FIELD WORK (TD 609)

On

Palsunda Village

Submitted in partial fulfillment of requirements of the degree of
Master of Technology in *Technology and Development*

by

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We thank Shraddha, Rahul and Ganesh bhau of Aroehan for their support, guidance and assistance during our entire stay.

We wish to dedicate this report to our family – they stood solidly by us in our moments of need - without their unstinted support – this field stay would not have been possible.

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources, which have thus not been properly cited, or from whom proper permission has not been taken when needed.

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Abstract

"I hear and I forget, I see and I remember, I do and I understand" – a quote from Confucius, the famous Chinese teacher and philosopher

The above sentence sums up what we wish to say in our abstract. Every single day was a journey, every single moment was an experience. Life in India is truly lived in its villages and we experienced that first hand.

The objectives of our field stay were to understand the surrounding village ecosystem, learn about the various sub-systems co-existing in the village and their inter-dependencies, study and analyse the data gathered through primary and secondary research techniques – all of this through first-hand experience living amidst the village community for a period of 9 weeks. The village chosen for us was Palsunda – a settlement of simple people in Mokhada Taluka of Thane district in Maharashtra.

In order to make the study structured, various tools and techniques were used – PRA, Household survey, Water Resources Survey, Road and Transport Survey, Energy Survey, Agriculture Survey to name a few. The process required us to closely interact and integrate with the residents of the village. In addition, we also had to interact with the officials of various institutions, Govt. offices and NGOs to gain deeper understanding of the ecosystem. Aroehan, the main NGO we closely worked with, extensively helped guide us in the right direction. The findings and observations were documented in pre-defined formats and subsequently analysed extensively to derive meaning out of the data. This analysis, particularly of Household Survey, gave us additional insights on the patterns observed in people's lifestyle. Among other things, we also studied the impact of various schemes that had been implemented in the villages. Through the discussions had and the data collected, we were able to understand the impact, successful or otherwise, these schemes had on the lives of the villagers.

We also identified specific case studies, the highlight of our report, where individuals on their own initiative had taken it upon themselves to solve common, but important issues, using innovative ideas.

Last but not the least, a key highlight of our field stay was the various volunteering activities we carried out – Teaching young children, Introducing livelihood best practices to the villagers through our contacts, getting the people together through weekend entertainment – and such similar activities added a completely unique flavour to our field stay – it enriched our lives beyond comprehension and gave us insights that we could never have had in our lives.

We would conclude by saying this field stay reinforced the importance of humility and gratitude within us and went a long way in making us whole as individuals.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ADO	Administrative Duty Officer
ANM	Auxiliary Nurse Midwife
APL	Above Poverty Line
BAIF	Bharatiya Agro-Industries Foundation
BDO	Block Divisional Officer
BPL	Below Poverty line
CNB	Cement Nala Bund
DR	Directed Research
DPR	Detailed Project Report
DWDU	District Watershed Development Unit
DWSS	Drinking Water Supply Scheme
EPA	Entry Point Activities
GIS	Geographical Information System
GO	Government Organization
GP	Gram Panchayat
HH	Household
HDUG	Hydrological Data Users Group
IWMP2	Integrated Watershed Management Programme 2
IWMP7	Integrated Watershed Management Programme 7
LBS	Location Based Services
MJP	Maharashtra Jeevan Pradhikaran
MPW	Multipurpose Workers
MRSAC	Maharashtra Remote Sensing Application Centre
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-Government Organization

NRDAA	Nursing Relief for Disadvantaged Areas Act
NRDWP	National Rural Drinking Water Program
NRAA	National Rainfed Area Authority
NRHM	National Rural Health Mission
NREGA	National Rural Employment Guarantee Act
PDS	Public Distribution System
PHC	Public Health Centre
PHSC	Public Health Service Centre
PIA	Project Implementing Agency
PNP	Participatory Net Planning
PPR	Preliminary Project Report
PRA	Participatory Rural Appraisal
PWD	Public Works Department
QGIS	Quantum Geographical Information System
RD	Rural Development
SAO	Superintendent Agriculture Officer
SC	Scheduled Castes
SHG	Self Help Group
SLNA	State Nodal Level Authority
SOUL	SOlar Urja Lamp
ST	Scheduled Tribes
TSP	Technical Service Provider
UG	User Group
VO	Voluntary Organizations
WC	Watershed Committee
WDP	Watershed Development Programme
WDT	Watershed Development Team

Chapter 1 : INTRODUCTION

1.1 Overview

The primary purpose of this field stay was to fully understand life as lived in a rural village. The scope & objectives of the study and associated experience included (but was not limited to) the following:

- Understand the surrounding village ecosystem
- Learn about the various sub-systems in the village along with associated inter-dependencies and their relationship with each other
- Implement various tools and techniques taught as part of the first year CTARA course
- Experience first-hand the challenges faced by the villagers and document findings
- Study and Analyse the IWMP Program which was implemented in the Mokhada region along with its impact on the livelihood of villagers

There were 16 sectors in all for which detailed study was conducted – These sectors were: Village Profile (F1), Demographics (F2), Roads (F3), Water Resources (F4), Water Supply (F5), Sanitation (F6), Energy (F7), Agriculture (F8), Livelihood (F9), Natural Resources (F10), Food Security (F11), Education (F12), Health (F13), Public Infrastructure (F14), Committees (F15) and Finances (F16). By studying and analysing these sectors, one would be in a position to understand the village ecosystem

Apart from the above 16 sectors, detailed study was also conducted on Directed Research, which was about understanding & learning about the planning and implementation process of ***Watershed Development Programme***

The entire field stay duration was for approximately 9 weeks and was done with the collaboration of Gram Panchayat and the NGO Aroehan. A very critical source for information, working with Gram Panchayat helped us understand their vision in planning for the village, the methods adopted in implementation and the challenges faced during execution.

1.1.1 Structure of the report

The entire report is divided into 20 chapters.

- ***Chapters 1& 2*** provide a brief background, including objectives, rationale behind selection of the villages for study and the methodology adopted
- ***Chapters 3 through 17*** elaborate further on the methodology and findings associated with each of the sectors mentioned above
- ***Chapter 18*** exclusively focusses on the Governance, which covers the functioning of institutions and implementation of schemes
- ***Chapter 19 -*** here we share our personal experiences which was not only the first of its kind for us, but also, in many significant ways, life-changing
- ***Chapter 20*** covers in detail the topic for Directed research – ***Integrated Watershed Management Programme***
- ***The Appendices*** towards the end of the document provides additional information to support the chapters above

1.1.2 Scope and Selection of Study Area – Rationale

The Thane District within the State of Maharashtra essentially contains 13 blocks, one of which is the MOKHADA block. MOKHADA block in turn

contains 28 Gram Panchayats (Eg. Khodala, Khoch, Mokhada, Kurlod, Morhanda to name a few) which altogether comprises of 59 villages.

Initially, as part of field stay, Khoch was selected as the base from where we could conduct the activities for our field stay. Khoch is situated at the bottom of Watavlya Mountain and consists of 7 padas. The idea behind selecting this village was:

- Aroehan had the villagers' good-will and was therefore more conducive to receiving students for study of such nature
- Khoch was already part of two different IWMP programs, thus becoming an ideal candidate for study for Directed Research (DR)
- Despite having a dam and an irrigation system in place, Khoch was tanker-fed, implying that the water distribution mechanism was not working well. Aroehan therefore wanted us to understand the issue, identify gaps and recommend possible solutions with perspective of Watershed Management

We stayed in Khoch for a period of 3 weeks. However, it was decided that the study team would shift base to Palsunda village. ***Saturly*** and ***Palsunda***, (belonging to the Saturly-Palsunde Gram Panchayat from the Mokhada Block) were the two villages selected for the scope of the field stay. While Saturly consists of 7 Padas, the village of Palsunda consists of 5 (Palsunda, Dhangarewadi, Vikaswadi, Nikamwadi and Shendyachi Met). The following was the rationale behind the selection of these two villages:

- ***Rationale 1*** – Khoch had a large forest-area, so the interventions/suggestions our team could recommend as part of field stay would be difficult and time-consuming to implement. In that regard, Palsunda seemed to be an optimal place wherein the findings and recommendations would possibly be implemented faster

- ***Rationale 2*** – Considering IWMP 2, Khoch was situated at upper ridges of watershed thus making it difficult to study the various aspects of Watershed Management. Whereas, Palsunda met the ridge and valley requirements for study of Watershed management

- ***Rationale 3*** - Both these villages – Saturly & Palsunda – belonged to the same Gram Panchayat. This in turn helped us get the data for both the villages from a single source, thus ensuring effective utilization of the limited time available to us during the field stay

- ***Rationale 4*** – According to the sources we spoke to (i.e. NGO Aroehan officials, Gram Panchayat officials), these two villages were an adequate representation of the typical topography, culture, populace, strata and lifestyle of the entire block. The study undertaken and challenges faced could easily be extrapolated for the remaining Gram Panchayat villages

- ***Rationale 5*** – The villages themselves were reasonably well connected to the main Mokhada Gram Panchayat, where the NGO we were working with – Aroehan – had their offices situated. In addition, one of the residents of the village of Palsunda was also an active working member of Aroehan

1.1.3 High level planning for the field stay

Given the volume of activities needed to be completed in a relatively short span of 9 weeks, careful and meticulous planning became key to ensure field stay objectives were met. There was not much scope for re-work in the short span. Critical considerations for planning included the following:

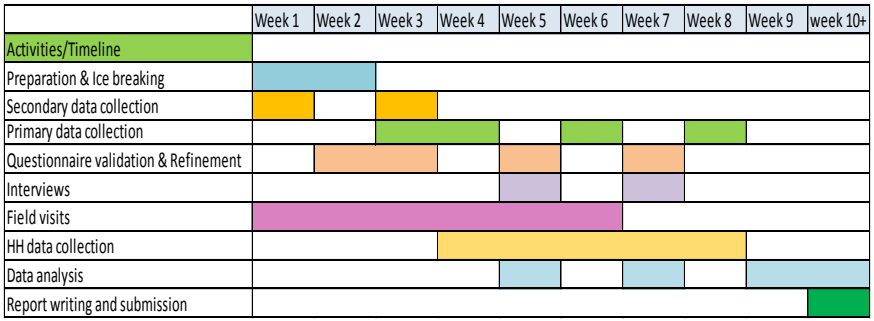
- Our DR topic was Integrated Watershed Management, which called for a thorough understanding of the current status of the village concerning water availability and scarcity, particularly during summer – this exercise needed to be completed before the onset of monsoon. Hence one of the decisions we took was to undertake the DR study first

- PRA was another critical aspect of our study. To ensure its success, it was very important that we developed close rapport with the villagers and get them involved in the whole process. This also had to be completed before monsoon – it would practically be impossible to get people to gather during monsoon, as they would be very busy cultivating crops

- Another reason why PRA needed to be made before monsoon was, we needed a large dry area to prepare the map (on the ground, using rangoli)

Taking into consideration the above, ***Table 1.1*** represents a high level plan week-wise of the activities conducted during field stay

Table 1.1 : High-level plan of week-wise activities



Chapter 2 : METHODOLOGY ADOPTED

This section primarily covers the methodology used for collection of various primary and secondary data for both Village Analysis and Directed Research.

2.1 Primary data collection

Preparation of Base map, Village Survey, Participatory Rural Appraisal (PRA) and Household Survey fundamentally formed the basis of Primary Data Collection. During this process, we also got to know the various sources from which data needed to be collected. Each of these methods is described in detail below

2.1.1 Preparation of Base map

Fundamentally, 2 base maps were prepared – one for general works and the other for Directed research.

Primary base map & Base map for the directed research: In addition to receiving inputs from the Talathi, City Survey office and Gram Panchayat, ***Base maps (Figures 2-1) and Soil Use maps (Figures 2-2)*** were also obtained from different departments including the State Agricultural Ministry and Minor Irrigation Department. These maps were classified Survey No. wise and pertained to land holdings for each resident of the village. We also studied the drainage system using GPS as well as through manual observations, resulting in the creation of the ***Drainage map (Figure 2-3)***. Lastly, pictures of Revenue map and Gaothan maps were obtained in addition to Soil Erosion map in IWMP-2 and IWMP-7. All the parts were scanned, joined and digitized.

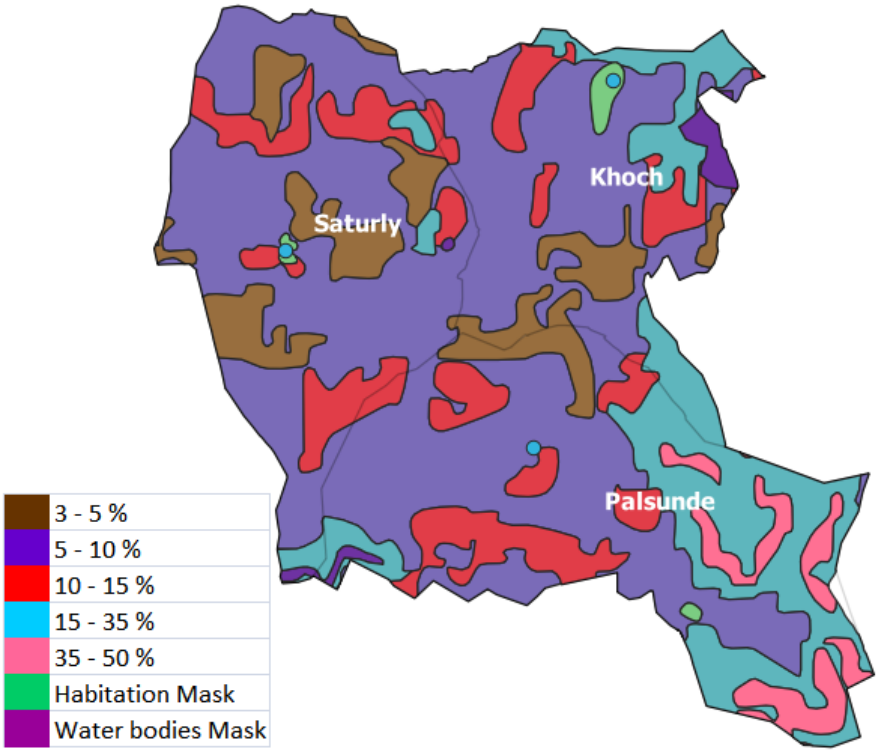


Figure 2-1 : Primary Base Map

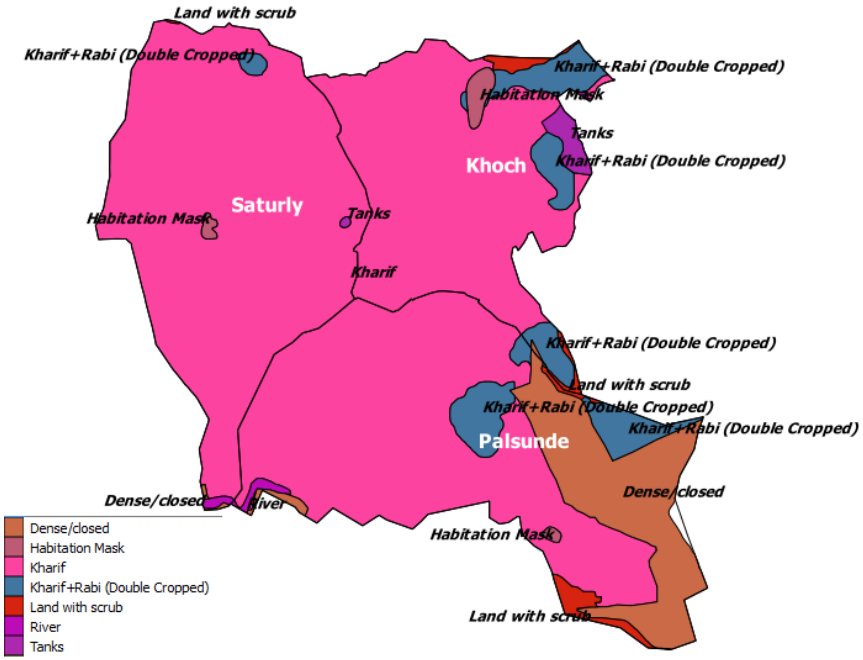


Figure 2-2 : Soil Use map for DR

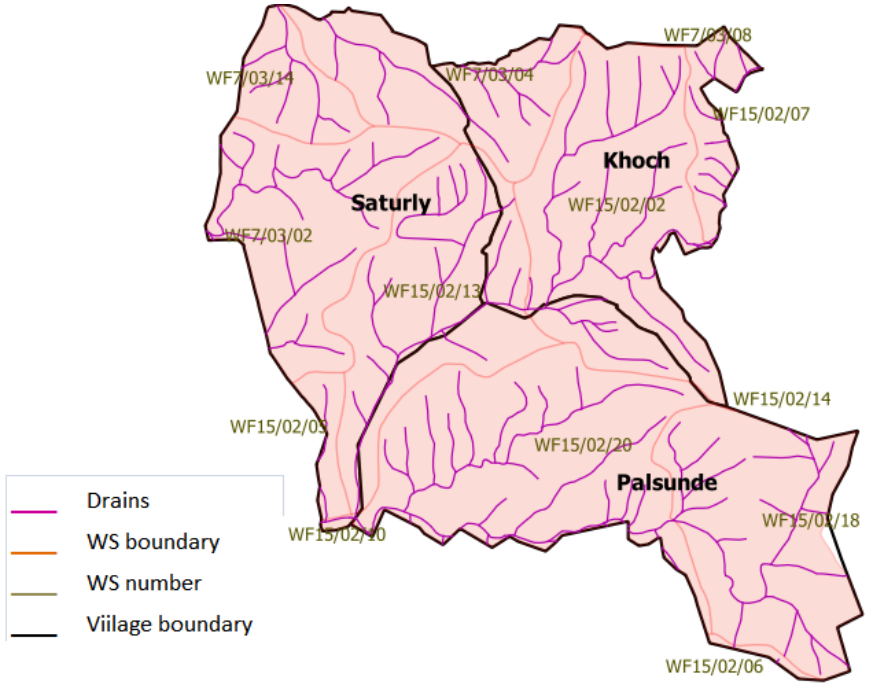


Figure 2-3 : Drainage Map

2.1.2 Participatory Rural Appraisal (PRA)

PRA is a proven scientific approach to understand the village dynamics, identify and analyse problems/issues within a village eco-system and formulate solutions. All of the above is done with the help and participation of local residents, which in turn helps complete the process in

a relatively short span of time. It also leverages several tools to extract information and build rapport with the residents. Some of the tools leveraged included Resource Map, Transect Walk, Social Map, Venn Diagram, Time-Line, Seasonality and Problem ranking. The associated findings are documented in the respective sections within this document. ***Figure 2-4*** depicts a picture of the PRA activity done in Palsunda.

Figure 2-4 : PRA Activity – Palsunda

Resource Map: The primary purpose of the Resource Map is to understand the resources available at the disposal of the village residents. It also is a great tool to help understand how much the residents actually know about their own village. The mapping was done in Nimatai's angan, right next to the Palsunda village road entrance. Major features indicated in the map included agricultural fields, water bodies (ponds, river, wells), mountains, trees, houses and energy sources. While it was a difficult task initially to gather people to perform this exercise, however, once we got going the activity generated a lot of excitement and elicited active participation among the residents. Such was the involvement and intensity, that people passionately insisted on having on the map things they believed were resources, but according to us were not (For eg. Jagmata and the tree next to it). ***Figure 2-5*** shows the Resource Map that was created for the village

Figure 2-5 : Resource Map

Transect Walk: As a team, we conducted two Transect Walks on two different days – in directions perpendicular to each other. These routes were suggested by the villagers themselves and they accompanied us in both our Transect walks. They were very keen that through these walks,

we clearly get to see the topography of the entire village. A typical Transect walk covered an average of about 5 Kms, mostly over difficult terrains and forests. We started the first Transect Walk at 9am and it took us nearly 6 hours to complete it. It started at the boundary of Shendyachi Met and Palsunda and ended at Pinjal river at the boundary of Saturly and Palsunda. The second Transect Walk spanned 4 hours ending at 6pm. This started at the main road of Palsunda village at the base of the mountain and ended at Ashram Shala of Palsunda. The primary objective of the Transect Walks was to understand the location and distribution of various patterns of vegetation and crops, land and soil types, landscape slopes and elevations etc. One of the most interesting things we observed during this activity was the changes to the landscape and the nature of soil. As we approached the banks of the river, the soil was black, which indicated higher levels of fertility. Rice crop was grown on flat surfaces at the bottom of the mountain, given its need for more water, while Nagli crop was grown on the slopes. ***Figure 2-6*** represents a typical Transect Walk conducted

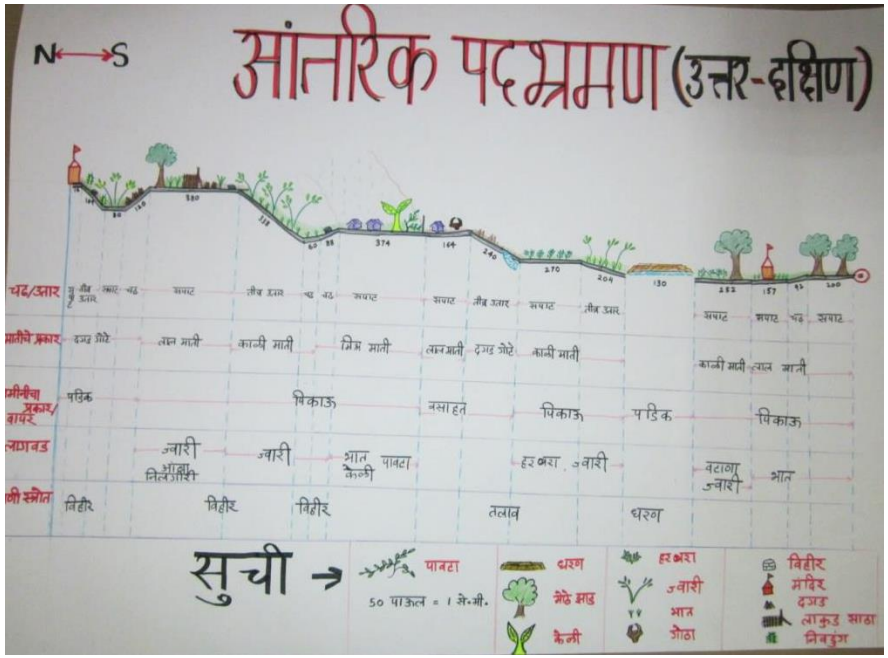


Figure 2-6 : Transect Walk

Social map: The primary purpose of the Social Map is to understand the social structure of the village. Through this exercise, we got to understand the caste-wise and class-wise distribution of people – in other words, the economic profile of the village. For Palsunda, the map indicated Institutions, Services and Amenities (such as Shops, Schools, PDS, Temples, Godowns, Tanks, Anganwadi, PHSC and Govt. institutions). This activity was conducted in front of the Rice mill, near the village Durga Temple. The first attempt of our map-making exercise was washed away due to rain. The second attempt was however successfully made on the next day. Through these maps, among other things, we also got to

know about the illegal electrical connections and Indira Aawas Yojana beneficiaries. ***Figure 2-7*** represents the Social Map process creation.

Figure 2-7 : Social Map

Venn diagram: An exercise done right after the resource map, the primary purpose of Venn Diagram is to understand the various Government, Cooperative and other institutions in the village. In addition, it also indicates their impact on the village, activeness, level of influence and the interdependencies/linkages between the various institutions. For Palsunda village, the institutions included in the diagram were - Gram Panchayat, Banks, Anganwadi, Police Station, PHC, PHSC, Hospitals, Schools and Ashrams, Self-Help Mandal, Temples, Rice Mill and Bhajani Mandal. ***Figure 2-8*** represents the Venn Diagram for Palsunda village

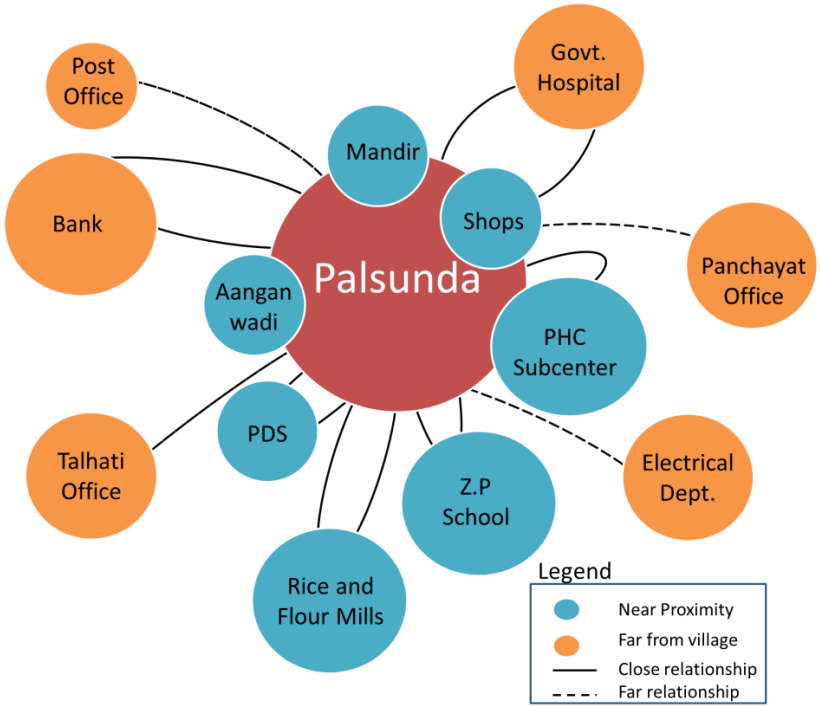


Figure 2-8 : Venn Diagram - Palsunda Village

Time-Line: The objective of this exercise is to gain an idea of historical and repetitive events in the village (E.g. Floods, Drought etc). In addition, it also provides the socio-economic status of the village – in terms of development/progressive activities happening in the village. For Palsunda, this exercise was conducted by bringing together elders, who were witness to several events over a longer time horizon. Conversations & Questionnaires posed to these residents yielded deeper insights of the impacts of these events on their living conditions. We also got to know through this exercise that in the 17th century, this village had been given by

Shivaji Maharaj to one of the earliest residents of the village. ***Figure 2-9*** shows the Time-Line for Palsunda village

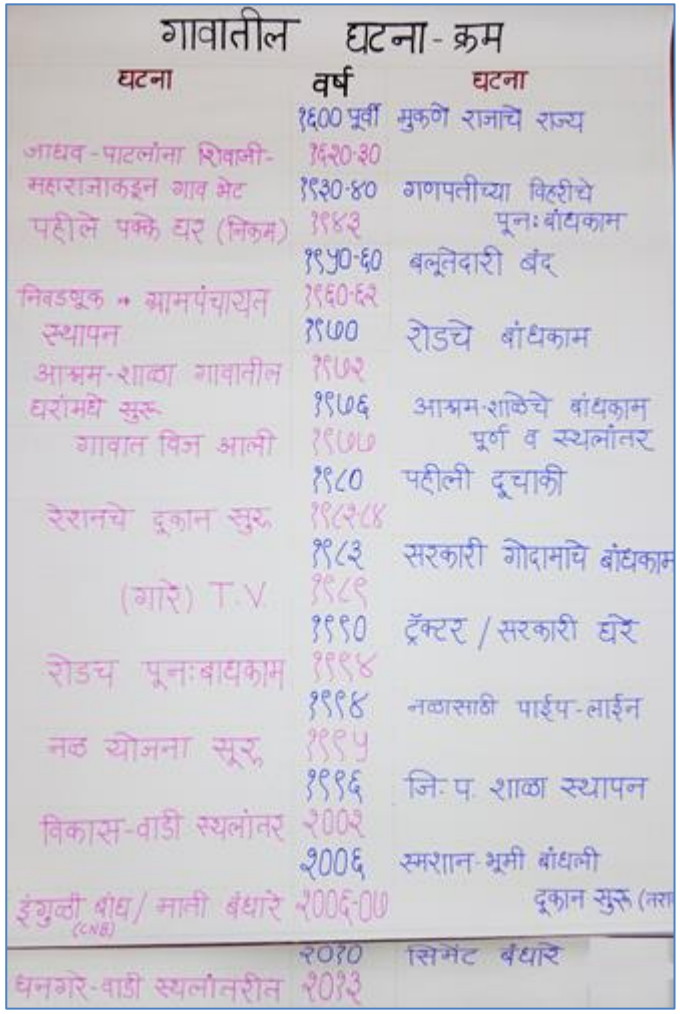


Figure 2-9 : Time-line - Palsunda Village

Seasonality: The objective of this exercise is to get an idea of major seasons of festivals, agricultural activities, earning and expenditure trends, diseases trends as well as seasonal cycles of rain, heat, etc. Again, this activity was conducted with the help of elders within the village community. ***Figure 2-10*** represents the Seasonality for Palsunda village

Figure 2-10 : Seasonality - Palsunda Village

Problem Ranking: This exercise helps understand the various issues and challenges faced by the residents of the villages – and includes issues relating to toilet facilities, drinking water, irrigation water, waste disposal, disbursement & effectiveness of Govt. schemes, infrastructure (schools,

roads, mode of transport). For Palsunda, typically these issues were identified when people gathered for creation of Resource and Social Maps as well as during various meetings in the village. This exercise helped in first understanding the challenges faced, rank them in order of the severity, and helped in setting priorities for resolution. ***Figures 2-11 and 2-12*** represent the Problem Ranking process and Problem Ranking output.

Figure 2-11 : Problem Ranking Process

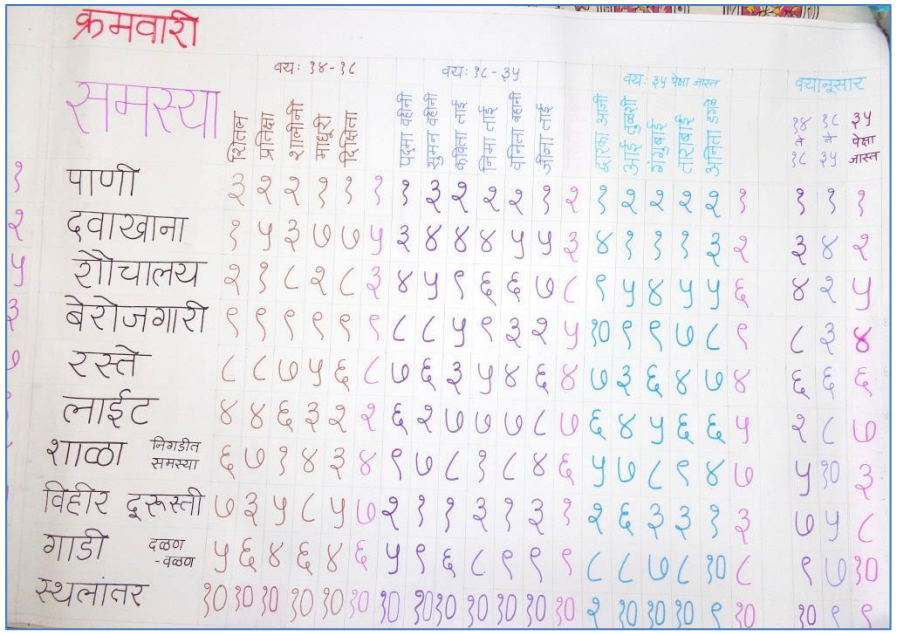


Figure 2-12 : Problem Ranking Output

2.1.3 Village survey

This section primarily covers the methodology followed to collect village level data. The format was provided to us by the IIT faculty.

Roads & Public Transport Survey: Apart from the primary and secondary data collection on roads and transportation, this sector covered three assessments. One involved preparation of the road inventory map, second was the transportation survey and the third was the fuel consumption details. Most of the information collected on Roads and Public Transport was through visual observation and by talking to different

people. As we approached the village, we made careful observation of road patterns – areas where the roads were smooth and others where it was ridden with potholes. Information associated with internal roads (pucca and kuccha) were collected from villagers and NREGA Gram Rojgar Sevak. Through our PRA activity we got to know about roads that led to other villages. In addition, by going through various surveys obtained from different institutions, we also understood the overall interconnections of roads between villages.

Water Resources & Water Supply: As before, most of the information collected on Water Resources (Rivers, Ponds, Wells, Tanks, Bunds etc.) & Water Supply was through visual observation, survey reports and information obtained from residents/officials through questions asked. Our PRA activity helped identify the different sources of water and the impact of its distribution. We toured various agriculture fields and walked through the route of the pipeline laid out, making detailed observations - most of it on our own, with occasional help from the village residents. We also met with officials of Minor Irrigation Department to get their perspectives of the functioning of the Water system and associated challenges. It took us almost 7 days to cover all the Water Resources within the whole Gram Panchayat.

Sanitation: Information pertaining to Sanitation was obtained through visual observation, Social Map activity, Household Survey Analysis and studying of various schemes that make sanitation a priority and funds it. The Household Survey covered questions related to Toilet facilities, Water Disposal and Garbage disposal mechanisms – responses to these questions gave us deep insight on the sanitation facilities available in the village. In addition, we also gathered information relating to the drainage system and prepared a drainage map – in general, there was no specific drainage system constructed – it was all natural.

Energy: Information associated with Energy was mainly obtained through Household Survey – as a result of interviews with residents. In addition, we also had interactions with officials from various institutions (Gram Panchayat, Schools etc). We also visually observed the different sources of energy (Street lights, Solar panels, household appliances, Alternate fuel sources etc). Among other things, we also collected information relating to Wood consumption, Petrol consumption for transportation, and energy required for agricultural equipments. Various case studies helped us gather this information.

Agriculture: Information pertaining to Agriculture was obtained through field visits, Household survey Analysis, meeting with Talathi offices and through specific case studies. Making of Seasonality chart helped us in identifying and understanding the various process involved in agriculture. Rainfall data and Rainfall patterns were collected from HDUG and villagers. In addition, we also embarked in getting first-hand experience working in the fields along with the farmers.

Livelihood: Information for Livelihood was obtained through visual observations, Household Surveys, Interviews and Census Data. This was collated and analysed to gain insights to the villager's means of livelihood. NGO people helped us understand what livelihood options were available and what could potentially be done in the future.

Natural Resources: Information pertaining to Natural Resources was obtained through Resource Map which was constructed through active participation of village residents. In particular, the elders of the village gave us key insights based on their experiences – they shared with us historical facts and events that influenced the availability of natural resources and how things had changed over a period of time. Bio-diversity was observed during jungle walks and also obtained through interactions with people working in the fields.

Food Security: Living with the people of the village helped us thoroughly understand the food consumption patterns of the locals. We also conducted interviews and had discussions with different individuals, including the owner of PDS shop of the village. Anganwadi & Primary School was also a good source of data. We also understood the mechanism of food distribution for different ration card holders (APL, BPL, Antoday).

Education: We visited some of the educational institutions – Schools, Anganwadi, Ashram Shala and talked to different officials – the principals, teachers and support staff. We also had several interactions with the students and attended the admission process. We then meticulously noted down the information collected through these discussions and interviews. In addition, the Household Survey gave us meaningful insights on the education (literacy) profile of the whole village. We also undertook volunteering activities to teach young children, which in turn personally helped us get involved in the lives of these young minds.

Health: An important sector, information pertaining to this was obtained through various visits to PHSC and discussing in detail with the PHSC staff – nurses and support staff. We also analysed the information from the Census Data and studied trends. An interview session with the Medical Officer gave us insights of the ways of functioning, challenges faced and the status & effectiveness of various schemes funded by the Govt. All of this information was captured and tabulated. Household survey also gave us significant insights on the health conditions, including information on different diseases and seasonality/patters of these diseases. The "Aai" of the house we stayed in was herself a health-worker, hence many residents visited her for medicines and advice – we got the opportunity to interact with these patients and gain their perspectives.

Public Infrastructure: Information for this section mainly came through visual observation and through interactions with residents. We also visited some of the infrastructure facilities to conduct a visual survey and document findings. Social map also yielded us significant information on the infrastructure facilities available.

Committees: Our primary source for this information came through the different meetings we attended in the village (including the ones with Gram Panchayat and Gram Sevak). We also met with NGOs and officials of the Forest Department. In addition, interactions with the residents yielded a lot of insightful information on the working of these Committees.

Finance: Visits to Gram Panchayat and Gram Sevak gave us very important pieces on the income received and expenses incurred for the functioning of the village. Through discussions, we got to understand the financial viability of some of the schemes being run by the Gram Panchayat. We also collected financial data for the last 5 years – which contained budget and plan details. We also analysed the trends in income and expenditures under various headings. All of these findings have been documented in the Finances Chapter of this document

2.1.4 Household survey

Singlehandedly, for any kind of survey, sampling is the most critical part of any project. Success of any project and its associated analysis is largely dependent on the right kind of sampling. Adequate care was taken to ensure the sample size and scope was appropriate and representative of the whole village.

In order to ensure the same, one of the first actions we took was to get household information of each pada of Saturly and Palsunda villages from the local Anganwadi – through this we derived insights of people and

profile distribution. Analysing the data received, we arrived at the sample size using the following methodology/logic:

- ***Palsunda pada*** – we covered in its entirety primarily because this was the village we were staying in and this village also covered a broad spectrum of community profile
- ***Vikaswadi pada*** – comprising mainly of Katkaris, we planned to cover 25% of the household, given the similarity of profiles of Katkaris. The non-Katkari population of this pada was covered in its entirety
- ***Dhangarwadi & Nikamwadi pada*** – we decided to survey all the households, given the number was relatively small
- ***Shendyachi Meth*** – We did not pick this pada for sampling for 3 specific reasons :
    - This was very far from where we stayed
    - More importantly, majority of the people in this village were Katkaris – profiles of whom were covered in Vikaswadi. We would not have gained any additional insights by including these in the survey sample.
    - Also, even though this pada was technically part of the Palsunda village, in reality, the system of working of this pada was in no way connected to this village. Infact, all aspects of this pada (ie. PDS and Voting) was covered as part of a different village (which was out of scope for our study)

In all of the above the following criteria was also taken into account to ensure even distribution in the sampling:

Caste criteria: We ensured that an even distribution of the different castes were included as part of the survey (Mahadev Koli, Katkari, Warli, Navbouddha). In many cases, people of the same caste lived together in the same community. For Eg. Palsunda pada witnessed Mahadev Koli as the most prevalent caste, while Vikaswadi pada had the highest Katkaris.

Social Status: While our intent was to cover SCs and STs, we found, through the anganwadi report, that except for three households, most of the people belonged to ST.

Given the expanse of the survey sample, we began the survey from week 4. Each person covered close to an average of 5 households per day – with each household taking more than an hour per survey. The first 4 surveys we picked were the ones where we were aware that the responses would be comprehensive – this in turn, helped us refine the survey process and template. After the first few days, given we were getting better at conducting the surveys, the survey time reduced to 45 minutes. While there was no fixed time of the day when we conducted these surveys, many of them were also conducted in the late evening hours, sometimes upto 9:30pm.

2.2 Secondary data collection

Table 2.1 provides the various different entities/sources from where we received secondary data

Table 2.1 : Secondary Data Sources and their functioning

Source of Secondary Data	Purpose and Outcome / Documents received
Census Data	• Census data was taken for the range 2001 and 2011 • Data gathered gave information relating to the village growth rate with regards to households

Source of Secondary Data	Purpose and Outcome / Documents received
Gram Panchayat	• Gram Panchayat provided the entire profile of the villages of Saturly and Palsunda • Documents gathered from Gram Panchayat included: ○ ***Income and expenditure statement*** of the Gram Panchayat (including past 3 years budget) ○ ***Village Namuna No. 8*** - Details pertaining to no. of households, type of house, taxes paid, head of the household etc.) ○ ***Village Namuna No. 9*** - Details pertaining to water tax and total of other taxes paid per household) ○ Details of Permanent, semi-permanent and temporary homes in the village for year 2013 ○ Goathan maps ○ Details pertaining to various Institutions and Infrastructure facilities in the village • Some of the documents mentioned above are also provided (as photographic copies) as part of Appendix, attached to the end of the project report
Talathi Office	• This office had additional details pertaining to agricultural/non-agriculture lands • Documents gathered from Talathi Office included: ○ ***Village form No. 1*** - Details pertaining to land utilization

Source of Secondary Data	Purpose and Outcome / Documents received
	○ ***Village Form No. 1 (A)*** – Details pertaining to forest land ○ ***Village Form No. 1 (B)*** – Details pertaining to Govt. Land/Gaothan Area ○ ***Village Form No. 8 (A)*** – Details pertaining to crop patterns and produce ○ ***Village Form No. 8 (B)*** – Details pertaining to land ownership ○ ***Talathi map / Revenue map*** ○ ***7/12 Form*** – Details pertaining to individual land holding and crops sown in the last 10 years ○ Beneficiary details under different schemes • We spent significant time discussing the role and powers of the Talathi office in the region • Some of the documents mentioned above are also provided (as photographic copies) as part of Appendix, attached to the end of the project report • This process was a time-consuming one and required multiple visits – however this process subsequently smoothened after we met the Tehsildar and obtained the order letter
Bhoomi Abhilekh	• This office basically provided information pertaining to Gaothan map & Survey numbers map • Given the limited time available, information was collected through quick general discussions

Source of Secondary Data	Purpose and Outcome / Documents received
Minor Irrigation Dept.	• From here, we received lot of information pertaining to Bandharas • We also received information pertaining to private and cooperative pumps installed near the various water bodies • From here we got connected to the main Thane office, which helped us gather the information quickly
PHC/PHSC	• From here we received information pertaining to no. of doctors in the village, anganwadi, various health schemes, social service workers and impact of associated initiatives taken by them, birth and death rates in the village etc. • Some of the documents mentioned above are also provided (as photographic copies) as part of Appendix, attached to the end of the project report
Krushi Vibhag, Mokhada	• They design, implement and monitor various schemes in the Mokhada area related to Agriculture • Data related to DR and DPR were extensively collected from this office – this was data pertaining to design of DPR and implementation of IWMP programme • Information relating to various Watershed Committees and Secretaries was made available to us, which was very crucial for our DR • From here too, we got connected to the main Thane office, which helped us gather necessary information quickly
State Agriculture Dept., Thane	• They design, implement and monitor various schemes at the District level – Thane, in this case – related to Agriculture • Organization hierarchy of IWMP programme gets determined by this office – we understood this process and obtained necessary supporting documents which was very useful for our DR • The process followed to male GIS map at village level was also taught to us here

2.3 Other field works

There were additional activities we performed as part of our field stay to ensure comprehensiveness of the data points, ascertain their validity and to study the inter-dependencies and relationship between entities. The biggest challenge we faced was to get the time of the people whom we wished to interview. For eg. We went to meet the Sarpanch 5 times, we could only meet him twice and that too for a very short period.

2.3.1 Case Studies

The objective of this exercise was to capture some unique aspects of village life or projects undertaken. A typical case study represented an innovative idea that a particular individual or a group of individuals had undertaken to make a difference in either their own personal lives or the lives of the people around them. In all, 8 case studies were taken up. The steps undertaken have been outlined below:

- The first step was to pick relevant topic for case study – we achieved this through focused informal discussion with village residents. Table 3 provides the list of case studies we picked
- Based on the specific case study, we prepared a questionnaire and interviewed stakeholders who formed the basis of the case study
- Finally, we documented our findings along with the impact it had on the respective sector. Some of these innovations could possibly be applied in a broader context

Table 2.2 provides a summary of the Case Studies.

Table 2.2 : List of Case Studies

Sr. No	Case Study	Owner/Group Name	Sector impacted
1	Shednet and use of Govt. Schemes	Suresh Khonde	Agriculture
2	Vegetation Cultivation with irrigation facility	Mahendra Gavte	Agriculture & Energy
3	Problems of Self-Help Group	Bhagyalakshmi Bachat Gat	Livelihood
4	Alcohol eradication	Raje Yashwant Youth Group	Health
5	Bio-Diversity development in an arid land	Uttkarsh Bachat Gat	Natural Resources
6	Working of Kirana Shop	Mahesh Taral	Livelihood
7	Water Management for horticulture	Jagan Khale	Water Supply
8	Water uplifting project	Mr. Gonsalves & team	Agriculture & Livelihood

2.3.2 Water Structure documentation

The objective of this exercise was to study and document all water structures (wells, bunds etc) in the village and Gram Panchayat. In addition, we also documented the various water sources, conditions in which they were, as well as the technical flaws with which they were operating. This was done primarily through field visits – wherein the water structures were measured and their functioning observed. The entire Gram Panchayat included 53 wells and 14 bunds.

2.3.3 Beneficiary Interviews

The primary objective here was to identify beneficiaries who had availed certain funded schemes (Eg. Terracing). The information associated with these beneficiaries was available with Krushi Vibhag office. We interviewed various beneficiaries mentioned in the document using the Questionnaire technique – to understand the data & validate it and to understand the process of selection. In all, there were 22 beneficiaries of

horticulture plantation, we interviewed 11 of them and documented the findings.

2.3.4 Watershed Committee Interviews

Watershed Committee handles and implements whole watershed works on the field (village level). Given the importance of this topic in our context, we wanted to thoroughly understand the extent of involvement and responsibilities of the entities involved. The Questionnaire methodology was used to interview participants. Overall, 7 interviews were taken. The findings were then integrated into the DR section for analysis.

2.3.5 PIA Interviews

PIA is the agency that designs and implements the IWMP process in the spirit with which the process was originally intended. The Questionnaire methodology was used to interview participants. Overall, 4 interviews were taken – 3 with Watershed Development Team (WDT) and 1 with the Agriculture officer. The findings were then integrated into the DR section for analysis.

2.4 Voluntary Activities

In addition to the above, we also undertook a few voluntary activities - which not only enhanced our ability to connect with the villagers at a personal level, but also gave us a tremendous opportunity to touch the lives of the villagers – we believe this was one of the highlights of our entire field trip. This was also a critical component of IWMP process understanding.

2.4.1 Introduction to Successful Farming Strategies

One of most satisfying visits we had, through known connections, we were able to help the villagers with the following initiatives:

- Getting highly subsidized rates for compost (almost quarter of the original cost). Market rates were at Rs. 300 per bag, subsidized rate were at Rs. 75 per bag
- Training in Agriculture & animal husbandry for the farmers – on farming techniques and efficient cost-effective methods

2.4.2 Teaching young impressionable minds

"A hundred years from now, it will not matter what my bank account was, the sort of house I lived in, or the kind of car I drove… but the world may be different because I was important in the life of a child" - The famous words of Forest Witcraft, a scholar and a teacher – we took this to our heart.

- For the last 4 weeks of our stay, in the village of Palsunda, we embarked into the journey of teaching Maths & English for young children
- About 12 in number, these children, who were mostly between the ages of 12 and 16, were highly enthusiastic and very receptive to these sessions

- Sessions usually were held in the evening hours of 6pm and lasted a couple of hours. Such was the level of interest that often children used to stay back way beyond the stipulated time
- We also conducted informal and impromptu tests, which the children happily undertook
- This experience really helped us reach out to the inner child within us, was most satisfying and used to be something both sides looked forward to each day

2.4.3 Construction of Toilets

Among the most basic of amenities, toilets were few and far between in the Palsunda pada. With the help of residents, while we constructed one toilet in our own house, with our own hands, what followed was a chain reaction – wherein 18 toilets were built by the residents themselves

While this scheme always existed, it was never implemented fully, although the villagers always had the intent to do so. We believe we were the catalyst in getting this process started and were instrumental in improving hygienic conditions of the village - a few of the families now no more needed to defecate in the open

2.4.4 Movie-Time – bringing the community together

A very unique thing we were successful in achieving was bringing together the entire village in one forum where we showed them movies:

- To this effect we had carried with us for the field stay, portable projector, laptop computer and movie CDs. Connecting these devices helped create a theatre-like atmosphere where movies were projected on a make-shift white screen
- One major challenge we had to overcome was the availability of electric power. Hence through the use of solar chargers, we ensured all the devices were fully charged
- Typically we aired these movies on Saturday evenings, post sunset. Movies shown either had pure entertainment value or carried religious sentiments or in some cases, also contained social messages – for eg, relating to Superstition
- We also used this gathering to our advantage to make announcements associated with surveys, group meetings, PRA etc

2.4.5 Participating in agricultural plantations

On several occasions, we actually went with the farmers and residents to assist with plantations. These were some of our learnings:

- It was back-breaking work – we got first hand insight about the tough conditions under which the farmers work. The paddy plantation activity involved long hours of bending down, which took its toll on one's lower back
- Men and Women alike, joined together to complete the activity – and despite the difficult nature of the work involved, the farmers went about their activities cheerfully, sometime even teasing each other in jest
- We found the farmers helping each other out and lifting one-another's spirit – in order to get the job done

- Typically, a group of about 15 people covered about 1 acre a day in a span of 8 – 10 hours

2.4.6 In Summary

Through all the volunteering activities, we discovered a facet of life that we had never seen before. Surviving in a village ecosystem was real hard work and yet, despite all the adversity they faced, they were always very helpful to us, respected what we did and treated us as one among them.

Chapter 3 : VILLAGE PROFILE

3.1 Study area - Scope

For the purpose of the study, the main village selected was Palsunda. Palsunda is a village located in Mokhada Taluka, in the District of Thane, Maharashtra State in the Konkan region. It is located 103 Kms North from District Headquarters, Thane and 133 Kms from the State Capital of Mumbai. Very recently, Palsunda was realigned with the district of Raigad.

Located at a latitude of 19.403636° and a longitude of 73.91483°, Palsunda is surrounded by Jawahar Taluka towards West, Triambak Taluka towards East, Vikramgadh Taluka towards North and Igatpuri Taluke towards South. Nashik, Silvassa, Amli and Ozar are the cities nearby to Palsunda. The Gram Panchayat to which it belongs is Saturly-Palsunde. ***Figures 3-1 and 3-2*** shows Palsunda on the map

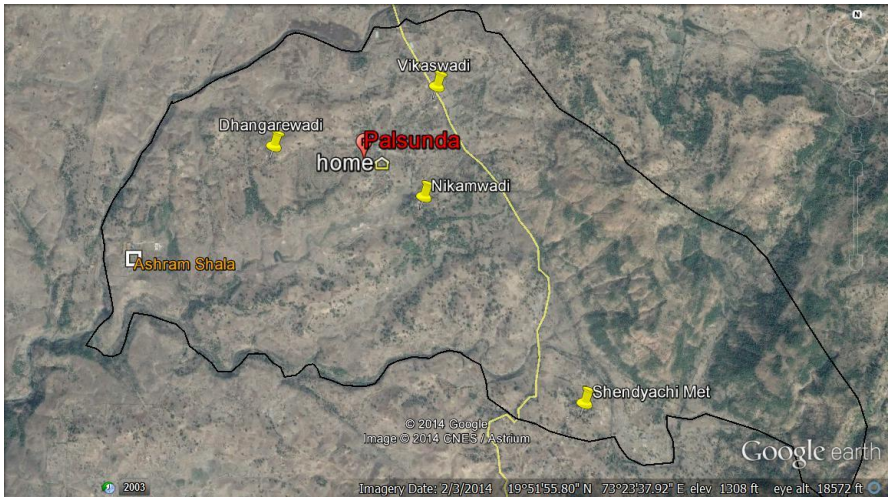


Figure 3-1 : Map I showing Village Palsunda - I

Figure 3-2 : Map II showing Village Palsunda

3.1.1 Peculiarities/Uniqueness of the Village

Some of the unique characteristics of this village include:

- The village has a history from the reign of Shivaji Maharaj
- People living here are very religious (there is atleast one religious programme a week) – this village is also known for its Bhajni Mandal which performs in all the nearby villages as well. The villagers are strong followers of Lord Pandurang. and Lord Narendraswami
- There are two temples - Shiv-Mandir and Durga Mandir. Shiv Mandir was built about 20 years ago and is known for its “Saptah” or Seven-day programme when “Haripath Kirtan” happens daily

- Since last two years, villagers have also arranged for Durga Puja and are attended by people from the entire block
- The Ashram Shala, built in 1972, is famous and admissions for this school are well sought after
- We also felt that there is no gender discrimination in this village. Incidentally, Shendyachi Met, one of the padas of Palsunda village, was in the news for child mortality in 2007
- The primary residents belong to the castes of Mahadev koli, Warli and Katkaris
- The major source of income generated is from agriculture with Rice and Nagli being the two major crops grown
- There is water scarcity in the area, particularly during summer and villagers have to walk nearly 1.5 km to fetch water
- People grow crops more importantly to sustain themselves rather than actually sell it in the open market
- While the burden of workload is very high on the ladies, however, in general, they seem happy. Interestingly, despite lower literacy overall, they seem to be very good with numbers and calculations

3.1.2 Climate

Climate in this area is Tropical. Summer here is very dry and hot and lasts for 3 months from April through June. Winter months are dry and cold and typically last for 4 months from November through February. Monsoon sets in during the month of June and lasts through mid-September.

The village witnesses good rainfall – with the 50 year average being ***2585 mm*** per season.

3.1.3 Resources

3.1.3.1 Natural Sources - Soil type and geography

The village mainly has reddish soil, with shallow texture. Even though the rains are heavy in this region, due to soil erosion, rain water does not stay. Hence the ground does not collect/retain water.

3.1.3.2 Vegetation

The village is surrounded by mild dense forest – this has reduced over a period of time by 10-20%. It still boasts of teak wood, eucalyptus and other timber logs. The commonly found trees in the village are Mango, Jambul, Neem, Bor, Banyan tree, Peepul tree, Guava tree, Bamboo, Drumstick, Karvanda, Palash, Chickoo and Coconut (only one resident, Koshi, migrated from Kerala has planted plenty of coconut trees for commercial purposes.

3.1.3.3 Water resources

The Saturly-Palsunde Gram Panchayat has 35 acres of irrigated land. Surface Water bodies include 2 rivers, 1 Lake, 1 Pond and 2 Water tanks. (Watershed number BSTL006/WF15/2, River Basin – Bhatsol). The Palsunda village itself has 15 acres of irrigated land with the Pinjal river being the primary and perennial source of water in the village. There are 17 open wells in all (8 public and 9 private) with a depth of 5.7 metres and a diameter of 4.6 metres. They also have a single tube-well.

From a water conservation perspective, between the years 2007 to 2013, 4 Cement Nala Checks have been built. Additionally, between the years of 2004 – 2013, 3 Mud Nala Checks and two Farm ponds have also been built.

3.1.3.4 Infrastructure – Roads & Public Transport

Palsunda village is connected with the nearby village by a single road. For external connectivity, the total length of the tar road is 5.2 sq. kms, while the total length of kuccha road is 3.5 sq. kms. Internally, ie. roads within the village – total length of the tar road is 2.4 sq. kms, and that of the kuccha road is 5 sq. kms. These roads were constructed under the programs if PWD and NREGA.

There is no public transport bus halt in the village, neither does the village have a bus stand. Residents of the village would need to walk about a km. to get to the nearest bus stand. In addition, private operators service the transportation needs of the village – there are 3 jeeps for the residents to leverage.

3.2 Village Profile Summary

Table 3.1 depicts at a glance, the overall profile of Village Palsunda across a number of characteristics

Table 3.1 : Palsunda Village Profile Summary

Sr. No	Characteristic	Value
1.	District	Thane
2.	Taluka	Mokhada
3.	Gram Panchayat	Saturly-Palsunda
4.	Communities	Hindus (Mahadev Koli, Warli, Katkari) and Navbouddha
5.	Language	Marathi
6.	Elevation	Longitude: 73.91483; Latitude: 19.40363
7.	Rainfall	2585 mm (50 year average)
8.	Land-use pattern	61% Agriculture, 10% forest land, 15% water bodies and 14% wasteland
9.	Main Occupation	Farming
10.	Sources of Water	Pinjal river, 17 wells (8 Public & 9 Private – with average depth 5.7m, diameter 4.61 m) and 1 tube-well
11.	Sanitation	17% of HH have toilets inside home; No community toilets
12.	Electricity coverage	49% electrified, 48% non-electrified, 3% illegal
13.	Cooking Fuel	Use 2 Kg firewood per person, per HH, per day; Gas: 5 Cylinders per HH per year
14.	Renewable Energy	1 (out of 9 street lamp posts) and 11 Solar lamps (for 166 HH surveyed
15.	Total HH v/s surveyed	335 HH, out of which 166 surveyed

Chapter 4 : DEMOGRAPHICS

4.1 Census Data - Secondary Data details

As mentioned earlier, the 2011 census data collected from the local Anganwadi of Saturly-Palsunde Gram Panchayat, indicated a total of 796 households. Out of these, 461 households belonged to village of Saturly (comprising of 7 padas) and 335 households belonged to Palsunda (5 padas). Overall, the total population of both these villages was 3769 people. ***Table 4.1*** details out the information gathered from the census data collected for the village of Palsunda.

Table 4.1 : Census details of the village Palsunda

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
Number of Households	Total	211	335	59
Total Population	Total	1365	1628	19
	Male	738	839	14
	Female	627	789	26
	Sex ratio	850	940	11
Population 0-6 years	Total	197	256	30
	Male	115	144	25
	Female	82	112	37
	Sex ratio	713	778	9
Population ST	Total	1330	1621	20
	Male	718	819	14
	Female	612	771	26
	Sex ratio	852	941	10
Population SC	Total	3	7	133
	Male	2	2	0
	Female	1	5	400
	Sex ratio	500	2500	400
Literate population	Total	740	683	-8
	Male	459	408	-11
	Female	281	275	-2
	Sex Ratio	612	674	10
	Percent literates			
Population illiterate	Total	625	945	51
	Male	279	431	54
	Female	346	514	49
	Sex Ratio	1240	1193	-4
Total working	Total	521	910	75
	Male	266	442	66
	Female	255	468	84

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
	Sex Ratio	959	1059	10
Main work population	Total	303	841	178
	Male	176	412	134
	Female	127	429	238
	Sex Ratio	722	1041	44
Main Cultivators (Owned/leased land) Population	Total	112	299	167
	Male	65	144	122
	Female	47	155	230
	Sex Ratio	723	1076	49
Main Agricultural labourers population	Total	141	486	245
	Male	70	230	229
	Female	71	256	261
	Sex Ratio	1014	1113	10
Main Household industry population	Total	2	5	150
	Male	2	2	0
	Female	0	3	N/A
	Sex Ratio	0	1500	N/A
Main other work population	Total	48	51	6
	Male	39	36	-8
	Female	9	15	67

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
	Sex Ratio	231	417	81
Marginal working population	Total	218	69	-68
	Male	90	30	-67
	Female	128	39	-70
	Sex Ratio	1422	1300	-9
Marginal Cultivators population	Total	85	15	-82
	Male	37	8	-78
	Female	48	7	-85
	Sex Ratio	1297	875	-33
Marginal Agricultural labourers population	Total	129	10	-92
	Male	53	2	-96
	Female	76	8	-89
	Sex Ratio	1434	4000	179
Marginal household industry population	Total	1	14	1300
	Male	0	1	N/A
	Female	1	13	1200
	Sex Ratio	N/A	13000	N/A
Marginal Other work population	Total	3	30	900
	Male	0	19	N/A
	Female	3	11	267

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
	Sex Ratio	N/A	579	N/A
Non-working population (incl. students & elderly)	Total	844	64	-92
	Male	472	29	-94
	Female	372	35	-91
	Sex Ratio	788	1207	53

Source: Census, India

4.2 Census Data – Summary Analysis

The following section provides an overview analysis from the above census data. This analysis is tabulated and conclusions summarized. The analysis has been performed in 4 different dimensions – Household & Population, Literacy, Working Population and Sex Ratio. While the contents of the table in itself are self-explanatory, we have put down our summary assessment/conclusion along with the table.

4.2.1 Household and Population Profile analysis

Overall conclusion: ***Table 4.2*** indicates that female population has shown an increase over the last census decade – this is a healthy trend in this village.

Table 4.2 : Household and Population Profile Analysis

Key Indicator	2001	2011	Decadel GR
No. of Households (n)	211	335	59%
Male Population (n)	738	839	14%
Female Population (n)	627	789	26%
Population (0-6 years) – (n)	197	256	30%
Population ST (n)	1330	1621	20%

Healthy Watch-outs Worrying

4.2.2 Literacy Profile analysis

Overall conclusion: While it is worrying that illiteracy rate is going up, the heartening part is female literacy rate is getting better compared to their male counterparts. ***Table 4.3*** shows Literacy Profile Analysis.

Table 4.3 : Literacy Profile Analysis

Key Indicator	2001	2011	Decadel GR
Male Literate Population (n)	459	408	-11%
Female Literate Population (n)	281	275	-2%
Male illiterate population (n)	279	431	54%
Female illiterate population (n)	346	514	49%

Healthy Watch-outs Worrying

4.2.3 Working Population Profile analysis

Overall conclusion: Female working population has increased over their male counterparts – the question we have to ask ourselves is - is it healthy ie. arising out of choice (availability of alternate options) or is it worrying ie. out of force/necessity (Increased cost of living). ***Table 4.4*** shows Working Population profile analysis.

Table 4.4 : Working Population profile analysis

Key Indicator	2001	2011	Decadel GR
Male working population (n)	266	442	66%
Female working population (n)	255	468	84%
Male Cultivator Population (n)	65	144	122%
Female Cultivator Population (n)	47	155	230%

Healthy Watch-outs Worrying

4.2.4 Sex Ratio analysis

Overall conclusion: It is healthy that the sex ratio is fast catching up (increase by 11%) However, it is worrying that the female illiterate population has grown over the decade. ***Table 4.5*** shows the Sex Ratio Analysis.

Table 4.5 : Sex Ratio Analysis

Key Indicator	2001	2011	Decadel GR
Ratio - Total Population (n)	850	940	11%
Ratio – Literate population (n)	612	674	10%
Ratio – Illiterate population (n)	346	514	49%
Ratio – Working population (n)	959	1059	10%
Ratio - Non-working population (n)	372	35	-91%

Healthy Watch-outs Worrying

4.3 Household Survey – Primary Data details

The following sub-sections provide detailed data analysis from the data collected during the survey. The survey sampling done from the 4 out of 5 padas of Palsunda village yielded rich insights about the demographic aspects of the village. In all, the survey was conducted on 166 households comprising of 670 villagers/residents.

4.3.1 Age Group analysis

This analysis gave us an insight of profile distribution of age-groups in the survey conducted. A few highlights of the findings include:

- 62% of the survey population, fall in the voter age-group (above 18 years)
- 9.6% were above the age of 60.
- Nearly 25% of the people belonged to the age group of Students (between 7 and 17 years)

Figure 4-1 shows a pie-chart of age-group analysis

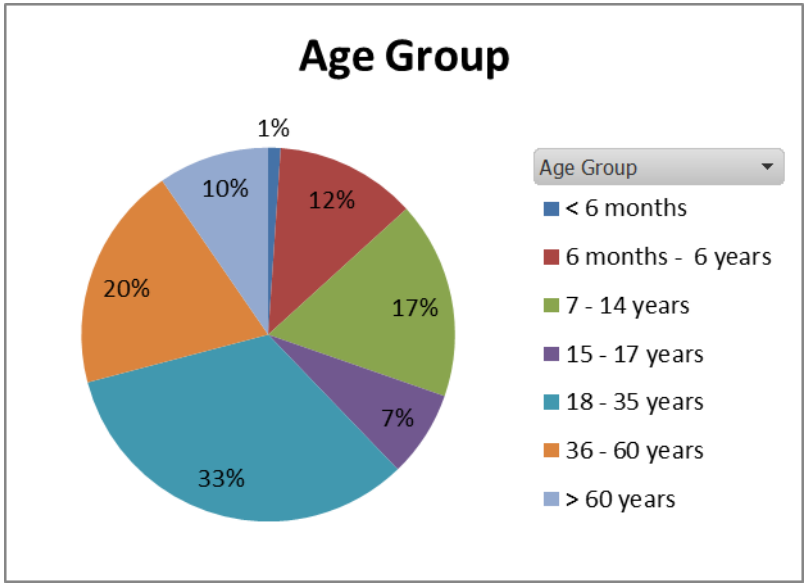


Figure 4-1 : Age Group analysis

4.3.2 Education level analysis

This analysis gave us insights on the literacy rate of the surveyed population, along with the levels of education within the community. A few highlights of the findings include:

- 30% of the surveyed population (excluding children below 5 years) were illiterate
- In the remaining 70% of literate population (people who could read or write to a certain extent), nearly 35% had not completed their education (either primary or secondary)

Figure 4-2 shows a bar-chart of the Education levels of Palsunda village

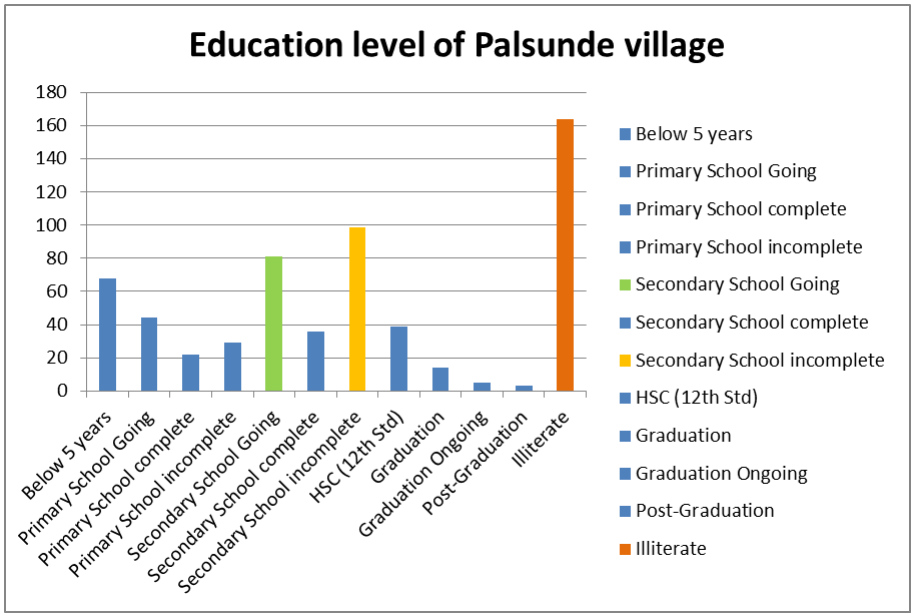


Figure 4-2 : Analysis of Education levels

4.3.3 Caste-wise Distribution analysis

This analysis gave us insights on the distribution of caste and religion of the surveyed population. A few highlights of the findings include:

- 98% of the population belonged to the Hindu community
- Palsunda village mainly constituted of the Mahadev Koli caste - 52% of the surveyed population.

Figure 4-3 provides a pie-chart of Caste Distribution in Palsunda village

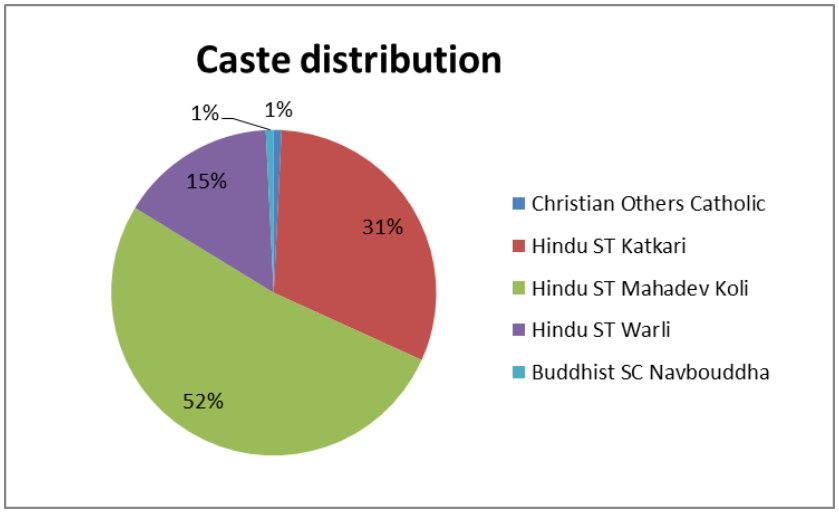


Figure 4-3 : Analysis of Caste distribution

4.3.4 Analysis of Economic profile distribution (APL, BPL Antoday)

This analysis gave us insights on the economic distribution of surveyed households, a measure of poverty levels in the village. A few highlights of the findings include:

- Only 19% of the surveyed households were Above Poverty Line (APL)
- 62% were Antoday households, while 20% were BPL households

Figure 4-4 provides the Economic profile Distribution Analysis.

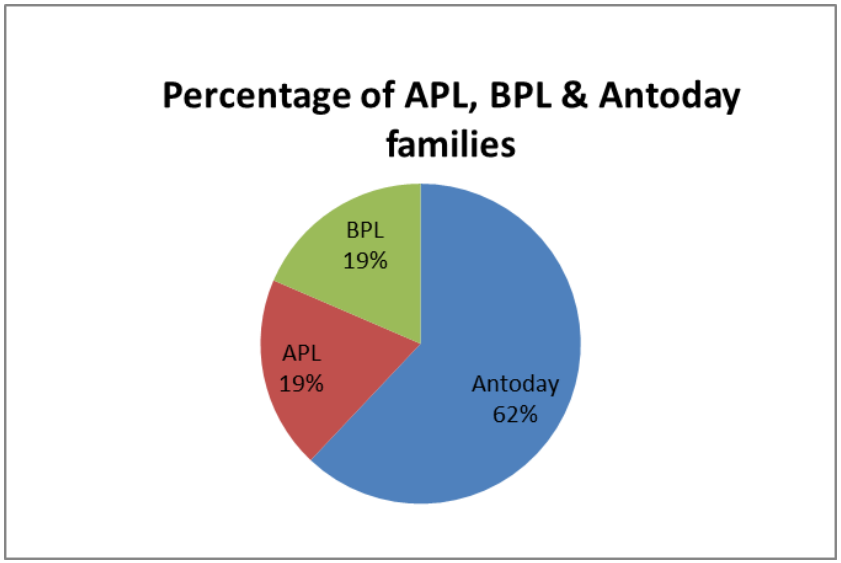


Figure 4-4 : Economic profile distribution analysis

4.3.5 Analysis of Caste-wise Occupation distribution

This analysis gave us insights on the caste-wise distribution of Occupation of surveyed households. A few highlights of the findings include:

- Nearly 51% of the surveyed population were into farming, followed by labourers (17%)
- 8% of those surveyed constituted the migrant population
- Farming as an occupation was mainly dominated by the Mahadev Kolis and Warlis (61% and 68% respectively); while the Katkaris were mainly labourers (75%)
- Nearly 10% of the population were into the Service Industry (Teaching, Social Service, Companies etc)

Figure 4-5 provides a bar-chart of Occupation Distribution by Caste.

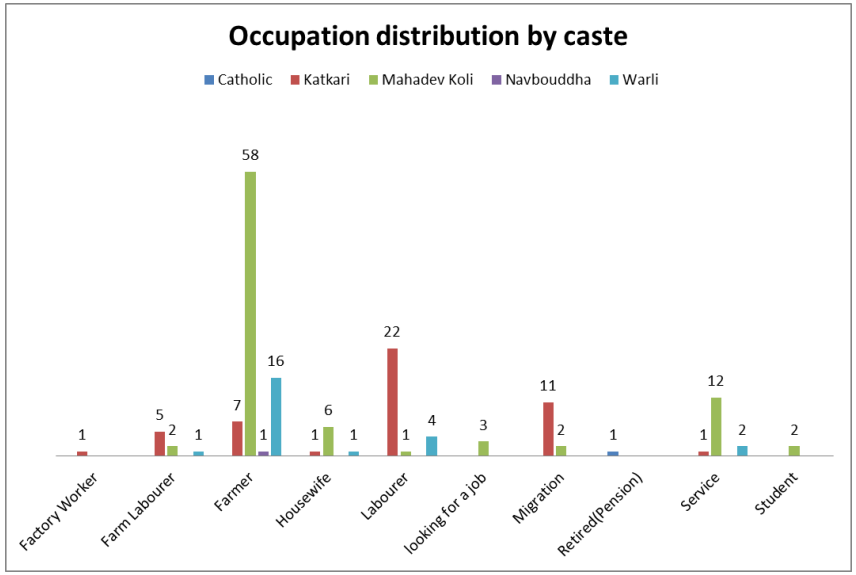


Figure 4-5 : Analysis of Occupation distribution by caste

4.3.6 Analysis of House-type ownership by Community

This analysis gave us insights into the kind of house (Pucca, Half-pucca or Kaccha) each community owned – this was also an indicator of how much better off the households were, relative to each other (a relative economic indicator of sorts). A few highlights of the findings include:

- About 60% of the households surveyed lived in Pucca or Half-pucca houses
- 78% of Mahadev Kolis lived in Pucca/Half-Pucca houses, the equivalent for Warlis was 52%, followed by Katkaris at 36%

Figure 4-6 provides analysis of the type of house owned by various communities.

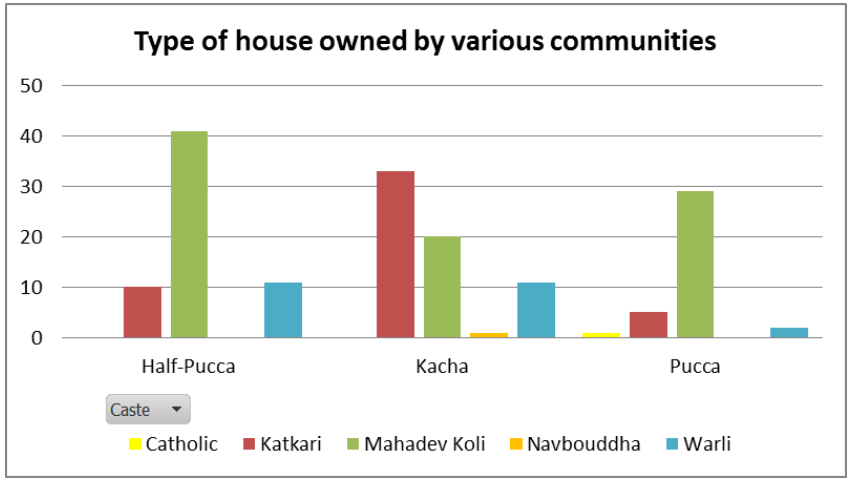


Figure 4-6 : Analysis of Type of House owned by Caste

4.3.7 Gender ratio analysis

Survey findings showed that Palsunda had a fairly even balance of male:female ratio (53:47). One thing we felt and observed was there was no bias between a male child and a female child, both were equally welcomed. Women were highly respected and had an equivalent status in the village to that of the male. ***Figure 4-7*** provides Gender Ration Analysis.

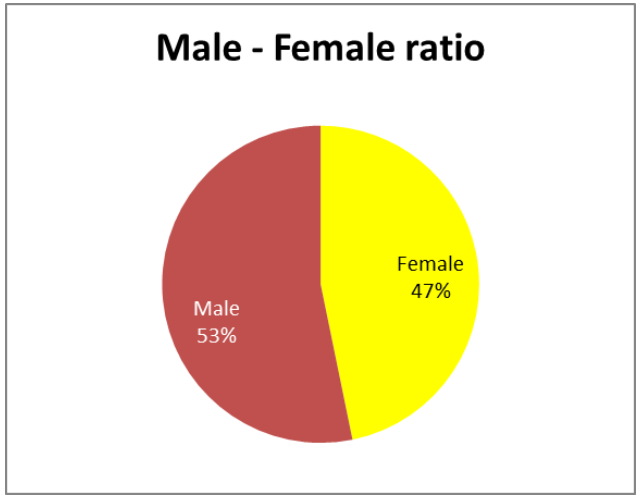


Figure 4-7 : Gender ratio analysis

4.3.8 Gender-wise House ownership analysis

Survey indicated that houses were mainly owned by male members (83%) Survey findings showed that Palsunda had a fairly even balance of male:female ratio (53:47). One thing we felt and observed was there was

no bias between a male child and a female child, both were equally welcomed. Women were highly respected and had an equivalent status in the village to that of the male. ***Figure 4-8*** shows a pie-chart of House Ownership by Gender

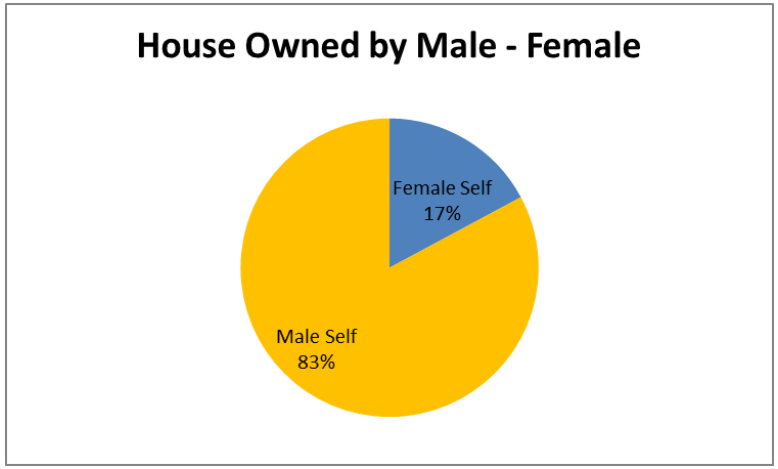


Figure 4-8 : Analysis of House Ownership by Gender

4.4 Household Survey – In Summary

Having seen the different individual cuts from the HH survey, the following section provides an overview analysis from the survey. This analysis is tabulated and conclusions summarized. Each of the characteristics are more or less analysed in 4 different dimensions – Caste, Economic Status (both of which are at household level) and Gender, Age-Group (both of which are at Individual level). While the content of the table in itself is self-explanatory, we have put down our summary assessment/conclusion along with the table.

4.4.1 Village Profile by Caste

Overall conclusion: ***From Table 4.6***, it is abundantly clear that Mahadev Kolis were way ahead compared to their counterparts (Warlis & Katkaris) in most sectors – economic, education and health. ***Table 4.6*** provides an Analysis of Village profile by Caste.

Table 4.6 : Analysis of Village Profile by Caste

Key Indicator	M. Koli	Warli	Katkari
HH Count by Caste (n)	92	25	47
Literacy analysis (%)	80%	71%	28%
Highest Way of Livelihood	Farming (61%)	Farming (68%)	Labourers (75%)
Annual HH Average Income (n) (Farming + Labourer + Services)	INR 44034	INR 31533	INR 13329
HH Health Index (%)	73%	48%	8.5%
Analysis by House-type (%) (Pucca/Half Pucca)	78%	52%	36%
Availability of Toilets (%)	36%	32%	6%

Healthy Watch-outs Worrying

4.4.2 Village Profile by Economic Status

Overall conclusion: In general, The Antodays had the poorest living conditions. Even though they showed a higher annualized Income, they were also heavily in debt due to lower literacy and awareness. ***Table 4.7*** provides an Analysis of Village Profile by Economic Status.

Table 4.7 : Analysis of Village Profile by Economic Status

Key Indicator	APL	BPL	Antoday
Count by Economic Status (n)	23	20	123
Literacy analysis (%)	74%	79%	60%
Highest Way of Livelihood	Farming 78%	Farming 49%	Farming 46%
Annual Average Income (n)	INR 51889	INR 34056	INR 66721
Health Index (%)	74%	80%	41%
Analysis of House-type (%) (Pucca/Half Pucca)	65%	90%	55%
Availability of Toilets (%)	23%	47%	25%

Healthy Watch-outs Worrying

4.4.3 Village Profile by Gender

Overall conclusion: Female literacy continued to be a concern at 55%. Lower HH Ownership also indicated their dependence on their male counterparts for their sustenance. ***Table 4.8*** provides an Analysis of Village Profile by Gender.

Table 4.8 : Analysis of Village Profile by Gender

Key Indicator	Male	Female
Count by Gender (n)	357	313
Literacy analysis (%)	73%	55%
Farming /Farm Labourers (%) Analysis	58%	53%
HH Ownership Analysis (%)	82%	18%
Issue Ranking	Water	Water

Healthy Watch-outs Worrying

4.4.4 Village Profile by Age-Group

Overall conclusion: The senior among the working age-group were mostly illiterate. The silver lining was that the next generation was conscious of the importance of education. ***Table 4.9*** provides an Analysis of Village profile by Age-group

Table 4.9 : Analysis of Village Profile by Age-Group

Key Indicator	7-17 yrs	18-35 yrs	36-60 yrs
Count by Age-group (n)	160	220	131
Literacy analysis (%)	83%	68%	52%
Highest Way of Livelihood	N/A	Farming 51%	Farming 41%
HH Ownership Analysis (%)	Above 60 23%	35%	42%
Issue Ranking – Female	Water	Well repair	Water
Issue Ranking – Male	Water	Sanitation	Water

Healthy Watch-outs Worrying

Chapter 5 : ROADS

5.1 Roads & Connectivity

Palsunda village is well connected by road with some of the larger towns of Mokhada (11 Kms) and Khodala (18 Kms). These tar (pucca) roads are well laid out and maintained. The villages of Saturly and Palsunda are 5 Kms apart by road.

Having said that, most of the villagers travel by foot from one village to another, through hilly terrain – this is primarily because distance by roads are longer and road transport connectivity between villages is very intermittent.

Within the village itself, while roads leading to the Ashram Shala (a distance of 2.7 Kms) are all pucca roads, the pathway to the fields are kuccha roads. Internally, the total length of the pucca road is 2.4 sq. kms, and that of the kuccha road is 5 sq. kms. These roads were constructed under the programs of PWD and NREGA.

5.2 Transportation

While public transport passes through the outskirts of the village, there is no public transport bus halt in the village, neither does the village have a bus stand. Residents of the village would need to walk 1 Km. The public bus frequency is very limited – once every two hours – and fares to Mokhada and Khodala are Rs. 8 and Rs. 12 respectively. The private jeep pick-up frequency is half to one hour depending on the time of the day – and fares to Mokhada and Khodala are Rs. 10 and Rs. 25 respectively. In light of this, most residents prefer to use private operators as the difference in fares is not significant. However, public transportation offers great discounts to school going children – while for girl children travel by public transportation is free, for boys they have to pay only 33% of the fares. Thus, public transportation is mainly used by school going children. A strategy that private operators use for increasing passenger throughput is to arrive near the bus stop around the time that private buses would arrive. The first bus to Mokhada is 7:15am and the last bus returning from Mokhada is 6pm. After these times, it is very difficult to get transportation facilities to and fro from Palsunda.

Other modes of transportation include Two-wheelers, Jeeps, Motor cars and Tractors. ***Table 5.1*** provides additional information on Private vehicles used in the village

Table 5.1 : Additional Information on Private vehicles

Type of Private Vehicle	Diesel vehicle count	Petrol Vehicle Count
Two Wheelers	**--**	**10**
Motor Cars	--	**2**
Jeeps	**3**	--
Tractors	**2**	--
TOTAL no. of vehicles	**5**	**12**

:

Chapter 6 : WATER RESOURCES & WATER SUPPLY

6.1 Introduction - Village Profile

Gram Panchayat of Saturly-Palsunde has two main sources of water – the rivers of Pinjal and Wagh. In addition, it also has one lake, one pond and two tanks (ESR). Palsunda is surrounded on 3 sides by Pinjal river and its tributaries and is the primary source of water – the village has no lakes or pond. River Pinjal's origins are as a result of technical leakage of Khoch dam. Despite the fact that this river is a perennial source, Palsunda continues to face water scarcity - the primary reason being the village terrain. During monsoon, the region faces very heavy soil erosion, as a result of which water becomes muddy, rendering it unusable.

For the purposes of irrigation, farmers manually collect water from the river. A pump was erected to make it easier on the farmers as part of the Single Village Scheme by Zilla Parishad, however this has been defunct for nearly one year. However, very recently, villagers had collected personal funds from the residents for helping to maintain the pump. Additionally, for irrigation purposes, in Pulachiwadi (a nearby village), 7 farmers have come together on their own and installed a pump of 7.5 HP, as such there is no supply scheme by the government.

For drinking purposes, people use wells spread across the village. In all, at the Gram Panchayat level, there are a total of 17 open wells (8 public and 9 private) with an average depth of 5.7 meters and diameter of 4.6 meters. However, these wells dry up by mid-march, making life difficult for the villagers. In addition to the above, the women-folk in the family make an average of 4 trips, with 2 handis of 9 litres each. (The measurements were actually carried out using Bisleri bottles of 1 litre each). This water is only used for drinking, cooking and bathing, not for washing. Clothes are usually washed weekly in the nearby river, about 2 kms walk each way.

While there are 9 handpumps in the entire Gram Panchayat, 4 are available in Palsunda village, all constructed under the program of Tribal development. Handpumps are not used for household consumption – there is one handpump in Aganwadi – this is strictly for use for children.

The Gram Panchayat does not have water treatment facility hence for purification of well water, they use bleaching powder.

A few initiatives have been taken for Water conservation, including building of 4 Cement Nala checks (year of construction – 2007 to 2013), 3 Mud Nala checks (year of construction – 2004 to 2013) and 2 farm ponds.

Water tax is fixed at Rs. 75 per HH per year.

6.2 Water Resources

Table 6.1 gives information pertaining to the various sources of water

Table 6.1 : Information pertaining to the various sources of water

Sr.No.	Name	Palsunad /Saturli	GPS	Code	Habitation	ID	Water Table	Depth	Water Level	Condition
1	Navi Vihir	Palsunda			NW	6.15		9.7		Dry
2	Juni Vihir	Palsunda			NW	3.37		2.4		Dry
3	Varchi	Palsunda		WD1	P	2.82	3.9	4.37	0.47	Used
4	Ganpati	Palsunda			P	2.15	4.65	6.35	1.7	Less Used
5	Khalchi Vihir	Palsunda			P	3.45	2.6	4.42	1.82	Less Used
6	Dawra	Palsunda			P	5.6		2.6		Dry
7	Sable	Palsunda	123		P	5.3	2.72	3.1	0.38	Broken
8		Palsunda	129		SM	6.27	3.85	5.2	1.35	Drinking
9	Nadichi	Palsunda			SM	2.47	3.63	6	2.37	Tanker-fed
10		Palsunda			SM	6	7.9	8.05	0.15	Almost Dry
11		Palsunda			SM	5.91	6.6	6.6	0	Almost Dry
12	Khalchi Vihir	Palsunda	42	WD2	VV	4.6	6.5	6.6	0.1	Almost Dry
13	Varchi Vihir	Palsunda	43	WD2	VV	7.5		9.55		Dry
14	Page	Palsunda			VV	5.8		5.35		Dry
15		Saturli	107		AP	4.9	5.98	5.98	0	Almost Dry
16		Saturli			AP	3	2.5	2.6	0.1	Almost Dry
17	Mondkar	Saturli			Ap	5.87	2.7	3.05	0.35	Not used
18		Saturli	83		BP	6	5.05	6.8	1.75	Used
19		Saturli			BP	3.97	6.7	7.55	0.85	Used
20	Shingade	Saturli	93		BP	5.7	6.3	6.7	0.4	Almost Dry
21	Devul	Saturli			BP	2.95		3.8		Dry
22		Saturli			BP	5.2	1.25	4.15	2.9	Used
23		Saturli	76		BTP	4.17	4.72	6.1	1.38	Used
24	Lacchke	Saturli			BTP	4.35	3.5	3.8	0.3	Almost Dry
25	Bayari	Saturli			BTP	6.1		4.45	0	Dry
26	Mate	Saturli			BTP	4.85	2.7	3.95	1.25	Used
27	Janathe	Saturli			CP	5.82	4.6	6.55	1.95	Used
28	Seth	Saturli	71		CP	6.28	15.25	>		VERY DEEP
29	Thakur	Saturli			CP	6.15	4.4	5.35	0.95	Used
30		Saturli			GP	6.9	4.47	6.03	1.56	Used
31		Saturli			GP	5		6.08		Dry
32	Juni Vihir	Saturli			GP	3.4		2.25		Dry
33		Saturli			GP	6.5	4.68	5.4	0.72	Used
34	GP vihir	Saturli			JW	6.55	4.6	5.35	0.75	Less Used

These water resources are mapped using GIS as shown in ***Figure 6-1***

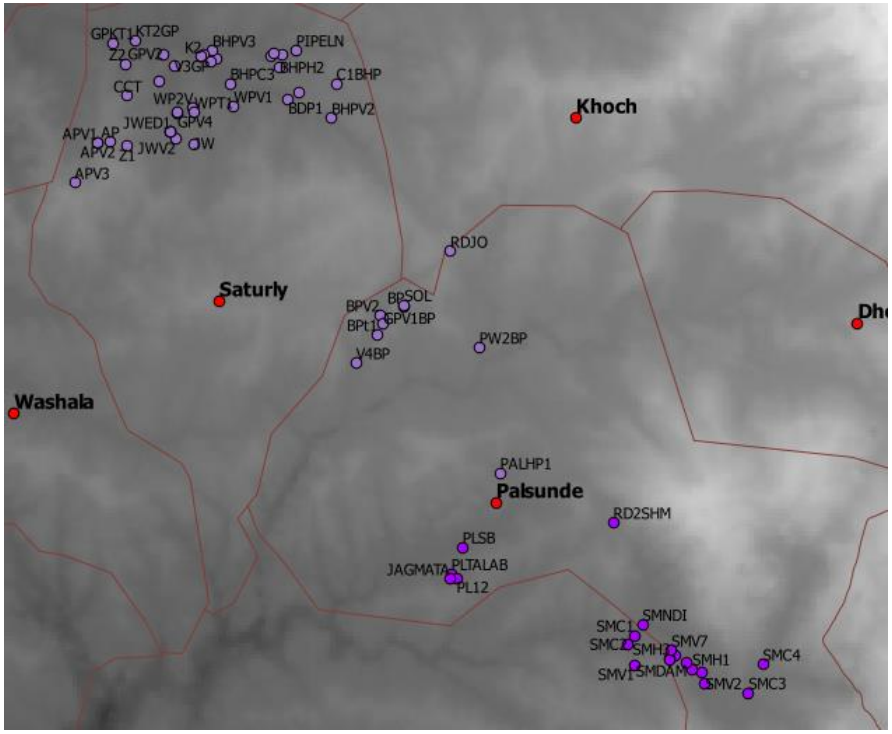


Figure 6-1 : Water sources of Palsunda village mapped on base map

6.3 Water Supply

In 1992, the Zilla Parishad sanctioned Drinking Water Supply Scheme (DWSS) for Ashram Shala, as part of which 3 standposts were commissioned. The ESR had a capacity of 10,000 litres with a rising main of 1.5 Kms – the jackwell is around 1.5 Kms from the Palsunda village. While this arrangement of water supply with Ashram Shala continued for 3 years, however, due to high electricity costs Ashram Shala asked the villagers to separate the DWSS. Villagers on their own approached the contractor to extend the DWSS to them, which the contractor did so at his own expense. 7 standposts were commissioned plus 2 additional in Nikamwadi. Since these were independently done by the villagers, the Gram Panchayat disowned them. In addition, there were several technical flaws in the DWSS. The pipeline from ESR to the Main Distribution point was 2.5 inches, whereas the pipeline after distribution was 3 inches. These and similar technical flaws in the DWSS, caused problems of perennial leakage and no one was willing to spend any money for fixing the leakage. This leakage in turn caused the 5 Hp motor to fail. Recently an application has been sent to BDO for undertaking repairs of the pump as well as for fixing the leakage.

Palsunda village currently does not have any water supply scheme for drinking water. Until a year and a half back, there was a drinking water supply scheme for villagers. It had a 5 HP pump (name of the manufacturer could not be ascertained since it was not readable). It is no longer in use.

Schematic layout of the defunct water supply scheme in ***Figure 6-2***

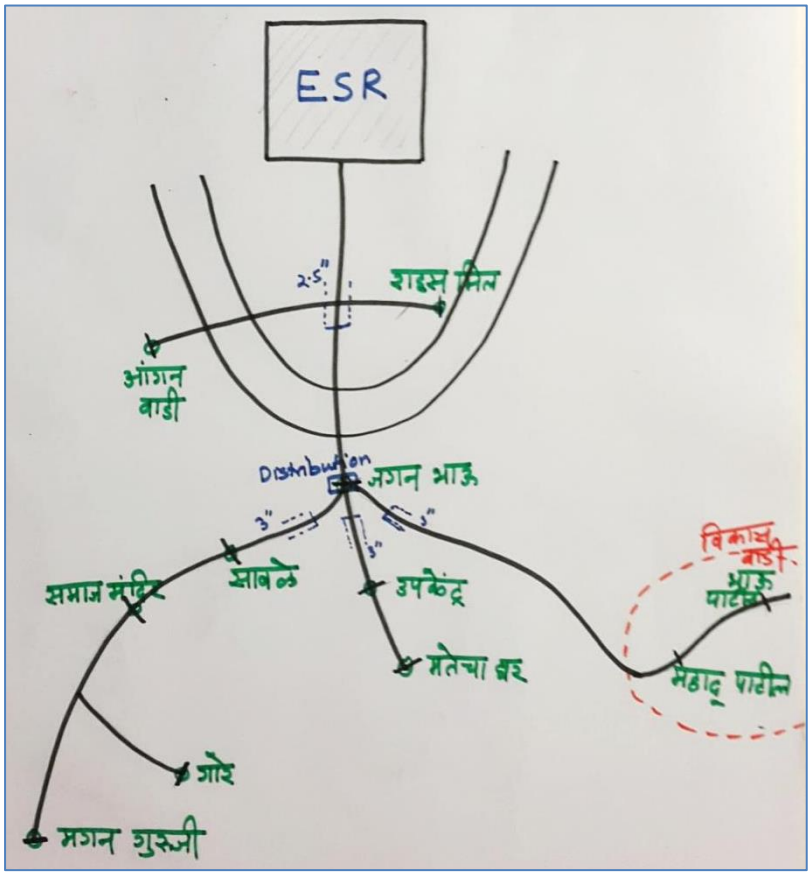


Figure 6-2 : Schematic Diagram of defunct Water Supply Scheme

As shown in the ***Figure 6-1***, the main pipeline from the ESR is of 2.5 inches whereas the pipeline after distribution hub is of 3 inches. This resulted in water straight away going to the last point (point - magan guruji as shown in the figure). This further led to leakage and frequent motor repairs. Thus made it unviable for the villagers to maintain the same and hence from last one and a half year, water supply scheme is no longer in use.

For irrigation purpose, a Samrat-Erwin pump of 7.5 HP is being shared among seven big farmers. This is the only irrigation pump being used in the village. Total cost of the pump including installation cost was around INR 90000. It currently serves a head of 80-85 feet and has a capacity to serve 320 feet head. It has a water extraction rate of 350 litres per minute. The ESR main from pump to NRV (non-return Valve) is of 45m and 2.5 inches in diameter. The pipe from the NRV to the farms is about 360m in length and 3.0 inches in diameter.It is run every 3rd day and for 9 hours.

6.4 Water Consumption

Average water consumption in Palsunda is around 120 litres per HH per day. As shown in ***Figure 6-3***, ***Figure 6-4*** and ***Figure 6-5***, Warli and Mahadev Koli consume maximum water; APL and BPL consume more water and people living in Pucca & Half-Pucca consume more water.

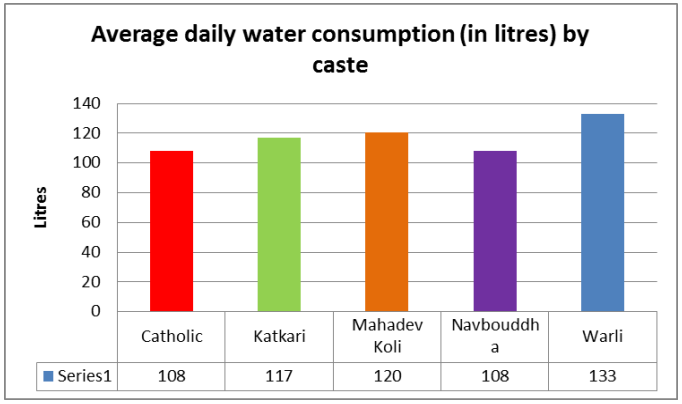


Figure 6-3 : Average daily water consumption by caste

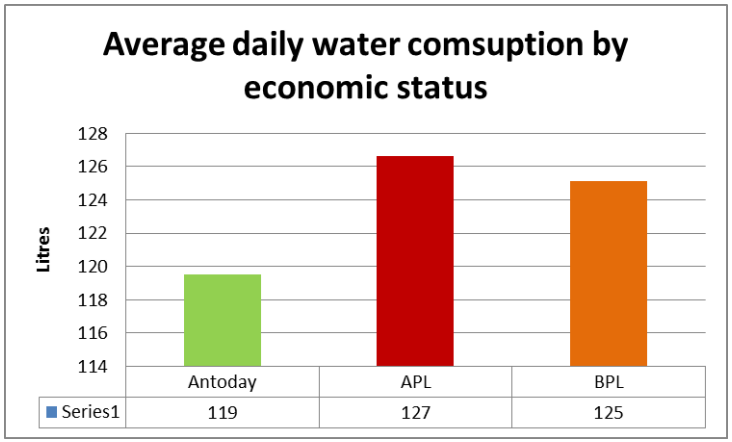


Figure 6-4 : Average daily water consumption by Economic status

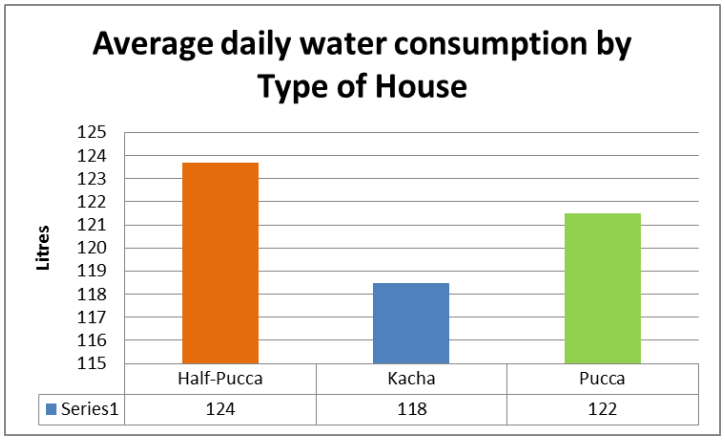


Figure 6-5 : Average daily water consumption by type of house

This shows that water consumption is higher in economically well-off houses.

Chapter 7 : SANITATION

7.1 Introduction – Village Profile

The following section covers information pertaining to Sewage (Human and Industrial) handling, Sewage Disposal and Sewage Treatment. In addition, it also covers bath facilities available in the village as well as Solid Waste Management (Collection and Disposal).

The total number of individual toilet households sanctioned in the village was 53. Palsunda village had no community toilet households and no sewage disposal method. There were also no sewage treatment plants. Most Sewage disposal was open.

Bathing facilities were available in all households in Palsunda, however the Bathwater disposal facility were Open Drains.

Additionally, there were no active Waste Management observed in Palsunda village, both in terms of collection and Disposal.

7.2 Sanitation details from Household Survey

The household survey conducted in Palsunda village indicated that Mahadev Kolis were a fairly good representation of sanitation facilities available for the entire village.

7.2.1 Availability of Toilet facilities – Analysis by Caste

This analysis gave us insights on the availability of Toilet facilities, caste-wise. A few highlights of the findings include:

- 27% of the households surveyed had toilet facilities
- Mahadev Kolis constituted the majority proportion of this 27%. (72%) – this is consistent with the finding that Mahadev Kolis were the caste that were more well-off and had better household amenities compared to other castes in the village

Figure 7-1 shows a bar-chart indicating availability of toilets by Caste.

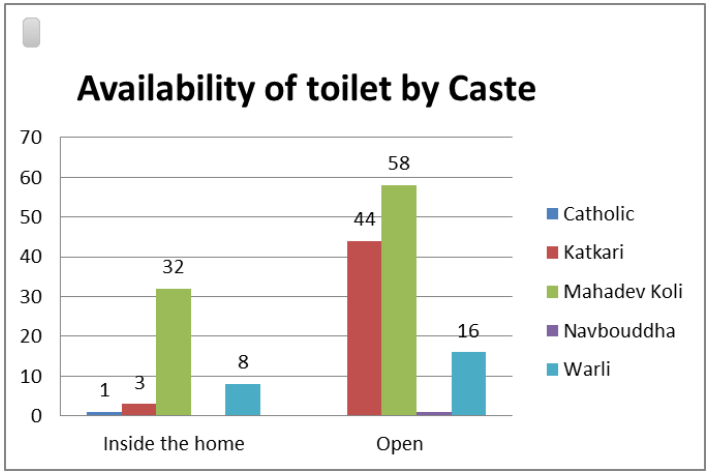


Figure 7-1 : Availability of Toilet facilities – by Caste

7.2.2 Availability of Toilet facilities by House-type - Analysis

This analysis gave us insights on the availability of Toilet facilities, by type of House. A few highlights of the findings include:

- 65% of the pucca houses had toilet facilities inside the house compared to other types of houses, followed by 25% of the half-pucca houses, followed by kacha houses (less than 1%)
- Looking at it differently, 55% of pucca houses had toilet facilities and 45% did not. Similarly, 36% of half-pucca houses had toilet facilities and 64% did not. Less than 1% of the kacha houses had toilet facilities inside the house

Figure 7-2 indicates the availability of toilets by House type.

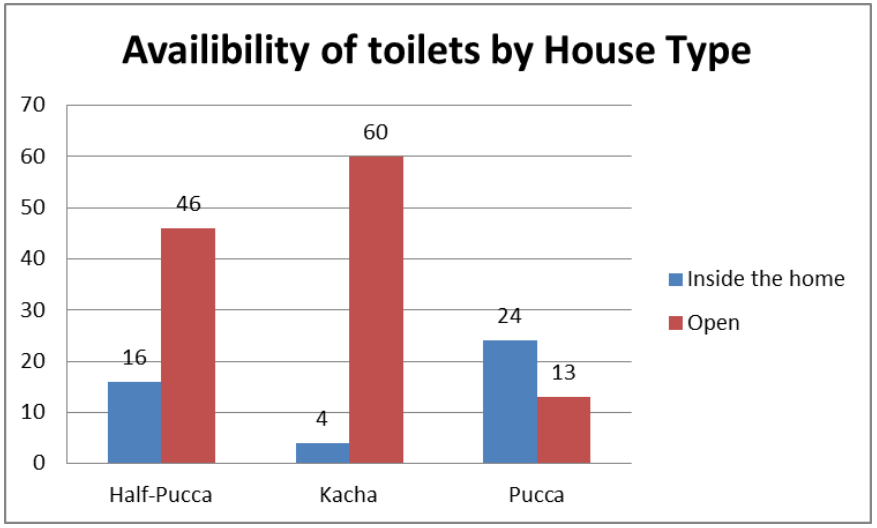


Figure 7-2 : Availability of Toilets – by House-type

7.2.3 Garbage disposal Analysis

This analysis gave us insights on the garbage disposal patterns of surveyed household. A few highlights of the findings include:

- 94% of the households surveyed, dumped garbage in the open.
- Very few (less than 6%) used alternate ways of disposing garbage (Composite Pit and Burning)
- The survey findings are consistent with what we observed during our stay in the village

Figure 7-3 indicates the Garbage Disposal method in the village of Palsunda

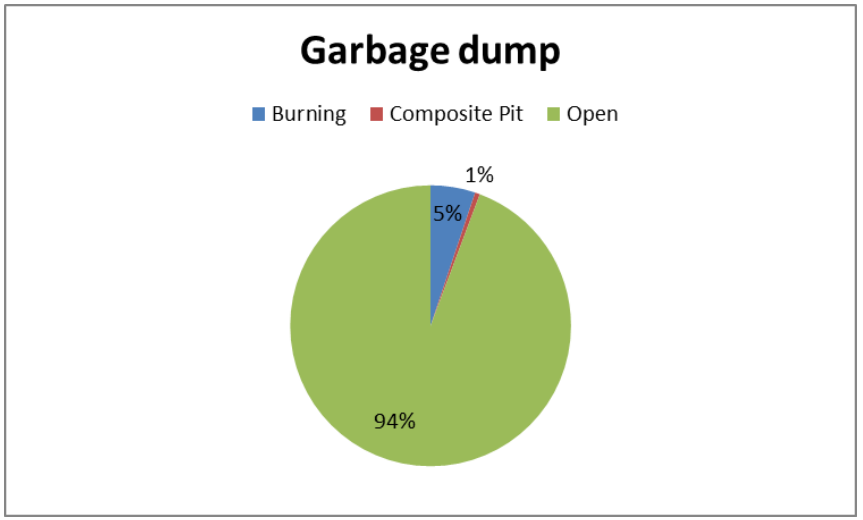


Figure 7-3 : Garbage Disposal method

7.2.4 Wastewater disposal Analysis

This analysis gave us insights on the wastewater disposal patterns of surveyed household. This is very similar to the garbage disposal patterns observed in the earlier section:

- 98% of the households surveyed, did not have a drainage mechanism to dispose of wastewater – the 2% that did, used soak-pits
- The survey findings are consistent with what we observed during our stay in the village

Chapter 8 : ENERGY

8.1 Introduction

Energy is one of the most important key factors in human and economic development. Energy is used in our daily activities like lighting, cooking, and access to clean water, agriculture, education, transportation, environmental sustainability and employment generation.

Energy demand, in all spheres of life, and in all sectors, is on a steady rise including rural areas. Its demand in rural areas is mostly in the areas of domestic cooking, lighting and agriculture. The availability and consumption of energy influences the socio-economic profiles of people. Inefficient use of chulhas and usage of biomass for cooking puts a heavy pressure on already declining vegetation. Irregular power supply and frequent power cuts have a direct effect on agriculture, livelihood and education in rural areas. Also, energy use pattern differs widely even within a village between the existing scenario, land use pattern and demographic structures. Thus, it is important to study the consumption patterns in a village which can be a good indicator to judge the economic development of a village.

The main objectives for our rural energy survey were:

- To identify different sources of energy
- To collect information about livelihoods, agriculture, live stocks, and transportation
- To understand socio-economic profile of the Palsunda village
- To analyse energy consumption pattern of the villagers

Palsunda village got electrified in the year 1977. At present, only 49% of Palsunda village is electrified. According to our house hold survey (sample size: 166), 48% of house hold had no connections. During household survey, people weren't open to admit illegal connections and hence these households got reported under no connection. However, during PRA activity of making social map, villagers pointed out each other's house as "Aakda" (illegal) connection which visibly seemed to be far more in number than the 3% of illegal connection reported. We could not ascertain the exact number of illegal connections.

The average electricity bill is INR 105 per house hold. The electricity tax ranges from INR 10 to INR 30.

There were regular and daily power cuts between the hours – 6.00 a.m. to 9.a.m and then 12.00 noon to 3 p.m. and from 7 p.m. to 9 p.m., amounting to 8 hours of daily power cut. During monsoons, power cuts were more prevalent and sometimes it would last for days.

There was no significant usage of renewable energy sources like solar, hydro or wind. Only one street lamp out of 9 was solar. There was only one biogas unit in entire village.

Broad categorization on the basis of energy utilization, village can be divided into energy consumption using electricity and non-electricity energy consumption. It can be further divided into energy used for lighting, cooking, heating, other house hold amenities and energy used in other establishment like in rice mill, flour mill etc.

Villagers used CFLs, Incandescent bulbs, tubelights, solar lamps, and kerosene for lighting purposes. For cooking purpose, 92% of households used firewood as a prime source of energy supplemented by cow dung cakes. 7% used LPG and only 1% used biogas. For water heating purpose mainly firewood was used. There were only three HH with water heater (storage type). Other household amenities included TV, Refrigerator, Mixie and Mobile. There were two flour mills and one rice mill in the village. The flour mills used diesel and rice mill used electricity. There were only 2 tractors in the village that were used for agricultural purpose.

Mobile, Television and CFLs were the top three amenities that villagers used.

8.2 Energy Consumption

Figure 8-1 shows the various amenities used in Palsunda village.

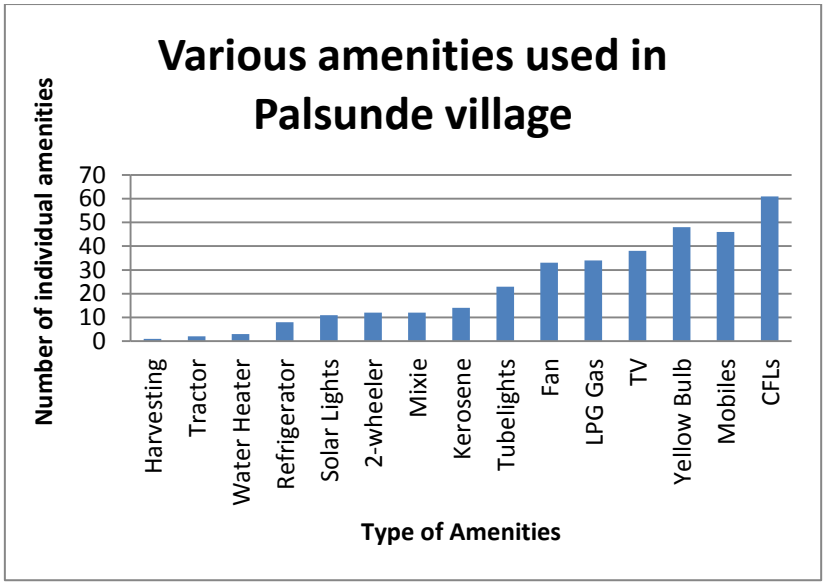


Figure 8-1 – Amenities used in Palsunda Village

Maximum number of CFLs followed by mobiles and incandescent lights are used.

8.2.1 Lighting

CFL, Incandescent lights, Kerosene and solar lamps were primary lighting devices used in the village. Four houses had inverter which was mainly used for lighting purpose only.

Table 8.1 shows various sources of energy for lighting used by the households. It shows total number of HHs using various lighting sources.

Table 8.1 – Sources of Energy for lighting

CFLs	**61**

Kerosene	30
Solar Lights	11
Tube lights	23
Incandescent lights	48

Most households used CFLs followed by incandescent lights for lighting purposes.

8.2.2 Cooking

For cooking purpose, 89% of villagers used firewood and dung cake as primary source of fuel. Only 11% use LPG gas and 1% use biogas. There wasn't single instance of usage of electricity for cooking purpose.

Table 8.2 shows Types of fuels used for cooking and their daily usage.

Table 8.2 : Types of fuels for cooking and daily usage

Sources of fuel (in units)	No. of HH	Cooking fuel Qty (in units specified under *sources of fuel)*	Cooking fuel Qty (unit/ day))
Biogas (cu.m)	1	2	2
Fire wood (Bullock Cart)	153	493	11
LPG (cylinders)	12	116	0.2

Note:

- There was only one family of two people who were using biogas. They mentioned that on an average they were producing 2 m^3 of biogas per day.
- 1 Bullock cart is equivalent to 404 Kgs. (Reference: National Children's Science Congress (Maharashtra) 2013.
- 1 cylinder holds 14.2 Kg of gas.

Figure 8-2 depicts the various sources of fuel used for cooking.

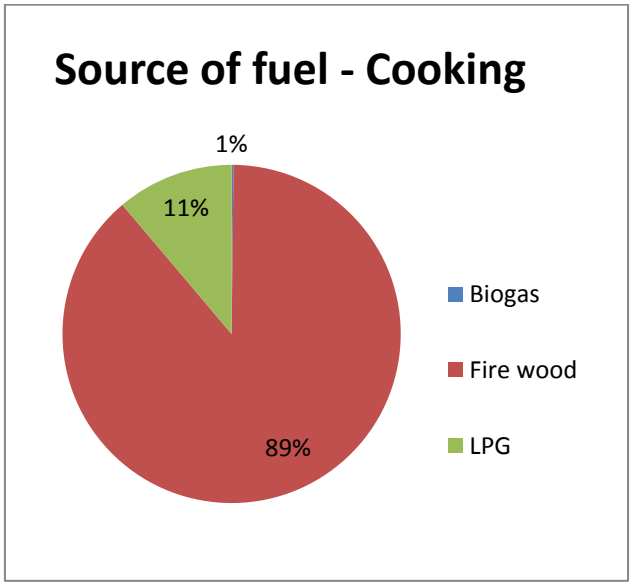


Figure 8-2 : Source of Fuel for cooking

8.2.3 Heating

Villagers of Palsunda use heated water for bathing throughout the year. Heating of water is done by usage of firewood and dung cakes. There was no solar heater in the village. There were only three households with water heater (storage type) facility. LPG was almost never used for heating water.

8.2.4 Pumping & Ploughing

Palsunda village currently does not have any water supply scheme for drinking water. Until a year and a half back, there was a drinking water supply scheme for villagers. It had a 5 HP pump (name of the manufacturer could not be ascertained since it was not readable). It is no longer in use.

Schematic layout of the defunct water supply scheme is shown in ***Figure 8-3***.

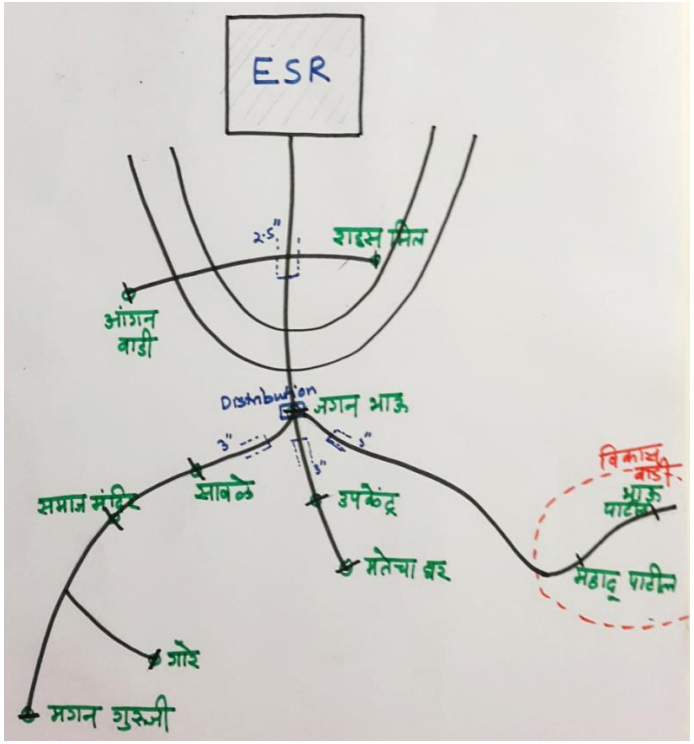


Figure 8-3 : Schematic layout of existing water supply

As shown in the ***Figure 8-3***, the main pipeline from the ESR is of 2.5 inches whereas the pipeline after distribution hub is of 3 inches. This resulted in water straight away going to the last point (point - magan guruji as shown in the figure). This further led to leakage and frequent motor repairs. Thus made it unviable for the villagers to maintain the same and hence from last one and a half year, water supply scheme is no longer in use.

For irrigation purpose, a Samrat-Erwin pump of 7.5 HP is being shared among seven big farmers. This is the only irrigation pump being used in

the village. Total cost of the pump including installation cost was around INR 90000. It currently serves a head of 80-85 feet and has a capacity to serve 320 feet head. It has a water extraction rate of 350 litres per minute. The ESR main from pump to NRV (non-return Valve) is of 45m and 2.5 inches in diameter. The pipe from the NRV to the farms is about 360m in length and 3.0 inches in diameter.

It is run every 3rd day and for 9 hours.

8.2.5 Transportation

People in Palsunda village use various mode of commuting. People use bicycle, two-wheeler, car, truck, private jeeps, public transports like bus and tempo.

With our sample size of 166 households, 10 people in village have two-wheelers and 2 of them have four-wheelers.

8.2.6 Other Amenities

Other house hold amenities included usage of 2-wheeler and 4 wheeler, Harvesting equipment, tractor, water heater, Refrigerator, Mobile and Mixie. Detailed energy calculations are shown in Section 8.3 “Electricity Consumption at Village level”.

8.2.7 Other institutions

There are two flour mills which uses diesel and not electricity. There is one rice mill which runs on electricity. Apart from this, there are two Z.P school and a pump for irrigation.

8.3 Electricity consumption at Village level

The total electrical energy consumption for Palsunda village is 168.7 MWH, which has 335 households.

Table 8.3 shows electricity energy consumption calculations at village level.

Table 8.3 : Energy Calculation for Palsunda village - Electricity

Energy Calculations for Palsunda Village (335 Households) - Electricity						
Amenities	Rating (in Watts)	Total no. of devices	Total Watts	Average Daily usage (in Hrs)	No of units/day (KW-H)	Total Village Annual Electrical Energy consumption (KW-H)
CFLs	18	61	1098	4.22	4.6	3970.0
Tubelights	52	23	1196	4.13	4.9	3966.7
Incandescent bulb	60	48	2880	4.23	12.2	10933.9
Fan	75	33	2475	7.17	17.7	10452.6
Mixie	250	12	3000	0.48	1.4	870.3
TV	80	38	3040	4.04	12.3	8500.1
Refrigerator	100	8	800	11.71	9.4	5255.1
Mobiles	4	46	184	1.06	0.2	111.2
Water Heater	1000	3	3000	1	3.0	1816.3
Total (I)						**45876.1**

Note: Annual electricity consumption is calculated based on following assumptions:

1. Since HH survey captured was for daily usage of electricity in hours for various appliances, the annual electricity consumption is calculated on the basis of:

    a) Katkari Caste people availability for only 120 days in a year
    b) Other castes average usage of electrical appliances for 300 days (assuming during raining season there is black out for most of the time)

2. Appliance ratings are based on Tata Power consumption guidelines (https://cp.tatapower.com/customer_care/save-energy/conserve/power-consumption-guidelines.aspx). Details are mentioned in the appendix.

Table 8.4 : Consumption of Electricity of non-HH entities.

Others						
Amenities	Rating (in Watts)	Total no. of establishments	Total Watts	Daily usage (in Hrs)	No of units/day (KW-H)	Total Village Annual Electrical Energy consumption (KW-H)
Z.P School - Tubelight	52	4	208	6.25	1.3	951.8
Irrigation Pump (7.5 HP)	5588	1	5588	3.0	16.8	12273.3
Solar Street Lights	12	2	24	12.0	0.3	210.9
Rice Mill - Motor 1 (25 HP)	18625	1	18625	7.0	130.4	95458.7
Rice Mill - Motor 2 (3 HP)	2235	1	2235	7.0	15.6	11455.0
Rice Mill - Incandescent bulb	100	5	500	7.0	3.5	2562.6
Total (II)						**122912.4**
Total (I + II)						**168788.5**

The electrical energy consumption for usage of household amenities is 45.87 MWH and that of other, non-household entities like rice mill, school etc. is 12.3 MWH. The consumption for non-HH entities is shown in ***Table 8.4***

8.4 Non-electricity energy consumption at Village level

Non electricity energy consumption for Palsunda village is 6644 GJ. This includes domestic cooking, transportation and commercial establishment not using electricity but instead using diesel or petrol.

Tables 8.5, 8.6 and 8.7 show the detailed energy calculations – Non electricity for Household, Commercial and Vehicle Transportation respectively.

Table 8.5 : Energy Calculations for Palsunda village – Non-electricity

Energy Calculations for Palsunda Village (335 Households) - Non Electricity							
Appliance	Resource (in Units)	Cal Value (kcal/kg)	Cal value (kJ/kg)	Annual Fuel quantity (in Units) for surveyed HH	Annual Energy Consumption for surveyed HH (GJ)	Density (kg/l)	Annual Energy Consumption for village (GJ)
Chulha	Wood (Kg)	3500	14700	199172	2927.83		5909
Gas Stove	LPG (Kg)	11990	50358	1647	82.95		167
Kerosene	Kerosene (Litres)	10000	42000	3187.2	133.86	0.8	270
Biogas	Cow Dung (cu.m)	5350	22470	730	16.40		33
Total (III)							**6379**

Table 8.6 : Energy Consumption for Commercial Establishment

Commercial establishment							
Appliance	Resource (in Units)	Cal Value (kcal/kg)	Cal value (kJ/kg)	Annual Fuel quantity (in Units) for surveyed HH	Annual Energy Consumption for surveyed HH (GJ)	Density (kg/l)	Annual Energy Consumption for village (GJ)
Flour Mills (2 in No.)*	**Diesel**	10000	42000	**3029.5**	127	0.83	127
Total (IV)							**127**

* Both flour mills had motors of 12 HP but since it runs on diesel, HP ratings have not been considered for calculations

Table 8.7 : Energy Consumption for Vehicle Transportation/ Agriculture

Vehicle - Transport/Agriculture							
Appliance	Resource (in Units)	Cal Value (kcal/kg)	Cal value (kJ/kg)	Annual Fuel quantity (in Units) for surveyed HH	Annual Energy Consumption for surveyed HH (GJ)	Density (kg/l)	Annual Energy Consumption for village (GJ)
Harvesting	Diesel	10000	42000	101	4	0.83	4
Tractor	Diesel	10000	42000	202	8	0.83	17
2-wheeler	Petrol	10800	45360	183	8	0.75	17
4-wheeler	Petrol	10800	45360	1095	50	0.75	100
Total (V)							**137**
Total (III + IV + V)							**6644**

Assumptions and references:

- During HH survey, basic unit for firewood was captured in Bullock Carts (BC) as specified by the villagers. As per a study conducted by *National Children's Science Congress (Maharashtra 2013)* (See Appendix foe details), 1 Bullock Cart = 404 Kgs of firewood.
- During household survey, people mentioned the number of bullock carts of firewood needed during monsoon (4 months). Hence, a factor of 3 has been used to arrive at yearly consumption of firewood in Bullock cart unit for all castes except Katkaris, where it has been kept as is, since they stay in village for only 4 months.
- Calorific value has been taken from http://www.indiasolar.com/cal-value.htm

8.5 Renewable Energy Sources

There was hardly any form of renewable energy usage in Palsunda except for one solar street lamp (12 watts) and 11 HH solar lamps (all solar lamps were of SOUL, IIT B distributed by BAIF).

Annual solar energy consumption at village level was 79.1 KWH.

Aashram Shala had 6 solar panels installed of 5 KW each but it was not in use. People of Ashram Shala were using it for drying their clothes as shown in ***Figure 8-4.***

Table 8.8 shows the energy calculations for Palsunda village (Solar)

Table 8.8 : Energy calculations for Palsunda Village - Solar

Energy Calculations for Palsunda Village (335 Households) - Solar						
Amenities	Rating (in Watts)	Total no. of devices	Total Watts	Average Daily usage (in Hrs)	No of units/day (KW-H)	Total Village Annual Solar Energy consumption (KW-H)
Solar Lamps	0.5	11	5.5	3	0.017	8.4
Solar Street Lamp	12	1	12	8	0.096	70.7
Total (I)						**79.1**

Figure 8-4 : Solar Panels at Ashram Shala

8.6 Energy flow diagram

Figure 8-5 shows the energy flow diagram for Palsunda village:

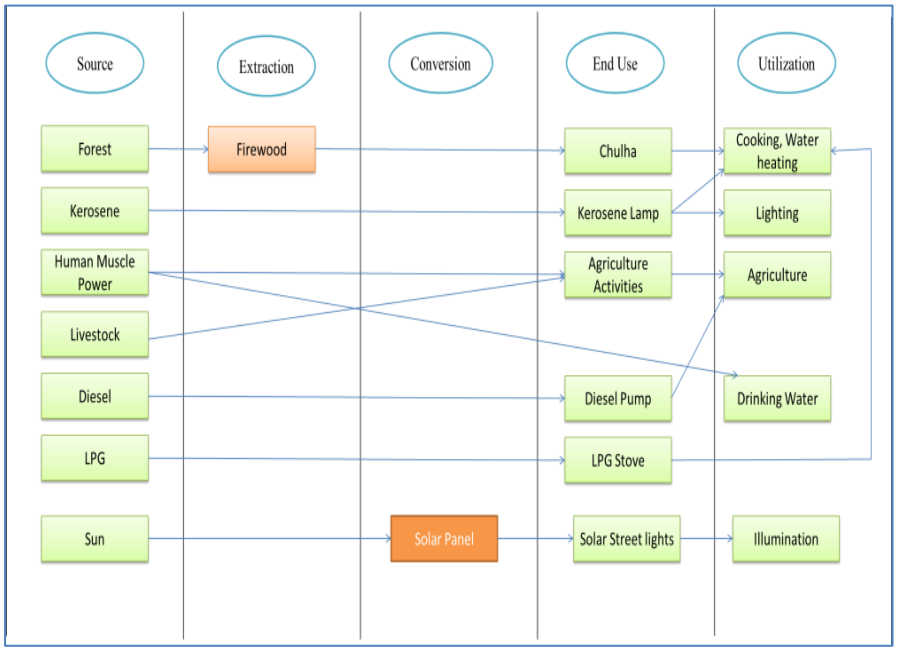


Figure 8-5 : Energy Flow diagram for Palsunda village

8.7 Household Survey – In Summary

Having seen the different individual cuts from the HH survey, the following section provides an overview analysis from the survey for Energy Sector. This analysis is tabulated and conclusions summarized. Each of the characteristics are more or less analysed in 4 different dimensions – Caste, Economic Status, House-type and HH v/s Commercial Establishment. While the content of the table in itself is self-explanatory, we have put down our summary assessment/conclusion along with the table.

8.7.1 Energy Sector Analysis by Caste

Overall conclusion: As expected, Katkaris have the least consumption of energy given their living conditions, while Mahadev Kolis consume more and pay more for their consumption. ***Table 8.9*** provides Energy Sector analysis by Caste for Palsunda village.

Table 8.9 : Energy Sector Analysis by Caste

Key Indicator	M. Koli	Warli	Katkari
HH Electrification (%)	66%	52%	21%
Annual Average electricity consumption per HH (in GJ) (n)	1.23	0.43	0.34
Annual Non-Electricity Energy consumption (w/o firewood) per HH in GJ (n)	3.16	2.3	0
Highest Electricity consumption by an appliance (n)	Fridge (34%)	Inc. light (34%)	Inc. light (37%)
Average Electricity bill per HH pm (n)	INR 125	INR 79	INR 41

Healthy Watch-outs Worrying

8.7.2 Energy Sector Analysis by Economic Status

Overall conclusion: Higher electrification of BPL homes has led to higher energy consumption, relatively lesser APL HH have electrification. ***Table 8.10*** provides Energy Sector analysis by Economic Status for Palsunda village.

Table 8.10 : Energy Sector Analysis by Economic Status

Key Indicator	APL	BPL	Antoday
HH Electrification (%)	70%	85%	42%
Annual Average electricity consumption per HH (in GJ) (n)	0.81	1.90	0.71
Annual Non-Electricity Energy consumption (w/o firewood) per HH in GJ (n)	3.95	4.16	1.4
Highest Electricity consumption by an appliance (n)	TV, Inc. light (28%)	Fridge (50%)	Fridge (27%)
Average Electricity bill per HH pm (n)	INR 125	INR 182	INR 80

Healthy Watch-outs Worrying

8.7.3 Energy Sector Analysis by Economic Status

Overall conclusion: In general, Pucca/Half-pucca house energy consumption is higher than those of Kaccha houses. Incandescent light usage is highly prevalent in Palsunda. ***Table 8.11*** provides Energy Sector analysis by Household Type for Palsunda village.

Table 8.11 : Energy Sector Analysis by House Type

Key Indicator	Pucca	½ Pucca	Kaccha
HH Electrification (%)	47%	23%	83%
Annual Average electricity consumption per HH (in GJ) (n)	2.00	0.89	0.26
Annual Non-Electricity Energy consumption (w/o firewood) per HH in GJ (n)	2.7	2.86	1.00
Highest Electricity consumption by an appliance (n)	Fridge (55%)	Inc. Light (44%)	Inc. Light (41%)
Average Electricity bill per HH pm (n)	INR 181	INR 95	INR 61

Healthy Watch-outs Worrying

8.7.4 Energy Sector Analysis by Economic Status

Overall conclusion: Given the number of HH in the village relative to Commercial establishments, their total energy consumption needs are much higher. ***Table 8.12*** provides Energy Sector analysis by Nature of establishment (HH v/s Commercial Establishments) for Palsunda village.

Table 8.12 : Energy Sector Analysis by Nature of Establishment

Key Indicator	HH	Comm. Establishment
Annual Electricity consumption (in MWH) (n)	45.87	168.78
Annual non-electricity consumption (in GJ) (n)	6379	127

8.8 Experiments - SOUL: SOlar Urja Lamp

Our stay in Khoch was more than special in many ways. The days were long and tiring and the nights were dark. The idea of testing our own SOUL was exciting and helped us sail through dark nights. Solar lamps were not new to this village as solar lamps were distributed to day-scholar students of Ashramshala. Also, there was a Mumbai based entrepreneur who was selling good sturdy solar lamps to people of this village at INR 1800/- to be paid at instalment of INR 100/- per month. It was indeed a good Solar lamp which had indicators to indicate the remaining time that the lamp power can last.

Our first testing was done in Khoch since we stayed there for about 3 weeks. We took help of a local college going student named Meera to help us in capturing the data since we were out in field for our field work of taking measurements of various water resources. The various readings of charging and discharging are shown in ***Table 8.9***.

Once we went to Palsunda, we could not repeat the experiment since SOUL lamp was used every day including wee hours (4.00 a.m.) for fetching water. We could not wait for it to discharge completely and then recharge. Soon our SOUL lamp developed problems. From 15th June, its ON/OFF button wasn't working properly. While interacting with villagers, we learnt that there was a SOUL distribution centre in Saturli. The distribution centre had 20 young aspirants who were trained for assembling and maintenance of the SOUL lamps. We keenly observed and even recorded the process.

The SOUL lamp which was part of our study became part of family. It was used:

1. For fetching daily water in the morning hours at 4.00 am.
2. As back up support in community programmes like Marriage, Kirtan etc.

Table 8.13 : Voltage reading of SOUL Lamp

		Initial		Final			Voltage difference
Process	**Date**	**Time**	**Voltage**	**Time**	**Voltage**	**Light**	
1st Charging	21st May	9.30 am	2.54	5.25 pm	2.83		0.29
	22nd May	8.15 am	2.79	2.35 pm	2.92	Green	0.13
Discharging 8HR	24th May	12.00 am	2.9	8.00 am	2.64		-0.26
Charging		8.00 am	2.64	5.30 pm	2.82		0.18
	25th May	9.30 am	2.8	1.25 pm	2.93	Green	0.13

		Initial		Final			Voltage difference
Process	**Date**	**Time**	**Voltage**	**Time**	**Voltage**	**Light**	
	26th May	9.30 am	2.91	11.15 am	2.97		0.06
Discharging 5HR	27th May	9.00 am	2.93	2.00 pm	2.68	Green	-0.25
Charging	29th May	9.30 am	2.64	5.30 pm	2.82		0.18
	30th May	8.45 am	2.82	11.30 am	2.92	Green	0.1
Discharging		11.30 am	2.92	7.30 pm	2.62		-0.3
Charging	31st May	9.15 am	2.6	5.05 pm	2.93	Green	0.33
Full discharge low intensity	27th June	8.00 Pm	2.93				
	28th June			1.30 pm	1.12		1.12
		1.30 pm	1.12	5.45 pm	1.46		0.34
	29th June	9.30 am	1.46	6.00 pm	2.14		0.68
	30th June	9.00 am	2.14	5.30 pm	2.73		0.59
	1st July	9.00 am	2.72	3.00 pm	2.9	Green	0.18
Full discharge high intensity		3.00 pm	2.9	12.10 am	1.27		-1.63

Some of the observations are listed below:

- The SOUL lamp is really efficient; as it runs more number of hours than indicated (almost 4-5 hours more)
- Since it is light weight, it is easier to carry
- It's ease of use makes it maintainable by local people and thus skill development of local youth
- Charging is possible by indirect solar heating, direct solar incidence is not compulsory which is a great advantage
- The only problem reported regarding SOUL lamp was its ON/OFF button. 3 out of 7 SOUL lamps in Khoch had initiation issue as reported by the students

Some quick suggestions

- Either the ON/OFF button should be improved or the replacement should be simpler. Currently as the button is soldered to the kit, whole kit needs to be replaced
- The body of the base should be improved. It is not sturdy enough for rough usage
- Mobile charging from the solar plate can be incorporated
- Time indicator to show the remaining charge can be incorporated.

Experiments – Twisted Tapes (Swirls)

Unfortunately we did not share the same luck with twisted tapes as we did with SOUL lamps.

We stayed in two villages – Khoch and Palsunda. At both the places, twisted tapes did not fit onto the Chulha in our host's house. We eventually gave it to another house where it was fitted with some adjustments.

We lost considerable amount of time in finding the right house where we could experiment twisted tapes and thus our experiment on twisted tapes may not be accurate.

We could not ascertain our experiment on usage of firewood. General observation made by the lady of the house was that by using twisted tapes,

there is less smoke. She could not comment on the reduced quantity of firewood usage.

In our opinion we should come out with a flexible design where the length of the rod can be adjusted according to the size of the Chulha. This may need to be seen holistically along with the cost parameters.

Chapter 9 : AGRICULTURE

9.1 Introduction

Agriculture is the main occupation of people in Palsunda. People either own land and do agriculture or landless people work as agriculture labourers. They mainly grow Naagli (Raagi), Paddy, Varai, Toor, Khurasni, Uleeth and Kuleeth. Some farmers have started growing vegetables and few more have taken up horticulture (mainly mango and cashew).

Agriculture is rain fed as there is no irrigation facility and no water scheme available in this village.

An average production of various crops is shown in ***Figure 9-1***

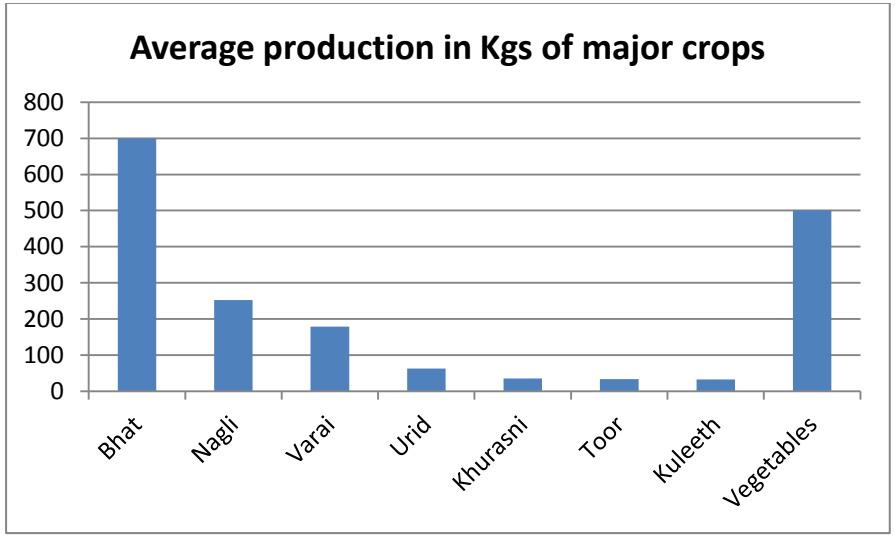


Figure 9-1 : Average production in Kgs of major crops

Average quantity of rice production is 700 kg per household followed by Nagli which is around 250 kg.

9.2 Land Distribution

Total area of Gram Panchayat (Palsunda and Saturli) is 320.68 Km^2. From ***Figure 9.1***, we can see 61% is Agriculture land and only 10% is forest area. (source of this information is the secondary data given by State Agriculture Department, Thane). While ***Table 9.1*** shows the Land Distribution for the GP, ***Figure 9-2*** represents the same as a Pie-chart

Table 9.1 : Land Distribution

Type of Land	Area in (km2)
Agriculture	196.5
Forest	30.9
Habitation Mask	0.2
Wastelands	43.9
Water bodies	49.2

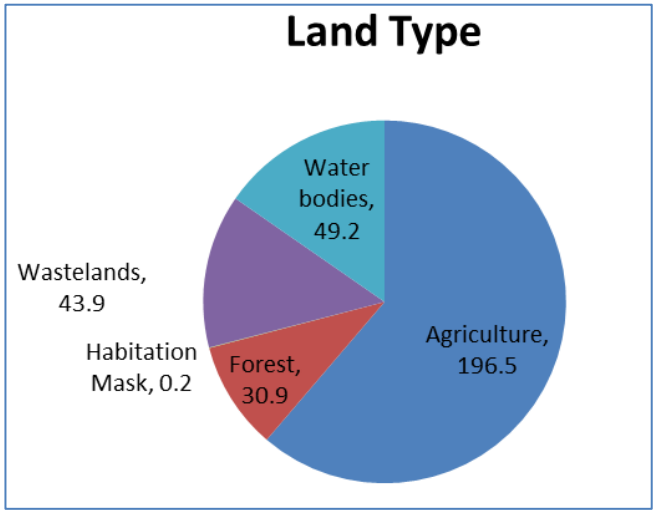


Figure 9-2 : Land Distribution

We further see the distribution of each land, where maximum land is used as crop land – ***Figure 9-3*** represents the same.

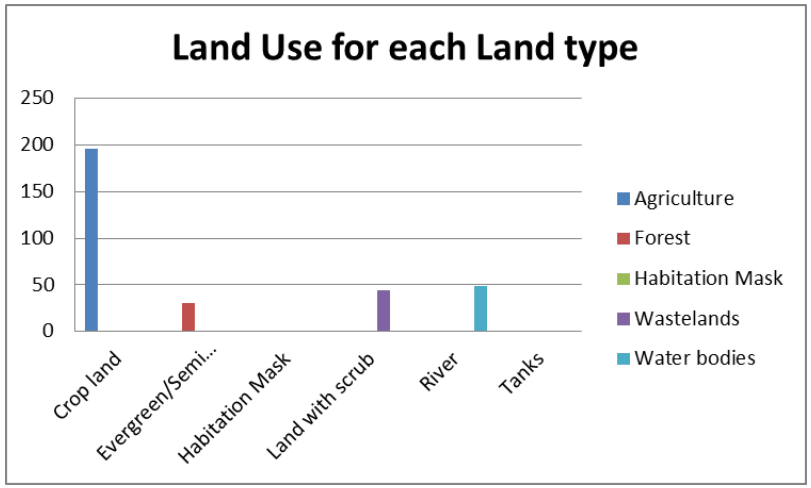


Figure 9-3 : Land Use for each Land-type

Land distribution is uneven in Palsunda. 7-8 farmers own most of the agriculture land.

9.3 Cropping Pattern & Cycles

In Palsunda, farmers usually take only one crop. ***Figure 9-4*** substantiates this and one can observe that as high as 98% produce only kharif.

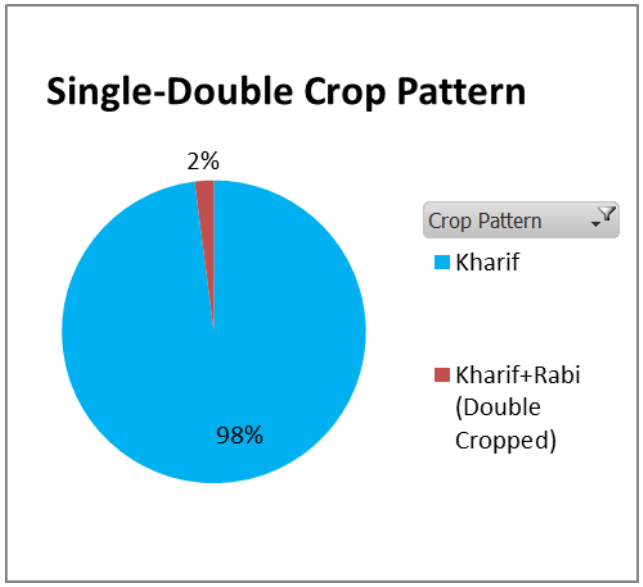


Figure 9-4 : Crop pattern

Various crops that are grown are Naagli, Varai, Bhaat, Toor, khurasni, chawli, kuleeth, uleed and mirchi.

Typical cycle of Paddy crop is explained below:

It starts in the month of November.

1. November- December : Kavli (collecting twigs)
2. January: Gavat Olane (Remove the grass)
3. January: Gavat aani Kavli ekatra karne (Gathering grass and twigs together)
4. March: Bharan pholne, Vatarne (To make Raab)
5. May: Kaakarni (removing stones)
6. May end: Perni (sowing seeds)
7. June Mid week: Ropachi Nidani(Sapling)
8. June Midweek: Rop-Khat Taakne (Putting Manure)
9. July first week: Khanani
10. May onwards parallel process and time to time: Vhaani
11. July 2nd week: Aavni (transplanting the saplings)
12. August: Nidni (separate and take out weeds)
13. October-November: Kaapni (harvest)
14. November: Gola karna (collection)
15. November: Bhaare vahani (making bundles)
16. November: Khadechi Saathan (store place)
17. November: Ulave tyaar karne:
18. November: Malani
19. November: Dhaanya Vahini (bring it back home)

9.3.1 Crop Production

Table 9-2 shows production (in Kg) per 1 Kg of seeds for major crops. Villagers do not put manure for any crop except paddy. Like-wise they use home-grown seeds for all crops. For paddy, it is a mix. They use few sacks of their own and few from the market.

Table 9.2 : Production of seeds for major crops

Crops	Crop Production (in Kgs) per Kg of seed	Gap needed for better crop production	Fertilizer need (kg) for production (quantity mentioned in 2nd column)	Bullock needed	No. of days the bullocks are required	Cost of seeds per 10 kg (bag)
Naagli	40	Not required	No manure (Villagers do not put manure)	2	6	Own Seed
Varai	200	3	No manure	2	6	Own Seed
Bhaat	23	Not required	14	2	6	Rs. 780
Urid	33	Not required	No manure	2	7	Own Seed
Kuleeth	33	Not required	No manure	2	2	Own Seed
Toor	33	Not required	No manure	2	2	Own Seed
Khurasni	17	Not required	No manure	2	3	Own Seed

Table 9.3 shows the seed rate for various vegetables. These are noted from a live case study of Mahendra bhau that were grown last year.

Table 9.3 : Seed rate for various vegetables

Vegetable	Seeds (Rate in Rs/qty)	Qty
Vaal	600	500g
Karli	280	500 seeds
Vaangi	70	10g
Kobi	280	10g
Flower	360	10g
Gazar	60	10g
Mula	20	10g
Kothimbir	100	1kg
Rajma	Tried sample	Tried sample
Methi	50	1 kg

Table 9.4 details out the process for producing Nagli in the fields

Table 9.4 : Process of Producing Nagli on Field

Process of Producing Nagli On Field					
Sr.No	**Marathi Name**	**Process Description**	**Work**	**Person days**	**Total**
1	Kawali Todne	Cutting Bushes and packing them so as to take it to field	Cutting	5	
			Packing and Transporting	5	**10**
2	Gavat Odhne	Gathering Grass For burning	Cutting	8	
			Transporting	8	**16**

Process of Producing Nagli On Field

Sr.No	Marathi Name	Process Description	Work	Person days	Total
3	Antharne	Spreading Grass and Bushes on Field	Spreading	4	**4**
4	Bharan Kadhne	Spreading Soil over the grass and bushes	Ploughing	1	
			Digging and filling	5	
			Passing	2	
			Spreading	2	**10**
5	Jalne	Firing and controlling the RAB	Firing & controlling	3	**3**
6	Perni	Making the field, sorting the rocks and spreading the seeds	hand ploughing	1	

Process of Producing Nagli On Field

Sr.No	Marathi Name	Process Description	Work	Person days	Total
			Sorting Stones	1	
			Spreading seeds	1	**3**
7	Nindani	The herb removal	Removing and monitoring herbs time to time	5	**5**
8	Lawni	Transplanting the siblings on field	plucking the siblings	7	
			Making bundles of siblings with skill	3	
			Sowing	7	
			Spreading bundles	1	**18**

Process of Producing Nagli On Field

Sr.No	Marathi Name	Process Description	Work	Person days	Total
9	Mera Ghene	removing herbs on the sides of the farm	Sickeling	2	**2**
10	Nindani	removing herbs in farm (two time)	Sickeling	4	**4**
11	Kapni	Cutting the plant after maturation	Cutting	12	
			Bundling	2	
			Transporting	3	**17**
12	Rachne	Making heap of the bundles	Heaping	2	**2**
13	Lotne	Spreading heap/bundles on ground and bitting it	Spreading & bitting	4	**4**
14	Hadapne	Removing dust by blowing air	Blowing	2	**2**

Process of Producing Nagli On Field

Sr.No	Marathi Name	Process Description	Work	Person days	Total
15	Kutane	Bitting the remaining of 13th step	Bitting	2	
16	Anane	Transporting yield and residue to home	Yield	2	
			Residue	1	**3**
17	Nangarne	Continuous ploughing for field preparation phase and sowing phase	Ploughing	45	**45**
18	Bhakrin	One person is engaged for providing food and water to the field worker	Food and water supplying	100	**100**
	Total				**248**

Table 9.5 : Cost of Production

Cost of Production			
Labour Rate (in INR)		60	100
Person Days	248	**14880**	**24800**
Person Days Excluding bhakrin	148	**8880**	**14800**

Table 9.5 shows the total Cost for Production.

Considering minimum Cost of production and minimum Cost of selling (at INR 17/Kg), even then

Loss (in INR) = 14880 minus 2625 = INR 12175

So, it is evident that productivity is low and it is only for subsistence.

During household survey, it came out clearly that villagers use excessive chemical fertilizers for increasing production of paddy. They do not use fertilizer for any other crop.

In order to introduce organic or Shendriya manure, we took an initiative and got them 70 metric tonne of compost manure (made from municipal and domestic waste) manufactured in Vapi, Gujrat. These were given to them at 1/4th cost of Chemical fertilizers that they were using.

Table 9.6 shows the typical fertilizers that are used by the villagers, along with the rate.

Table 9.6 : Typical Fertilizers used by the villagers

Sr. no.	Name of the product	Rate in the month of May (in Rs.)
1	Urea	**350 per 50 kg**
2	10 x 26 x 26	**1,260 per 50 kg**
3	Potash	**880 per 50 kg**
4	Super Phosphate	**450 per 50 kg**
5	DAP 18 x 46 x 0	**1,350 per 50 kg**
6	Ammonium Sulphate	**430 per 50 kg**
7	Magnesium Sulphate	**400 per 25 kg**
8	Ferrous sulphate	**200 per 10 kg**
9	**Zinc sulphate**	**200 per 5 kg**

We took 7 farmers to Vapi training centre where they could learn the best practices of agriculture and how and in what quantity to use the fertilizers.

Observations from Vapi Training:

1. For an acre of cultivable land, use 1 bag of DAP before transplantation (since if it is put after that, there is a high likelihood of manure getting washed off)
2. After 30-40 days, half a bag of Urea and half a bag of Potash
3. After 60-65 days or Leaf boot stage (Potara), add another half a bag of Urea and half a bag of Potash
4. In case farmer cannot afford manure then use urea and potash only once and during Potara.
5. Using Potash later on does not help so Potash has to be added earlier
6. Use DAP and no single phosphate

7. Zinc is a very important element. Usage of zinc helps in preventing paddy from getting a disease called Khaira/Tamba). So, 5 kg zinc sulphate should be used per acre before Laavni.
8. If 5 Kg of zinc sulphate turns out to be expensive for some farmer then they can spray 2 Kg of Zinc Sulphate soluble in water when tamba condition arises.
9. Dhencha (Leguminous plants should be grown after every paddy crop)
10. Trainer also mentioned that using single strand of sapling is much more effective than a bunch.

9.3.2 Animal Husbandry

Livestock is an important source of livelihood for many. It mainly comprises of cattle, poultry, sheep and goat. However, our village had livestock mainly as a part of ecosystem and they did not make living out of it.

Table 9.7 shows no. of livestock for a sample size of 166 households.

Table 9.7 : Livestock for surveyed HH

Type of Livestock	No. of livestock
Bullocks	32
Cows	19
Goats	3
OX	5
Poultry	8
Grand Total	**67**

However, to encourage the villagers to see this as an alternative option for livelihood, we got them trained on it. It was a basic training explaining the know-how of diary management.

Few days back, Jagan bhau called us to tell that they have formed a SHG to start with diary business. We were very happy to learn that.

Chapter 10 : NATURAL RESOURCES

Palsunda village has moderately dense forest – mainly comprising of Ain, Arjun and Subabhul. It enjoys heavy rainfall with an average rainfall of 2553.59 (Source: IWMP 2; Page 005). Due to steep slope, there is very high soil erosion.

The village mainly has red soil. Some traces of black soil are seen near river banks as well as places of siltation. It is rich in phosphorous and potassium. Texture of soil varies from gravelly to loam. The soil is readily permeable to water, therefore, the iron content of the soil is low due to over leaching and infiltration. Scrubs have reduced due to free grazing. ***Table 10.1*** shows the forest resources for Thane district.

Table 10.1 : Information about Forest resources for Thane district

District – Thane							
Geo-graphical Area	**Very Dense Forest**	**Mod. Dense Forest**	**Open Forest**	**Total**	**Percent of GA**	**Change**	**Scrub**
9,558	0	1,281	1,627	2,908	30.42	-4	222
Source: http://fsi.nic.in/cover_2013/forest_tree_resources.pdf							

Table 10.2 summarizes the natural resources for Palsunda village

Table 10.2 : Natural resources for Palsunda village

	Type of Land Use	**Gram Panchayat**	**Village**
1	Total Geographical Area	18.497	10.224
2	Area under settlement	0.0848	0.0391
3	Forest land area	4.34	4.34
	Forest Department		
	Revenue Department		
4	Grazing Land area	0.277	0.121
5	Waste Land area	1.564	0.839
6	Agricultural land area	11.992	4.68
	Irrigated land		
	Non-irrigated land		
7	Type of Soil		
	Predominant Colour	Reddish and black	Reddish and black
	Texture	Gravelly clay to clayey soils	Gravelly clay to clayey soils
	Local Name		
8	Classification scheme of Forest		
	Dense Forest		
	Moderately Dense	Yes	Yes
	Open Forest		
	Scrub	Yes	Yes
9	Types of Forest		
	Tropical Rain Forest in India	Yes	Yes

	Type of Land Use	Gram Panchayat	Village
	Temperate Deciduous Forests		
	Moist Deciduous Forests		
	Dry Deciduous Forests		
10	Biodiversity	Though there were many flora and fauna, the one worth mentioning is "Kokan Ghari", which is similar looking black crane. It is considered to be an endangered species. It is black in color with a red hood and is huge, about 3 feet in size. It makes lot of noise. It makes nests on very high trees. It can be seen during wee hours.	
	Birds		
	Insects		
	Butterflies		
	Small Animals		
	Snakes		

Figures 10-1 and 10-2 represent the typical Flora and Fauna

Flora:

Figure 10-1 : Flora found in the area surrounding Palsunda village

Fauna: (third one in the row from left is Konkan Ghari)

Figure 10-2 : Fauna found in the area surrounding Palsunda village

Chapter 11 : FOOD SECURITY

11.1 Introduction – Village Profile

The village Palsunda, is located in the hilly area of Watawalya hill of Western Ghats.

Village of Palsunda is 99% tribal populated and the main agricultural produce is Rice, Nagli, Warai and Toor - these therefore are the main ingredients meals. The pattern and times of food intake are mainly due to the work cycle that people follow. Yatras, festivals and natural cycles also contribute as a deciding factor of food intake of the villagers. Various schemes to ensure the minimum living standards related to food were implemented in the village.

Food production: Nagli, Warai, Rice, Urad toor are the main produce and therefore they are main ingredients of food

Festivals and seasons

- Various festivals come with some specific food items i.e. During Sankrant, people consume Til-Gur Laddu and during during Pola, people consume Puran Poli.
- Seasonally varied vegetables are available and are consumed by people. At the start of monsoon vegetables like Math, Shewala, Keni are consumed instead of sabji.
- In summer, fruits are consumed along with vegetables like Shewga.

11.2 Food Consumption patterns

The pattern of food intake timings along with its relation with the work cycle is shown in ***Table 11.1***. Typically breakfast consists of Nagli bhakar with bhaji. Afternoon meal consists of Dal and Bhat while for dinner, Dal-bhat and some sabji is made. The meal for farm working people changes to Nagli bhakar and subji.

Table 11.1 : Food intake timings along with work activity

Time	Work/ activity associated	Food consumption (Men)	Food Consumption (female)
6.00 am	Have to go to field	Tea	Tea
8.30 am	Take the food to field	Nagli Bhakar (1)	
9.30 am	Food comes to field		Nagli Bhakar (2)
2.00 pm	Recess time in School	Rice + Dal	Nagli Bhakar (2)
6.30 pm	Men return to home	Tea	Tea
8.00 pm	Sleeping Time	Rice + Dal	Rice + Dal

Table 11-2 provides the food consumption ingredients

Table 11.2 : Food consumption

Item	*Daily Consumption (g) or no*
Rice	**2400**
Nagli	**800**
Toor	**500**
Vegetable	**125 (seasonal)**
Non-veg	**140**

Item	*Daily Consumption (g) or no*
Suagar	**300**
Urad/other Dal	**100**
Eggs	**1**

11.3 Food Schemes

PDS: The government PDS scheme is followed in the village. ***Table 11.3*** shows food that is distributed free, by caste.

Table 11.3 : PDS Distribution scheme by Economic Status

Economic Status	Rice	Wheat	Sugar
BPL	**25**	**10**	**2**
Antyoday	**25**	**10**	**2**
Annapurna	**25**	**10**	**2**
APL	**25**	**10**	**2**

Mid-Day Meal: Meal is distributed in the primary school to eradicate malnutrition and to increase the attendance/enrolment in school. Generally Khichdi or dal-rice is distributed in school.

ICDS: Food for age-group 6 month to 5 Years is distributed in Anganwadi. Mainly Khichdi or Lapsi (Daliya) along with some nutritive food (laddu or biscuits) are ingredients of food.

Janani Suraksha Yojna: Healthy food is given to Pregnant and breastfeeding women by Anganwadi Sevika from time to time or on monthly basis to strengthen their health.

Kishori Sabalikaran Yojna: Girls between the ages of 14-18 are given nutritive food and supportive vitamin tablets. It ensures their healthy growth. The distribution is ensured by Anganwadi Sevika.

Chapter 12 : LIVELIHOOD

12.1 Introduction – Village Profile

Even though the main livelihood of people is farming in the village of Palsunda, people do not get good income from it. On an average, farmers make only INR 4221 a year. This could be due to productivity issue. Mostly all farmers today do farming with a mindset of sustainability (enough for home) and not from selling perspective. The only crop that they sell is Varai at INR 25/Kg.

Figure 12-1 shows the broad number of people in village HH by occupation.

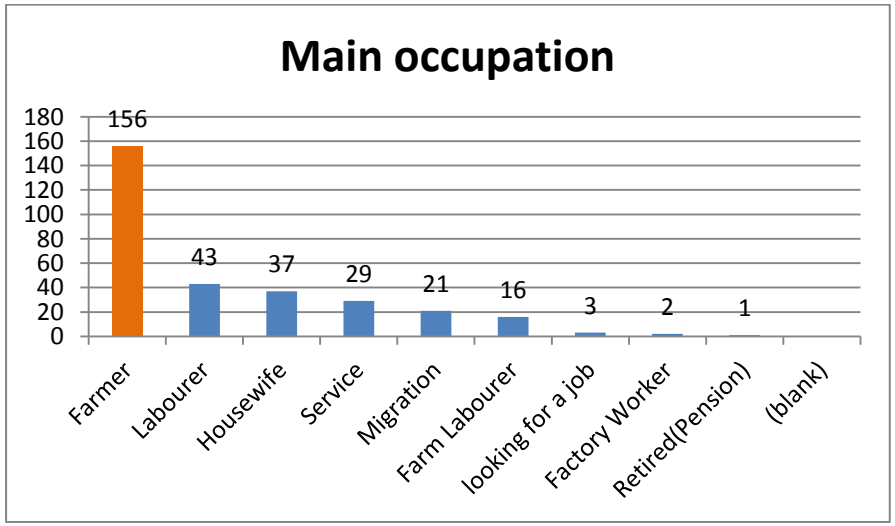


Figure 12-1 : Main occupation break-up

The next main occupation is labourer, either for brick kiln or breaking stones. These are basically seasonal migrators who migrate for 8 months along with entire family. Their average yearly income is ***INR 12145*** which is three times higher than a farmer but there are issues with the latter.

1. Farmers have ***INR 4221*** after securing yearly food grain needs whereas for Migrators that is not true. They have to manage all within ***INR 12145***.
2. Migrators are always in debt cycle with their employer since they keep taking advance and have no way of keeping tab on the money that they repay subsequently. They all are illiterate. They migrate with small kids, so their children do not go to school and hence do not learn. This is a vicious circle.

12.2 Other Livelihood

There are other livelihood options that were observed during our stay in Palsunda:

- Fishery
- Diary
- Mason
- Making wooden tools (Nangar etc.)
- Driver
- MNREGA – temporary work
- Hawkers
- Oil from Mahua seeds
- Liquor from Mahua seed

- Small scale food packaging
- Shepard
- Running shops
- Selling crabs (seasonal)
- Selling Konda (from rice mill)
- Brick Klin

12.3 Tools of Livelihood

Various tools were used to make a living. Some of them are shown in ***Figure 12-2***.

Figure 12-2 : Tools of Livelihood

12.4 Commercial Establishments

There were three main commercial establishments which contributed towards livelihood. However, they were not employment generating since it was family owned business.

12.4.1 Chakki Flour mill

There were two chakki flour mills. It was managed by a family. It used to run for 5 hours. On an average, 10 people in a day came for grinding nagli and wheat. For nagli, he used to charge INR 3 and for wheat INR 2.5 a kg.

Average income from these mills were not more than ***INR 10000*** year

12.4.2 Rice mill

Rice mill is fairly new establishment in the village. It has two motors of 25 HP and 3 HP. It runs for 9-12 hours. During monsoons, it is kept closed, so effectively it runs for 8 months a year. On an average, income from rice mill is around ***4.5 lacs*** a year. Owner has kept a driver and two labourers.

12.4.3 Shops

There were two shops in the village which sold various kirana items. Again, this was a family owned business with no employment generation opportunities. During survey it was observed that tobacco items sell more than day to day items.

Chapter 13 : EDUCATION

13.1 Introduction – Village Profile

The following section covers information & analysis pertaining to the state of education and infrastructure in the Palsunda village. According to the Census data collected for 2001 and 2011 (the data for which is reproduced in table below), we discovered a few interesting facts:

- While the population overall in Palsunda has increased by 19%, the literate population has actually gone down by 8% (illiteracy has jumped up by 51%)
- Out of the total increase of 263 people from 2001 to 2011, 59 (22%) additions were as a result of people coming to live in the village within the past 6 years
- The drop in literacy in the village can only mean one of two things: either the influx of the people coming in are more illiterate than literate OR since the past 10 years from the last census in 2001, the long term residents of the village have not invested in the education of their future generation - ***this is a worrying trend***

From a female literacy standpoint, during the same period, while the female population has increased by 26%, the corresponding literacy has dropped by 2%, compared to their male counterparts (drop by 11%). Interestingly, there has been more influx of women into the village than men in the past 6 years, most likely because of men of this village getting married to women from other villages. This in turn implies that men folk of this village are getting married to literate women.

Table 13.1 provides details of Census Data

Table 13.1 : Census Data – Population & Literacy

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
Number of Households	Total	211	335	59
Total Population	Total	1365	1628	19
	Male	738	839	14
	Female	627	789	26
	Sex ratio	850	940	11
Population 0-6 years	Total	197	256	30
	Male	115	144	25
	Female	82	112	37
	Sex ratio	713	778	9
Population ST	Total	1330	1621	20
	Male	718	819	14
	Female	612	771	26
	Sex ratio	852	941	10
Population SC	Total	3	7	133
	Male	2	2	0
	Female	1	5	400
	Sex ratio	500	2500	400

Parameters	M /F	Year		Decadel Growth Rate
		2001	2011	
Literate population	Total	740	683	-8
	Male	459	408	-11
	Female	281	275	-2
	Sex Ratio	612	674	10
	Percent literates			
Population illiterate	Total	625	945	51
	Male	279	431	54
	Female	346	514	49
	Sex Ratio	1240	1193	-4

In context of the above background, Palsunda village has 5 schools in all (2 Aanganwadis, 2 Primary and 1 Secondary). and ***Table 13.2*** provides summary information about schools, students and teachers, along with the benefits extended to them.

Table 13.2 : School information in Palsunda village

Category	Aaganwadis	Primary School	Ashram Shala
No. of Public schools	2	2	1
No. of Private schools	-	-	-
No. of Students	62		698
No. of Teachers	1 (Tai)	2	263
No. of rooms		2	59
No. of helpers	1		-
Salary for Teachers	3000	20000	Data NA
Salary for Helpers	1200	4500	4500
Availability of mid-day meal scheme	Yes	Yes	Yes Residential school
Items given in mid-day meal scheme	Khichdi/ Lapshi/ Laddu	Khichadi or Dal-Bhath	Rice, Lentils, vegetables/ Khichdi, Sweets
Quantity	100 gm	200 gm	200 gm
Language of Instruction	Marathi	Marathi	Marathi

13.2 Education Infrastructure

The following section covers the functioning of the various institutions along with the facts specific to the village:

13.2.1 Aanganwadi

A Government sponsored initiative, Aanganwadi is actually a child-care and mother-care centre. Instituted in 1975, the primary objective of this program is to combat child hunger and malnutrition. The program provides services to poor families in need of immunization, healthy food, clean water, clean toilets and a learning environment for infants, toddlers and pre-schoolers. They also provide similar services for expectant and nursing mothers.

Palsunda village comprises of 4 Aanganwadis (one each in Palsunda, Vikaswadi, Nikamwadi and Shendyachi Met), which provide a play-school like environment, where children can play, eat and study. Mid-day meals provided to the children typically include Khichdi, Pulses, Lapshi, and other nutritious things such as Matki, Moong and Chana.

13.2.2 Primary School

The Zilla Parishad (ZP) runs 2 primary schools in Palsunda village in the padas of Vikaswadi and Palsunda. The one in Palsunda was established in 1998 and the other was started in 2002. The primary function of ZP is to establish and manage running of these schools and exercise academic supervision. Moreover, in addition to providing free books to the students, ZP run schools also provide 2 pairs of school uniforms, free education and mid-day meals to each child. The School works 6 days a week, typical timings being 10:20am – 5:40pm, with Saturday being a half day. Students mostly travel by foot from nearby padas to attend school.

13.2.3 Ashram Shala

Ashram Shala, located in Palsunda pada, was established in 1947 and caters to all 3 school categories – primary, mid-school and secondary. This is the only school that provides education upto Std XII. ***Table 13.3*** provides break-up of the number of students in Primary, mid-school and Secondary for the year 2014 in Ashram Shala.

Table 13.3 : School profile – Ashram Shala

Type	No. of Boys	No. of Girls	Total
Primary (Std I – IV)	174	123	297
Mid-School (Std V – VII)	153	97	250
Secondary (Std VIII – XII)	102	59	161
TOTAL	429	269	698

Staff for Ashram Shala comprises of 1 Principal, 1 Secretary, 1 Lady teacher, 1 Lab Attendant, 1 Clerk, 1 Guard, 1 Cleaner, 1 Helper and 12 Cooks. Ashram Shala also provides boarding for those students who come from outside village/towns for a nominal fee. In cases where parents cannot afford the lodging, Ashram Shala bears the cost of boarding for

those children. The Ashram Shala works 6 days a week, typical timings being 11:00am – 5:00pm, with Saturday being a half day.

13.3 Household – Analysis of Education patterns

13.3.1 Education Profile – Analysis

This analysis gave us insights on the Education profile of Palsunda village. A few highlights of the findings include:

- Excluding children below 5 years, 43% of the surveyed population
- Only 4% of the surveyed population have either completed graduation or are in the process of doing so

Figure 13-1 provides an overview of Education profile for Palsunda.

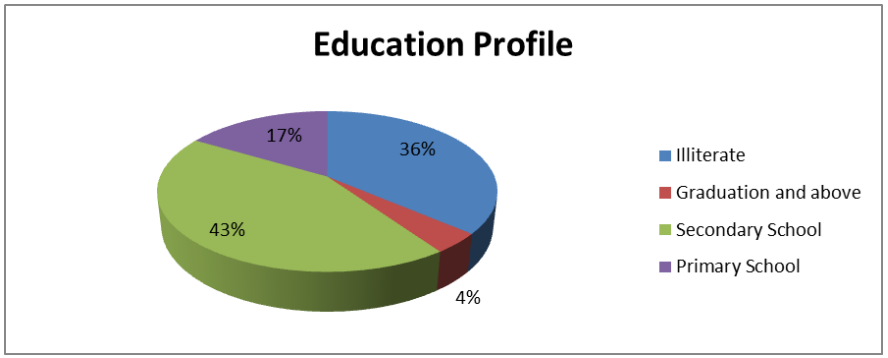


Figure 13-1 : Education Profile analysis

13.3.2 Age Group-wise Male/Female Literacy Analysis

This analysis gave us insights on the Illiteracy levels by gender of the surveyed population of Palsunda village. A few highlights of the findings include:

- Excluding children below 5 years, 49% of the surveyed female population were illiterate, while illiteracy % for surveyed male population was 28%
- Between the ages of 18 – 60 (typically considered the working group), 64% of the surveyed female population were illiterate, while illiteracy % for surveyed male population was 59%
- 7% of children of age group 7–14 years were not going to school at all

Figure 13-2 provides Male/Female Literacy analysis by Age Group.

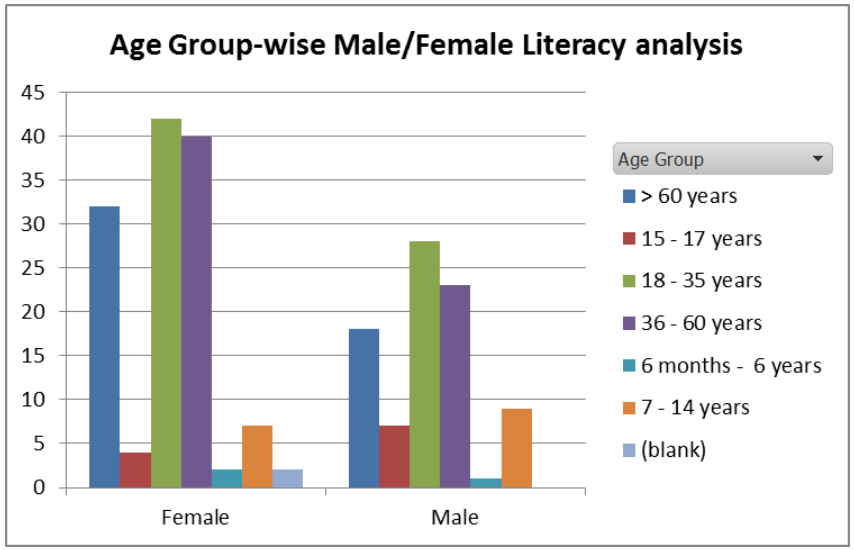


Figure 13-2 : Age Group-wise Gender Literacy analysis

13.3.3 Caste-wise Analysis of Literacy

This analysis gave us insights on the Caste-wise Literacy of the surveyed population of Palsunda village. A few highlights of the findings include:

- Of the sample size surveyed, the highest percentage of literacy was observed in Mahadev Koli caste (80% had attended some form of schooling or another), followed by Warli caste (71%) and trailed significantly by Katkaris (28%)
- 6% of Mahadev Kolis had completed/were completing their graduation, while that number was 1% for Warlis. There were none in Katkaris

Figures 13-3 and 13-4 provide Literacy Analysis by Caste.

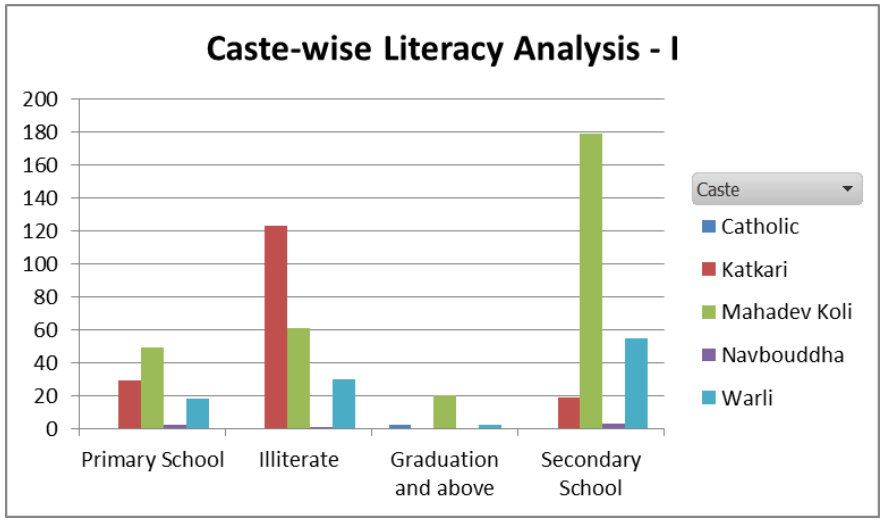


Figure 13-3 : Literacy analysis by Caste - I

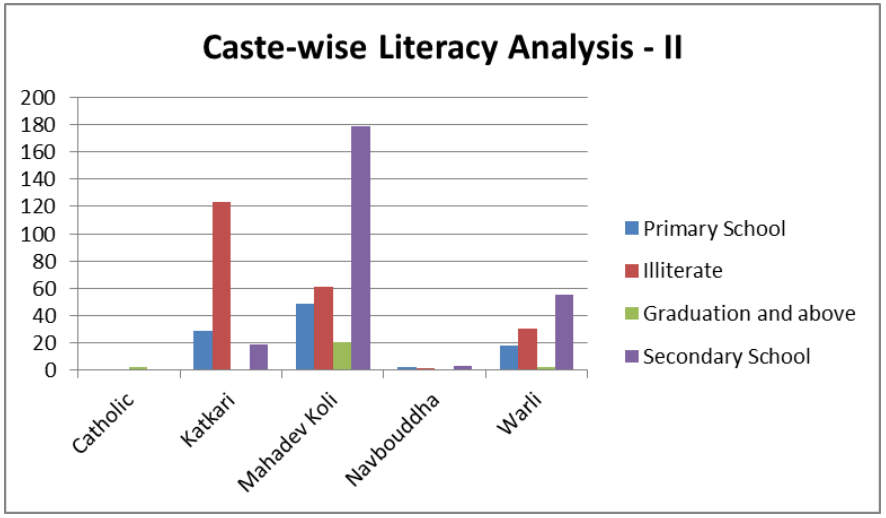


Figure 13-4 : Literacy analysis by Caste - II

13.4 Household Survey – In Summary

Having seen the different individual cuts from the HH survey, the following section provides an overview analysis from the survey. This analysis is tabulated and conclusions summarized. Each of the characteristics are more or less analysed in 4 different dimensions – Caste, Economic Status (both of which are at household level) and Gender, Age-Group (both of which are at Individual level). While the content of the table in itself is self-explanatory, we have put down our summary assessment/conclusion along with the table.

13.4.1 Education Sector Analysis by Caste

Overall conclusion: Katkaris have the lowest literacy rate. The bigger worry is that they are also not investing in the education of their future generation. This can have far reaching consequences. ***Table 13.4*** provides Education Sector Analysis by Caste

Table 13.4 : Education Sector Analysis by Caste

Key Indicator	M. Koli	Warli	Katkari
Overall Literacy (%)	80%	71%	28%
Literacy – Graduation (%)	6%	2%	0%
Literacy – Secondary (%)	58%	52%	11%
Literacy – Primary (%)	17%	17%	17%
Adult Age Group Literacy analysis (18-60) (%)	83%	71%	18%
Children Literacy Analysis (7 - 17) (%)	100%	100%	48%

Healthy Watch-outs Worrying

13.4.2 Education Sector Analysis by Economic Status

Overall conclusion: Literacy rate of Antoday is quite low, lack of education seems to have a direct correlation to their economic condition – Child literacy is also low. ***Table 13.5*** provides Education Sector Analysis by Economic Status.

Table 13.5 : Education Sector Analysis by Economic Status

Key Indicator	APL	BPL	Antoday
Overall Literacy (%)	74%	79%	60%
Literacy – Graduation (%)	4%	6%	4%
Literacy – Secondary (%)	54%	56%	40%
Literacy – Primary (%)	16%	17%	16%
Adult Age Group Literacy analysis (18-60) (%)	58%	88%	74%
Children Literacy Analysis (7 - 17) (%)	100%	100%	78%

Healthy Watch-outs Worrying

13.4.3 Education Sector Analysis by Gender

Overall conclusion: In general, while there is an increase in the women population, the literacy for them has declined (even though the rate of decline is lower as compared to males). ***Table 13.6*** provides Education Sector Analysis by Gender.

Table 13.6 : Education Sector Analysis by Gender

Key Indicator	Male	Female
Overall Literacy (%)	73%	55%
Literacy – Graduation (%)	5%	3%
Literacy – Secondary (%)	49%	38%
Literacy – Primary (%)	19%	14%
Adult Age group Literacy Analysis (18-60) (%)	72%	51%
Children Literacy Analysis (6 - 17) (%)	83%	84%

Healthy Watch-outs Worrying

13.4.4 Education Sector Analysis by Age-Group

Overall conclusion: It is a worrying trend that the working age group's literacy is lower, thus making it difficult for them to be a deployable workforce in Sectors other than agriculture & manual labour. ***Table 13.7*** provides Economic Sector Analysis by Age-Group.

Table 13.7 : Education Sector Analysis by Age-Group

Key Indicator	7-17 yrs	18-35 yrs	36-60 yrs
Overall Literacy	83%	68%	52%
Literacy – Graduation (%)	N/A	8%	4%
Literacy – Secondary (%)	N/A	54%	30%
Literacy – Primary (%)	N/A	7%	29%
Highest Type of education in each group	N/A	Secondary 54%	Secondary 30%

Healthy Watch-outs Worrying

Chapter 14 : HEALTH

14.1 Introduction – Village Profile

Palsunda has a PHC sub centre. It does not have a PHC in the village. Primary health centre (PHC) is in Vashala which is 17 kms away from Palsunda village. In fact, it falls under a different Gram Panchayat (GP). Our GP has two PHC sub-centres. One in Palsunda and another in Saturli.

Our village's PHC sub-centre's nurse' (sister) name was Asha Somnath Patil. She was responsible for giving primary treatment to the patients. She also maintained record books and accounts of the sub centre.

Asha Tai was very helpful and gave us relevant and detailed information on various aspects related to health conditions of our village.

Palsunda does not have any hospitals (public or private) and no doctors, not even Ayurvedic or homeopathy. The nearest hospital for health checkup is in Mokhada which is 11 kms from the village. There is free ambulance service available under "Jannani Suraksha" for pregnant women and infants under 1.5 months. It is a door to door service. This facility is not available for any other category of people. Aanganvadi and PHC sub centre have an arrangement of readily available local vehicle (to be served as an Ambulance in case of serious patients) funded from their (Aanganwadi and PHC sub centre) kitty. No doctor is available round the clock. One doctor visits every 45 days.

Vaccination camps are held every month. The vaccination camp ensures availability of the following vaccines:

1. B.C.G
2. Triple Polio
3. Jaundice
4. Hepatitis B
5. Measles
6. Vitamin A
7. T.T (for Pregnant women)
8. D.P.T booster (for 5-6 years old kids)

In the year 2013-2014, 31 kids were vaccinated thus far.

Other camps included "Aarogya Shibir" and "Manav vikas Shibir" for checking the physical and mental health of an individual and especially pregnant women.

Sterilization camps are held in Jawahar and Mokhada free of cost. Males get INR 1400 for getting sterilized and females get INR 400. This is to encourage male sterilization which is considered to be simpler and convenient than female sterilization.

To encourage delivery at hospital to reduce chances of maternal or infant death, a paltry sum of INR 700 is given if child is delivered in hospital and INR 500 if child is born in house.

On Veterinary side, there was apathy and complete lack of awareness. There was no veterinary clinic or doctors in the village. The nearest veterinary clinic is in Vashala and Mokhada at a distance of 17 and 11 km away, respectively, from Palsunda. The most common disease in cattle is "Khat hone" which is a condition in which cattle's hooves develop a sore condition and Cattle cannot walk.

14.2 Health Infrastructure

Palsunda has a PHC sub-centre. Even Gram Panchayat Saturli, does not have a PHC.

On the infrastructure side for the PHC sub centre, it had the following staff:

- MPW (Multi-purpose workers for Malaria) – 1 in No.
- Sister (Nurse) – 1 in No.
- ANM (Auxiliary Nurse Midwife) – 1 in No. and
- NRHM (National Rural Health Mission) workers – 3 in No.
- Asha workers – 3 in No.

PHSC nurse gave primary treatment to patients and maintained records and accounts of the sub centre. The nurse was supported by a helper named, Tulsi Chintaman Bodhere (Aai of our house where we stayed) who helped the sister in her activities.

There wasn't a permanent or dedicated doctor for this village. A Doctor visited once every 45 days.

Palsunda has neither a hospital for humans nor any veterinary clinic or hospital for animals. The nearest hospital is 11 km away in Mokhada.

The facilities available in the PHSC were medicines and vaccination. All treatment were given free of cost.

The emergency cases were referred to Mokhada or Jawahar depending upon the criticality. For pregnant women and infants (below six months), an ambulance service (door to door) was available round the clock and was a phone call away. However, for other patients even in critical condition, no ambulance was available. To overcome this challenge, the PHSC sister and Aanganwadi have arranged for a vehicle (to act as ambulance) which could be called on need basis. Expense towards this is managed from Aanganwadi and PHSC kitty.

Common vaccinations given were B.C.G, Triple Polio, Jaundice, Hepatitis B, Measles, Vitamin A, T.T (for Pregnant women), D.P.T booster (for 5-6 years old kids). There were 3 Asha workers in this PHSC. They kept record of birth (Janam), death (Mrutyu), Pregnancy (Prasuti), accounts (Cheque register), T.B., Shashtrakriya (operation for sterilization), Janani ruksha, Motibindu Shshtrakriya (Cataract operation), Kutumbh Pahini, Balkatikaran.

Various camps were arranged from time to time. Details of the same is given in the next section

Table 14.1 gives the details of health infrastructure for Palsunda Village:

Table 14.1 : Health Infrastructure for Palsunda Village

Human Health	Gram Panchayat	Village
Number of Births in past one year	88	24
Number of Deaths in past one year	44	17
Availability of PHC or primary health sub centre	PHSC (sub centre)	
Hospital/PHC/ Sub centre	PHSC (sub centre)	
Number of doctors	Not Available	
Number of staff		
Availability of beds		

Human Health	Gram Panchayat	Village
Daily foot fall		
Lab facilities		
Number of hospitals		
Number of beds in the hospital		
Number of private doctors in the village		
Number of ayurvedic doctors		
Number of homeopathy doctors		
Number of charitable dispensaries		
Number of asha workers	7	3
In case of unavailability of hospital/PHC/sub centre and ambulance, distance to the nearest village/town where facilities are present	6 Km	11 Km
Number of diagnostic services (private)	None	None
Various schemes and beneficiaries		
Free medicine, vaccination (free/ paid) facility	Free medicine and vaccination	
Women and child care facilities	Janani Suraksha	
Details of camps (e.g. cataract camp, blood donation camp, etc)	Aarogya Shibir, Manav Vikas Shibir, Cataract camp, T.B camp, Vaccination,	

Human Health	Gram Panchayat	Village
Availability of ambulance service	For pregnant women and infants below 6 months	
Veterinary Health	Gram Panchayat	Village
Veterinary clinic availability	Not Available	
Number of staff and doctors in the veterinary clinic		
Services provided from the veterinary clinic		
Schemes running through veterinary clinic		
Number of private veterinary doctors		
Daily footfall in veterinary clinic		
Major diagnostic services at veterinary clinic		
Vaccines and medicines available in the veterinary clinic		
Major problems and diseases to cattle in the area	Khat hone (a disease where in sore develops in hooves of cattle)	
Nearest veterinary clinic (Govt.) in case of unavailability in the village	Vashala - 17 Km	

14.3 Health conditions

Most common diseases prevalent in Palsunda were Malaria and Diarrhoea. During HH survey these diseases were reported as seasonal and usually break out in Monsoon. About 10% cases reported were of TB and 7% cases were of Diabetes and BP. ***Figure 14-1*** represents a pie-chart of common diseases in Palsunda

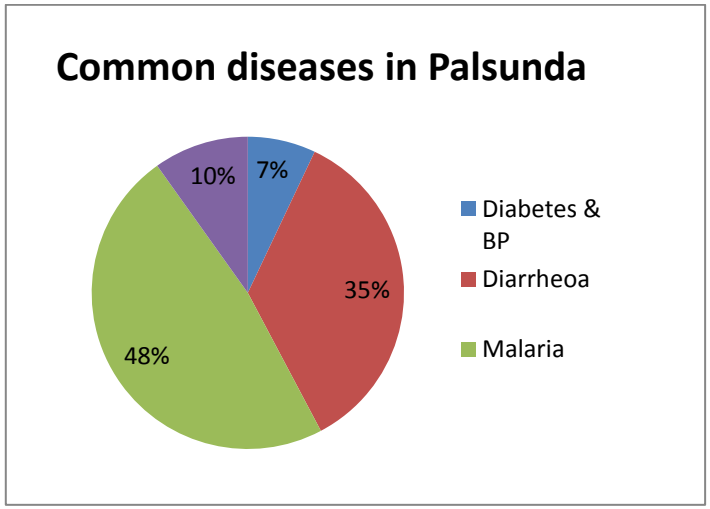


Figure 14-1 : Common Diseases in Palsunda

We observe that Mahadev Koli case are the ones, most affected by various diseases (as shown in Figure) followed by Katkari and Warli caste. This trend may be due to the sample population size of our HH survey; Mahadev Koli being the highest. No further conclusion can be drawn only on this data. ***Figure 14-2*** provides a bar-chart of Diseases occurrence by Caste

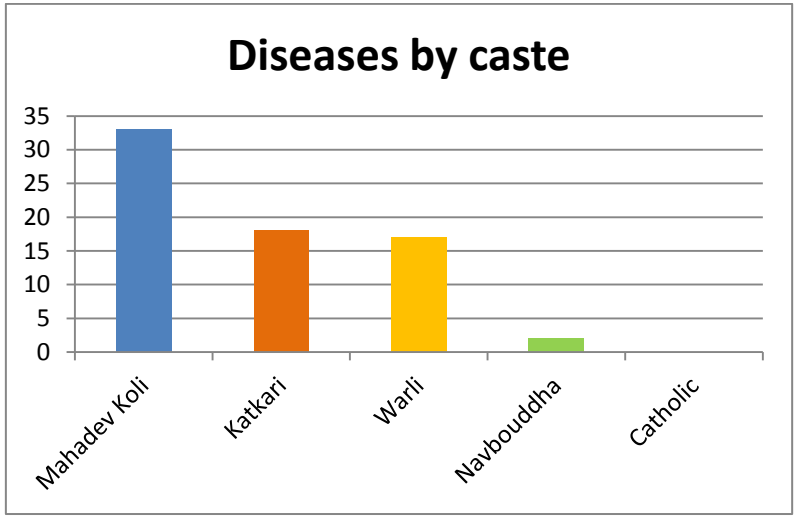


Figure 14-2 : No. of Diseases Occurrence by Caste

On the other hand, we analysed the ***"Health Index"*** by caste – ie. at a household level, the number of HH which had **no** instances of diseases in relation to the total HH for that caste. We found that the Mahadev Kolis had the highest health index (73%), followed by Warlis (48%) and then by Katkaris (9%). To interpret this:

- 73% of Mahadev Kolis (ie. 67 out of 92 HH) had no instances of disease occurrence
- 48% of Warlis (ie. 12 out of 25 HH) had no instances of diseases occurrence
- 4% of Katkaris (ie. 4 out of 47 HH) had no instances of diseases occurrence

Figure 14-3 represents the Health Index by Caste.

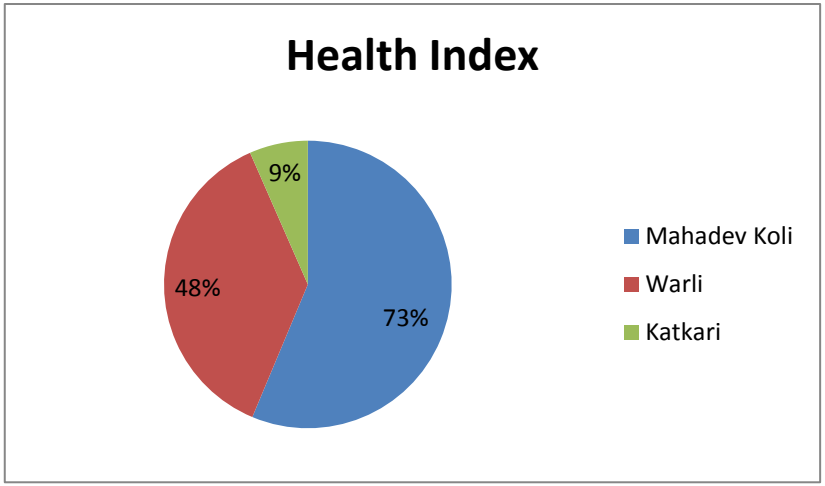


Figure 14-3 : Health Index by Caste

From ***Figure 14-4***, we observe that people in Antoday category are most affected by all types of diseases including Tuberculosis (TB). According to the site *http://www.medicalnewstoday.com/articles/8856.php*, "Risk of TB is much higher in people who have compromised immune systems i.e. people living with malnutrition, or people who smoke or consume tobacco." Thus the finding that Antoday people are most affected by diseases is a direct reflection of their economic status, affordability and lack of awareness.

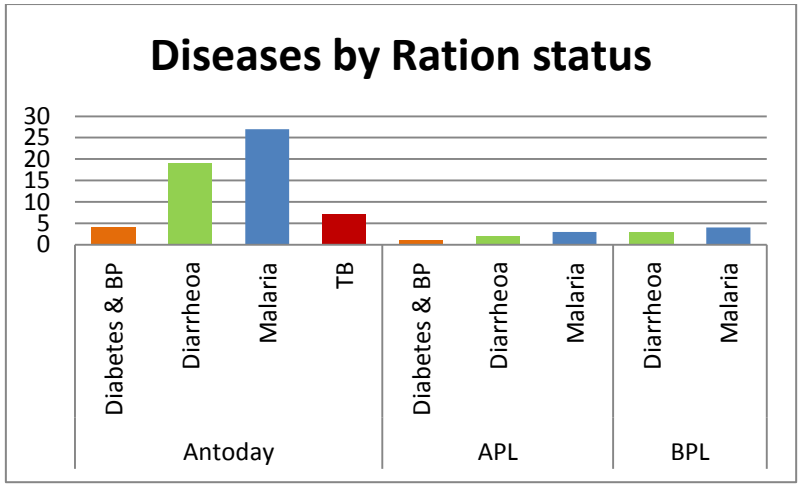


Figure 14-4 : Diseases by Ration Status (Economic Status)

People under APL and BPL category show much reduced cases of diarrhoea and Malaria.

Apart from gathering information about the diseases as a part of our HH survey, we gathered few more health issues prevalent in the village. From ***Figure 14-5***, it can be observed that more number of women get T.B. than men. Tuberculosis cases are still not under control. There is no specific pattern for T.B.

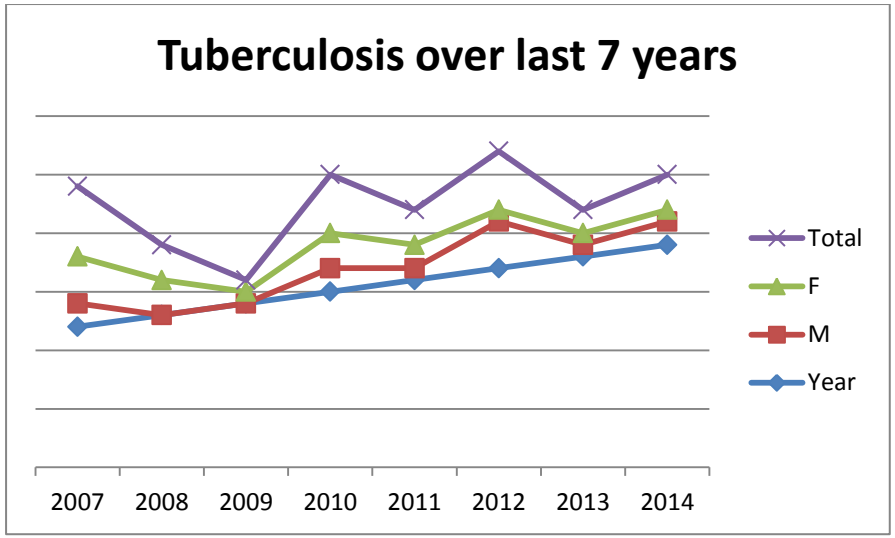


Figure 14-5 : Tuberculosis Occurrence over last 7 years

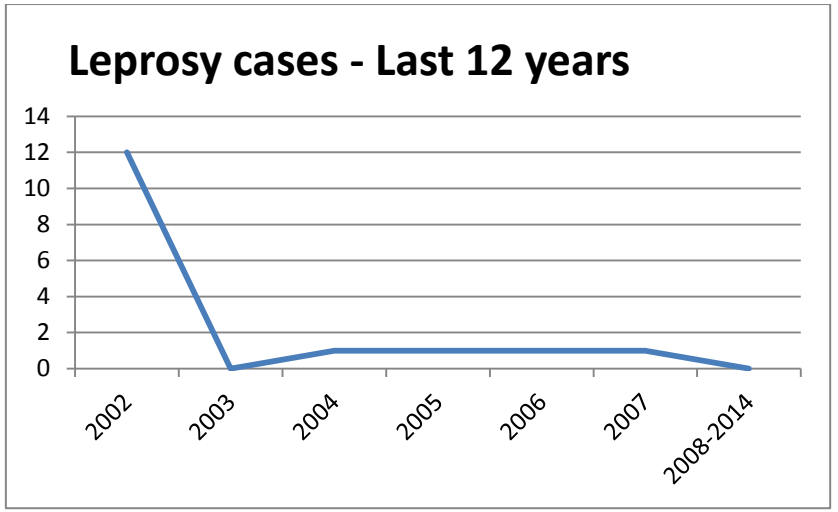


Figure 14-6 : Occurrence of Leprosy cases over last 12 years

As depicted in ***Figure 14-6***, Leprosy cases have been eradicated from year 2008 onwards. There has been no case of Leprosy reported between the year 2008 to 2014.

Figure 14-7 shows cataract cases for years 2006 to 2012. There was a sudden surge in cataract cases in the year 2010 but no specific reason was pointed towards this.

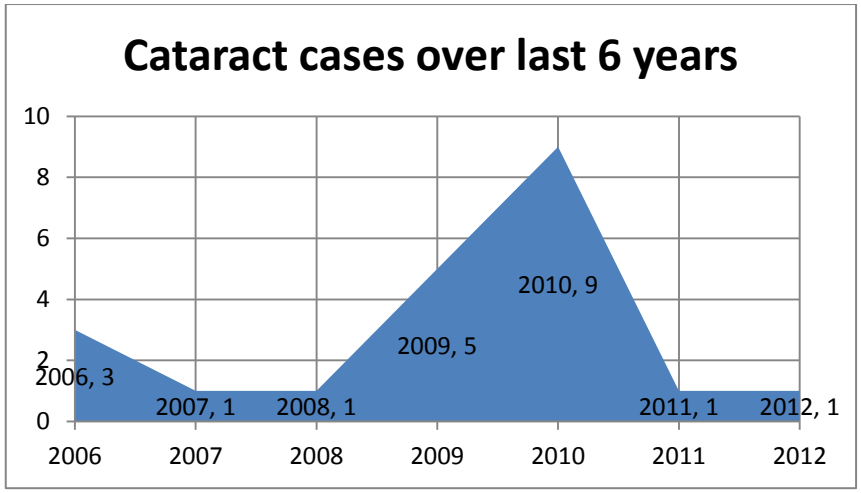


Figure 14-7 : Occurrence of Cataract over last 6 years

14.4 Household Survey – In Summary

Having seen the different individual cuts from the HH survey, the following section provides an overview analysis from the survey. This analysis is tabulated and conclusions summarized. Each of the characteristics are more or less analysed in 4 different dimensions – Caste, Economic Status, Gender and House-type. While the content of the table in itself is self-explanatory, we have put down our summary assessment/conclusion along with the table.

14.4.1 Health Sector Analysis by Caste

Overall conclusion: In general, consistent with other parameters, Katkaris are more prone to health issues than other castes, this finding is in line with their living conditions. ***Table 14.2*** shows Health Sector Analysis by Caste.

Table 14.2 : Health Sector Analysis by Caste

Key Indicator	M. Koli	Warli	Katkari
Health Index (%)	73%	48%	9%
Occurrence of Malaria (%)	16%	31%	19%
Occurrence of Diarrhoea (%)	13%	21%	69%
Occurrence of TB (%)	2%	7%	6%
Sterilization (%)	22%	56%	22%

Healthy Watch-outs Worrying

14.4.2 Health Sector Analysis by Economic Status

Overall conclusion: Without a doubt, occurrence of Diarrhoea is most common, given the hygienic conditions, availability of adequate sanitation facilities etc. ***Table 14.3*** provides Health Sector Analysis by Economic Status.

Table 14.3 : Health Sector Analysis by Economic Status

Key Indicator	APL	BPL	Antoday
Health Index (%)	74%	80%	41%
Occurrence of Malaria (%)	13%	17%	20%
Occurrence of Diarrhoea (%)	9%	9%	36%
Occurrence of TB (%)	0%	0%	5%

Healthy Watch-outs Worrying

14.4.3 Health Sector Analysis by Gender

Overall conclusion: In general, while there is an increase in the women population, the literacy for them has declined (even though the rate of decline is lower as compared to males). ***Table 14.4*** provides Health Sector Analysis by Gender

Table 14.4 : Health Sector Analysis by Gender

Key Indicator	Male	Female
Sterilization (%)	0	3%
Occurrence of TB (%)	4%	4%
Occurrence of Cataract (%)	3%	3%
Occurrence of Leprosy (%)	2%	1%

Healthy Watch-outs Worrying

14.4.4 Health Sector Analysis by House-Type

Overall conclusion: As expected, villagers in Kuccha houses were more prone to diseases than those in Semi-Pucca/Pucca houses - indicative of better living conditions in Pucca houses. ***Table 14.5*** provides Health Sector Analysis by House-type.

Table 14.5 : Health Sector Analysis by House-Type

Key Indicator	Pucca	Half-Pucca	Kaccha
Health Index (%)	76%	57%	29%
Occurrence of Malaria (%)	11%	11%	34%
Occurrence of Diarrhoea (%)	5%	17%	37%
Occurrence of TB (%)	2%	10%	9%

Healthy Watch-outs Worrying

14.5 Major Health Initiatives & Schemes

There are various schemes and vaccination camps that are held every month. The vaccination camp ensures availability of the following vaccines:

1. B.C.G
2. Triple Polio
3. Jaundice
4. Hepatitis B
5. Measles
6. Vitamin A
7. T.T (for Pregnant women)
8. D.P.T booster (for 5-6 years old kids)

In the year 2013-2014, 31 kids were vaccinated thus far.

Other camps include "Aarogya Shibir" and "Manav vikas Shibir" for checking the physical and mental health of an individual and especially pregnant women.

Expecting mothers and infants/kids up to 5 years were given all vaccination according to their calendars.

"Janani Suraksha Yojna" is an intervention programme for safe motherhood under the National Rural Health Mission (NRHM). It aims towards reducing neonatal and maternal mortality among poor women. It provides financial assistance of INR 500 to pregnant women who have attained 19 years of age and is below poverty line.

Janani Suraksha yojna also provides free ambulance service for expecting mothers and infants.

Another scheme named "Kishori Sabli Karan" is aimed towards girls in the age group of 14 to 18 years. It provides free folic acid tabs, one meal a day and also gives sex education.

Sterilization camps are held in Jawahar and Mokhada free of cost. Males get INR 1400 for getting sterilized and females get INR 400. This is to

encourage male sterilization which is considered to be simpler and convenient than female sterilization. However, from the data that we gathered, it is seen that female sterilization is more than male sterilization.

Figure 14-8 shows the Sterilization data for last 5 years.

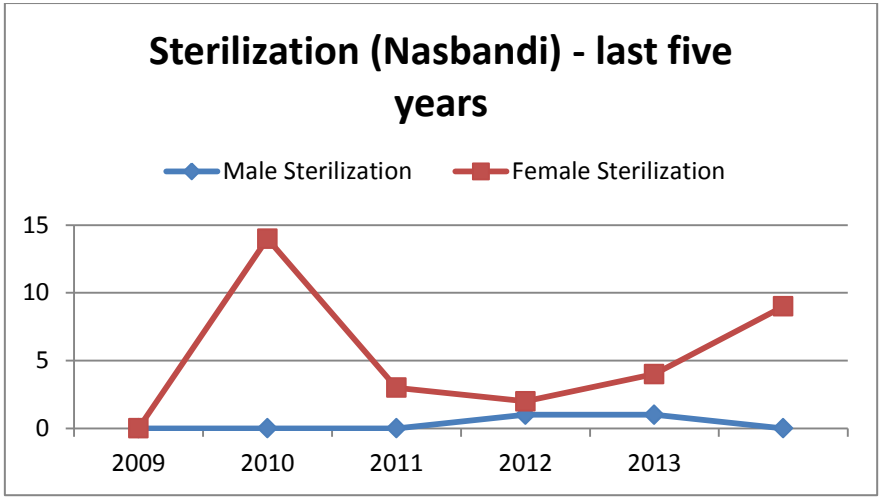


Figure 14-8 : Sterilization (Nasbandi) Data – last five years

Chapter 15 : PUBLIC INFRASTRUCTURE

Palsunda village is connected with the nearby village by a single road. For external connectivity, the total length of the tar road is 5.2 sq. kms, while the total length of kuccha road is 3.5 sq. kms. Internally, ie. roads within the village – total length of the tar road is 2.4 sq. kms, and that of the kuccha road is 5 sq. kms. These roads were constructed under the programs of PWD and NREGA.

There is no public transport bus halt in the village; neither does the village have a bus stand. Residents of the village would need to walk about a km. to get to the nearest bus stand. In addition, private operators service the transportation needs of the village – there are 3 private jeeps for the residents to leverage.

Most of public infrastructures like Bank, Post Office, Government hospital, Panchayat Office, Talathi office, Electrical department, Agriculture department, Land records (Bhumi Abhilekh) are not within village or Gram Panchayat.

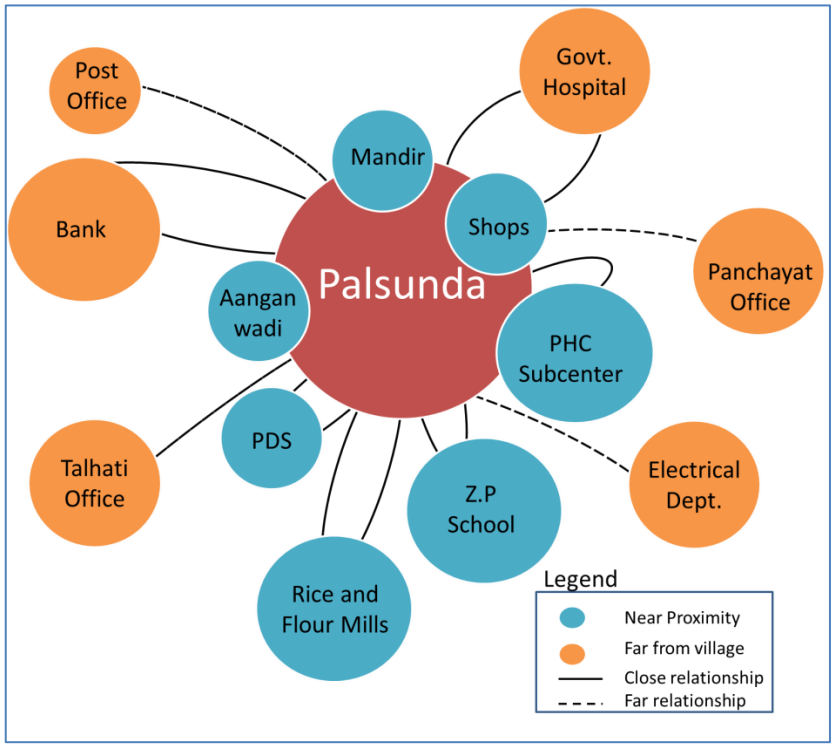


Figure 15-1 : Venn diagram of Palsunda village

Figure 15-1 shows a venn diagram of Palsunda village. Size of bubble indicates the importance. Blue colour indicates near proximity or within the village. Orange colour indicates that infrastructure is far off from the

village. The dotted lines indicate that the infrastructure is not frequently used by the people or need is not felt. The solid line indicates that is very frequently used.

We can thus observe that Z.P school, Rice Mills, Flour Mills, shops, Aanganwadi etc. are within village. Whereas, Bank, Government hospital, Talathi office etc. are far from the village.

It also shows that despite Government hospital being far, villagers prefer to use it and visits it frequently. Post office on the other hand has almost no interaction with the people of village.

Table 15.1 summarizes the infrastructure of Palsunda village.

Table 15.1 : Infrastructure of Palsunda village

Public Infrastructure	Gram Panchayat	Village
Crematory	4	1
Burial Ground	None	None
Gram Panchayat Building	1	None
Community Hall	5	2
Gymkhana / Vyayam Shala	None	None
PDS Godown/Godown	3	1
Library	None	None
Police Station	None	None
Talathi's Office	None	None
Electricity Office	None	None
Bank	None	None
Post	None	None
Kissan Seva Kendra	None	None
PDS Ration Shop	2	1
Grazing Grounds	3	1
Water holes for Cattles		
Cattle sheds (common)	None	None

Chapter 16 : COMMITTEES

At village level, there were various committees for different development works and schemes. They usually met during Gram Sabha or planned meeting. The various committees that were present in Palsunda village, their main function, number of members that constituted the committee, whether it was functional or not and type of members – all of this information is shown below. There was no cooperative society.

16.1 Water Committee

The following points describe the functions of the Water Committee

- Manage the operation and control of water supply(valve)
- Perform Repair and Maintenance of motors
- In case of breakdown of handpumps, escalate to MJP (Maharashtra Jeevan Pradhikaran) officers.
- Collect of Water tax

Table 16.1 gives additional information on Water committee.

Table 16.1 : Additional Information on Water Committee

Heading	Information
Members	**Total Committee Members**: **11** • Chairperson: Gram Sevak - **1** • Head: Sarpanch - **1** • GP Members - **7** • Ladies representative – **2**
Exists	YES
Functional	NO

16.2 Energy Committee

There was no energy committee either in the village or Gram Panchayat

16.3 Forest Committee - Van Vyavasthapan Samiti

The following points describe the functions of the Forest Committee

- Prepare a "ten year microplan" and "Annual Implementation Plan"
- Carry out implementation of microplan & Annual implementation plan
- Prevent destruction of trees and forest resources (surface soil, forest floor, wildlife, and habitat conditions of the village
- Ensure conservation of wildlife and habitat
- Prevent encroachment in village forests
- Maintain integrity of the boundary of village forests
- Manage grazing and use of fodder resources
- Prevent forest fire
- Maintain records, documents and finance accounts

Table 16.2 gives additional information on Forest Committee.

Table 16.2 : Additional Information on Forest Committee

Heading	Information
Members	**Total Committee Members: 10** • Secretary - **1** • SHGs - **5** • User Group - **1** • SC/ST community - **1** • Woman representative - **1** • Landless - **1**
Exists	YES
Functional	YES

16.4 Watershed Committee

The following points describe the functions of the Watershed Committee

- Open separate bank account for watershed related activities
- Maintain records of project activities
- Ensure payment and other financial transactions
- Facilitate the convergence of various projects/schemes to institutions of watershed development project
- Maintain asset register
- Allocate rights to SHGs over the assets created

Table 16.3 gives additional information on Forest Committee.

Table 16.3 : Additional Information on Watershed Committee

Heading	Information
Members	**Total Committee Members: 10** • Secretary - **1** • SHGs - **5** • User Group - **1** • SC/ST community - **1** • Woman representative - **1** • Landless - **1**
Exists	YES
Functional	NO

16.5 Tanta Nirmulan Samiti

The following points describe the functions of the Tanta Nirmulan Samiti

- Ensure there are no fights within village
- In case of any fights, resolve within the village
- Ensure no FIR is raised (in 5 years if there hasn't been a single FIR raised then village gets INR 5 L)

Table 16.4 gives additional information on Tanta Nirmulan Samiti.

Table 16.4 : Additional Information on Tanta Nirmulan Samiti

Heading	Information
Members	**Total Committee Members: 7** • Head (Police Patil) - **1** • User Group - **1** • SC/ST community - **1** • Woman - **2** • Landless - **2**
Exists	YES
Functional	YES

16.6 School Management Samiti

The following points describe the functions of the School Management Samiti

- Control and Monitor admission process
- Ensure mid-day meals are hygienic and tasty
- Monitor tendering process

Table 16.5 gives additional information on School Management Samiti.

Table 16.5 : Additional information on School Management Samiti

Heading	Information
Members	**Total Committee Members: 10** • Chair Person - Head master • Members: • Literate person (male) - well reputed in village • Literate women representation
Exists	YES
Functional	YES

16.7 Utsav Samiti

The following points describe the functions of the Utsav Samiti:

- Manage different types of festivals
- Manage and decide various activities for each festival
- Manage guests (outsiders)
- Arrange for food for all

Table 16.6 gives additional information on Utsav Samiti.

Table 16.6 : Additional information on Utsav Samiti

Heading	Information
Members	**Total Committee Members: 20** • Religious and people with interest in Bhajan • One who can play harmonium / sing
Exists	YES
Functional	YES

We participated in one of the Gram sabha which addressed forest related issues.

Chapter 17 : FINANCE

17.1 Introduction – Village Profile

The primary purpose of this sector is to and analyse the financial health of Saturly-Palsunde Gram Panchayat. The source of this information was the Gram panchayat themselves. A financial statement is prepared every year around the November timeframe. During this time, in addition to preparing the estimates for the current year and the actuals of the previous fiscal year, budget and actuals of the previous 3 years is also considered.

The Financial Statement prepared is reviewed by the Sarpanch and Block Divisional officer (BDO) – the final sanction is taken from the Gram Sabha. The Revenue Department usually audits the statements every year in the July/Aug timeframe by a Class II officer. Overall, the spend can be 10% over the estimated, beyond which special approval process is required.

17.2 Income (Means of In-flow) Statement

The income section of the Financial Statement contains information relating to incoming funds for use by the village. Typical headings under this section include Tax Collections (Water, Electricity, Land revenues, funds available under various different schemes/grants, penalties recovered etc. ***Tables 17.1 and 17.2*** show the Income Statement for Saturly-Palsunde Gram Panchayat, indicating the budget Inflow figures for years 2009-10, 2010-11, 2011-12, 2013-14 as well as the Actuals Inflow for 2007-08, 2008-09, 2010-12. Some of the schemes indicated in the Financial Statement include: Bhima Yojana, Adivasi Vikas Yojana, Sampurna Swachata Abiyaan to name a few.

17.2.1 Income (Inflow) - Budget figures

Table 17.1 provides the Income (Inflow) Statement Budget figures.

Table 17.1 : Income (Inflow) Budget figures

Means of inflow	2013-14	2012-13	2011-12	2010-11
Tax on farms and Infrastructures	70000	70000	45000	40000
Tax on Electrical amenities	18000	12000	8000	7000
Tax on Properties		5000		
Bhima Yojana - for Medical insurance	18000	12000		
Water Tax	85000	65000	10000	9500
Private vehicle tax/market		5000	2000	2000
Tax from Bank		1000	2000	1500
Allowance for meeting arrangements	3000	5000		
Land Redistribution Fund	12000	4000		
Honorarium Allowance for Sarpanch	10000	10000	5800	
Other honorarium from State or district			5000	5000

Means of inflow	2013-14	2012-13	2011-12	2010-11
Land Revenue	8000	5000	3000	3000
Panchayat Cess			3000	3000
Mineral Tax			3500	3500
Adivasi Vikas Yojana - Tribal Grant			500	500
Bond Revenue grant	15000	20000		
fee for section 90	5000	5000	2000	2000
Allowances from animal House		2000		
Funding from institutions or personnel	5000	1200	10000	1500
Penalty recovery on some social crimes		5000	7000	5000
Sampurna Swachchhata Abhiyan			3000	3000
Other small funding	2000	1000	2500	2500
Revenues from Post				
Employee honorarium	30000	20000	10000	10000
Grant for Crematory				
Income from audit system	10000	5000		
Grant for Financial tours	2000	194		
TOTAL	293000	253394	122300	99000

From the above we observed the following:

- Total Budget (expected) outlay for income over the past 4 years has seen a steady increase of over 15% year on year
- Year 2012-13 saw an unusual jump of over a 107% over previous year budget – we could not ascertain whether this was as a result of missing items or human error or whether it indeed reflected reality
- The anticipated income increase primarily was because of increase in tax collection across all categories

17.2.2 Income (Inflow) – Actual Figures

Table 17.2 provides the Income (Inflow) Statement Actual figures.

Table 17.2 : Income (Inflow) – Actual Figures

Means of inflow	2011-12	2010-11	2008-09	2007-08
Tax on farms and Infrastructures	37956	13444	30500	21147
Tax on Electrical amenities	6880	2290	4500	1730
Tax on Properties				
Bhima Yojana - for Medical insurance	5805			
Water Tax	12660	2300	8000	2655
Private vehicle tax/market			5000	745
Tax from Bank	690	851		
Allowance for meeting arrangements	6375	2325		
Land Redistribution Fund	1185	3620		
Honorarium Allowance for Sarpanch	6000	2800		
Other honorarium from			5000	3162

Means of inflow	2011-12	2010-11	2008-09	2007-08
State or district				
Land Revenue	1478	1918	3000	1478
Panchyat Cess			500	1185
Mineral Tax			500	
Adivasi Vikas Yojana - Tribal Grant			500	250
Bond Revenue grant	11660	3815	500	
fee for section 90				
Allowances from Animal House				
Funding from institutions or personnel			1000	110
Penalty recovery on some social crimes				
Sampurna swachchhata Abhiyan	500	12830		
Other small fundings			1500	
Revenues from Post		18	4000	
Employee Honorarium	26250	5400	9000	9472
Grant for crematory	24941			
Income from audit system				2577
Grant for Financial tours	250	250		
TOTAL	142630	51861	73500	44511

From the above we observed the following:

- Total Actual income over the past 4 years has also seen a significant increase - nearly 65+% over the previous year. Year 2010-11 was an anomaly though, as there was a dip in GP income
- As expected, tax collection saw a huge jump from the past 3 years
- As per the financial statement obtained, in the year 2010-11, the GP received much less income than budgeted (47% of budget)
- However, in 2011-12, the actual income received was 16% over what was expected

17.3 Expenses (Means of Out-flow) Statement

The Expenses section of the Financial Statement contains information relating to expenditures incurred by GP towards the village upkeep. Typical headings under this section include Wage and Allowance expenses, Maintenance, Health, Social causes, etc. ***Tables 17.3 and 17.4*** show the Expense (Out-flow) Statement for Saturly-Palsunde Gram Panchayat, indicating the Budget Outflow figures for years 2009-10, 2010-11, 2011-12, 2013-14 as well as the Actuals Outflow for 2007-08, 2008-09, 2010-12.

17.3.1 Expenses (Outflow) – Budget figures

Table 17.3 provides the Expenses (Outflow) Statement Budget figures.

Table 17.3 : Expenses (Outflow) – Budget figures

Means of out-flow	2013-14	2012-13	2011-12	2010-11
Payment to employee	35000	32400	17000	15000
Travelling Allowances of employee	2000	2000	3000	2000
Allowance for meeting arrangements	3000	5000		

Means of out-flow	2013-14	2012-13	2011-12	2010-11
Offices casual spending	40000	25000	8500	6500
Sarpanch's Honorarium	6000	10000	5800	3800
Allowances for Peons Dress			700	700
well/pond cleaning	16000	18000	4500	4000
Road Maintenance	15000	12000	4000	4000
Raw road Maintenance	8000	5000		
Grant for medical boy visit (toilet inspection)				
Stationary/energy	30000	20000	7000	6000
Sampurn Swachchhata Abhiyan			5000	5000
Colouring				
Hand-pump Maintenance	7000	5000	4000	4000
Employee Honorarium				
Public infrastructure maintenance	20000	15000	2500	2500
Delivery and Childcare	1457	960	2000	2000
Public Health (TCl)	45000	45000	25000	20000
Education tax	3000		1000	1000
Social/Cultural Functions	5000	4000	2000	2000
Village Security				
Lok-kalyan 0.25% grant	134	74	500	500
Agriculture			500	
Plantation/afforestation	15000			
Other Social works		30000		
DeadStock	25000	18000	5000	9000
Other small spending			2000	
Loan Returns			7000	5000
Crematory Building			2000	2000
Advances given (0.25%)			500	500
Expenditure on backward classes (15%)	11785	4276	6000	6000
Guest Charges/allowances			1000	1000
TOTAL	288376	251710	116500	102500

From the above we observed the following:

- Total Budget (expected) outlay for expenses over the past 4 years has seen a steady increase of over 14% year on year
- Year 2012-13 saw an unusual jump of over a 116% over previous year budget – we could not ascertain whether this was as a result of missing items or human error or whether it indeed reflected reality
- The anticipated income increase primarily was because of increase in tax collection across all categories

17.3.2 Expenses (Outflow) – Actual figures

Table 17.4 provides the Expenses (Outflow) Statement Actual figures.

Table 17.4 : Expenses (Outflow) – Actual figures

Means of out-flow	2011-12	2010-11	2008-09	2007-08
Payment to employee	18000	14900	7000	6545
travelling Allowances of employee			1500	

Means of out-flow	2011-12	2010-11	2008-09	2007-08
Allowance for meeting arrangements	2400	4725	2500	
Offices casual spending	13500	8598		7819
Sarpanch's Honorarium	3600	1320	6500	840
Allowances for Peons Dress			1080	
well/pond cleaning	1600	1680	7500	1363
Road Maintenance	3500	2100	3500	1269
Raw road Maintenance			500	
grant for medical boy visit (toilet inspection)		1830		
stationary/energy	10500	6000	9000	4605
Sampurn Swachchhata Sbhiyan		5500		2700
Colouring				
Handpump maintenance	3000	4000	2000	2000
Employee Honorarium	23800			
Public infrastructure maintenance			1500	1810
Delivery and Childcare	610	610	2500	411
Public Health (TCl)	24000	20000	10000	7870
Education tax			1000	
Social/Cultural Functions	2000	1860	1500	1050
Village Security	1000			
Lok-kalyan 0.25% grant	192	225	500	
Agriculture				
Plantation/afforestation				
Other Social works				
DeadStock	7629		4000	
Other small spending			1000	
Loan Returnings			1000	
Crematory Building	253000			
Advances given (0.25%)			2000	98
Expenditure on backward classes (15%)	4900	4900	4000	3085
Guest Charges/allowances				
TOTAL	373231	78248	70080	41465

From the above we observed the following:

- Total Actual expenses over the past 4 years has also seen a significant increase - nearly 300+% over the previous year
- Interestingly Honorarium costs and Crematory costs have gone up in 2011-12, which was not present in the previous years
- As per the financial statement obtained, while the GP spent less than budgeted in the year 2010-11, it overshot its budget by over 200% in 2011-12

17.4 Analysis of Financial Parameters – Household

17.4.1 Average Loan taken – By Caste

This analysis gave us insights on the Average Loan taken by Caste. Here are our findings:

- Mahadev Kolis seemed to be taking the highest loans per HH (on an average) – having said that, since their economic status was better than the other castes, their ability to repay was better. Banks & Money lenders were therefore more willing to loan money to people in this caste
- While Katkaris also had loans, their ability to repay was significantly diminished, hence they remained forever in debt. Most of their earnings went towards repayment.

Figure 17-1 provides a graphical representation of the loan data by Caste.

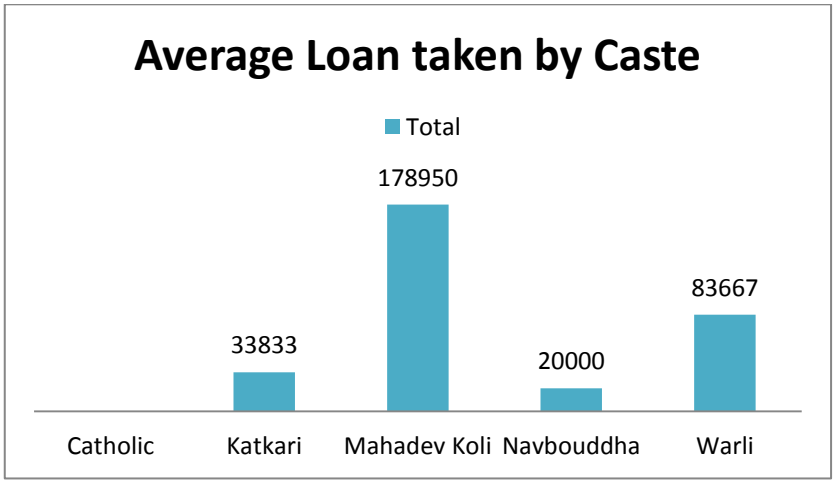


Figure 17-1 : Average Loan taken by Caste

17.4.2 Source of Loans - By Caste

This analysis gave us insights about where the loans get taken from – ie. Banks, Moneylenders etc.. Here are our findings:

- Bank seemed to be the institution from where maximum loans were taken, followed by relatives and then Money lenders
- For each of the sources above, Mahadev Kolis seemed to be the highest average loan takers.

Figure 17-2 provides a graphical representation of the loan source by Caste

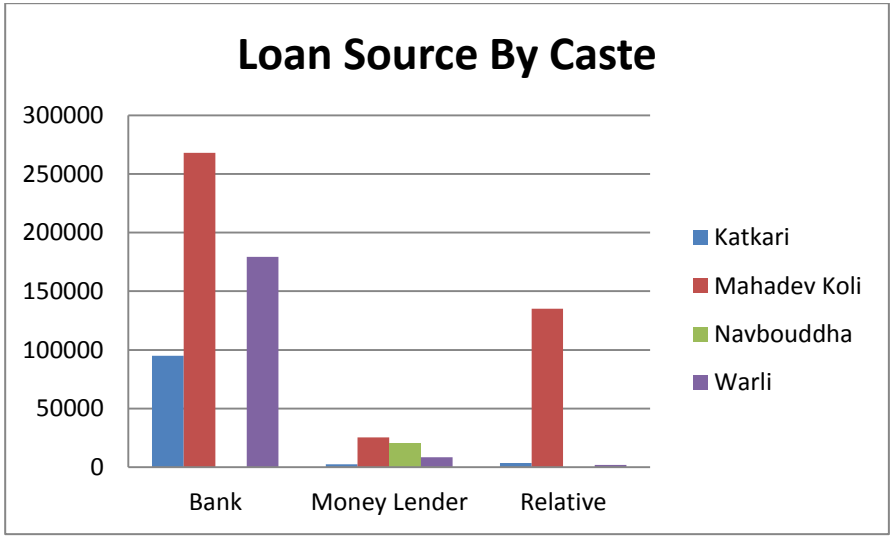


Figure 17-2 : Loan Source by Caste

17.4.3 Average Taxes paid – By Caste

This analysis gave us insights on taxes paid (Property tax, Safai tax, Sanitation tax and Electricity tax). Here are our findings:

- Leaving Catholics aside (as there was only one HH), Mahadev Kolis paid the highest property taxes, followed by Warlis and then Katkaris. This is consistent with the property owned by Mahadev Kolis, which were larger by area and better
- The average monthly property taxes of all Households was Rs. 114, safai tax was Rs. 18.95, Sanitation tax was Rs. 75 and Electricity tax was Rs. 18.95.

Figure 17-3 provides a graphical representation of the average taxes paid by Caste.

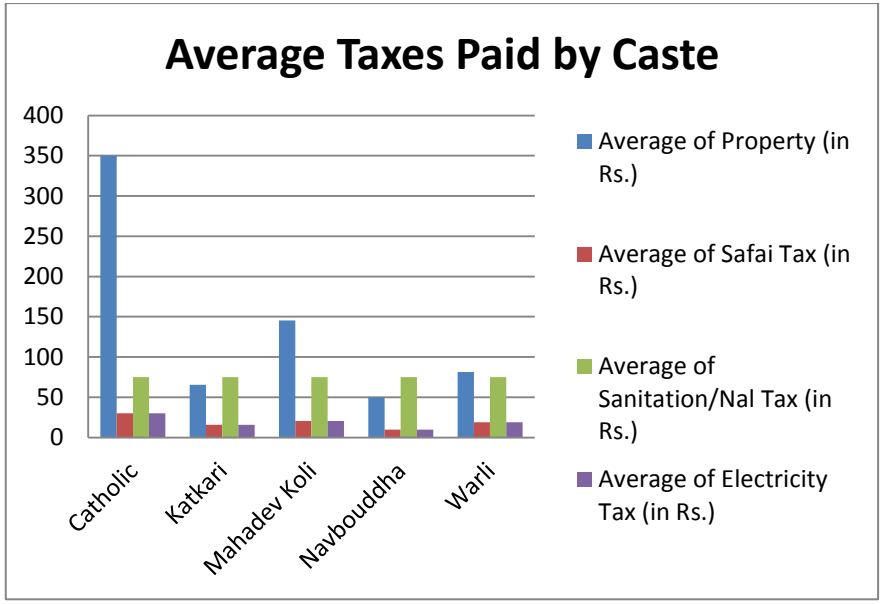


Figure 17-3 : Average Taxes paid by Caste

17.4.4 Average Loan taken – By Economic Status

This analysis gave us insights on the Average Loan taken by Economic Status. Here are our findings:

- People in APL status took more loans on an average, followed by BPL Community and closely followed by Antodays. Their ability to repay was also much better as compared to the people in BPL and Antoday Status.
- Average loan taken by APL HH was INR 2,79,591, followed by BPL at INR 1,28,367 and then Antodays at INR 1,21,629

Figure 17-4 provides a graphical representation of the loan data by Caste.

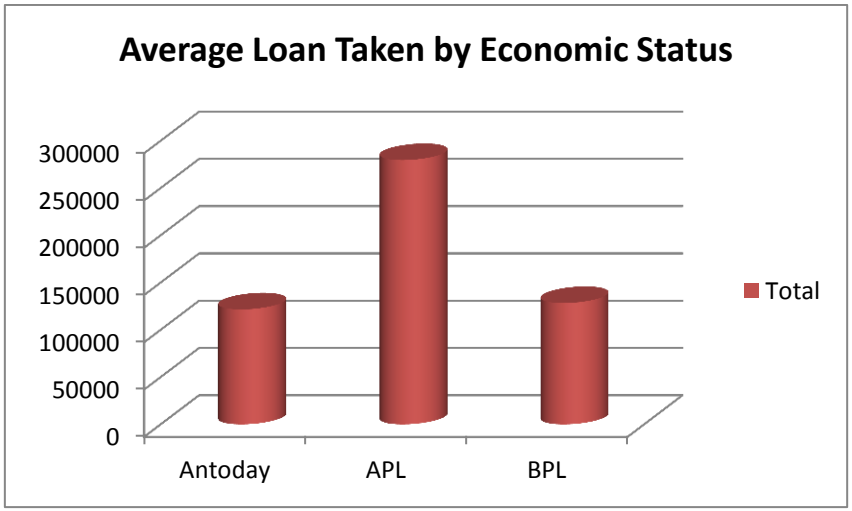


Figure 17-4 : Average Loan taken by Economic Status

17.4.5 Source of Loans - By Economic Status

This analysis gave us insights about where the loans get taken from – ie. Banks, Moneylenders etc.. Here are our findings:

- Bank seemed to be the institution from where maximum loans were taken, followed by relatives and then Money lenders
- While Antodays relied mainly on banks for their loan needs, BPL people relied as much on taking loans from relatives as they did banks.
- All APL people mainly approached banks .

Figure 17-5 provides a graphical representation of the loan source by Caste.

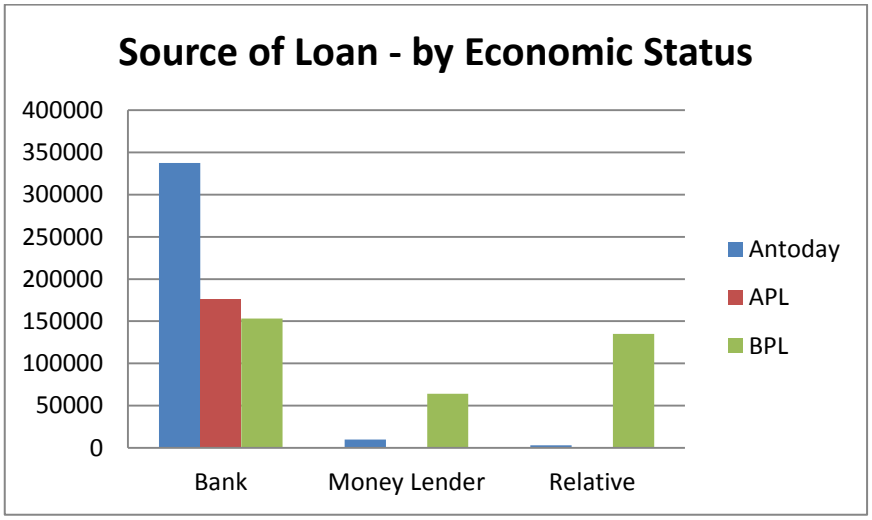


Figure 17-5 : Source of Loan – By Economic Status

17.4.6 Average Taxes paid – By Economic Status

This analysis gave us insights on taxes paid (Property tax, Safai tax, Sanitation tax and Electricity tax). Here are our findings:

- Interestingly, from the figure BPL seems to be paying the highest property taxes – the main reason is that there is one outlier data who has a tax payment component of Rs. 1200 – this skews the data.
- However, having said that, another indicator is that APL gets determined by a number of factors other than property – including quantum of agriculture land available, inheritance of field property etc. So while APLs may be better off from Economic Status. They may not necessarily have a bigger property.
- The average monthly property taxes of all Households was Rs. 113.80 Safai tax was Rs. 18.95, Sanitation tax was Rs. 75 and Electricity tax was Rs. 18.95.

Figure 17.6 provides a graphical representation of the average taxes paid by Economic Status

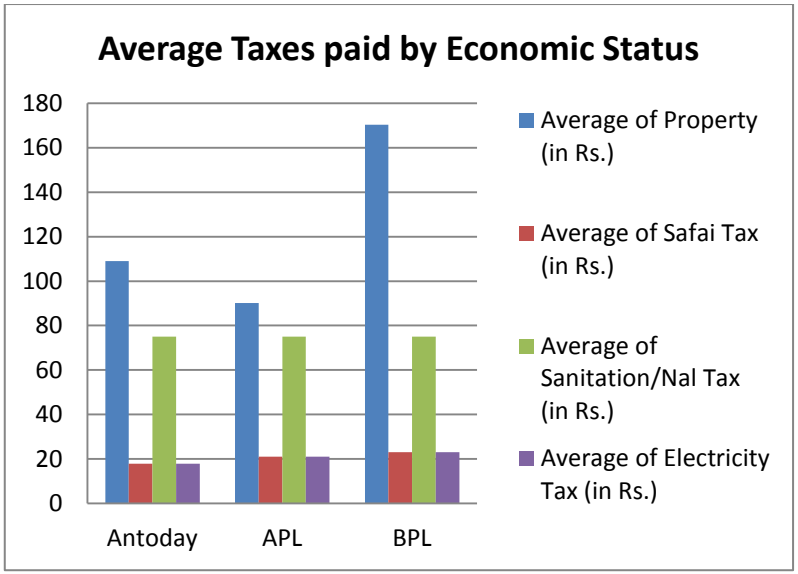


Figure 17-6 : Average Taxes paid by Economic Status

17.5 Household Survey – In Summary

Having seen the different individual cuts from the HH survey, the following section provides an overview analysis from the survey. This analysis is tabulated and conclusions summarized. While the first two tables focus on the Income (Inflow) and Expenses (Outflow) Statements, the next 2 tables focus on overall summary from HH Survey. While the content of the table in itself is self-explanatory, we have put down our summary assessment/conclusion along with the table.

17.5.1 Finance Sector Analysis for Inflow – Budget v/s Actuals

Overall conclusion: The GP seems to not be getting adequate funds as expected, particularly income related to taxes, fees and penalties. This in turn reduces the extent of allocation towards infrastructure facilities & services. ***Table 17.5*** provides an analysis of the Finance Inflow Statement – Budget v/s Actuals.

Table 17.5 : Finance – Inflow – Budget v/s Actuals

Key Category	Budget (INR)	Actual (INR)	% incr over budget
Total Income from Taxes	70,500	58,186	=17%
Total Funding & Revenue	18,500	14,323	-22%
Incomes & Grants	24,300	70,121	188%
Fees & Penalties	9000	0	-100%

Healthy Watch-outs Worrying

17.5.2 Finance Sector Analysis for Outflow – Budget v/s Actuals

Overall conclusion: Payments seem over the budget, while Maintenance and Services spending is not fully utilized – in other words people may not be getting the intended benefits expected from GP. ***Table 17.6*** provides an analysis of the Finance Outflow Statement – Budget v/s Actuals.

Table 17.6 : Finance Sector Analysis for Outflow – Budget v/s Actuals

Key Category	Budget (INR)	Actual (INR)	% incr over budget
Payments & Allowances	27,500	47,800	73%
Maintenance expenses	15,000	8,100	-46%
Services Spending	35,500	70,121	-21%
Other Spending	39000	2,89,529	642%

Healthy Watch-outs Worrying

17.5.3 Finance Sector Analysis by Caste

Overall conclusion: When analysed by caste, average loan taken seemed to be proportional to the income generated by the Household. ie. higher the income, higher the loan. ***Table 17.7*** provides the Finance Sector Analysis by Caste for the HH survey.

Table 17.7 : Finance Sector Analysis by Caste

Key Indicator	Mahadev Koli	Warli	Katkari
Average Amount of Loan taken	1,78,950	83,666	33,833
Average Income per HH	INR 44034	INR 31533	INR 13329

Healthy Watch-outs Worrying

17.5.4 Finance Sector Analysis by Economic Status

Overall conclusion: When analysed by Economic Status, average loan taken seemed to be proportional to the income generated by the Household. ie. higher the income, higher the loan. ***Table 17.8*** provides an analysis of the Finance Sector by Economic Status based on HH survey.

Table 17.8 : Finance Sector Analysis by Economic Status

Key Indicator	APL	BPL	Antoday
Average Amount of Loan taken	2,79,590	1,28,366	1,21,629
Average Income per HH	INR 51889	INR 34056	INR 66721

Healthy Watch-outs Worrying

Chapter 18 : GOVERNANCE

18.1 Introduction

Palsunda village, a Mahsul/Revenue village and Saturli form a Group Gram Panchayat. Our Gram Panchayat was at Saturli, near Zilla Parishad School. There were separate Talathis (Revenue Officers) for Palsunda and Saturli. Mr. Momin was the Revenue Officer for Saturli and Mr. Dalvi was the Revenue Officer for Palsunda. Gramsevak of the village was Mr. Tolsarwad. All government schemes related to village were implemented by above mentioned three people. The village body that represented the whole village was the Gram Panchayat. It consisted of 9 members. They were the elected body and elections happen once in every five years. Police Patil, a designated post is the other important personnel. It is the responsibility of Police Patil to maintain harmony in the village. Police Patil has the mandate and the right to inform government about any disparities and clashes in the village.

18.2 GP elections: Body formation

Our constitution has given us right to vote and elect our representative of choice. Here too, in the GP election, people elect their representatives of choice. The elected GP member's prime responsibility is to serve and satisfy the needs of the village resident. The election happens once in every 5 years. To ensure equal justice and equal opportunity to all class and caste, some specific reservation policies are implemented in election. The Sarpanch post is reserved for ST/Women candidate. Also, 50% seats are reserved for women candidates. Last election was held 3 years back.

Table 18.1 describes the elected body for Palsunda-Saturli.

Table 18.1 : Elected body representatives

Sr. No	Name	Post	Village/Pada
1	Kamal Haribhau Patil	Sarpanch	Saturli
2	Hiraman Hari Taral	Upsarpanch	Palsunda
3	Datta Rajaram Patil	Member	Palsunda
4	Sandhya Dnyaneshwar Patil	Member	Palsunda
5	Ananta Kalu Dodhal	Member	Palsunda
6	Rekha Sunil Pitole	Member	Saturli
7	Bhaskar Chaitu Tumbde	Member	Saturli
8	Aasha Vilas Khonde	Member	Saturli

18.3 Roles & Responsibilities:

The broad role and responsibilities of Gram Panchayat are listed below:

- Maintain various public infrastructure of the village
- Ensure proper health and hygiene in the village
- Ensure primary education available to all children
- Information availability to all villagers about various schemes
- Implement the schemes
- Make various relevant committees and monitor the functioning of those committees
- Hold Gram-sabhas and put forward all the outcomes in front of villagers
- Include people's participation in audit processes

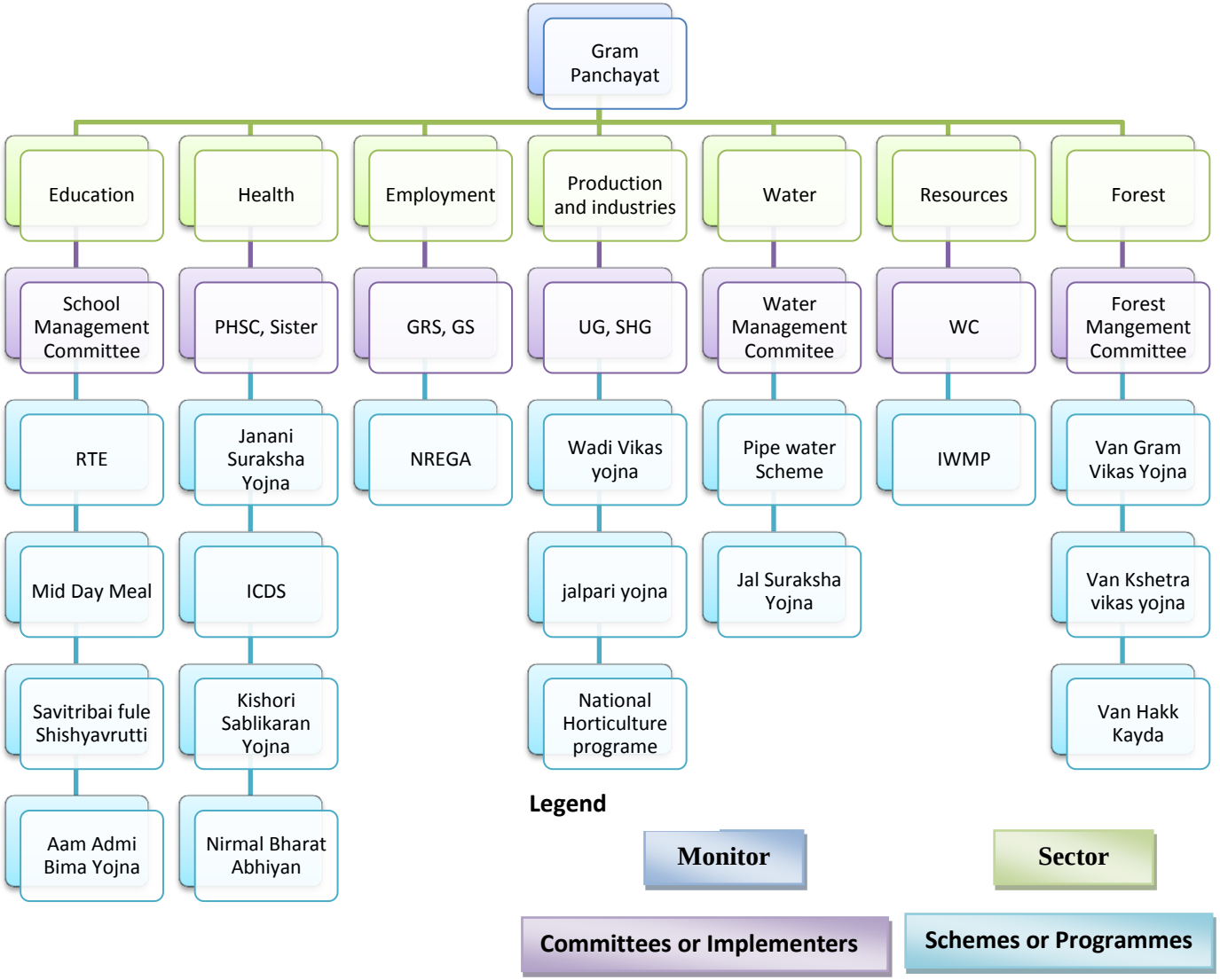


Figure 18-1 : Governance Structure and various Committees

18.4 Various Sectors and committees in the Gram Panchayat:

GP governs the monitoring of various sectors to ensure the quality of life and standards of people. It's the responsibility of GP to ensure health, harmony and development of village. Towards this, Gram Panchayat caters to main sectors viz., education, health, social justice, natural resource and management.

Various committees are formed by the GP with active participation of villagers. Committees are formed by taking gram-sabhas and callouts. The responsibilities of committees are to ensure implementation of the various schemes. It ensures proper funding and finance from GP. Some of the committees are explained under the Chapter 16 - Committees. ***Figure 18.1*** shows the various committees and schemes which have been implemented in the village. Some of them are explained below:

1. Nirmal Bharat Abhiyan:

This scheme aims towards ensuring proper sanitation facility in the village. The beneficiaries are given a sum of INR 10500/- which is paid in 3 instalments of INR 4000/-

2. Wadi Vikas Yojna

This yojna is aimed towards enhancing the livelihood options for the villagers through horticulture. For Palsunda, It is implemented by an NGO named BAIF. So far, 13 farmers have availed this scheme. Under this scheme, people get 200 mango saplings and 100 cashew saplings. They also get small earthen pots used for drip irrigation. Beneficiaries get an additional sum of INR 50 after a year for each survived plant.

3. Van Hakk Kayda

The act was in place from last 7 years but the beneficiaries benefitted only 3 years back. Under this scheme some non-land holding people are chosen and are given 5 acres of land in lieu of the land that they were cultivating near forest land. There are 7 beneficiaries in village and 11 are in pipeline, who are slated to get benefited next year.

4. Jalpari Yojna

The Jalpari yojna benefits the beneficiaries with 50% subsidy on submersible pumps. The subsidies are with a cap limit of INR 2.5 lakh. There is only one beneficiary in the village.

6. National Horticulture Programme (Campaign)

The programme started in 2005-06. After experimenting for 5 years; from the year 2010-11, it was renewed with various adoptions. One of the steps was subsidized development of shed net for ST people. The shed net with a subsidy of 70-80% are installed to increase the capability and production of the farmer. Subsidy of 2.73 lakh is given to farmer. There are 3 farmers in village while 5 in Gram Panchayat availing this scheme. The scheme is implemented on field by Agriculture Department.

Chapter 19 : OUR EXPERIENCES

19.1 Nikesh Ingle

- The experience of living in village for 9 weeks was just like re-visiting the childhood spent in village. The opportunity was after about 16 years. The day we return late or go without food, we were scolded just like my mother does to me and it was caring-sharing experience.
- Whole village became 'Aple gav' and I was considered as one member of village. The acceptance of my villagers was great and was heart-touching. People were helpful and knowledgeable in all sectors, related to life.
- While roaming with villagers in the whole span of 9 weeks, there were many incidences where the un-learning helped more than learning. Accepting the conditions till it doesn't harm us was one of them.
- Roaming for various data points on the hilly topography was worth experiencing and enjoying moments. It helped me to be tough and at the same time responsible to take care of myself not to get sick and get my family worried.
- Meeting with officials and gathering data from them really took a long time and it was a tedious process. Minimum 3-4 visits were needed to just get right way to get the data. So spending more time to build rapport was necessary. Many times, time was given to collect data or meeting and was not followed, the loss of time in such situation was very frustrating.
- But, the hierarchical effect was nicely understood from the various interactions. i.e. I met Talathi for 3 times and was unable to get any data or meeting with him. I approached to tehsildar and got letter from them, the next visit, Talathi gave respect and data.
- The visits to Talathi office were very disappointing, there was always a group of people in front of office waiting for some or the other officer. The officer used to come very late and the people had to wait for a long time. To get each thing done, some support or some local connections were needed else the work was not done in 2-3 visits.
- Although I was new to village, for many households in first few days of household survey no cross-questioning or hesitation was observed. In field visits I was always offered by food and in noon time was forced to eat. i.e. the case at Tukaram Bhau's home in Gandhi Pul is un-forgettable.
- There were many people and discussion which influenced me and so the case studies, interaction despite of need were done to understand just the life of people.
- I learned some things by doing it on my own and experienced the work-load villagers carry for the works. Two day work to build 'sandas' (toilet) for my home was one of them.
- Despite of having dam, perennial leakage of dam, a large forest area there is severe water scarcity. The crowd attack on tankers made me to think of the societal problems.
- The schedule of ladies was fully tight and it was more severe in monsoon, they were always kind and with smiling face, it always gave me energy and drive for many household activities.
- Some livelihood activities I learned were, masoning, carpentry, also my knowledge of electrical connections was well used for making connections of 2-3 houses.
- The system understanding of a government scheme was a key output of the DR which I learned. The process of design and hierarchy taught me various steps and responsibilities at each steps.

- While designing and re-structuring questionnaires the help and perspective of people at various levels were different. The evaluation/refining of almost all versions was done with the help of Dilip Bhau, Jagan Bhau and sometimes NGO, it gave the zest of their expertise and involvement. Also the refining process refined my thoughts about various stakeholders and perspective/ seriousness of easy looking questions i.e. 'how many cashew plants survived?' was a very straightforward question, but the wait to get that scheme, to water the plant on head, daily visit to field with work load and the burden of losing the plant was taken in consideration after discussions with these knowledge full/ expert people.
- While taking interviews of beneficiaries, the sadness and angriness was observed in minds of people with respect to government officials and schemes. I think the gap of information mainly laid the foundation of the anger
- The NGO and its name in the area always positively helped us and made our many works easier except for some government official. It helped me to understand the importance of NGO, third party and educational experts for works and quality of works.
- The 'Pani Parishad, attended at khodala gave me insight of importance of technical expertise and connections of Technology, Political parties, NGOs, government bodies and people in society.
- While taking tuitions in village it connected me deeply to children, playing volleyball helped me to connect to youth and helped me in gathering information but merely it gave me the zest of living in group. Also the changes in thinking was also got cleared by interacting with all those age groups.
- The religious thing which I attended, almost one kirtan per week, helped me to understand the idea behind the kirtan, bhajan in different manner. Forgetting the tiredness and enjoying the situation by connecting to people was main reasons behind all those things. Subhash mama always connected me to various situations and helped me to carry forward calmly. Inspired to enjoy the moments.
- While undergoing participatory planning activities, I got to learn the various aspect and reasons behind the use of specific land, crop in specific areas. It developed not only perspective but also gave the reasons of non-considering and development of structures.
- While presenting the work in front of the people of village, I was expecting some messy and difficult discussions on various findings or they will get bored, but it went smoothly and also with forward plan which they sanctioned by themselves within the session made me feel very happy. The unlearning process is still going on.
- Emotional send-off taught me to be emotional and be intact. Seeing, experiencing, unlearning, learning by doing are some insights which I got from the field stay. And at last the relations will be with me intact for lifetime – I made friends for life.

19.2 Bharati Lele

It only feels like yesterday when I got to know that our field stay would be in Mokhada village.. Needless to say, I was both apprehensive and excited at the same time.

Apprehensive because I was unsure of so many things - many things crossed my mind. In the day and age where we take so many things for granted – a roof to sleep in, availability of water, electricity, toilets, e-mails, WhatsApp, internet – and the list goes on – the thought of being away from all these "basic" amenities really unnerved me.

Excited, because by nature I am a very adventurous person – the realm of the unknown often brought out the best in me. A hands-on person that I am, I wanted to experience it all first hand.

We carry so many notions about what life in a village is – perhaps from the stories we have read, the movies we have seen or the glimpses we have had while travelling from one place to another, driving through different corners of the world - I'll admit, one has to live through the experience to relate to what real life is like in the village – and I can definitely say it's far different than what any city-bred person can ever imagine.

As I was awed by the simplicity of the people, I was equally disturbed to see the hardships that they had to go through for the simplest of things. Our first village was different from the second village. I learnt how to get through the toughest of times. Though I come across as an approachable person, I have a lot of inhibition in making the first connect. Since I felt comfortable in their company, I learnt to shed my inhibitions.

Unlike the popular belief that there is caste and gender discrimination in villages, I found no traces of that. People were pretty cohesive and helped each other in the time of need. I also figured out that, in village, there was no concept of privacy. One had equal right to access other's property as one would have had for himself/herself. One would not hesitate to take food, bhakri etc. from someone else's house in absence of the owner. One wouldn't even mind peeking into other's phone and read messages. So there isn't really a concept of "My thing", "Your Thing".

I learnt how difficult it was to get relevant information from government offices. We did have traces of brilliance in between that helped us collate data, but the long wait hours, officers not turning up for days together despite setting up prior appointments meticulously was a real eye-opener and often disappointing. I also noticed that at higher hierarchy, officers are more reasonable than their junior counterparts.

There was water scarcity in our village. We used to walk for 2 km to a nearby river to wash our clothes. I mastered the art of taking bath with 2 mugs of water. I learnt how agriculture was done and understood what the typical lifecycle of major crops were. I tried my hands on tiling, ploughing, grinding, laavni, mason and many other things. Aai of the house even taught me to collect vegetables from the jungle. We got immense support in every activity that we took up.

I learnt how to look for ridges and drains and decide on possible watersheds purely by observation. I also learnt how to make a V-Notch using available material like tin and measure water flow. I also learnt how to use QGIS to play around with data.

I learnt about so many local practices, their beliefs. I learnt how to respect them even if my belief system thought otherwise.

I felt that with little encouragement, they wanted to touch the sky. I had immense pleasure in teaching the kids of 8^{th} to 12^{th} standard. Even if I got tired after two hours of teaching, they would still want me to continue with the class. It spoke volumes about their liking for the subject and willingness to learn. When I took the farmers to Vapi for training in agriculture, they learnt about dairy as well. Just a few days back, Jagan bhau called up to say they had formed a committee associated with dairy.

In summary, I can certainly say that my eyes have opened to different perspectives in ways I could never have imagined. It was a great and overwhelming experience staying with them. They have become a family and we get in touch with other every few days. And above all, I found a friend in Nikesh for a lifetime.

Chapter 20 : DIRECTED RESEARCH

20.1 Introduction

Achieving the goals of development, protection, rehabilitation and improvement of livelihood are all critical and the Five year plans focus on these aspects. Specifically, the last three five year plans focus on various schemes connected to watershed development and employment generation. In the hilly regions, while there is plenty of rain, due to mountainous slopes, the high flow of water causes soil to erode. Hence these regions face scarcity of water, particularly in summer. To tackle both the problems, management of water and the associated arrangements to utilize the water efficiently and effectively becomes essential.

The catchment area or the area from which the runoff is gathered at a point is called ***Watershed***. IWMP (Integrated Watershed Development Programme) mandate is to utilize the waterfall, enhance/sustain the natural resources and improve the livelihood options/standard of living of the area.

From 2009, Integrated Watershed Development Programme (WF15-IWMP2) was introduced in Mokhada tehsil. The second IWMP (WF15-IWMP7) was started the following year, 2010. While IWMP2 was designed to cover 20 villages of Mokhada tehsil, IWMP7 covered 15 villages of the same tehsil. The NGO Aroehan, (working out of Mokhada and Jawar specifically focussing on Health, Education, Livelihood and Governance) was aiming to analyze the work done under the programme and get a consolidated view through this Directed Research (DR).

Our Directed Research Aims to

- Review the integrated watershed development programme design and DPR development process
- Understand IWMP implementation process and its interaction with other development programme
- Analyze the IWMP programme implementation and documents and document the interventions made in the Mokhada block
- Develop the village level protocol for planning and monitoring the design and implementation of IWMP programme

20.2 Our approach and methodology

While reviewing the programme it was necessary to have enough of data and overview of the programme. So we studied the programme from different perspectives and gathered data from various sources. After studying we had many questions for the design and implementation portions. So, the identified stakeholders, their responsibilities and interactions were studied and questionnaire for each type of stakeholders were made and accordingly the questions were segregated. The questionnaires were verified by villagers and were updated. After interviewing all the stakeholders, the data collected was verified through actual field visits. For studying the interaction of various programmes, the interconnecting links were observed and the corresponding stakeholders were interviewed. The primary data was analysed for understanding and gaps identified. We identified the gaps between the intended process and executed process, which was followed by a participatory planning process. In this, we used the actual need based approach and a demonstration to motivate the participants to embrace the programme was arranged. The methodology in brief is depicted in ***Figure 20-1*** and the various steps followed are also explained in subsequent chapters.

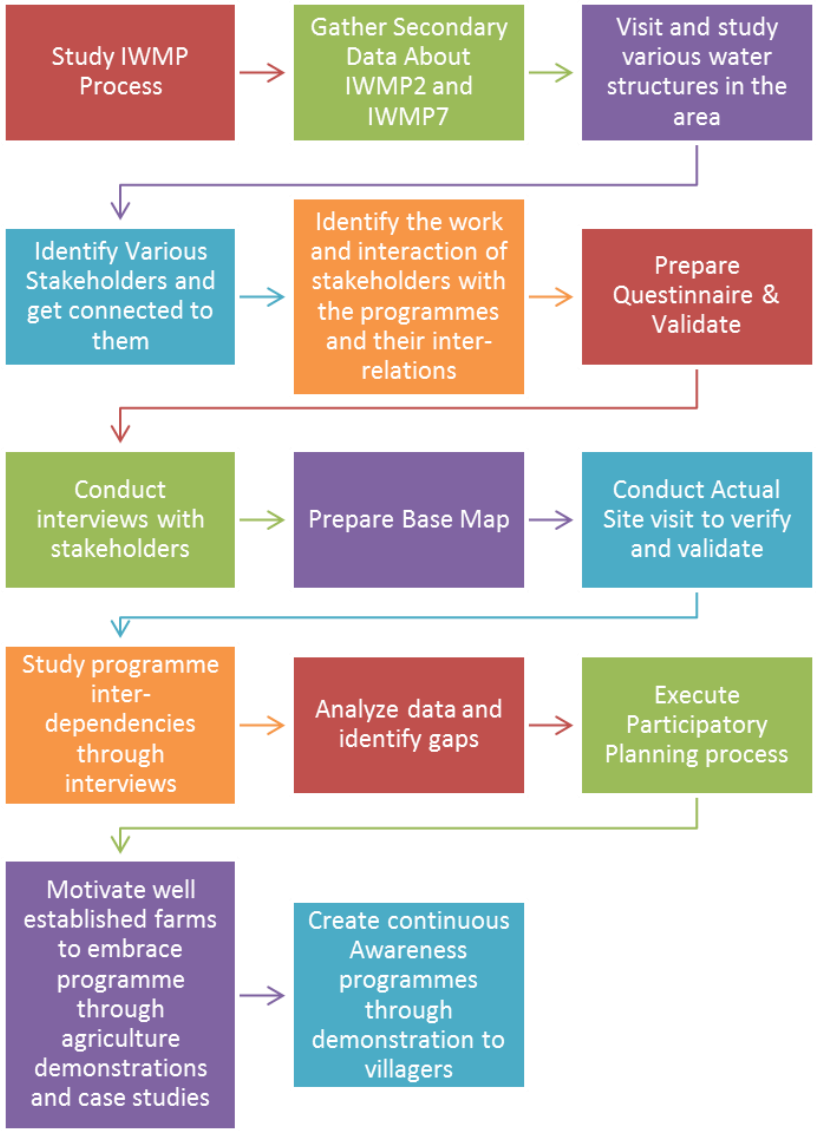


Figure 20-1 : DR – Approach and Methodology

20.3 IWMP & DPR process overview

20.3.1 Definitions and General data

Watershed is an area or ridge of land that separates waters flowing to different rivers, basins, or seas. The watershed area depends on the size of back-river and topography of the region. There are six main river-basins in India and hence India is divided into 6 main watersheds. Depending on the area of watershed, watersheds are classified as sub-watershed, mini-watershed, mili-watershed, micro-watershed and mini-watershed. Mokhada comes under Bhatsol watershed and Tapi basin sub-watershed.

Table 20.1 captures the Watershed classification.

Table 20.1 : Watershed classification

Classification	Watershed (ha)
Watershed	50,000-2,00,000
Sub-watershed	10,000-50,000
Mili- watershed	1,000-10,000
Micro-watershed	100-1,000
Mini-watershed	10-100

Watershed Degradation: Degradation of natural resources over time due to runoff in quality and quantity of productive potential of land, water and other resources causes Watershed degradation. The degradation mainly

depends on rainfall quantity and extent of hilly area or slopes of the land. As time goes by the water takes soil and minerals with it and hence the quality and productivity degrades.

Watershed Management: Managing the resources by human intervention or structural interventions to reduce the degradation process and sustaining the resources is watershed management. It must contain the actions to consider social, economical and institutional structure so as to strengthen the resources. Development must include and take into consideration resources like soil, water, forest, minerals, wildlife and human beings in the area.

According to the revised guidelines the fund allocation is ***12000 Rs/hectare*** for watershed development programme

20.3.2 DPR Process

IWMP Process

The Integrated Watershed Management Programme was developed to have better utilization of water and land resources. The programme mainly focuses on enhancing the land productivity and hence was very useful for India. National Watershed Development Programme was introduced by new guidelines in the TENTH five year plan. The approach was put forward from 1992 at policy level. In January of 1996, the watershed management programme was launched all over India after successful implementations of prototypes/pilots in Madhya-Pradesh, Uttar Pradesh and Tamil Nadu. The institutional arrangement for the implementation of IWMP programme is shown in ***Figure 20-2***.

NRAA (National Rainfed Area Authority) is a governing agency linked to Ministry of rural development. State level nodal agency is registered as ***Vasundhara***, with secretary (Water Management) as President of the Agency. The members are experts from various departments on deputation. District Watershed Development Unit (DWDU) which works with District Planning Commission is formed at the district level and this unit in turn co-ordinates with State level nodal agencies and PIA for watershed programme. DWDU will identify PIA at Taluka level for actual planning and implementation of IWMP programme.

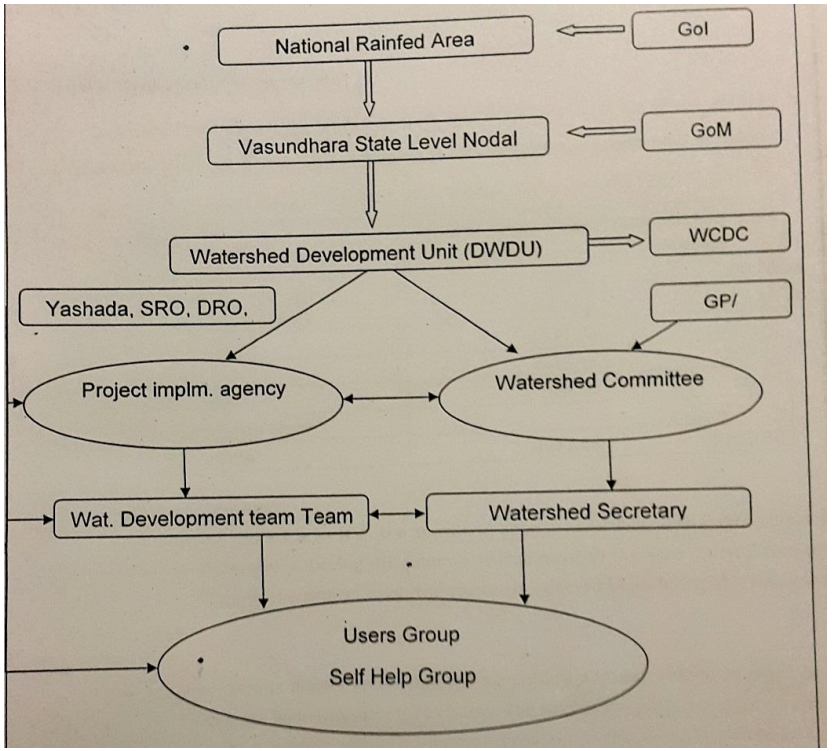


Figure 20-2 : Institutional arrangement for IWMP implementation

Panchayat Raj Institution avails the governance of the Programme at each stage. The second important stakeholder is Watershed Committee at GP level which is technically supported by PIA with the help of Watershed Development Team. The execution, selection of work on ground with participatory approach is done by Watershed committee and WDT. Watershed Committee consists of 3 members from user groups and 6 members from self-help groups, so as to maintain the participation of people. WC has to be registered with Charity Commissioner and all the above newly formed institutions as well. Also Formation of SHGs and UGs is enhanced by WDT. The functions of various institutions are shown in ***Table 20.2***

Table 20.2 : Functions of various institutions

Institution	Head and team	Works and Responsibilities
MoRD	Rural Development Minister	Funding & Monitoring
NRAA	Secretary (Water Management) Subject Experts from Various Departments	• Smooth Fund Flow • Support capacity Building • Support and initiate IEC • Close online monitoring • Interaction and follow-up from each level • Panel for evaluation and impact assessment • Support Participation
SLNA	• Development Commissioner/ Agriculture Commissioner/ Principal Secretary	• Sanctioning watershed projects • Perspective planning • Technical support to DWDU • Approving capacity building institutions
	One representative from NRAA, NABARD, RD, Agriculture, Ground water board Two professional experts of research institutes	• Approving PIA • Quality check and monitoring • Data provision
DWDU	Project Manager 3-4 subject matter experts	• Identifying PIA • Annual District action plan • Technical Support to PIA • Regular monitoring • Coordinating with other on field programmes • District level data cell
PIA	GO, VO, Institutes, Panchayat	• Technical Support to GP in DPR formation, PRA • Trainings • Motivating low-cost technologies • Planning for sustainable maintenance • Monitoring and reviewing overall process

Institution	Head and team	Works and Responsibilities
WDT	PIA One expert in Agriculture, Water management, Social Mobilisation and livelihood each	• Helping in WC formation • Enriching UG and SGH formation • PRA execution and data collection • Preparing DPR • Social audits and arrangements • Account maintenance • Ensuring participation and conducting Gram Sabha
WC	Secretary Representatives from various UG,SHG, class and casts	• Conducting Meetings • Follow-ups • Record maintenance • Payments
SHG/UG	Group of various types i.e. landless, land holders, SC etc	• Participate in meetings • Contribute to these meetings • Bring specific challenges to the table and suggest solutions
GP	Sarpanch	• Supervision and advising • Auditing • Asset records • Arranging office for WC

The bottom up approach is followed in the designing as well as the implementation of the programme. Micro-watershed areas are decided in the region by PIA or Taluka agricultural department with area of 5000-10000 Ha. Detail secondary data is collected and for population, infrastructure, water structures - demographics are collected and a preliminary project report is prepared. 10-12 such PPRs are then presented to Vasundhara Pune (SLNA) or state office. Required corrections are done and the 2-3 PPRs are forwarded to Vasundhara, Delhi (NRDAA). Many such PPRs are presented at Delhi and considering the funds and priorities, some of the PPRs are granted fund. After getting the fund granted DPR is prepared for the area. The DPR preparation is elaborated in the next section. After preparing DPR, process of execution is followed in three phases:

Preparatory Phase - consisting of Entry Point Activities – EPA and DPR preparation

Work Phase - includes actual infrastructural and livelihood interventions

Consolidation Phase - consolidation of works and capacity building

Work done in each phase is shown in ***Figure 20-3***:

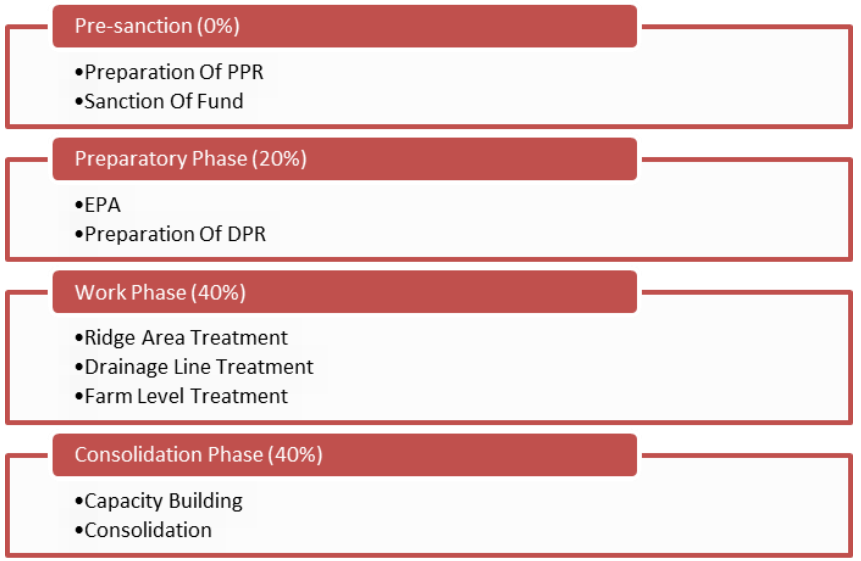


Figure 20-3 : Phase-wise activities

20.4 DPR Components & Evolution

Preparation of DPR is critical and most important part of the programme. It has to be developed along with the entry point activities. Entry point activities are for informing people by various means and doing the most needed work related to water works like repairing wells or solar street lights or to improve the inclusiveness in the process of DPR formation.

DPR consists of ***four*** major design components as

a. ***Collecting secondary and primary data*** of the villages or area. The secondary data collection needs to have a team and good network to act as the catalyst for the process. Various data that is required in the planning is to be obtained from various departments like revenue, agriculture, census, NRDWP etc.

Table 20.3 shows the various data required and aligned department or offices to be contacted

Table 20.3 : List of Departments & nature of data obtained

Sr. No.	Data	Department/Offices
1	Ongoing Projects/Programmes	BDO/VDO
2	Rainfall Data	IMD
3	Soil Erosion/Runoff	IMD
4	Demographic information	Census and Health
5	Water structures	Minor Irrigation Department
6	Farm structures like bunds	Agricultural department
7	Land Holdings and cropping pattern	Talathi
8	CPR and base maps	City Survey Office
9	Forest	Forest department
10	Income	Revenue department

In spite of all the department and updates, there was a need of household survey and PRA to get precise and household level data. Various PRA activities were carried out with the help of WC and GP members.

Also the data related to topography of the area was taken from Geo-informatics or MRSAC and various base maps developed using GIS tools. It helped in rough designing or planning of future structure at mass level. The various base maps required were as follows

1. Watershed Boundary map
2. Soil Depth Map
3. Land Capability
4. Land Use
5. Slope
6. Soil Erosion
7. Drainage map
8. Ground water potential
9. Treatment

One major step is to organize various user groups and self-help group and registering them. Formation of WC committee with all responsibilities and ability to tackle discrepancy, the data gathering also helps in the evaluation and impact assessment at the end of the project.

b. Participatory Net Planning

By gathering all the data from various sources and from field, it is necessary to plan the structural and constructional architecture of various structures to strengthen the watershed management. The approach of working from ridge to valley is to be understood and followed so as to have a constructive effect of the future structures.

There are ***three*** steps of topography, according to which some structures are suggested depending on slope and catchment area of the point/place of intervention.

1. Ridge

The top part of the hilly region can be said as the ridge of the watershed. In other words, the delineating portion of the watershed from where falling rain gets diverted to respective watershed is called as ridge. Various structures that can be taken in this region are

a. CCT < 8% slope
b. WAT 5-15% slope
c. Afforestation
d. Pasture Development
e. Gully plug 8-20% slope
f. Bio-Bunds
g. Staggered Bunds

2. Drain line

The region where the flow (1^{st} level stream) starts is called the drain line. The flowing water takes gets accumulated and forms the growing flow and so does the drain line. The following structures are suggested for such drain line

a. LBS < 3% slope
b. Gabian Structure 3-10 % slope
c. Vanrai Bund < 3% slope
d. Earthen Bund < 3% slope
e. CNB 3-5% slope

3. Farms

Farms are at the bottom of any watershed and is the usable area for cultivation and water storage. The water conservation works can also help to restrict the soil flow and hence increase the quality of the soil as the soil flowing from upper ridges can be accumulated and used properly. The structures suggested for are as follows

a. Repair of farm bunds
b. Terracing
c. Farm-pond
d. Horticulture

But the planning needs to be participatory, there has to be consent of the owner and watershed committee about both place and type of structure.

c. Detailed Planning and Estimates of Natural Resource management

After making the list of possible structures, the detailed study of feasibility of the structure is to be carried out. Technical sanctions of the proposed structures are to be taken and financial estimates of the feasible structures should be taken or made ready to allocate the funds according to area.

d. Livelihood Option generation

The planning also includes various livelihood options generated for different stakeholders from various caste and class scenario to have sustainable development. The programme aims to promote development and protection. The employment generation will reduce migration and increase financial stability.

20.4.1 Evaluation of the process

The development projects always work in stages and they evolve over a period of time. The process of DPR formation plays a key role in implementation and designing part. The designing procedure has evolved in past 4 years and is aimed at making the process more efficient, transparent and participatory. We studied the 2 DPR processes as well as interacted with DWDU, Thane and following are some of the things we found that changed over time:

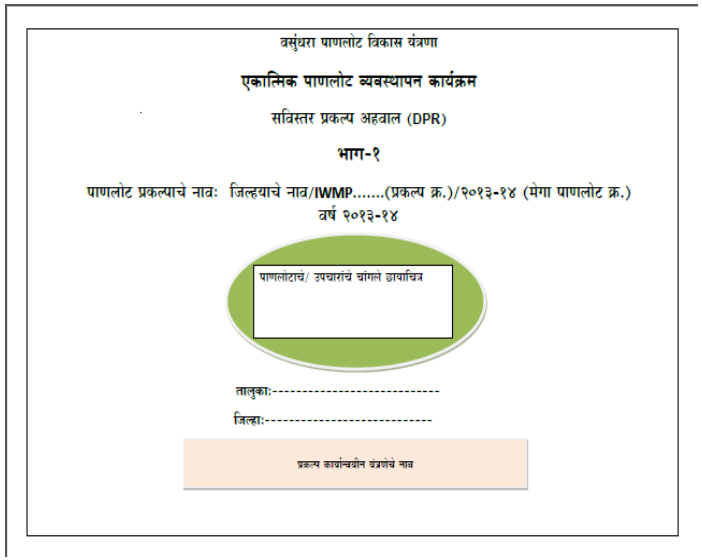
- The detailing of the project for making survey maps and base maps was earlier restricted on cluster level, it has now deepened to village level planning with the help of Q-GIS.
- The fixed works were dedicated according to area of GP or village and beneficiaries of each structure was not included in PRA – this has now been included.
- The detailing of the household level data was restricted to Revenue department – this has now changed to allow actual data collection
- Language was also shifted from English to Marathi or local language to increase inclusiveness of the Local people in DPR formation.
- PNP was a subset of DPR, now it has become a separate part for more detailed study and estimation
- The detailed planning of livelihood options generation is also included in the planning on phase level planning and phase-wise allocation of fund is now given to the same.

The proposed structures along with survey number is now included in the MRSAC or digital level.

20.5 Implementation of DR

The scope of our DR was within the area of Khoch, Palsunda and Saturli villages. In the starting of DR/ field stay we were located at Khoch and we started understanding the things about implementation of IWMP2 and IWMP7. Later it was discovered that most of the Khoch area was under forest department and hence implementation of DR was not feasible for Aroehan in the short span of 9 weeks we had for our field stay. So we were shifted to Saturly-Palsunda Gram Panchayat and stationed at Palsunda village. While Palsunda is included in IWMP2 but not in IWMP7, Saturli

is part of both the IWMP programmes. This DR analysed the implementation of IWMP2 as it was in its final stage of its execution. Froom time to time the process of planning and execution had evolved and formed the revised IWMP7. Through interaction with higher officials, our DR tried to capture the evolutions that have taken place and its interaction & impact with other development programmes. In the last component of DR, some of the participatory steps of ideal process were executed up-to planning. ***Figure 20-4*** shows the DR template


वसुंधरा पाणलोट विकास यंत्रणा

एकात्मिक पाणलोट व्यवस्थापन कार्यक्रम

सविस्तर प्रकल्प अहवाल (DPR)

भाग-१

पाणलोट प्रकल्पाचे नाव: जिल्ह्याचे नाव/IWMP.....(प्रकल्प क्र.)/२०१३-१४ (मेगा पाणलोट क्र.)
वर्ष २०१३-१४

पाणलोटाचे/ उपचारांचे चांगले छायाचित्र

तालुका:----------

जिल्हा:----------

प्रकल्प कार्यान्वयीन यंत्रणेचे नाव

Figure 20-4 : DR Template

Study of IWMP

The watershed development programme which are being implemented in Mokhada taluka are IWMP5, IWMP6, IWMP7 and IWMP2 of which IWMP2 was sanctioned in 2009-10 whereas others were sanctioned in 2010-11.

Table 20.4 shows areas of the villages and ***Figure 20-5*** represents it pictorially:

Table 20.4 : Village Areas

NAME	PERIMETER (m)	AREA (Sq.ha)
Saturly	13419.2	818
Khoch	14480	614
Palsunda	16019	984

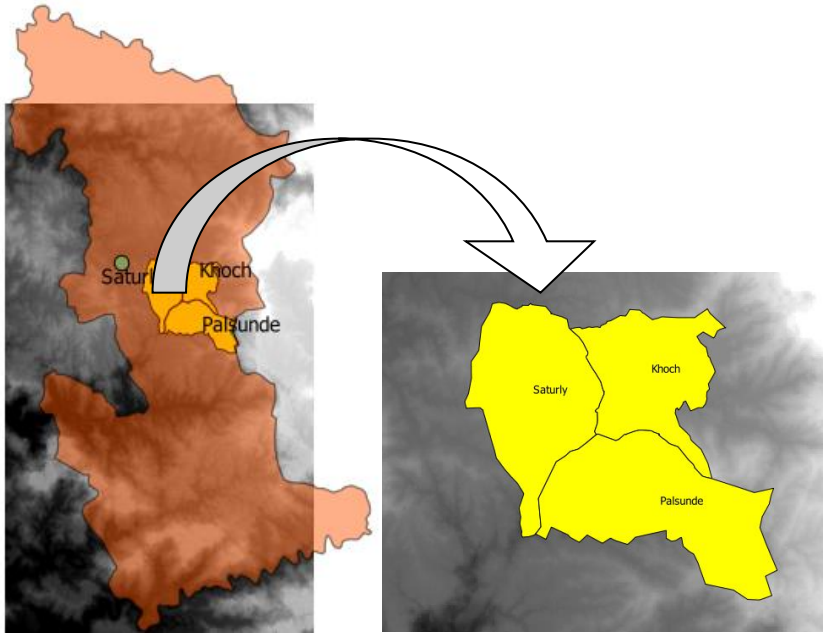


Figure 20-5 : Study area for DR

The study area of Khoch, Palsunda and Saturli comes under the programme IWMP2 and IWMP7. The various micro-watersheds which were included in the area are given in ***Table 20.5***

Table 20.5 : Microsheds included in the area

WSHED_ID	WS_CODE	GROUP	WATERSHED	SUBW	MINI	MICRO	AREA
83	5B2C8	IWMP 7	Val Dawan	WF7	3	8	417.93
87	5B2C8	IWMP 7	Val Dawan	WF7	3	14	483.80
100	5B2C2	IWMP 2	Vaitarna	WF15	2	7	466.38
84	5B2C8	IWMP 7	Val Dawan	WF7	3	4	428.63
101	5B2C2	IWMP 2	Vaitarna	WF15	2	2	537.86
85	5B2C8	IWMP 7	Val Dawan	WF7	3	2	589.78
102	5B2C2	IWMP 2	Vaitarna	WF15	2	13	370.37
98	5B2C2	IWMP 2	Vaitarna	WF15	2	14	365.22
95	5B2C2	IWMP 2	Vaitarna	WF15	2	20	742.27
92	5B2C2	IWMP 2	Vaitarna	WF15	2	5	459.44
96	5B2C2	IWMP 2	Vaitarna	WF15	2	18	395.17
91	5B2C2	IWMP 2	Vaitarna	WF15	2	10	137.94
23	5B2C2	IWMP 2	Vaitarna	WF15	2	6	500.92

The various aspects, of the existing DR were studied and questions relating to the procedure followed was noted down. Also, from DPR we got the various stakeholders and their roles and responsibilities in the programme and their inter-relations and linkages were observed.

The direct stakeholders who were involved in design and implementation process were

- PIA- Agricultural Department Mokhada
- WDT- Watershed Development Team
- Villagers
- WC- Watershed committee
- GP- Gram Panchayat

Indirect stakeholders involved were

- NRAA- National Rainfed Area Authority
- SLNA- State Level Nodal Authority
- DWDU- District watershed development Units
- Various other departments from which the data was obtained
- The Programmes interacting with IWMP i.e. NREGA, TSP, MI.

The watershed committee was the main stakeholder in implementation and ground level design of the DPR. The details are covered in ***Table 20.6***.

Table 20.6 : Watershed Committee details

Name	Post	M/F	Belongs To	Village
Haribhau Sakharam Patil	President	M	SHG	Saturli
Ganesh Dhaklu Wangad	Secretary	M	UG	Bhendipada
Suresh Chabildas Khonde	Member	M	UG	Saturli
Harichandra Bhau Malekar	Member	M	UG	Bhendipada
Kamal Haribhau Patil	Member	F	UG	Saturli
Jagannath Janardan Gondke	Member	M	UG	Wadpada
Sadu Ramji Waje	Member	M	SHG	Chikadipada
Surekha Ganesh Wangad	Member	F	SHG	Bhendipada
Namdev Devu Jadhav	Member	M	SHG	Saturli
Vijay Rangnath Jadhav	Member	M	Agri. Dept	
V.V.Patil	Member	M	Agri. Dept	

Where

A	**PNP & PRA**
B	Planning
C	Accounting
D	Signing checks and payment
E	Supervision of construction
F	Cost estimation
G	Verification and measurement
H	Record of labour employment
I	Social Audit

20.5.1 Questionnaire Preparation methodology

The questions that came to our mind while studying the DPR of IWMP2 and IWMP7 were then segregated as "***Process oriented questions***" and "***Implementation oriented questions***". The design level questions were then divided according to the stakeholder who was responsible for that design aspect. The same segregation method was followed for the implementation type questions. There were 81 questions needed to be asked to PIA and 17 questions for WC. Beneficiaries were mentioned in the DPR and hence we tried to have interviews for beneficiaries so as to validate the execution process and impact assessment. Most questions were open ended and specific to the topics like ***"What was the process through which you got selected?"*** and ***"How many meetings you have attended respectively?"***. The questionnaires were sent to Aroehan people, to get validated and also verified by local people. As the sample size for each of the stakeholder sets was limited we did not go for the pilot questionnaire for reviewing. After going through the interview process we

came to know that the Secretary of the WC is the most prominent entity so, we enhanced the scope of the process to other watershed committees.

20.5.2 Interview process and findings

Total watershed committee was interviewed. There were 9 village level people out of which, 2 people were not willing to be met or answer the questions. The reviewed and revised questionnaire is attached in the annexure. The outputs of the interviews are documented below - (sometimes in people's own words)

Haribhau Sakharam Patil and Kamal Haribhau Patil

- Sarpanch and her husband
- Tried to meet seven times but was not ready to meet and also escaped each time.
- Don't want to talk anything about Watershed committee and works

Namdev Devu Jadhav

- No meeting held
- Peon in GP and so someone put him in the committee.
- Don't know about any process of watershed.
- Works were not of any concern with any member of WC
- No meeting or work or anything was conveyed

Suresh Chhabildas Khonde

- Established in 2011
- No meeting
- No inclusiveness, agricultural officer (Krishi sahayyak) does all the planning to implementation
- Even WDT does not do the planning
- No gram Sabha was taken or PRA was not done in the village
- While selecting work there is no concern with people
- People don't know about the watershed or the processes
- Process of choosing beneficiaries: some people give survey form to agriculture officer or Secretary, the estimate is made by officer, sanctioned by SAO (Wada), work is done

Harichandra Bhau Malekar

- Meeting is there on each 7th, monthly
- "Someone put my name I don't know how"
- Only signs on each 7th
- Can't leave home as wife is bed-ridden
- No meeting attended
- No training attended
- Not included in any activity

Jagannath Janardan Gondke

- Does not know about watershed committee nor is he part of committee

Surekha Wangad

- No meeting was attended
- SHG was there so name was put forward
- Don't know about the process or not included in anything
- Husband does all things

Sadu Ramji Waje

- Meetings do not happen only signatures are done.

- Process is carried out by Agricultural officer, we have to give survey no 7/12 form
- All works are handled by Ganesh Wangad (secretary)

Ganesh Wangad

- Meeting is scheduled on 7th but really no meeting was done
- All the works are decided by Agricultural officer
- The beneficiaries are selected from the applied persons.
- Works done are- terracing, repair of farm bunds and LBS
- Trainings 2- 1.10 days RC 2.3days Javar
- 75 repairs were done

As there were 10-11 beneficiaries for each village For Saturly-Palsunda there were 21 beneficiaries, 10 and 11 belonging to Palsunda and Saturly. They were all captured in sample size. Out of 11 beneficiaries, 7 were met 1was not met, 2 names were fake and 1 had migrated to another village and semi-structured interviews were taken. The Findings were as follows

- The beneficiaries under the name of Palsunda village belonged to Chappal-pada and were not benefitted.
- So there were no beneficiaries from Palsunda village despite more area being covered
- Only one out of 21 beneficiaries really benefitted.
- 6 were benefitted but under other schemes before even start of the IWMP@ programme.

20.5.3 Base Map preparation

The base map was prepared from the map obtained from MRSAC, the various shape files like survey map was digitized and embedded in the Base map. We made the Base map ready with some verification or geo-referencing. ***Figure 20-6*** shows the base map used and the geo-referencing points which were verified.

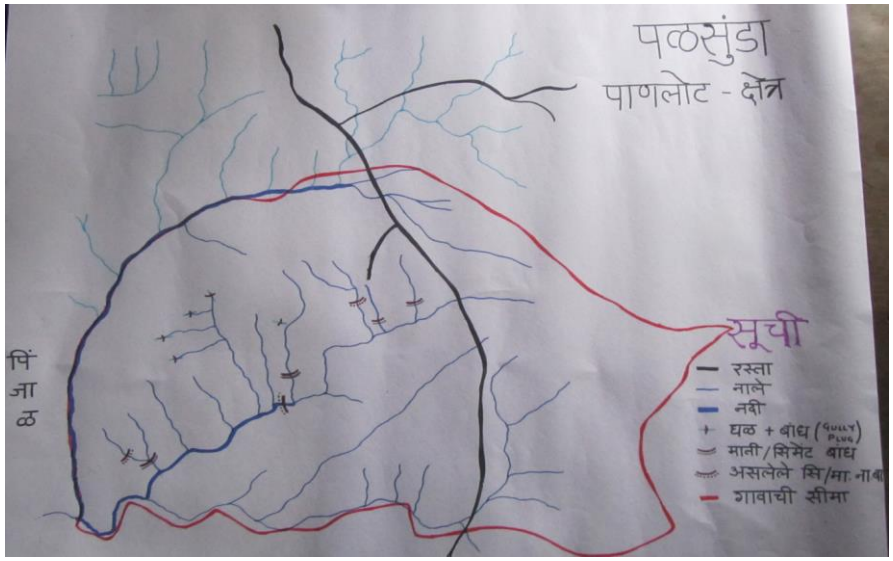


Figure 20-6 : Base map and geo-referencing

20.5.4 Verification & Validation

The data and base map was validated by actual field survey. Various geo-reference points were validated with the help of GPS. The ridgelines are also delineated by actual field visit. The actual flow of the perennial source i.e. Pinjal river at the end of the summer - the V notch gave average of 16.2 cm as water-level.

So by formula

$$Q = 2.5 (H)^{2.5}$$

Where,

Q= flow

H is height obtained in V notch

Therefore Q = 14.572 litres/s

Or = 874.579 litres /min

20.5.5 Study of "Intersection of Programs"

For understanding the interaction of various programmes analysis we met the personals and officials connected to NREGA. Anil Patil, Gram Rojgar Sevak of Palsunda and APO of NREGA Mr. Girish Patil were interviewed.

The PIA makes the estimates of the works that are demanded by the beneficiary. The estimate then goes for sanctioning to technical team of the Sub-Divisional Agricultural Officer, Wada. The Estimate contains the details of the plan and also the IWMP programme details. The sanctioned estimate is then transferred to APO, NREGA. But there is no planning perspective shared by the two departments.

The intersection of programmes does happen only on the fund level and implementation level but there is no planning level intersection. The implementing person or Gram Rojgar Sevak even don't know the specified work is done under IWMP programme.

20.5.6 Process followed by PIA

The amount of funds and scheme details are shared by PIA with the WC secretary. Alternatively, the beneficiaries are directly decided on the basis of previous data i.e. the persons who are not yet benefitted under any scheme of agriculture department. Some person who feels the need and gets the information about the scheme applies to secretary and gives survey number certificate to secretary. The process of estimate preparation is done by the PIA, without taking into account the watershed needs or the structure planning of the watershed at that level. The process of estimation sanctioning and execution is carried forward as per the norms.

20.5.7 Gap Analysis

After conducting the field level surveys and interaction with various stakeholders on various levels, we identified the gaps observed in the ideal and ongoing implementation processes. ***Table 20.7*** documents these gaps.

Table 20.7 : Gap Analysis – Ideal Process v/s Process followed

Sr#	Step	Ideal Process	Process Followed
1	Approach	Bottom Up approach	Top-Down approach
		Participatory	Non participatory
2	Drinking Water	Concerned	Not concerned
3	EPA	For awareness	Comply the condition
4	Centrality	Watershed	Need
5	Structures	According to need	Only some structures are involved
6	Audit	Yes	No
7	Awareness	Yes	No
8	Transparency and traceability	Yes	No
9	Participatory need assessment	Needed	Not followed
10	Data Collection	Secondary and	Secondary was given

Sr#	Step	Ideal Process	Process Followed
		Primary for validation	more importance
11	Livelihood Option	Generated	Not generated
12	Phase wise implementation	Should be followed	Not followed

20.5.8 Pilot Steps followed

Demonstration: The entry point activity included the demonstration of various cropping patterns or seed preparation which would motivate people and encourage them to follow the new or improved methods for productivity. A visit to Vikram Farm was arranged to show new technologies and seven farmers were taken to the visit

Effects: Two of seven farmers keenly got involved. At the time of sowing Mahendra Bhau followed the row-plantation method. Whereas Sandhya tai reserved half an acre for row type sowing.

Participatory Planning: The Area between Pinjal River and drain from Bhoi-Dhub (a mountain) was taken as area for planning. Six people (who were stakeholders) were taken for planning. The area was thoroughly studied with the stakeholder. The slopes were studied and various structures were considered for the topography. After discussion, some structures were fixed. For Barda and Chiryacha Mal structures were decided.

Effects: All the stakeholders studied the area with slope and shared their problems, according to which decisions were made. New structures which could be done were suggested by the people i.e. Diversion Trench.

Demonstration: The whole work of two months as well as the watershed development programme was put forward in front of villagers when they gathered in the school area. The class-room was full with a heterogeneous population.

20.6 Recommendations

The Earthen-check dam near ‘Varchi Vihir’ well, was broken down. People informed that the water logging was above the well level. It was suggested by people that the reconstruction of Dam may help in holding the water for few more days.

The recommended structures at Barda and Chira are shown in ***Figures 20.7 and 20.8***.

The Gully plugs were suggested to be put at the start of the drain. There were 4-5 points where the formation of gully was seen. The Gully plug area could be used for rice plantation.

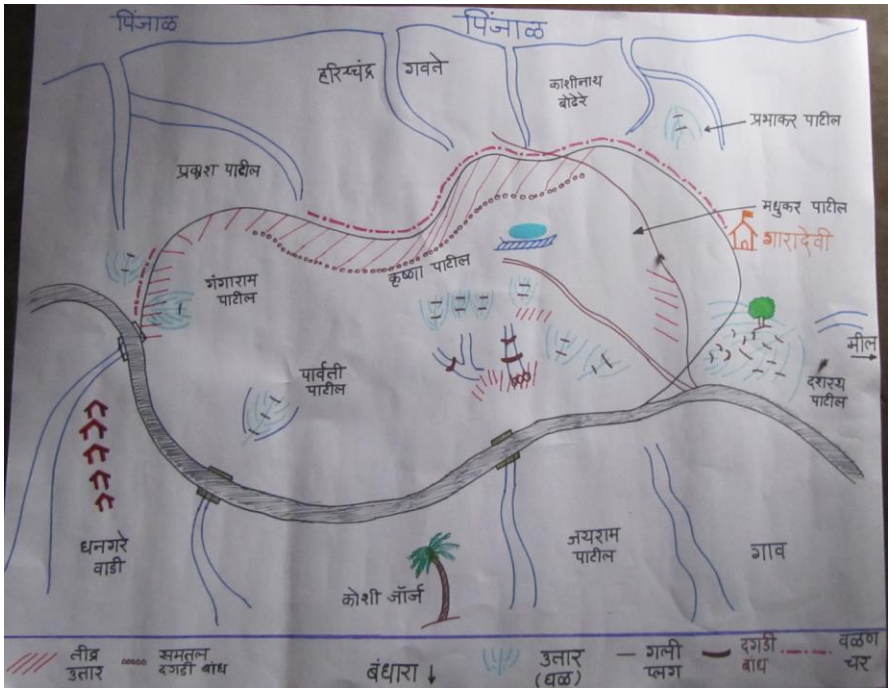


Figure 20-7 : Recommendation Proposal – Picture I

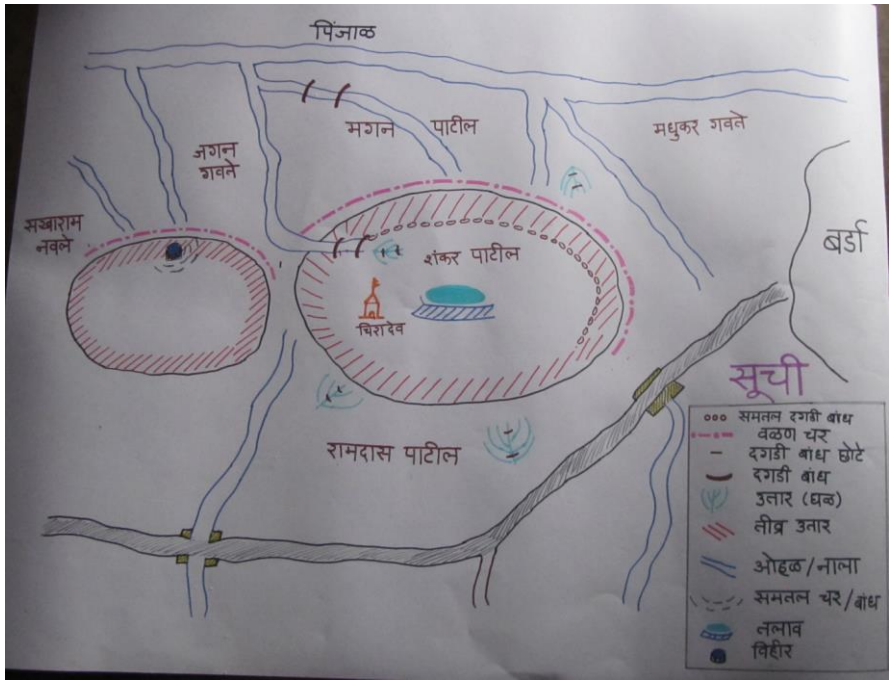


Figure 20-8 : Recommendation Proposal – Picture II

20.7 Way forward

The suggested structures were to be put forward in the Gramsabha of 15th August. New watershed committee was recommended and Gramsbha Tharav's candidature was put forward after we left the village.

Our perspective is that the Work we have undertaken and the rapport built should be leveraged and the activities taken forward by TDSA students as a continuation.

Chapter 21 : SUMMARY RECOMMENDATIONS

Having gone through the entire field stay, based on our experiences, we would like to conclude this report by proposing a few recommendations by Sector – we strongly believe taking up these recommendations by the appropriate authority will go a long way in improving the quality of life (as well as their economic status) of the villagers significantly.

Table 21.1 provides a list of recommendations by Sector.

Table 21.1 : Recommendations by Sector

SECTOR	RECOMMENDATION
General	• All recommendations from our DR (please see the row for DR) • Excite people with the concept of a model village - Bring key people together and generate ideas for better improvement through targeted workshops – Innovation could be a theme wherein people could be brought together to solve a problem. Case Studies are live examples of that • Involve Educational and Private Sector more in the development initiatives of villagers
Roads	• Village roads can be constructed under MNREGA
Water Resources & Supply	• Defunct water scheme should be revived. It needs a better technical design. (details of technical flaw is given under the chapter "Water Resources & Supply" • Lift Irrigation may be proposed at Barda and Chira (two probable places in the village). This can increase likelihood of double cropping. Currently **25** farmers are ready to invest and avail benefits out of it. However, technical design and implementation needs to be done for this • Have representation in watershed committee and actively work towards IWMP's remaining activities towards village's advantage like farm ponds can be built
Sanitation	• During our stay, we helped build toilets; 18 toilets were built thereafter. More toilets needs to be built to increase sanitation coverage

Energy	• There is a scope for biogas for following reasons:
	  ○ Villagers (since they are ST) get up to 80% grant for setting up biogas plant
	  ○ There are good number of cattle in many house holds
	  ○ Cost of a biogas plant for HH use is around INR 35,000 inclusive of entire setup and gas stove. This after 80% grant can be affordable by many in the village
	• However, in our opinion, biogas should be at HH

SECTOR	RECOMMENDATION
	level and not community level keeping in mind, the community level disparities • Increase awareness about solar cookers and solar lamps and help them use it
Agriculture	• As suggested under "Water Resources & Supply", lift irrigation can be proposed to help farmers in irrigation and thus increase possibility of double cropping • As part of voluntary initiative, farmers were given 70 metric tons of compost manure to be used in the fields. Farmers should be encouraged to continue using it. This will help in increasing soil fertility and hence land rotation for crop can be reduced (from current 3 years to 1 year) • Use part of community land (30 acre) for experimenting various agricultural practices and implement the successful best practices for individual lands
Natural Resources	• Village should form "Van gram sthapana". This would ensure grant of 10 Lacs to the village towards various activities related to increase in natural resources • Experiment growing of various cash crop trees like teak, sagvan on the common community land and replicate success to individual farm lands

SECTOR	RECOMMENDATION

Livelihood	• Generate livelihood options for Katkari caste which are local in nature and not migratory
	
	• Dairy can be a good option for livelihood as
	  ○ Few key people from the village got trained on agriculture and dairy in Vapi as a part of voluntary initiative)
	  ○ Many households have 4-5 cattle with 2-3 cows
	  ○ Villagers are interested so there is a likelihood of it succeeding (they formed a committee after their training)

Education	• Make education a priority (especially for the younger generation) through targeted campaigns • Incentivize the "Katkari caste" for sending their children for education (since Katkaris migrate for almost eight months along with their children, their wards do not go to school)
Health	• Increase awareness on alcoholism among Katkaris (their small children of age 2-5 years also consume alcohol. Many adult deaths have happened in last 2 years) • Increase awareness about seasonal diseases like diarrhea
Committees	• While there are processes and various committees formed, the committees do not function with the

SECTOR	RECOMMENDATION
	spirit with which it was originally intended. Have participation and ownership from the villagers to monitor the functioning of various schemes
Finance	• Improved monitoring of the books of accounts • While budget is available, adequate spending is not seen to improve infrastructure – these funds need to be utilized fully – as these are readily available • Tax collection is either not done religiously or not recorded properly. This is essential to ensure proper utilization of these funds
Governance	• Representation in watershed committee and propose village's needs • Form Van sthapana and avail 10 Lacs grant for improving natural resources
Directed Research	• Earthen bund near well (Boardachi/ varchi Vihir or well) should be repaired so as to strengthen the water restoration • Lift irrigation may be proposed at Barda and Chira so as to increase the possibility of double cropping. 25 farmers are ready for the scheme • Structures recommended for Barda and Chira should validated by estimation • Water structures should be de-silted periodically

SECTOR	RECOMMENDATION
	• Strengthening of water committee/ watershed committee by gram sabhas, awareness programmes and training should be done • Solar based pumping schemes should be installed as many schemes failed due to non-payment of bills

Chapter 22 : REFERENCES

- Habitation Details of Palsund village, www.mdws.gov.in
- Census Data, http://censusindia.gov.in
- Energy Statistics 2013, National Statistical Organization, Government of India, http://mospi.nic.in/mospi_new/upload/Energy_Statistics_2013.pdf?status=1&menu_id=216
- Calorific Value of Fuels, http://www.indiasolar.com/cal-value.htm
- Calorific value of LPG http://www.hindustanpetroleum.com/AboutLPG
- Power Consumption Guidelines https://cp.tatapower.com/customer_care/save-energy/conserve/power-consumption-guidelines.aspx
- Solar consumptions – www.evsolar.com/power.html

Chapter 23 : APPENDIX

Household Survey Questionnaire

Household Profile – Sample form

CTARA, IIT Bombay **Format No H1**
Household

4.3	Incidence of Dengue in last 3 years		Person	4.7	Incidence of Heart Attacks		4.10	Child Mortality
4.4	Case of Abortions		no of months	4.8	tension cases		4.11	Cases of Diarrheoa
	5. Livelihood							
5.1	What is main occupation in the Household ☐ Agriculture ☐ Labourer ☐ Factory Worker ☐ Govt Employee ☐ Others							
5.2	If Agriculture, then land detail		Ha ☐ Own ☐ Contracted ☐ Labourer					
5.3	Major Crops taken							
5.4	Irrigation facility ☐ Available ☐ Not availabl		Source ☐ River ☐ Lake ☐ Groundwate		Pump Sizing ☐ Hp		Useage Hours ☐ Months ☐	
5.5	Number of persons from households working in farn ☐		Number of laborers employed ☐ /season ☐		no of days employed			
5.6	Average income from agriculture		`	Month of receiving the money			Adequate ☐ Yes ☐ No	
5.7	Number of livestock ☐ Cows ☐ Bullocks ☐ Ox ☐ Sheep ☐ Goats ☐ Poultry ☐ Other							
5.8	Dependency on livestock for living ☐ Yes ☐ No		Average income from livestock		`		Month of encashing	
5.9	If Labourer Adequate ☐ Yes ☐ No		Average Number of days employed		days/year		Whether on Farm ☐ under MNREGS ☐	
5.10	Whether job card is obtained ☐ Yes ☐ No		Did you get employment as per your required days ☐ Yes ☐ No ☐ More ☐ Less					
5.11	If factory Worker State the type of work ☐ Skilled ☐ Unskilled		Average income from salary		`		Daily ☐ Monthly ☐	
5.12	Any certificate obtained ☐ Yes ☐ No		Job based on traditional knowlegde ☐ Yes ☐ No					
5.13	Any PF / Gratuity ☐ Yes ☐ No		Part of any Trade Union Yes ☐ No		Job Description			
5.14	If Govt emoloyee ☐ Permanent ☐ Temporary ☐ Daily wages				Job Description			
5.15	Any PF / Gratuity ☐ Yes ☐ No							
5.16	Others							
	6. Household Amenities							
6.1	Amenities				Description			
	TV ☐ Yes ☐ No		Nos					

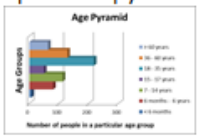
Village Profile – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 1Village Profile**

Scope	The scope of this format is to document the profile of the village you are doing field work						
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below. This section calls for one delivery, ie base map preparation. For map preparation, please contact the NGO / GP office for one. In case of unavailability from them, contact the near Talathi office for a map. Usually digitized maps are available for Rs 250-300 (in Maharastra).						
Data Requirements							
1	Name of Village	Palsunde				Map Preparation	*Attach the following maps : 1. PRA map prepared along with the villagers. 2. Map prepared based on GP/Talati maps 3. Google map of the village. Refer Annexure 1 for preparation*
2	Gram Panchayat	Saturli	Latitude	19.403636			
3	Taluka	Mokhada					
4	District	Thane (Earlier) and Raigad (Now)	Longitude	73.91483			
5	State	Maharashtra					
6	How far is the Gram Panchayat Office from the Village you stayed				Kms		*Give source of information*
7	Name the other villages which form the part of Gram Panchayat		Ambyacha Pada, Gandhipool, N				
8	Name of the nearest Town		Mokhada				
9	Distance from main road		1		Kms		
10	Number of representatives of the village in the Gram Panchayat		1		Hiraman Taral		
11	Number of representatives in the Gram Panchayat		7				
12	Number of Women representatives in the Gram Panchyat		1		Kamal Patil		
13	Name of the Sarpanch		Kamal Haribhau Patil				*Give contact details*
14	Name of the Gram Sevak / VDO		T.K.Tolsarwad				

Demographics of the village – Form

CTARA, IIT Bombay | **TD 609 Field Work** | **Format No 2Demographics of the Village**

Scope	The scope of this format is to document the demographic profile of the village							
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below. For definitions and classification refer the websites provided. This section sumarises many of the household survey findings. One assessment, namely population pyramid exercise needs to be done							
Data Requirements								
			2001		2011		Decadal G R	*Source for this information is the Census data. You may get data from the Gram Panchayat Office also*
1	Population of the Gram Panchayat		2808		3769		34.22	
2	Population of the Village		1365		1628		19.27	
			GP	Village	GP	Village		
3	Number of Households		509	211	796	335		
	a)	Head of the Household: Male				103*	*sample of 172 HH	
	b)	Head of the Household: Female				69*		
			GP	Village	GP	Village		
4	Number of Males		1464	738	1895	839	Population pyramid	*Carry out a population exercise. Divide the population in the following age groups (< 6 months, >6 months < 6 years, 6 -14 years, 14-18 years, 18 -35 years, 36-60 years, > 60 years*
5	Number of Females		1344	627	1874	789		
6	Number of Male above 18				181			
7	Number of Female above 18				168			
8	Literarcy Rates (%)		Gram Panchayat		Village (%age)			*For the Gram Panchayat, the Census data may not be able to give this extensive grading (only literates & illiterates given). Check with Gram Panchayat for this data. For village, your primary household survey should result in this data*
	Illiterate		56		38			
	Primary School Incomplete				12			
	Primary School Complete				4			
	Secondary School				36			
	HSc (12th Standard)				6			

Road and Public Transport – Form

CTARA, IIT Bombay | **TD 609 Field Work** | **Format No 3Road and Public Transport**

Scope	The scope of this format is to document the roads and public transport in the village					
Procedure	Apart from the primary and secondary data collection about the roads and transportation scenario, this components has three assessments. One is preparation of the road inventory map, second is the transportation survey and the third is the fuel assessement					
Data Requirements						
1	External Connectivity Roads (connecting to next village /town)		1/2	Numbers		Field observation, Gram Panchayat Office
	Tar Road (Total Length)		5.2	Km^2		
	Kuccha Road (Total Length)		3.5			
2	Roads within the village		1/4	Numbers	Road Inventory Map	*Refer Annexure 2 for preparation*
	Tar Road (Total Length)		2.4	Km^2		
	Kuccha Road (Total Length)		5			
3	Roads to agricultural fields			Numbers		
	Tar Road (Total Length)			Km^2		
	Kuccha Road (Total Length)					
4	Programs under which the roads were constructed		PWD and NREGA			
5	Public Transport					
	Does the public transport bus halt in the village		No	Yes / No		
	Is there a bus stand in the village		No	Yes / No		
	If No, How far is the bus stand from the village		1	Km^2		
	How many bus routes pass through the village			Numbers		
	How many buses / route stop in a day			Numbers		
	Are there any private operators who service the village		YEs	Yes / No		
	If yes, Type of private operators	Bus	Motorbike	Tom-Tom	Others	
	Numbers			3		

Water Resources – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 4Water Resources**

Scope	The scope of this format is to document the water resources of the village								
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below.								
Data Requirements									
				Gram Panchayat		Village		Map Preparation	*Note that Gram Panchayat could be part of one or more micro-watersheds. Prepare a sub / micro watershed boundary which the village / GP is part of. Refer Annexure 3 for preparation*
1	Rainfall (50 years average)			2585mm		2585mm			
2	Watershed								
	Name or Number of the Watershed			BSTL006/WF15/2		BSTL006/WF15/2			
	River Basin			Bhatsol		Bhatsol			
3	Surface Water Bodies								*State the number and the area of water body. Estimate the water holding capacity for each of the water body in a separate sheet. For river find the volume in TMC from nearby weir*
	Rivers			2		1			
	Lakes			-		-			
	Ponds			3		1			
	Dams			-		-			
	Tanks			3		2			
4	Surface Water Bodies			DW	Irrigation	Waste Disposal	Sewage Disposal		*State the utility of each of the surface water body in the village you are staying. Describe the status of the water body in your report*
	Rivers				yes				
	Lakes				no				
	Ponds				no				
	Dams				no				
	Tanks				no				
5	Ground Water	Number	Public	Private	Depth	Diameter	Utility		*The entries here are totals and averages arrived from household surveys and village survey. Maintain a detailed list in the report*
	Open Well			19	5.7	4.6			
	Tube Wells			3					
	Water Conservation Works			Number		Year of Construction			*Maintain the details of each of the structures in another sheet*
	Cement Nala Checks			4		2007 to 2013			

Water Supply – Form

CTARA, IIT Bombay | **TD 609 Field Work** | **Format No 5Water Supply**

Scope	The scope of this format is to document the drinking water supply scheme of the village				
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given				
Data Requirements					
	Water Supply Scheme				
1	Does the village have a water supply scheme	Yes	Yes / No		*Get the information from Panchayat Office*
	If yes,	Not Working			
	Is it a single village or multi village scheme	Single			
	What is the source of water for the scheme	Jackwell in river			
	How old is the scheme	20	Years		
	Scheme designed by	ZP			
	Scheme operated by	villagers			
	How many households have a individual tap connection	0	Numbers		
	How many households have a community tap connection	All	Numbers		
	How many households do not have any connection	0	Numbers		
	What is the source of DW for households that do not have any connection				
	Scheme Details				
	What is design capacity	10000	MLD		
	Is there a water treatment plant	No	Yes / No		
	Number of ESRs and their capacity	1 10000	Number / Litres		
	What is the average water supply	10	LPCD		*Get the scheme design docu*

Scope	The scope of this format is to document the sanitation scheme of the village			
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below. The section also has a drainage map preparation - one is the natural drainage map based on bhuvan and second is the drainages/gutters etc in the village			
Data Requirements				
Sanitation				
1	Is the village totally open defecation free	No		
	% of toilet coverage			
	Number of individual toilets households	53		
	Number of community toilets households	0		
	Number of no toilets households	113		
	Number of Community toilets constructed in past 5 yrs	0		
	Average number of toilets per household	1		
2	Sewage Disposal Method	Number of Households		
	Soak Pits	0		
	Septic Tanks	0		
	Open Drains	0		
	Closed storm water drains	0		
	Underground drainage system	0		
3	Sewage Treatment Plants			
	Is there a sewage treatment plant in the village	NO	Yes / No	
	If yes, describe			
	Design Capacity	NA	MLD	
	Unit processes			

Scope	The scope of this format is to document the energy situtation in the village							
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below.							
Data Requirements								
Electricity Consumption at Gram Panchayat / Village level								
1	Street Lamps		Working	Not Working	Watts	Hours / day	Total Usage Units/month	
	Electricity Driven		4	5	65	10	2600	
	Solar Driven		1	1	12	8	96	
2	Water Supply Scheme							
	Pumps	Numbers	1		Make	Kirloskar		
		Ratings	7.5		Purchase Year	1993		
		Hours Used	Not used anymore					
3	Public Infrastructure							
	Gram Panchayat						GP not in village	
	Community Hall						0	
	Gymkhana / Vyayam Shala						0	
	PDS Godown						0	
	Library						No Library	
	Any Other School						30	
Electricity Consumption at Household level								
	Households with Electricity Connection					80	Number	
	Households without Electricity Connection					81		5
	Utility of Electricity							81
	Lighting							80

Agriculture – Form

Scope	The scope of this format is to document the agriculture scenario in the village
Procedure	Gather information of the village from various secondary sources including census, government offices, ngo, etc. Document it in the format given below.

Data Requirements

			Gram Panchayat		Village	
1	Rainfall (50 years average)		2585 mm		2585 mm	
2	Total Geographical area (ha)		320 sq. km		320 sq. km	
3	Total Cultivable land				227.4 sq. km	
4	Total Non-cultivable land				124 sq. km	
5	Total Agriculture area				196.5 sq. km	
6	Cultivable but not cultivated land					
7	Total irrigated land by various means				All are rain fed	
8	Irrigation by river through canal					
9	Irrigation by river directly					
10	Irrigation by bore wells					
11	Total unirrigated land					
12	Major crops grown	Production details of each crop (Average production in Kg)	Farmers taking each crop	Area under each crop	Farmers taking each crop	Area under each crop
a	Bhaat	700				
b	Nagli	252				
c	Varai	178	Varai			
d	Urid	63				
e	Khurasni	35				
f	Toor	33				
g	Kuleeth	32.6				

Natural Resources – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 10Natural Resources**

Scope	The scope of this format is to document the state of the natural resources of the village			
Procedure	Gather information of the village from PRA survey and various secondary sources including MNREGS government offices, ngo, etc. Document it in the format given below.			
Data Requirements				
	Type of Land Use	Gram Panchayat	Village	
1	Total Geographical Area	18.497	10.224	
2	Area under settlement	0.0848	0.0391	
3	Forest land area	4.34	4.34	
	Forest Department			
	Revenue Department			
4	Grazing Land area	0.277	0.121	
5	Waste Land area	1.564	0.839	
6	Agricultural land area	11.992	4.68	
	Irrigated land			
	Non-irrigated land			
7	Type of Soil			
	Predominant Colour	Reddish and black	Reddish and black	
	Texture	Gravelly clay to clayey soils	Gravelly clay to clayey soil	
	Local Name			
8	Classification scheme of Forest			
	Dense Forest	No	No	
	Moderately Dense	Yes	Yes	
	Open Forest	Yes	Yes	
	Scrub	Yes	Yes	
	Types of Forest			
	Tropical Rain Forest in India	Yes	Yes	

http://www.fsi.org.in/fsi_projects/field manual_tofrural.pdf, http://www.fsi.org.in/procurement_of_ fcm.pdf

Education – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 12Education**

Scope	The scope of this format is to document the state of education infrastructuture and situation in the village					
Procedure	Gather information of the village from household survey.					
Data Requirements						
		Aaganwadis	Primary School	Secondary School		
1	Public	1	1	1		
2	Private					
3	Students (Numbers)	62				
4	Teachers	1(Tai)	2			
5	Rooms		2			
6	Helpers	1				
7	Building					
8	Salary for Teachers	3000	20000			
9	Salary for Helpers	1200	4500			
10	Mid-day meal Programme	Yes	Yes			
	Items given in scheme	Khichdi/Lapshi/Laddu	Khichadi or (Dal-BHat)			
	Quantity	100 gm	200 gm			
11	Language of Instruction	Marathi	Marathi			
	Literarcy Rates (%)		Village			*Based on the primary survey, summarize the education levels*
12	Illiterate		32			
13	Primary School Incomplete		4			
14	Primary School Complete		10			

Public Health – Form

CTARA, IIT Bombay | **TD 609 Field Work** | **Format No 13Public Health**

Scope	The scope of this format is to document the state of health infrastructuture and situation in the village		
Procedure	Gather information of the village from household survey.		
Data Requirements			
	Human Health	Gram Panchayat	Village
1	Number of Births in past one year	88	24
2	Number of Deaths in past one year	44	24
3	Availability of PHC or primary health sub centre	PHSC (Sub center)	
4	Hospital/PHC/ Sub centre		
5	Number of doctors	NA	
6	Number of staff		
7	Availability of beds		
8	Daily foot fall		
9	Lab facilities		
10	Number of hospitals		
11	Number of beds in the hospital		
12	Number of private doctors in the village		
13	Number of ayurvedic doctors		
14	Number of homeopathy doctors		
15	Number of charitable dispensaries		
16	Number of asha workers	7	3
	In case of unavailability of hospital/PHC/sub centre and ambulance, distance to the nearest village/town		

Public Infrastructure – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 14Public Infrastructure**

Scope	The scope of this format is to document the state of public infrastructuture in the village
Procedure	Gather information of the GP from survey.

Data Requirements

	Public Infrastructure	Gram Panchayat	Village		
1	Cremetery	4	1		*Mention where they are present within the village. If not, whether they are present in the Gram Panchayat. If it is not present in the Gram Panchayat boundary then mention the distance. This should be used to prepare the Venn diagram*
2	Burial Ground	None	None		
3	Gram Panchayat Building	1	None		
4	Community Hall	5	2		
5	Gymkhana / Vyayam Shala	None	None		
6	PDS Godown/Godown	3	1		
7	Library	None	None		
8	Police Station	None	None		
9	Talati's Office	None	None		
10	Electricity Office	None	None		
11	Bank	None	None		
12	Post	None	None		
13	Kissan Seva Kendra	None	None		

Committees – Form

CTARA, IIT Bombay **TD 609 Field Work** **Format No 15Gram Panchayat Personnel Committees**

Scope	To under the various administration and other committees in the Gram Panchayat and Villages
Procedure	Record the various committees in the village and the Gram Panchayat. Describe the functions and the functionaries involved and the admintration of the committee.

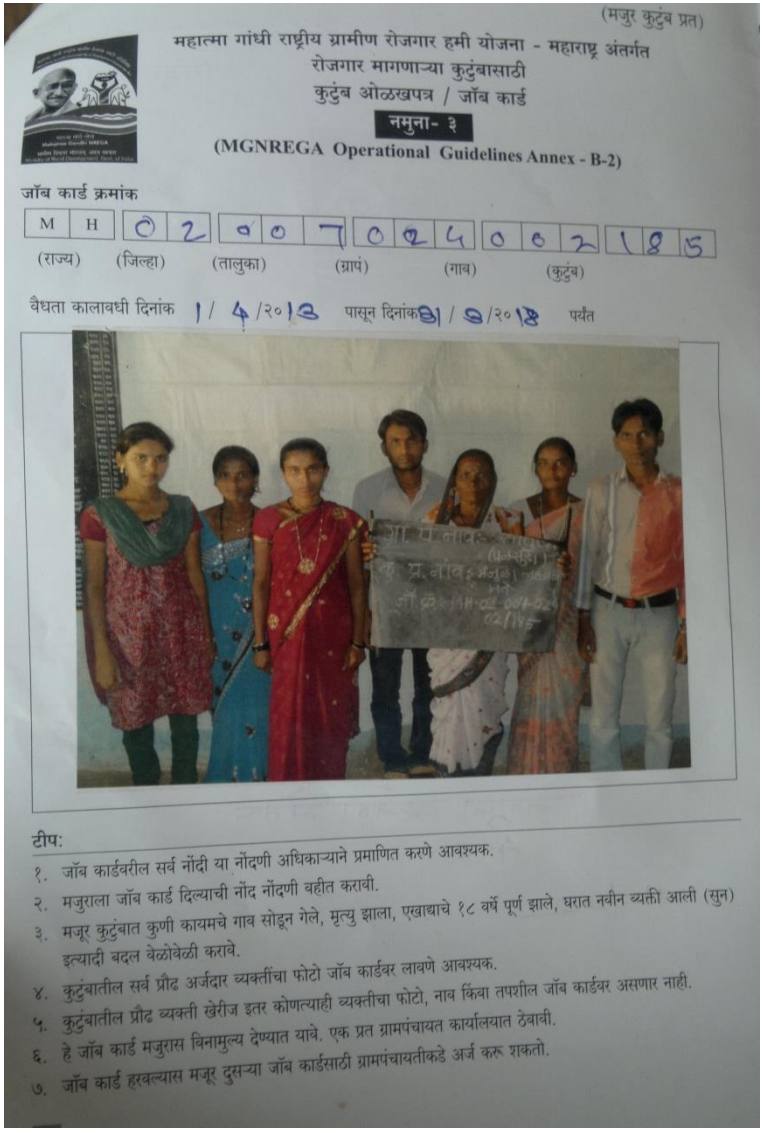
Data Requirements

Village Committee

Are the following committees formed in the villages	Yes / No	Are they functional	Yes / No
Water Committee	Yes		No
Energy Committee	No		
Forest Committee	Yes		sort of
Watershed Committee	Yes		Yes
Tanta Nirmulan Samiti	Yes		Yes
School Management Samiti	Yes		Yes
Utsav Samiti	Yes		Yes

Name of the Committee	Description	Number of Members	Functional	Head

MNREGA Job Card



(मजुर कुटुंब प्रत)

महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी योजना - महाराष्ट्र अंतर्गत
रोजगार मागणाऱ्या कुटुंबासाठी
कुटुंब ओळखपत्र / जॉब कार्ड

नमुना- ३

(MGNREGA Operational Guidelines Annex - B-2)

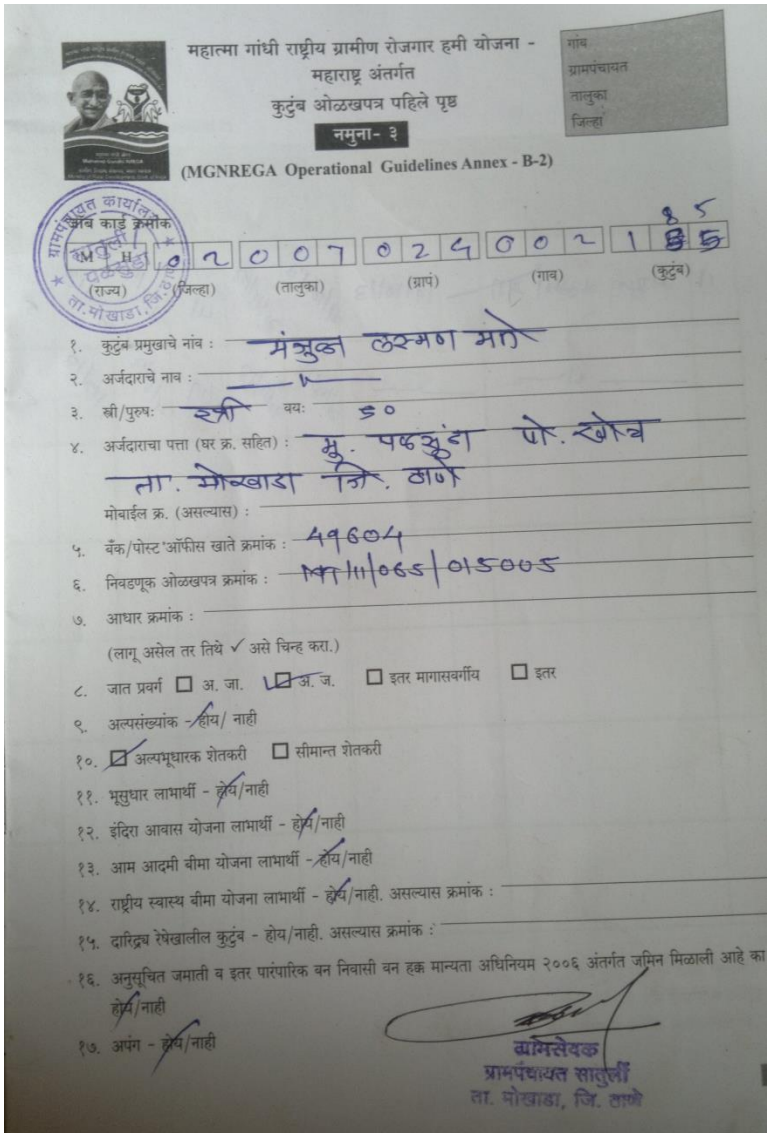
जॉब कार्ड क्रमांक

M	H	0	2	0	0	7	0	2	4	0	0	2	1	8	5
(राज्य)		(जिल्हा)		(तालुका)			(ग्रापं)			(गाव)			(कुटुंब)		

वैधता कालावधी दिनांक 1/4/२०१३ पासून दिनांक३१/३/२०१८ पर्यंत

टीप:

१. जॉब कार्डवरील सर्व नोंदी या नोंदणी अधिकाऱ्याने प्रमाणित करणे आवश्यक.
२. मजुराला जॉब कार्ड दिल्याची नोंद नोंदणी वहीत करावी.
३. मजूर कुटुंबात कुणी कायमचे गाव सोडून गेले, मृत्यु झाला, एखाद्याचे १८ वर्षे पूर्ण झाले, घरात नवीन व्यक्ती आली (सुन) इत्यादी बदल वेळोवेळी करावे.
४. कुटुंबातील सर्व प्रौढ अर्जदार व्यक्तींचा फोटो जॉब कार्डवर लावणे आवश्यक.
५. कुटुंबातील प्रौढ व्यक्ती खेरीज इतर कोणत्याही व्यक्तीचा फोटो, नाव किंवा तपशील जॉब कार्डवर असणार नाही.
६. हे जॉब कार्ड मजुरास विनामुल्य देण्यात यावे. एक प्रत ग्रामपंचायत कार्यालयात ठेवावी.
७. जॉब कार्ड हरवल्यास मजूर दुसऱ्या जॉब कार्डसाठी ग्रामपंचायतीकडे अर्ज करू शकतो.



महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार हमी योजना -
महाराष्ट्र अंतर्गत
कुटुंब ओळखपत्र पहिले पृष्ठ

नमुना- ३

(MGNREGA Operational Guidelines Annex - B-2)

गाव
ग्रामपंचायत
तालुका
जिल्हा

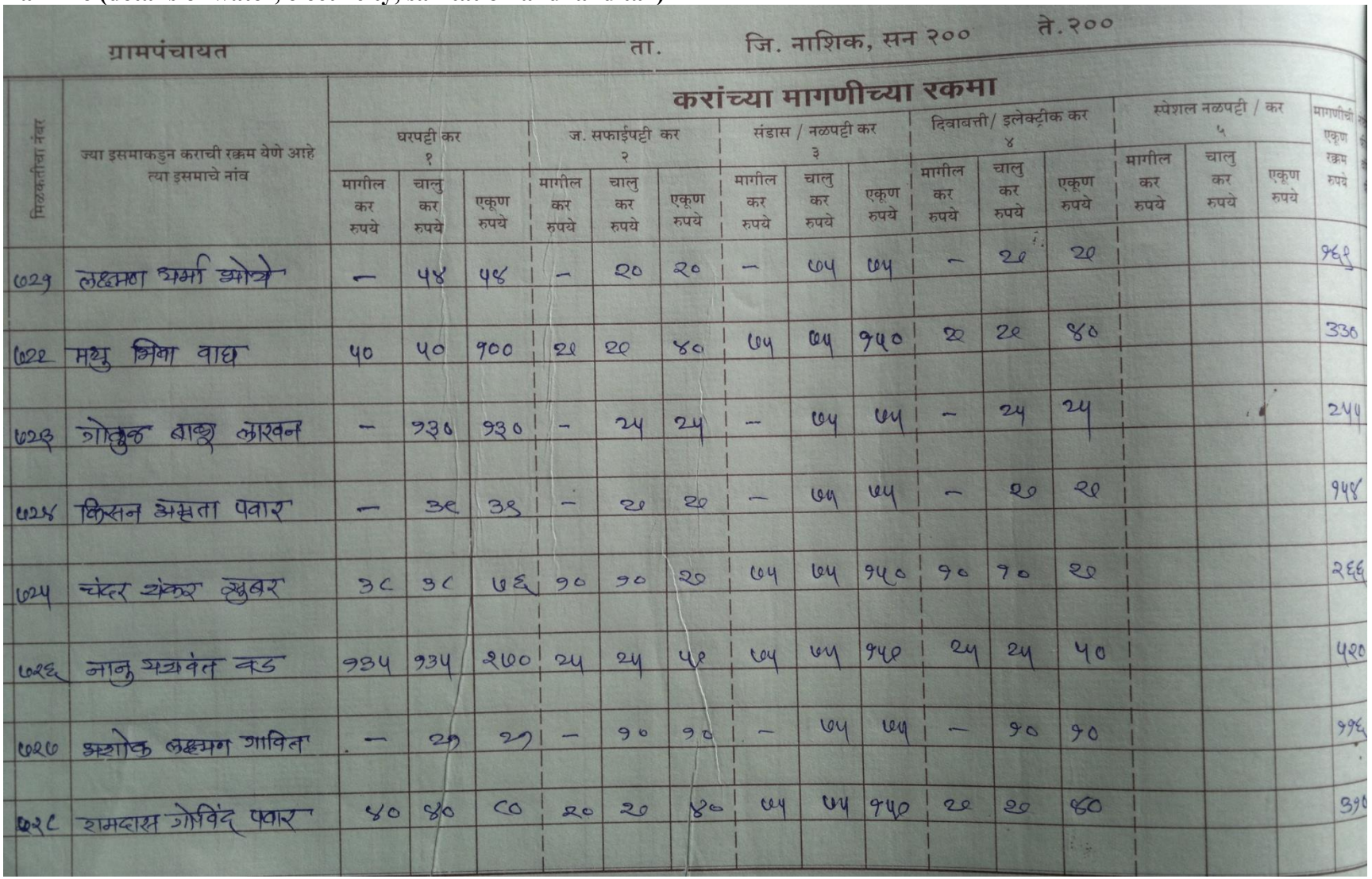
जॉब कार्ड क्रमांक

M	H	0	2	0	0	7	0	2	4	0	0	2	1	8	5
(राज्य)		(जिल्हा)		(तालुका)			(ग्रापं)			(गाव)			(कुटुंब)		

१. कुटुंब प्रमुखाचे नांव : मंजुळा लक्ष्मण मोरे
२. अर्जदाराचे नाव :
३. स्त्री/पुरुष: स्त्री वय: ५०
४. अर्जदाराचा पत्ता (घर क्र. सहित) : मु. पळसुंदा पो. खोच
ता. मोखाडा जि. ठाणे
मोबाईल क्र. (असल्यास) :
५. बँक/पोस्ट'ऑफीस खाते क्रमांक : 49604
६. निवडणूक ओळखपत्र क्रमांक : MH/11/065/015005
७. आधार क्रमांक :
(लागू असेल तर तिथे ✓ असे चिन्ह करा.)
८. जात प्रवर्ग ☐ अ. जा. ☑ अ. ज. ☐ इतर मागासवर्गीय ☐ इतर
९. अल्पसंख्यांक - होय/ नाही
१०. ☑ अल्पभूधारक शेतकरी ☐ सीमान्त शेतकरी
११. भूसुधार लाभार्थी - होय/नाही
१२. इंदिरा आवास योजना लाभार्थी - होय/नाही
१३. आम आदमी बीमा योजना लाभार्थी - होय/नाही
१४. राष्ट्रीय स्वास्थ बीमा योजना लाभार्थी - होय/नाही. असल्यास क्रमांक :
१५. दारिद्र्य रेषेखालील कुटुंब - होय/नाही. असल्यास क्रमांक :
१६. अनुसूचित जमाती व इतर पारंपारिक वन निवासी वन हक्क मान्यता अधिनियम २००६ अंतर्गत जमिन मिळाली आहे का होय/नाही
१७. अपंग - होय/नाही

ग्रामसेवक
ग्रामपंचायत सातुर्ली
ता. मोखाडा, जि. ठाणे

Tax File (details of water, electricity, sanitation and land tax)

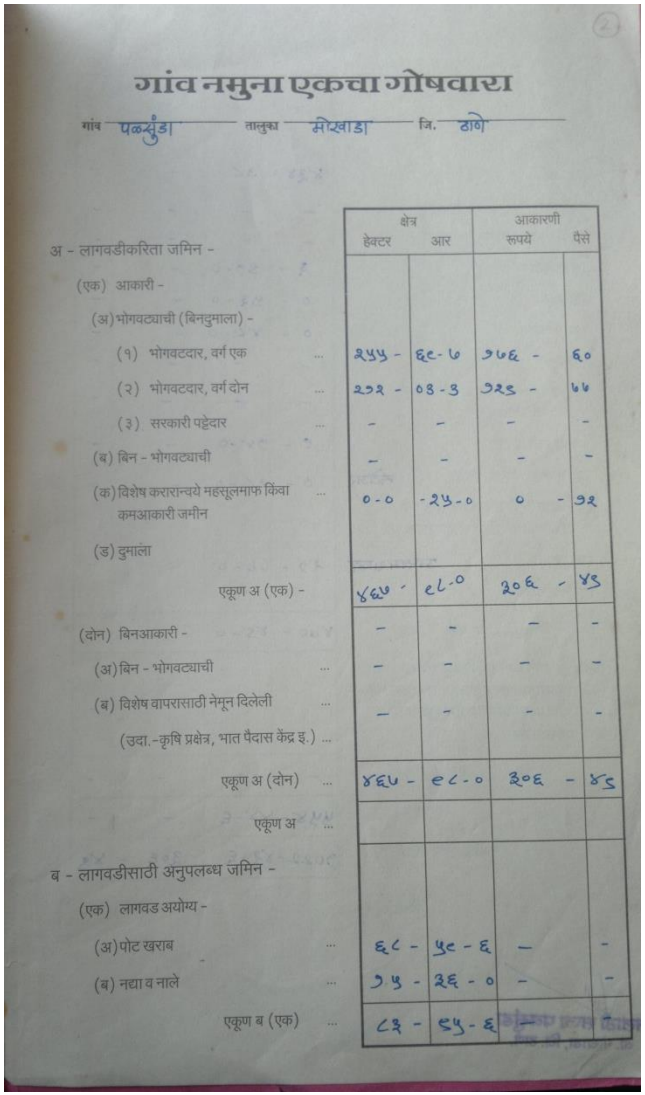


ग्रामपंचायत ता. जि. नाशिक, सन २०० ते.२००

मिळकतीचा नंबर	ज्या इसमाकडुन कराची रक्कम येणे आहे त्या इसमाचे नांव	करांच्या मागणीच्या रकमा															मागणीची एकूण रक्कम रुपये
		घरपट्टी कर १			ज. सफाईपट्टी कर २			संडास / नळपट्टी कर ३			दिवाबत्ती / इलेक्ट्रीक कर ४			स्पेशल नळपट्टी / कर ५			
		मागील कर रुपये	चालु कर रुपये	एकूण रुपये	मागील कर रुपये	चालु कर रुपये	एकूण रुपये	मागील कर रुपये	चालु कर रुपये	एकूण रुपये	मागील कर रुपये	चालु कर रुपये	एकूण रुपये	मागील कर रुपये	चालु कर रुपये	एकूण रुपये	
०२१	लक्ष्मण धर्मा ओझे	—	५४	५४	—	२०	२०	—	०५	०५	—	२०	२०				१६१
०२२	मथु निमा वाघ	५०	५०	१००	२०	२०	४०	०५	०५	१५०	२०	२०	४०				३३०
०२३	गोकुळ बाबु लोखन	—	१३०	१३०	—	२५	२५	—	०५	०५	—	२५	२५				२५५
०२४	किसन अमृता पवार	—	३९	३९	—	२०	२०	—	०५	०५	—	२०	२०				१४९
०२५	चंदर शंकर खुबर	३८	३८	७६	१०	१०	२०	०५	०५	१५०	१०	१०	२०				२६६
०२६	नानु यशवंत कड	१३५	१३५	२७०	२५	२५	५०	०५	०५	१५०	२५	२५	५०				५२०
०२७	अशोक लक्ष्मण गावित	—	२१	२१	—	१०	१०	—	०५	०५	—	१०	१०				१११
०२८	रामदास गोविंद पवार	४०	४०	८०	२०	२०	४०	०५	०५	१५०	२०	२०	४०				३१०

Gaon Namumna va Pikaanchi Aakdevari

Gaon Namuna ekacha goshvara

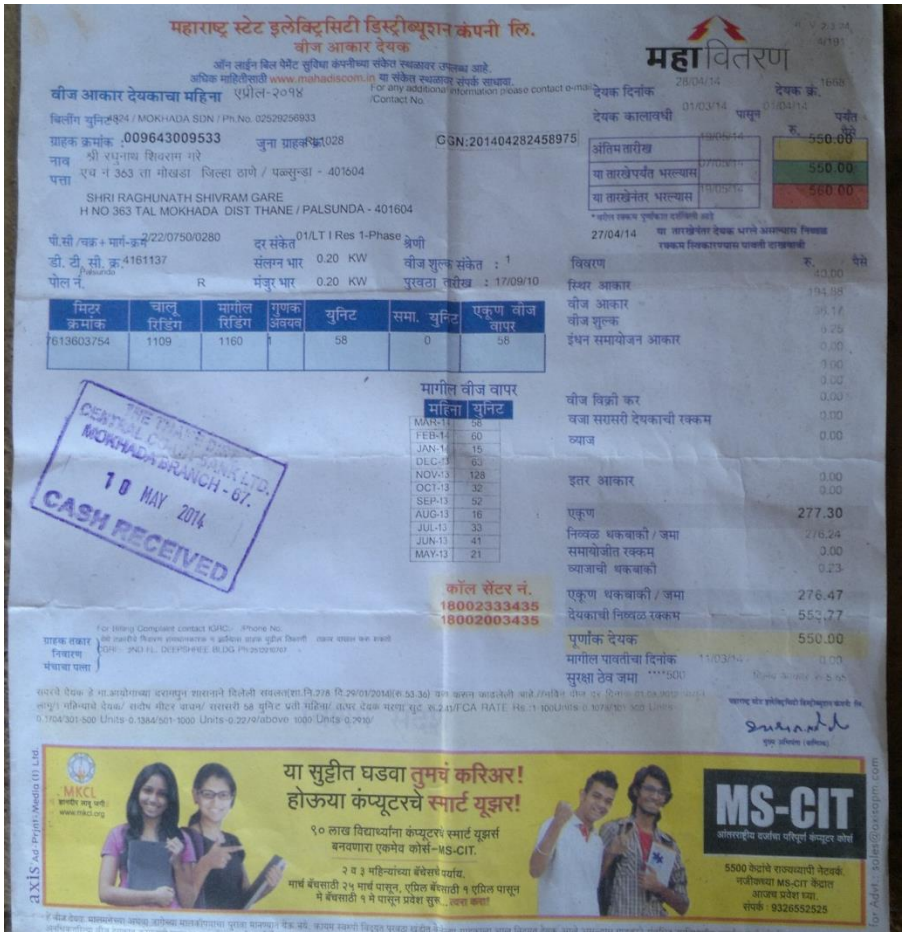


गांव नमुना एकचा गोषवारा

गांव पळसुंडा तालुका मोखाडा जि. ठाणे

	क्षेत्र हेक्टर	क्षेत्र आर	आकारणी रुपये	आकारणी पैसे
अ - लागवडीकरिता जमिन -				
(एक) आकारी -				
(अ) भोगवट्याची (बिनदुमाला) -				
(१) भोगवटदार, वर्ग एक ...	२५५ -	६८-७	७७६ -	६०
(२) भोगवटदार, वर्ग दोन ...	२२२ -	०३-३	७२३ -	७७
(३) सरकारी पट्टेदार ...	-	-	-	-
(ब) बिन - भोगवट्याची	-	-	-	-
(क) विशेष करारान्वये महसूलमाफ किंवा कमआकारी जमीन ...	०-०	-२५-०	० -	७२
(ड) दुमाला				
एकूण अ (एक) -	४८७ -	९८-०	२०६ -	४३
(दोन) बिनआकारी -	-	-	-	-
(अ) बिन - भोगवट्याची ...	-	-	-	-
(ब) विशेष वापरासाठी नेमून दिलेली ...	-	-	-	-
(उदा.-कृषि प्रक्षेत्र, भात पैदास केंद्र इ.) ...				
एकूण अ (दोन) ...	४८७ -	९८-०	३०६ -	४३
एकूण अ ...				
ब - लागवडीसाठी अनुपलब्ध जमिन -				
(एक) लागवड अयोग्य -				
(अ) पोट खराब ...	६८ -	५८-६	-	-
(ब) नद्या व नाले ...	७५ -	३६-०	-	-
एकूण ब (एक) ...	८३ -	९५-६	-	-

Typical Electricity Bill and Receipt of Payment



महाराष्ट्र स्टेट इलेक्ट्रिसिटी डिस्ट्रीब्यूशन कंपनी लि.

वीज आकार देयक

महावितरण

वीज आकार देयकाचा महिना एप्रील-२०१४

देयक दिनांक 28/04/14

देयक क्र.

देयक कालावधी 01/03/14 01/04/14

बिलींग युनिट 24 / MOKHADA SDN / Ph.No. 02529256933

ग्राहक क्रमांक 009643009533 जुना ग्राहक क्र. 1028 GGN:201404282458975

नाव श्री रघुनाथ शिवराम गरे

पत्ता एच नं 363 ता मोखडा जिल्हा ठाणे / पळसुन्डा - 401604

SHRI RAGHUNATH SHIVRAM GARE
H NO 363 TAL MOKHADA DIST THANE / PALSUNDA - 401604

	पासून	पर्यंत रु. पैसे
अंतिम तारीख	18/04/14	550.00
या तारखेपर्यंत भरल्यास	27/04/14	550.00
या तारखेनंतर भरल्यास	01/05/14	560.00

पी.सी /चक्र + मार्ग-क्र. 5/22/0750/0280 दर संकेत 01/LT I Res 1-Phase श्रेणी

डी. टी. सी. क्र. 4161137 संलग्न भार 0.20 KW वीज शुल्क संकेत : 1

पोल नं. R मंजुर भार 0.20 KW पुरवठा तारीख : 17/09/10

मिटर क्रमांक	चालू रिडिंग	मागील रिडिंग	गुणक अंश्यक	युनिट	समा. युनिट	एकूण वीज वापर
7613603754	1109	1160	1	58	0	58

THE THANE DIST. CENTRAL CO-OP. BANK LTD. MOKHADA BRANCH - 67. 10 MAY 2014 CASH RECEIVED

मागील वीज वापर

महिना	युनिट
MAR-14	58
FEB-14	60
JAN-14	15
DEC-13	63
NOV-13	128
OCT-13	32
SEP-13	52
AUG-13	16
JUL-13	33
JUN-13	41
MAY-13	21

विवरण	रु. पैसे
स्थिर आकार	194.88
वीज आकार	36.14
वीज शुल्क	0.25
इंधन समायोजन आकार	0.00
	0.00
	0.00
वीज विक्री कर	0.00
वजा सरासरी देयकाची रक्कम	0.00
व्याज	0.00
इतर आकार	0.00
	0.00
एकूण	277.30
निव्वळ थकबाकी / जमा	276.24
समायोजीत रक्कम	0.00
व्याजाची थकबाकी	0.23
एकूण थकबाकी / जमा	276.47
देयकाची निव्वळ रक्कम	553.77
पूर्णांक देयक	550.00
मागील पावतीचा दिनांक	11/03/14
सुरक्षा ठेव जमा	****500

कॉल सेंटर नं.
18002333435
18002003435

ग्राहक तक्रार निवारण मंचाचा पत्ता

0.1704/301-500 Units-0.1384/501-1000 Units-0.22/9/above 1000 Units-0.2910/

MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD.

MAHAVITARAN

RECEIPT Rcpt No. : 3222685

03-T.D.C.C. Bank Mokhada 10-05-2014

Collection Centre :Vasai Circle Date:

Consumer Circle :009643009533 /PC:5/BU:4824

Consumer No. :

Received From Rs Five Hundred Fifty Rupees Only

The sum of Rs. (In words) : 550.0

By :

No. : Dated :

Bank Name : Energy Bill

Rs.

For M.S.E.D.Co. Ltd.

Cashier

SR-06-D/C-04 036620 3222685

Registered Office : Plot No. G-9, Prakashgad, Prof. Anant Kanekar Marg, Bandra (E), Mumbai-400 051

Directed Research

Questionnaire

PIA करिता प्रश्न

१. PRA मधे कोणत्या activity घेतल्या गेल्या? तपशील. (P2)

२. जंगल चराई (मोकाट प्राण्यांसाठी) रोखण्यासाठी काय measures घेतल्या गेले? (P2)

३. WS commitee तयार करण्यासाठी काय प्रक्रिया होती? (P2)

४. पीनेची पाण्याची उपलब्धता वाढवण्या करिता कोणत्या प्रकारची कामे घेण्यात आली? (P3)

५. Small आणि marginal शेत्कारांसाठी शेततळे देण्यात आली का? असल्यास तपशील द्यावा. (P3)

६. जंगले तोड रोकने करिता कोणत्या नियम लवणात आले का? कोणते? (P3)

७. जंगले तोड रोखण्या मुळे, लोकांच्या जाळण्या करीता/ लाकूळफाट्या करीता अतिरिक्त सोय करण्यात आली का? (P3)

८. नसबंदीच्या पाणलोट क्षेत्र विकासामधे कसा सम्बंध येतो? (P3)

९. जमिनीची पाणी धारण क्षमता कशा प्रकारे मोजलं गेली? (P6)

१०. आधी असलेले तीन प्रोग्राम मधे (Crop yield production, Integrated cereal development programme, village levels seed production programme) आणि EPA मधे असलेल्या crop demo मधे काय फरक आहे? (P32)

११. खोच, पाळसुंडा आणि सातुरली ह्या गावात किती पाडे 'tanker fed' आहेत? ह्यांना दुष्काळग्रस्त भागा मधे का दाखय्ण्यात आले नाही? (P36)

१२. जमिनीची धूप कशा प्रकारे मोजलं गेली? (P37)

१३. पाण्यचा अपधाव मोजण्यात आला का? कसा व किती? (P37)

१४. कामगार उपलब्धता म्हणजे काय व त्यातील इतर चं अर्थ काय? (P38) जर ते रुजू कामगार असा अर्थ असेल तर ते २ किंवा १२ असणे शक्य नाही.

१५. Migration चे प्रमाण (१७५,१२५) एवढे असल्यास industry's चे प्रमाण जास्त असावे. (P39)

१६. पाणलोट क्षेत्रा मधे येणाऱ्या गावनिहाय भागाचे मोजमाप केल्या गेले नाही. असे का? (P43)

१७. पाण्याची गरज मोजण्या करिता ५ वर्षापूर्वीची पिक लागवड व उत्त्पन्न लक्षात घेण्यात आले. तर ती गरज कमी येते. ती वाढीव गरज किती? २००८-०९ च्या statistics record चा तपशील (P45)

१८. बागायती शेती चं तपशील देताना खोच आणि पळसपाडा धारणा वरील कॅनाल णे बागायती शेती करणाऱ्या शेतकऱ्यांना विचारात घेण्यात आले नाही का? (P46)

१९. तसेच काही शेतकरी शेततळ्या मधील पाण्यावर बागायती करत होते त्यांनाही विचारात घेतल्या गेले नाही जसे कि, जागमाता जवळील हिरू साबळे यांचे शेत. (P46)

२०. शेतीमध्ये काम करणारे लोक हे शेत धारक लोकांपेक्षा कमी दिसतात ते का? (P49)

२१. large, small आणि marginal शेतकऱ्यांची आपल्या भागातील defination काय? (P49)

२२. पेंढ्या ची गरज काढताना conversion factor कश्या प्रकारे घेतल्या गेले तसेच एका जनवरा मागील प्रत्येक दिवसाचा पेंढा कसा ठरवण्यात आला? (P54)

२३. जर उत्पन्न : पेंढा चे गुणोत्तर ५:१ घेतले तर ५ महिन्याच्या पेंध्याची पूर्तता भातशेती मधून होऊ शकते, पेंध्याची गरज काढताना १२ महिने लक्षात का घेण्यात आले? (जुलै ते जानेवारी पर्यंत मालावरील गावात चारा म्हणून वापरू शकतो.)

२४. Household survey केल्या गेले होते का? असल्यास sample size किती होती? (P60)

२५. पत्रावळी बनवणारी किती केंद्रे sanction करण्यात आली? त्यापैकी किती चालू स्थितीत आहेत? तपशील.

२६. तसेच मधमाशी केंद्रे व gum collection ची केंद्रे किती चालू आहेत?

२७. ज्या घरांना पाणी पुरवठा होत नाही असे दिसते त्या साठी पाणलोट विकासा मधे काय तरतुदी केल्या गेल्या? (P60)

२८. औद्यागिक केंद्र तपशिलामध्ये गावामध्ये काही केंद्रे दाखवलेली आहेत मात्र infrastrcture तक्त्यामध्ये त्यांचा तपशील नाही. हा mismatch का? जि औद्यागिक केंद्रे आहेत ती शेती आधारित नाहीत का? (P60)

२९. Threshers चा उल्लेख infrastructure मधे आहे परंतु energy requirement मधे नाही असे का?

३०. काही गावांमध्ये common resourse properties असूनहि त्यांचा उल्लेख केल्या गेलेला नाही. जसे कि पळसुंडा येथील ३० acre माळरान. (P67)

३१. ground level planning team किती जनांची होती? (P69)

३२. तुम्ही कोणत्या पाणलोट क्षेत्राची planning केली?

३३. कामासाठी मजूर लागलेत का? त्यांचा तपशील आहे का?

३४. payment कोणत्या बँकेत झालेत? सामुहिक तत्वावर झालेत का?

३५. मागील ३ वर्षातील कामांचे social audit झाले आहे का? असल्यास त्याच तपशील व त्यातून काय निष्पन्न झाले?

३६. UG आणि SHG हे पाणलोट कार्यक्रम सुरु झाल्यावर स्थापन झालेत असे का?

३७. माथा ते पायथा असे नियोजन करताना फक्त CNB, FP व terrecing चाच विचार करण्यात आला CCT, SCT, अनघडी बांध, जैविक बांध व फांदी बांधांचा विचार का करण्यात आला नाही?

३८. पाणलोट संबंधी किती ग्रामसभा झाल्यात? (P113)

३९. पाणलोट संबंधी गावपातळीवर कोणत्या संस्था स्थापन झालेल्या आहेत? त्या साठी किती खर्च करण्यात आला? (P115)

४०. कार्यक्रम राबविण्या अगोदर ची पाणी अडविण्याची क्षमता अभ्यासली गेली होती का? असल्यास किती व त्याची नोंद दपर मधे का नाही? (जसे कि जांभूळवाडी व सातुर्ली मधील earthen dam व काही तलाव) (P117)

४१. माथ्यावर करण्यात आलेली कोणती व किती?

४२. विहिरी व पिण्याच्या पाण्याची उपलब्धता वाढविण्या करिता कोणते उपाय योजिल्या गेल्या?

४३. प्रकल्प राबविण्या आधी उपलब्ध पाण्याचा अभ्यास केल्या गेला का? DPR मधे नोंदी खूप कमी आहेत.

४४. LBS च्या जागा कश्या निवडल्या गेल्या? LBS किती पूर्ण झाले आहेत? तपशील.

४५. FP च्या जागा कश्या निवडल्या गेल्या? लाभार्थ्यांचा तपशील.

४६. CNB ची जागा निर्धारित केल्या गेली आहे का? असल्यास कुठे? (पाळसुंडा आणि सातुर्ली) (P145)

४७. चाऱ्यासाठी कोणती झाडे लावल्या गेलीत? तपशील

४८. पळसुंडा पाणलोट क्षेत्रातील सर्व लाभार्थी हे सातुर्ली गावातील आहेत असे का? (P166)

४९. किती microenteprises सुरु केल्या गेलीत व त्यातील किती सुरु आहेत? तपशील

५०. पत्रावळी तयार करण्या सारख्या कामासाठी चे लाभार्थी कसे निवडण्यात आले? तपशील (P191)

५१. SHG आणि landless people सही वेगवेगळी केंद्रे उभारली गेली का (microenteprises, पत्रावळी etc)? (P201)

५२. शेतकऱ्यांसाठी किती प्रात्याक्षिके करण्यात आली तसेच किती व कुठे?

५३. भूजल पातळी मधील critical, सेमी-critical व safe ची संज्ञा (defination) काय? (P258)

५४. भूजल पातळी च्या वाढीकरिता कोणतेही उपाय न योजता पातळी कशी वाढणार?

५५. पिण्याच्या पाण्याची उपलब्धतेच्या काळाची (time duration) ची मोजणी कशी करण्यात आली? (P261)

५६. पिण्याच्या पाण्याच्या उपलब्धते मध्ये fair आणि good ची संज्ञा काय?

५७. पिण्याच्या पाण्याची quality सुधारण्य करिता कोणतेही उपाय न करता ती वाढणार कशी?

५८. नवीन पिक लागवड पद्धती किती लोक वापरतात? तपशील (P262)

५९. नवीन पिक लागवडीमुळे पाण्याची बचत कशी झाली?

६०. नवीन पिक लागवड व्यतिरिक्त कोणत्या पद्धतींची तरतूद उत्पादन वाढीकरिता करण्यात आली? (P268)

६१. उत्पादन वाढले का?, त्यामागची करणे व उदाहरणे

६२. हरभर्याच्या उत्पन्नाची नोंद झाली का? असल्यास लागवड उत्पन्न इ. चं तपशील (P269)

६३. हरभऱ्याच्या लागवडीकरिता पाण्याची सोय कशी करण्यात आली?

६४. काजू प्रक्रिया केंद्र नसताना उत्पादनाचे काय करण्यात आले?, किती उत्पन्न निघाले त्याची नोंद व तपशील. (P272)

६५. पेंढ्या करिता कोणत्या झाडांची लागवड करण्यात आली? लाभार्थींच तपशील? private land मधे ती झाडे लावण्याकरिता त्यांना कसे तयार करण्यात आले? (P273)

६६. जंगलतोड रोखण्यात आले तर लावलाल्या झाडांमधून फाट्याची वाढ कशी होईल? क्षेत्रफळात बदल कसा होईल? (P274)

६७. पाणलोट विकासामुळे प्राणी कसे वाढतील? (P280)

६८. वृक्ष लागवडी मुले क्षेत्रफळ कसे वाढणार? (P282)

६९. वृक्ष जागविण्यासाठी कोणते उपाय योजिल्या गेलेत?

७०. लघु-उद्योग व इतर उद्योग सुरु झाल्यानंतर त्यांच्या बाजार व संवर्धनासाठी कोणते उपाय करण्यात आले? (P284)

७१. WSD मुळे रोड, water supply, शाळेमधील मुले इत्यादी मधे कशी वाढ होईल?

७२. अस्तित्वात असलेल्या फळबागा साठी पाण्याची सुविधा काय आहे? (P287)

७३. WSD मुळे बागायती शेती मधे किती व कसा बदल होईल? त्याची मागील वर्षात नोंद आहे का?

७४. मजगी करण्या आधी त्या जागेवर कोणते पिक घेण्यात येत होते व त्यामध्ये काय बदल झाला? त्या ठिकाणचा slope किती होता? मजगी मुले किती अपधाव रोखल्या गेला? (P288)

७५. organisation structure मधील विविध organisation ची कामे व उद्देश काय? तपशील (7P2)

७६. विविध phase मधे कामे व खर्च व क्षेत्र कसे ठरविण्यात आले? (7P3)

७७. विविध कामाचे आकडे (किती) हे कसे ठरविण्यात आले?

७८. प्रती हेक्टर मागील खर्च कसा ठरविण्यात आला? तपशील (7P5)

७९. प्रत्येक activity मागील टक्का खर्च कसा ठरवण्यात आला? (7P7)

८०. कोणत्या विहिरींची खोली वाढवण्यात आली? Details

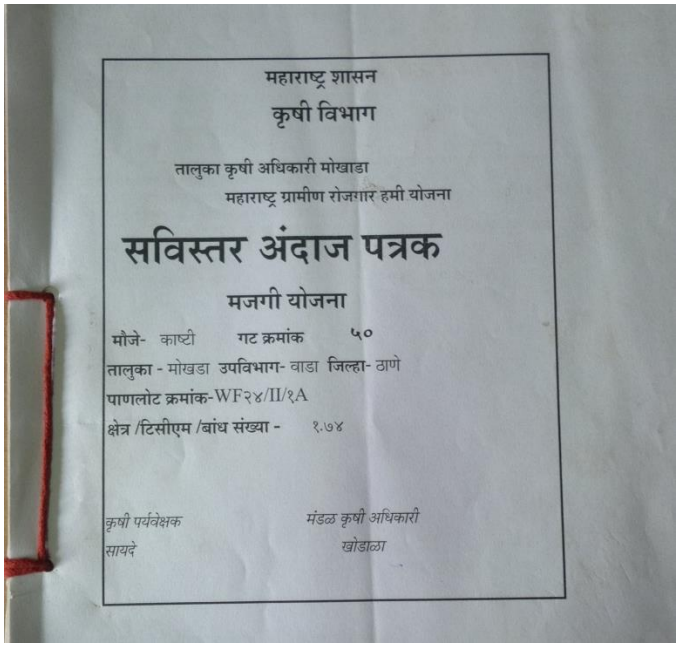
८१. planning आणि training चा तपशील. (7P9)

पाणलोट समिती करिता प्रश्न

१. WSC कधी स्थापन झाली?
२. तुमचे पद काय?
३. WSC मिटिंग कधी होते? किती झाल्यात?
४. तुमची training झाली आहे का? कुठे कधी व कुणी घेतली?
५. पाणलोट संबंधित किती ग्रामसभा झाल्यात? त्यातील उपस्थिती व मुद्दे.
६. गावात मोकाट गुरे आहेत का?
७. पाणलोटाची किती कामे झालीत?
८. कोणत्या प्रकारची कामे झालीत? लाभार्थ्यांचा तपशील?
९. जागरुकतेसाठी कोणते programme घेण्यात आले का?
१०. जनजागृती करिता समान मिळाले का? काय व कुणाला देण्यात आले?
११. गावामध्ये पाणलोटाचे वाचनालय कुठे आहे? पुस्तकांचा उपयोग किती लोक घेतात?
१२. लाभार्थ्यांची निवड कशी करण्यात आली?
१३. काही झाडे लावण्यात आली का? कोणती व कुठे? त्यापैकी किती जगली?
१४. गावात PRA झाला का? कधी व किती उपस्थिती होती?
१५. PRA मधे काय काय करण्यात आले? त्याची नोंद आहे का?
१६. LBS, शेत-तळे, कंब कुठे व कधी बांधण्यात आला?
१७. प्रत्येकासाठी जागा निवड कशी करण्यात आली?

IWMP & DPR Process

Mazgi Process (Terracing)



महाराष्ट्र शासन

कृषी विभाग

तालुका कृषी अधिकारी मोखाडा

महाराष्ट्र ग्रामीण रोजगार हमी योजना

सविस्तर अंदाज पत्रक

मजगी योजना

मौजे- काष्टी गट क्रमांक ५०

तालुका - मोखडा उपविभाग- वाडा जिल्हा- ठाणे

पाणलोट क्रमांक-WF२४/II/१A

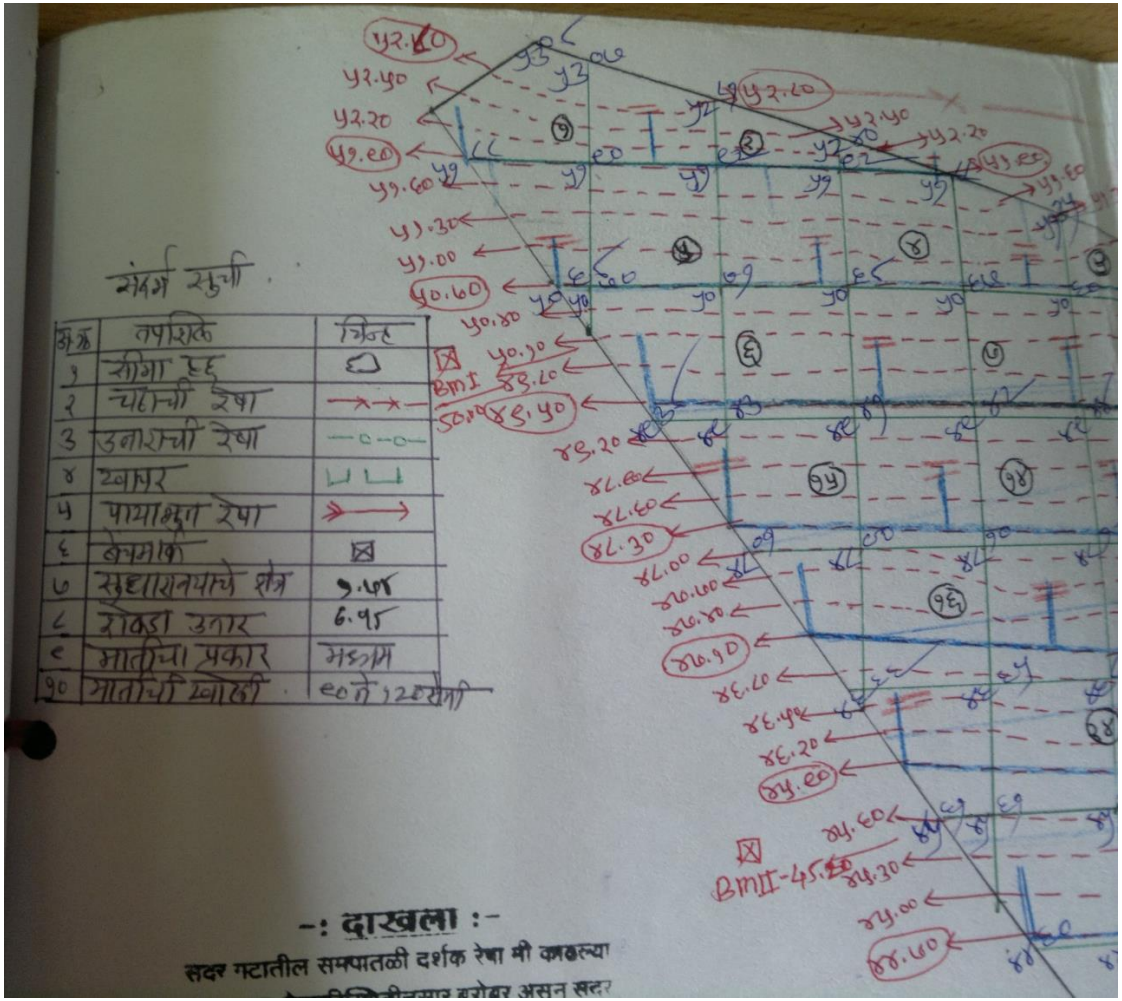
क्षेत्र /टिसीएम /बांध संख्या - १.७४

कृषी पर्यवेक्षक
सायदे

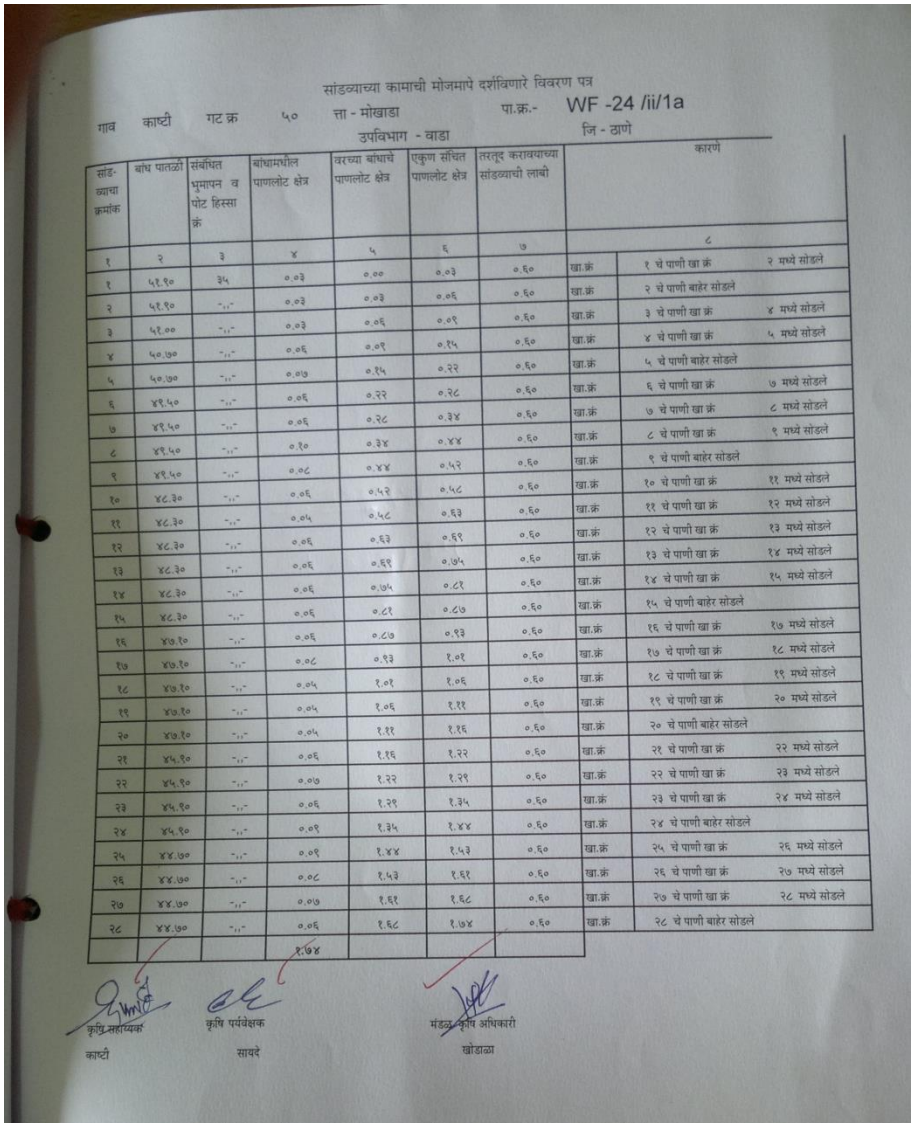
मंडळ कृषी अधिकारी
खोडाळा

Drawing to show details of slope, Soil type and boundary

This is part of DPR preparation. This is done for Terracing (Mazgi).



Measurements of various structures



सांडव्याच्या कामाची मोजमापे दर्शविणारे विवरण पत्र

गाव काष्टी गट क्र ५० त्ता - मोखाडा पा.क्र.- WF -24 /ii/1a

उपविभाग - वाडा जि - ठाणे

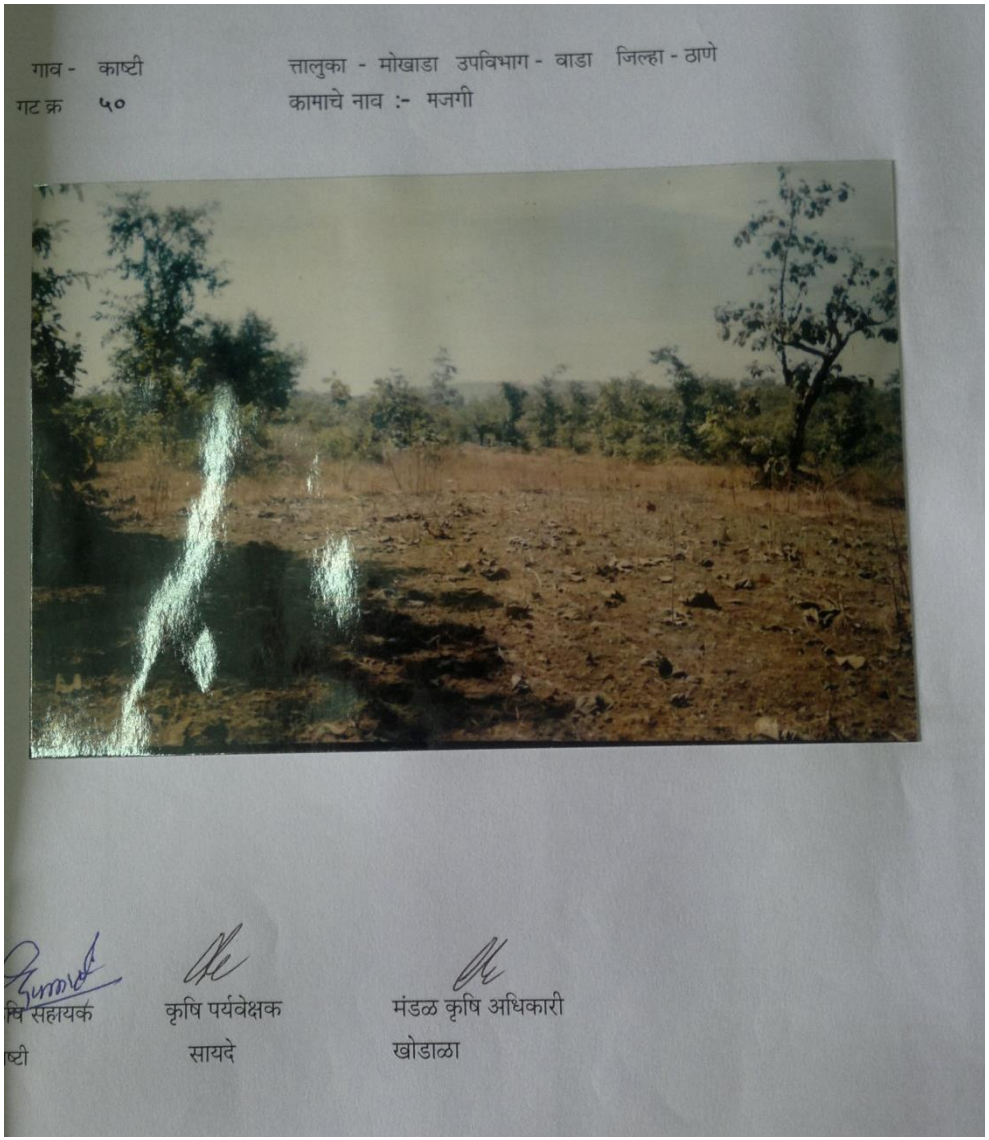
सांड-व्याचा क्रमांक	बांध पातळी	संबंधित भूमापन व पोट हिस्सा क्रं	बांधामधील पाणलोट क्षेत्र	वरच्या बांधाचे पाणलोट क्षेत्र	एकुण संचित पाणलोट क्षेत्र	तरतूद करावयाच्या सांडव्याची लाबी	कारणे	
१	२	३	४	५	६	७	८	
१	५१.९०	३५	०.०३	०.००	०.०३	०.६०	खा.क्रं	१ चे पाणी खा क्रं २ मध्ये सोडले
२	५१.९०	-,,-	०.०३	०.०३	०.०६	०.६०	खा.क्रं	२ चे पाणी बाहेर सोडले
३	५१.००	-,,-	०.०३	०.०६	०.०९	०.६०	खा.क्रं	३ चे पाणी खा क्रं ४ मध्ये सोडले
४	५०.७०	-,,-	०.०६	०.०९	०.१५	०.६०	खा.क्रं	४ चे पाणी खा क्रं ५ मध्ये सोडले
५	५०.७०	-,,-	०.०७	०.१५	०.२२	०.६०	खा.क्रं	५ चे पाणी बाहेर सोडले
६	४९.५०	-,,-	०.०६	०.२२	०.२८	०.६०	खा.क्रं	६ चे पाणी खा क्रं ७ मध्ये सोडले
७	४९.५०	-,,-	०.०६	०.२८	०.३४	०.६०	खा.क्रं	७ चे पाणी खा क्रं ८ मध्ये सोडले
८	४९.५०	-,,-	०.१०	०.३४	०.४४	०.६०	खा.क्रं	८ चे पाणी खा क्रं ९ मध्ये सोडले
९	४९.५०	-,,-	०.०८	०.४४	०.५२	०.६०	खा.क्रं	९ चे पाणी बाहेर सोडले
१०	४८.३०	-,,-	०.०६	०.५२	०.५८	०.६०	खा.क्रं	१० चे पाणी खा क्रं ११ मध्ये सोडले
११	४८.३०	-,,-	०.०५	०.५८	०.६३	०.६०	खा.क्रं	११ चे पाणी खा क्रं १२ मध्ये सोडले
१२	४८.३०	-,,-	०.०६	०.६३	०.६९	०.६०	खा.क्रं	१२ चे पाणी खा क्रं १३ मध्ये सोडले
१३	४८.३०	-,,-	०.०६	०.६९	०.७५	०.६०	खा.क्रं	१३ चे पाणी खा क्रं १४ मध्ये सोडले
१४	४८.३०	-,,-	०.०६	०.७५	०.८१	०.६०	खा.क्रं	१४ चे पाणी खा क्रं १५ मध्ये सोडले
१५	४८.३०	-,,-	०.०६	०.८१	०.८७	०.६०	खा.क्रं	१५ चे पाणी बाहेर सोडले
१६	४७.१०	-,,-	०.०६	०.८७	०.९३	०.६०	खा.क्रं	१६ चे पाणी खा क्रं १७ मध्ये सोडले
१७	४७.१०	-,,-	०.०८	०.९३	१.०१	०.६०	खा.क्रं	१७ चे पाणी खा क्रं १८ मध्ये सोडले
१८	४७.१०	-,,-	०.०५	१.०१	१.०६	०.६०	खा.क्रं	१८ चे पाणी खा क्रं १९ मध्ये सोडले
१९	४७.१०	-,,-	०.०५	१.०६	१.११	०.६०	खा.क्रं	१९ चे पाणी खा क्रं २० मध्ये सोडले
२०	४७.१०	-,,-	०.०५	१.११	१.१६	०.६०	खा.क्रं	२० चे पाणी बाहेर सोडले
२१	४५.९०	-,,-	०.०६	१.१६	१.२२	०.६०	खा.क्रं	२१ चे पाणी खा क्रं २२ मध्ये सोडले
२२	४५.९०	-,,-	०.०७	१.२२	१.२९	०.६०	खा.क्रं	२२ चे पाणी खा क्रं २३ मध्ये सोडले
२३	४५.९०	-,,-	०.०६	१.२९	१.३५	०.६०	खा.क्रं	२३ चे पाणी खा क्रं २४ मध्ये सोडले
२४	४५.९०	-,,-	०.०९	१.३५	१.४४	०.६०	खा.क्रं	२४ चे पाणी बाहेर सोडले
२५	४४.७०	-,,-	०.०९	१.४४	१.५३	०.६०	खा.क्रं	२५ चे पाणी खा क्रं २६ मध्ये सोडले
२६	४४.७०	-,,-	०.०८	१.५३	१.६१	०.६०	खा.क्रं	२६ चे पाणी खा क्रं २७ मध्ये सोडले
२७	४४.७०	-,,-	०.०७	१.६१	१.६८	०.६०	खा.क्रं	२७ चे पाणी खा क्रं २८ मध्ये सोडले
२८	४४.७०	-,,-	०.०६	१.६८	१.७४	०.६०	खा.क्रं	२८ चे पाणी बाहेर सोडले
			१.७४					

कृषि सहाय्यक काष्टी

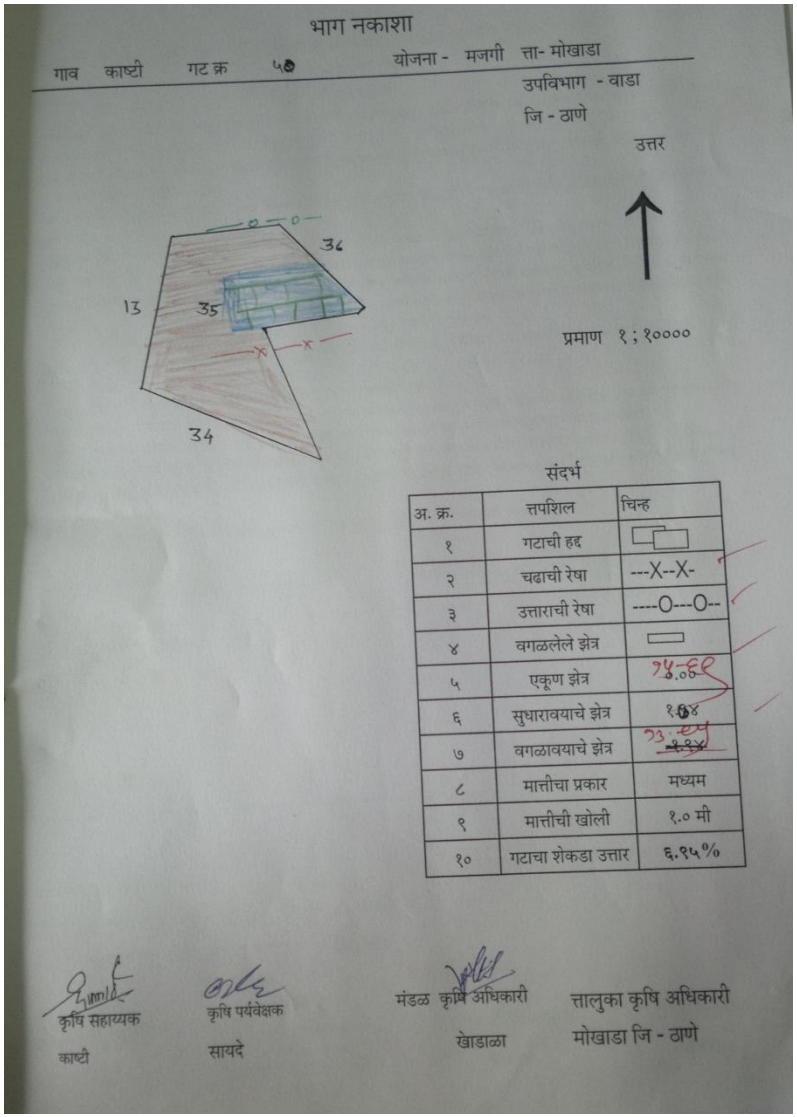
कृषि पर्यवेक्षक सायदे

मंडल कृषि अधिकारी खोडाळा

Actual Mazgi Site Visit



Map to show identified Mazgi



Watershed Area Identification map