

International Journal of Engineering Sciences & Research Technology

(A Peer Reviewed Online Journal)
Impact Factor: 5.164



Chief Editor

Dr. J.B. Helonde

Executive Editor

Mr. Somil Mayur Shah

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH
TECHNOLOGY****A STUDY OF WATER MANAGEMENT IN AGRICULTURAL IRRIGATION IN
BHADGAON TALUKA OF JALGAON DISTRICT (MAHARASHTRA)****Dr. Sanjay Bhaise and Mr. Devendra Maski**^{*1}Associate Professor & Head Dept. Of Geography. Research Guide (Geography), Member of BOS
(KBCNMU Jalgaon)²Assistant Professor, Sau. R. N. Deshmukh Arts, Com. & Science College Bhadgaon Dist.- Jalgaon
(Maharashtra)DOI: <https://doi.org/10.29121/ijesrt.v9.i6.2020.1>**ABSTRACT**

Agricultural is the major primary activity in Bhadgaon Taluka. This region is facing more problems of rain water scarcity. Uncertainty of rainfall, limited resources of water storges and underground water as well as farmers want to more production, that's why peasant turns to modern irrigation system and using proper water for irrigation with the help of water management and taking more crops and production.

KEYWORDS: Agriculture, Irrigation, Water Management.**1. INTRODUCTION**

Now a days our economy is dynamically dragging toward development. But agricultural sector has not raised the upper limit till the date. Because there is no proper support of nature and human to agriculture sector of concern region. Irrigation is major aspect of agriculture and water availability is lies in Bhadgaon taluka. Mostly agriculture is depending on canal irrigation and lift irrigation the underground water is going down day by day. But nobody worries about that and try to uplift more water for irrigation and more production from irrigation. That's why the farmers can't irrigate is landform by traditional irrigation system. So now a day former using modern technology such as drip irrigation, sprinkle irrigation, mulching for water conservation, plastic paper cover for controlling evapotranspiration and protect from unwanted grass.

Hypothesis

"Lack of water availability promotes to water management in agriculture irrigation"

Study area

Bhadgaon taluka lies between 20^o, 40' North to 20^o, 66' North Latitude and 75^o 13' East to 75^o East Longitude. The total area is 43841 hectores covered by this Taluka.

2. RESEARCH METHODOLOGY

I have selected 40% villages (25 out of 59) by random sampling. The data is collected from 274 farmers by personal interviews and questionnaire. I have personally visit, observed irrigation system, measures the depth of wells and level of water which are randomly selected.

I have taken some secondary data from published and unpublished documents of Talathi, irrigation department, Agriculture department, Tahsil office and district geographical office. Lastly data analyse, interpreted and generate conclusion of this research.

Objectives

- 1) To find out irrigation problems
- 2) To study the modern irrigation system and its implementation.
- 3) To find out the area under modern irrigation system.
- 4) To find out the benefits of this modern system in water management.

Table No. 01 Bhadgaon Taluka: Average land Holding and Area under Irrigation in Summer

Sr. No.	Name of Villages	Average Land holding (in acres)	Area under Irrigation in Summer (in %)
01	Total	134.95	1405
02	Average	5.40	56.22

Source: Collected data during the field survey 2018

According to the survey the average land holding is 5.40 acres and average area under irrigation in summer season is 56.22% in Bhadgaon taluka. It means that 43.78% area has not irrigation facilities. So the mostly area is found as barren land in summer season. Those have irrigation facilities they use drip irrigation system to increase irrigated area and take production from crops.

3. NET SOWN AREA

Table No. 02 Bhadgaon Taluka: Total Net sown area

Sr. No.	Name of crops	2012-13		2013-14		2014-15		Remarks about area
		Average area	Net sown area	Average area	Net sown area	Average area	Net sown area	
01	Total	42131	42131	42131	42131	423131	40067	Decreases
02	100%	100%	100%	100%	100%	100%	95.10%	4.90%

Source: Taluka Agricultural Office, Bhadgaon 2018

The total geographical area of BHadgaon taluka is 43841.41 hectares. The total agricultural land is available 42131 hectares out of that 28107 hectares (67%) land is non-irrigated and 14024 hectares (33%) land came under irrigation in Bhadgaon taluka. During 2012-13 to 2013-14 the net sown area was 100% occupied under crop about in 2014-15 it has decreased towards 40067 hectares, it means 4.90% net sown area decreased in Bhadgaon taluka.

4. AVAILABILITY OF WATER

There are three sources of water for irrigation in Bhadgaon Taluka. One is Girna dam which is supply water for irrigation by canal. But due to scarcity of rainfall and using more reservoirs for drinking and industrial purpose, create some limits in irrigation by canal.

Second one is lift irrigation by wells and tube wells, Due to continuous lifting underground water with traditional irrigation the underground water level goes down

Third one is natural rain. Rainy days and rainfall are not sufficient for the purpose of agriculture in Bhadgaon Taluka. There are 665.5 mm average rainfall and 40.7 average rainy days all over the year. Due to surface structure of land and less percentage of rainfall, the water scarcity creates in Bhadgaon Taluka.

5. WATER MANAGEMENT

The agricultural activities are major activities in Bhadgaon taluka. Mainly people were use traditional irrigation in this taluka but scarcity of rainfall more lifting of underground water and wanting of more crops with more production by farmers. Its affects to underground water level and its decreasing 1.7 Mts. In last five years. So, less availability of water for irrigation and increasing agricultural area, farmers choose the mid-way of irrigation that is modern irrigation system in Bhadgaon taluka.

6. DRIP IRRIGATION

Drip irrigation system is modern technology. With the help of drip, we can provide proper water to crops near it steams. This method is very useful for saving water in scarcity region. Bhadgaon taluka is belonging in scarcity rain region. So, this method is very useful for this region.

Table No. 03 Bhadgaon Taluka; Drip Irrigation

Sr.No.	Percentages	No. of Villages	% of Villages
01	< 40	02	08
02	40 to 60	05	20
03	60 to 80	03	12
04	80 to 100	15	60

Source: Collected data during the field survey 2018

Use of drip irrigation is not equal all over the taluka 8% villages are using below 40% drip irrigation in agriculture 20% villages have 40 to 60% drip irrigation and 12% villages have 60 to 80% drip irrigation in Bhadgaon taluka and 60% villages have applied the 80 to 100% drip irrigation system in Bhadgaon taluka 32% villages are using 100% drip irrigation in Bhadgaon taluka. More percentage of drip irrigation are used in Bhadgaon taluka but large area is found barren in summer season because of scarcity of rain in this taluka.

60% villages using 80 to 100% drip irrigation 12% villages applied 60% to 20% villages used 40 to 60% and 8% villages are using below 40% drip irrigation system respectively of Bhadgaon taluka. It means that mostly farmers of Bhadgaon taluka are used to modern irrigation system now days.

Sprinkle Irrigation:

Sprinkle irrigation system is one of them in modern irrigation system. With the help of this system we can spray on plant like rain. This method also good but more water goes waste like traditional method in this system. In Bhadgaon taluka on 2.55% farmers are using sprinkle irrigation system. Those farmers are applying floriculture in their farm they are use this system.

Traditional irrigation:

This system is used by farmers from ancient period. Now days, near about 18% farmers of Bhadgaon taluka are using this method for irrigation.

Table No. 04 Bhadgaon Taluka: Traditional irrigation

Sr.No.	Percentages	No of Villages	% of Villages
01	< 20	11	44
02	20 to 40	04	16
03	40 to 60	01	04
04	None	09	36

Source: Collected data during the field survey 2018

44% villages are using below 20% traditional irrigation 16% villages have 20 to 40% traditional irrigation and on 4% villages have 40% to 60% traditional irrigation in Bhadgaon taluka and 36% of villages have not using traditional irrigation in Bhadgaon taluka.

Traditional irrigation system is very old method old irrigation. 44% of farmers are using below 20% and 16% farmers using near about 20 to 40% and 4% farmers of Bhadgaon taluka are using traditional irrigation system for irrigate their farms. 36% farmers of Bhadgaon taluka are not used the traditional irrigation system in this taluka. It means that this method being less from this taluka.

7. CONCLUSION

Such type of irrigation system is improved in Bhadgaon taluka due to lack of underground water level. Farmers of Bhadgaon taluka are taking subsidy from Maharashtra Government for drip irrigation. Maximum farmers are using Jain drip irrigation system in Bhadgaon taluka. This system is providing water to crops as per need. It means there is not creating water over lodge and salinity problems in soil and it is ready to intensive agriculture.

The study of management irrigation is the most important for the future plan. Water scarcity forth coming various problems lie drought, food security, drinking water, industries, fodder and natural bio-diversity. So, decreasing of underground water level is very dangerous for the human life as well as wild life and plants. To overcome these

problems various measures will be suggested by government planner which in term help to bring some solution in the irrigation. Therefore, the present study is quite relevant to the present day's problems of society and country.

8. SUGGESTIONS

- Farmers should be applying rain water conservation method in their farms.
- To preserve the wetness should be covered furrows or channel by mulch to prevent irrigated water from evaporation after irrigation.
- The cultivation methods should be applying horizontal to the slop of field.
- Ploughing should be acute angle to the slop.
- The rain water should be collect in farm tank.

REFERENCES

- [1] Jasbir Singh, S. S. Dhillon "Agricultural Geography" Tata McGraw Publication Company Ltd. New Delhi.
- [2] Dr. S.B. Katmusare "Maharashtracha krushi Vikas" Pimpalpure Book Distributors Nagpur (2011)
- [3] Dr. Ram Swarup Bhatnagar "Sustainable Society Eco-system and Natural Resources" Signature Books International Delhi (2012)
- [4] Dr. Sanjay Bhaise and Devendra Maski "Geography Of Maharashtra" Atharva Publication Jalgaon (2014)
- [5] Jalgaon District Census handbook (1991 & 2011) Field survey 2018.