WATER SUPPLY STATUS IN KASHELI VILLAGE

Garud Akash Sureshrao Chavan Akshay Ashok

UMA-IITB



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Executive Summary

Kasheli is a village in Rajapur Taluka having population 00. There are total 16 wadis in the jurisdiction of Gram Panchayat. Availability of water in the village is adequate, major issues lies with the quality of water throughout the year. Earthen dam is also there, repairing works are ongoing on it. It doesn't have any noticeable impact on ground water recharge of available sources, but important to provide water to nearby villages.

Cement concrete bandhara outside the village boundary (see the map) plays an important role to reduce salinity of sources in the village. Sources which are on low lying area are prone to become saline in Q3 and Q4. When seawater fills the areas nearby sources during high tide percolates into water sources. It creates a problem of salinity. People depending on the sources are required to fetch water from other nearby sources during that period, and in Q3 and Q4 it happens all the time.

Currently the problem of salinity is faced by 1) Phodkarwadi, 2) Haldankarwadi, 3) Sutarwdi, 4) Bandhwadi and 5) Sawrewadi. Another critical source is a handpump which is currently not operational, it needs to be repaired urgently.

Sr. No	Wadi Name	Population	Critical Water Source	Key Problems Identified	Remarks and Suggestions	
1	Bandhwadi	26	Private well but common use for Drinking			
2	Bandhwadi	26	Public Well		Comorato	
3	Phodkarwadi	43	Private well but common use for Drinking	Saline Water	Bandhara near Bandhwadi (see	
4	Haldankarwadi	43	Private well but common use for Drinking	in Q3 and Q4	repaired to stop seawater coming	
5	Sutarwadi	27	Private well but common use for Drinking		into the sources.	
6	Sawrewadi	22	Private well but common use for Drinking			
7	Awalichiwadi	64	Handpump	Not Functional	Need urgent repairs	

Table 1: Critical sources



Figure 1: Critical Sources

1. Introduction

a. About the Project

As it's tagline 'Har Ghar Jal', Jal Jeevan Mission is all about providing safe and adequate drinking water to all households in rural India by 2024. Also, source sustainability, such as recharge and reuse using grey water, rain water harvesting, water conservation is the most important and mandatory element of the programme. Jal Jeevan Mission is based on community approach to water. In addition to that, the 15th Finance Commission (2021-22 to 2025-26), has allocated 60% of the total grants out of the total allocation in the form of 'tied grant' for water supply and sanitation services for Panchayats/ Rural Local Bodies.

Primary studies at community level plays an important role for the effective and inclusive implementation of the programme at community level, for studies at village level Indian Institute of Technology, Bombay, under 'Unnat Maharashtra Abhiyan' started Gram Panchayat level studies of 'Assessment of Water Supply System' on case studies basis.

Konkan is a region which is characterized by hilly surface, laterite plateaus, high rainfall and the coastline from the west. Unlike the deccan plateau, the problems and solutions in water supply in Konkan are more 'local' than 'regional'. Therefore, village level and Wadi studies of water supply are important. This report includes Wadi level data on the current status of water supply which will help the Gram Panchayat and local administrations to frame appropriate policies for the village. It is a part of the study undertaken by UMA-IITB in 10 villages of Rajapur Taluka in collaboration with Zilla Parishad Ratnagiri to provide information of ground level status of water supply in Kasheli Gram Panchayat.

b. Methodology

For this study we have followed the methodology as below:

- i. Collecting the secondary data from Gram Panchayat and other sources like JJM website, census data, etc.
- ii. Survey all the sources and PWS mentioned by the Gram Panchayat
- iii. Measuring water level in each source
- iv. Analysing the water availability at wadi level based on household surveys and discussion with villagers
- v. Marking sources of water other than provided by Gram Panchayat
- vi. Noting down wadis, population dependent households on each source or tank
- vii. Preparing village map showing locations of sources and reservoirs of water
- viii. Analysing the demand and supply gap and provide suggestion to fill the gap and source sustainability.

2. About the Village

Kasheli Gram Panchayat is in Rajapur taluka of Ratnagiri district having population of 2544. Gram Panchayat of Kasheli is established in 1940. The total geographical area under the jurisdiction of Gram Panchayat is about 1364 Ha (*source: Talathi office Kasheli*). It includes 3 revenue villages viz. Kasheli, Awachiwadi and Varchiwadi with population 1907, 38 and 599 respectively. Western boundary of the village is defined by the Arabian Sea.

Kasheli is near to the Rajapur taluka boundary in North-West. The nearest town to the village is Rajapur which is 30 km from the village, whereas Ratnagiri is at 35 km. Both the taluka and district places are at a same distance but, due to the availability of bus facilities and

accessibility to other modes of travel, people in the village prefer Ratnagiri. There are many temples in the village of which few of them are Kankaditya Temple, Lakshminarayan Temple, Agadevi, etc. As per the villagers the Kanakaditya temple is established 1000 years ago.

As per the information provided by Gram Panchayat there are 5 primary schools, 6 anganwadis (including mini Anganwadi, 1 high school and 1 junior college.

	Kasheli			V	arachiwa	ıdi	A	Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	
НН	481			149			11			641
Population	1907	885	1022	599	268	331	38	21	17	2544
SC Population	26	9	17	4	3	1	0	0	0	30
ST Population	0	0	0	0	0	0	0	0	0	0
Literates	1441	725	716	428	220	208	34	19	15	1903
Illiterates	466	160	306	171	48	123	4	2	2	641
Working Population	1060	510	550	306	156	150	15	11	4	1381
Main Workers	823	462	361	305	156	149	13	11	2	1141
Marginal Workers	237	48	189	1	0	1	2	0	2	240
Non-working	847	375	472	293	112	181	23	10	13	1163

Table 1: Demographic profile of Kasheli GP



Figure 2: Location Map

3. Methodology

Aim of JJM is to provide minimum 55 LPCD safe water to every household. For this study we have followed the methodology as below:

- i. Collecting the secondary data from Gram Panchayat and other sources like JJM website, census data, etc.
- ii. Survey all the sources and PWS mentioned by the Gram Panchayat.
- iii. Measuring water level in each source.
- iv. Analysing the water availability at wadi level based on household surveys and discussion with villagers.
- v. Marking sources of water other than provided by Gram Panchayat.
- vi. Noting down wadis, population dependent households on each source or tank.
- vii. Preparing village map showing locations of sources and reservoirs of water.
- viii. Analysing the demand and supply gap and provide suggestion to fill the gap and source sustainability.

4. Field Observations

Map showing locations of water sources and reservoirs is prepared using QGIS software and tracking applications. Currently out of 16 wadis under Gram Panchayat only 3 have been provided with the Piped Water Supply, remaining 13 draw waters from private sources or the common source among 8-10 households. Gram Panchayat sends 11 sources samples for testing. Out of them few are under the ownership of Gram Panchayat and remaining are privately owned, but supply water to more than 10 households. The average LPCD for all wadis in GP is about 106, which is more than what is to be provided by JJM.

Wadi level PWS status and connections provided and detailed information about sources of water given in table 2 and table 3.

In the village there is no scarcity of water. Only important thing is to maintain quality of water supplied. Only three wadis use water provided by Gram Panchayat those are Wadi Wathar, Bauddhawadi and Durgawadi. All remaining wadis have their own source of water either common or personal. Water testing is done for very few wells i.e. 11 sources are identified for testing but they don't send the water for testing regularly from every source. Sea is very close to village therefor salty water from the sea percolates in wells at lower altitude when water level goes down in Q4.

Issues identified:

- i. From the month of march water from the wells at very low altitude from MSL i.e. 10 -15m or less becomes salty due the water from sea comes into the well. This problem is faced by people in 1) Phodkarwadi, 2) Haldankarwadi, 3) Sutarwadi, 4) Sawrewadi.
- ii. Testing of water from wells which are private but used by a group of households is not done.
- iii. Few wadis need water connection from the Gram Panchayat due to low availability of water for their livestock and trees, also in Q4 they face scarcity of water. Those wadis are 1) Satopewadi 2) Wadi Wathar, 3) Teliwadi, 4) Bauddhawadi.
- iv. Monthly expenses incurred by households varies from wadi to wadi. Average monthly expenses incurred are 150 Rs per HH.

						Table 2: Wadi level PWS an	d LPCD usage			
Sr No	Revenue Village	Wadi Name	Popul ation	нн	Major Water Sources	Access to sources	FHTC (as per JJM)	FHTC (as per GP)	Average LPCD	Other sources of water
1	Awalichagav	Awalichagav	8	-	S1 S2	Pump and Manual fetching	_	-	120	Common and Private wells
2		Awalichiwadi	101	101	S1 S2	PWS and Manual fetching	0	0	103	Common and Private wells
3		Bandhwadi	45	45	S8 S9	Pump and Manual fetching	0	0	113	Private wells
4		Bouddhwadi		Bouddhwadi 14 54 S3 PWS- Sta		PWS- Standpost	35	10-12 (approx.)	92	Common and Private wells.
5		Durgawadi	58	58	S4	PWS	57	57	101	Private wells
6		Gothankarwadi	29	54	S 5	PWS	50	23	104	Common and Private wells
7	Kasheli	Haldankarwadi	54	54	S 6	Pump and manual fetching	0	0	91	Common and Private wells
8		Phodkarwadi	53	53	S10	Pump and manual fetching	42	0	104	Private wells
9		Satopewadi	17	17	S11	Pump and manual fetching	15	0	109	Common and Private wells
10		Sawarewadi	44	44	S12	Pump and manual fetching	18	0	102	Common and Private wells
11		Sutarwadi	43	43	S14	Pump and manual fetching	0	0	133	Common and Private wells
12		Teliwadi	51	62	S15	PWS and manual fetching	62	0	101	Common and Private wells
13		Wadi Wathar	44	51	S16	Pump and standpost	31	31	104	Borewell and tank by GP, Common and Private wells
14		Agawekarwadi	77	77	S17	Pump and PWS	48	0	111	Private wells
15	Varchiwadi	Ambevrukshwadi	38	38	S18	PWS	0	0	104	Private wells
16		Baokarwadi	69	69	S19	Pump and manual fetching 29 0		103	Common and Private wells	

					Table 3: Sou	urce Details in Kasheli	
Code (see the map)	Revenue Village	Location of Source/ Tank	Type of Source	Dependent HH	m bgl./ capacity on 17/02/2023	Key Problems Identified	Remarks/ Suggestions
S-1	Kasheli	Awalichiwadi	Handpum p	0	-	Not Functional	1. Need urgent repairs.
S-2	Kasheli	Awalichiwadi	Well	15-20	4.7	None	1. Privately owned PWS from the well.
S-3	Kasheli	Bouddhawadi	Well	14	5.3	None	 No tank to store water, water is directly provided to a standpost. Connections to each HH should be provide.
S-4	Kasheli	Durgawadi	Well	58	2	None	-
S-5	Kasheli	Gothankarwadi	Well	15-20	2.5	None	 Private well but almost every HH in wadi uses the water from this well.
S-6	Kasheli	Haldankarwadi	Well	6-7	4.3	Salinity increases in Q3 and Q4	1. Privately owned common well.
S-7	Kasheli	Kankaditya Temple	Well	-	5.5	None	1. Visitors of Temple use water from well.
S-8	Kasheli	Bandhwadi	Well	0	2.7	Saline and polluted water	1. Water is polluted and no usage of well.
S-9	Kasheli	Bandhwadi	Well		5.5	Salinity increases in Q3 and Q4	 Private well but used from drinking purpose by 8-10 HH. (Less salinity compared to others)
S-10	Kasheli	Phodkarwadi	Well	7-8	1.5	Salinity increases in Q3 and Q4	1. Privately owned common well.
S-11	Kasheli	Satopewadi	Well	8-10	4.7	None	1. Privately owned PWS from the well.
S-12	Kasheli	Sawarewadi	Well	10-15	2.2	Salinity increases in Q3 and Q4	1. Privately owned common well.
S-13	Kasheli	School no 5	Borewell	-	-	None	-

S-14	Kasheli	Sutarwadi	Well	10-12	2.5	Salinity increases in Q3 and Q4	1. Privately owned common well.
S-15	Kasheli	Teliwadi	Well	20-25	4	None	1. PWS is provided by GP and handed over to wadi.
S-16	Kasheli	Wadi wathar	Borewell	30-35	-	Borewell components are dilapidated	1. Borewell components should be replaced.
S-17	Varchi Wadi	Agawekarwadi	Well	15	3.2	None	1. PWS is erected by GP and handed over to wadi.
S-18	Varchi Wadi	Ambevrukshwadi	Well	38	2.5	None	1. PWS is erected by GP and handed over to wadi.
S-19	Varchi Wadi	Baokarwadi	Well	8-10	5.5	None	-
S-20	Varchi Wadi	School no 2	Well	-	2.5	None	-
T-4	Kasheli	Durgwadi	Tank	58	10000	None	1. PWS provided by GP.
T-15	Kasheli	Teliwadi	Tank	20-25	2000	Tank capacity is low compared to dependent HH	1. Capacity of tank should be increased to provide adequate water to all HH.
T-16	Kasheli	Wadi Wathar	Tank	30-35	-	None	1. Standpost on tank to wadi, connection to each household should be provided.
T-18	Varchi Wadi	Ambevrukshwadi	Tank	38	5300	None	1. PWS is erected by GP and handed over to wadi.

Note- To reduce the salinity problem of all wells facing the issue, concrete bandhara on stream coming from southern part of the village needs to be repaired urgently. It will stop seawater coming into wells.



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Tabulation of important and critical sources for drain line treatment:

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		Are there wells	Is the level of the well		
		within 50m of the	dependent on any		
		well which has	stream/streams		
~		pumping for	nearby? (typically		-
Source	Wadi	agriculture or	within 50m for	Intervention	Present
Code		horticulture	sloping terrain and up		Status
		demand during	to 250m for relatively		
		periods of stress?	flat terrain)		
C1	Bandhwadi	No	Yes		Present
					but need
					repairs.
C2	Bandhwadi	Yes	Yes		Present
					but need
					repairs.
C3	Phodkarwadi	Yes	Yes		Present
				Gated Concrete	but need
				Bandhara	repairs.
C4	Haldankarwadi	Yes	Yes		Present
					but need
					repairs.
C5	Sutarwadi	Yes	Yes		Present
					but need
					repairs.
C6	Sawrewadi	Yes	Yes		Present
					but need
					repairs.
C7	Awalichiwadi	No	No	None	

Table 4: Source tablulation for drain line treatment

5. Conclusion and Recommendations

- a. Dam in Kasheli is under repair from which water is to be provided to nearby village. It doesn't have any impact on water level in the village. But can be a surface water source for PWS.
- b. A concrete bandhara outside the boundary of village was constructed, which is currently dilapidated and permits seawater to enter into the village boundary. If that bandhara is reconstructed seawater cannot get infused in wells. It will help to reduce the salinity of wells.
- c. Satopewadi, Bauddhawadi, Wadi wathar, Awalichiwadi, Phodkarwadi needs to be provided with tap connection to make sure availability of adequate water throughout the year.

6. References

- a. <u>Census of India 2011</u>
- b. Jal Jeevan Mission

Special Thanks:

- 1. Miss. Sonali Mesrti Sarpanch Kasheli
- 2. Mr. Namdev Dudhal- Village Development Officer



Figure 4: Kasheli Dam



Figure 5: Household Survey