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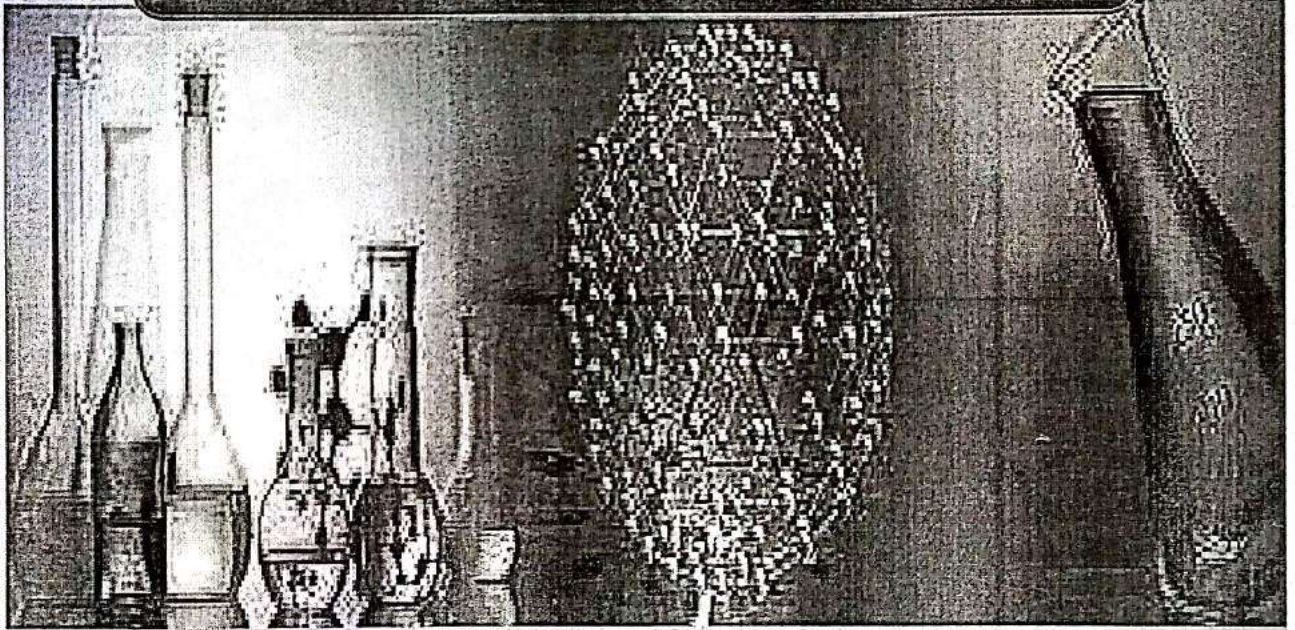
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25	Public Participation in Water Resource Management:Challenges and Perspectives Prof. Dr. G. G. Parkhe	161
26	Monitoring Land Use and Land Cover Change Detection in Eastern Part of Sangli District (Maharashtra): A Remote Sensing & Gis Perspective (1998-2018)\ Mr. Tushar Waghmare, Prof. (Dr.) K. C. Ramotra, Mr. Prakash T. Waghmare	165
27	Morphometric Analysis and Prioritization of Sindphana Sub Watersheds Using Geospatialtechniques Mr. P.L Unhale, Mr. V.M. Waghmare	175
28	Analnsis of Water Quality for Drinking Purpose A Case Study of Newasa Townin Newasa Tehsil Dist-Ahmednagar, MH Mr. R.G. Nipunge, Miss. Saraswati Devhare	184
29	Spatio-Temporal Analysis of Sc Population Literacy in Kolhapur District of Maharashtra Dr. Vikramsinh Patil, Dr. Baburao Ghurake	187
30	Hydro Biological Study of Water in Hingoli District Dr. Vilas Khadke& Dr. N.B Kadam	195
31	Assessment of Groundwater Resources in Kolhapur District of Maharashtra State: A Geographical Study Deepak Hujare , Dr.M.V.Surayawanshi	199
32	A Key Study of Some Diseases in Satara District (Ms) : A Geographical Analysis Mr. Santosh Patil, Prof. C. U. Mane	206
33	Importance of Water Literacy At Social Level Shailaja Mathane	212
34	Sources of Irrigation and Water Lift Facilities in Solapur District Dr. R.V Tatipamul	217
35	Sustainable use Water Resource of Drought Prone Area in Satra Distrtict A: Geographical Analysis Dr. T. P. Shinde	224
36	Clean Technological Solution for Sustainable Development Mr. B.M. Swami	230
37	Encouraging Water Literacy Dr. Rahul Pardeshi	235
38	Concentration and Probability of Water Borne Diseases : In Saryupar Plain of U.P. Prof. D.S.Gaikwad	243
39	Route Planning for Ecotourism in the Vicinity of Satara City (Maharashtra) Shri. S. S.Kambale, Dr. A. M.Pawar, Dr. D. G.Gatade	251
40	A Geographical Analysis of Spatial Distribution of Secondary Schools in Solapur District (Maharashtra) Dr. Ganesh Khatal, Prin. Dr. B.R.Phule	256
41	Agricultural Transformation in Drought Prone Region: A Case Study of Phaltan Tahsil in Satara District (Ms), India Mr. Mahadev Chavan	262
42	Impacts of Climate Change in Maharashtra Dr. Khade Sarangdhar	267
43	Rural Drinking Water Issues in India's Dry Season Inclined Territory: An Instance of Maharashtra State Dr. Deepak Dede	272
44	Study and Analysis of Water Resources in Indapur Taluka (Pune District) Prof. A. K.Phalphale	280
45	Geographical study ofIrrigation and Agriculture in Yavatmal District Dr.S. D.Hulpalle	285
46	Conservation Of Wetland Ecosystem As Water Sources For Flora And Faunna Dr. Arti Bhosale	290
47	Socio-Economic Status of Livestock Farmers In Mundhewadi Village of Mangalwedha Tahsil (Solapur District) Dr. D. N. Ligade	296
48	A Study of Ground Water Resources in Maharashtra Dr. Dadasaheb Kharat	302



Sources of Irrigation and Water Lift Facilities in Solapur District

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Abstract:

The present paper deals with the sources of irrigation and water lift facilities in Solapur District. Solapur district is comes under the drought prone area. The study area is known as agricultural district. Irrigation plays key role in agriculture as well as in allied activities. Water lift facilities are also plays in agriculture.

Natural water is available either as a surface water which moves through gravity in rivers,lakes,ponds and canals or as groundwater which is lifted through dug wells or using animal power. Most of the time diesel and electricity is used for lifting water from the wells.

Keywords: - irrigation, water lift, seepage tank, underground storage tank.

Introduction

Agriculture practices are mainly depending upon the availability of water. Rainfall is not continuous and not sufficient for agriculture. Hence artificial supply of water is essential for agriculture. Irrigation brings about an increase in the gross cropped area by increasing the net sown area by in rainfall scarcity areas and by multiple cropping. The normal monsoon is adequate only over one third of the country- thus irrigation becomes a necessity in the rest of the country. Even in the adequate rainfall areas, a late onset or an early withdrawal can prove disastrous for the crop. Then irrigation is required for rabbi (winter crops). Timely and addition water is required for some of the crops in the growth period.

Sources of irrigation and water lift facilities are depending upon the physiographic condition, topography, slope, climate especially rainfall. In the drought prone area like Solapur district irrigation play important role in the agriculture.

Objectives: - The present paper has certain specific objective. To study sources of irrigation and water lift facilities in Solapur District

Database and Methodology

The present work is based on the secondary data collected from the district irrigation department, Agriculture office, socio economic review of Solapur district. Some of the relevant data collected from the websites.

Irrigation sources data taken from the year 2010, 2015 to 2017.

It includes big projects, medium project, small project, seepage tank, Kolhapur type bandhara, underground storage tank etc. The data tabulated in the table form with Tahsil and category wise. Comparative and explorative research methodology is adopted for present work. Processed data shown by the graphs.

Table 1.1 Sources of Irrigation and water lift facilities in Solapur district 2010

Tahsil	Big project	Medium project	Small project	Seepage tank	Kolhapur bandhara	Underground storage	Water lift scheme	Irrigation well



						tank		
Karmala	0	1	10	67	52	11	0	927
Madha	1	0	3	81	69	26	0	1108
Barshi	0	6	12	113	108	10	0	1566
North Solapur	0	1	1	57	54	2	0	426
Mohol	0	0	1	289	70	7	0	883
Pandharpur	1	0	0	35	37	11	0	697
Malshiras	0	0	0	96	76	24	0	1093
Sangola	0	1	0	117	68	12	0	652
Magalwedha	0	0	0	90	54	8	0	532
South Solapur	0	0	3	78	56	12	0	712
Akkalkot	0	2	8	67	85	19	0	1093
Total	2	11	38	1090	729	142	0	9689

(Source: - Socio economic review of Solapur District 2010)

Study Area

Solapur District is located in Maharashtra state. It is located in southern centre of Maharashtra. The latitudinal extent of study area is $17^{\circ} 10'$ to $18^{\circ} 32'$ north and longitudinal extend between $74^{\circ} 42'$ to $76^{\circ} 15'$ east. The total area of Solapur district is 14895.sq.km. The district share with south eastern side with Karnataka State. The study area is also surrounded by Ahmednagar and Osmanabad districts on the north side and Telangana in the east side, Sangli to the south and Satara and Pune to the west side. Bhima and Sina are the major rivers in study area and drained by their tributaries. The district has total 11 tahsils. Rainfall is uncertain and scanty in the study area. Total population according to 2011 census were 4315527.

Table 1.2 Sources of Irrigation and water lift facilities in Solapur district 2015

Tahsil	Big project	Medium project	Small project	Seepage tank	Kolhapur bandhara	Underground storage tank	Water lift scheme	Irrigation well
Karmala	0	1	15	71	55	46	1	718
Madha	1	0	15	82	62	71	0	781
Barshi	0	6	25	113	107	59	0	785
North Solapur	0	1	2	57	55	16	0	411
Mohol	0	0	7	351	66	43	0	718
Pandharpur	1	0	2	36	35	60	0	751
Malshiras	0	0	3	98	81	80	0	1138
Sangola	0	1	16	117	74	57	0	691
Magalwedha	0	0	3	93	54	33	0	539
South Solapur	0	0	3	80	56	43	0	573
Akkalkot	0	2	20	67	77	50	0	768
Total	2	11	111	1165	722	558	1	7873

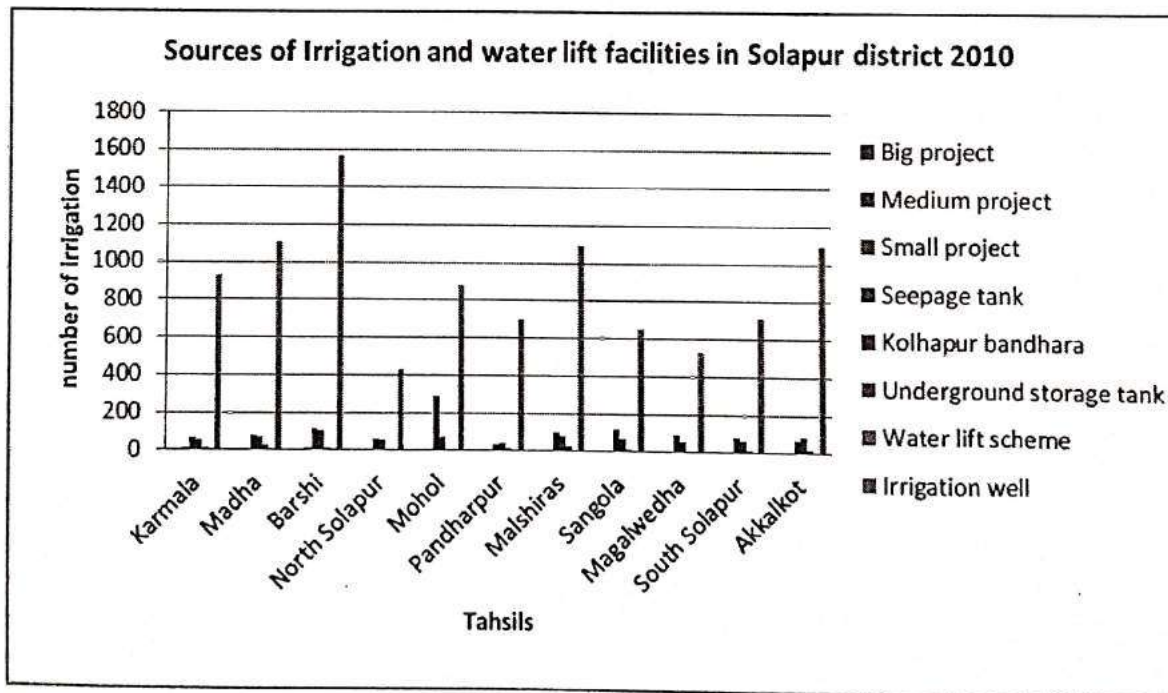
(Source: - Socio economic review of Solapur District 2015)



Table 1.3 Sources of Irrigation and water lift facilities in Solapur district 2017

Tahsil	Big project	Medium project	Small project	Seepage tank	Kolhapur bandhara	Underground storage tank	Water lift Irrigation	Irrigation well
Karmala	0	1	15	82	56	58	1	718
Madha	1	0	15	234	65	81	0	781
Barshi	0	6	25	230	118	72	0	785
North Solapur	0	1	2	80	53	19	0	411
Mohol	0	0	8	388	66	51	0	718
Pandharpur	1	0	2	42	37	70	0	751
Malshiras	0	0	3	116	86	98	0	1138
Sangola	0	1	16	315	106	67	0	691
Magalwedha	0	0	4	148	56	40	1	539
South Solapur	0	0	3	93	57	51	0	573
Akkalkot	0	2	21	165	80	59	0	768
Total	2	11	117	1893	780	666	2	7873

(Source: - Socio economic review of Solapur District 2017)



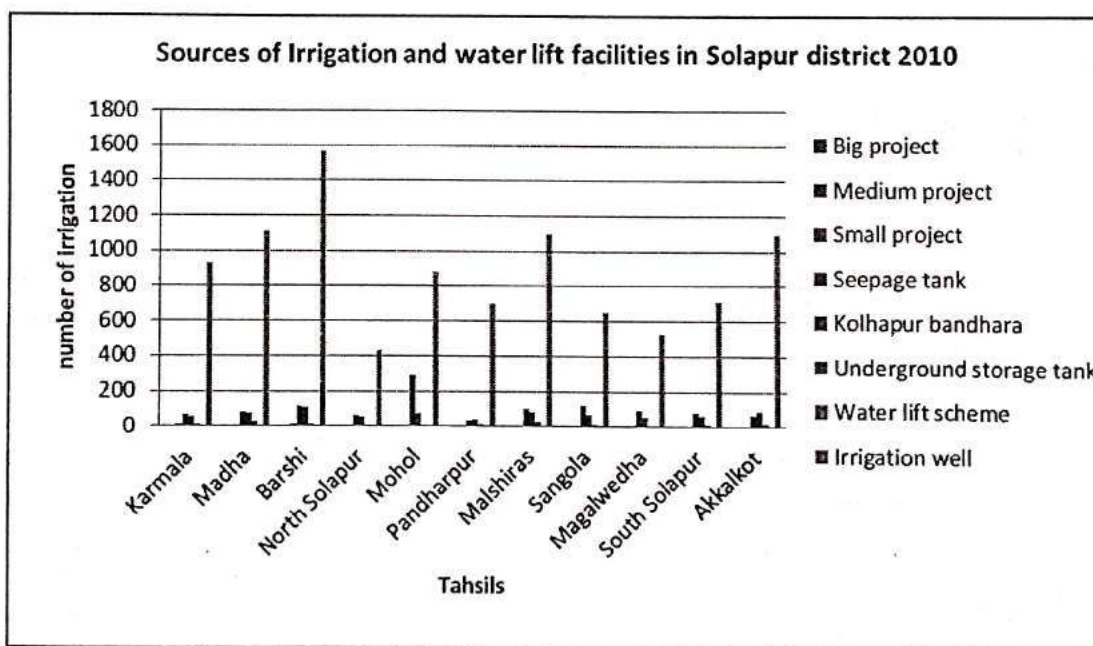
Graph 1.1



Table 1.3 Sources of Irrigation and water lift facilities in Solapur district 2017

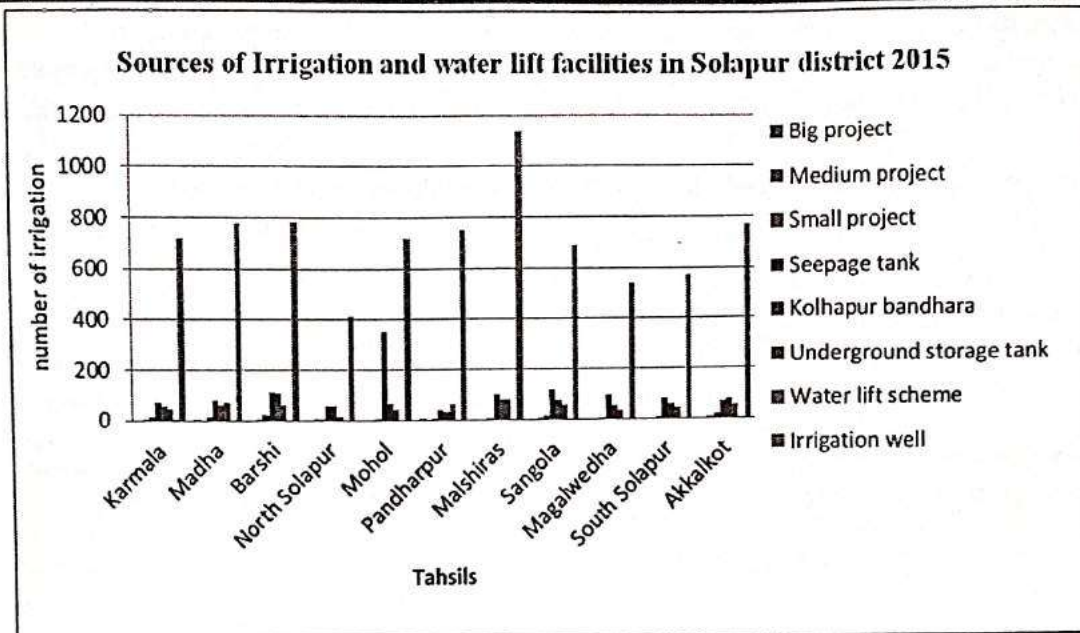
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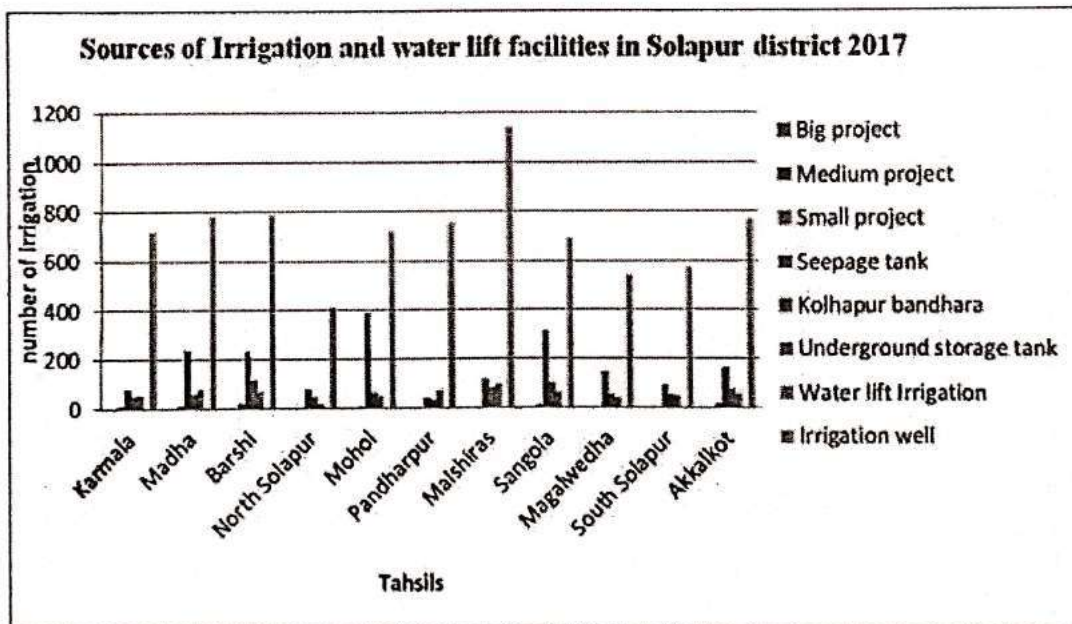


Graph 1.1

245



Graph 1.2



Graph 1.3

Sources of Irrigation and Water lift facilities in Solapur district

Solapur district is one of the major districts in Maharashtra. It is one of the most population districts. Agriculture is the main occupation in the study area. Solapur district is comes under the rain shadow area. Major part of this study areas faces drought every year. Agriculture is possible only after the development of irrigation sources. Irrigation sources are also depending upon the amount of rainfall, Number of Rainy days, types and sources of irrigation facilities etc. Development of agriculture is depending upon the irrigation. Agricultural production and types of crop also based on the irrigation. In Solapur district there are various

246

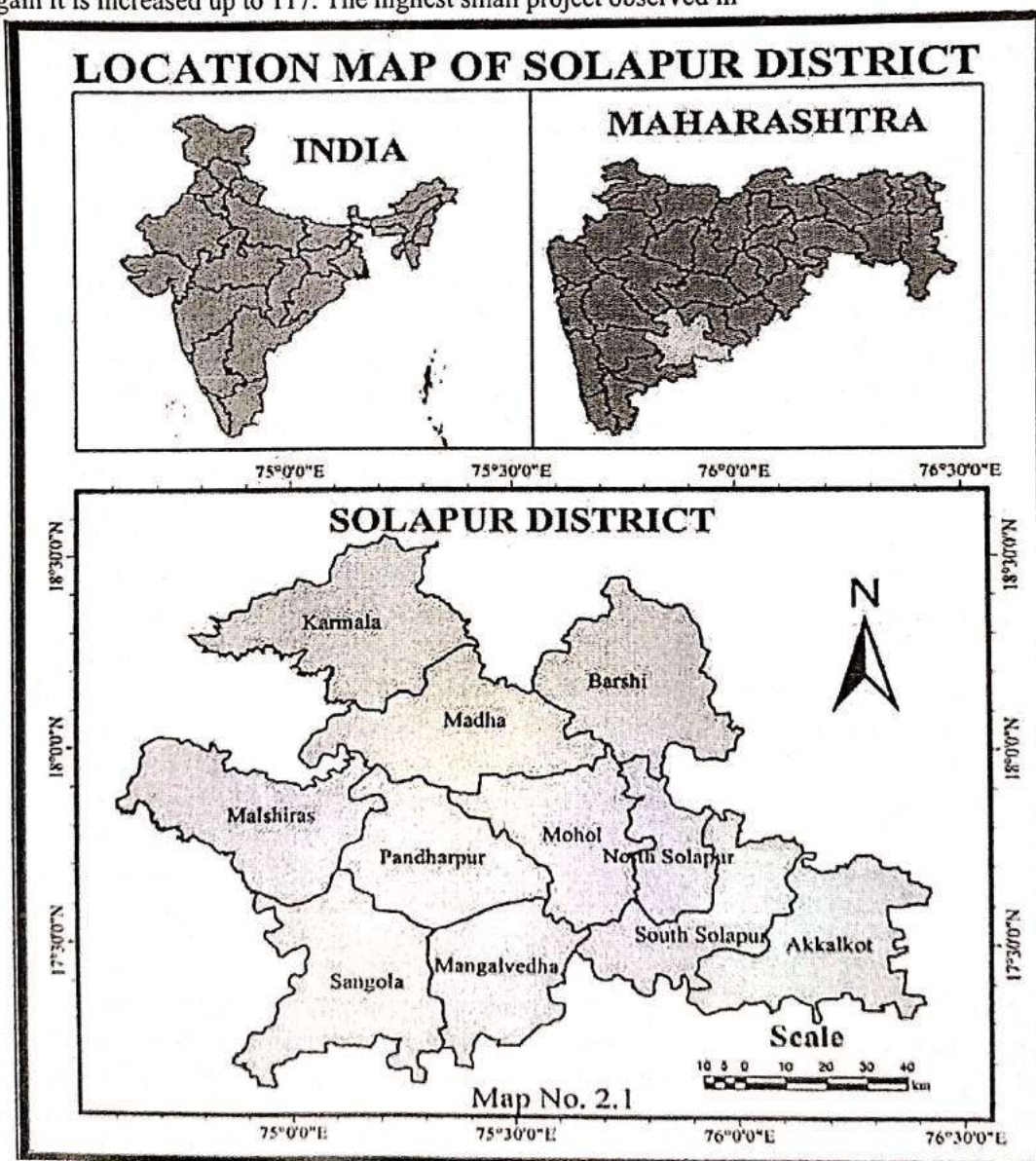


irrigation sources like big, medium, small projects, seepage tanks, irrigation well, underground storage tank, Kolhapur type bandhara etc. These Irrigation sources are not evenly distributed in the study area. Table 1.1, 1.2 and 1.3 shows tahsil wise irrigation and water lift facilities in 2010, 2015 and 2017 respectively.

1. karmala, North Solapur and Sangola. Akkalkot has 2 Medium projects observed in Last 17 years.

Small project: -

Small irrigation project plays important role in Agriculture development. These are low cost projects which built within a short period. In the study area there are 38 small projects registered in the year 2010. In 2015 numbers of small projects were increased up to 111. In 2017 again it is increased up to 117. The highest small project observed in



Map No 1 Location of Solapur District



barshi with 28, medium projects in Akkalkot, Sangola, Madha, Karmaala with 20 and 15 and lowest in N. Solapur, Pandharpur, Malshiras, Mangalwedha, S. Solapur etc

Big project: - In Solapur district there are two big projects is observed in Pandharpur and Madha respectively in tahsil 2010, 2015 and 2015.

2. **Medium project:** - In Solapur district total 11 medium irrigation projects were located in various tahsil. The highest medium project located in Barshi and lowest in

3. .

4. **Seepage tanks:** - Seepage tanks are one of the good irrigation sources to increase ground water table. The total seepage tanks are 1090 in the year 2010. In 2015 it's increased up to 1165 and in 2017 it increased drastically and reached up to 1893. Due to the heavy rainfall and government promotion of Jalyukta shivar. The highest seepage tanks are in Mohol and Sangola, Medium seepage tanks are in Barshi, Madha, Malshiras, Mangalwedha, Akkalkot and lowest in karmala, N. Solapur, Pandharpur, S. Solapur.

5. **Kolhapur type bandhara:** - Kolhapur type bandhara (KTB) is one of the techniques of Irrigation. It gives good storage of water in the agricultural area. In Solapur district there are 729 KTB in 2010. In 2015 its reduced up to 722. But in 2017 again the number of KTB increased and reached up to 780. The highest concentration of KTB are in Barshi, Sangola, Akkalkot, medium concentration in Karmala, Madha, N. Solapur, Mohol, Malshiras, Mangalwedha, S. Solapur and Lowest concentration of KTB are in Pandharpur.

6. **Underground storage tanks:** - Underground storage tanks (UST) are good source of irrigation. There are 142 underground storage tanks in the study area in 2010. In 2015 it's increased drastically and reached up to 558. In 2017 it is again increased tremendously up to 666. The highest concentrations of UST are in Madha, Barshi, Pandharpur, Malshiras, and Sangola. The medium concentrations of UST are in karmala, Mohol, Magalwedha, S. Solapur and Akkalkot. The lowest concentrations of UST are in N. Solapur.

7. **Water Lift Scheme:** - water lift scheme (WLS) is absence in 2010. In 2015 one Water Lift Scheme is observed in karmala. In 2017 two WLS are observed in Karmala and Magalwedha.

8. **Irrigation well:** - In the drought prone area like Solapur district irrigation well is the common means of source of irrigation. In 2010 there 9689 irrigation well across the study area. In 2015 numbers of irrigation well were reduced and reached up to 7873. In 2017 the numbers of Irrigation were same. The highest numbers of irrigation well are concentrated in Malshiras, Karmala, Madha, Barshi, Mohol, Pandharpur, Sangola, and Akkalkot. The medium concentration of irrigation well are in N. Solapur, Magalwedha, S. Solapur.

Conclusion

Without irrigation agriculture not possible in all the season. Indian agriculture is depending upon the Mansoon. Indian agriculture is gamble of Mansoon. Present day the growing population needs much more agriculture production. Irrigation can boost the agriculture production. Irrigation is modern tool for agriculture development. Agriculture is possible into drought prone area and in desert area, it is because of irrigation. There are number of sources and



techniques of irrigation. The present work is focused on the sources of irrigation and water lift scheme Solapur in district. The observations and findings of present work are as follow.

1. There are only 8 irrigation sources in Solapur district.
2. There are two big irrigation projects one in Madha and Pandharpur.
3. The medium project are only 11, there is no increase of Medium projects in last 7 years.
4. The number of small project in the district increased in 2017, from 38 to 111.
5. Seepage tanks are continuously increasing in last 7 years from the 1090, 1165, 1893 in 2010, 2015, 2017 respectively.
6. Kolhapur type bandhara were decreased from 729 to 722 in five years of span. But in 2017 again KTB were increased and reached up to 780.
7. The drastic change in number of underground storage tanks in the study area. It reached from 142 in 2010 and to 666 in 2017.
8. The numbers of water lift scheme are very rare in numbers in the district. There are only two water lift scheme are observed. One is in karmala and second is in Magalwedha.
9. Irrigation well is very vital source of irrigation for agriculture in the Solapur district. The highest number of irrigation well recorded in 2010. In 2015 it is reduced up to 7873. It remains constant in 2017.

Overall agricultural practice in district throughout the year and especially in winter and summer season are depend upon the present irrigation sources.

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