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AN OVERVIEW OF WATER RESOURCE AND CLIMATIC CONDITIONS IN WALWATAHSIL

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ABSTRACT

Indian agriculture depends upon Monsoon seasons. Due to lack of irrigation facilities, farmers take only one crop in a year. Any living organism cannot sustain without water. Water emerges from nature's gift of rain, rivers, lakes and streams. Agricultural development is mostly based on availability of irrigation facilities i.e. dams, canals, wells, tube-wells, lakes etc. as well as rational drinking water is also equally important. In Walwatahsil, Krishna and Warana Rivers are important source of water for irrigation and drinking purposes. Hence, take of overview of the water resources regarding the climatic conditions is the main objective of this present research paper. Walwatahsil situated in the Sangli district of Maharashtra state considered as a study region for this paper. The entire paper is based on secondary sources of



data, collected from various sources. The paper concluded that, the geographical and climatic conditions in the study region is very favourable for agriculture, hence, dairy activity is most significant subsidiary agro-based business in the study region.

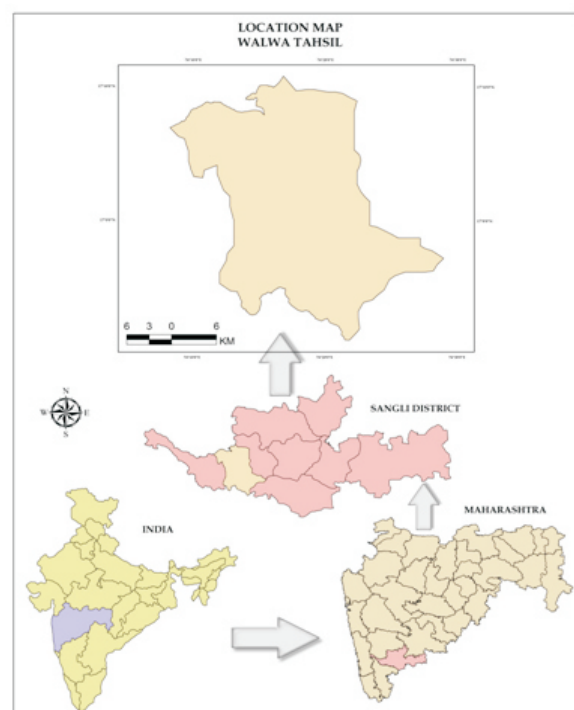
KEYWORDS: agriculture, Monsoon, irrigation, water resource

PREFACE:-

Water resource is very important in human life as well as wildlife. Water emerges from nature's gift such as rain, rivers, lakes, streams, etc. Irrigation facilities are important source of the development of agriculture. Krishna and

Warana rivers fulfill most of the water needs of the tashil.

Climatically, entire Walwatahsil falls under the great monsoon belt and it receive maximum rainfall from south-west monsoon except surrounding area of Bhairavgad range in the South-East. The character of monsoon with four months of rainy seasons and eight months of dry period of winter and summer is experienced in the tashil.



Study Region:-

The Walwatahsil is one of the important tahsils in Sangli district. It is located in western part of Sangli district having 787.81 sq. Km. (78781 hectore) geographical area. Walwatahsil lies between 160 51' 08" North latitude to 170 10' 47" North latitude and 740 07' 42" East longitudes to 740 28' 30" East longitudes (ISO Toposheet). The study region has an average height of about 560 meter from mean sea level. The tahsil is surrounded by Satara district to the north, Palustahsil to the east, Kadegaontahsil to north-east, Mirajtahsil to south-east and Warana River formed a natural boundary between Kolahpur district and Walwatahsil (Sangli district) to the south.

OBJECTIVES:-

To study the water resource regarding the climatic conditions in Walwatahsil.

Data Source:-

The present paper is entirely based on the secondary sources for data, collected from various reference books, Agriculture Office, Islampur, PWD Department Islampur, Socio-Economic Reviews and Statistical Abstract from 2008 to 2012 of the Sangli district. The sources from Internet are also assessed.

Analysis:-**1. Water resource:**

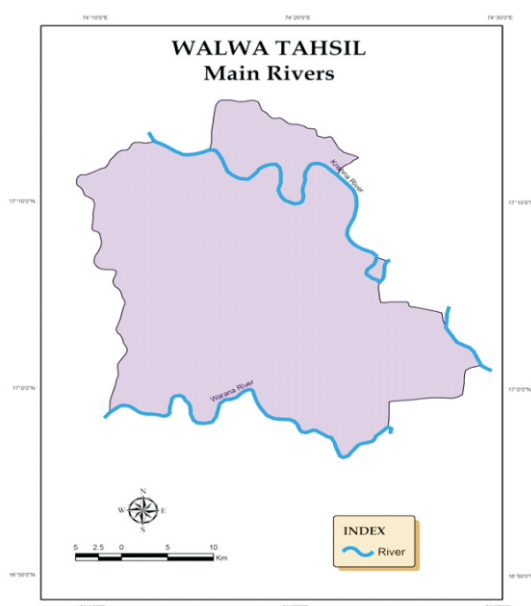
In the Walwatahsil, Krishna and Warana rivers are important source of water for irrigation and drinking purposes. Flood plains of these rivers make the region fertile. Krishna River runs parallel to the some parts of North West border and Warana River runs from west to East, Southern border of Walwatahsil.

1.1 Krishna River:

Krishna River is the main source of water supply of the agriculture, industries and domestic use. It runs from North-West to North-East. Krishna River enters in Kasegaon village and flows through many villages in the region e.g. Tambve, Narsihapur, Bahe, Bichud, Borgaon, Takari, Masuciwadi, Junekhed, Shirgaon, Mardwai and Karandwadi, and Karandwadi enters in Mirajtahsil. The total length of Krishna River is 29 kilometers in the study region.

1.2 Warana River:

Warana River is again a source of agriculture and domestic use of water. It runs from South West to South-East at the southern boundary of the region. Warana River enters in the Walwatahsil near Thanapude village and flows through many villages in the southern part of the region e.g. Aitwade, Kundalwadi, Tandulwadi, Kanegaon, Koregaon and Shigaon etc. The Warana River flows 22 kilometres in the study region.



Map 2

Source : Public Welfare Department (PWD) and Census of India

2. Climate:

Climatically, Walwatahsil falls under the great monsoon belt. The character of monsoon with four months of rainy seasons and eight months of dry period of winter and summer is experienced in the tahsil. The annual climate cycle consists of the region as follows.

- 1] South-West monsoon season- June to September.
- 2] Post- monsoon season- October to mid-December.
- 3] Cold weather season- mid December to February.
- 4] Hot weather season- March to May.

2.1 South-West Monsoon Season

South-West monsoon season starts in June and closed to end of September. The annual rainfall in the Western part of the region is 625 mm and in eastern part of the region has 590 mm. The northern part of the region received average rainfall of 575 mm, whereas southern part of the region received 625 mm. There is average rainfall of 600 mm in the middle part of the region

The annual average temperature is maximum 360 C and minimum 240 C in the region during this period. Western part of the region experienced low temperature as compare to the eastern part of the tahsil, due to the strong winds, particularly on the hills, in the South-West monsoon season.

2.2 Post-Monsoon Period

October to mid-December months is considered as a post monsoon season. In this period wind flows from North-East to South-West in the region and withdraws first half of October. Sometimes rainfall occurs with thunder showers in this season. October month creates transition from Rainy season to winter. In this period Eastern part of the region gets rainfall occasionally with the thunderstorm and heavy showers of the rain.

In the Post-monsoon season sudden changes in temperature are happen in the study region. Temperature increases up to 360C to 400 C. approximately; impact of October heat is experienced in this period in the study region. In this period, temperature increased from westward to Eastward direction in the study region.

2.3 Winter Season

Mid-December to February months are considered as a winter season in the study region. In this period the climate is cool and bracing. During this period very fine weather prevails with strong dry Easterlies. December and January are the coldest months and cold weather comes out from North to South direction in the region.

In this period cold weather becomes strong in Mid-December to Mid-February. The maximum temperature is 28.90 C and minimum is 14.30 C during this cold weather season and the range of temperature is 220 C, sometimes the minimum temperature goes to the below 120 C and relative humidity is 50 to 60 per cent.

2.4 Summer Season

March to May is a summer season. May is hottest month of this season and in this period sometimes cyclonic rainfall occurs in the region.

From the month of March to May temperature is increases as day progresses. The highest temperature is observed in month of May. In the region, daily maximum temperature is 410 C and minimum temperature is 320 C. In this season only 15 to 30 per cent relative humidity is observed in Walwatahsil.

3. Rainfall:

Rainfall is an important factor for human being, because, this influences the agricultural activities as well as the dairy activity in the Walwatahsil. Various parts of Walwatahsil have different rainfall. The physical setting of the tahsil is impacted on the distribution of rainfall in the tahsil. The important factors of rainfall which is studied are

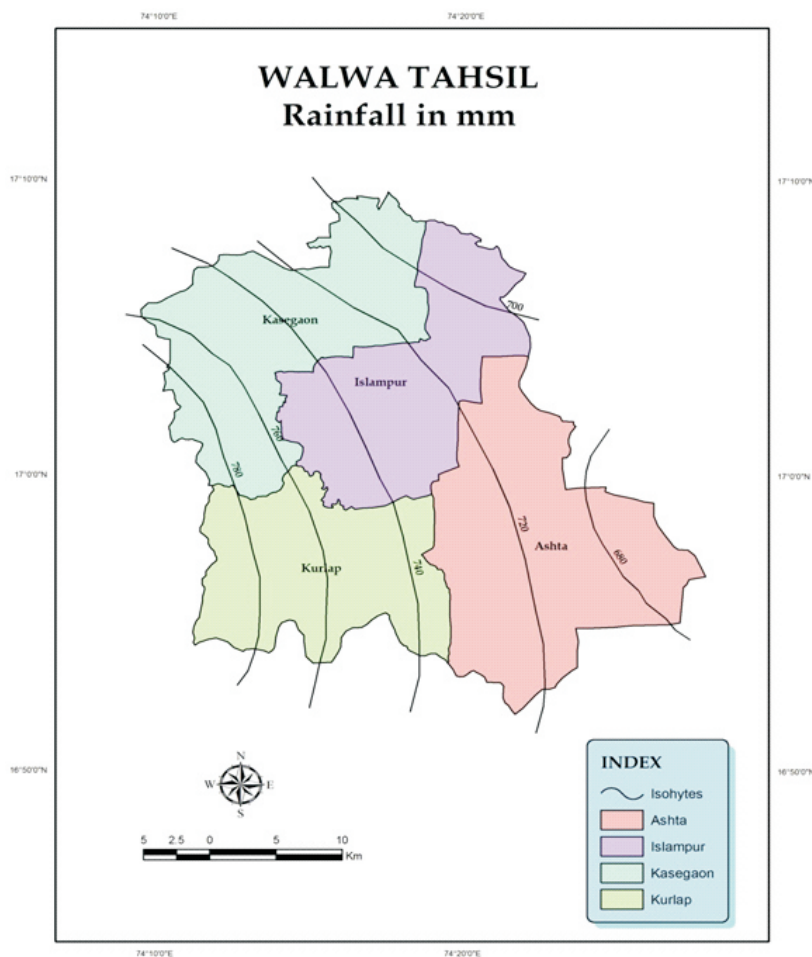
- 1] General distribution of rainfall.
- 2] Seasonal distribution of rainfall.
- 3] Intensity of rainfall.
- 4] Number of Rainy days and rainfall.

3.1 General Distribution of Rainfall

The general distribution of rainfall is uneven in the study region. The amount of rainfall decreases from West to East direction. Maralnathpur, Karve, Shekharwadi, Chikurde, Wategaon villages are in the West zone and in this region rainfall occurs up to 600 to 625 mm villages in the Northern part of the region are Killemachhindragad,

Lavanmachi, Beradmachi villages are comes and the average rainfall observed is 590 to 610 mm. Eastern part of Walwatahsil has 575 to 580 mm rainfall and in this part Masuchiwadi, Junekhed, Walwa, Shirgaon, Mardwad villages lie and the middle part of the Walwa has average 600 mm annual rainfall.

The study region receives the average annual rainfall below 625 mm and this rainfall is not sufficient for development of agriculture but the dairy activities are very essential as a subsidiary occupation for agriculture in the study region.



Map 3

Source: District Planning Map Series, Survey of India

3.2 Seasonal Distribution of Rainfall

Seasons are the important characteristics of the rainfall. Although the rainfall is received in these seasons it is only the drop of cold season. It is mainly during the South-west monsoon and North-East monsoon seasons.

The rainy season is started almost in first week of June and it appears up to September and quite a large amount of rainfall i.e. 89.73 per cent of the annual average rainfall received by Walwatahsil. From Mid-September, South-West monsoon loses its strength and North-Eastern monsoon takes its place. Rainfall during this period is maximum 30 per cent in Krishna river valley and minimum 25 per cent in Warana river valley.

At the end of November, North-Eastern monsoon decreases its influence and early winter season starts from December and rainy season slowly disappears. During the hot season, rainfall occurs due to cyclonic-thunderstorms and heavy showers of the rain or hails appears sometimes with speedy winds. The maximum rainfall during this period is 22 per cent, which is mostly received in the eastern part and decrease towards the west of Walwatahsil.

3.3 Intensity of Rainfall

The nature of occurrence of the rainfall is an equally important characteristic of the rainfall. Intensity of rainfall is determined by total annual rainfall and total number of Rainy days.

The intensity of rainfall varies from below 12 to 24 mm per rainy days in the study region. It is highest in western part of the tahsil whereas lowest in the eastern part of the Walwatahsil.

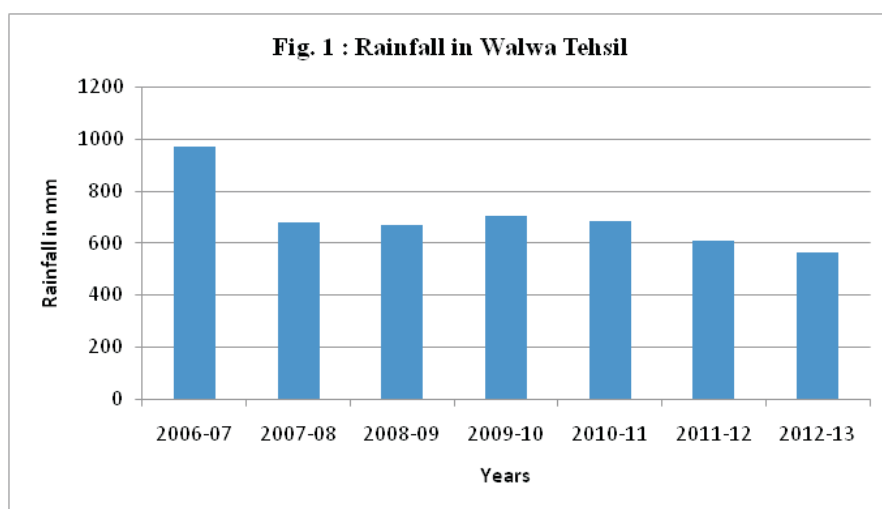
3.4 Rainy Days and Rainfall

The Table 3.1 shows the year-wise rainfall and number of rainy days.

Table 1
Rainy Days and Rainfall in mm in WalwaTahsil

Sr. No.	Years	Rainfall in mm	No. of Rainy Days	% of Annual Average Rainfall
1	2006-07	972.5	58	162.22
2	2007-08	681.5	48	100.26
3	2008-09	668.2	44	96.46
4	2009-10	706.3	38	103.73
5	2010-11	683.4	26	100.37
6	2011-12	611	48	89.73
7	2012-13	565.2	32	83.01

Source: Socio – Economic Abstract of concern years



The above table depicts that the year-wise rainfall and number of rainy days in the Walwatahsil. In the year 2006-07, the annual rainfall is 972.5 mm received in 58 rainy days. In the years 2007-08, Walwatahsil received 681.5 mm rainfall in 48 days. Similarly in the year 2008-09, Walwatahsil received 668.2 mm rainfall in 44 days and in the year 2009-10; tahsil has 38 rainy days which gives 706.3 mm. In the year 2010-11 received rainfall in Walwatahsil is 683.4 mm in 26 rainy days. In the year 2011-12, the received rainfall is 611 mm in 48 rainy days. It is observed from the table that, the amount of rainfall received by the tahsil as well as the number of rainy days are shows the decreasing trends according to the investigation period. As impacted of this, the percentage of annual average rainfall is also continuously decreased in the Walwatahsil.

CONCLUSION

Walwatahsil has very favourable geographical and climatic conditions. More interestingly, tahsil is blessed by Krishna river to north and Warana river to the south The character of monsoon with four months of rainy seasons and eight months of dry period of winter and summer is experienced in the tahsil. The annual climate cycle consists of the four monsoon seasons. All these geographical and climatic conditions are much sustainable to the agricultural development in the study region. Accordingly dairy activity and other agro-based industries are also allowed to spread

their wings.

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