

## WATER RESOURCES IN SANGLI DISTRICT: NEED FOR HOLISTIC DEVELOPMENT IN AGRICULTURE

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### Introduction

Dryland farming is agricultural techniques for non-irrigated cultivation of crops. It has evolved as techniques and management practices to continually adapt to the moisture in crop cycle. It involves the constant assessing of the amount of moisture present or lacking for any given crop cycle and planning accordingly. Key elements of dryland farming include capturing and conservation of moisture as the average annual precipitation available to a dryland farm. Consequently, moisture must be captured until the crop can utilize it. Water-saving agricultural technology is regarded as key part of innovation of dryland farming which consists of biotechnology in exploring water saving potential, nontraditional water utilization technology, intelligent monitoring technology, advanced materials and manufacturing technology for water saving products, and integration of water-saving agricultural technology. At the heart of sustainable agricultural intensification, or sustainable land management, is the integration of soil and water conservation practices in agricultural production.

### OBJECTIVES:-

1. To study the available water resources and their distribution in the Sangli District (MH).
2. To find out the changing agriculture development towards the water availability in Sangli District (MH).

### DATA BASE AND METHODOLOGY:-

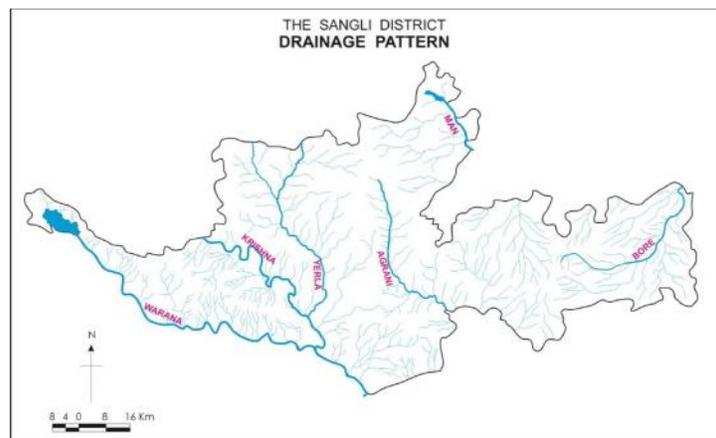
The present research work is based on secondary sources of data and information. The secondary qualitative and quantitative data also collected from District Census Hand book, animal census, District Statistical Abstracts, District Gazetteers and available published and unpublished materials.

### Water resources:

Water resources emerge from nature's gift of rain, wells, rivers, lakes and streams. Irrigation water i.e. dams, canals is important and assured source for agriculture. Availability of potable drinking water is also equally important today.

In the Sangli District, the river Krishna, Yerala and Warna and its tributaries make the region fertile. River Krishna flows the south- western border of the region and also makes the region fertile.

**A. Yerala River:** The Yerala, the largest river of the left bank of the northern feeders of the Krishna rises in Solkanath hills in the extreme north of Khatav. It flows north to south in a valley flanked by the Vardhangad - Machhindragad range on the right or west and by the





Mahimangad – Panhala range on the left or east. It flows 90 kms in Tasgaon and Miraj tahsil joins the Krishna near the Bramhnal. The east bank tributaries of the Yerala are generally longer though somewhat drier than those of the west. The important west bank tributary of the Yerala is Nani River. It has parallel to the Vardhangad – Machhindragad range and is joined by several small tributaries which drain the eastern slopes of that range, the chief of which is Mahadev Odha. Half a mile below the junction of the latter, the Nani has been dammed at Chikhli and the chikhli canal taking off from it on the western bank of the river affords some limited irrigation facilities between it and the river.

**Sonhira Odha :-** The Sonhira Odha is another west bank tributary of the Yerala flowing eastwards on the northern side of the Kamal Bhairav mountain into the Yerala.

**Kapur Nala:-** It is most importance because it has a good subterranean flow of water under the sands even in the dry season. Oil pumps installed on wells on its banks tap this subterranean flow and regular crops of sugarcane, plantain and chilli are raised. At Tasgaon there are even coconut and chilli gardens on the banks of this stream.

**B. Agrani River :-** The Agrani River is second most important river in the Sangli District. The origin of the river begins from the temple of Agasthi Hrushi near village Ainwadi (Venapur) in Khanapur tahsil. After flowing about 32.18 km. in a southward direction, river turns towards the south – east. The river has narrow valley bottom.

**C. Krishna River :-** River Krishna is a main source of supply of water for drinking, industries and irrigation. It flows south – western border of the Sangli District especially Walwa and Miraj talukas. Yerala joins the Krishna river by border the Sangli District but Agrani joins it just outside.

**D. Warana :-** The Western Part of Sangli District is Bordard by Warana Rivar. The Warana River Origian in Sahyandri Reng.

**IRRIGATION :-** Irrigation is the artificial application of water to overcome the deficiencies in rainfall for the growing of crops as well as availability of fodder. It is essential for the better yield and for assurance of the crops.

**Well Irrigation :-** Wells are the major source of irrigation of the region; an attempt is made to study the density pattern of wells. The density of wells in Yerala division is 9 wells per sq/kms as well as Agrani division 10 wells per sq/kms.

#### Tahsilwise Area under Irrigation and total wells in 2014

Sr. No.	Tahsil	Geographical Area in Hectares	Irrigated Area in Hectares	Total - wells
1	Walwa	80609	45650	5752
2	Khanapur	68953	13665	8610
3	Kadegaon	63469	5504	NA
4	Tasgaon	66756	6742	7881
5	Palus	6847	2565	NA
6	Miraj	92624	33650	10160
7	Kavathe Mahankal	51139	6678	7009
8	Jat	41975	4450	9220
9	Shiral	60700	2240	3641
10	Atpadi	65960	4250	9450
<b>Total</b>		<b>528400</b>	<b>142058</b>	<b>54651</b>

Source – Compiled by the researcher.

**Tank Irrigation:-**

Although, there are some tanks as Near in northern part and Kuchi, Landagewadi, Anjani, Khanderajuri, Kosari etc. in the central and eastern part of the region, area is not reported as irrigated by them. After the widespread famine of 1972, Government of Maharashtra and Zilla Parishad Sangli have constructed number of percolation tanks in this region under the Employment Guarantee Scheme. Unfortunately, very few of them are duly constructed and help to increase the water table.

**Canal Irrigation:-**

Canal irrigation plays a vital role in the overall irrigation in the region. Canal irrigation includes both the Government canals and private canals. Government canals are an important source of irrigation in the region. Private canals are drawn from the collected water behind the small bunds built across the streams and valleys. They are the chief source of irrigation.

**Major Irrigation Projects in the Sangli District.**

Sr. No.	Main Project	Year of complete	Length of Canal	Storage capacity (A million)	Total Beneficial Area in hectares
1	Yeralwadi	1977	49	32.80	5680
2	Siddhewadi	1988	29	8.58	1332
3	Doddanala	1984	8.40	7.78	1346
4	Basappachiwadi	1979	13	7.78	1267
5	Krishna-koyana (Maisal) project	2008	381	NA	154805
6	Ner	1886	38.80	9.13	4548

Source : Socio-Economic Review 2013-14

**Rainfall :-**

Rainfall is the very important factor, which influence the agricultural activities as well as the dairy activities in the Sangli District. The region lies in the rain-shadow region of Sahyadri. The rainfall varies in different parts of the region.

**CLIMATE:**

Climatically, this region falls under the great monsoon and associated with the rainshadow region of Sahyadri Mountain. The character of monsoon with four months of rainy season followed by eight months of relatively dry period of winter and summer. The annual climate cycle consists of the region has four season.

**A.** South – west monsoon season–June to September. **B.** Post – monsoon season–October to mid December. **C.** Cold weather season–Mid December to February. **D.** Hot weather season–March to May.

**AGRICULTURE:-**

Agriculture has been the main source of livelihood of the people in the region. Irrigation policy for each region is almost similar except it differs due to volume and length of rivers, their numbers, sources other than rivers, viz. natural reservoirs, nallas, wells, etc. The policy is also decided on the basis of quality of land, cropping pattern, total geographical area, etc. With the help of irrigation facilities farmers increased their agricultural production and improved their own economic conditions there are some medium projects of irrigation in the region. Yeralwadi project (3140 hectares), Siddhewadi project (730 hectares), Basappawadi project (860 hectares), Ner project (4320 hectares), are some of the projects which irrigate 9050 hectares of land. In the region There are Krishna–Koyana project (Takari-



Maisal), Tembhu project, Jihe–Kathapur project are the major projects out of the Sangli District which supplied water to the Sangli District.

#### **CROPPING PATTERN:-**

Agriculture in the Sangli District is mostly of the intensive subsistence type with an emphasis on the production of food grains. Kharif and Rabbi are the two main crop growing seasons. The geographical area of upper east Krishna valley is 528400 hectares, of which net area under agriculture is 383000 hectares.

Tahsilwise area under grain crops that 47.13% followed by Jawar (27.83%), Bajara (8.51%), Sugarcane (4%) Soyabean (3.86%), wheat (2.38%), Gram (2.08%), Maize (2.01%), Groundnut (1.94%), and Rice (0.26%). It means agriculture in the region is mostly of the intensive subsistence type with an emphasis on the production of food grains.

#### **CONCLUSIONS AND SUGGESTIONS:**

Agriculture is known as gamble in the monsoon due to inadequate and irregular rainfall. In India, where 80 per cent of the farmers are small holders,.

The Sangli District is a part of Krishna Basin, divided into north-western, central and south-eastern parts. The rivers Yerala, Agrani and Krishna make the region partly irrigated. The Sahyadri ranges determine the climate of the region and fall under monsoon land. The rainfall is uncertain and hence subject to frequent famine in the region. The region has arid tracts and fallow lands.

The water-saving agriculture approaches were used with curing channel and pipeline technology, spray and injection irrigation, micro-irrigation and improved surface irrigation.

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