

Study of Spatio-Temporal Impact of Farm Ponds on LULC in select Villages of Pandharpur Tehsil in Solapur District of Maharashtra

DEPARTMENT OF GEOGRAPHY

POST GRADUATE TEACHING AND RESEARCH CENTRE,
SIR PARSHURAMBHAU COLLEGE (AUTONOMOUS), PUNE-30

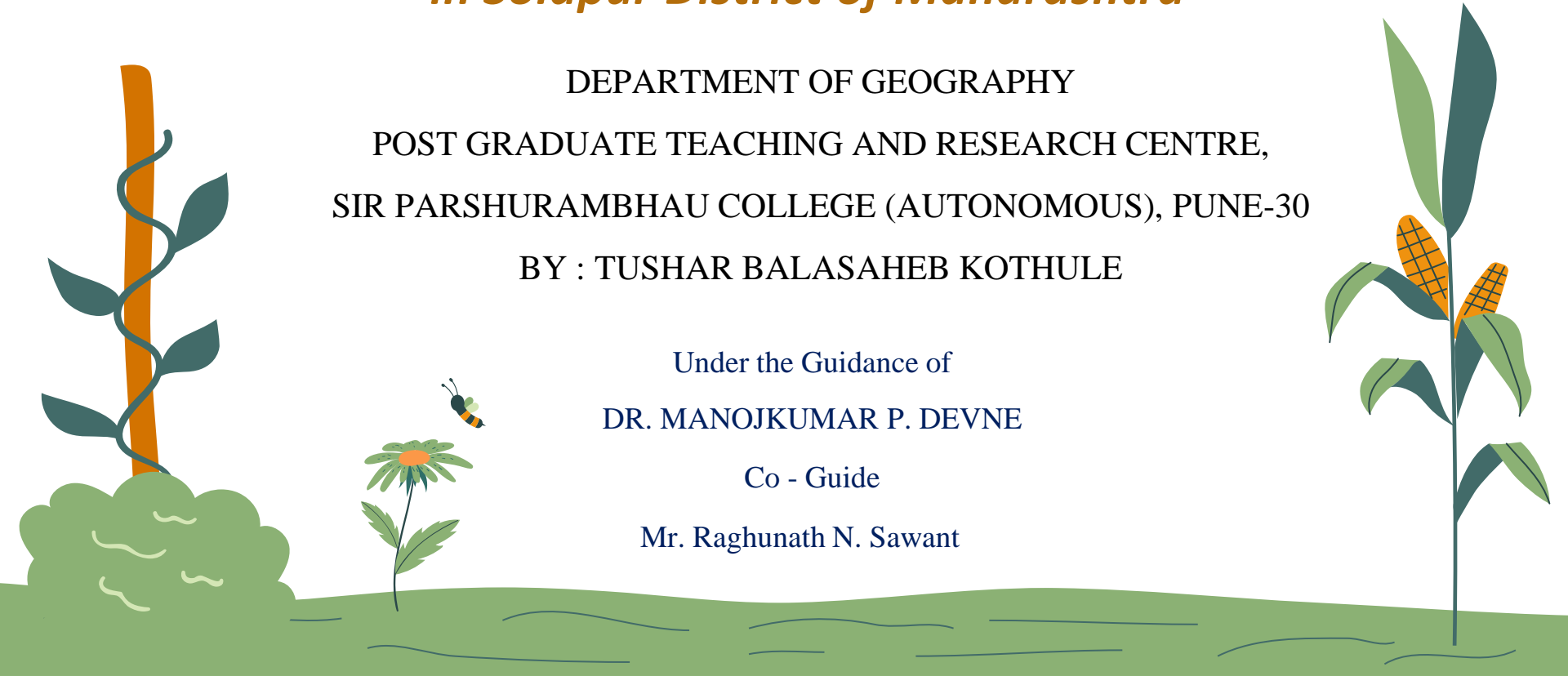
BY : TUSHAR BALASAHEB KOTHULE

Under the Guidance of

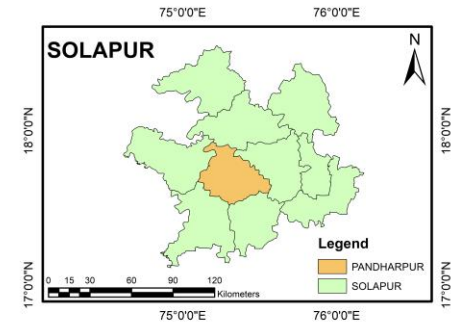
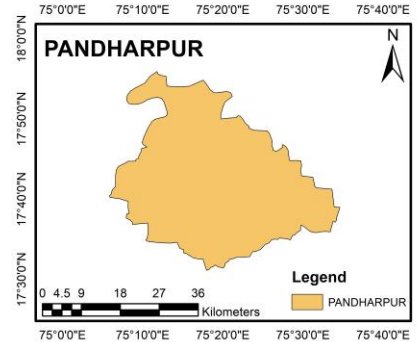
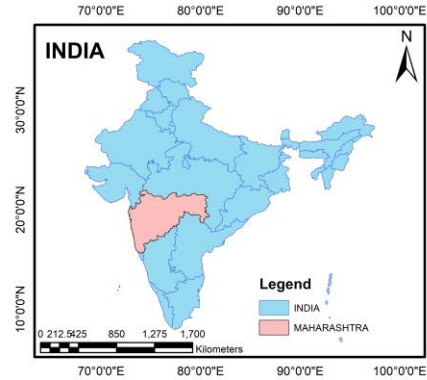
DR. MANOJKUMAR P. DEVNE

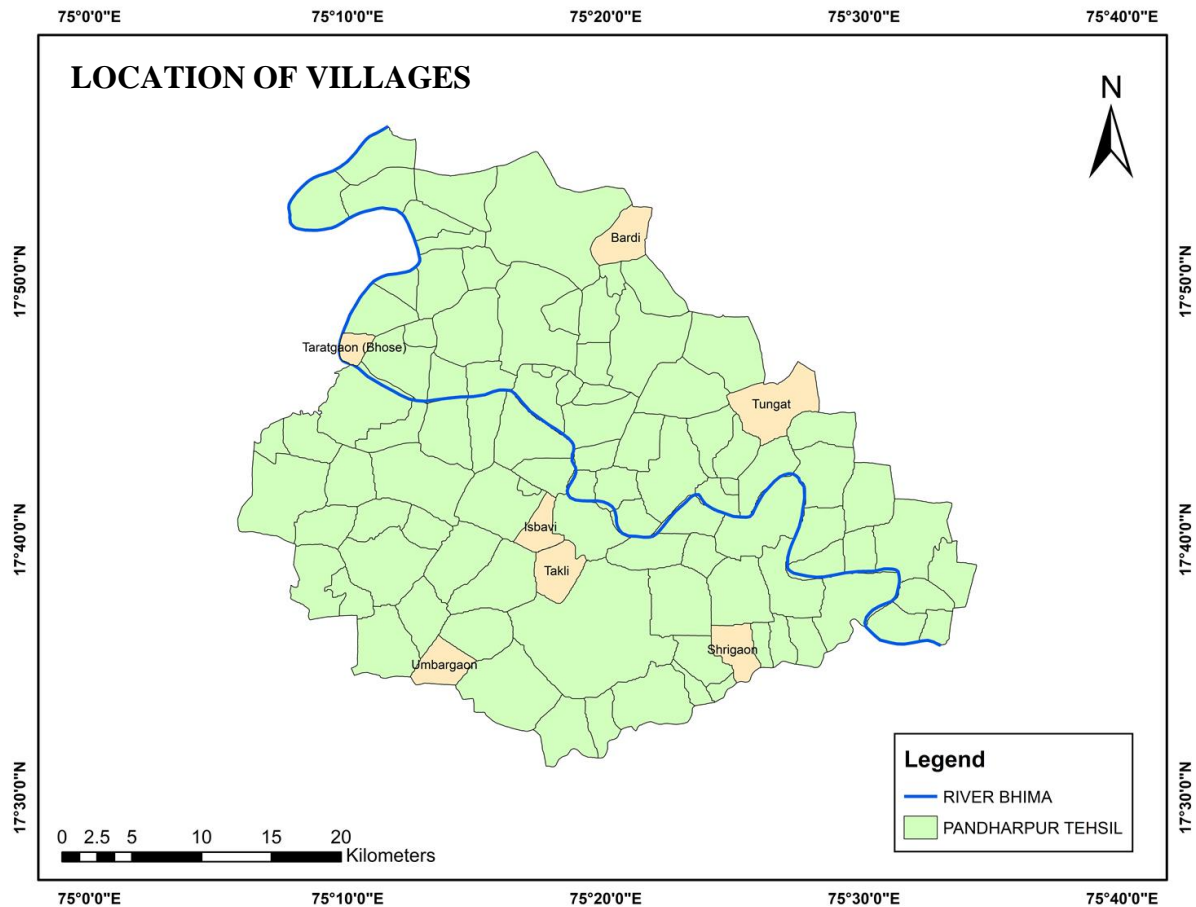
Co - Guide

Mr. Raghunath N. Sawant



The total area of Pandharpur tehsil is 1,293 sq. km. It is located at a distance of 72 km by road from Solapur District headquarters. Its administrative area is one of eleven tehsils in the district. The town Pandharpur is located at $17^{\circ} 40' 28.3908''$ North latitude and $75^{\circ} 19' 25.4028''$ East longitudes at the height of 465.12 meters above mean sea level and has a general slope from west to east. Its administrative area is one of eleven tehsils in the district.





Aims:

To assess the agriculture development based on farm ponds in Pandharpur tahsil. The main aim of the study is to understand the role of 'farm ponds' on agricultural development particularly horticulture, land use pattern within the study region. To carry out this study, it may be useful to have the following specific objectives.

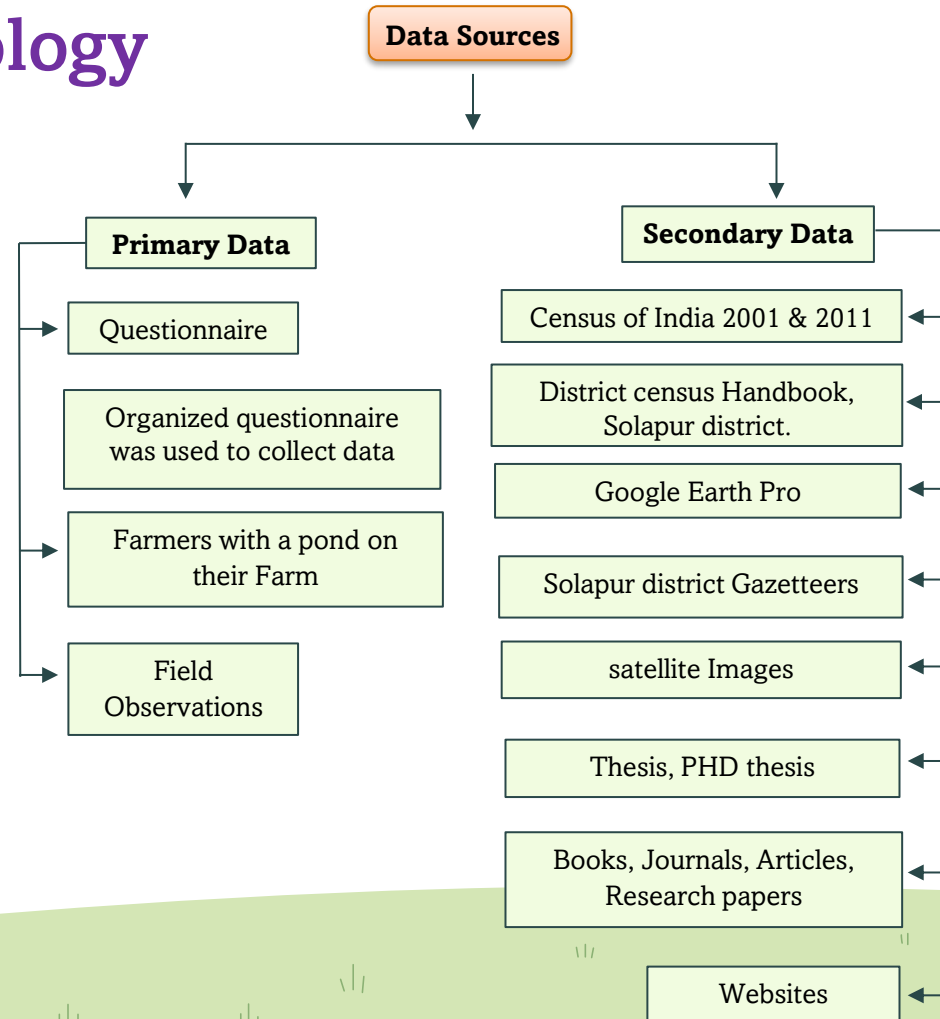
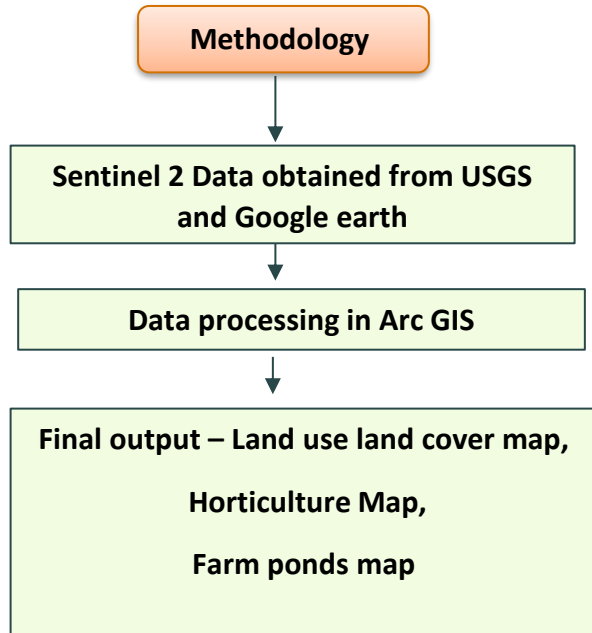
Objectives :

1. To study the development of horticulture based on farm – ponds.
2. To try and observe the impact of the river on the land use pattern with special reference to farm ponds.



02 Database & Methodology

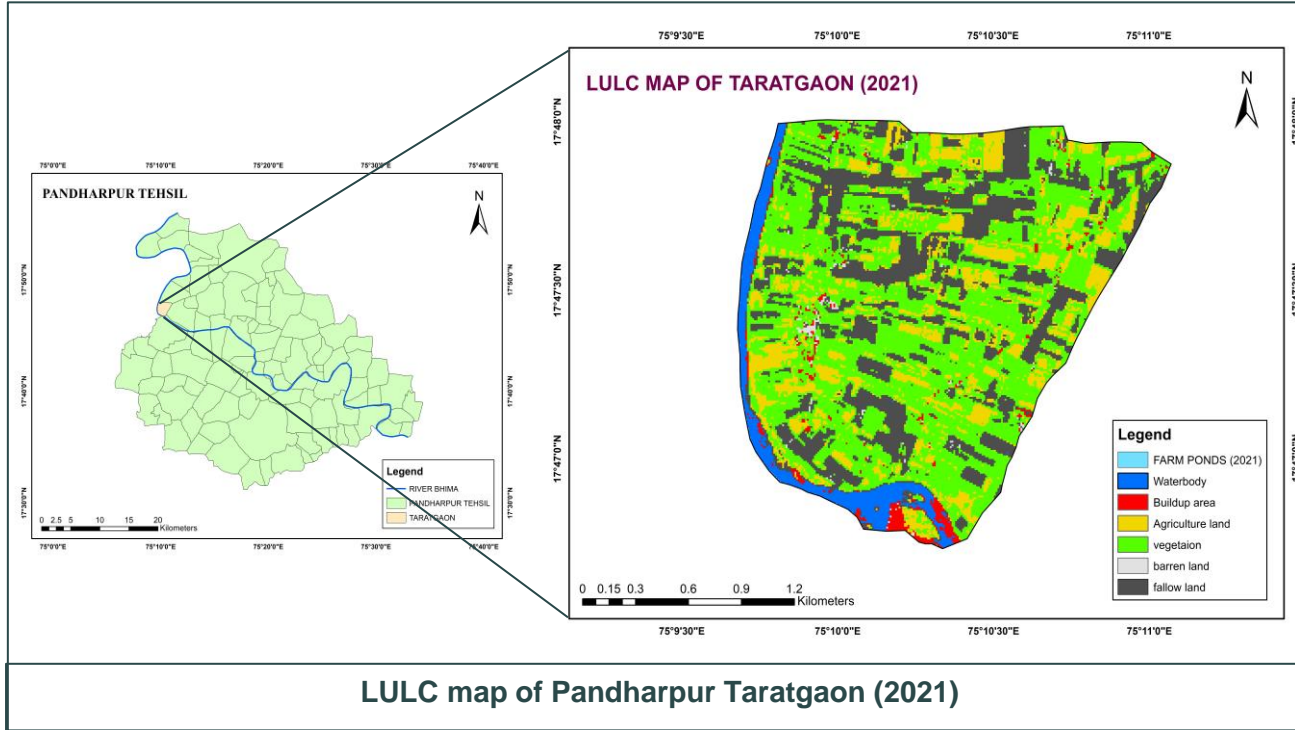
According to the objectives of this study, the methodology used.



**Study of LULC change with special reference to
farm ponds in select villages in
Pandharpur tehsil.**

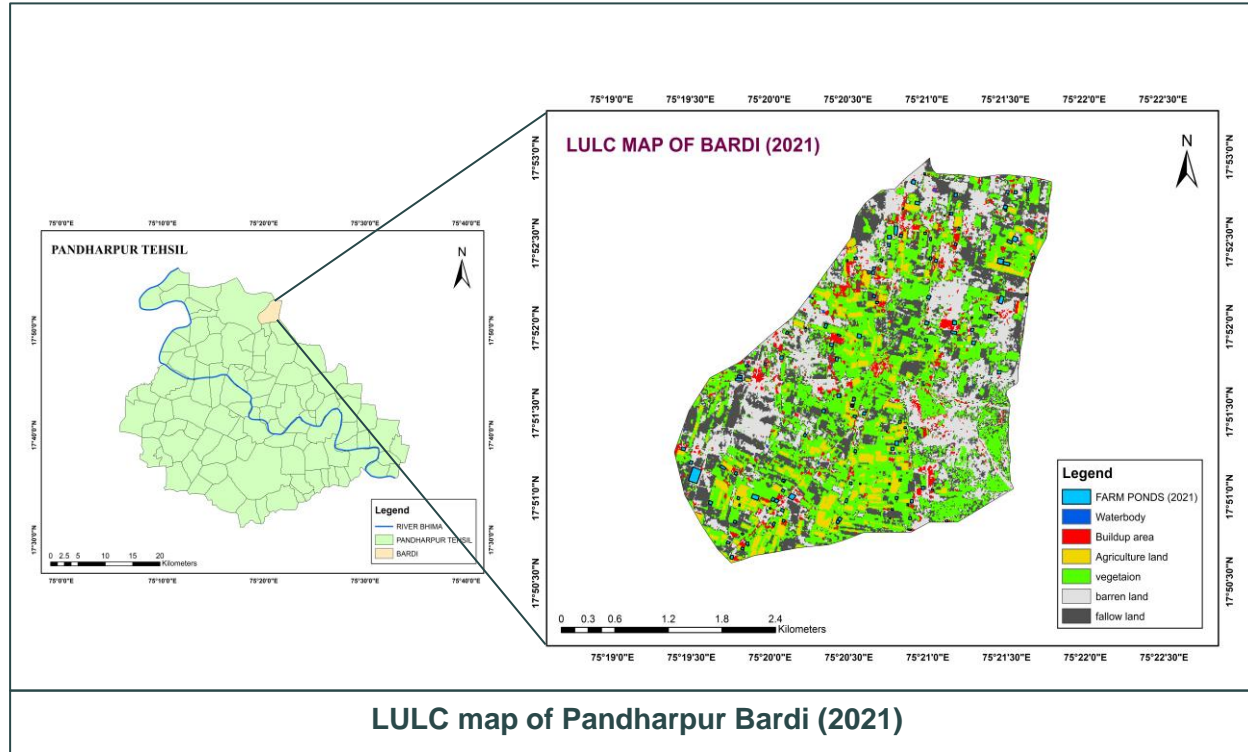


1. Village Taratgaon



In 2015 and 2021 there were no farm ponds.

2. Village Bardi



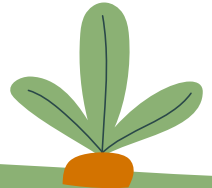
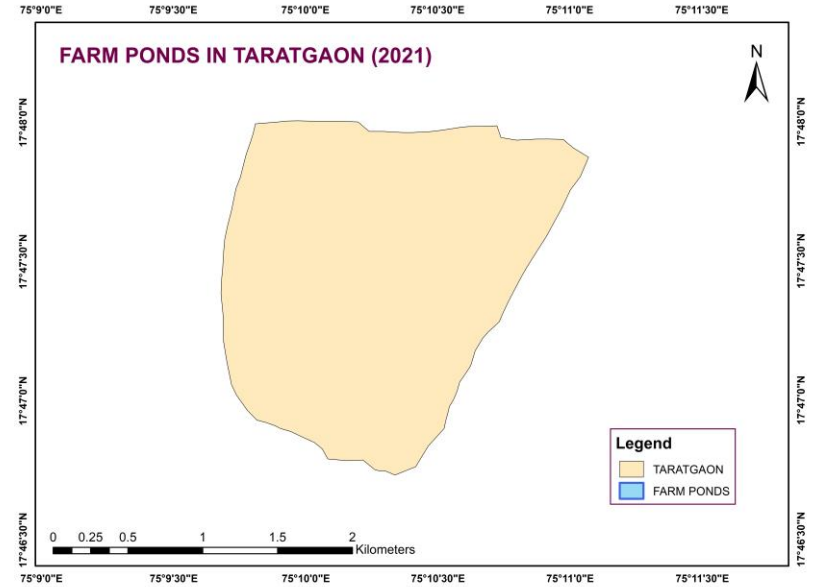
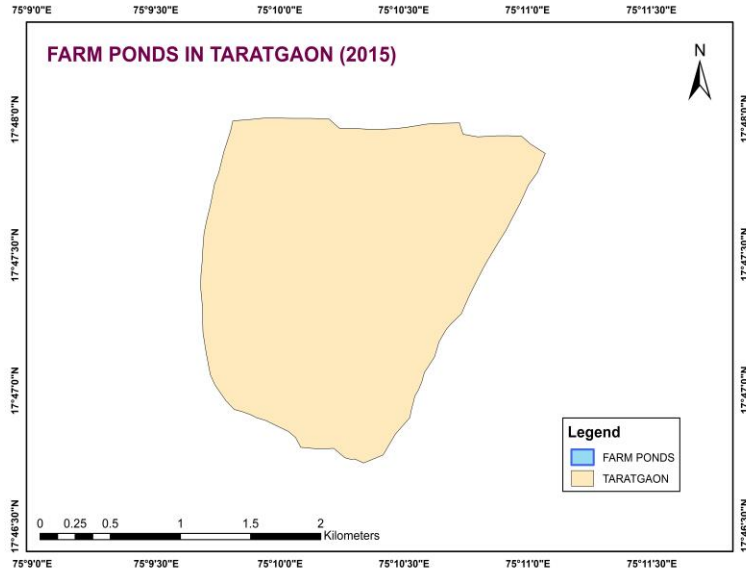
LULC map of Pandharpur Bardi (2021)

In 2015 there were 33 farm ponds and 2021 it increased to 135 farm ponds.
Total area under farm ponds increased 513%

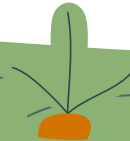
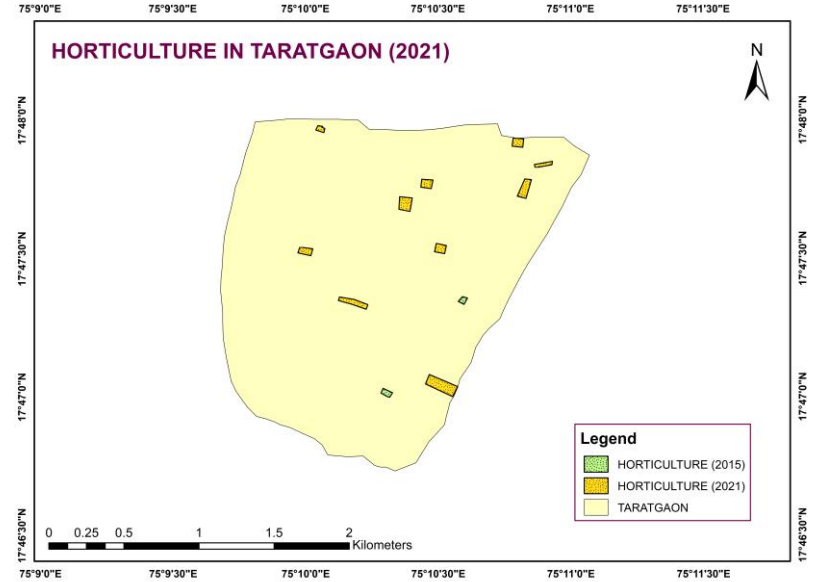
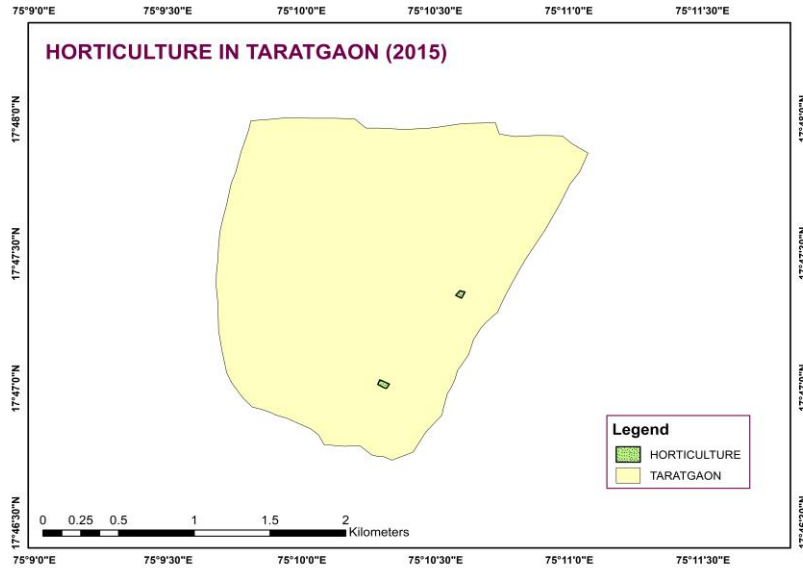
Development of horticulture based on farm ponds in select villages for the base year 2015 and 2021.



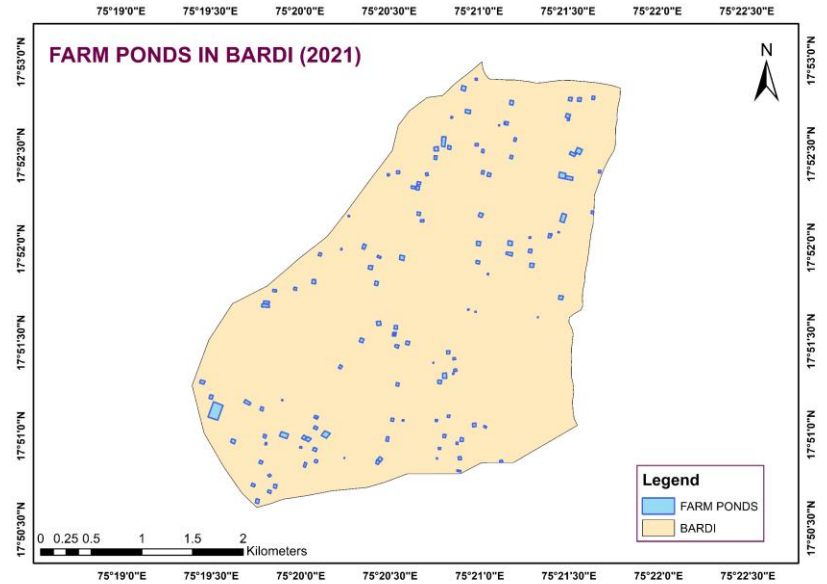
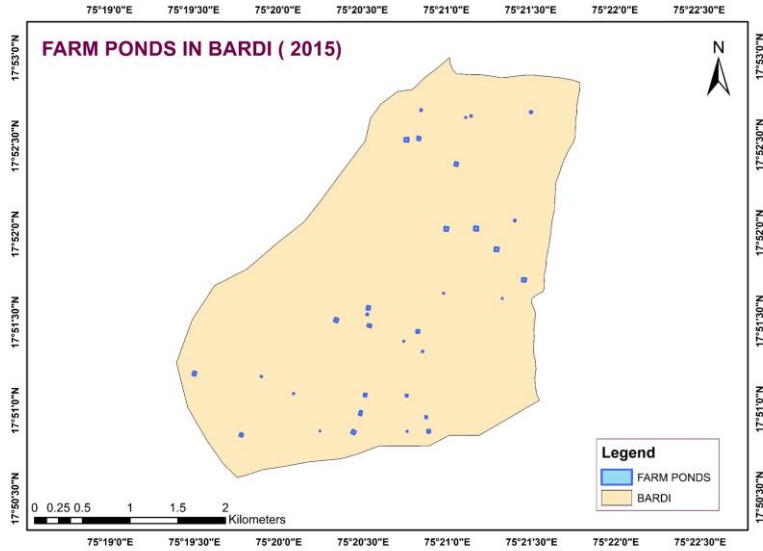
1. Village Taratgaon



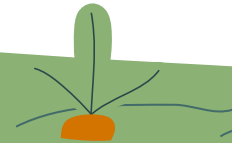
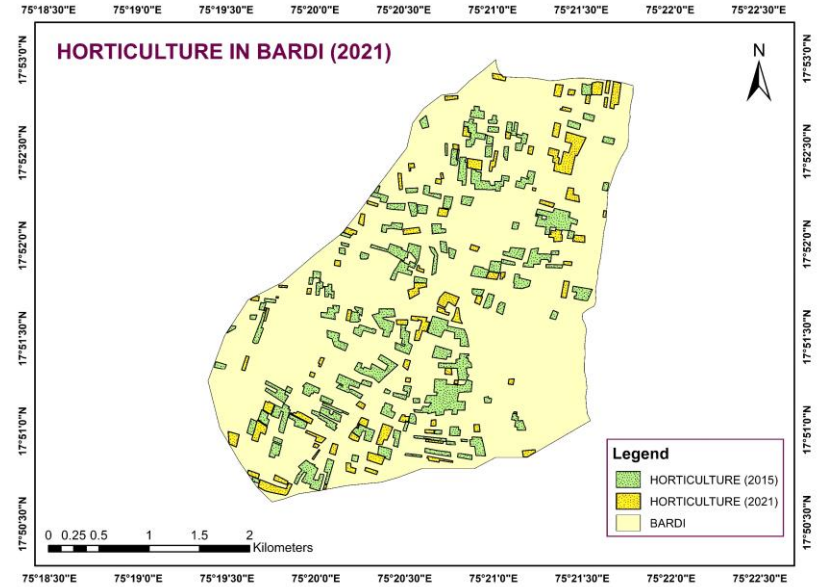
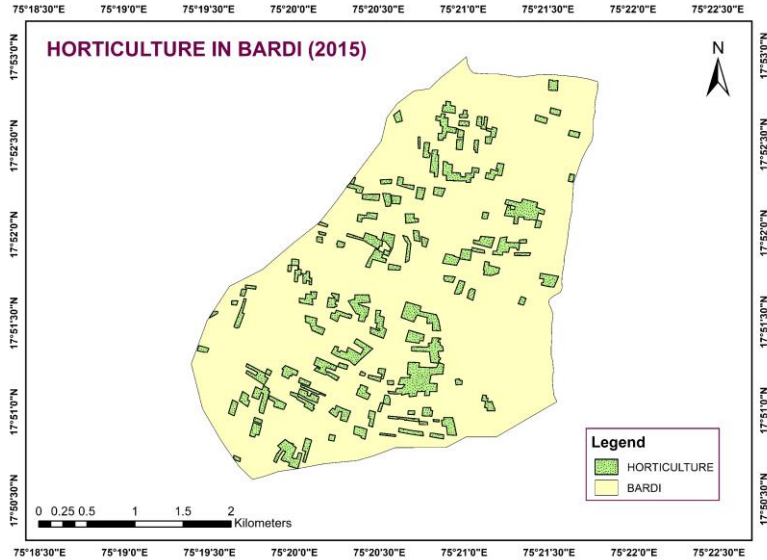
Village Taratgaon



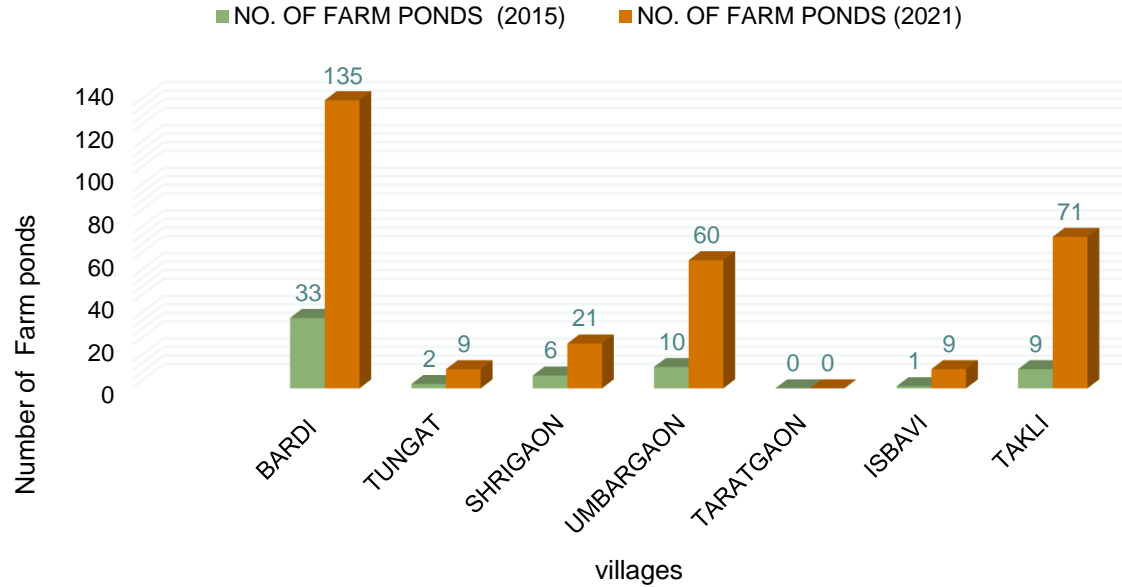
2. Village Bardi



Village Bardi



COMPARATIVE NUMBER OF FARM PONDS IN 2015 and 2021

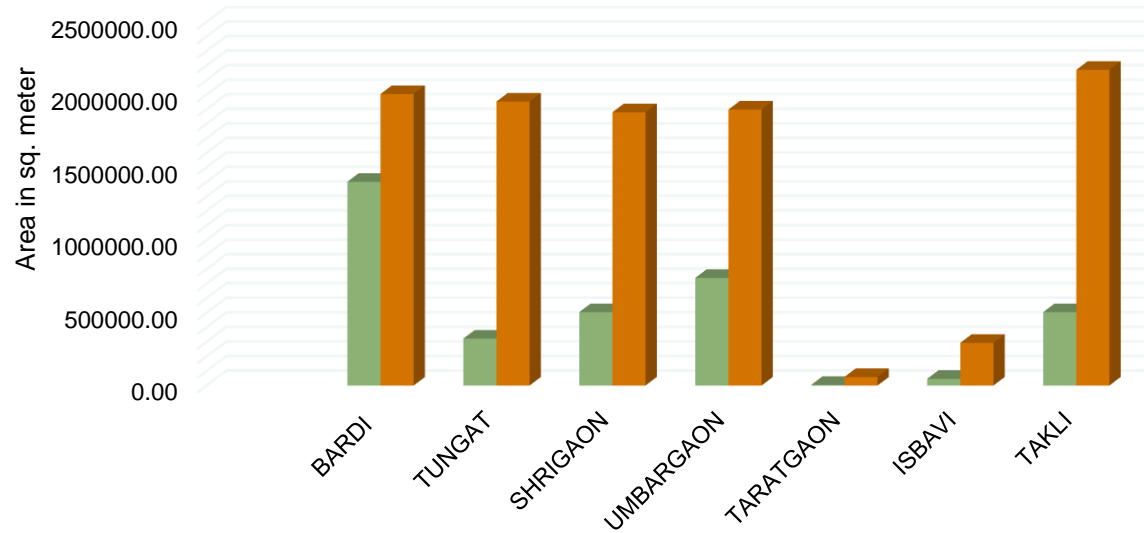


Comparative Number of farm ponds in 2015 and 2021

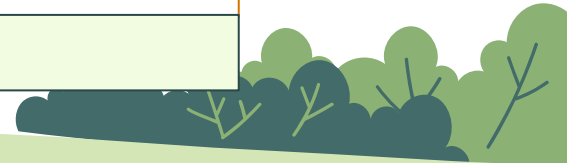
COMPARATIVE AREA UNDER HORTICULTURE IN 2015 and 2021

■ AREA UNDER HORTICULTURE (2015)

■ AREA UNDER HORTICULTURE (2021)



Comparative Area under Horticulture in 2015 & 2021



Number and area under farm ponds increased in percentage

Sr. No	Village Name	Distance from the river Bhima (km)	Direction of the River	Number of farm ponds in 2015	Number of farm ponds in 2022	Total area under farm ponds in 2015 (sq. m)	Total area under farm ponds in 2021 (sq. m)	Area Increased in %	Number Increased in %
1.	Taratgaon	0	North	0	0	0	0	0	0
2.	Isbavi	1	South	01	09	129.67	2686.99	1972	800
3.	Tungat	3-4	North	02	09	904.33	7716.93	773	350
4.	Takli	4-5	South	9	71	15888.91	74006.82	365	700
5.	Shrigaon	5-6	South	6	21	10062.95	23360.12	132	250
6.	Umbargaon	7-8	South	10	60	20002.86	104477.71	422	500
7.	Bardi	11-12	North	33	135	24044.69	147582.51	513	300



Uses of Farm Ponds in Villages of Pandharpur Tehsil



Government Schemes and Policy Initiatives:

The State Government and the Central Government developed various schemes to encourage and subsidise the construction of the ponds. Like “Magel Tyala Shet Tale” The primary reason for implementing the farm pond scheme was to collect rainwater that would otherwise drain out as runoff.

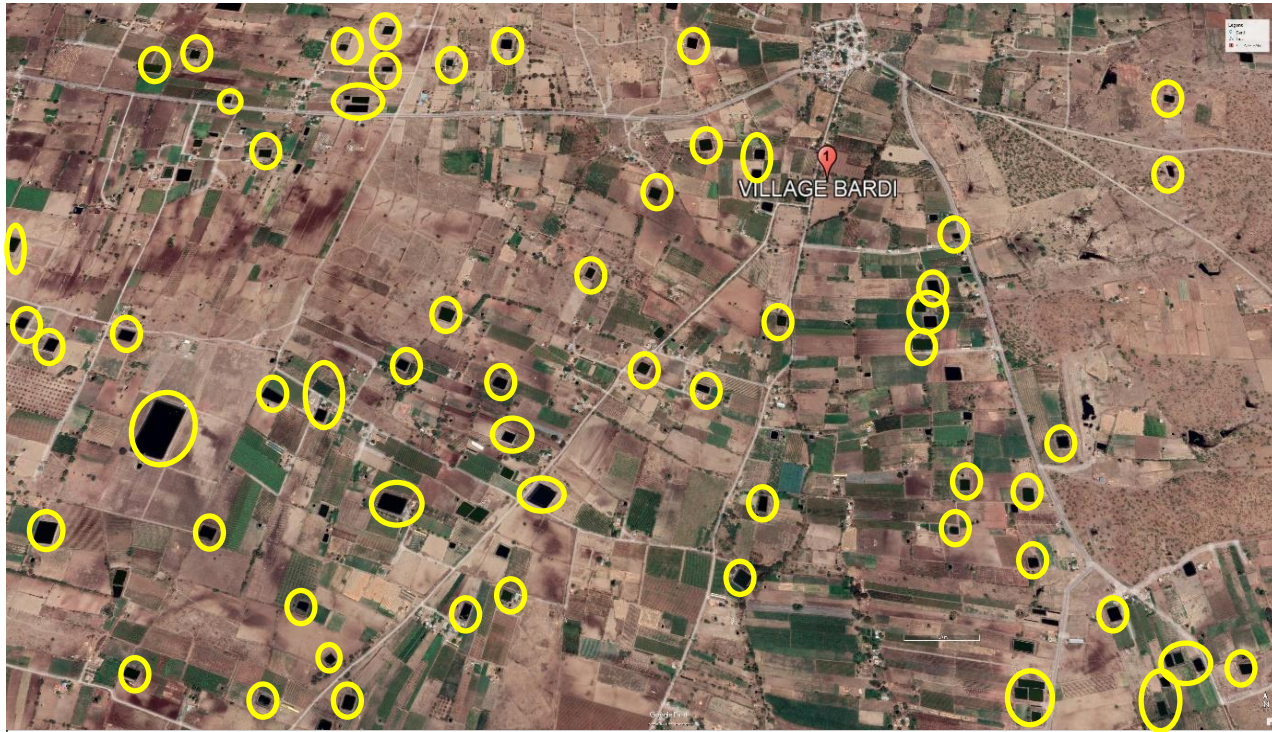
Situation in Pandharpur Tahsil:

Almost in all villages the number of farm ponds significantly increased after 2015-2016. One of the main reasons for the growth in the number of farm ponds is different government schemes.



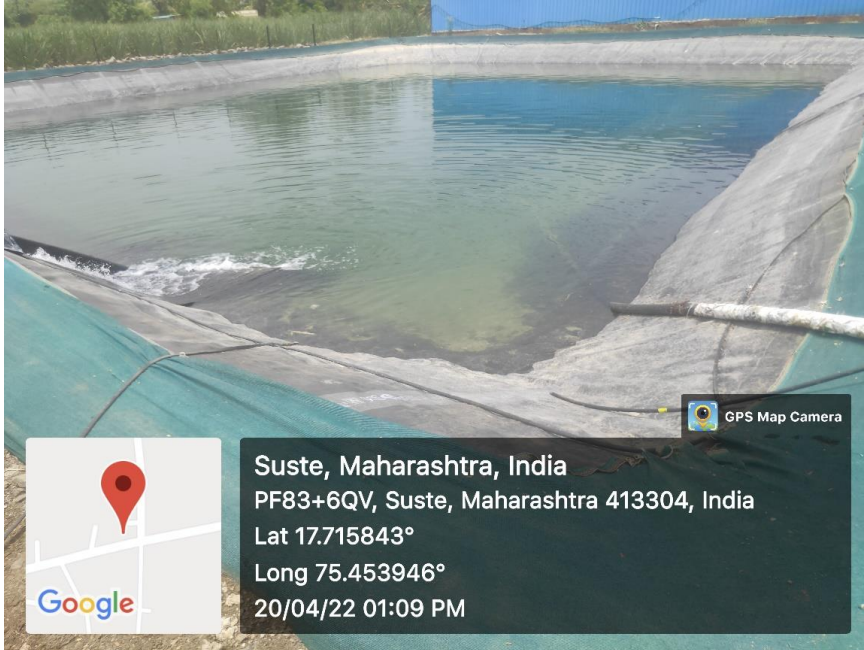


Farm ponds in village Bardi in 2016



Farm ponds in village Bardi in 2022

Farm ponds in Pandharpur tehsil aiding in groundwater extraction



Farm ponds in village Bardi in 2022



Farm pond in village Kharatwadi

CONCLUSIONS AND SUGGESTIONS

Conclusions:

1. The farm ponds have a positive impact on the growth and spatial distribution of horticulture, which has in turn positively affected the yield of tropical fruit crops such as Guava, Grapes and Pomegranates.
2. There has been a significant increase in the number of farm ponds in all the villages except the once near the Bhima river, enabling transformation of lives in rural community through horticulture based sustainable livelihood.
3. Besides having a positive impact on income, agricultural crop diversity and improved horticultural crops, farm ponds are suitable for the region's shallow and medium depth soils making it ideal for fruit cultivation.



CONCLUSIONS AND SUGGESTIONS

Suggestions:

1. Adapting mulching techniques and drip irrigation can reduce loss of water through evaporation in drought prone area like Pandharpur.
2. Innovative ideas on production of other fruit products. Ex. Jam, Jelly, wine and medicine.
3. Adequate management of water resources can help in utilizing big patches of fallow land for horticulture.
4. Restricting the number and size of farm ponds, regulating Dug wells and bore wells for farm pond recharge can significantly contribute to environmental sustainability.



Thank you

