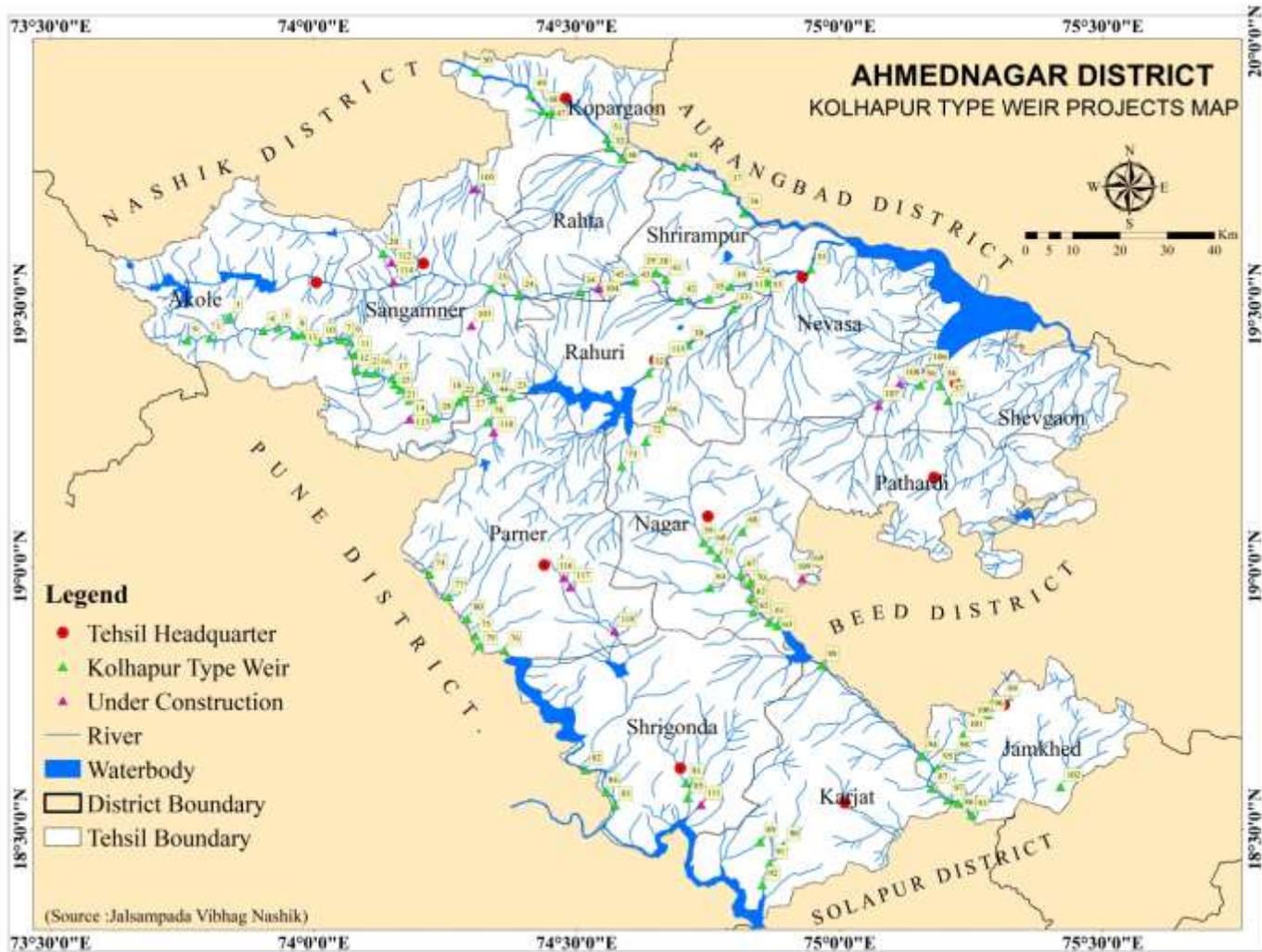
The rationale behind a water resources development project could be multifaceted. It could serve one or more sectors described here in above. Amongst this irrigation is the leading sector consuming about 75% of the water used though these projects as perceived from the domestic scenario. Irrigation involves application of external water to crops, presently mostly by flow through open channel system.⁸

Map No. 1 - Kolhapur Type Weir Projects Map



INDEX					
NO	Project Name	NO	Project Name	NO	Project Name
1	Khadki	41	Pedhegaon	81	Shrigonde
2	Pimpaldari	42	Malunje	82	Dhangarwadi
3	Sakirwadi	43	Galnimb	83	Kashti
4	Paithan	44	Mandve	84	Tandalikhore Vasti
5	Padalane	45	Mandve	85	Chorachivadi
6	Sisvad	46	Puntamba	86	Dighi
7	Pimpalgaon Khand	47	Hingani	87	Nimgaon Daku
8	Dhamangaon Pat	48	Dauch	88	Nimgaon Gangarda
9	Lingdev	49	Mahegaon Deshmukh	89	Nandani Prkalp
10	Bori	50	Manjur	90	Thorat Vasti
11	Lahit	51	Sade	91	Rashin
12	Chasa	52	Shingve	92	Karamanvadi
13	Kotul	53	Pacheagaon	93	Javala
14	Ghargaon	54	Punatgaon	94	Kavalgaon
15	Aashvi	55	Madhymeshwar	95	Girvali
16	Kouthe Khurd	56	Samangaon	96	Sangvi
17	Kouthe Budruk	57	Bhagur	97	Chondi
18	Sakur Jambut	58	Vadule	98	Pimpalkhed
19	Shindodi No. 2	59	Walunj No. 1	99	Jamkhed
20	Nimgaon Bhojapur	60	Walunj No. 2	100	Dhanora
21	Aabi Khalsa	61	Mathpimpri No.1	101	Phakrabaj
22	Jambut	62	Mathpimpri No.2	102	Sonegaon
23	Mandve	63	Hatvalan	103	Ambhore Pur Chari
24	Chanegaon	64	Walki	104	Kolhar
25	Boarban	65	Watephal	105	Ujani (Ranjangaon Deshmukh)
26	Nandur Khandarmal	66	Shingave	106	Lolegaon
27	Sakur	67	Sakat	107	Wagholi
28	Aabhalwadi	68	Narayan Doh	108	Malegaon
29	Kesapur	69	Chincholi	109	Chinchodi Patil
30	Manori	70	Dahigaon	110	Vasunde
31	Vanjulpoi	71	Pargaon Maula	111	Adhorewadi
32	Digras	72	Dehare	112	Aadhala Shrukhala
33	Manjari	73	Nimgaon Ghana	113	Shelkewadi
34	Rampur	74	Renvadi	114	Javale Kadlak (Bardoh)
35	Bherdapur	75	Gunare	115	Desvandi (Tanpure Vasti)
36	Kamalpur	76	Kohkade	116	Vaghunde 1
37	Khanapur	77	Nighoj	117	Vaghunde 2
38	Valadgaon	78	Mandve	118	Rajangaon Mashid No.2
39	Vangi	79	Mhase		
40	Naur	80	Gadilgaon		

Map No. 2 – Kolhapur type weir project map with Drainage pattern of Ahmednagar District



Irrigation Status of K. T. Weir’s project in Ahmednagar District (2010)

Sr. No.	Tehsil	No. of k.t. weir project	Water storage (Mcum)		Irrigated Area (Hectare)	Water use for Irrigation
			Gross	Live		
1	Akole	13	12.52	14.37	4746	10.59
2	Sangamner	14	13.93	14.92	4391	11.82
3	Rahuri	6	16.3	18.79	4065	4.75
4	Shrirampur	9	23.05	23.05	6739	23.05
5	Rahata	2	10.34	00	1428	00
6	Kopargaon	5	21.32	31.41	5900	00
7	Newasa	3	8.69	10.35	3481	5.295
8	Pathardi	-	-	-	-	-
9	Shevgaon	2	1.24	1.24	509	0.72

10	Nagar	15	12.05	13.25	2917	11.37
11	Parner	6	6.99	5.88	1681	4.79
12	Shrigonda	6	9.46	8.86	2468	7.42
13	Karjat	7	6.35	6.35	2425	5.17
14	Jamkhed	10	8.39	8.39	2345	5.11
	Total	98	150.63	156.86	43095	90.085

(Source: Computed by researcher from Irrigation Department, Ahmednagar.)

Irrigation Status is vital indicators of socio – Economic development in a society and for changing farmers' position. The table no. 1., graph no1 and 3 represents the irrigation status of Kolhapur Type weir projects in Ahmednagar district in 2010. As per the Irrigation department of Ahmednagar district, there are 98 K.T. weir projects in the district out of which Nagar tahsil has highest 15 K. T. Weir projects. A look at the tehsil wise Numbers of K.T. weir Projects in the district, followed by Sangamner (14), Akole(13), Jamkhed(10), Shrirampur (9) while the lowest K.T. weirs observed in Karjat (7) Rahuri, Parner and Shrigonda(6), Kopargaon(5) Newasa (3), Rahata and Shevgaon (2) tehsils. Pathardi tehsil has no K.T. weir Project.

It is also seen from the table the Tehsil-wise Gross & live water storage capacity in Ahmednagar district. The district reported 150.63 McuM Gross water storage in 2010. Shrirampur tehsil has recorded highest (23.05) whereas Shevgaon tehsil recorded lowest (1.24 Mcum) Gross live storage capacity, while remaining tehsil have less than it. Besides this, the district reported total 156.86 live water storage capacities. Kopargaon tehsil has recorded highest live water storage as 31.41 Mcum whereas Shevgaon tehsil recorded lowest live water Storage as 1.24 Mcum.

It can be seen from the table that irrigated area of the district is 43095. Shrirampur tehsil has reported highest 6739 hector irrigated area in the districts while Shevgaon tehsil recorded lowest 509 hector areas in Ahmednagar district. Further table revealed that total 90.08 percent water use for irrigation in the whole district. Out of which Shrirampur tehsil has recorded highest 23.05 Percent water use for irrigation whereas Shevgaon tehsil has lowest as 0.72 percent Pathardi tehsil has no K.T. weir projects, hence there is no use of water for irrigation through K.T. Weir source.

The details of the irrigation status in Ahmednagar district are shown in a Bar graph and pie chart in graph no.1 and 3.

Irrigation Status of K. T. Weir's project in Ahmednagar District (2015)

Sr. No.	Tehsil	No. of k.t. weir project	Water storage (Mcum)		Irrigated Area (Hectare)	Water use for Irrigation
			Gross	Live		
1	Akole	13	12.2	12.2	4712	11.73
2	Sangamner	15	14.94	14.94	4630	12.02
3	Rahuri	6	15.85	15.85	4145	10.18
4	Shrirampur	10	24.9	24.9	7144	16.39
5	Rahata	1	5.34	5.34	2397	00
6	Kopargaon	6	25.79	25.79	6931	12.37
7	Newasa	3	11.81	11.81	3481	17.37
8	Pathardi	-	-	-	-	-
9	Shevgaon	3	2.07	2.07	659	1.67
10	Nagar	15	12.75	12.75	3267	6.83
11	Parner	7	8.89	17.78	2101	5.27
12	Shrigonda	6	9.46	9.46	2468	6.99
13	Karjat	7	6.35	6.35	2425	3.97
14	Jamkhed	10	8.39	8.39	2345	3.73
	Total	102	158.74	167.63	46705	108.52

(Source: Computed by researcher from Irrigation Department, Ahmednagar)

The tehsil-wise irrigation status of K.T. weir projects in Ahmednagar district is presented in Table no. 2, graph no. 2 and 3 It can be seen from the table that table 102 K.T. Weir projects observed in the district Numbers of K.T. weir projects increased in 2015 compared to the 2010 from 98 to 102. Out of this Sangamner and Nagar tehsils together accounted for 15 has highest number of K.T. Weir projects in the district, followed by Akole (3), Shirampur(10), Jamkhed (10) and Karjat (7) whereas lowest K.T. weir projects observed in Rahata, Shevgaon and Newasa tehsil.

Table no. 2 further revealed that total 158.74 and 167.63 Gross and live water storage capacity respectively out of this Kopargaon and Shirampur tehsils has recorded highest water Storage capacity as 25.79 and 24.9 respectively while lowest Gross and live water storage in Shevgaon (2.07) Rahata (5.34) and Karjat (6.35) tehsils.

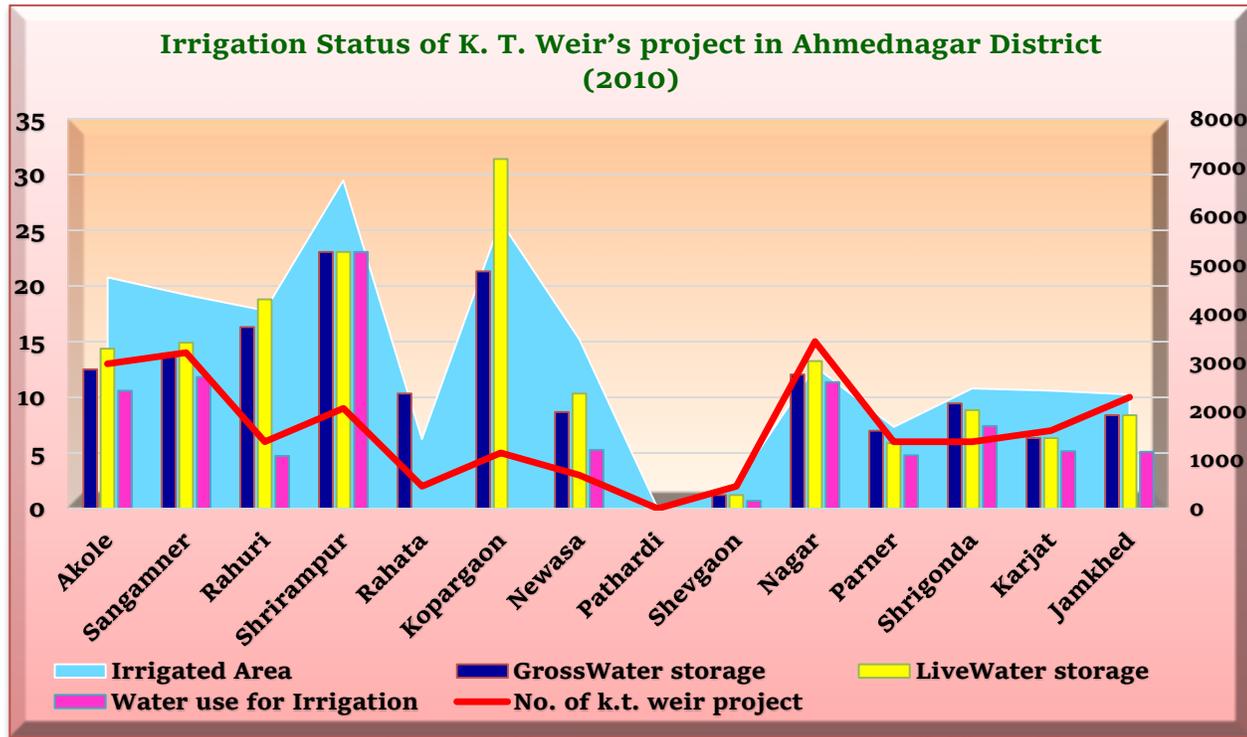
As per 2015 census irrigation Department of Ahmednagar district 64705 hector is irrigated area is the district out of which Shirampur (7144) , Kopargaon (6931), Akole (4712) Sangamner (4630) and Rahuri tehsils found highest irrigated area whereas Newasa, Nagar and rest of tehsils found lowest irrigated area in the district.

From the table it can be observed that there are 108.52 percent water is used for irrigation in the district. Great Variation is seen across tehsils regarding issue of water use of irrigation Newasa tehsil has the highest water

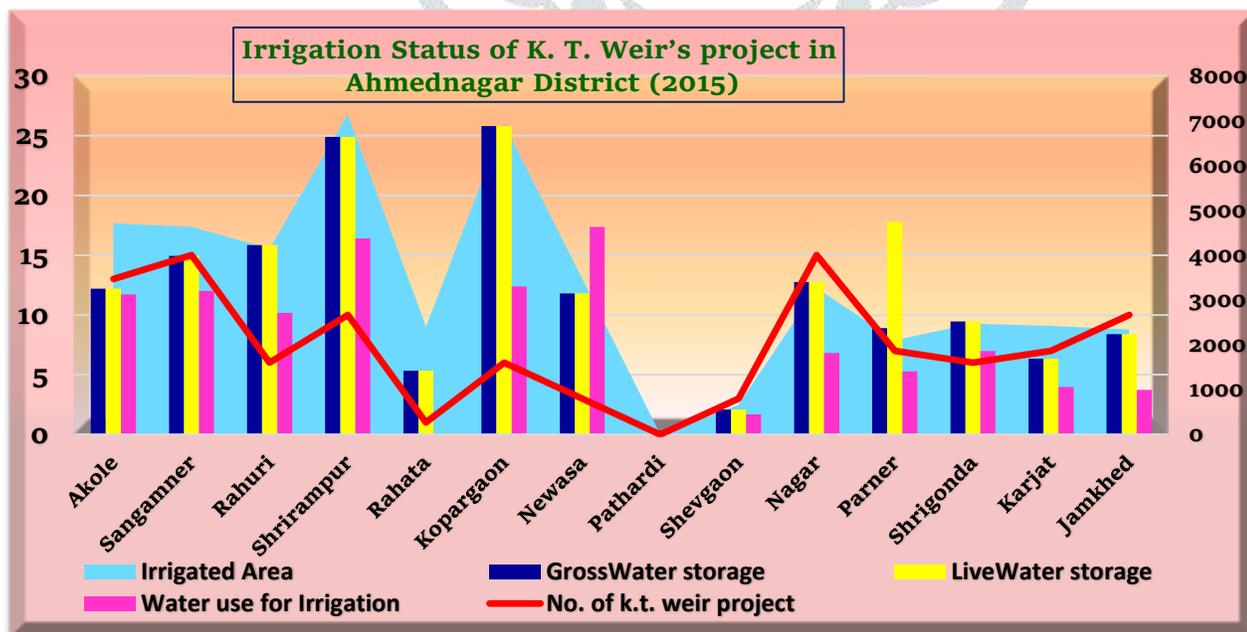
use of irrigation i.e., 17.37 % in the district. On the contrary, Shevgaon has the lowest / minimum use of water for irrigation Pathardi tehsil has no K.T. Weir projects.

The details of the irrigation status in Ahmednagar district are shown in Bar graph and pie chart in graph no. 2 and 4.

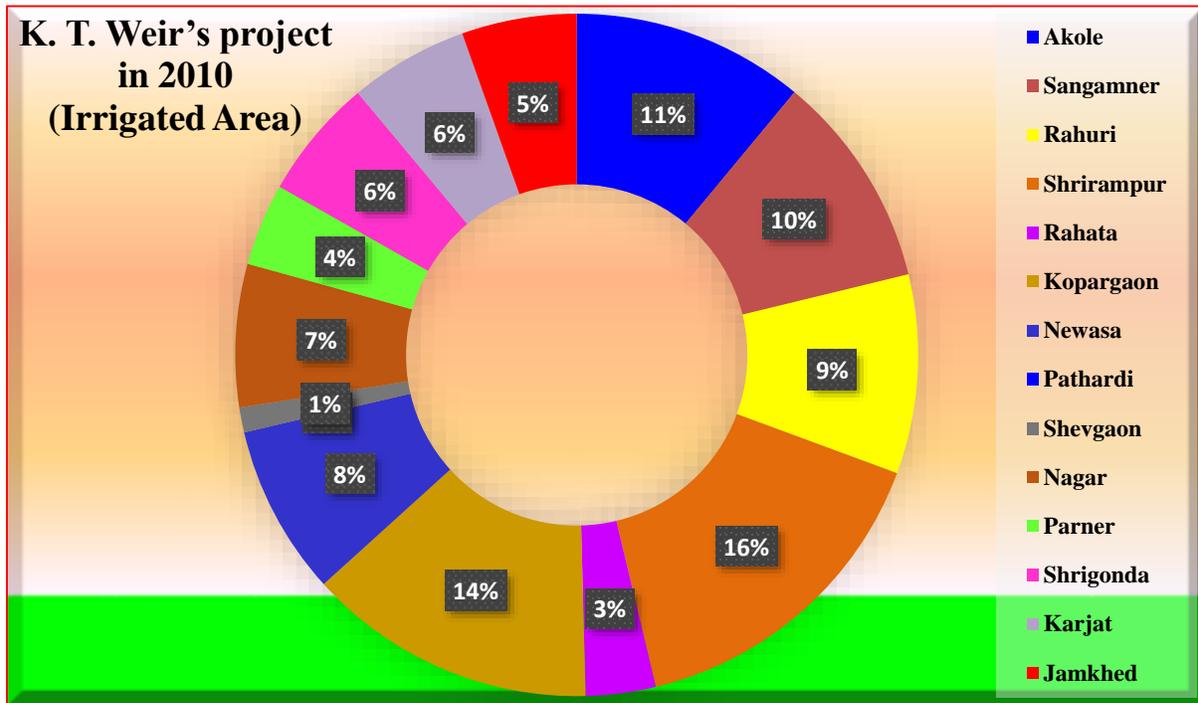
Graph no. 1



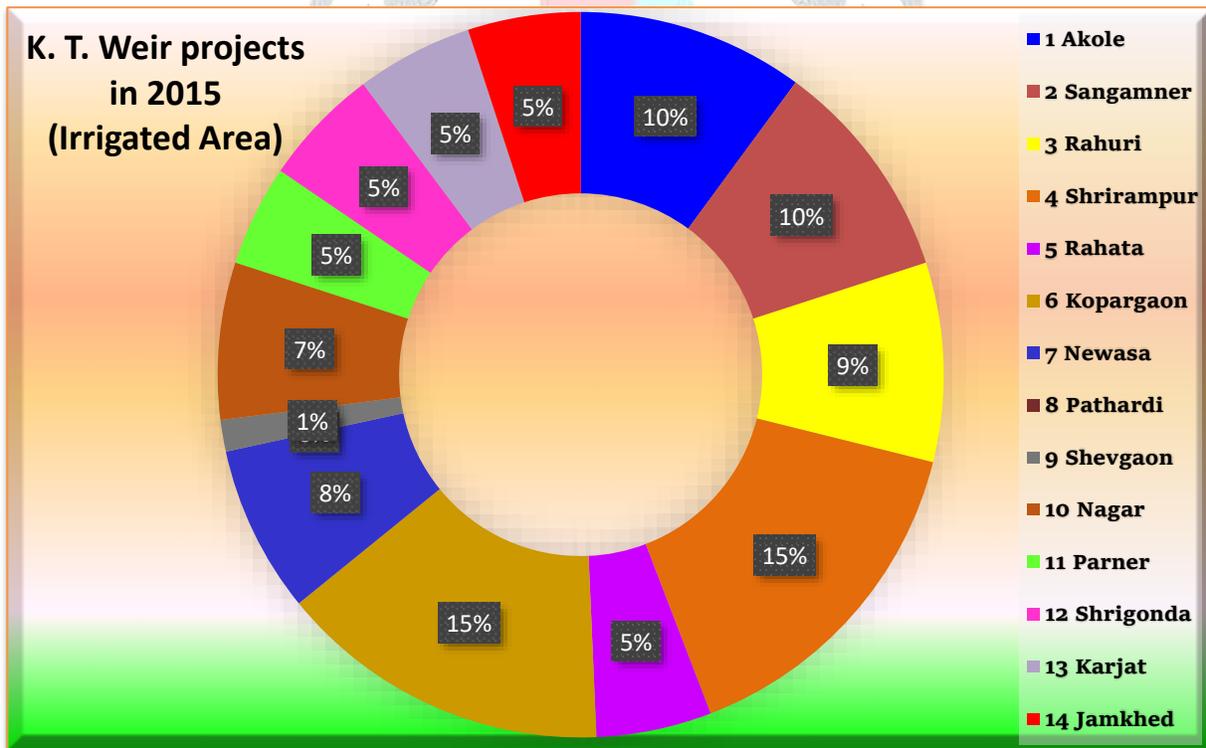
Graph No. 2



Graph No. 3



Graph No. 4



Conclusions:

1. In this research work there is no. of Kolhapur type weir projects increased in 2015 than 2010.
2. Pathardi tehsil has no single one k. T. weir project during research duration.
3. Gross and live water storage capacity is increased in 2015 because of no. K.T. increased in 2015.
4. Kopergaon and Shirampur tehsils has recorded highest water Storage capacity as 25.79 and 24.9 respectively.
5. Total irrigated area of the district is 43095 hectares in 2010 and 46705 in 2015, from this it seems that the irrigated area is increased in the study region.
6. Total Water utilization by K. T. weir project for irrigation is 90.08, 108.52 in 2010 and 2015 respectively.

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