

TD 390: CTARA Supervised Learning

Water Problem Analysis in Dhamni Village

Data Analysis and Assessment

January – April 2012

CENTRE FOR TECHNOLOGY ALTERNATIVES FOR RURAL AREAS (CTARA)

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Lastly, we would like to thank Disha Kendra, Kunda Tai, Lalita Tai, Kaluram Ji Ravandal and all the Dhamni village people for their care and support.

Best wishes to all.

Nuruddin

Kishore

UNIT 1: INTRODUCTION

Objective

- To study and analyse the water problems in Dhamni village.
- To study the village primary and secondary data related to social, geographical and demographic issues in the village.
- To gather conclusions from the available data.
- To suggest some possible solutions related to water problems.

Introduction to Mograj GP (Raigad) and Dhamni Village

The Mograj(Karjat) tribal block is in the Raigad district of Maharashtra representing a belt of uneven topography between the western foothills of Western Ghats and western coastal areas. It is situated between east longitudes 73°20' and 73°35' and north latitude 18°55' and 19°5'. It covers a surface area about 360 sq. km. It includes 175 villages and 49 Gram-Panchayats. The total population of Karjat is 2,17,363 out of which 75% population live in rural areas.



F-1. Wadis under Karjat division.



F-2. Dhamni Village

General Information :

- Nearest Health Centre (Arogya kendra) : Ambivali
- Nearest Health Sub-centre : Choudharwadi
- Nearest Primary School : Choudharwadi
- Nearest High School : Bhaktachiwadi
- Nearest Market : Kashele
- Nearer Railway Junction : Karjat
- Total Number of Houses : 47

Village Visits

We had made 5 village visits in the duration between January to April , 2012. Here is a brief summary of the tasks achieved during each visit.

Visit	Date	Objective Achieved
1	21st January , 2012	<ul style="list-style-type: none"> • An initial assessment of the area and grass root level observations.
2	28 th – 29 th January , 2012	<ul style="list-style-type: none"> • First visit to Dhamni village. • General interaction with villagers. • Interview of villagers , FGD , Resource Mapping. • Well Measurements and exploring water sources around the village.
3	11 th – 12 th February , 2012	<ul style="list-style-type: none"> • Village Transect Walk. • Gathering social data and water consumption pattern of the village. • Well measurements.
4	24 th – 25 th March , 2012	<ul style="list-style-type: none"> • Measured the village altitude from wells using Dumpy Level. • Well measurements. • Did a mini survey regarding micro- financial issues in the village. • Made villagers aware about Pani Samiti. • Measured distances from village centre to water sources.
5	30 th – 31 st March , 2012	<ul style="list-style-type: none"> • Were a part of the PRA activity in Mograj and Jambhulwadi.

UNIT 2: PRA TOOLS

Resource Mapping

With the help of Kaluram Ji Ravandal , we were able to walk across the village boundary and understand the situation of groundwater availability and the different schemes that were implemented earlier by the Zila Parishad. Based on the direction from the village apex, we were able to gather the following information. The following map gives us the general idea about the village resource. It includes all the natural resources as well as some unnatural resources also.



Based on the directions from the village center , we were able to make the following observations.

SOUTH

There is seepage of reservoir water (*Seepage Well, marked 1 on the map*) to the south of the village near the river. Villagers believe that the water will last the whole year. Nearby, there is a scheme implemented by Tata Power having a reservoir, but it is very far from the village. There is an unused hand pump in the south near the devi temple (*Triangle marked near the temple*). According to villagers, they had used the well for many years, then it fractured. They dug another bore well nearby, but the effort went in vain because after digging 200 ft deep ,

they could not get the water. We could also see the paddy fields as well as some turmeric farming near the village.

WEST

According to Kaluram Ravandal, there was one bore well (*triangle marked in the western fields*) in the western side of the village, dug by the Zila Parishad. Some Umber trees were also present in the vicinity. There are numerous paddy fields around the village, while sometimes they even grow Ragi.



NORTH

Two dug wells are present beside the canal, smaller one (*marked 3 in the north side*) which is presently used by the villagers and a bigger one (*marked 2 in the north side*) whose water remains same all through the year. There is a private bore well near the smaller dug well (*red triangle below mark 3*).

EAST

According to the villagers, there is a green patch present near the village (*regions marked with turmeric fields*), where there can be chances of digging a bore well. There were turmeric plants and bamboo trees around that patch. A private bore well is to be dug there, checking has been completed. A public bore well is dug in the south eastern part (*triangle marked in turmeric fields*), which does not have any water. In the far-east, a concrete embankment (*line marked in black*) was constructed in order to collect the canal waters, but the effort failed due to cracks which developed in it. Also, the construction was also not according to the required standards.

Focussed Group Discussion (FGD)

Date: 28th January, 2012

Time: 3.00 p.m.

FGD Village Representatives: Mrs. Tara , Mrs. Vanita , Mrs. Radhubai

We made the villagers gather near the tentative Anganwadi in the village asked them a number of useful question regarding their daily routine activities and water consumption. After gathering the data from a sample 6 families, we were able to get an overview of the average per capita consumption in the village. The village ladies gave a brief description about the general routine of fetching water throughout the year.

During summer, they get their drinking water from the open well near the canal and water for other domestic purposes from other sources. During monsoon, they get their drinking water from the open well and collect rainwater for domestic purposes. During winter, they get their drinking as well as bathing water from the open well. Half of the village collects water from the Seepage well and the other half from the dug well, based on the distance from the water source.

They also told us about how people belonging to different age groups fetched water. The approximate age distribution was as follows.

Age Distribution	Amount of Water Fetched in one trip
10 - 20 years	1 Handa
20 - 25 years	2 Handa , 1 Kalshi
Older People	1 Handa , 1 Kalshi

Note : Handa = 10 Litres , Kalshi = 5 Litres/7 Litres




Generally, people did three trips in a 6-membered family. During summers, the water requirement increases, hence they used to do an extra trip. Some of the villagers also used rainwater harvesting, whose water was used for washing purposes and to feed the cattle. The families which had cattle, had to fetch extra water by making multiple trips one in two-three days. Daily Routine was generally fixed with water fetching taking place between 8 a.m. to 11 a.m. in the morning and between 4 p.m. and 6 p.m. in the evening. Depending on the number of family members, they used to take 2-3 trips in morning and 1-2 trips in evening.

Transect Walk

Date : 12th February, 2012

Time : 10.30 a.m – 12.30 p.m.

Starting Point : 'Pajhar' well in the south End Point : Paddy Fields in the north

TERRAIN								
ALTITUDE (metres)	55	52	58	66	68	63	63	57
FEATURE	Seepage Well	River	Brick Kiln	Paddy Fields	Trees , Cattle Defecation	Turmeric Fields & Road to Mechkar wadi	Turmeric Fields & Bamboo Trees	Paddy Fields
EROSION	Basalt Rock, Low	Big Stones , Low	High	High	High	High	High	High
LAND USE	Fetching Water in May and Washing all time	Washing	Brick Work & Farming	Farming	Farming	Farming	Farming	Farming
WATER SOURCE	Well	River	River	Rain	Rain	Rain	Rain	Rain
VEGETATION	No	No	No	Rice	Turmeric	Turmeric	Turmeric	Paddy

We started with a walk across the village boundary. The village has kutchra road which joins it to three habitations nearby- Mechkarwadi in the East, Jambhulwadi in the North and Choudharwadi in the south-west. The village is accessible to Ambivali village through a 2.5 km road, from where numerous auto-rickshaws go to a famous fort on the plateau, which is a famous tourist spot. The ST buses (called tum-tums) come in the village twice a day, one in early morning and other in the afternoon. The village also has a number of tempos, which are used solely for business purposes. A tempo was also used to bring brick-workers from nearby villages.

The terrain and farming practices around the village suggested that most of the time, farmers grew paddy in the areas where they found soft clayey soils and greater availability of groundwater, while they also grew Ragi in off seasons. The private farms nearby grew vegetables like stalk and fruits like Mangoes. On comparatively courser terrains such as the rain-fed slopes, they grew turmeric, which could also grow in areas with less stagnant water. The soil is Red Soil which mixed with the volcanic remnants of the Deccan Trap is highly useful for making bricks because of its ability to strengthen and become less porous on exposure to a calculated quantity of water. We were also able to find a number of Bamboo Trees on the sloppy transitions, which suggested availability of potential ground water in that region. These trees lie along a contour across the turmeric fields and ending at the onset of paddy fields in the near-eastern part of the village.

Turmeric Farming



The crop requires a hot and moist climate, a liberal water supply and a well-drained soil. It thrives on any soil-loamy or alluvial-but the soil should be loose and friable. Gravelly clayey and stony soils are unsuitable for the development of rhizomes. In tracts of heavy rainfall, as in the west coast, it is grown as a rainfed crop. In other areas, it is cultivated under flow or firt irrigation. Turmeric can be successfully grown in paddy fields on raised beds beyond the reach of stagnant water. It is usually rotated with (ragi), (paddy), (sugarcane) and other crops. It is rarely cultivated as a pure crop; it is usually grown mixed with castor, maize, ragi, onions, brinjal, tomato, etc.

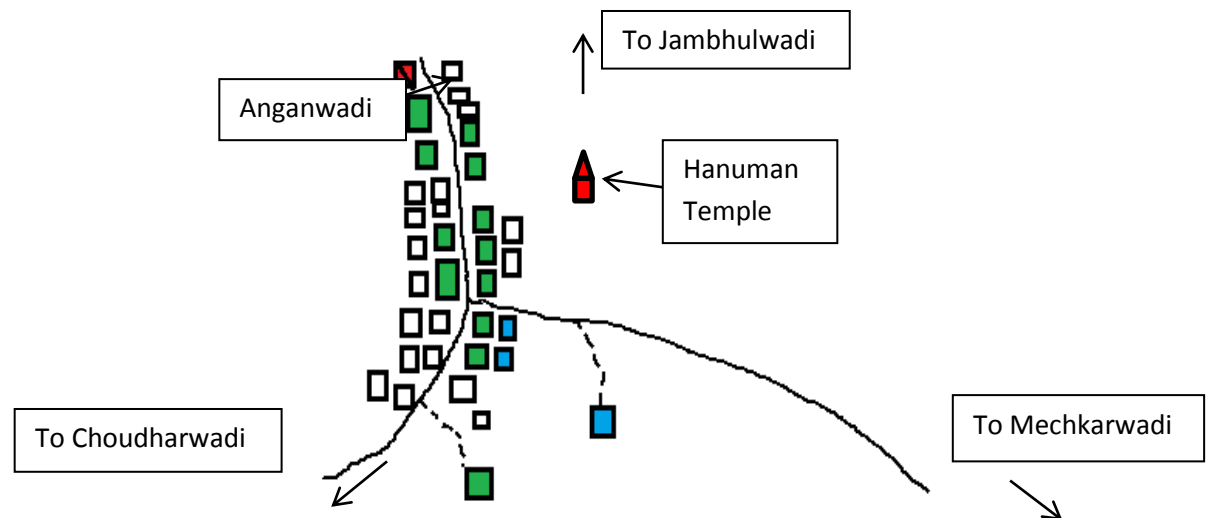
Seasonality

In this village farming is mainly done in monsoon only. The major crop here is rice and in some extent turmeric. They don't have enough water for farming after December onwards, so usually they do other work in this period.

MONTHS	JAN-MARCH	APR	MAY	JUNE-JULY	AUG-DEC
PARTICULARS					
AGRICULTURE	Turmeric Sowing	No	No	Paddy Farming	Turmeric & Paddy Harvesting
LABOR	Migrates to Urban areas / Brick Kilns	Migrates to Urban areas / Brick Kilns	House Repair / Farming	Farming	Farming
CATTLE	Left			Tied	
Water from River/Seepage	Brick Work	Drinking and Domestic		No Use	No Use
Water from Open Wells	Drinking and Domestic Drinking			Drinking	Drinking
Rainwater Harvesting	No			Domestic Use	No

Social Mapping

Following map gives the idea of cast system and how they are placed in Dhamni village. We can see that most of the Dhamni village has Adivasis and Marathas whereas there are two Buddha families also present. According to villagers there is no social issue regarding caste system though we can see some minor difference.



Timeline

Following table gives the general idea of the educational progress as well as other progress of village.

<i>Event</i>	<i>Year of Establishment</i>
Anganwadi	2004
Chowdharwadi School	2006
Electricity in Village	1980s
An Old Bawdi in Village	1950s Built , 1977 Fenced
Old Dug Well	1989
New Dug Well	2004
Seepage Well	2005-06

UNIT 3: WATER PROBLEM IN DHAMNI

From Villagers' Viewpoint

We visited the website of the National Rural Drinking Water Programme, where we were able to gather official data about the being implemented at Dhamni village. Here are the details of the official data:

Ministry of Drinking Water and Sanitation
 National Rural Drinking Water Programme
Habitation Profile

State Name: MAHARASHTRA	District Name: RAIGAD	Block Name: KARJAT
Gram Panchayat Name: MOGRAJ	Village Name: DHAMNI	Habitation Name: DHAMNI

Abstract Data

Total Population (As on 01/04/2009)	GEN - 36	SC - 20	ST - 112
Population Covered (As on 01/04/2009)	GEN - 36	SC - 20	ST - 112
No. of Households (As on 01/04/2003)	63		
No. of Cattles (As on 01/04/2003)	250		
No. of Existing Sources/Delivery Points/Standpost	1		
No. of Safe Sources/Delivery Points/Standpost	1		
Water Supply Coverage Status Up to the end of March 2012	Covered		
Water Quality Contamination	None		

SPOT Sources Reported

S. No.	Source Type	Source Type Category	Location	Scheme Details
1	Openwell	Ground Water	in village	Details

Existing Private/Public Sources Reported

S. No.	Year Of Installation	Source Type Category	Type of Source	Location / Name of House Owner
1	1988	Ground Water	Openwell	well near river
2	2004	Ground Water	Deep Tubewell	HP behind Bhoir house

Basic concerns of the village people associated with water are their total reliability on the dug wells which can exhaust anytime in the upcoming summers. The village ladies had to take numerous trips and long walks across the village to the wells to fetch water, which causes them physical ailments like back-ache and weakness to the body. The adults as well as small children were required to fetch water in order to meet the overall needs of all the family members. There is no reliable public source within the village boundary in summer, except for the seepage well, but it is quite far from the village center. The Zila Parishad had implemented a number of schemes in the past, but none worked for more than a year, owing to negligible maintenance and inability of the villagers to finance it.

An old well is present at the centre of the village, made (according to the villagers) at the times of Indira Gandhi i.e. 1980s, but which is now of no use. A number of potential water sources near the village have been privately owned, which are inaccessible to the common lot. An embankment was built at a distance at the base of the slopes in order to collect rainwater, but the efforts failed due to lack of structural planning and improper collection. The water floor as well as the embankment had developed multiple cracks, as a result of which the water could not be collected, and drained away instantly even during heavy monsoons. Villagers were quite aware of rainwater harvesting, but due to improper collection and contamination, they used it only for washing purposes. Solar panels were placed in the village center, but were not functioning. A farm house to the south of the village fetched water from the seepage using a pump, for feeding the farm, along with a brick kiln nearby, which followed the same methodology. But the cost of pump was highly unaffordable for the villagers and as such they refrained from buying one. The village itself being located on an elevated region in comparison to the water sources, the villagers had to take more efforts to fetch water from the dug wells rather than seepage well, while the seepage well was at a greater distance.

Water Consumption

Water consumption in houses mainly depends on the number of persons in each home. We have collected data from women as well as from men regarding water consumption and fetching of water. The water fetching takes place in the hours of morning and evening. The washing of cloths is taken place in river water. If we see the table below we can say that those who has cattle need more water than the others. So the average consumption of water per person is around 25-30 lit./day excluding water for cattle. If we include water for cattle the water consumption increases to around 50 litre/person.

Below data has been taken from a sample of villagers on 11th – 12th February , 2012

Total Members	Female Working Members	Water Amount (1H = 10 Litres 1K = 7 Litres)	No of Trips	Total Water Consumed (Litres)	Water Consumption Per Person (Litres)	Remarks
6	2	4H	4	160	26.67	
6	2	3H 1K	4	148	24.33	
8	2	3H 1K	8	396	49.5	Have Cattle
8	4	8H	3	240	30	
4	1	3H	7	210	52.5	Have Cattle
4	1	5H	2	100	25	

According to the National Rural Drinking Water Programme , the total village population is around 168 , thus extrapolating the sample data, which is a net consumption of 1254 litres for a population of 36 , we can estimate the net daily consumption of water from the wells to be around 5900 litres.

The following picture gives us the idea of how the women fetch water from well.



By considering average consumption of 35 litres per day per person, villagers are fetching around 7000 litres per day from well. If we consider as per government norms the water requirement per person is 55 litres then the water requirement for Dhamni village population will be around 11000 Litres per Day. If we consider increase in population for next 25 years water requirement will be around 14000 Litres per day considering current population is around 200 and increase in population will be 30 percent.

Analysis of Water Sources:



Courtesy : Google Earth



RED : Not functioning **YELLOW : Functioning**

While PWS 1 for dug wells was initiated in 1989, PWS 2 for dug wells and borewells was initiated in 2007.

Well Measurements and Analysis:

To analyse how well water changes over time we have taken well measurements such as depth of water in well. There are two wells in Dhamani one is new one built in 2008-09 and another one is old one which is built in 50 years back. Following two tables and two graphs will give us overall idea of water changes over the period of February to May. All the readings are taken in afternoon every time so that there shouldn't be any inconsistency in data as water fetching is taking place in morning.

Old Well:

Net Depth = 6.25 metres; Average Diameter = 3.15 metres

New well:

Net Depth = 7.4 metres; Average Diameter = 6.25 metres

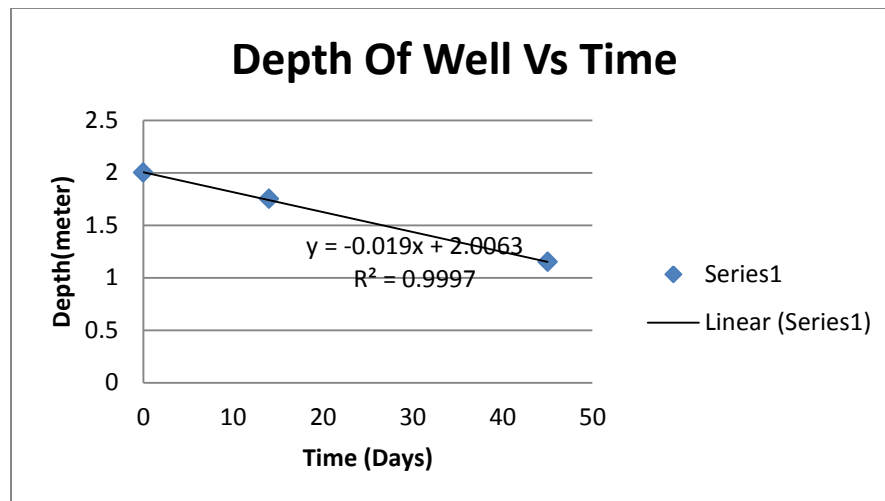
Sr. No.	Date	Net height of water in meters (old well)	Net height of water in meters (new well)	Water Volume in litres (old well)	Water Volume in litres (new well)	Net Recharge in New and Old Well assuming water consumption @ (5900 L / day)
1	28 Jan 2012 (Time 2:45pm)	2.00	3.25	15580	99660	4950 L/day (Daily Decrease : 139.3 L/day for new well , 767.15 L/day for old well)
2	11 Feb. 2012 (Time 12:15pm)	1.75	2.90	13630	88920	
3	24 March 2012 (Time 4pm)	1.20	2.05	9350	62862	

Table No.1

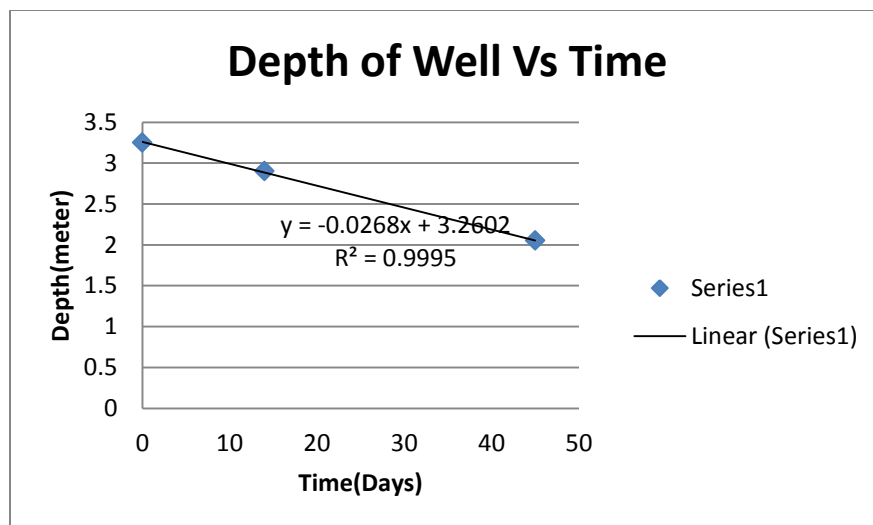
Applying the net consumption pattern to be around 5900 L/day as calculated earlier, we find the net recharge in both the wells to be around 4950 L/day. Thus if by any means, we increment the recharge by around 1000 L/day, we might be able to solve the water problem up to some extent.

Using the above data we have plotted the graph between Depth of well and Height of water from bottom. Assuming ground water level decreasing linearly with which is fairly good assumption as there was no rainfall in this period; vaporization rate of water is almost constant though it changes and the water drawn per day is of same order. There are many other things which influence water level in well which we are neglecting for our analysis. In following graph **X axis** is representing **days** and $X = 0$ corresponds to first reading which was taken on 21st January 2012. While **Y axis** corresponds to the **depth of the well**. Graph No.1 corresponds to the old well as graph two corresponds to new well.

Graph No.1 (Old Well)



Graph No.2 (New Well)



If we observe the slopes of the both graphs we can see that the decreasing rate of height is more for the new well compare to the old well, which was surprising as the fetching of water was done from the old well and not from the new well. The reason behind this may be the recharge stream for both the wells is the same and the flow of water is being followed from the new well to old well.

If we calculate the intersection of line with X axis, for old well we get 105 days value which is first week of May and according to villagers the village dries up at the end of april. Similarly for old well we get 135 days which is on calendar scale is first week of June but according to villagers it never dries up. The reason behind this is that after getting over water from old half of the villagers take water from new well and other half take water from seepage which is located in other side of village.

UNIT 4 SCHEME PARTICULARS AND ANALYSIS

We observed a number of letters of authorization in a file titled ‘Dhamni Public Water Supply Scheme’ which included all particulars regarding the timeline of implementation of the scheme from grass root level till the completion of the scheme. An observable thing to report was that we were not able to get any documentation regarding the maintenance related to post-scheme period.

The following is a short timeline related to the Old Dhamni PWS scheme. This scheme resulted in the old dug well under the PWS scheme 1.(marked Dhamni Dug Well PWS 1 on map)

SNo.	Date	Details of Schemes	Signed By
1.	1987	Estimate of MI Sub Division Raigarh PWS Scheme 94064 INR	Deputy Engr.
2.	25/2/1987	Letter from Laghu Pat Bandhara Vibhag (Minor Irrigation) to cancel tender.	Executive Engr.
3.	2/6/1987	Test report regarding PWS.	Deputy Engr.
4.	19/6/1987	Order of completion on or before 2/6/87 from MI to Panchayat.	Assistant Engr.
5.	18/6/1987	MSEB to Dy. Engr. For release of connection to permanent water supply scheme at Dhamni , 12.5 HP	Assistant Engr. , MSEB
6.	4/7/1988	Letter to Sarpanch by MI office to get electricity connection via prior monetary deposition of INR 4000	Junior Engg.
7.	19/1/1991	Letter from Executive Engr to Deputy Engr. About work inspection , nd why PWS report didn't come yet.	Executive Engr.
8.	29/1/1991	Letter from Deputy Engr. To Executive Engr. Regarding the scheme failure due to no maintenance.	Deputy Engr.

The following is a short timeline related to the New Dhamni PWS scheme. We are not sure as to what scheme were these files about.

S. No.	Date	Details of Schemes	Signed By
1	2/3/2007	On the basis of Panchayat's Income, BDO has given certificate for old PWS repair work	BDO
2	30/1/2007	Gram Panchayat agrees to bear the maintenance cost	Gram Sevak & Sarpanch
3	2/4/2007	Letter from collector office stating that for Raigarh District, around 3, 69, 02,383 INR has been commissioned for 89 PWS and 14 temporary water schemes in the area, of which one is Dhamni. It also states that 5% of the cost is to be incurred by Dhamni village.	District Officer Raigarh
4	Feb 2007	Letter of estimate sanctioned for Dhamni PWS 397098 INR by govt.	Deputy Engineer, Executive Engineer, Jr. Eng
5	26/3/2007	To executive engineer, DTP sent for further action.	Deputy Engr.
6	29/5/2007	Letter to Sarpanch , over the agreement of tender of INR 381239 INR + 4000 INR , ordering the beginning of work with help of Deputy Engr.	Executive Engr. RWS & Work Division
7	17/5/2007	Proforma Regarding acceptance of tender	Executive Engr. And Divisional Accountant

Observation 1: According to the Old PWS scheme , the work was supposed to be completed by 2/6/1987 but there was no report about the completion of the work according to the letter dated 19/1/1991. Also it reports the failure of the scheme due to no maintenance incurred according to the letter dated 26/1/1991.

Observation 2: According to the New PWS scheme, there is no data available regarding the maintenance of the well after the scheme has been completed. On asking the villagers about this, they said that while the hand-pump had worked for about a year, there was no further action taken once it wearied off.

UNIT 5: PROPOSED ALTERNATIVES AND ACTIONS

For Wells on North Side:

As shown in the graph 1 and according to villagers the water in old well vanishes at the end of the April and if we continue to fetch water from new well there is fairly a chance that water will get over by end of May. All these calculations are made by considering the fact that water consumption per capita per day is around 30 to 35 Liters. If we want to use this well water for any government scheme the water use will automatically increase and considering the fact that of government norm of 55 LPCD, some leakage of water in system the water may get over well before April. So use of any water scheme in these wells is not advisable.

One of the proposals which will be useful for short term is increasing the depth of old well. If we consider that as depth increases recharge will be increase in same amount then considering the graph no.1 we know how height is decreasing over time. We want to last water up to when monsoon starts. Let's assume monsoon starts at 1st July then the parallel line to the graph no.1 which is intersecting to x-axis at 160 will give us depth of well.

The equation of line

$$y = -0.019x + 3.04$$

$$\text{Depth to be increased} = 3.04 - 2.00 = 1.04 \text{ m}$$

In this calculation our one assumption is that as we increase depth the recharge will also increase in same proportionate but this might not be the case then we have to increase the height considering the new recharge rate.

For Seepage Well:

According to villagers the water in seepage well lasts for whole summer and they believe that this water is clean and will be useful for Water scheme. When we were inspecting the seepage well we found some amount of white rock which gives high probability of ground water.

One of the other proposal is to build a big well in current small seepage well which can have enough water that will last for whole village. The location of this Seepage well is on the edge of river. To increase ground water in this area we can built small dam (Bandhara) on the river. The same thing has been implemented in Choudharwadi village. We have taken some readings regarding elevation of village tank from well (Reference: Appendix). It came around 20-21 meters.

UNIT 6: CONCLUSIONS

- **General know – how:** While visiting a village , one must have a thorough idea of facilities available in or near the village , like availability of ATM , cell phone network , timings for MSRTC Buses , auto-rickshaw services and general and medical stores nearby. The village already having a scarcity of water, it is better to take a water bottle of our own. One must wear sports/ tracking shoes and a hat to protect oneself from sunburn and carry enough money to sustain throughout the trip.
- **When in village:** Interaction with the villagers in the initial stages and over wider range of age and occupation will help in the ice-breaking and developing rapport with the villagers. It is better to interview a sample of the whole village population, choosing the samples wisely, so that the sample is able to represent a larger lot. Listening to the problems of the village without becoming analytical or judgmental is the key to maintain relations with the villagers. Instead of giving them suggestions, it is better to gather facts in first hand.
- **Water Problem:** As far as we have analysed the situation in Dhamni village, the problem of fetching water from far off places is mainly due to the lack of initiative by the villagers in maintaining the schemes that are being implemented by the government. Due to the absence of Pani Samiti in Dhamni Village, people are not aware of working for the water problem as a part of an organisation, a nice example being Mechkarwadi habitation nearby. Even if a scheme is implemented, there is no proper supervision by the villages or by MI once the PWS work is completed, as indicated by lack of authority letters in Dhamni files. We observed a few private working well around the village, which were filled with enough water, indicating a lack of financial infrastructure in the village to provide a similar borewell or public hand-pump. We also observed that village ladies were forced to make multiple trips in order to fetch enough water and even children were involved in the process.
- **Other Problems:** There was lack of proper road connectivity to the village from the main taluka region. There was also no medical facility in the village and people were bound to go to Ambivali for even the simplest of medication. The education level of the village was also poor, as we were able to find only one graduate in the village. All other people were no more than matriculation. We could also observe a number of farm houses around the village cultivating useful fruits like mango and vegetables like stalk which were watered using high-power pumps.
- Overall it was a nice experience for both of us and we learnt a lot from these activities.

THANK YOU

1.6

✓ उप आधीर्भता - (ल.पा.)
 कामगार जिन्हा पारिवर
 उप विभाग कर्जेतः
 विवमः - कामगार स्वधपो पाणी पुरवण ओजना
 धामनी जॉव गाणे विजेच्या कनेक्शन करीता.
 महाशय
 वरील संदर्भाच्या विभागानुसरून कामही
 सोवत धामनी गावाच्या कामगार स्वधपो पाणी
 पुरवण येजनेच्या विजेच्या कनेक्शन २५ देकीत -
 फर्म कोरेशन रुपये ४,४७०.०० (चरि एगार
 चार से दरा) सोवत ओजनेत अरित, तरी
 आवन हे ठवकरात ठवकर गरब्बाची आवरथा
 करावी. सार पाणी पुरवण योजनेचे
 विद्युत कनेक्शन कामही दिवत आहे. तरी
 वरील पैसे गरब्बाची आवरथा ठवकर
 करावी.
 कामगारी
 ए. रा. विपुल मंडल, कर्जेत.
 पत्र सविनय सादर
 मे. कामगारी आगिभता म. वि. म. पत्रक
 के. कामगारी आगिभता ल.पा. २७.१०.२०१६
 मुळाव साधनी कामगारी

(29)

MAHARASHTRA STATE ELECTRICITY BOARD

No. AS/EJP/Task/367
Office of the Asstt. Engr.
C. S. M. Sub Division,
T. S. T. S. T. (Raigad)
Date- 18-6-87

To
The Dr. Engineer (Water Supply)
Raigad Taluk Parishad,
Raigad T. S. T.

Sub 1- Release of connection to Permanent Water supply scheme at Dhanu, 10.5 HP.
Ref 1- JS/EJP/T/36 dt. 8-4-87.

In connection with the above subject you have submitted the D-1 form to our Junior Engineer, M. S. S. Kedar for release of connection to permanent water supply scheme. A-2 form in this respect is not submitted to this office, hence lead sanction by the competent authority i.e. Sr. Engr is not obtained. Hence you are requested to submit the A-2 form at an earliest to proceed case further.

[Signature]
Assistant Engineer
M. S. S. Board,
Raigad.

Copy submitted with request to:-
1. The Executive Engineer (C&M), M&S, Panvel.
2. The Executive Engineer (C&M), M&S, Panvel.
3. The Executive Engineer (C&M), M&S, Panvel.

19 JUN 1987

22/

22/18/87

*Kinade
Obtain
Form and
submit immediately
18/6/87*

(25)

३. राजिप/लपा/वसी/अंदाज/८००
लघु पाठ्यद्वारे विभाग
रायगड जिल्हा परिषद, अलिपाग
दि २५/२/८६

प्रति, श्री. जी. आर. खोबरे
ली. सज्जिन -

विषय:- नव पाणी पुरवठा योजना आमची ली. सज्जिन
ठेकेदारी रद्द करणे बाबत.....

वरील विषयाबाबतचे काम तुम्हाला अ-१ करारनामाने
२२४, ७३५, ७३९, ७४०/८०-८७ अन्वये देण्यांत आले होते सदरी काम आजपर्यंत अपूर्ण असल्याने
आहे ही अत्यंत गंभीर हप्त्याची बाबत आहे. सदरील काम पूर्ण करण्याच्या दृष्टीने
तुम्ही कामात प्रगती दर्शविली नाहीत. याबाबत उप अभियंता यांचेकडून या व
कार्यालयाकडे अहवाल प्राप्त झाली आहे. यास्तव तुम्ही त्या कामाची ठेकेदारी
रद्द करणेत येत असून अंतिम मापे घेण्यासाठी २६/२/८६ रोजी उप अभियंता (लपा)
उप विभाग कर्जत यांचे कार्यालयात समक्ष हजर राहणे. अन्यथा तुमच्या गैरहजेरीत झालेली
कामाची मापे तुमच्यावर ठेकावा काढून राहतील. याची नोंद घ्यावी. तसेच
सदरची कामे तुम्ही भरलेली अनामत रक्कम जप्त करण्यात येत आहे.

कार्यकारी अभियंता (लपा) -
रायगड जिल्हा परिषद, अलिपाग.

प्रति:- उप अभियंता (लपा) रा. वि. प. उप विभाग कर्जत यांना माहितोसाठी
सादर.

२/- पुढील काम करून घेण्याचे दृष्टीने आवश्यक ती कार्यवाही करणेत
यावी.

अ-१ / २२४, ७३५, ७३९, ७४० / ८०-८७

अभियंता (ल. पा.) कार्यालय

1273

SAD

No./RZP/RWS/Tender/W.O./ 12006
Rural Water Supply & Work Department
Raigad Zilla Parishad Alibag
Date: 29/5/2007

*Sarpanch,
N.P. Mayraj Tal. Kargal.*

Sub:- *Rep. to Puccat, Ghemani
Tal. Raha Kargal*

Ref:- Agreement No. B1/5/12006-07

Mr.

As you have paid a sum of Rs *4000/-* towards the deposits & completed contract documents, your tender at the Estimated Rate, amount put to tender *581289/-* for the above mentioned work is finally accepted. *100% Public contribution*

You are therefore requested to start the work immediately from the date of this order in consultation with the Deputy Engineer (RWS/MWS) Raigad District Sub Division *Kargal*, and complete the same within the stipulated time limit.

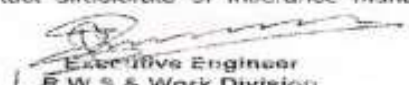
Order to start the work will be reckoned from *29/5/2007* and time limit to complete the work upto *29/10/2007* which may please be noted.

You are also requested to check out the programme of the work in consultation with the Dy Engineer and submit the same to this office through him, please. Defect liability period for the work is 12 months after completion of work.

You are further requested to contact directorate of Insurance, Maha State and below for Insurance.

Head:

Localy. 03.08


Executive Engineer
RWS & Work Division
Raigad Zilla Parishad, Alibag.

Forwarded to the Deputy Engineer (RWS/MWS) Raigad Zilla Parishad, Sub Division *Kargal*.

2. He should submit the Execution Programme as well as report the actual date of starting of the work by the contractor.

F.W. Compliments to the C.A. & F.O. Raigad Zilla Parishad Alibag for information.

F.W.C.S. to Deputy Director of Insurance, Directorate of Insurance, Maha State, Gita Niman Bhavan (MHADA) 284, First Floor Opp. Kala Nagar, BANDRA (EAST) Mumbai-400 051 for information.

Asst. Sale Tax Commissioner, Ghatkopar Vibhag, E-45 7th Floor Koka Bhavan, Navi Mumbai.

Under File.

Social Welfare Officer, Raigad Zilla Parishad Alibag.

Appendix B (Measurement of Altitude using Dumpy Level Instrument)



A Dumpy Level Kit consisting of a Tripod , Meter Scale and a Ground Level Telescope.

Leveling Data

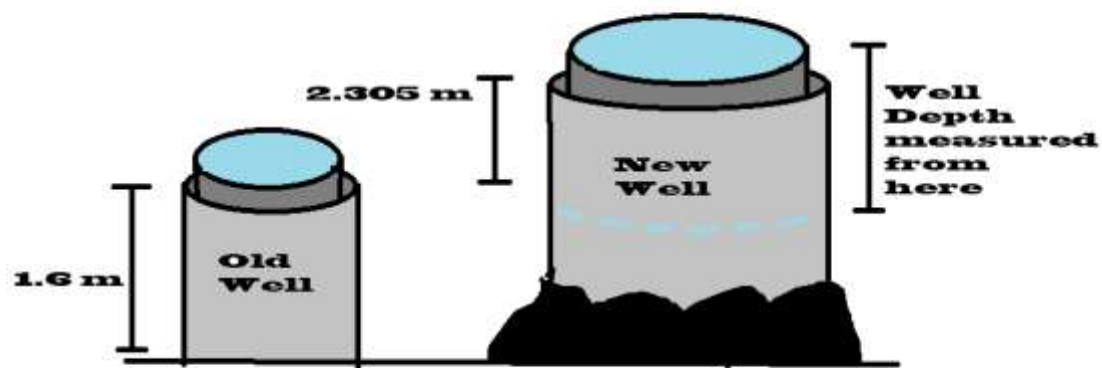
Case 1	BS	FS	HI	RL	Remark
P1 (Old Drinking well)	3.87		3.87	0	BM
P2	3.895	0.205	7.56	3.665	
P3	3.55	0.155	10.955	7.405	
P4	2.625	0.05	13.53	10.905	
P5	2.958	0.298	16.19	13.232	
P6	3.42	0.21	19.4	15.98	
P7	2.485	0.17	21.715	19.23	
P8	1.95	0.805	22.86	20.91	
P9 (Village Centre)		2.165		20.695	

Elevation Difference between Old Drinking Well and Village PWS Tank base is 20.695 m

[P9 is higher than P1]

Case 2	BS	FS	HI	RL	Remark
P1(small well)	1.405		1.405	0	BM
P2	2.235	0.99	2.65	0.415	
P3(Big well)		0.345		2.305	

Elevation Difference between Old Drinking Well and New Drinking Well is 2.305 m [P3 is higher than P1]



Case 3	BS	FS	HI	RL	Remark
P1 (Village Centre)	0.71		0.71	0	BM
P2	1.145	1.705	0.15	-0.995	
P3	0.725	2.585	-1.71	-2.435	
P4	0.1	3.15	-4.76	-4.86	
P5	0.505	3.16	-7.415	-7.92	
P6	0.72	3	-9.695	-10.415	
P7	0.39	3.175	-12.48	-12.87	
P8	1.135	2.23	-13.575	-14.71	
P9	0.33	2.83	-16.075	-16.405	
P10	1.305	1.55	-16.32	-17.625	
P12 (Pajhar)		1.07		-17.39	

Elevation Difference between Village PWS Tank base and Seepage Well is 17.39 m [P1 is higher than P12]

References

- http://www.urdip.res.in/hh_demo/browsing/Haridra/taxoharidra.htm
- <http://indiawater.gov.in/imisweb/reports/searchprofile>