Foreword

Aroehan, which started as a project of the College of Social Work, Nirmala NIketan, began its journey in Mokhada in 2006. Even though in our minds we had decided that malnutrition was the problem in the block, and our Vision was to make Mokhada a Zero-Malnutrition Block.

We soon realized that even if we were to work on the issue of malnutrition, we needed to be more holistic in our approach and work on different aspects of the problem, so as to have a sustainable impact on the lives of the people. It was thus that we started working on water conservation and later on agriculture, along with our earlier focus areas of health and education. Aroehan has grown from its experiences and from its connection with people to an organisation which today has a presence in four blocks of Palghar district. Several individuals and corporate houses have walked with us on this journey and continue to do so, fired by the same zeal and concern – to make a difference to people's lives, bring in village transformation and ensure that this transformation is sustainable and based on people's priorities and participation.

This Report, supported by Siemens Ltd. India, is based on a field study conducted subsequent to our intervention. It is an attempt to re-look at Mokhada, and to assess whether we are on the right track as we begin the next decade of our journey in the area.

We call it the People's Report because it is the sum of what villagers from the various padas have shared with us about their lives and their hopes and dreams, and is thus a report that is validated by the villagers themselves.

Though a decade has passed since our entry into the area, the particular focus of this study arose out of our experience in the successful electrification of AMLE village with the valuable support of Siemens Ltd., India in 2012. Amle is a small pada of 70+ households which had been invisible to the world. Suddenly it became a bright spot in the dark jungle, forcing other villagers and government officials in the surrounding areas to take cognizance of the change happening there. Our work then led to the introduction of solar-energy-based lift irrigation, to increase the land that could be brought under cultivation. This further led to our looking for more AMLEs which showed a potential for change. We became ambitious and took on a cluster of 13 habitations of Kurlod-Botoshi to introduce watershed-based change in these water-stressed villages. Along the way we realized that we were beginning to crystallise an

intervention protocol of how to bring water to high stress areas. This made a sea-change in the lives of people. It brought in the capacity for productivity, for experimentation, and allowed people the possibility of exploring newer sources of livelihood. With this in mind, we decided that a study of the villages along water availability parameters and the equally important parameters of health, education, and employment should be conducted across all the habitations of Mokhada, if our goal was to make any meaningful and significant difference to the scenario.

We are immensely grateful to the enthusiastic team from IIT, Powai who lent their expertise in designing and developing a protocol for water solutions based on the hydrology of the region. They trained and worked closely with the AROEHAN Team and will continue to facilitate implementation of the intervention. As our former President APJ Abdul Kalam said, they have shown that "science (and technology) can be a beautiful gift to humanity if it is used to reduce the drudgery and hardships from people's lives". We also thank Dr Geeta Balakrishnan, former Principal, College of Social Work, Mumbai who has helped to collate the data that our staff members collected from the 227 habitations across Mokhada.

This data depicts the true picture of Mokhada and the dreams of the people – which include better (even digital) schools for their children, better roads for connectivity and access to health services, and more frequent visits by government officials so that they understand their issues. Furthermore, we have understood that when an overwhelming 153 habitations say they want employment, we know that our interventions alone can be of little use to the people if they are not supported by Government plans and action.

Above all, we strongly believe that no plan is successful if people do not participate in it and own it. Our endeavour therefore is to call upon all stakeholders - the Government at all levels, starting from the elected representatives to all the appointed officials from the villages and the Block, the civil society organisations, the corporate houses - to own the change process and walk-the-talk with the people of Mokhada in this journey of transformation.

Dr. Helen Joseph
Chairperson
AROEHAN

Part-1
Status assessment and planning for water security in Mokhada Taluka, Palghar.

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Abbreviations

CTARA – Center for Technology Alternatives for Rural Area

CWC- Central Water Commission

FGD- Focused Group Discussion

GoI- Government of India

NRDWP – National Rural Drinking Water Programme

PRA-Participatory Rural Appraisal

PWS – Piped Water Supply

SRP- Sector Reform Projects

ST – Schedule Tribe

TDSC – Technology and Development Solution Cell

WHO- World Health Organization

Executive summary

This report is an initiative to understand issues related to drinking water leading to water stresses and further give interventions for the reduction in stress. The study area is the Mokhada taluka of Palghar District of Maharashtra. The study is a joint initiative of Technology Development Solution Cell (TDSC) at IIT Bombay and Aroehan, supported by Siemens Ltd India.

Mokhada Taluka acquires adequate rainfall but due to hilly terrain and lack of water recharge systems, several habitations of the region experience water scarcity leading to high degree of drinking water stress after monsoon. Agriculture is the primary source of livelihood activity, and lack of availability of water leads to limited farming, imposing migration during dry seasons. Secondary data also shows that water availability and accessibility are the major issues in the Mokhada Taluka. The Taluka comprises of 56 villages and 218 habitations (NRDWP, 2018), and all these habitations are associated with some type of water supply schemes.

Availability, quality and accessibility are the three important dimensions for water security. A water supply system must provide sufficient quantity of quality water with reliable access throughout the year. To understand the status of provision of drinking and domestic water in each habitation, primary data is collected through Participatory Rural Appraisal (PRA). Structured forms were designed and prepared by TDSC, and these forms were made available for the Focused Group Discussion (FGD) in each habitation. The data was collected by trained Aroehan team through field visits.

The stress categorization of habitation is considered based on either pipe water supply scheme or primary drinking water well. Parameters classes are clubbed together and depending on severity, categories are defined. By clubbing these classes, 18 stress categories were defined. For classification, “Availability” is considered as the most important factor; if water is not available then accessibility and quality are not much of a use. The second important factor is “Accessibility”, as it directly affects the health of women who fetch water from long distance. Accessibility is not measured only in terms of distance but also the condition and slope of the road. In the case of “Quality”, data captured is siltation in the water source and people’s perception about the acceptability in appearance, taste and odor (Good or bad). Further segregate habitations based on various stress categories and finally categorization of villages into four broad categories based on stress categories at habitation level

After analysis, it was found that out of total 57 villages, 4 villages have no stress- either they have 12 month functional PWS or primary well with no stress; 25 villages fall under low or moderate stress categories and 28 villages are under high stress categories (50% of total villages). High stress of availability is found to be a major issue.

The project aims to increase water availability for both the drinking and livelihood purposes using best practices suitable for the local conditions and focusing on regional planning. For pilot study,

team TDSC along with Aroehan selected 27 habitations of high stress category. Currently, TDSC is in the process of designing the intervention protocol for drinking and livelihood water planning.

The second part of the study looks at other significant aspects of people's lives. Though water stress acts as an important factor that impinges on all dimensions of life in the villages, access to employment, health and education, and support services created by the government are also crucial factors that affect everyday life in Mokhada. Of the 227 habitations surveyed, people from 153 habitations said that a sustainable source of livelihood was what they wanted; 45 habitations expressed the need for having access to clean drinking water; 53 habitations said that they had no toilets/latrines. Around 10 habitations expressed the need for having clinics in the village. All this data manifests the concern that people feel about health issues in general. Several habitations spoke about the lack of washrooms and the general crumbling infrastructure in schools. They also articulated the need for better health services and more importantly, better road connectivity to access health services.

Significantly, all habitations have asked for better schools, adequate staff and even more schools; all have asked for more visits by doctors and ANMs to villages and more visits and interactions with government officials and villagers. This indicates the need for the synchronisation of people's needs and the government's action plan.

The social indicators of Mokhada thus give an overall picture of a block which needs the attention of the government, civil society and corporate houses working jointly to address the people's issues.

1 Introduction

Access to safe drinking water is amongst the basic necessity and is essential to human health. Globally, access to safe drinking water is of prime concern as the increase in human population and lack of resource management is leading to the water crisis. 2.1 billion People around the world lack access to safely managed drinking water services. (WHO-UNICEF, 2017). Water in India is complicatedly linked with the cultural fabric of the country and has both economic and social connotations. With an estimated per capita availability of 1,608 cu m/capita/year (CWC, 2015), India does not fall under the category of a water scarce country per se, rather it can be termed as a country under 'water stress'1. To provide drinking water is State Government's responsibility in Indian Constitution yet Government of India (GoI) plays a major handholding role. In Maharashtra, according to state's water resources department, the annual reservation for drinking water in the urban area is 4,843 million cubic meters and in rural areas, it is only 1,033 million cubic meters. In effect, urban areas can access 4.7 times more drinking water than the rural belt from these water sources. Majority of rural water supply is depending on ground water.

1.1 Motivation

Water has always been a focus for development. Historically, civilizations were flourished around water bodies as water was easily available for drinking, agriculture and allied activities. Accessibility to safe drinking water, with the rise in population and depleting resources, was always a matter of concern. Throughout the years after independence the water sector has been evolved and continues to be creating more and more infrastructure and has shown several paradigm shifts in policy formulation. If water is not available (temporally) and not accessible (spatially), then a whole lot of things start to fall apart.

For understanding status of drinking water and identifying water stresses, the study area chosen is Mokhada Taluka of Palghar District of Maharashtra. This region falls in the northern limits of Sahyadri ranges, which receives average annual rainfall of 2000-3000mm, but the shallow basaltic terrain leads to significant amount of direct runoff (surface runoff), adding very little to infiltration/groundwater component. Even the infiltrated water leaves the watersheds of Mokhada as quick base flows, making the situation worse even. Mokhada Taluka was selected as study area because of the acute severity of the problem. There is widespread drinking water scarcity and very little Rabi cropping in Mokhada region. Most of the habitations come under partially covered habitations (under NRDWP standards) and many of them are fed by tankers, to fulfill the drinking and domestic water needs.

Aroehan, an NGO working in the Palghar district on several livelihood related problems, is developing a framework for integrated village planning, with a focus on block level integration of

[1] According to the UN, an area experiences water stress when annual water supplies drop below 1,700 cu m per person. When annual water supplies drop below 1,000 cu m per person, the population faces water scarcity, and below 500 cu m 'absolute scarcity'.

resources in Mokhada Taluka of Palghar District. As TDSC and CTARA, IIT Bombay are actively working in water sector and further based on previous experiences, Aroehan approached TDSC for support for conducting Water resources management study.

1.2 Mokhada Taluka details

1.2.1 Geography & Geology

Mokhada taluka is situated in the northern part of Western Ghats of India; the region is hilly with undulating slopes. The region is covered with forests. Waal, Wagh and Pinjal are the major rivers flowing in this region. All the rivers will be flooded in the monsoon but remain dry in late summer period, which leads to acute water problem. Mokhada Taluka is extended from longitude 73° 16' 46.92" E - 73° 30' 14.4" E to latitude 19° 41' 5.64" N - 20° 3' 39.24" N. Mokhada has an altitude of about 300 – 400 meters though some spot heights rise to more than 400 meters and slopes towards south east.. Mokhada consists of 28 Gram panchayats, 59 villages and 236 habitations. The area of Mokhada taluka is 494.83 km^2 and perimeter is 169.3 km. Total number of households in Mokhada taluka is 17789 with total population of 83453. Male population is 41691 and female population is 41762. Scheduled Tribe populations of Mokhada taluka is 76842 which fall in rural category, only a bit of non-ST population is found in the Taluka headquarter Mokhada (Census, 2011). About 92% population comes under schedule Tribe population.

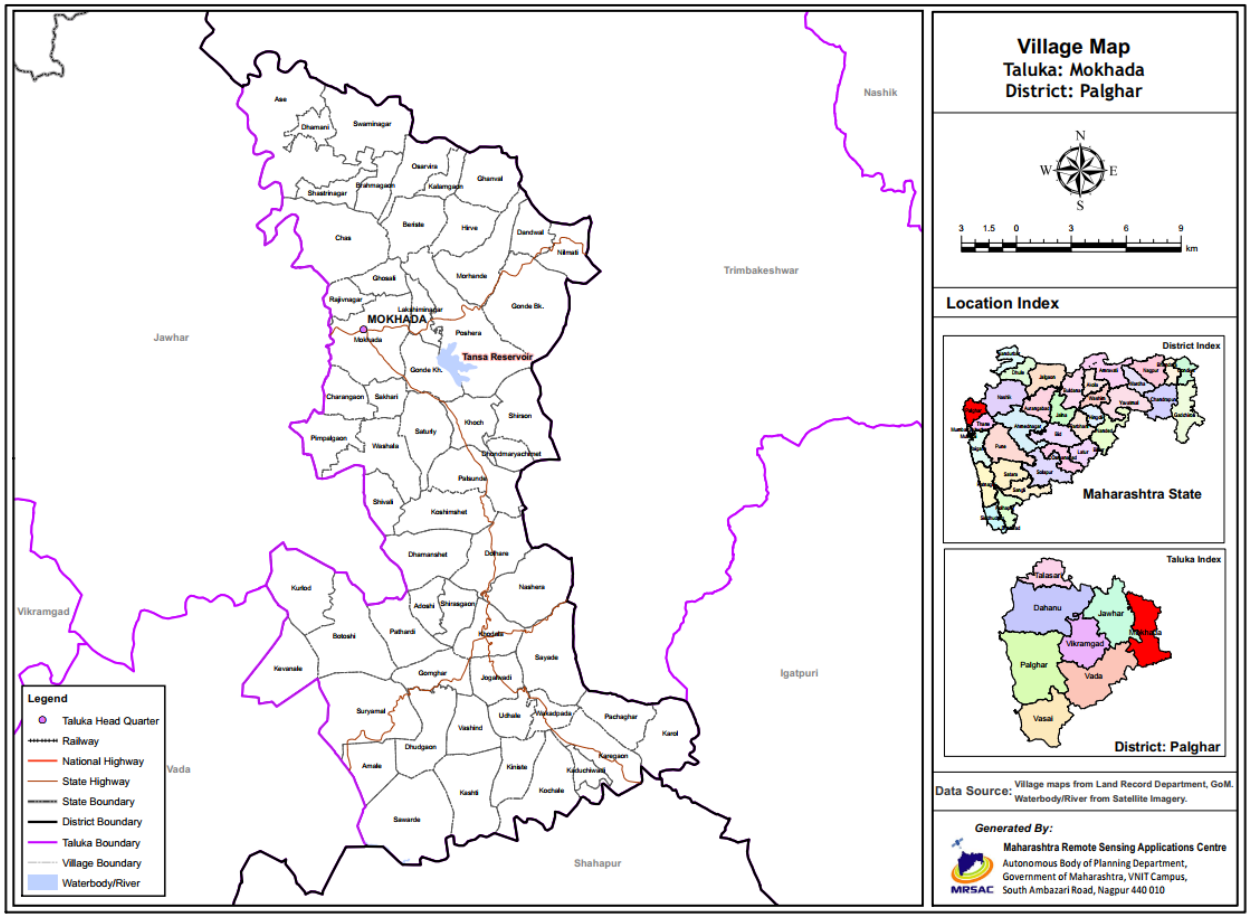

Figure 1: Mokhada Taluka Location Map

Mokhada Taluka comes under the region of Deccan Basalt which is formed by solidification of molten lava. The rock layers are made up of several successive flows of igneous rocks (basalt) of variable thickness and lateral extent known as Deccan Traps. The main hydrogeological properties like specific yield and infiltration are very low for the basaltic rocks which lead to very poor groundwater holding capacity. This is the main reason why there is major chunk of water goes as quick runoff, as the infiltration and specific yield are very less there is no natural structure/design in place to augment the rainwater and converting it into groundwater. The shallow hard rock terrain will lead to high surface runoff (slopes also play an important role) basaltic bedrock also results in very low infiltration. This leads to very low well recharge which are major source of drinking water in this region and they also go dry in few months post monsoon. South-West monsoon winds are responsible for the major rainfall to this region accounting for 2000mm to 3000mm annual average rainfall in the months of June to Sept. Though the region is getting high rainfall, because of steep slopes and hilly terrain most of the water will run off quickly leading to acute water scarcity in the later dry season. (Gupta, 2016)

1.2.2 Demography

Mokhada taluka has a total population of 83,453 with 24% decadal variation according to (Census, 2011). Mokhada is an agriculture dependent region with major worker population associated with agriculture and allied activities as shown in Figure 2. Taluka comprises of predominantly tribal population as shown in Figure 3 and consisting of no urban Centre.

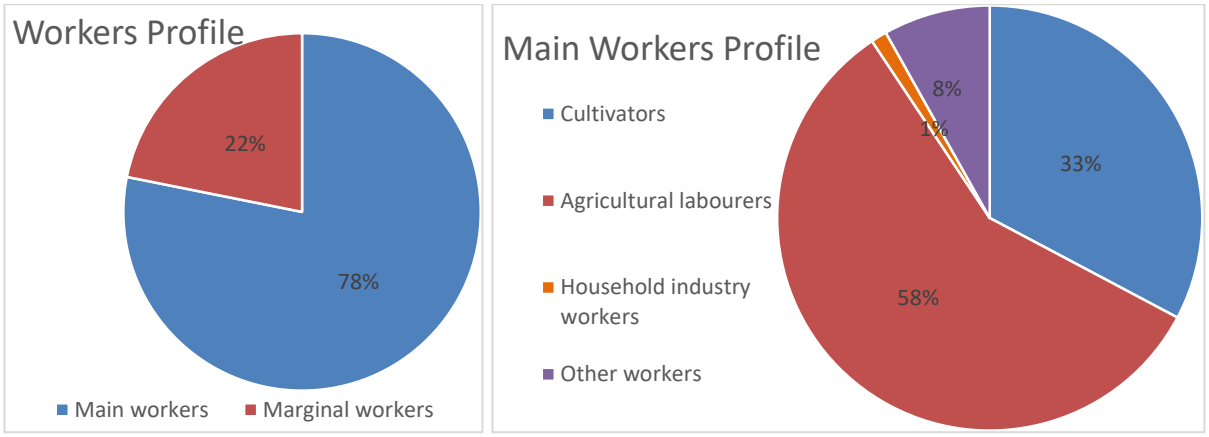

Figure 2: Workers Profile

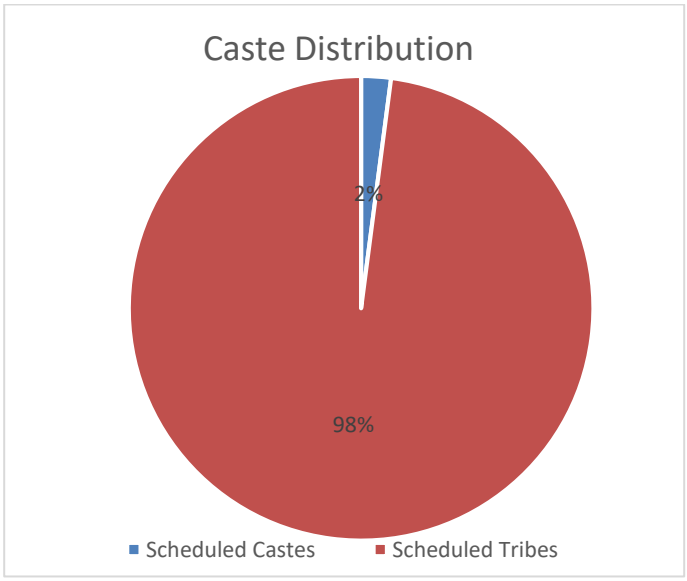

Figure 3: Caste Distribution

1.3 Need for studying water stress and livelihood planning

Mokhada Taluka falls in northern limits of Sahyadri ranges, also known as the Western Ghats, consisting of hilly terrain and steep slope. Total geographic area of taluka is 49226.67 Ha. The region receives an average annual rainfall of 2000mm-3000mm (http://maharain.gov.in/), but as it

consists of steep undulated slopes, all the water gets flowed down to rivers leaving the habitations on higher elevation water scarce. Mokhada Taluka has two major surface water storages namely Gondhe Kh. and Khoch reservoirs. Most people depend on the ground water due to its highly elevated regions. The geological structure of Mokhada is non-percolating adding very little to infiltration and hence water table is not available at reasonable depth. This leads to water scarcity for domestic purpose. The Land Use pattern indicates that 49.15% area is cultivable area and only 2.5% of cultivated area is irrigated indicating lack of water for irrigation as well. (Census, 2011)

The major source of water in Mokhada Taluka is groundwater (open/uncovered wells) as shown in Figure 4 (Census, 2011). The dependency of 92% of habitations is on various sources of groundwater indicating earnestness of availability of drinking water. The habitations lacking water sources depend on tanker fed water supply. Approx. 50% of habitations of villages of Mokhada taluka are tanker fed. Also, the taluka is tribal dominating (Census, 2011) with agriculture as primary source of income and lack of water for irrigation during summer cause inconvenience in farming activities leading to a shift in livelihood patterns and seasonal migration.

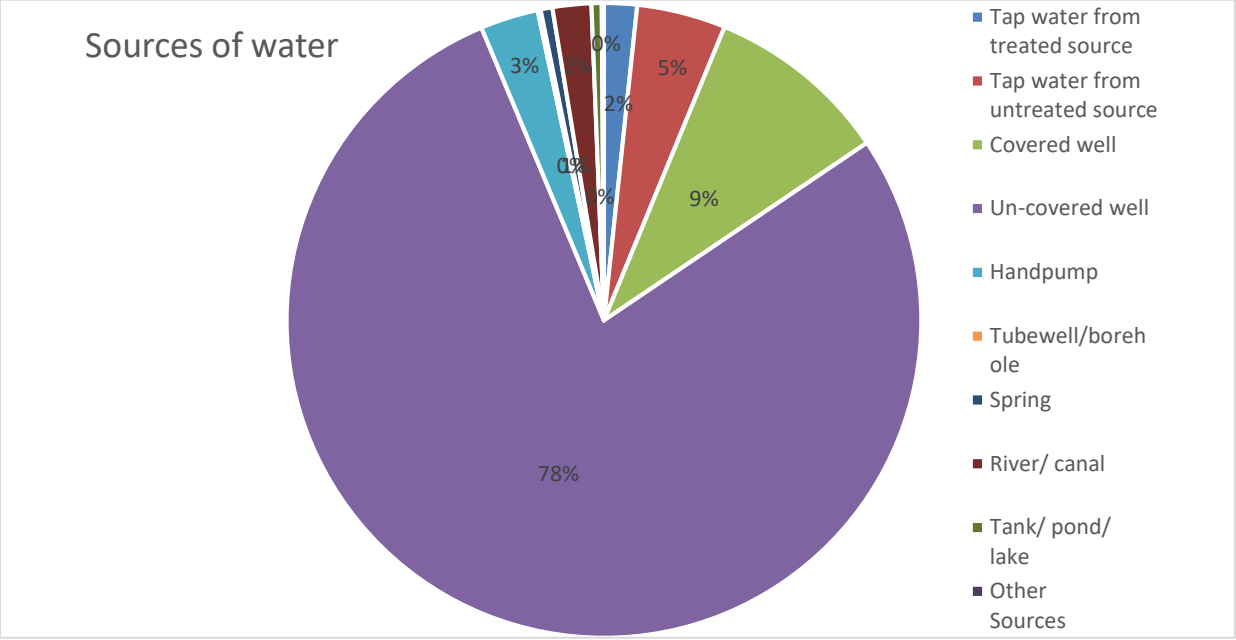

Figure 4: Sources of water in Mokhada Taluka

A study conducted by (WRI, 2015) states that 54 Percent of India faces High to Extremely High Water Stress and its Groundwater wells are decreasing. Figure 5 indicates Mokhada Taluka is between Medium to high range of water stresses. The habitations covered under NRDWP schemes also indicate an inconvenience in accessibility, as they form scattered hamlets. This leads to difficulties for government in planning and provision of infrastructure for such a small population.

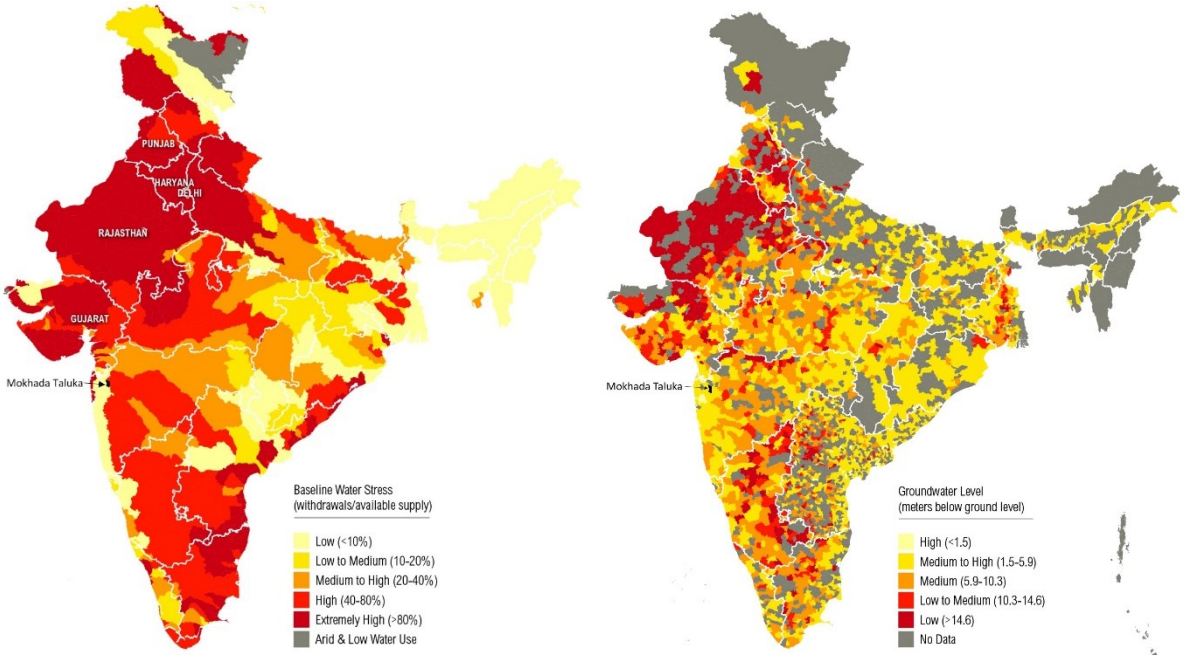

Figure 5: Baseline Water stress and Ground Water level Maps

Water scarcity for drinking, agriculture and allied activities indicate an acute need for looking through the issue and resolve the situation before it gets worse. Also many organizations, such as NGO, Trusts, and Companies through CSR are taking interest in providing solutions to this area but they don't have data regarding deficit and scarce habitation and hence there is a need to analyze water status, assess its usability and address issues at regional level.

1.4 Problem statement

Mokhada is a tribal taluka whose people depend mainly on agriculture for its livelihood. The region gets adequate rainfall but due to hilly terrain and lack of water infiltration systems, several habitations of the region experience severe water scarcity leading to high degree of drinking water stress. The villages in Mokhada taluka are industrially backwards, economically underdeveloped and socially isolated. Habitations of approx. 50% villages are partially or fully dependent on tankers in summer months[2] (2016-17) for water. 78% of working population is dependent on agriculture and allied activates, but only 2.5% of the land is cultivated (Census, 2011). There are several government initiatives for improved supply and quality; but challenging terrain and unmaintained/inaccessible sources of water are limiting the efforts.

There is a need to identify water scarcity issues to give a possible solution for the increase in water availability for both drinking and livelihood purposes. Water scarcity can be seen in multiple ways- availability and accessibility to sources of water, quality of water, dependency on other source/tanker fed, inefficiency in infrastructure, finances etc. The suitable solution at local level

[2] Mokhada Rural Water Supply Office, Mokhada

can be obtained after identifying multiple parameters leading to water stress. Further categorizing these parameters and prioritizing them to obtain a solution suitable for local conditions.

Presently, there is a large gap in the data sets and to get an actual ground situation there is a need for identification of water-related needs, various sources, available access to each source, most suitable energy solution for water pumping and distribution etc. Also, there is a need of holistic approach. Improved availability of water would improve assurance of drinking water, lead to a possibility of growing crops during dry months (Rabi crops) and increase livelihood opportunities.

Even in the habitations covered under NRDWP schemes have inconvenience in accessibility, as they form scattered hamlets. This leads to difficulties for government in planning and provision of infrastructure for such a small population. The steep slopes causing health issues in tribal females which need to addressed with appropriate intervention in the water supply. Apart from this many organizations, such as NGO, Trusts, and Companies through CSR are taking interest in providing solutions to this area but they don't have data regarding deficit and scarce habitation and hence there is a need for analyses secondary data on water status, assess its usability, address issues of habitation with respect to availability, accessibility and quality. TDSC will provide technical support for planning interventions, while Aroehan proposes to carry out integrated village development planning for block development plan preparation in Mokhada Taluka. Aroehan will carry out detailed, inclusive surveys using tools like PRA. Data necessary for planning interventions in various sectors will be collected and overlaid with each other for integrated planning. This exercise will be done with a focus on regional resource availability. Data will be simplified to build precise interventions.

1.5 Objectives

1. To get a Taluka wide perspective of water stress, classify it according to different criteria and further organize habitations according to stress criteria.
2. To conduct field survey to understand the status of water on ground, correlate with secondary data and analyze for understanding the scenario for better planning for drinking water, area treatment (soil and water conservation) and irrigation water.
3. To develop stress indicators based on various criteria, categorize habitations based on stress indicators and further prioritization of habitation for intervention planning.
4. To develop intervention protocol for drinking water, irrigation and area treatment.
5. To conduct capacity building training for Aroehan members for implementation of project at Taluka level.
6. To implement intervention protocol in several habitations and monitor it and prepare guidelines for it.
7. To study impact assessment of intervention protocol and develop guidelines for it.

1.6 Different stages in the planning

Planning for the domestic and drinking water intervention would be done in the seven steps as explained below and are shown in the Figure 6.

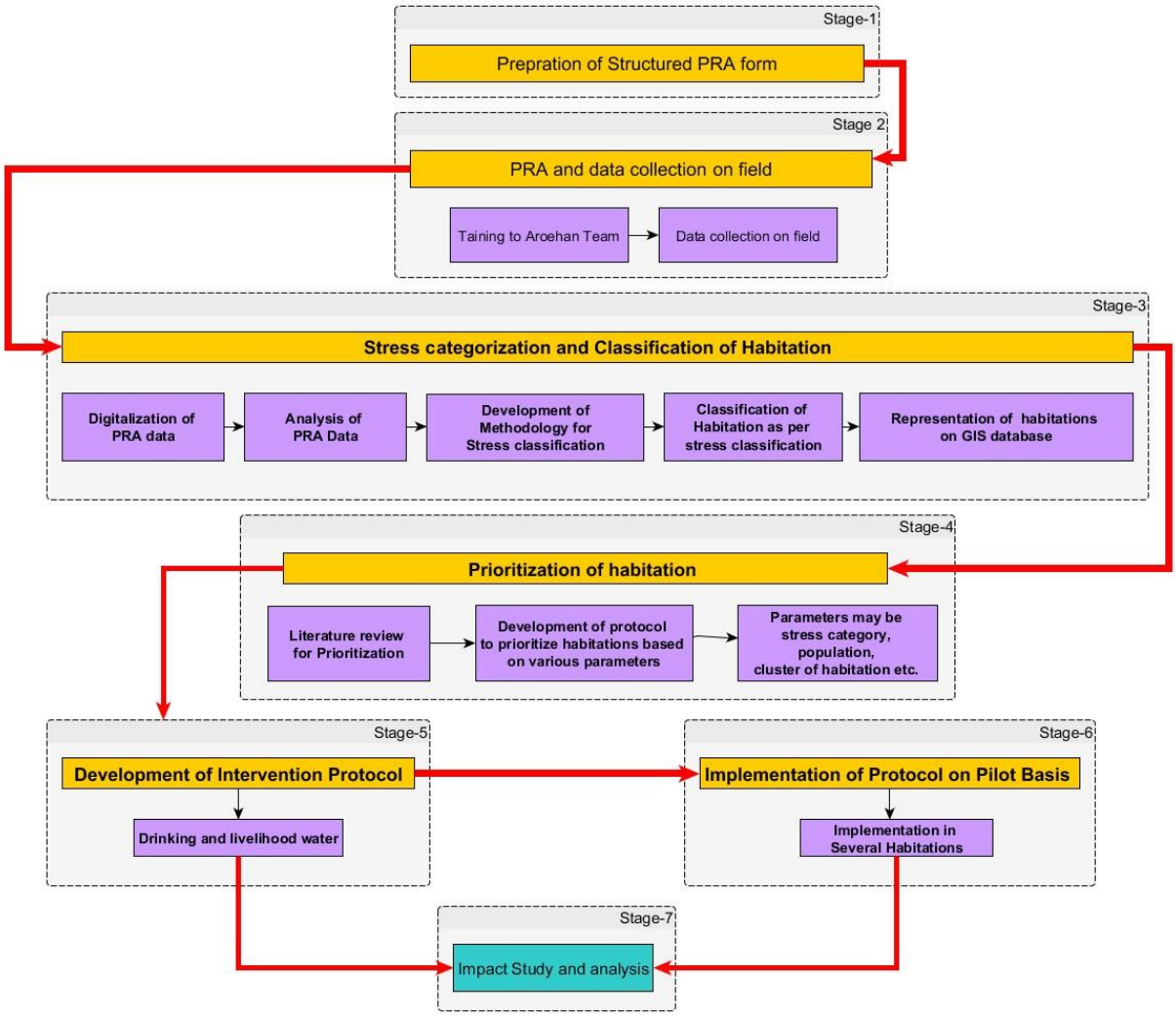

Figure 6: Various stages of planning for watershed intervensions

1.6.1 Stage-1 Preparation of Structured forms

To understand status of drinking and domestic water in each habitation, a method called Participatory Rural Appraisal (PRA) is used. Structured forms are designed and prepared by TDSC at CTARA. The forms are made suitable for Focused Group Discussion (FGD) in each habitation. The forms contain questions regarding the status of drinking and domestic water in the habitation in the qualitative or quantitative format. The forms were designed and prepared by experienced expert in water sector from TDSC at CTARA.

1.6.2 Stage-2 PRA and data collection on field

The forms prepared by TDSC, CTARA were converted into Marathi language to make it easier for surveyors or data collection staff. Subsequently, training was given to few representatives from the Aroehan, who were later involved in training the other field staff. Data collection activity was scheduled and data was collected by field staff. Data collected from field was in hard format which then was digitalized habitation wise by technical staff from Aroehan and was handed over to TDSC for analysis.

1.6.3 Stage-3 Stress categorization and stress classification

Water stress categories were defined based on parameters such as availability, accessibility and quality. The stress categorization of habitation is considered based on pipe water supply scheme or primary well. Based on above mentioned criteria, stress analysis for all wells was carried out for all habitations.

1.6.4 Stage-4 Prioritization of Habitations

For intervention planning, habitations are prioritized based on various parameters such as availability, accessibility, quality as core factor and identification of habitations affected by two or more parameter along with population, cluster of village, availability of water storage structure etc. as secondary parameters. Priority of the parameters was decided based on the literature review for approaches such as weighted composite ranking or composite index. The tools like AHP, fuzzy logic or any prioritizing tool can be used. The preliminary method for prioritization used for this report will be based on- priority to stress category and then for habitation under same category. Habitations would be prioritized based on the population.

1.6.5 Stage-5 Development of Intervention Protocol

Intervention protocols would be designed based on availability, accessibility and quality; keeping in mind the interest of intervening agency. As few organizations are interested in provision of quality technologies, whereas others focus on only availability. The TDSC, CTARA had already developed few intervention protocol for drinking water for the village Kurload and Botoshi with such different categories Apart from this for other type of intervention protocols shall be designed.

1.6.6 Stage-6 Implementation of protocol on Pilot basis

The designed protocols need to be validated on ground on pilot basis. For the pilot study, selection of appropriate habitation, its suitable intervention protocol for implementation and implementation of protocol in the selected habitation needs to be done. Implementation of protocol shall be in association with Aroehan organization and monitored by TDSC, CTARA for further improvement.

1.6.7 Stage-7 Monitoring, Impact Assessment and amendments in Protocol

During the implementation of the protocol on a pilot basis, TDSC would monitor the implementation throughout the project and necessary amendments would be made based on field

experience. The impact of the protocol shall be studied during the implementation as well as after implementation. A guideline report shall be prepared for the impact assessment by TDSC, CTARA. Lastly, based on outcomes of implementation, necessary amendments of the intervention protocol shall be done by TDSC and final protocols would be released.

2 Mokhada-Drinking Water Status

2.1 Introduction

Water security is a new term and has no universally accepted definition. The terms water security defined by WaterAid in a report "Water security framework" is found to be most appropriate with context of this study.

Water security - Reliable access to water of sufficient quantity and quality for basic human needs, small-scale livelihoods and local ecosystem services, coupled with a well-managed risk of water-related disasters.

Water scarcity and water stress these terms are frequently used to describe situations where a water crisis exists.

Water scarcity - This term is used to describe the relationship between demand for water and its availability. There are two types of water scarcity. A physical scarcity exists when demand for water outstrips supply. This occurs when water resources are over-exploited. A socio-economic water scarcity exists when insufficient investment, skills or political will exist to keep up with growing demands for water, preventing access to the resource. Both forms of scarcity are derived from poor governance of water resources rather than absolute availability.

Water stress - Water stress is the outcome of water scarcity and may manifest itself as drinking water insecurity, poor access, poor health, conflict over water resources, crop failure, food insecurity and/or energy insecurity.

Availability, quality and acceptability are three important dimensions of water security. A water supply must provide sufficient quantity and quality water with reliable access of all year round.

Availability - Water security cannot be achieved if water is only available for part of the year. In order to meet basic human needs, sufficient quantities of water must be available throughout the year. There must be enough for drinking, cooking, bathing, sanitation and hygiene. According to NRDWP 40 lpcd water must be available for each person to fulfill their basic needs. Availability we measured in terms of number of month's water available in source.

Accessibility - People are described as having access to water if they can use a functioning facility serving safe **water** within a reasonable distance of their home. Access measures in terms of distance, queuing time and the number of people served per water source. We measure the access in terms of elevation profile of path and condition of access path.

Quality - For drinking water security, the quality of water should be such that no significant health risk arises from its use. It should be acceptable to users in appearance, taste and odour. Contaminant levels should not exceed the accepted water quality standards. Quality is measured

in terms of user acceptability, chemical contamination were not measured as these sources are already dropped by villagers.

2.2 Approach

Drinking water status was identified by referring secondary data from District census handbook, National Rural Drinking Water Programme (NRDWP), data procured by Nodal Bodies- Gram Panchayat and Published research in similar topic or geographical area. Also, Global and national status was identified from studies carried out by WHO, UNICEF and other national and international organizations. The study was not limited to secondary sources, to understand actual situation, field survey were conducted by trained Aroehan members and primary data was collected using planning tools such as reconnaissance survey, PRA forms, FGD etc. Further analysis was done taking both primary and secondary data in consideration.

1. Secondary data sources

Various secondary sources were referred to procure data related to drinking water.

Table 1: Activities for secondary data analysis

Task	Data Source	Method
To understand global and national scenario of drinking water	WHO, UNICEF, WRI web portal and publications	
To identify Geographic area, Population, number of household, water sources	District Census Handbook, 2011	Data extraction and digitalization
To identify Gram panchayat, number of villages, number of habitations in each village, water sources and methods	National Rural Drinking Water Programme (NRDWP) web portal, Central Water Commission (CWC) web portal	Data extraction and filtration
Identification and Verification of data and similar issues	Thesis and published research papers on similar topic or geographical area	Cross checking the data sets and analysis

2. Primary data sources

Primary data was collected by Aroehan members. TDSC organized training for Aroehan team for data collection and GIS mapping. Field study was conducted by trained Aroehan team members in all listed habitations and other non-listed habitations were also identified. Planning tools used were reconnaissance survey, Participatory rural appraisal (PRA), Focused Group Discussion (FGD) etc. The collected data was digitalized for analysis.

2.3 Mokhada Drinking and domestic water demand

Mokhada Taluka separated from Thane District in year 2014 and became part of newly formed Palghar District. There is a variation in number of villages and total population in the data mentioned in District Census handbook and NRDWP. Mokhada Taluka consists of 56 villages and 0 towns that make Mokhada 100% rural taluka (Census, 2011) and water supply standard for rural areas is 40 LPCD (NRDWP, 2018). Mokhada Taluka consists of 27 Panchayats, 56 Villages and 0 towns. Total Population of Mokhada Taluka 76520 (NRDWP, 2018).

2.3.1 Desired water supply norms (proposed for rural and urban)

Domestic water supply standards vary for Rural and Urban areas. Water supply standard for rural area should be minimum 40 lpcd (NRDWP, 2018). The range varies from 40-70 lpcd based on the habitation size and geographic location. Whereas for Urban areas, domestic water supply is 135-170 lpcd based on the water connection and geographic area. In rural areas, if domestic water supply is 40 lpcd or more than the habitation status is considered to be "Fully Covered". The habitations with water supply below 40 and more than 10 lpcd are considered to be "Partially Covered" and the ones with below 10 lpcd are considered to be "Not Covered". Mokhada Drinking and domestic water Supply (Analysis of secondary data)

A study conducted on Status of rural water supply (TISS, 2015) states that "status of water supply in Maharashtra can be considered as satisfactory in terms of coverage at the habitations and in terms of service at the households. The State which adopted the reform processes ahead of many other States in the country, has been steadily implementing various steps to improve water and sanitation services in rural areas".

2.3.2 Drinking Water sources and current status of the sources

Drinking water sources for Mokhada Taluka are mainly- Ground water (open wells, deep tube wells), Surface water (treated water) and Rainwater. NRDWP data shows the major dependency is on Ground water (open wells). The water supply sources are either private or public. Table 2 shows the dependency of drinking water on public water supply sources. (NRDWP, 2018)

Table 2: Drinking water sources and PWS schemes in Mokhada taluka

State:-MAHARASHTRA District:-PALGHAR Block:-MOKHADA								
Sr. No	**Panchayat**	**Villages**	**Habitations**	**Households**	**Population**	**Private Source**	**Public Source**	**No of PWS schemes**
1	Aadoshi Shirasgaon	2	8	404	1929	0	1	2
2	Aase	5	21	1539	7208	5	9	13
3	Beriste	3	16	744	3692	0	1	6
4	Botoshi Pathardi	2	11	453	2316	0	1	7

5	Chas	1	7	545	2724	N/A	N/A	1
6	Dolhare	1	4	316	1522	0	1	1
7	Gomghar Washind	3	10	583	2909	0	3	4
8	Hirve Ghanval	2	10	650	3343	0	3	4
9	Karegaon	3	4	591	3045	0	5	2
10	Karol Pachghar	2	3	337	1661	0	1	3
11	Kashti Sawarde	2	2	239	1312	0	1	1
12	Khoch	3	8	687	3207	0	2	4
13	Khodala	1	2	683	3304	0	1	1
14	Kiniste	1	3	287	1358	0	3	1
15	Koshimshet Dhamanshe t	2	11	721	3903	N/A	N/A	9
16	Kurlod	1	8	265	1461	0	2	6
17	Morhanda	2	16	1091	5555	0	10	12
18	Nashera	1	4	211	1129	N/A	N/A	3
19	Nilmati Dandwal	2	5	313	1642	0	1	3
20	Poshera	2	15	1116	5215	1	3	6
21	Sakhari	3	9	632	3069	1	7	4
22	Saturli	2	13	795	3945	0	3	3
23	Sayade Jogalwadi	2	13	629	3218	0	3	6
24	Shivli	1	1	169	799	N/A	N/A	1
25	Suryamal	3	5	527	2374	N/A	N/A	4
26	Udhale Wakadpada	2	5	395	2140	0	1	3
27	Washala	2	4	560	2540	0	4	3
Total		**56**	**218**	**15482**	**76520**		**7**	**66**

2.3.3 Habitations covered

Mokhada Taluka comprises of 27 Gram Panchayats with 56 villages and 218 habitations. (NRDWP, 2018). All 218 habitations are associated with water supply schemes. 17 habitations (7.8%) out of 218 are fully covered under NRDWP standards and other 201 habitations are partially covered (92.2%). According to 2011 census data accessibility is a major issue in Mokhada block only 4% people have access of water availability in their premises, around 44% near premises and 56% people have to fetch water from far away sources. As shown in Table 3, only 7% households were served by tap water. Majority of households (86%) were served by well, means more than three forth of households were depend on ground water.

Table 3: Main sources of drinking water

Main sources of water	Number of households	Percentage of households
Total number of households	17328	
Tap water from treated source	291	2%
Tap water from un-treated source	785	5%
Covered well	1618	9%
Un-covered well	13541	78%
Hand pump	511	3%
Tube well/ Borehole	27	0%
Spring	104	1%
River/ Canal	342	2%
Tank/pond/Lake	90	1%
Other sources	19	0%
Total		**100%**

(Source: Census data 2011)

3 Stress categorization for habitations

Planning is not confined to a phase, it is a continuous process of analysis, decision-making, action, reflection/evaluation, making new decisions and undertaking further action. It needs involvement of people

3.1 PRA form and status

India still comprises of more than 68% rural population that evolved with inherent knowledge and expertise which is generally neglected while planning a development programme. Participatory rural appraisal (PRA) is an effective tool for using their knowledge. PRA is an approach used by non-governmental organizations (NGOs) and other agencies involved in international development. The approach aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes.

PRA is an intensive, systematic, but semi structured learning experience carried out with the community. The selection of tools and its development are according to the objective of work and field situation. Our objective for PRA was defined so we prepared a structured template for data collection accordingly. PRA template was designed by TDSC for data collection of water and allied sector on which integrated planning is based. Data collection template consists of general information about habitation, population, general amenities in habitation, existing drinking water sources, existing nearby water storage structure etc. PRA activities were carried out by trained Aroehan team members by visiting each habitation. Data was collected by team of 100 people over the period of December 2017 to March 2018.

Data collection template framework consists of 3 parts, details of each part are explained below. (PRA form is attached in Annexure 1).

1. First part consists of basic information about habitation i.e. name of habitation, village, Gram panchayat, number of household, population and other amenities present in habitation. This part of form also requests for GPS photo of habitation but very few GPS photos were capture by Aroehan team. Contact and name of surveyor is also provided for further communication.
2. Second part consists of existing water sources in each habitations. Status of hand pump, wells and piped water supply scheme along with bathing and washing place is captured in this part of the template. Data collected for hand pumps is in form of:
    - GPS location of each hand pump
    - Ownership (Public or Private)
    - Physical condition of hand pumps (1. Good/ 2. Damaged/ 3. Unused)
    - Availability of water (month wise)
    - People using the source (1. Whole village/ 2. Most of the villagers / 3. Fewer villagers)

Ground water is main source of water in Mokhada Taluka and water is fetched from wells for drinking and household use. Parameters which were collected for wells are:

- GPS location of all wells that exist in habitation
- Type of well (1. Main well/ 2. Use after other sources get dried/ 3. Not in use)
- Ownership (1. Public/2. Private)
- Dimensions of well (Depth and Diameter)
- Availability of water in source is measured by till which month water available in source and number of people using source (1. Whole village/ 2. Most of the villagers / 3. Fewer villagers)
- Quality of water by physical appearance and taste (1. Good/ 2. Bad / 3. Can't drink)
- Accessibility is measured by way to well (1. Trail/ 2. Paved road/ 3. Dangerous) and difficulty of way (1. Too much slope/ 2. Bit difficult / 3. Easy)
- Condition of well is noted (1. Good/ 2. Damaged /3. Full of mud)
- Necessary interventions suggested by people (1. Repairing/ 2. Deepening/ 3. Desilting/ 4. Building of wall/ 5. Other)

There is either rural water supply scheme or solar tap water supply scheme in few habitations; details of data collected in all these schemes are as follows:

- Type of water supply scheme (1. Rural water supply scheme/ 2. Solar based scheme/ 3. Other scheme)
- Availability of water is measured by number of months water supplied (1. Throughout the year/ 2. Throughout year except summer/ 3. Nonfunctional)
- Source of tap water supply scheme (1. Well/ 2. River/ 3. Well on outskirt of habitation/ 4. Other)
- For the assessment of accessibility type of connections provided (1. Community taps. 2. Household connections/ 3. Both options) and quantity of people served by scheme (1. Whole village/ 2. Most of the villagers / 3. Fewer villagers) are questioned.
- Quality of water by physical appearance and taste (1. Good/ 2. Bad / 3. Can't drink) and TCL is added to system
- Necessary interventions if scheme is nonfunctional (1.Pending water bill/ 2. Dried water source/ 3. Theft/ 4. Unrepaired)

3. Third section consists of existing water storage structures/rivers. Availability and accessibility of these structures were recorded.

As mentioned above, Mokhada block consists of 27 Gram panchayat, 56 Villages and 218 habitations (NRDWP, 2018) but, Mokhada village is a Nagar panchayat now and for planning purpose we considered it as Gram panchayat. So total number of Gram panchayat, villages and habitations are as shown in Table 4. Few habitations consisted of very low population, therefore are included in nearby/adjacent habitation. Total number of habitations considered for planning

are mentioned in Table 4. We found a total of 271 habitations from data provided by Aroehan and NRDWP. During PRA exercise carried out by Aroehan team, it was noticed that there are few habitations lacking in official government record but existed on ground and vice versa. So considering all parameters, 237 habitations were finalized. Intervention planning for Kurlod village is already done so after deduction of those habitations from planning, total habitations available for planning are 229.

Table 4: Total number of Habitations

Sr. No.	Agency	Gram Panchayat	Villages	Habitations
1	NRDWP list	27+1 *=28	56+3=59	218+18=236
2	OMMAS PMGSY	28	59	245
3	Data collected	27	58	214

*Mokhada is now a Nagar Panchayat.

In Kurlod Gram panchayat interventions were already implemented by Aroehan and Siemens.

Table 5: Total number of habitations considered for planning

Sr. No.	PRA status	No. of Habitations
A	Total Habitation in Mokhada	271
	Deductions	
	Kurlod habitations (Already made interventions in these habitations)	8 (-)
	Merged in other habitations	25(-)
	Habitations not exist on field as on date	9(-)
B	Total number of habitations considered for planning	**229**
	PRA activity completed habitations	215
	PRA activity in process habitations	14

3.2 General steps adopted for stress categorization

Stress categories are decided on wells and piped water supply scheme, because number of hand pumps in area are either too less or negligible. Based on above parameters, villages can be classified into different stress categories -

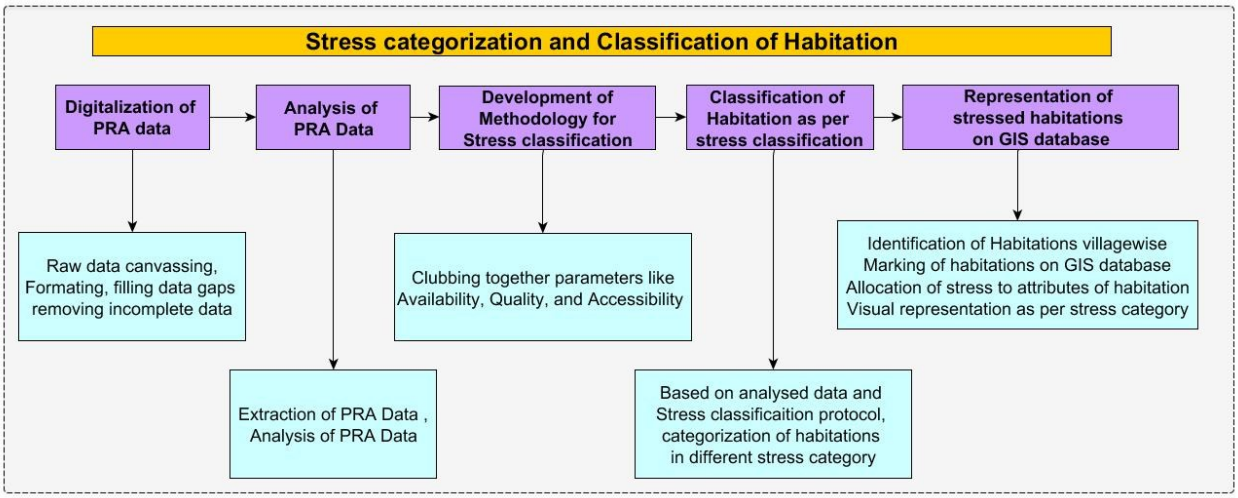

Figure 7: Activities involved in stress categorization

3.2.1 Digitalization of PRA data and analysis

Data handed over by Aroehan team was canvassed and data gaps were filled. Though data provided by Aroehan was digitalized, but not in required format for analysis so we digitalized it again. Less number of Hand pumps are found in this region, so they was not digitalized and was not considered for stress categorization. In PRA forms, Village name of many habitations were missing/ incorrect, so such data was improved during digitalization. Well, tap water scheme and storage structure data were filled in excel sheet in required format. Total number of wells, their popular name (if available), type of well (Primary / secondary) depending on use of well, availability of water, quality and accessibility were listed. PRA Outliers were removed and data was arranged for analysis.

1. **Type of well and number of users**

   If Well type is main well and whole village is using, the well then is referred as 1 (Primary well) and all others are type referred as 2 (Secondary well)

2. **Availability of water**

   This parameter is most important, as it is most crucial in planning prospective. If water is available throughout year then it mentioned as L (Low), more than 10 months but less than 12 months then taken as M (Moderate) and if less than 10 months then taken as H (High).

3. **Quality**

   Quality is categorized only in two categories- Good mentioned as L (Low) and Bad or non-potable mention as M (Moderate).

4. **Accessibility**

Depending on two parameters- type of road and difficulty to assess (slope); accessibility is/was categorized in 3 categories mainly Good (L), Fair (M), and Tough (H). Combination of two parameters and categories, further classification was decided as mentioned in Table 6

Table 6: Classification of parameters based on responses

Answer to PRA questions	Principal features	Classes
Availability		
12 month availability of water	Throughout the year	L
Not available in April & May	10 Month	M
	Less than 10 months	H
Quality		
Good	Good	L
Bad or Non-potable	Bad	M
Accessibility		
Plain terrain, Pakka road	Good	L
Moderate slope, Pakka road/ paulvat Plain terrain, paulvat	Fair	M
Steep slope, Pakka road/pavulvat/ dangerous road Pain terrain, dangerous road Moderate slope, dangerous road	Tough	H

For tap water scheme, only availability of water and type of scheme was digitalized as single unit. Tap water scheme provides water either through community tap connection or house hold connections, so accessibility is not an issue in this case. Quality of tap water is not considered as quality is fairly good and TCL is regularly added to system. Nomenclature for tap water supply scheme as shown in Table 7.

Table 7: Classification of piped water supply scheme based on responses

Type of piped water supply scheme	Availability of water	Nomenclature
Single village	Throughout the year	1SV
	Throughout the year except summer	2SV
	Non functional	3SV
Solar scheme	Throughout the year	1S
	Throughout the year except summer	2S
	Non functional	3S
Multiple village	Throughout the year	1MV
	Throughout the year except summer	2MV
	Non functional	3MV
Other	Throughout the year	1O
	Throughout the year except summer	2O
	Non functional	3O

3.3 Methodology adapted for stress classification

For stress categorization of habitations, either pipe water supply scheme or primary well is considered. In habitations there are multiple sources of water, but source is the one in which water is available for a maximum period as compared to other sources and maximum people using the source i.e. primary source was considered to define stress category in habitations and for intervention planning.

Depending upon three parameters i.e. Availability, Accessibility and Quality, stress analysis for all wells was carried out for all habitations. No scientific method was used for quality testing. Water sources that are badly affected by quality were not in use, so quality of water is considered as last parameter.

3.4 Final stress categories and their priority

Stress categories were developed based on parameters such as Availability, Accessibility and Quality. Each parameter was further divided into few classes. By clubbing these classes, 18 stress categories were defined and these categories are as follows:

1. **No Stress**– This stress category is defined based on the availability condition, water available throughout the year, accessibility condition is good i.e. access road is paved/with plain slope and quality of water is good in perspective of inhabitants.
2. **LML**- This stress category is defined based on the availability condition, water available throughout the year, accessibility condition is fair i.e. access road is paved/Paulvat with moderate/plain slope and quality of water is good in perspective of inhabitants.
3. **MLL**- This stress category is defined based on the availability condition, water available for 10-11 months of the year, accessibility condition is good i.e. access road is paved with plain slope and quality of water is good in perspective of inhabitants.
4. **MML**- This stress category is defined based on the availability condition, water available for 10-11 months of the year, accessibility condition is fair i.e. access road is paved/ paulvat with moderate/plain slope and quality of water is good in perspective of inhabitants.
5. **HLL**- This stress category is defined based on the availability condition, water available for duration less than 10 months of the year, accessibility condition is fair i.e. access road is paved with plain slope and quality of water is good in perspective of inhabitants.
6. **LHL**- This category is defined based on the availability condition, water available throughout the year, accessibility condition is bad i.e. access road is paved/paulvat/dangerous with steep/moderate/ plain slope and quality of water is good in perspective of inhabitants
7. **HML**- This category is defined based on the availability condition, water available for duration less than 10 months of the year, accessibility condition is fair i.e. access road is paved/paulvat with moderate/ plain slope and quality of water is good in perspective of inhabitants

8. **MHL**- This category is defined based on the availability condition, water available for duration of 10-11 months in the year, accessibility condition is bad i.e. access road is paved/paulvat/dangerous with steep/moderate/ plain slope and quality of water is good in perspective of inhabitants
9. **HHL**- This category is defined based on the availability condition, water available for duration less than 10 months of the year, accessibility condition is bad i.e. access road is paved/paulvat/dangerous and steep/moderate/ plain slope and quality of water is good in perspective of inhabitants
10. **LLM**- This stress category is defined based on the availability condition, water available throughout the year, accessibility condition is good i.e. access road is paved with plain slope and quality of water is bad in perspective of inhabitants
11. **MLM**- This stress category is defined based on the availability condition, water available for duration of 10-11 months of the year, accessibility condition is good i.e. access road is paved with plain slope and quality of water is bad in perspective of inhabitants
12. **HLM**- This stress category is defined based on the availability condition, water available for duration less than 10 months of the year, accessibility condition is good i.e. access road is paved with plain slope and quality of water is bad in perspective of inhabitants
13. **LMM**- This stress category is defined based on the availability condition, water available throughout the year, accessibility condition is fair i.e. access road is paved/paulvat with moderate/plain slope and quality of water is bad in perspective of inhabitants
14. **MMM**- This stress category is defined based on the availability condition, water available for duration of 10-11 months of year, accessibility condition is good i.e. access road is paved/paulvat with moderate/plain slope and quality of water is bad in perspective of inhabitants
15. **HMM**- This stress category is defined based on the availability condition, water available for duration less than months of the year, accessibility condition as good i.e. access road is paved/paulvat with moderate/plain slope and quality of water is bad in perspective of inhabitants
16. **LHM**- This stress category is defined based on the availability condition, water available throughout the year, accessibility condition is good i.e. access road is paved/paulvat/dangerous with steep/moderate/plain slope and quality of water is bad in perspective of inhabitants
17. **MHM**- This stress category is defined based on the availability condition, water available for duration of 10-11 months of the year, accessibility condition is good i.e. access road is paved/paulvat/dangerous with steep/moderate/plain slope and quality of water is bad in perspective of inhabitants.
18. **HHM**- This stress category is defined based on the availability condition, water available for duration less than 10 months of the year, accessibility condition is good i.e. access road is paved/paulvat/dangerous with steep/moderate/plain slope and quality of water is bad in perspective of inhabitants.

Table 8: Stress categories and their description

Sr. No	Availability	Accessibility	Quality	Category	Detailed name
1	L	L	L	No stress	
2	M	L	L	MLL	Moderate stress of availability
3	H	L	L	HLL	High stress of availability
4	L	M	L	LML	Moderate stress of accessibility
5	M	M	L	MML	Moderate stress of availability and accessibility
6	H	M	L	HML	High stress of availability and moderate stress of accessibility
7	L	H	L	LHL	High stress of accessibility
8	M	H	L	MHL	High stress of accessibility and moderate stress of availability
9	H	H	L	HHL	High stress of availability and accessibility
10	L	L	M	LLM	Medium stress of quality
11	M	L	M	MLM	Moderate stress of availability and quality
12	H	L	M	HLM	High stress of availability and medium stress of quality
13	L	M	M	LMM	Moderate stress of accessibility and quality
14	M	M	M	MMM	Moderate stress of availability & accessibility and quality
15	H	M	M	HMM	High stress of availability and moderate stress of accessibility & quality
16	L	H	M	LHM	High stress of accessibility and medium stress of quality
17	M	H	M	MHM	High stress of accessibility and moderate stress of availability and quality
18	H	H	M	HHM	High stress of availability and accessibility and moderate stress of quality

3.5 Prioritization of Stress categories:

Prioritization of stress category is important as it would help in the intervention of protocol. Availability is considered as a primary parameter, without availability the other two are irrational. Thus keeping availability as first parameter, the stress categories were prioritized. The second parameter considered for prioritization was accessibility, without accessibility the quality is of less

important. The quality parameter is considered as last priority because the data collected on quality parameter is of qualitative in the form of good or bad in inhabitant's perspective and not a precise one. Thus, the priority for the intervention protocol shall be based on availability as a primary parameter, accessibility as secondary and quality as a tertiary parameter. The final stress categories prioritized are shown in below Table 9.

Table 9: Prioritized stress categories

Sr. No	Stress Category	Priority	Sr. No	Stress Category	Priority
1	HHM	1	10	LHL	10
2	HHL	2	11	MMM	11
3	HMM	3	12	MML	12
4	HML	4	13	MLM	13
5	HLM	5	14	MLL	14
6	HLL	6	15	LMM	15
7	ACQAVH	7	16	LLM	16
8	MHL	8	17	LML	17
9	ACQH	9	18	No stress	No priority

Out of above mentioned 18 stress categories, only 14 categories were applicable for Mokhada Taluka. The remaining 4 categories are LLM, HLM, HHM, LHM and MHM.

4 Prioritization of habitations and villages for intervention planning

The project aims to increase water availability for both drinking and livelihood purposes using best practices suitable for local conditions and focusing on regional planning. We are planning to categorize villages in broader stress category and prioritize it for interventions planning. The first step towards this aim is categorization of parameters such as availability, accessibility and quality as explain in section 3. Further categorize habitations based on different stress categories and categorization of villages into four broad categories based on stress categories at habitation level

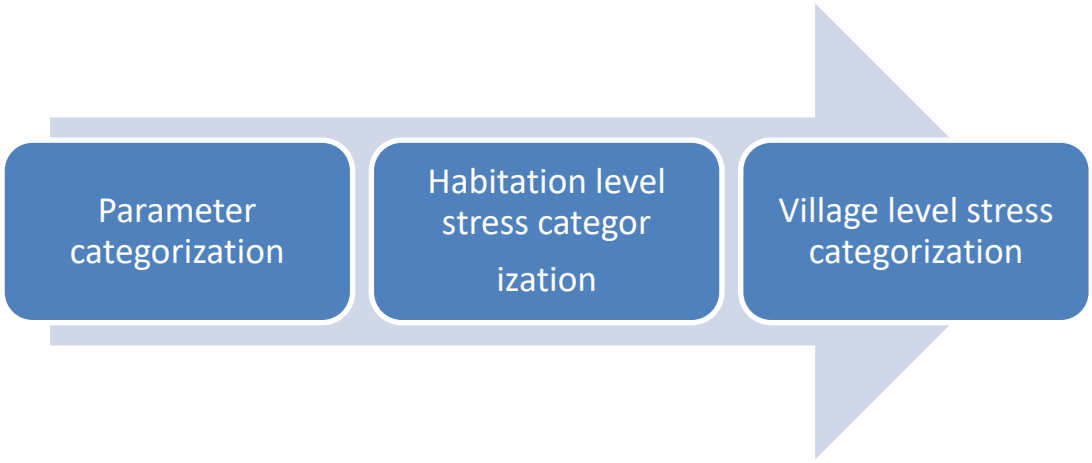

Figure 8: Steps adapted for identifying village level stress categories

Habitations are prioritized based on stress category. The tools like AHP or fuzzy logic or any prioritizing tool can be used for planning interventions. At present, preliminary method for prioritization used would be first priority to stress category then for habitation under same category, habitations would be prioritized based on the population.

Instead of dispersed habitation from different villages, team TDSC suggests to select a cluster of villages for planning purpose. Selecting a cluster of villages will simplify the approach while watershed planning. For intervention planning, villages can be prioritized based on parameters such as- stress categories, availability, accessibility, tanker-fed status, annual action plan expenditure, cluster proximity of villages, availability of existing water storage structures, drainage line proximity etc.

4.1 Prioritization of habitation based on stress categories and population

4.1.1 Stress categories of habitation

Stress category is one of the parameter which can be considered for the drinking water intervention. But stress category shall not be the only parameter to consider for prioritization of habitations. This may lead to smaller habitation with low population getting benefited prior to the larger ones. However, the stress category must be considered as primary parameter for implementation of intervention protocol. Among the habitations with same stress category,

there is a need for second parameter to further prioritize the habitation such as population or similar. Number of habitations affected by different type of stress categories is as shown in Table 10.

Table 10: Number of habitations with each category

Sr. No	Categories	No. of habitations	Sr. No	Categories	No. of habitations
1	No stress	38+29*	8	HLL	8
2	LML	35	9	LMM	2
3	MLL	35	10	MLM	2
4	MML	39	11	LLM	0
5	LHL	7	12	HHM	1
6	MHL	5	13	MMM	1
7	HML	12	14	HHL	1

Note: - * – Functional PWS

Around 31% of habitations fall under no stress category, but we cannot comment on full coverage as water liter per capita supply is not considered. Approximately, 16% of habitations have low accessibility stress and around 34% of habitations have moderate stress of availability and accessibility. High stress of availability, accessibility, quality or combination of these parameters is 19%. High stress of availability is considered as a major issue.

4.1.2 Population

Population can be considered as second parameter for prioritizing the habitation for intervention protocol. Under the same stress category, habitations may have different population, in such cases the habitations with larger population shall be considered first. Detailed habitation priority list based on stress category and population is attached in annexure 2.

Number of habitations in each village are varying from 1 to 14. Few villages have 1 habitation whereas villages like Aase and Mokhada have 13 and 14 habitations respectively. As shown in Figure 9 higher is the number of habitations darker is the color.

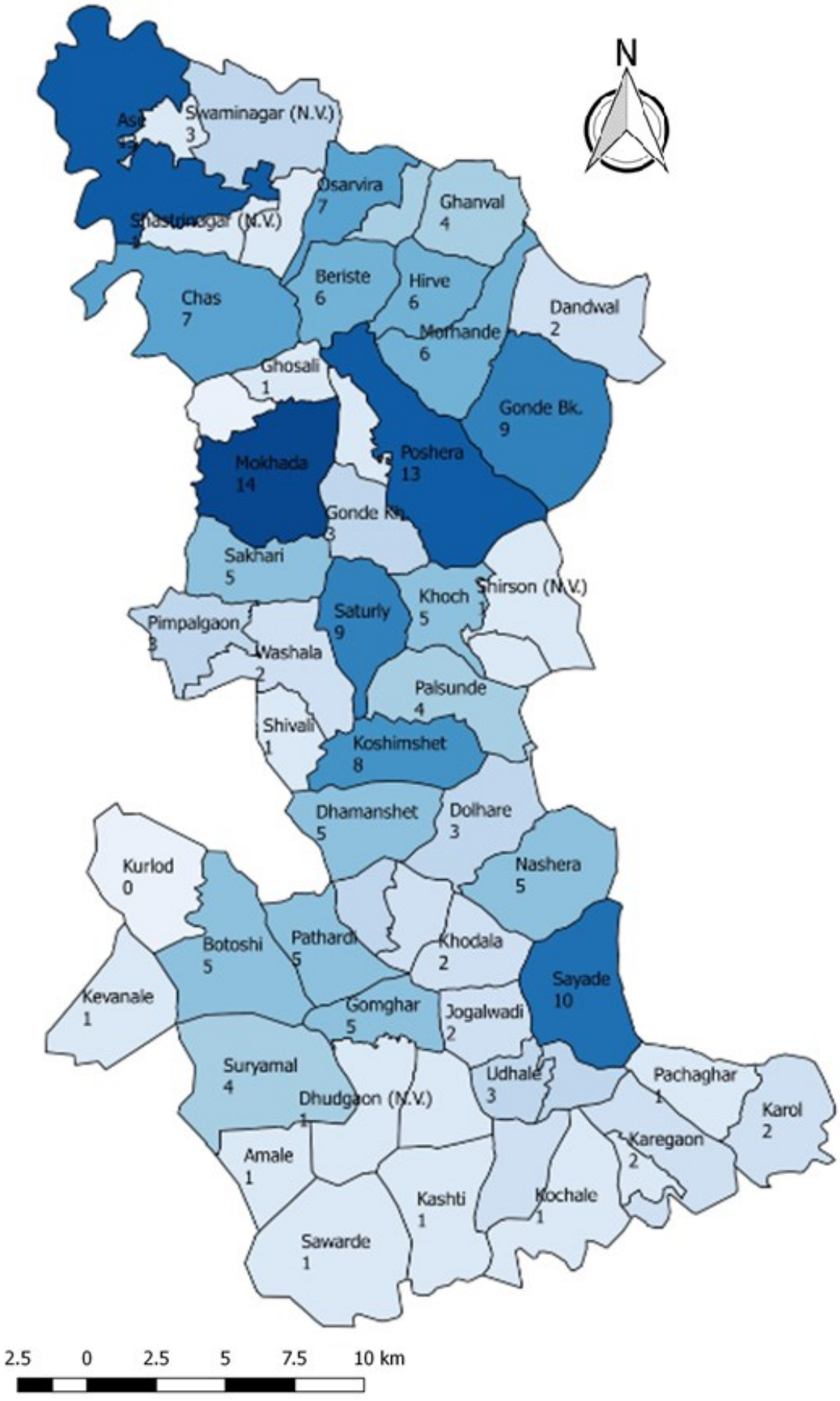

Figure 9: Map showing number of habitations in each village

4.1.3 Prioritization of villages

Selection of villages for planning intervention is easy as compared to planning at dispersed habitations of different villages. We calculate stress at village level from habitation level stress categories and population. Weighted Average Population method is used to calculate stress. All 14 stress categories were ranked based on different priority, higher the priority higher will be the rank. Broadly stress categories were divided into four categories, high stress, moderate stress, low stress and no stress. Figure 10 shows stress categorization at village level and detailed list is attached in annexure. Number of villages under different categories is as shown in Table 11

Table 11: Category wise number of villages

Sr. no	Category of stress	Number of villages
1	High stress	23
2	Moderate stress	22
3	Low stress	7
4	No stress	5
5	No data collected	2

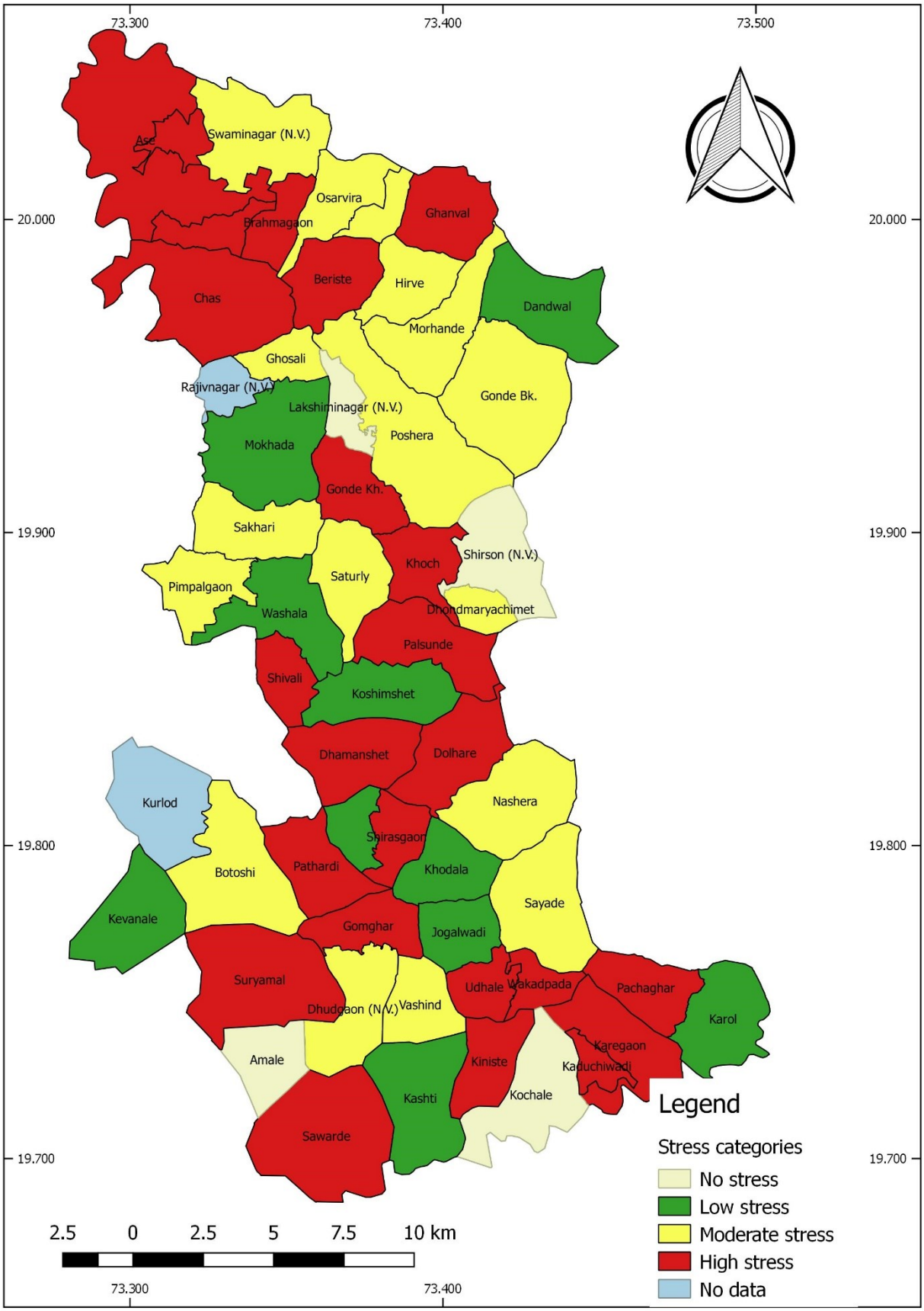

Figure 10: Map of village level stress categories

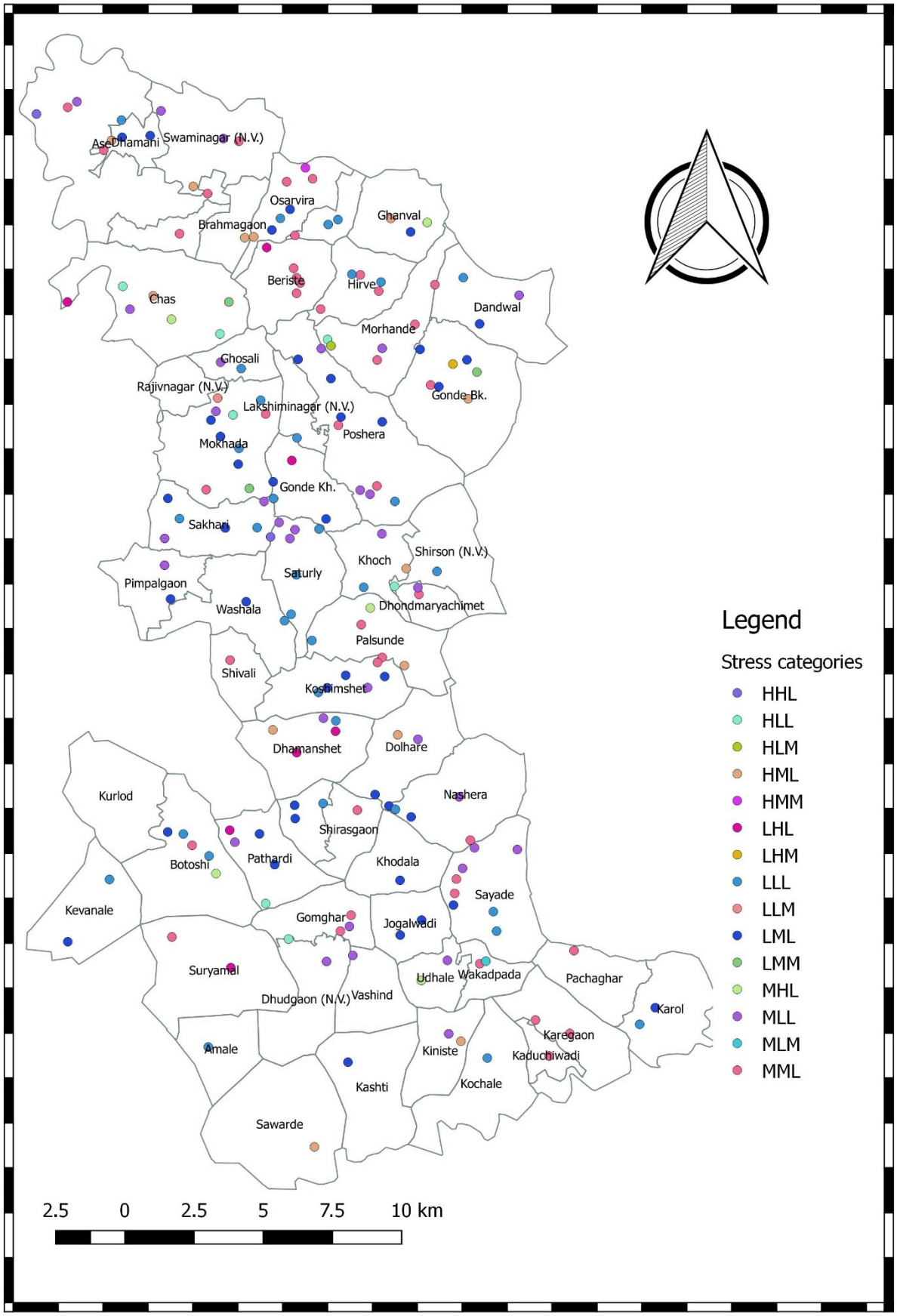

Figure 11: Map showing stress categories at habitation level

4.2 Prioritization of habitations and villages based on stress of availability

The other way of prioritizing habitations is based on interventions planning. If someone wants to work on a single parameter or they are expertise in some particular type of intervention, so individual parameter based priority list is prepared. Lack of water availability throughout the year is a major issue in Mokhada Taluka. Habitations are prioritized based on water availability stress category and water storage structure available nearby source that requires repairing. Detailed habitation priority list is attached in annexure 3. Solution for water availability can be repairing of existing structure, construction of new structure which helps to improve source sustainability, construction of new source, etc.

Based on stress of availability at habitation level, stress of availability at village level can be calculated. Similar methodology is used to calculate availability stress as mention in section 4.1.3. stress of availability at village level is divided into four categories, no stress, Low stress, moderate stress and high stress. High stress should be on first priority. Figure 12 shows stress categorization at village level.

4.3 Prioritization of habitations and villages based on stress of accessibility (no or low stress of availability and/or quality)

From the analysis of data we find that there are few habitations that have availability of water throughout the year but lacks in accessibility to the source. In such case, providing pumping set that pumps water to a particular point in habitation can solve the accessibility issue. Priority list of habitations based on stress of accessibility is attached in annexure 4

Accessibility of water for irrigation purpose is major issue as compared to drinking water. Initially, it was determined the stress of accessibility for drinking water and depend on availability of water we will plan interventions to make water accessible for irrigation purpose.

Villages affected with the stress of only accessibility (no or low stress of availability and /or quality) were identified. There is not a single village which is completely affected by stress of accessibility. Stress of accessibility is at village level and is determined based on stress of accessibility at habitation level and population of habitation (similar way as mention in section 4.1.3). Village wise stress categories are shown in Figure 13, villages shown in red are in high stress category, more than 50% villages in moderate stress of accessibility and many in no stress of accessibility.

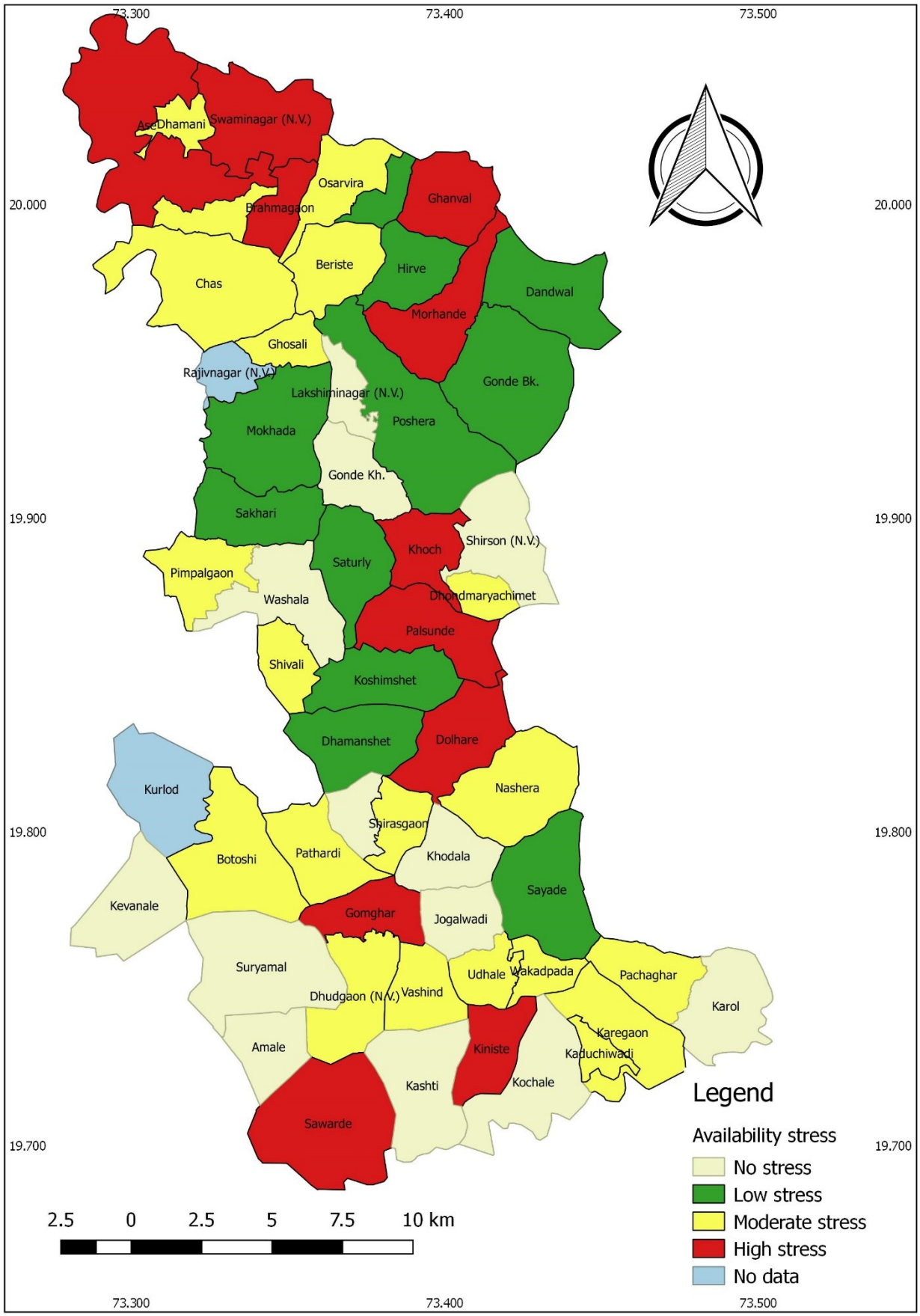

Figure 12: Map of village level availability stress

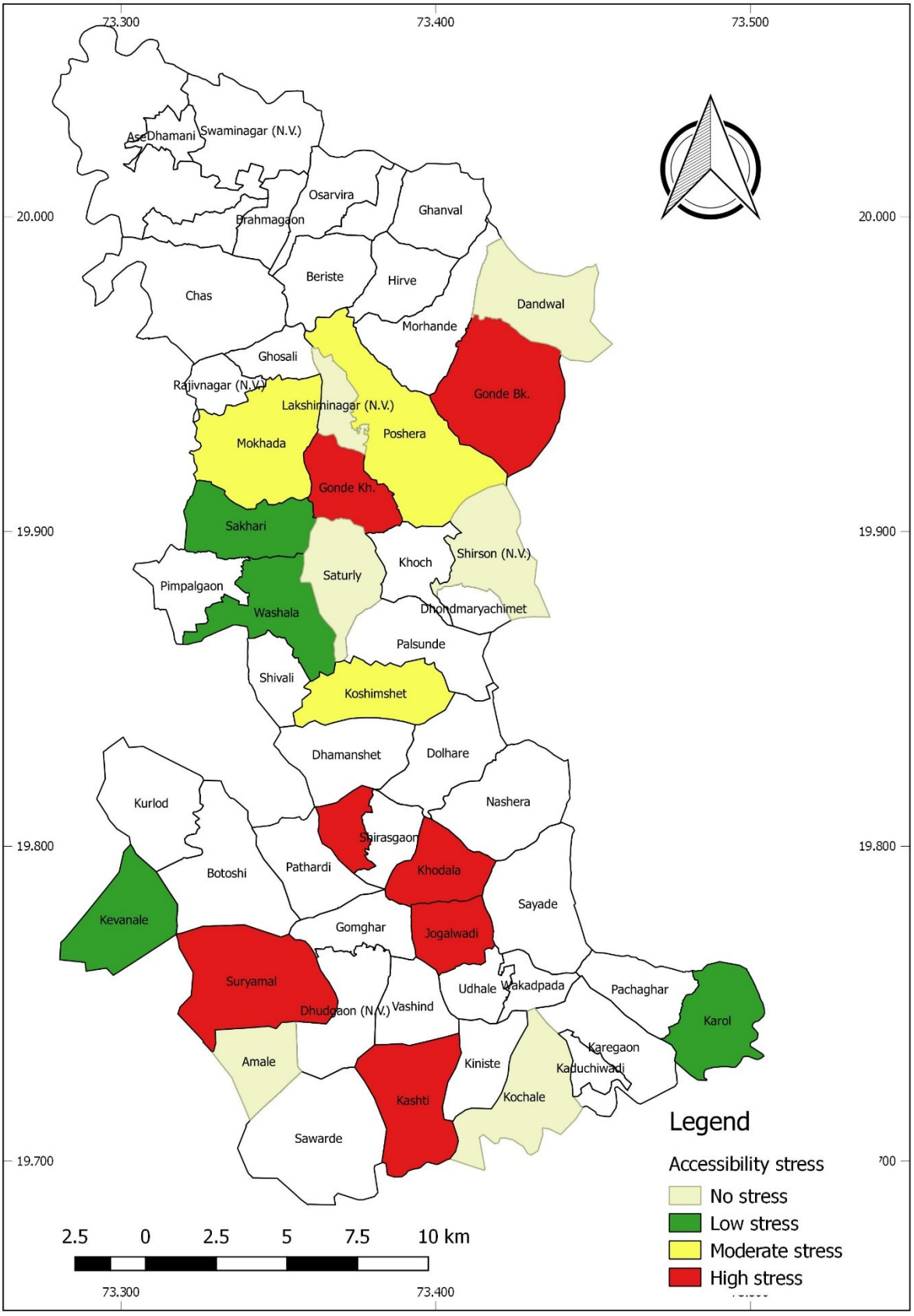

Figure 13: Map of village level accessibility stress

4.4 Priority of villages based on tanker-fed data

List of tanker-fed habitations for year 2016-17 were collected from Rural Water Supply Department, Mokhada. Based on number of habitations that are tanker-fed in each village, tanker-fed percentages for villages were calculated. Percentage of tanker fed villages is divided into four broad categories- no tanker-fed, low tanker-fed, partially tanker-fed and high tanker-fed. Various type of village categories based on tanker-fed criteria are as shown in Figure 14 Stress category when compared with stress category based on tanker fed villages, similar high stress villages are found. There is some contradiction in the interference between both stress categories. Sawarde and Ghosali that are high stress category, they are tanker free villages according to data. Laxminagar that is in no stress villages according to tanker-fed data is completely tanker-fed village for 3 months of summer.

Table 12: Villages common in both type of stress categories

Sr. No	Village	Stress category
1	Brahmagaon	Tanker Fed + High Stress
2	Kiniste	
3	Swaminagar (N.V.)	
4	Udhale	
5	Dhamanshet	
6	Beriste	
7	Dhamani	
8	Shastrinagar (N.V.)	
9	Dhondmaryachimet	
10	Dhudgaon (N.V.)	
11	Vashind	
12	Shirasgaon	
13	Dolhare	

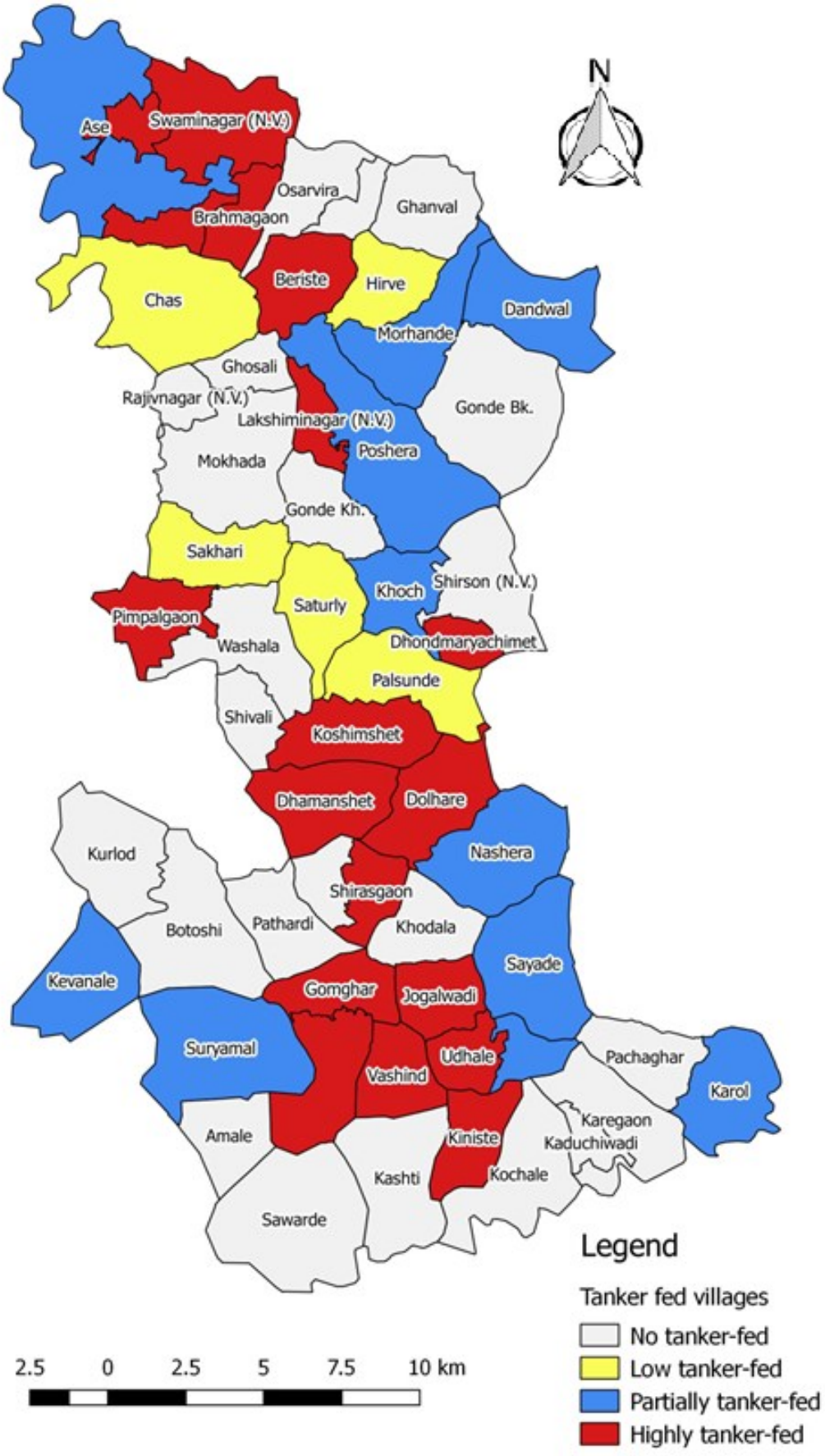

Figure 14: Map of villages based on categories of tanker-fed status

4.5 Priority of villages based on expenditure spent in past years

Expenditure for water sector by government under various schemes is calculated. Works that are completed prior to PRA are considered for analysis so there should be impact of these works on ground. Fund spend by NRDWP from year 2013-2016 were collected from annual action plan and fund spend under Jalyukat Shivar Abhiyan (JSA) for 2014-15 is consider for expenditure analysis. Works carried out under NRDWP are construction of new water supply scheme and recharge structure. Construction of storage and recharge structure for livelihood water mainly carried out in JSA program. Few villages have huge amount of investment by government but still are in high stress category. These villages might have infrastructure that is non-functional or broken and by repairing or with certain modification these structures can be made functional. Those villages are marked in red as shown in Figure 15.

Table 13: Expenditure under different program

Village	NRDWP, 2013-16 (In Lakh Rs)	JYS, 2014-15 (In Lakh Rs)	Total Expenditure (In Lakh Rs)
Shirson (N.V.)	128	0	128
Khodala	51	0	51
Palsunde	40	0	40
Aase	123	118	241
Bramhangaon	32	27	60
Beriste	184	179	363
Dolhare	121	111	232
Khoch	137	132	269
Poshera	151	146	297
Mokhada	1370	0	1370
Botoshi	7	0	7
Pathardi	22	0	22
Gomghar	8	0	8
Karol	23	0	23
Pachghar	8	0	8
Nashera	8	0	8
Gonde Kh.	22	0	22
Sakhari	23	0	23
Pimpalgaon	15	0	15
Chas	155	0	155
Dhamni	31	0	31
Surymal	3	0	3
Kiniste	62	0	62
Karegaon	0	0	0
Udhale	2	0	2
Jogalwadi	3	0	3
Total	**2730**	**713**	**3443**

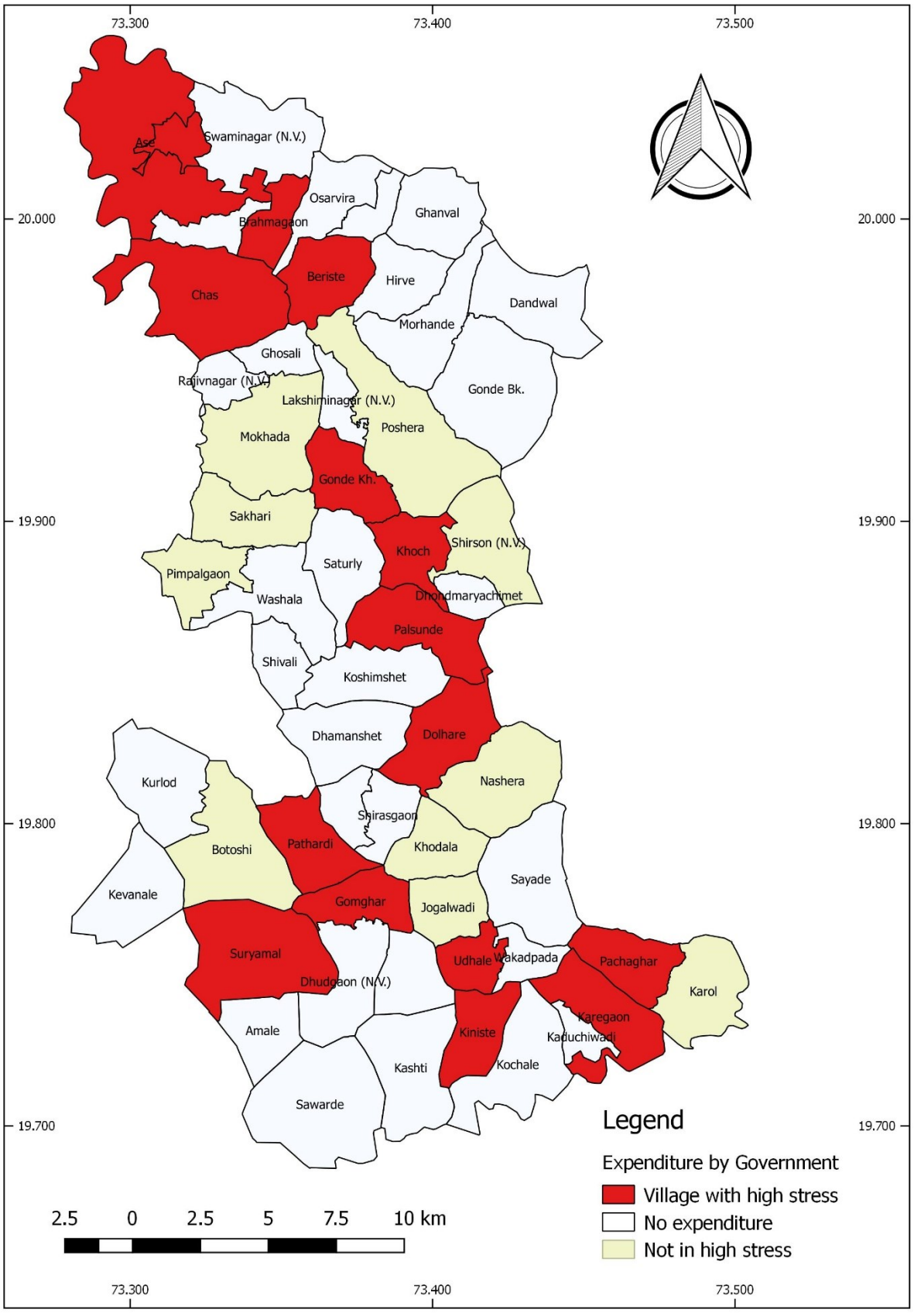

Figure 15: Map of villages with of large investments for water systems and still in the high stress category

4.6 Priority list of habitations suggested by Aroehan

Aroehan team had priority list of habitations based on our findings and field based conditions of each habitation. These inputs were based on the feasibility for water storage structures, and the number of villages in which the construction/retrofitting of water storing structures will serve. Thus, developmental gaps were portrayed by the field team. The detailed discussion on challenges, impact and issues were carried out with Aroehan team. BAIF, an NGO that works with SIMENS team is working on similar lines in this region. BAIF team shared the challenges that they are facing in the 14 habitations of southern Mokhada Taluka, in which they are working with watershed development and other related aspects. Some issues in theses habitations are- limitation of potential area for irrigation and area treatment planning, higher elevations, land conflicts, disinterest of people, work carried out by some other agencies, etc.

Table 14: Details of villages selected by Aroehan

Gram Panchayat	Village	Issues	Interventions	Impact
Botoshi-Pathardi	Pathardi	Water availability is an issue in all habitation, Few habitations have potential area for irrigation	Repairing and desilting of bund, area treatment work	Improver availability of water, rabbi crops
Suryamal Suryamal	Surymal	On higher elevation, potential area for irrigation	PWS, Area treatment work	Improve accessibility, crop yield
	Kevanale	Availability and quality issues, existing broken structures, lifting of water for livelihood	Well repair and desilting, repairing of structures	Improves availability, quality and accessibility. Increase in crop yield
Gomghar-vashind	Gomghar	Accessibility issue, silted and damages well and bandhara, many villagers live in urban area	Repairing and construction of infrastructure, provision of PWS,	Improve drinking water status,
	Vashind	Water availability till march	Repairing of well and construction of water recharge structure near well	Improve availability of water
	Dudhgaon	Water accessibility, water for farming	Provision of PWS from potential well, repairing of percolation tank	Improves availability, increase in crop yield
Koshimshet - Dhamanshet	Dhamanshet	Water accessibility and availability, water lifting, broken potential storage structure	Provision of PWS in few habitations, repairing of structure, area treatment work	Improve drinking water and livelihood water status
	Koshimshet	Broken bandharas, potential area for farming	Repairing and construction of bunds	improve livelihood water status

Aase	Aase	Higher elevation, dispersed habitation, low potential for watershed planning	Construction of rainwater harvesting structure, provision of PWS	Improver drinking water status

4.7 Habitations to be opted out from priority list

Various schemes in water sector are functional in Mokhada Taluka, few works were carried out by different agencies. To avoid interest of conflict we will opt out these habitations from piloting habitation list. Under NRWDP, few schemes get sanction in Mokhada block, annual action plan (2017-18) collected from Palghar RWS office consist of 20 habitations. These habitations are in priority list but opted out from piloting habitation list. If a village for piloting is selected that has habitation with drinking water scheme in process, then in this habitation we will only plan for livelihood related water. Table 15 shows list of habitations that are included in annual action plan and are not opted for this study.

Table 15: List of habitations included in annual action plan

Sr. No.	Village	Habitation	Sr. No.	Village	Habitation
1	Aase	Aase	11	Dolhara	Dolhara
2		Biwalpada	12		Mohpada
3		Dapati	13		Sakhrewadi
4	Dhamani	Dhamani	14	Dudhgaon	Dudhgaon
5	Swaminagar	Swaminagar	15	Gomghar	Gomghar
6	Chas	Thakurpada	16	Washind	Washind
7	Dhamanshet	Dhamanshet	17	Kiniste	Kiniste
8	Palsunda	Palsunda	18	Sakhari	Charanwadi
9	Saturli	Saturli	19	Poshera	Poshera
10		Vikaswadi	20		Palaspada

BAIF team is working in the 14 habitations of southern Mokhada detailed list is as shown in Table 16 .For pilot study these habitations are not considered.

Table 16: List of habitations covered by BAIF

Sr.no.	Village Name	Habitation Name
1	Udhale	Udhale
2		Poryachapada
3		Hattipada
4	Wakadpada	Wakadpada
5		Pimpalwadi
6		Kamadwadi
7	Kinishte	Kinishte
8		Gavalharipada
9		Thakurpada
10	Kashti	Kashti
11	Sawarde	Sawarde
12	Karegaon	Karegaon
13	Kochale	Kochale
14	Kaduchiwad	Kaduchiwad

5 Methodology adopted for intervention planning of Mokhada taluka

As discussed in previous chapter, a set of villages were suggested for pilot study based on various criteria. This chapter consist of the standard method to follow while analyzing a structure and further planning suitable interventions.

5.1 Villages selected for Pilot study

The final list of villages for conducting pilot study is provided by Aroehan/ Siemens considering the stress categories and groundwork. List of villages and habitations selected for conducting pilot study are mentioned in Table 17.

Table 17: List of selected villages and its habitations for conducting pilot study

Sr. No	Gram Panchayat	Village Name	Habitation Name	Population	Stress Category
1	Botoshi Pathardi	Pathardi	Dongar wadi	475	High stress
2	Botoshi Pathardi	Pathardi	Pathardi 1	320	
3	Botoshi Pathardi	Pathardi	Pathardi 2	278	
4	Botoshi Pathardi	Pathardi	Pathardi- Patilpada	320	
5	Botoshi Pathardi	Pathardi	Dhindewadi	126	
6	Suryamal	Kevnale	Bhavaniwadi	324	Low stress
7	Suryamal	Kevnale	Kevnale	503	
8	Suryamal	Suryamal	Suryamal	860	High stress
9	Aase	Aase	Aase	718	High stress
10	Aase	Aase	Bhoirpada	95	
11	Aase	Aase	Bival pada	197	
12	Aase	Aase	Dapati 1	430	
13	Aase	Aase	Dapati 2	275	
14	Aase	Aase	Dhamodi	203	
15	Aase	Aase	Ikharicha pada	256	
16	Aase	Aase	Karoli	397	
17	Aase	Aase	Kolhedev	337	
18	Aase	Aase	Kudava	370	
19	Aase	Aase	Kunbhipada	405	
20	Aase	Aase	Rautpada	262	
21	Aase	Aase	Warghpada/Bhoirpada	33	
22	Aase	Bramhangaon	Bramhangaon	719	High stress
23	Aase	Dhamani	Dhamani	262	High stress
24	Aase	Shastri nagar	Kundyacha pada	694	High stress
25	Aase	Swami nagar	Bhowadi	687	High stress
26	Aase	Swami nagar	Navlyahapada	341	
27	Aase	Swami nagar	Swami nagar	737	

A total of 27 habitations in 8 villages of Mokhada Taluka are selected for conducting pilot study. These villages are part of 3 group gram panchayats. All villages except Kevnale, are under high stress. The total population residing in these villages are 10624 people.

5.2 Steps for detailed planning

The generic steps for detailed planning are as follow:

1. Validation and primary assessment of stress in the selected villages.
2. Status assessment and baseline data collection of key water assets in the villages and surrounding areas. Establish the feasibility and sustainability of possible watershed interventions.
3. Establishing water resource and energy demands based on type of requirements and spatial location of assets and demand locations
4. Collection of data and observations on topography, land use and hydrogeological properties of planned intervention sites.
5. Finalizing of intervention types, identifying locations and developed design technical designs of the same.
6. Providing data collection templates and schedule for comparison with baseline data and impact study.

5.2.1 Steps for reduction of drinking water stresses

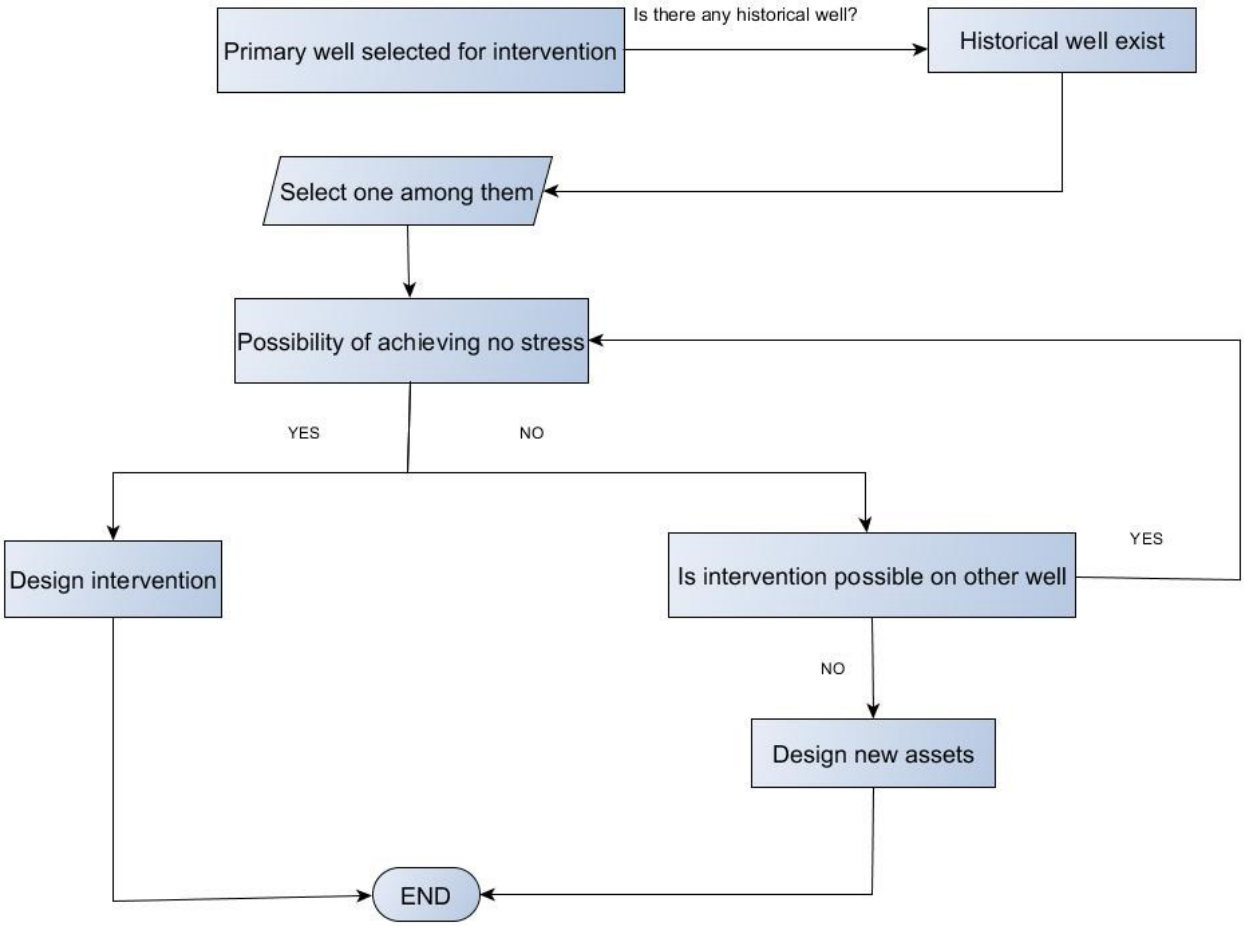

Figure 16: Steps for reduction of drinking water stresses

1. Verify stress category on primary well selected for intervention planning, if stress category identified is not appropriate then change it to appropriate category.
2. Identify historically good well that may be destroyed due to some reason such as floods, the identified well may provide zero stress
3. Choose asset for interventions between historical good well and primary well, villagers suggestion should also be taken into consideration
4. Prior to implementation of intervention, assess that is there any possibility of achieving no stress with planned intervention. If possibility of no stress can be achieved, then implement the design intervention on selected well. In case of no possibility, find other source from habitation on which intervention can be planned and state of no stress can be achieved. If such source is not available in habitation then only design new assets

5.3 Intervention planning for Mokhada taluka

Mokhada consists of hilly terrain and basaltic rocks that has low infiltration leading to poor groundwater holding capacity. This leads to very low well recharge which are major source of drinking water in this region and they also go dry in few months post monsoon.

Mokhada taluka is geographically spread in an area of 49226.67 ha. Out of the total, 49.15% area is cultivable area and only 2.5% of cultivated area is irrigated indicating lack of water for irrigation as well. (Census, 2011)

Mokhada taluka receives an annual rainfall of 2000-3000mm. Year wise rainfall is shown in

Figure 17: Year wise (1998 to 2018) Rainfall (in mm) of Mokhada Taluka

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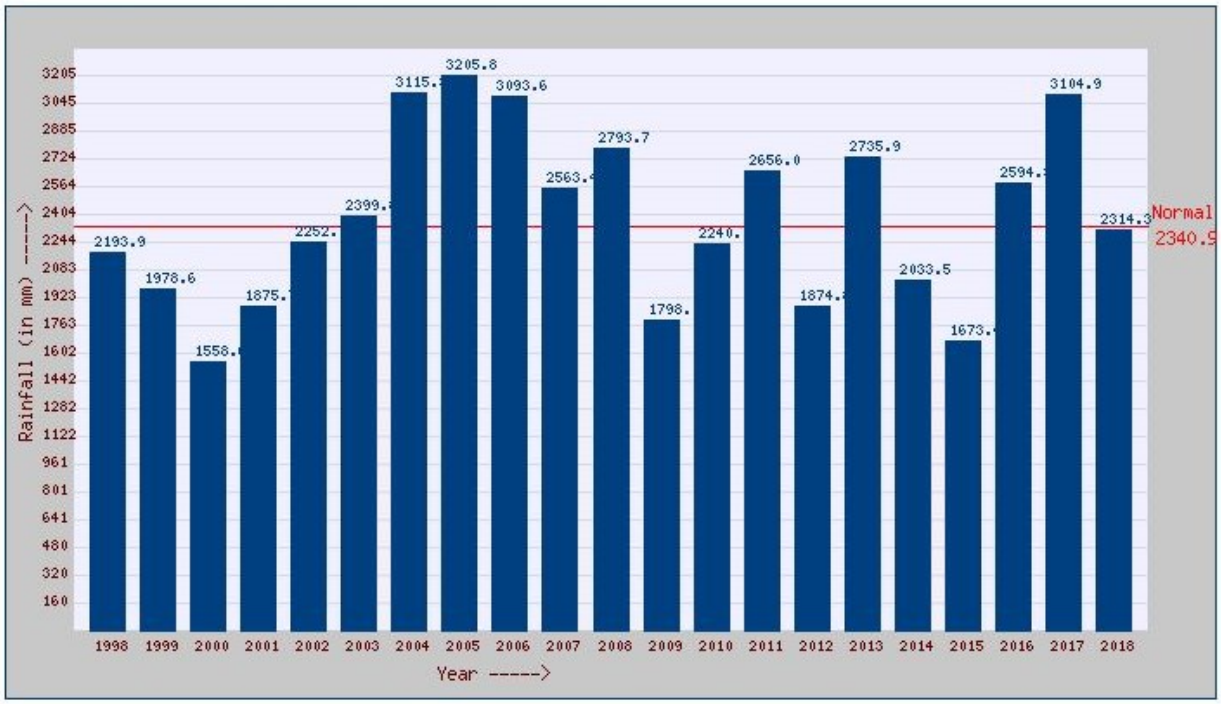

Figure 17: Year wise (1998 to 2018) Rainfall (in mm) of Mokhada Taluka[3]

Considering ground water recharge, command area is only 242 ha, while non command area is 17385 ha[4]. The average fluctuation seen in command area is 4.97m, while in non-command area is 3.98m. Area available/considered/suitable for ground water recharge 1785.32 ham, out of that, provision for natural discharge is 92.63 ham. Total gross ground water draft for all uses is 106.7 ham. Considering the above mentioned conditions, stage of ground water development is 6.3%. This indicates, safe situation in Mokhada taluka, whereas, the situation is worst on ground.

5.4 Outline for intervention planning protocol

Design protocol consists of steps to be considered while intervention planning for a specific location. The general guideline for protocol is discussed below.

5.4.1 Status assessment of existing assets and its demarcation

This step verifies the data collected during PRA and the stress categories summarized using PRA and secondary data. Also, this step demarcates all existing assets available in the habitation and its peripheral areas and analysis it's status.

a. Verification of PRA data and stress categories.
    i. Baseline data collection

[3] http://maharain.gov.in/

[4] Report on the Dynamic Ground Water Resources of Maharashtra (2011-2012)by Groundwater Surveys and Development Agency, Pune Water Supply and Sanitation Department, Government of Maharashtra & Central Ground Water Board, Central Region, Nagpur Ministry of Water Resources, Government of India (February 2014)

- Dimensions
- Physical condition
- Usability (drinking/domestic/irrigation)
- Availability of water in term of months and distance of source from habitation or potential area

b. Demarcation/identification of existing built assets (well/CNB)
c. Demarcation of available perennial source (stream/river)

5.4.2 Quantification of needs for planning

This steps identifies the current issues that the habitation is facing, in terms of drinking water, domestic water and water for irrigation/ livelihood. Also, identifies the needs and requirements of the inhabitants. Further, it identifies the gap between the current status and aspiration/ coverage of basic needs. The gaps in terms of availability, accessibility, intermediate solution (availability of water but lack of pumping, leakage etc. preliminary requirements).

a. Current Requirement
    i. Drinking water – Adequate quantity (40 lpcd) of water with acceptable quality is available within habitation.
    ii. Livelihood water – Adequate quantity of water (depend on crop, livestock) is available
b. Gap Analysis
    i. Drinking water –
        - Availability - Water is not available for few months from any existing source
        - Issue of accessibility - water is available but people have to fetch longer distance
        - Issue of quality - Visually found not fit for drinking
    ii. Livelihood water
        - Availability - Water is not available for second crop or livestock
        - Accessibility - Water is available but difficulty in accessibility
c. Identification of possible interventions for sustainable approach
    i. Suitable area treatment and drainage treatment measures

5.4.3 Identification of existing assets for interventions

This step demarcates all existing assets available in the habitation and its peripheral areas and analysis it's status. Based on that it prioritize the assets for intervention and give best possible solution of improvise or upgrade the condition of the asset. The method of prioritization will cover location, ground strata, issues, possible causes of the issues etc.

a. In case reviving existing asset
    i. Verification of existing asset w.r.t. possible repair/ desilting/ nonstructural interventions to repair/ revive source structure or recharge structure (assets with Min stress)

ii. Availability for 12 months but accessibility/quality issue that is in resolvable condition (Accessibility can be resolved by water pumping/ other measures and Quality that can be resolved-turbidity, PH, salinity, biodegradable matter)

iii. Availability for less than 12 months but intervention at asset level is possible by adding a new recharge structure for asset along the stream or adding a harvesting structure for asset away from stream

b. In case of building new asset

i. Construction of new well

- Suitable location criteria

ii. Construction of new CNB

- Suitable location criteria

5.4.4 Intervention to reduce stress

This step identifies the possible interventions considering the stress categories (Availability, Accessibility and Quality)

a. Drinking and domestic water

i. Availability -

- Support structure (for making water available for longer duration and for ground water recharge)
  - Repairing of existing bund - if there are some minor leakages or some broken part
  - Construction of subsurface bund
  - Construction of new bund
  - Construction of water harvesting structures
- Repair and revival of existing structure
  - Repairing/ Renovation of existing well
  - Deepening of well
  - Desilting

ii. Accessibility

- Construction of pathways
- Pumping of water from source to habitation

iii. Improvising water quality

- Providing a protection net to avoid falling of leaves/ bird droppings in well
- In case hyacinth growth, identifying the cause and resolving the issue at source
- In case turbidity, improving quality by providing water filter, etc.

b. Livelihood water

i. Repairing of existing bund

ii. Construction of new bund

iii. Desilting of existing bund

iv. Provision of community farm ponds

For drinking water, domestic water and water for irrigation and other livelihood purposes, the measures required for area and drainage treatment are:

a. Drainage Treatment
    i. Providing gabion
    ii. Loose Boulder structure
b. Area Treatment
    i. Contour Trench
    ii. Contour Bund
    iii. Farm bund

5.4.5 Standard design and its location

This step shall provide with standard design document that can be filled with location based data to verify that the location/ intervention is suitable or not in the specific location and its ideal dimensions.

Table 18: Suitable locations for intervention

Sr. No	Intervention	Requirement	Checklist
1	Sub-surface bund	Well should be planned at upstream of selected location	
		Stream should have subsurface flow at least till January	
		The slope of stream should be Flat and not very steep	
		Impervious strata	
		Hard embankment	
2	CNB	Availability of 3rd or higher order stream	
		Slope of stream - <3%	
		Catchment area of stream – 40-100 Ha	
		Depth of stream at least 1m	
		Width of stream base – 5-50 m	
		Potential area for agriculture and livestock potential	
3	Desilting	People's suggestion	
		After desilting people will used the source	
		Well should be located is in vicinity of habitation	

4	Counter trenches	Slope of land – 10 to 25%	
		Hilly region	
5	LBS	Order of stream – $1^{st}/2^{nd}$ Order	
		Catchment area of stream should greater than 50 Ha	
		Catchment area of LBS should greater than 2 ha	
		Bed slope less than 20%	
6	Gabion	Order of stream - 2^{nd} Order	
		Catchment area of stream 5-50 Ha	
		Catchment area of Gabion at least 5 Ha	

6 Case studies

6.1 Interventions planning for improving water availability in habitations of Kurlod and Botoshi

The Kurlod-Botoshi watershed project was planned as a joint collaboration between Aroehan, Siemens CSR, and Technology and Development Solutions Cell (TDSC) at IIT Bombay. Kurlod and Botoshi are neighboring tribal villages in Mokhada block, Palghar district that face severe water scarcity, particularly from February till June. The project was executed in three phases, whereby, the aim of phase I & II was to increase water availability in the area for drinking and livelihood purposes, and phase III interventions were mainly related to area treatment.

Kurlod and Botoshi have a combined population of approximately 2600 people, split over 13 habitations with individual populations ranging from 15 to 450. Kurlod is approximately 158 km from Mumbai (typically a 5 hour drive), and 55 km from Kasara (typically a 2-3 hour drive). Botoshi is closer to Kasara by an hour.

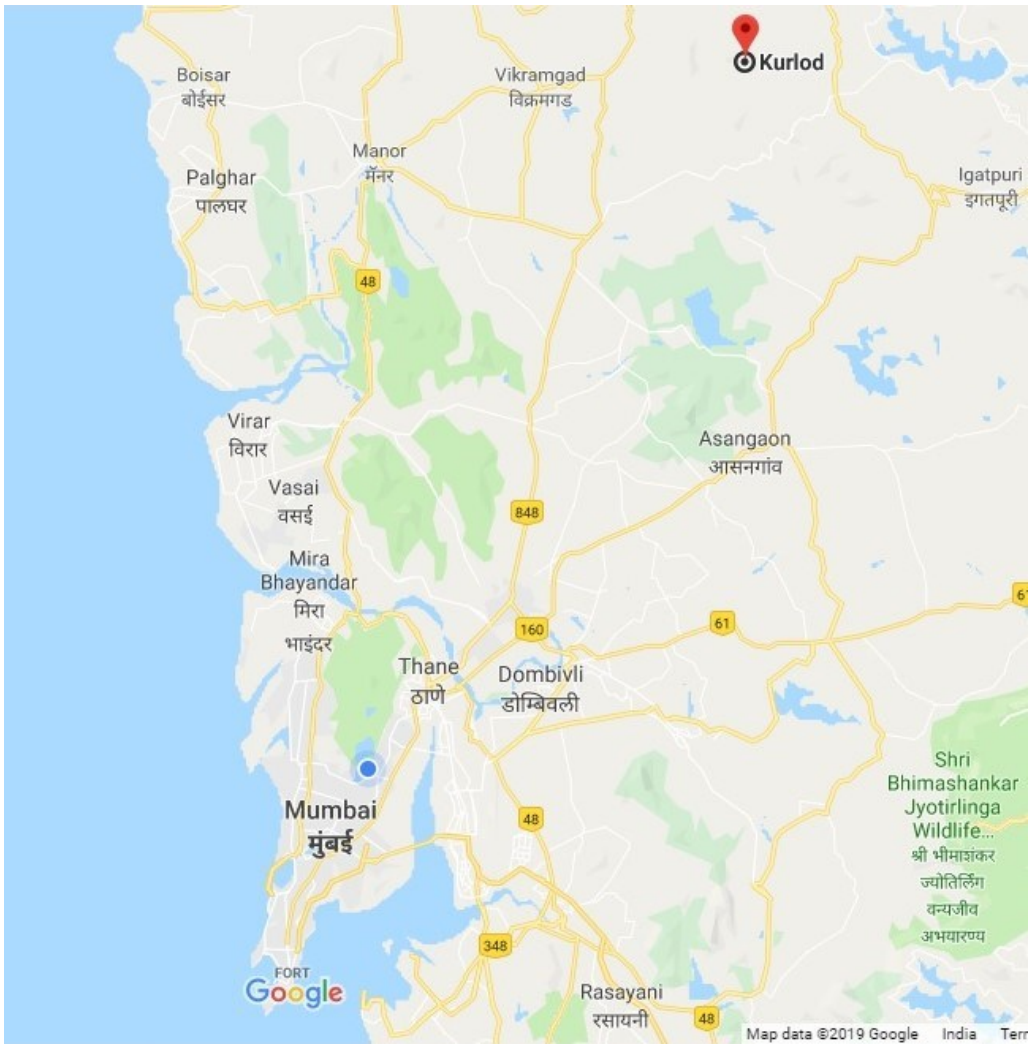

Figure 18: Map showing geographic location of Kurlod village

Initially, TDSC had planned interventions to reduce the stress in Kurlod – Botoshi (KB) villages. Depending upon parameters such as availability, accessibility and quality, Kurlod – Botoshi (KB) habitations were categorized in different stress categories. The categories in which KB model is not useful, alternate solutions will be identified.

Table 19: Stress categories of Kurlod-Botoshi (KB) model

Sr. No	Categories	Equivalent KB Model
1	No stress	Kapshepada/Shedyachepada
1b	Historical No stress	Raipada
2	LML	Bhelpada/Jambhpada (LML)
3	MLL	Wadpada(HLL), Kurlod, Pethyapada
4	MML	Botoshi (MML)
5	LHL	Bhojpada (LHL)
6	MHL	Kurlod (MHL)
7	HML	Kurlod (HHL)
8	HLL	WadpadaAVH
9	LMM	Manipada (LMM)
10	MLM	Pethyachepada (MMM)-solar
11	LLM	Kirkirewadi (LLM)
12	HHM	
13	MMM	
14	HHL	

Table 20: Intervention planning for drinking water in Kurlod Botoshi

Sr. no.	KB Module	Population	Sources	Problem	Solution
1	Kurlod	400	well 1		
			Well 2		
			Well 3 (secondary)	Availability last till Feb.	Stream which feed well have subsurface flow till May so construction of subsurface bund solve the problem
			Well 4, bund (primary)	Lasts till Mid may, Broken bund	Construction of RCC wall along upstream side of bund, foundation of wall into ground to prevent leakages
2	Pethechapada	450	well 1 (primary well)	Quality issue- Heavy siltation, muddy water Large hole in well wall Accessibility - difficult pathway	1. Repairing of well wall, Lining to well wall at ground level to avoid silt 2. Construction of new pathway
			Well 2		
			Well 3 (secondary)	Availability - last till Dec.	Nearby stream flows throughout year so construction of new bund
3	Shendyachapada and Jambhulpada	150	Well 1	Quality- Affected by leaves and birds dropping	Protected by net cover
			Well 2		
4	Raipada	80	Well 1 (1 RCC bund)	Availability - Minor leakages in bund	Plugging minor leakages and construct loose boulder checks on minor stream to avoid silting in main stream
			Well 2	Washed away by force water	Reconstruction of broken well with appropriate height to protect well from flood
5	Manipada	60	Well 1	Availability - till October	

			Well 2 (Primary)	Accessibility - higher elevation, dense vegetation 2. damaged well wall	Construction of pathway and steps for well, repair of damaged well wall, platform to well
6	Wadpada	100	Well 1	Availability - Till Oct., shallow depth reach upto hard rock	
			Well 2 (Primary well)	Availability - Till March, on main stream	construction of new bund on downstream of well 2
7	Botoshi	400	Well 1		
			Well 2		
			Well 3		
			Well 4		
			Well 5 (primary)	Availability - till mid may,	As well is at foothill, construction of contour trench around well increase recharge
8	Kirkirewadi	40	Well 1	Quality - Silt, Submergence of well	Increase wall height, construct platform around wall, Fix lining and desilting
9	Belpada	450	Well 1	No issue	
10	Markatwadi	150	Well 1	Availability - Till Nov., at foothill	Construction of contour trench
			Well 2	Incomplete construction , Availability throughout year , near river submerged during monsoon, Conflicts	Complete construction of well if there is no conflict
			Well 3	Deposition of silt, Submerged during rainy season	
					Construction of new well, make water accessible through solar pumping
11	Bhojpada	340	Well 1 (primary)	Accessibility - Inaccessible during rainy season, Quality - silt	Construction of small footbridge across stream or dual pumping in habitation, Lining to well wall construction of platform, removing silt
			Well 2 (primary)		

			Well 3		
			Well 4		
			Well 5		

Table 21: Area treatment and drainage treatment interventions in Kurlod Botoshi

Intervention Type	Purpose	Intended impact	Key parameters
Gully plug	1. Reduce Soil erosion 2.Trap silt at regular intervals	Increase ground water recharge due to low and prolonged flow	At first or second order stream at regular interval
Contour Bund	1. Reduce Soil erosion 2.Trap silt at regular intervals	Increase ground water recharge due to low and prolonged flow	At first or second order stream at regular interval, at base of hill before beginning of farm land
Plantation/ Afforestation	1. Reduce Soil erosion	Increase forest cover, microclimate stability, forest services	Plantation to support livelihood at farm land, social forestry along roads, Reforestation of forest land
Loose Boulder Structure	1. Trap silt at regular intervals 2. Enhance ground water recharge	life of stream is enhanced	Good embankment on both side, low upstream slope, low flow in the stream
Gabion Bund	1. Trap silt at regular intervals 2. Enhance ground water recharge	life of stream is enhanced	Good embankment on both side, low upstream slope, low flow in the stream
Concrete Nala Bund	1.Storage 2. Enhance ground water recharge 3. Enhance stream life	surface water storage for rabbi and/or recharging nearby well	Distance to fields and nearby wells, width of stream at bund location, properties of embankment, catchment area of bund, rainfall
Farm drainage management	1.Soil moisture profile improvement	Better soil moisture for Rabbi/ vegetables	Farm land at each farm, side channel if farm land is on stream

6.2 Interventions planning for improving water availability in habitations of Pathardi

Pathardi is a Village in Mokhada Taluka of Palghar district. Combined population of this village is approximately 1005 people residing in 212 households that are split into 5 habitations with individual populations ranging from 84 to 340 spread over 791 ha area. Pathardi village is approximately 150 km from Mumbai and 26 km from Mokhada. The five habitations are Dongarwadi, Bhirobachiwadi, Ramwadi, Patipada and Pathardi namely.

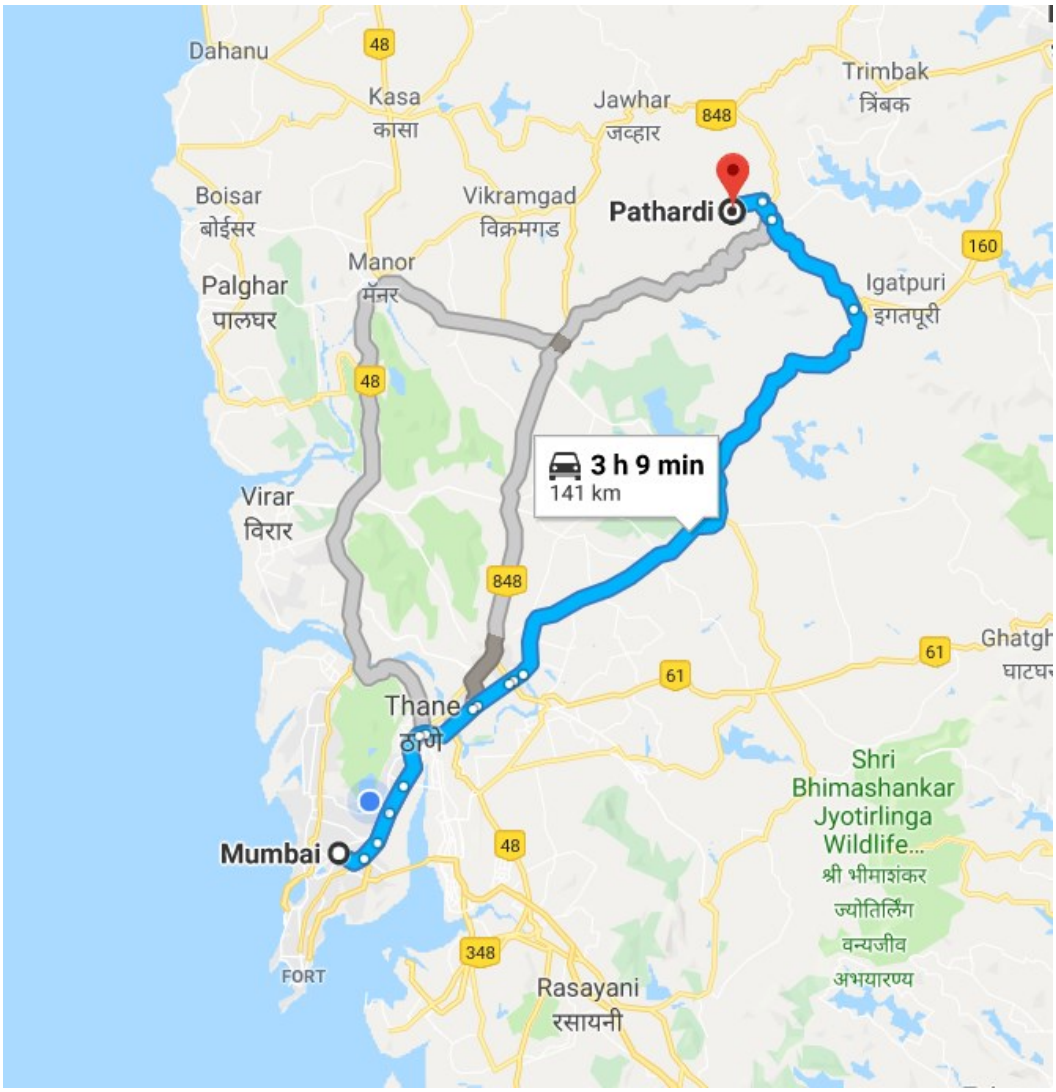

Figure 19: Map showing geographical location of Pathardi village

Pathardi village is located along Pinjal River, One nala flows from Gomghar to Pathardi and meet at Pinjal River near Pathardi. Almost all habitations except Dongarwadi are along this main nala. The major source of water in this village is groundwater. Figure 20 indicates the spatial boundaries of village along with the habitations and waterbodies.

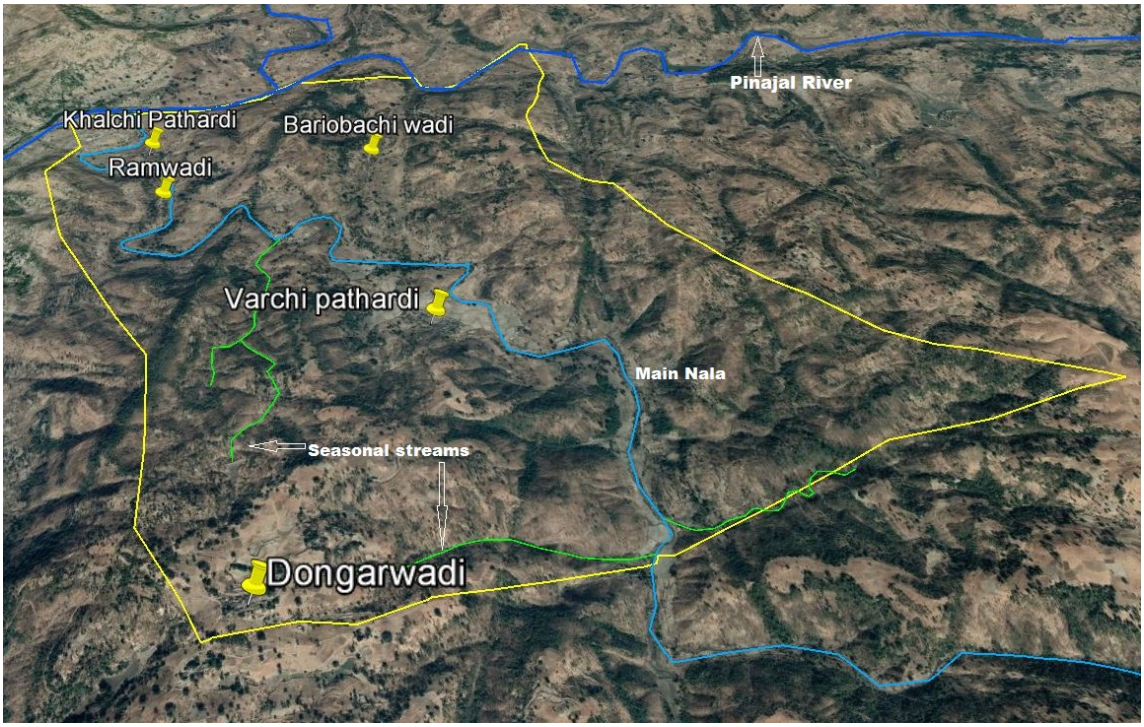

Figure 20: Google Earth image showing location of habitations and streams in Pathardi.

Figure 21: Water levels of Pinjal River in December

6.2.1 Details of habitation

Four habitations namely Bhirobachiwadi, Ramwadi, Patipada and Pathardi out of the total five habitations were visited. The details are as follows.

1. Patilpada

Patilpada is also known as Khalchi Pathardi. This habitation is located in close proximity to Pinjal River. According to NRDWP, population of habitation is approx. 150 people, 25-27 households. There was only 1 old nonfunctional solar water supply scheme.

This habitation is under the category- stress of accessibility. As well 1 is a perennial source, water pumping from this well to habitation is an alternate that can be considered for planning. Currently water is pumped from this well to a school in the habitation. Water from Well 1 is used only after March. Details of structures shown in Table 22

Table 22: Details of Patilpada habitation

Assets	**Location**	**Condition**	**Dimension (Dia*Depth) in meter**	**Availability**	**Visual quality Ok/Not ok**	**Stress category**	**Existing recharge structure**	**Along stream line**	**Usage**
Well 1	Near Pinjal river away from habitation	Good, recently renovated from JSA program	6m*7m	12 months	Ok	Accessibility stress	No	Yes	All people
Budka	Near habitation	Depleted		Till December	Ok	High stress of availability	No	No	All people
Well 2	Near habitation on bank of nala	Good	6.1m*8.5m	Till March	Ok	Moderated stress of availability	Yes but away from source	Yes	All people

Table 23: Pipe water supply scheme in Patilpada habitation

Scheme status	Functional
	Non - functional
	Partially functional
Reason for non –functional/ Partially functional scheme	**Over ageing of scheme**
Type of scheme	**Solar**
	Conventional
Condition of assets	Good
	Depilated
Can scheme make functional	Yes/**No**

Table 24: Recharge and/or storage structure

Assets	Location	Condition	Dimension in meter	Availability in months	Suitability	Purpose Domestic/ Agriculture/ Recharge	Potential agriculture area	Used by whole village/ no of beneficiary
Aroehan CNB	Near habitation	Good	Length -22 Height- 2.5	Till March		Domestic and agriculture	0.5-0.6 Acres	2-3 farmers and for domestic purpose entire habitation
Gov. CNB 1	On nala	Broken	Length – 30 Height-2.6	0		Agriculture	Yes	Not in used
Gov. CNB 2	On nala near river	Leaky	Length – 18 Height– 2.2	Till Jan		Agriculture	0.2-0.3 Acres	1-2 farmers

Figure 22: Location of all existing water structure at Khalchi Pathardi habitation

Aroehan bund that is in habitation has less water due to lack of proper management to close the gate on time after rainy season. Government CNB 1 that was constructed last year had huge potential for irrigation, but it was broken down immediately after rainy season. The end of CNB was not constructed in a proper manner as it was just laid adjacent to existing rock, and due to water pressure it got broken. Government CNB 1 had leakages and cause of that it was difficult to hold water for longer time.

Figure 23: Existing condition of Well 2 and water level in month of December

Figure 24: Fragmented condition of Government bund 1

Figure 25: Water levels and condition of Aroehan Bund`

- **Need assessment**

Drinking water

Patilpada habitation has a perennial source of water available, but it is located around 500 m away from habitation. Adjacent to source, Well 1 is constructed.

Budka – Source is not perennial and difficult to make it sustainable through interventions

Well 2 – Source is not perennial as it is along stream, interventions can be suggest to reduce stress

Table 25: Quantity of water that should be stored by structure

Assets	Dimension	Approximate length of backwater	Quantity to be stored (cu.m)	Remark
Aroehan CNB	L- 22 m, H – 2.4m	100 m	2640	Gates were not closed on time so bund was not full
Gov. CNB 1	L- 30 m, H – 2.6m	Not known	0	Broken
Gov. CNB 2	L- 17 m, H – 2.1m	90 m	803	Due to leakages sufficient water not available

Note: Backwater length was not measured; they are estimated considering people approximation. Lengths will be measured on field, during next field visit. Detailed livelihood planning is in progress.

- **Possible interventions**

For selection of drinking water source for intervention planning, the following step should be followed:

  - **Minor repairing** – There is no such structure, where minor repairs of source or repair structure can increase the sustainability of source.
  - **No issue of availability** – In case of well 1, water is available for a duration of 12 months, but it lacks accessibility. This issue is in resolvable condition (Accessibility can be resolved by water pumping)
  - **Availability improved by recharge** - Availability for less than 12 months is ssen at well 2, but intervention at asset level is possible by adding a new recharge structure as the well is located along the nala.

- **Intervention planning**

  Drinking water

  Accessibility-

  If water from Well 1 is fetched and made accessible at habitation level, it shall reduce the stress of habitation. The habitation is around 500 meter away from Well 1 that is at bank of Pinajal River having elevation of 178 m. The location for new tank shall be near existing old tank, having elevation of 196 m. The length of pipe to be laid from well to tank is 510 m. Water will be made available at a central location (existing tank), and not at household level. The detailed design is attached to annexure.

2. Ramwadi

Ramwadi is also known as Naviwadi. Population of habitation is around 100 people and has 17-18 households. There are no agricultural area in close proximity to habitation, all surrounding areas are covered by forest land. This habitation has no stress. The details of this habitation are given in Table 26

Table 26: Details of wells of Ramwadi habitation

Assets	Location	Condition	Dimension (Dia*Depth) in meter	Availability	Visual quality Ok/Not ok	Stress category	Existing recharge structure	Along stream line	Usage
Well	In habitation along nala	Good	8.1m*9.3m	12 months	Ok	No stress	No	Yes	All people
Budka	In habitation along nala	Good	2.5*4.8m	Till April	Ok	No stress	No	No	All people

Table 27: Details of bunds of Ramwadi habitation

Assets	Location	Condition	Dimension in meter	Availability in months	Purpose Domestic/ Agriculture / Recharge	Potential agriculture area	Used by whole village/ no of beneficiary
Aroehan CNB	Near habitation	Good	Length -22 Height- 2.5	12 month	Domestic	0	Whole habitation

Figure 26: Geographic location of water structure at Ramwadi habitation

Figure 27: Water levels and condition of Aroehan Bund

3. Bhariobachiwadi

Bhairobachiwadi habitation is scattered at two locations, and for our understanding we name them as Bhairobachiwadi A & B. Bhairobachiwadi A and B have 8-10 households in each habitation.

Table 28: Details of Bhairobachiwadi habitation

Assets	Location	Condition	Dimension (Dia*Depth) in meter	Availability	Visual quality Ok/Not ok	Stress category	Existing recharge structure	Along stream line	Usage
Budka	In Bhairobachiwadi A	Well was covered with grass (dry well)		Till October		High stress of availability	No	No	All people
Well 1	In Bhairobachiwadi B	Good	7.3*7.7 m	12 months	Ok	No stress	No	1st order stream	All people
Well 2	In Bhairobachiwadi B	Good	6.9m*8.1m	12 months	Ok	No stress	No	1st order stream	All people

The habitation lacks water storage structure located in close proximity of the habitation. Bhariobachiwadi A is under the category of-high stress of availability, while Bhariobachiwadi B is under no stress category.

Figure 28: Geographic location of water structure at Bhairobachiwadi

- **Possible interventions**

  Considering present scenario, possible interventions that can reduce the stress of Bhariobachiwadi A are:

  i. Repair and deepening of existing well at Bhariobachiwadi A
     a. Water availability is only till October, deepening will not help to reduce stress.
     b. As well is along 1st order stream, construction of new recharge structure will not work
  ii. Water make available and accessible from well 1/2 at Bhariobachiwadi B by using solar pumping solution.
     a. This may be not an economical solution as maintenance and repair of assets regularly needed.
     b. In case of failure/ nonfunctional status water can be fetched from existing source.
  iii. Construction of new well in Bhairobachiwadi A.
     a. After construction of well recurring charges for operation and maintenance not required.
     b. New well may be sustainable or not, if not sustainable then it will waste of money.

- **Intervention planning**

Repairing and deepening of well at Bariobachiwadi A is not a suitable option as the well is located at first order stream.

Accessibility – Water can be made available and accessible from well 1 or 2 of Bhariobachiwadi B to Bhariobachiwadi A by using solar pumping method.

If water is fetched from Well 1or 2 to habitation A, that shall reduce the stress of habitation. The habitation is around 550 meter away from well. Well 1 or 2 is at Bhariobachiwadi B having elevation of 222 m. The location for new tank shall be in habitation with elevation of 238 m. The length of pipe to be laid from well to tank is 570 m. Water will be made available at tank and not at household level. The detailed design is attached to annexure.

The least suggested option is construction of a new well adjacent to broken earthen bund on the first order stream. The broken earthen bund was observed during field visit with organic ground around, also, it is in low laying area. But prior to construction of new well, expert consultation from hydrologist or GSDA is required.

4. Varchi Pathardi

Varchi Pathardi is officially known as Pathardi. Total population of habitation is around 350 people and 70-72 households.

This habitation is under the category- moderate stress of availability, accessibility and also has issues of water quality, water hyacinth growth was seen in 2 wells (Well 1 and Well 2). Water quality testing was suggested and test report are attached in Annexure 6.

Table 29: Details of wells of Varchi Pathardi habitation

Assets	Location	Condition	Dimension (Dia*Depth) in meter	Availability	Visual quality Ok/Not ok	Stress category	Existing recharge structure	Along stream line	Usage
Well 1	On bank of nala away from habitation	Well was covered with grass (dry well)	6.1*6.4 m	Till May	Not ok	Quality & accessibility stress	Yes	Yes	All people
Well 2	Away from habitation	Good	7*7.5 m	Till May	Ok	Quality and accessibility stress	No	No	All people
Budka	In habitation	Good	3*6.5 m	Till February	Ok	High stress availability	No	No	Few people
Well 3	On bank of nala in habitation		4.8*9.8 m	Till March		High stress availability	Yes	Yes	All people

Table 30: Details of bunds in Varchi Pathardi habitation

Assets	Location	Condition	Dimension in meter	Availability in months	Purpose Domestic/ Agriculture / Recharge	Potential agriculture area	Used by whole village/ no of beneficiary
Aroehan CNB 1	On bank of nala away from habitation	Good	L – 18.5m H – 2.5 m	Till April	Domestic for cattle		Whole habitation
Gov. CNB 1	On bank of nala away from habitation	Broken	L – 19.7m H – 2.8 m	No water	Agriculture	Yes (2-3 Acres)	0
Aroehan CNB 2	On bank of nala away from habitation	Pending			Agriculture	Yes (2-3 Acres)	0
JSA CNB	On bank of nala in habitation	Good	L – 19.2m H – 2.8 m	Till March	Agriculture and domestic	Yes (1-2 Acres)	1-2 farmers
Gov. CNB 2	On bank of nala in habitation	Broken	L – 18.2m H – 3.4 m	No water	Agriculture	Yes (1-2 Acres)	0

Figure 29: Condition of well 1 containing hyacinth growth

Well 1 is located near Aroehan CNB 1. The water from this bund is used for cattles and can be used for agriculture as well. During filed visit it was observed that the stored water was not clean in its appearance and had a little greenish color. Well 2 known as *chinchechi vihir* is used by villagers after March but as water is muddy, not used for drinking. Well 3 is on bank of nala and is in between JSA CNB and Gov. CNB 2. Water from this well is used by almost all villagers till March. Government CNB had issues such as heavy leakages and hence there was no water in it. Aroehan started working on CNB 2 last year, but the construction is still pending. JSA CNB was filled with water, and according to villagers, the water lasts till March. No nearby farmer use this water, a few (2-3) distant farmers were pumping water for flower plantation. This water is also used for domestic purpose. Gov. CNB 2 had no water but sand was extracted from there.

Figure 30: Geographic location of water structure at Varchi Pathardi habitation

- **Possible interventions**

  Though there are 4 existing bunds in the area, only two bunds tend to serve their purpose. Potential agricultural area served by these bunds is less than an acre

  Two wells (well 1 and well 2) which are more sustainable in terms of availability of water have a quality accessibility issue. These wells are also dried up in end of May month. So there is minor stress of availability as well.

  Budka have stress of accessibility and well 3 also have stress water availability issue.

7 Way forward

The next step is validation of designed protocols on all the selected habitation. Implementation of protocol shall be in association with Aroehan and monitored by TDSC for further improvement. The impact of the protocol shall be studied during the implementation as well as after implementation. A guideline report shall be prepared for the impact assessment by TDSC, CTARA. Lastly, based on outcomes of implementation, necessary amendments of the intervention protocol shall be carried out by TDSC and final protocols would be released. Detailed planning for irrigation water and area treatment is next phase of the project.

Annexure 1. PRA Template in English and Marathi

AROEHAN
VILLAGE NAME-
Questionnaire on village micro planning by CTARA IIT Mumbai for SIEMENS and AROEHAN

General information

Hamlet Name		**GPS Photo**	
Village Name		**Highest Point of Village**	
GP Name		**Light Transformer**	
Total Population		**School**	
Total Family		**Well /Hand Pump**	
Main Resource of Drinking Water		**Dam**	
Start Months of Tanker		**Another Important Place**	
Surveyor Name			
Mobile No.		**Date**	

Hand Pump			
No. of Hand Pump/Bore well	1	2	3
GPS Photo			
Owner (1. Villager,2. Personal)			
Condition (1. Current, 2. Damage, 3.unused)			
Till which month water is available			
How many people uses (1. whole Hamlet 2. Mostly 3. Fewer)			

Well			
Well Number and Name	**1**	**2**	**3**
GPS Photo			
Types of Well (1. Main Well, 2.After use, 3. Not Use)			
Owner (1. Villager, 2. Personal)			
Depth (Foot)			
Dia (Foot)			
Availability			

Till which Month Water is still Available			
How many people uses (1. whole Hamlet 2. Mostly 3. Fewer)			
Quality			
Taste of Water (1. Good 2. Bad 3. Can't Drink)			
Accessibility			
Way to Well (1. Trail 2.Paved Road 3. Dangerous)			
How difficult is way? (1.To much slope, 2. A bit difficult, 3. Easy)			
Necessary Intervention			
Condition of Well (1. Good, 2. Damaged, 3. Full of mud)			
People's Suggestion (1. Repairing, 2. Deepening, 3. Desilting, 4. Build Wall, 5. Other)			

Bathing/washing Place			
Number of places	**1**	**2**	**3**
How many people uses (1. whole Hamlet 2. Mostly 3. Fewer			
Opinion on Cleanliness			
Effect of Nearest Water Resource			
Necessary Intervention			
1. New construction, 2. Repairing, 3.Any other requirement			

Tab Water Scheme		
Tab Water Scheme	**Types**	
	1. Rural Drinking Water Scheme	
	2. Rural scheme	
	3. Solar	
	4. Other	
Availability	**Condition**	
	1. Throughout Year	

	2. Throughout year except in Summer	
	3. Non-functional	
	Months of Summer in which tap scheme is Non-functional	
	Source	
	1. Well	
	2. River/ well nearby to river	
	3. Well out of Village	
	4. other	
	GPS Photo	
Accessibility	Water Filling source	
	1. Community Tap	
	2. Home Tap	
	3. Both the options	
	How many people use (1. whole Hamlet 2. Mostly 3. Fewer)	
Quality	Taste of Water	
	1. Good	
	2. Bad	
	3. Can't drink	
	Does TCL/other options used for cleaning Water (Yes/No)	
Necessary Intervention	Reason of non-functioning	
	1.Pending electricity bill	
	2. Dried water Resource	
	3. Theft	
	4. Unrepaired	

Water for agricultural purpose			
Source	1	2	3
1. River			
2. Check dam			
3. Pond			
GPS Photo			
Condition of structures			
1. In excellent condition			
2. Damaged			
3. Leakages			
4. Other			
Accessibility			

Till which month water is available			
Reach/Accessibility			
For Agricultural purpose 1. Used, 2) Possible, 3) Not possible			
Necessary Intervention			

गावपाडा पातळीवर आरोहण - सीमेंस तर्फे सूक्ष्म-नियोजनासाठी सितारा, आय.आय.टी. मुंबईची प्रश्नावली

पाड्याचे नाव		खालील चे जीपीएस फोटो घ्या	
गावाचे नाव		1.पाडा वर सर्वोच्च बिंदू	
ग्रामपंचायतीचे नाव		2.बिजली ट्रांसफार्मर	
लोकसंख्या		3.शाळा/	
कुटुंबांची संख्या		4.प्रत्येक विहिर/ हात पंप	
पिण्याचे पाणी मुख्य स्त्रोत		5.प्रत्येक बंधारा	
टँकर सुरू महिना		6. इतर महत्वाची जागा	

सर्वेक्षक नाव	
मोबाइल नंबर	
सर्वेक्षण तारीख	

पाण्यासंबंधी नियोजन

पिण्याचे पाणी

हॅन्ड पम्प

हॅन्ड पम्प / बोरवेल संख्या	**1**	**2**	**3**
GPS photo			
मालकी [1. गावाची 2. व्यक्तिगत]			
स्थिती: [1. चालू 2. तुटके 3. वापरत नाही]			
कुठल्या महिन्यापर्यंत पाणी असते (जाने/फेब/मार्च/एप्रिल/मे)			
किती लोक वापरतात: [1. पूर्ण पाडा 2. बहुतेक 3. फार कमी]			

विहिर

विहिर संख्या व नाव	**1**	**2**	**3**
GPS photo			
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खोली/ (किती फूट)			
रूंदी/(किती फूट)			
उपलब्धता			
कुठल्या महिन्यापर्यंत पाणी असते (जाने/फेब/मार्च/एप्रिल/मे)			
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आंघोळ/ धुण्याचे ठिकाण

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जवळील जल स्त्रोतांवर परिणाम			
आवश्यक हस्तक्षेप			
नवीन बांधकाम / दुरूस्ती / इत्यादीची आवश्यकता			

नळ पाणी योजना

नळ पाणी योजना	**1**
प्रकार [1. ग्रामीण पेयजल योजना 2. बहु-ग्रामीण योजना 3. सोलर 4. अन्य]	
उपलब्धता	
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स्त्रोत GPS photo	
पहुँच/सुलभता	
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बंद असायची कारणे [1. विजबिल बाकी 2. स्त्रोत आटला 3. चोऱ्या 4. नादुरुस्त]	

तपशीलासाठी खाली प्रदान केलेली जागा वापरा (विशेषतः नवीन प्रस्तावित आवश्यक हस्तक्षेप, उपलब्धता, पहुँच/सुलभता, गुणवत्ता)

पाडाच्या सर्व पिण्याचे पाणी सूत दर्शविणारा नकाशा काढा

शेतीचे पाणी

स्त्रोत क्रमांक.	**1**	**2**	**3**
प्रकार [1. नदी 2. सीमेंट नालाबांध 3. तलाव			
स्त्रोत GPS photo			
बांधकाम स्थिती [1. उत्तम 2. तुटके 3. गळके 4. अन्य]			
उपलब्धता			
कुठल्या महिन्यापर्यंत पाणी असते (जाने/फेब/मार्च/एप्रिल)			
पहुँच/सुलभता			
शेतीसाठी वापर[1. होतो 2. होवू शकतो 3. शक्य नाही]			
आवश्यक हस्तक्षेप			

तपशीलासाठी खाली प्रदान केलेली जागा वापरा (विशेषतः नवीन प्रस्तावित आवश्यक हस्तक्षेप, उपलब्धता, पहुँच/सुलभता, गुणवत्ता)

पाडाचे सर्व सिंचन पाणी सूरी दर्शविणारा नकाशा काढा

Annexures 2. Priority list of habitations based on stress categories

Priority	Category	Gram panchayat	Village	Habitation	Population
1	HHM	Beriste	Osarvira	Mukundpada	73
2	HHL	Aase	Aase	Bival pada	197
3	HHL	Saturli Palsunda	Saturli	Ambyachapada	78
4	HML	Dolara	Dolara	Dolara	1195
5	HML	Aase	Swami nagar	Swami nagar	737
6	HML	Aase	Bramhangaon	Bramhangaon	719
7	HML	Hirve	Ghanval	Ghanval	695
8	HML	Kashti Sawarde	Sawarde	Sawarde	632
9	HML	Saturli Palsunda	Palsunde	Vikaswadi	548
10	HML	Aase	Aase	Kudava	370
11	HML	Khoch	Khoch	Pimpalpada	362
12	HML	Koshimshet	Dhamanshet	Penkyachiwadi	287
13	HML	Aase	Aase	Dapati 2	275
14	HML	Kiniste	Kiniste	Gavalcharipada	271
15	HML	Beriste	Kalamgaon	Jamhlichapada	215
16	HLL	Chas	Chas	Pangari	637
17	HLL	Gomghar Wahind	Gomghar	Shelampada	490
18	HLL	Botoshi Pathardi	Pathardi	Dongar wadi	475
19	HLL	Aase	Aase	Dapati 1	430
20	HLL	Chas	Chas	Hatti pada	248
21	HLL	Khoch	Khoch	Kalamwadi	237
22	HLL	Mokhada	Mokhada	Asara nagar/ Dhodipada	112
23	HLL	Morhanda Gonde Bk	Morhanda	Kakad pada	106
24	MHL	Udhale Wakadpada	Udhale	Hattipada	785
25	MHL	Botoshi Pathardi	Botoshi	Bhojpada	375
26	MHL	Chas	Chas	Chas	306
27	MHL	Hirve	Ghanval	Ruichapada	122
28	MHL	Saturli Palsunda	Palsunde	Palsunda	55
29	LHL	Chas	Chas	Thakur pada	1079
30	LHL	Suryamal	Suryamal	Suryamal	860
31	LHL	Koshimshet	Dhamanshet	Bhehatwadi	473
32	LHL	Botoshi Pathardi	Pathardi	Pathardi- Patilpada	320
33	LHL	Koshimshet	Dhamanshet	Thakurwadi	197
34	LHL	Morhanda Gonde Bk	Gonde Bk	Jambhalichapad	111
35	LHL	Saturli Palsunda		Javaledev	56
36	MMM	Hirve	Hirve	Kodesak	235
37	MML	Karegaon	Karegaon	Karegaon	1048
38	MML	Botoshi Pathardi	Botoshi	Botoshi	897
39	MML	Karegaon	Kaduchi wadi	Kaduchi	862
40	MML	Shivali	Shivali	Shivali	799

41	MML	Aadoshi	Shirsgaon	Shirsgaon	785
42	MML	Poshera	Poshera	Posera	749
43	MML	Aase	Aase	Aase	718
44	MML	Aase	Shastri nagar	Kundyacha pada	694
45	MML	Aase	Swami nagar	Bhowadi	687
46	MML	Saturli Palsunda	Palsunde	Shendyachi met	641
47	MML	Beriste	Beriste	Teliumberpada	559
48	MML	Mokhada	Mokhada	Ghatkarpada	466
49	MML	Nashera	Nashera	Dhavalpada	450
50	MML	Poshera	Poshera	thakurwadi	448
51	MML	Beriste	Osarvira	Ghodipada	394
52	MML	Morhanda Gonde Bk	Gonde Bk	Vakrichapada	369
53	MML	Mokhada	Mokhada	Gumbadpada	352
54	MML	Hirve	Hirve	Chothipada	344
55	MML	Morhanda Gonde Bk	Morhanda	Bhoyechapada	300
56	MML	Koshimshet	Koshimshet	Bedukpada	290
57	MML	Hirve	Hirve	Mokashipada	283
58	MML	Aase	Dhamani	Dhamani	262
59	MML	Khoch	Khoch	khadkachi met	252
60	MML	Beriste	Beriste	Ramdoh	239
61	MML	Beriste	Beriste	umbarpada	239
62	MML	Beriste	Beriste	Beriste	198
63	MML	Sayde Jogalwadi	Sayde	Hundachiwadi	190
64	MML	Karegaon	Karegaon	Bhasmewadi	152
65	MML	Udhale Wakadpada	Udhale	Poryachapada	148
66	MML	Hirve	Hirve	Shindepada	144
67	MML	Gomghar Wahind	Gomghar	Banachiwadi	119
68	MML	Koshimshet	Koshimshet	Patilpada	97
69	MML	Aase	Aase	Bhoirpda	95
70	MML	Beriste	Beriste	Wanganpada	85
71	MML	Koshimshet	Koshimshet	Phanaspada	82
72	MML	Sayde Jogalwadi	Sayde	Andheriwadi	75
73	MML	Beriste	Osarvira	Chikadipada	69
74	MML	Suryamal	Suryamal	wanganpada	25
75	MML	Khodala	Khodala	Bariba wadi	15
76	MLM	Beriste	Kalamgaon	Barafpada	22
77	MLM	Udhale Wakadpada	Wakadpada	Kambatwadi	66
78	MLL	Aase	Aase	Warghpada	33
79	MLL	Aase	Swami nagar	Navlyahapada	341
80	MLL	Aase	Aase	Dhamodi	203
81	MLL	Aase	Aase	Ikharicha pada	256
82	MLL	Aadoshi	Shirsgaon	Thalekar wadi	40

83	MLL	Beriste	Beriste	Naviwadi	161
84	MLL	Botoshi Pathardi	Pathardi	Pathardi 2	278
85	MLL	Chas	Chas	Chikan pada	795
86	MLL	Dolara	Dolara	Sakharwadi	318
87	MLL	Gomghar Wahind	Dudhgaon	Dudhgaon	602
88	MLL	Gomghar Wahind	Gomghar	Gomghar	503
89	MLL	Gomghar Wahind	Wasind	Wasind	379
90	MLL	Gomghar Wahind	Gomghar	Botewadi	281
91	MLL	Khoch	Khoch	Khoch	1266
92	MLL	Khoch	Dhondmaryachimet	Dhondmaryachimet	296
93	MLL	Koshimshet	Dhamanshet	Dhamanshet	427
94	MLL	Koshimshet	Koshimshet	Sonar wadi	137
95	MLL	Kiniste	Kiniste	Thakurpada	1565
96	MLL	Mokhada	Ghosali	Ghosali	760
97	MLL	Mokhada	Mokhada	Bakulichapada	375
98	MLL	Morhanda Gonde Bk	Morhanda	Morhanda	1315
99	MLL	Nashera	Nashera	Nashera	745
100	MLL	Nilmati	Dandwal	Chinchutra	357
101	MLL	Poshera	Poshera	Dabhanipada	296
102	MLL	Poshera	Poshera	Phanaspada	265
103	MLL	Sakhari	Sakhari	Ghodichapada	448
104	MLL	Sakhari	Sakhari	Pasodipada	132
105	MLL	Saturli Palsunda	Saturli	Ghandipool	338
106	MLL	Saturli Palsunda	Saturli	Vadpada	237
107	MLL	Saturli Palsunda	Saturli	Jambhulwadi	107
108	MLL	Sayde Jogalwadi	Sayde	Hattipada	199
109	MLL	Sayde Jogalwadi	Sayde	Vagyachiwadi	377
110	MLL	Udhale Wakadpada	Udhale	Pimpalwadi	236
111	MLL	Washala	Pimpalgaon	Madkyachi	380
112	MLL	Washala	Pimpalgaon	Pimpalgaon chapallpaada	675
113	LMM	Mokhada	Mokhada	Morkhadak	200
114	LMM	Chas	Chas	Himbat pada	175
115	LML	Mokhada	Mokhada	Mokhada	10273
116	LML	Poshera	Poshera	Katkaripada	810
117	LML	Aadoshi	Aadoshi	Adoshi	676
118	LML	Washala	Pimpalgaon	Pimpalgaon	672
119	LML	Poshera	Poshera	Pardhyachimet	643
120	LML	Nilmati	Nilmati	Nilmati	636
121	LML	Sakhari	Sakhari	Sakhari	581
122	LML	Sayde Jogalwadi	Jogalwadi	Jogalwadi	547
123	LML	Morhanda Gonde Bk	Gonde Bk	Gonde Bk	543
124	LML	Mokhada	Mokhada	Ambyachapada	459

125	LML	Poshera	Poshera	Vakharichapada	452
126	LML	Sayde Jogalwadi	Jogalwadi	Rajewadi	415
127	LML	Aase	Aase	Kunbhipada	405
128	LML	Sakhari	Charngaon	Charanwadi	358
129	LML	Poshera	Poshera	Radyachapada	348
130	LML	Karol Pachghar	Karol	Vavlyachi wadi	347
131	LML	Koshimshet	Koshimshet	Koshimshet gavthon	341
132	LML	Suryamal	Kevnale	Bhvani wadi	324
133	LML	Botoshi Pathardi	Pathardi	Pathardi 1	320
134	LML	Sakhari	Gonde Kh	Toranshet	309
135	LML	Poshera	Poshera	Mordhyachapada	295
136	LML	Mokhada	Mokhada	Telipada	268
137	LML	Kashti Sawarde	Kashti	Kashti	257
138	LML	Suryamal	Suryamal	Katkaripada	240
139	LML	Botoshi Pathardi	Botoshi	Markat wadi	230
140	LML	Chas	Chas	Jambhacha pada	205
141	LML	Dolara	Dolara	borichi wadi	170
142	LML	Suryamal	Suryamal	Borichi wadi	170
143	LML	Koshimshet	Koshimshet	Payarwadi	160
144	LML	Beriste	Osarvira	Ambyachapada	159
145	LML	Morhanda Gonde Bk	Gonde Bk	Vaghyachiwadi	127
146	LML	Botoshi Pathardi	Botoshi	Dhindewadi	126
147	LML	Nashera	Nashera	Devbandh	126
148	LML	Mokhada	Mokhada	Jambhpada	56
149	LML	Washala	Washala	Washala	33

Annexure 3 List of priority habitations based on stress for availability

Priority	Category	Gram panchayat	Village	Habitation	Population	Water structure
1	HHM	Beriste	Osarvira	Mukundpada	73	
2	HHL	Aase	Aase	Bival pada	197	Cement bund
3	HHL	Saturli Palsunda	Saturli	Ambyachapada	78	
4	HML	Dolara	Dolara	Dolara	1195	
5	HML	Aase	Swami nagar	Swami nagar	737	
6	HML	Aase	Bramhangaon	Bramhangaon	719	
7	HML	Hirve	Ghanval	Ghanval	695	River
8	HML	Kashti Sawarde	Sawarde	Sawarde	632	Check dam
9	HML	Saturli Palsunda	Palsunde	Vikaswadi	548	
10	HML	Aase	Aase	Kudava	370	
11	HML	Khoch	Khoch	Pimpalpada	362	Check dam
12	HML	Koshimshet	Dhamanshet	Penkyachiwadi	287	River
13	HML	Aase	Aase	Dapati 2	275	
14	HML	Kiniste	Kiniste	Gavalcharipada	271	
15	HML	Beriste	Kalamgaon	Jamhlichapada	215	
16	HLL	Chas	Chas	Pangari	637	River
17	HLL	Gomghar Wahind	Gomghar	Shelampada	490	
18	HLL	Botoshi Pathardi	Pathardi	Dongar wadi	475	
19	HLL	Aase	Aase	Dapati 1	430	Check bund
20	HLL	Chas	Chas	Hatti pada	248	
21	HLL	Khoch	Khoch	Kalamwadi	237	River
22	HLL	Mokhada	Mokhada	Asara nagar/ Dhodipada	112	Pond
23	HLL	Morhanda Gonde Bk	Morhanda	Kakad pada	106	River
24	MHL	Udhale Wakadpada	Udhale	Hattipada	785	
25	MHL	Botoshi Pathardi	Botoshi	Bhojpada	375	
26	MHL	Chas	Chas	Chas	306	Check dam
27	MHL	Hirve	Ghanval	Ruichapada	122	
28	MHL	Saturli Palsunda	Palsunde	Palsunda	55	
36	MMM	Hirve	Hirve	Kodesak	235	
37	MML	Karegaon	Karegaon	Karegaon	1048	
38	MML	Botoshi Pathardi	Botoshi	Botoshi	897	River
39	MML	Karegaon	Kaduchi wadi	Kaduchi	862	
40	MML	Shivali	Shivali	Shivali	799	
41	MML	Aadoshi	Shirsgaon	Shirsgaon	785	
42	MML	Poshera	Poshera	Posera	749	Check dam
43	MML	Aase	Aase	Aase	718	

44	MML	Aase	Shastri nagar	Kundyacha pada	694	
45	MML	Aase	Swami nagar	Bhowadi	687	Cement bund
46	MML	Saturli Palsunda	Palsunde	Shendyachi met	641	River
47	MML	Beriste	Beriste	Teliumberpada	559	River
48	MML	Mokhada	Mokhada	Ghatkarpada	466	
49	MML	Nashera	Nashera	Dhavalpada	450	
50	MML	Poshera	Poshera	thakurwadi	448	Pond
51	MML	Beriste	Osarvira	Ghodipada	394	River
52	MML	Morhanda Gonde Bk	Gonde Bk	Vakrichapada	369	River
53	MML	Mokhada	Mokhada	Gumbadpada	352	Pond
54	MML	Hirve	Hirve	Chothipada	344	
55	MML	Morhanda Gonde Bk	Morhanda	Bhoyechapada	300	Wagh river
56	MML	Koshimshet	Koshimshet	Bedukpada	290	
57	MML	Hirve	Hirve	Mokashipada	283	
58	MML	Aase	Dhamani	Dhamani	262	Cement bund
59	MML	Khoch	Khoch	khadkachi met	252	River
60	MML	Beriste	Beriste	Ramdoh	239	
61	MML	Beriste	Beriste	umbarpada	239	Pond
62	MML	Beriste	Beriste	Beriste	198	Check dam
63	MML	Sayde Jogalwadi	Sayde	Hundachiwadi	190	
64	MML	Karegaon	Karegaon	Bhasmewadi	152	
65	MML	Udhale Wakadpada	Udhale	Poryachapada	148	
66	MML	Hirve	Hirve	Shindepada	144	
67	MML	Gomghar Wahind	Gomghar	Banachiwadi	119	Check dam
68	MML	Koshimshet	Koshimshet	Patilpada	97	
69	MML	Aase	Aase	Bhoirpda	95	
70	MML	Beriste	Beriste	Wanganpada	85	
71	MML	Koshimshet	Koshimshet	Phanaspada	82	
72	MML	Sayde Jogalwadi	Sayde	Andheriwadi	75	
73	MML	Beriste	Osarvira	Chikadipada	69	
74	MML	Suryamal	Suryamal	wanganpada	25	
75	MML	Khodala	Khodala	Bariba wadi	15	
76	MLM	Beriste	Kalamgaon	Barafpada	22	
77	MLM	Udhale Wakadpada	Wakadpada	Kambatwadi	66	
78	MLL	Aase	Aase	Warghpada	33	
79	MLL	Aase	Swami nagar	Navlyahapada	341	
80	MLL	Aase	Aase	Dhamodi	203	
81	MLL	Aase	Aase	Ikharicha pada	256	
82	MLL	Aadoshi	Shirsgaon	Thalekar wadi	40	

83	MLL	Beriste	Beriste	Naviwadi	161	
84	MLL	Botoshi Pathardi	Pathardi	Pathardi 2	278	Check dam
85	MLL	Chas	Chas	Chikan pada	795	Check dam
86	MLL	Dolara	Dolara	Sakharwadi	318	
87	MLL	Gomghar Wahind	Dudhgaon	Dudhgaon	602	
88	MLL	Gomghar Wahind	Gomghar	Gomghar	503	
89	MLL	Gomghar Wahind	Wasind	Wasind	379	
90	MLL	Gomghar Wahind	Gomghar	Botewadi	281	
91	MLL	Khoch	Khoch	Khoch	1266	Pond
92	MLL	Khoch	Dhondmaryachimet	Dhondmaryachimet	296	River
93	MLL	Koshimshet	Dhamanshet	Dhamanshet	427	Check dam
94	MLL	Koshimshet	Koshimshet	Sonar wadi	137	
95	MLL	Kiniste	Kiniste	Thakurpada	1565	
96	MLL	Mokhada	Ghosali	Ghosali	760	
97	MLL	Mokhada	Mokhada	Bakulichapada	375	
98	MLL	Morhanda Gonde Bk	Morhanda	Morhanda	1315	Wagh river
99	MLL	Nashera	Nashera	Nashera	745	
100	MLL	Nilmati	Dandwal	Chinchutra	357	
101	MLL	Poshera	Poshera	Dabhanipada	296	
102	MLL	Poshera	Poshera	Phanaspada	265	Wagh river
103	MLL	Sakhari	Sakhari	Ghodichapada	448	River
104	MLL	Sakhari	Sakhari	Pasodipada	132	River
105	MLL	Saturli Palsunda	Saturli	Ghandipool	338	River
106	MLL	Saturli Palsunda	Saturli	Vadpada	237	River
107	MLL	Saturli Palsunda	Saturli	Jambhulwadi	107	River
108	MLL	Sayde Jogalwadi	Sayde	Hattipada	199	
109	MLL	Sayde Jogalwadi	Sayde	Vagyachiwadi	377	
110	MLL	Udhale Wakadpada	Udhale	Pimpalwadi	236	
111	MLL	Washala	Pimpalgaon	Madkyachi	380	
112	MLL	Washala	Pimpalgaon	Pimpalgaon chapallpaada	675	

Annexure 4 List of priority habitations base on availability

Priority	Category	Gram panchayat	Village	Habitation	Population
1	HHL	Aase	Aase	Bival pada	197
2	HHL	Saturli Palsunda	Saturli	Ambyachapada	78
3	MHL	Udhale Wakadpada	Udhale	Hattipada	785
4	MHL	Botoshi Pathardi	Botoshi	Bhojpada	375
5	MHL	Chas	Chas	Chas	306
6	MHL	Hirve	Ghanval	Ruichapada	122
7	MHL	Saturli Palsunda	Palsunde	Palsunda	55
8	LHL	Chas	Chas	Thakur pada	1079
9	LHL	Suryamal	Suryamal	Suryamal	860
10	LHL	Koshimshet	Dhamanshet	Bhehatwadi	473
11	LHL	Botoshi Pathardi	Pathardi	Pathardi- Patilpada	320
12	LHL	Koshimshet	Dhamanshet	Thakurwadi	197
13	LHL	Morhanda Gonde Bk	Gonde Bk	Jambhalichapad	111
14	LHL	Saturli Palsunda		Javaledev	56
15	HHM	Beriste	Osarvira	Mukundpada	73
16	HML	Dolara	Dolara	Dolara	1195
17	HML	Aase	Swami nagar	Swami nagar	737
18	HML	Aase	Bramhangaon	Bramhangaon	719
19	HML	Hirve	Ghanval	Ghanval	695
20	HML	Kashti Sawarde	Sawarde	Sawarde	632
21	HML	Saturli Palsunda	Palsunde	Vikaswadi	548
22	HML	Aase	Aase	Kudava	370
23	HML	Khoch	Khoch	Pimpalpada	362
24	HML	Koshimshet	Dhamanshet	Penkyachiwadi	287
25	HML	Aase	Aase	Dapati 2	275
26	HML	Kiniste	Kiniste	Gavalcharipada	271
27	HML	Beriste	Kalamgaon	Jamhlichapada	215
28	MMM	Hirve	Hirve	Kodesak	235
29	MML	Karegaon	Karegaon	Karegaon	1048
30	MML	Botoshi Pathardi	Botoshi	Botoshi	897
31	MML	Karegaon	Kaduchi wadi	Kaduchi	862
32	MML	Shivali	Shivali	Shivali	799
33	MML	Aadoshi	Shirsgaon	Shirsgaon	785
34	MML	Poshera	Poshera	Posera	749
35	MML	Aase	Aase	Aase	718
36	MML	Aase	Shastri nagar	Kundyacha pada	694
37	MML	Aase	Swami nagar	Bhowadi	687

38	MML	Saturli Palsunda	Palsunde	Shendyachi met	641
39	MML	Beriste	Beriste	Teliumberpada	559
40	MML	Mokhada	Mokhada	Ghatkarpada	466
41	MML	Nashera	Nashera	Dhavalpada	450
42	MML	Poshera	Poshera	thakurwadi	448
43	MML	Beriste	Osarvira	Ghodipada	394
44	MML	Morhanda Gonde Bk	Gonde Bk	Vakrichapada	369
45	MML	Mokhada	Mokhada	Gumbadpada	352
46	MML	Hirve	Hirve	Chothipada	344
47	MML	Morhanda Gonde Bk	Morhanda	Bhoyechapada	300
48	MML	Koshimshet	Koshimshet	Bedukpada	290
49	MML	Hirve	Hirve	Mokashipada	283
50	MML	Aase	Dhamani	Dhamani	262
51	MML	Khoch	Khoch	khadkachi met	252
52	MML	Beriste	Beriste	Ramdoh	239
53	MML	Beriste	Beriste	umbarpada	239
54	MML	Beriste	Beriste	Beriste	198
55	MML	Sayde Jogalwadi	Sayde	Hundachiwadi	190
56	MML	Karegaon	Karegaon	Bhasmewadi	152
57	MML	Udhale Wakadpada	Udhale	Poryachapada	148
58	MML	Hirve	Hirve	Shindepada	144
59	MML	Gomghar Wahind	Gomghar	Banachiwadi	119
60	MML	Koshimshet	Koshimshet	Patilpada	97
61	MML	Aase	Aase	Bhoirpda	95
62	MML	Beriste	Beriste	Wanganpada	85
63	MML	Koshimshet	Koshimshet	Phanaspada	82
64	MML	Sayde Jogalwadi	Sayde	Andheriwadi	75
65	MML	Beriste	Osarvira	Chikadipada	69
66	MML	Suryamal	Suryamal	wanganpada	25
67	MML	Khodala	Khodala	Bariba wadi	15
68	LMM	Mokhada	Mokhada	Morkhadak	200
69	LMM	Chas	Chas	Himbat pada	175
70	LML	Mokhada	Mokhada	Mokhada	10273
71	LML	Poshera	Poshera	Katkaripada	810
72	LML	Aadoshi	Aadoshi	Adoshi	676
73	LML	Washala	Pimpalgaon	Pimpalgaon	672
74	LML	Poshera	Poshera	Pardhyachimet	643
75	LML	Nilmati	Nilmati	Nilmati	636
76	LML	Sakhari	Sakhari	Sakhari	581

77	LML	Sayde Jogalwadi	Jogalwadi	Jogalwadi	547
78	LML	Morhanda Gonde Bk	Gonde Bk	Gonde Bk	543
79	LML	Mokhada	Mokhada	Ambyachapada	459
80	LML	Poshera	Poshera	Vakharichapada	452
81	LML	Sayde Jogalwadi	Jogalwadi	Rajewadi	415
82	LML	Aase	Aase	Kunbhipada	405
83	LML	Sakhari	Charngaon	Charanwadi	358
84	LML	Poshera	Poshera	Radyachapada	348
85	LML	Karol Pachghar	Karol	Vavlyachi wadi	347
86	LML	Koshimshet	Koshimshet	Koshimshet gavthon	341
87	LML	Suryamal	Kevnale	Bhvani wadi	324
88	LML	Botoshi Pathardi	Pathardi	Pathardi 1	320
89	LML	Sakhari	Gonde Kh	Toranshet	309
90	LML	Poshera	Poshera	Mordhyachapada	295
91	LML	Mokhada	Mokhada	Telipada	268
92	LML	Kashti Sawarde	Kashti	Kashti	257
93	LML	Suryamal	Suryamal	Katkaripada	240
94	LML	Botoshi Pathardi	Botoshi	Markat wadi	230
95	LML	Chas	Chas	Jambhacha pada	205
96	LML	Dolara	Dolara	borichi wadi	170
97	LML	Suryamal	Suryamal	Borichi wadi	170
98	LML	Koshimshet	Koshimshet	Payarwadi	160
99	LML	Beriste	Osarvira	Ambyachapada	159
100	LML	Morhanda Gonde Bk	Gonde Bk	Vaghyachiwadi	127
101	LML	Botoshi Pathardi	Botoshi	Dhindewadi	126
102	LML	Nashera	Nashera	Devbandh	126
103	LML	Mokhada	Mokhada	Jambhpada	56
104	LML	Washala	Washala	Washala	33

Annexure 5 List of priority habitations based on quality

Priority	Category	Gram panchayat	Village	Habitation	Population
1	HHM	Beriste	Osarvira	Mukundpada	73
2	MMM	Hirve	Hirve	Kodesak	235
3	MLM	Beriste	Kalamgaon	Barafpada	22
4	MLM	Udhale Wakadpada	Wakadpada	Kambatwadi	66
5	LMM	Mokhada	Mokhada	Morkhadak	200
6	LMM	Chas	Chas	Himbat pada	175

Annexure 6. Water test report for wells of Varchi Pathardi

Pathardi Devlachi Well

वरिष्ठ भूवैज्ञानिक

भुजल सर्वेक्षण आणि विकास यंत्रणा,पालघर.

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पाणी नमुन्याचा सुक्ष्मजीवीय अहवाल

राज्य/प्रादेशिक/जिल्हा/उपवीभागीय प्रयोगशाळा- जव्हार, जिल्हा- पालघर .

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पाठवणाऱ्याचे नाव – Shri-Deepak Bhise Sir पत्र क्र.व दिनांक - -/2018 प्रयोगशाळा संदर्भ क्र. 7/2018

नमुना घेतल्याचा दि.- 21/12/2018 , नमुना पाठवल्याचा दि.- 21/12/ 2018 , परीक्षण सुरूकेल्याचा दि.- 21/12/2018

अ.क्र.	नमून्याचे विवरण			परिक्षणाचे निष्कर्ष प्रति 100 मिली नमुन्यातील संभाव्य सुक्ष्मजंतुची संख्या.			अभिप्राय
	गावाचे नाव	सोताचे ठिकाण	सोत प्रकार	कॉलिफॉर्म	थर्मोटोलरंट	इ.कोलाय	
1)	PATHARDI	Pathardi,(Gavthan) Near Tempal.	Open Well	16	9	2	UNFIT

अभिप्राय -पिण्यास अयोग्य पाण्यावर योग्य प्रमाणात क्लोरीनची प्रक्रिया केल्यानंतर व सूक्ष्मजीवीय पूनर्तपासनीनंतर पिण्यास योग्य असल्याची खात्री झाल्यानंतरच ते पाणी पिण्यासाठी वापरता येईल.

अहवाल क्रमांक :- 7 दिनांक :-24/12/2018 , अभिप्रायकलविल्याचा दिनांक –24/12/2018

सही (Chemist/Bact)

पत सादर :

1)मा मुख्य कार्यकारी अधिकारी जि.प. पालघर

2)उप मुख्य कार्यकारी अधिकारी पाणी व स्व. पालघर

3)जि .आरोग्य अधिकारी जि.प. पालघर

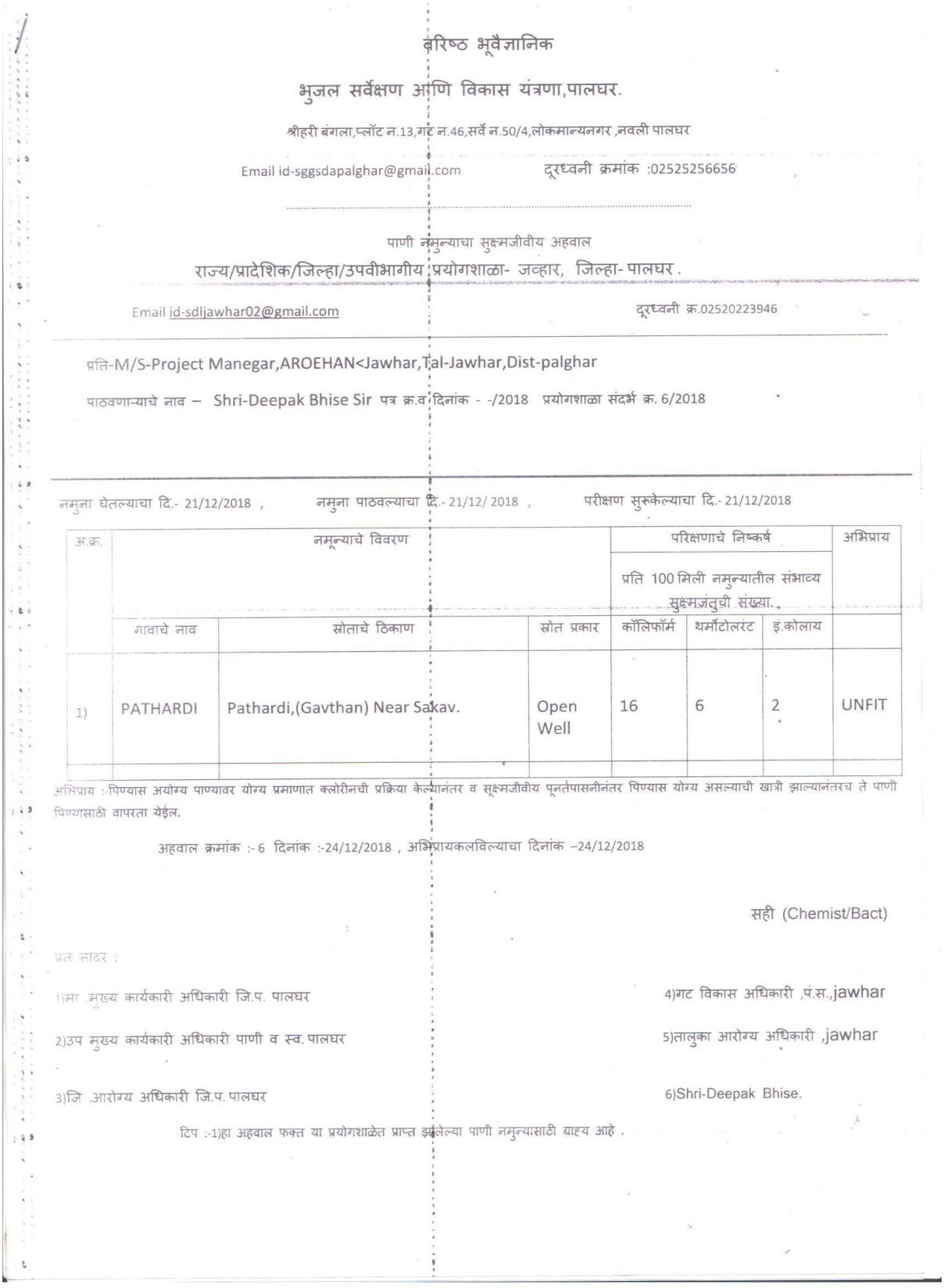
4)गट विकास अधिकारी ,पं.स.,jawhar

5)तालुका आरोग्य अधिकारी ,jawhar

6)Shri-Deepak Bhise.

टिप :-1)हा अहवाल फक्त या प्रयोगशाळेत प्राप्त झालेल्या पाणी नमुन्यासाठी ग्राह्य आहे .

Pathardi Sakvachi Well



वरिष्ठ भूवैज्ञानिक

भुजल सर्वेक्षण आणि विकास यंत्रणा,पालघर.

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पाणी नमुन्याचा सुक्ष्मजीवीय अहवाल

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Email id-sdljawhar02@gmail.com दूरध्वनी क्र.02520223946

प्रति-M/S-Project Manegar,AROEHAN<Jawhar,Tal-Jawhar,Dist-palghar

पाठवणाऱ्याचे नाव – Shri-Deepak Bhise Sir पत्र क्र.व दिनांक - -/2018 प्रयोगशाळा संदर्भ क्र. 6/2018

नमुना घेतल्याचा दि.- 21/12/2018 , नमुना पाठवल्याचा दि.- 21/12/ 2018 , परीक्षण सुरूकेल्याचा दि.- 21/12/2018

अ.क्र.	नमून्याचे विवरण			परिक्षणाचे निष्कर्ष			अभिप्राय
				प्रति 100 मिली नमुन्यातील संभाव्य सुक्ष्मजंतुची संख्या.			
	गावाचे नाव	स्रोताचे ठिकाण	स्रोत प्रकार	कॉलिफॉर्म	थर्मोटोलरंट	इ.कोलाय	
1)	PATHARDI	Pathardi,(Gavthan) Near Sakav.	Open Well	16	6	2	UNFIT

अभिप्राय :-पिण्यास अयोग्य पाण्यावर योग्य प्रमाणात क्लोरीनची प्रक्रिया केल्यानंतर व सूक्ष्मजीवीय पूनर्तपासनीनंतर पिण्यास योग्य असल्याची खात्री झाल्यानंतरच ते पाणी पिण्यासाठी वापरता येईल.

अहवाल क्रमांक :- 6 दिनांक :-24/12/2018 , अभिप्रायकलविल्याचा दिनांक –24/12/2018

सही (Chemist/Bact)

प्रत सादर :

1)मा. मुख्य कार्यकारी अधिकारी जि.प. पालघर

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Part-2

Report on Socio-economic status of Mokhada Block

Introduction

The purpose of the PRA exercise was to gather the responses of the villagers across the four critical areas vis-a-vis Education, Health, Livelihood and Governance in BLOCK Mokhada, DISTRICT Palghar. This was part of the study to understand issues related to drinking water leading to water stresses in Mokhada which is a joint initiative of Technology Development Solution Cell (TDSC) at IIT Bombay, Siemens and AROEHAN. The total population in the 27 Gram Panchayats spread over 56 Villages and 218 habitations in 76520.

1. Education

The information received regarding EDUCATION is as follows, under the sub headings:

i. Need for New Constructions
ii. Educational Institutions to be initiated in the areas
iii. Equipment for schools/Anganwadis
iv. Infrastructure
v. Water requirements
vi. Repairs to be Undertaken
vii. Basic requirements in schools

Number of interventions requested for Education sector during PRA

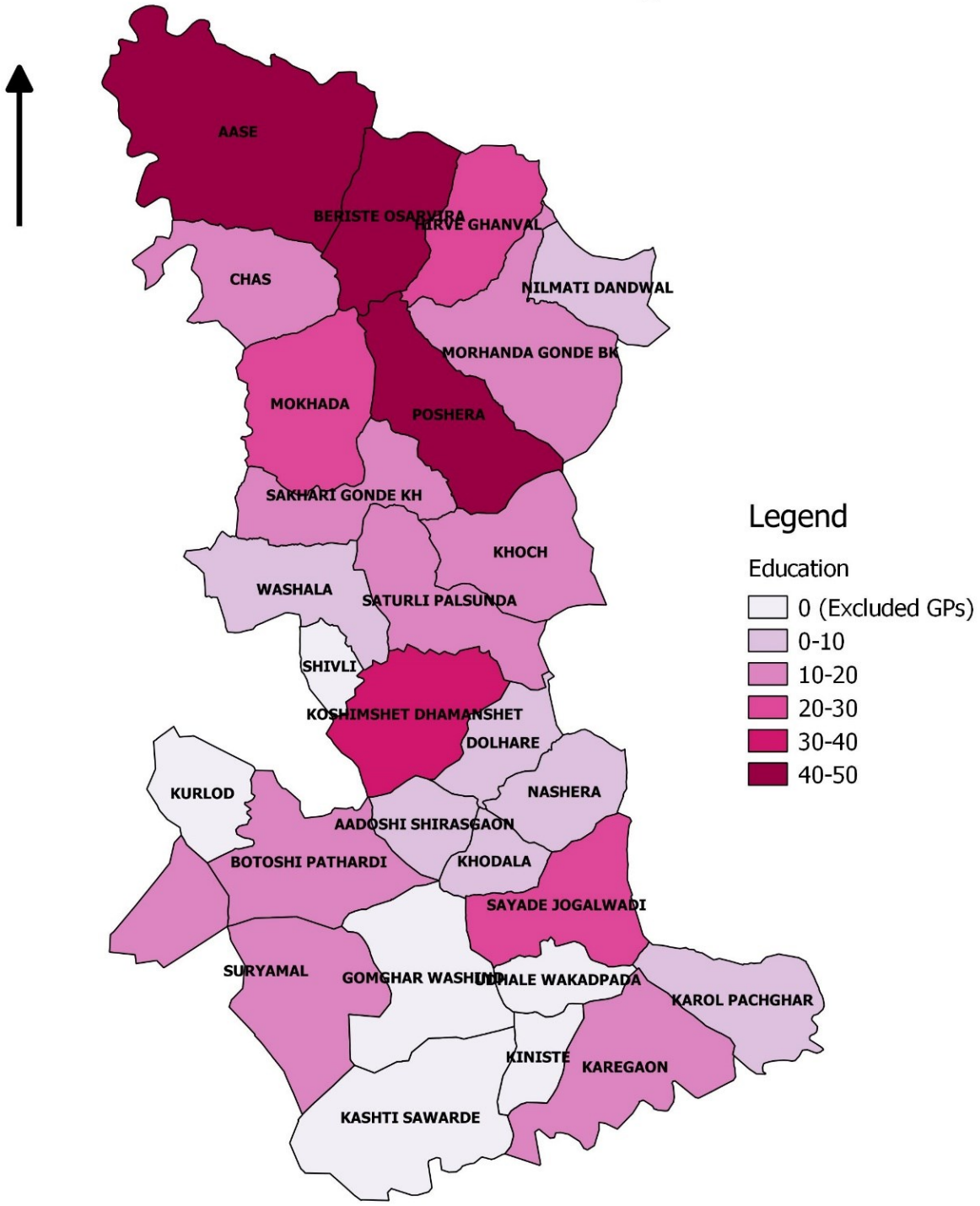

Table 1: Need for new constructions

	Need for New Constructions	Number	Gram Panchayat	Habitations	Total
A	New School Building	6	Koshimshet-Dhamanshet	Nandewadi	1
			Ase	Kumbhipada; Rautpada; Brahmangaon; Bhoirpada	4
			Beriste-Osarvira	Umbharpada	1
B	New Anganwadi Building	15	Sayde	Hundachiwada	1
			Sakhari Gonde Khurd	Borshetti	1
			Poshera-3	Nirgudwadi;Jambulwadi; Bijalpada	3
			Morhanda	Kakadpada	1
			Mokhada NP	Morkhadak	1
			Khoch	Shirsonpada	1
			Ghanval	Ruipada	1
			Dolhara	Borichiwadi	1
			Beriste	Jalichapada; Umbharpada; Pasodipada	3
			Ase	Rautpada	1
			Adoshi	Thalekarwadi	1
	Total	**21**			**21**

In all, 21 habitations out of 145 in 12 Gram panchayats expressed the need for construction of new school and anganwadi buildings, of which Ase and Beriste evinced the need for both. Three habitations in Poshera need new anganwadi buildings to be constructed.

Table 2: Educational Institutions to be established in the areas

	Type	Freq	GP	Habitations	Total
A	Anganwadi	18	Vashala	Vashala	1
			Sayde	Andheriwadi; Shelkewadi;	2
			Saturali	Bitkichapada;Chikadpada;Palsunda	3
			Sakhari	Pasodipada; Dhangadewadi	2
			Mokhada	Jambachapada;	1
			Beriste	Chikadipada; Naviwadi;Osarvira	3
			Ase	Warghadpada; Bhoirpada	2
			Ghanval	Kodesagwadi	1
			Khoch	Dhondmaryachimet	1
			Karol	Pachghar	1
			Karegaon	Bhasmewadi	1
			Pathrdi	Kirkirewadi	1
B	Primary School	1	Saturali	Gandhipool (Naviwadi)	1
C	School	23	Sayde	Andheriwadi; Shelkewadi;	2
			Saturali	Bitkichapada;Chikadpada;Palsunda Badyamohpada	4
			Sakkhari	Toranshet	1
			Poshera	Jambhulwadi	1
			Mokhada	Ghosali; Loharpada;Aasra Nagar	3
			Khodala	Bairobawadi	1
			Ghanval	Kodesagwadi	1
			Beriste	Naviwadi; Ramdoh; Jalichapada; Osarvira; Wanganpada; Jambhalicha pada	6
			Ase	Warghadpada; Kolhedev	2
			Adoshi	Thalekarwadi	1
			Pathrdi	Kirkirewadi	1
D	High School	3	Khodala	Bairobawadi	1
			Ase	Kundachipada; Bhowadi	2
E	College	2	Ase	Kundachipada; Bhowadi	2
	Total	**47**			**47**

It was seen that anganwadis and schools need to be initiated in 18 and 23 habitations respectively. In Ase, there is a need for anganwadis, schools, high schools and colleges to be started. As per the social analysis, Sayde does not have schools in three hamlets, due to lack of follow up by the zilla parishad office. Additionally, the existing schools lack several facilities. A primary school needs to be started in Saturali (Gandhipool Naviwadi)

Table 3: Equipment for schools/Anganwadis

	Equipment for schools/ Anganwadis	No.	GP	Habitations	Total
A	Educational materials	26	Sayde	Sawarpada; Marutichwadi;Badalpada	3
			Saturali	Bhendipada; Gandhipool (Naviwadi);Palsunda	3
			Dandaval	Nimati; Chinchutara	2
			Vashala	Pimpalgaon-Chappalpada	1
			Nashera	Nashera;Thavalpada	2
			Koshimshet	Fanaspada;Payarwadi;Dhamanshet	3
			Beriste	Ambyachapada	1
			Khoch	Pulachiwadi	1
			Kevnale	Suryamal, Bhavanipada; Wanganpada	3
			Ghanval	Mokashipada;HirvePatilpada;Chondipada ;Pimpalpada;Shindepada	5
			Dolhara	Borichiwadi	1
			Karol		1
			Adoshi	Adoshi	1
B	Sports Equipment	5	Saturali	Palsunda	1
			Sakhari	Charanwadi;Darechapada	2
			Ase	Dhamani; Dapati	2
C	Play Materials	7	Koshimshet	Bedukpada	1
			Adoshi	Shirasgaon	1
			Beriste	Mukundpada	1
			Vashala	Madkyachimet	1
			Sayde	Hundachiwadi;	1
			Kevnale	Kevnale; Amle	2
D	Toys in ZP Schools	8	Morhanda	Tulyachapada; Kelichapada;	2
			Mokhada	Kavalpada;Warghadpada	2
			Beriste	Jalichapada;Pasodipada	2
			Ase	Kumbhipada;Bhowadi	2
E	Toys in Anganwadi	5	Vashala	Vashala	1
			Sakhari	Toranshet	1
			Poshera	Vakharichapada	1
			Mokhada	Telipada	1
			Beriste	Mukundpada	1
F	Laptop	10	Saturali	Shendyachimet	1
			Poshera	Poshera	1
			Koshimshet	Patilpada	11
			Karegaon	Kaduchiwadi	1
			Ghanval	Mokashipada; Hirave-Patilpada; Chondipada; Pimplepada; Shindepada	5
G	Printer	1	Karegaon	Kaduchiwadi	1
H	Projector	2	Vashala	Pimpalgaon-Chappalpada;Madkyachimet	2

I	Benches	2	Adoshi	Adoshi	1
			Ase	Brahmangaon	1
J	First Aid Box	9	Poshera	Nirgudwadi;Fanaspada;Thakurwadi; Bijalpada	4
			Morhanda	Kakadpada	1
			Saturali	Palsunda;Shendyachimet	2
			Dandeval	Nilmati;Chinchutara	2
	Total	75			

Schools and anganwadis in nearly 75 habitations require educational aids, play, sports and other equipment as well as toys. Educational materials and aids can support student learning as well as help teachers in their instruction. Availability of toys in anganwadis is imperative given that non-formal preschool education is a one of the crucial components of ICDS and seeks to lay the foundation for a proper physical, psychological, cognitive and social development of the children between 3-6 years of age. Schools also require laptops, printers, projectors, benches and first- aid boxes.

Table 4: Infrastructure needs

	Infrastructure	**No.**	**GP**	**Habitation**	**Total**
A	Playground /Compound	16	Sayde	Hattipada	1
			Saturali	Bhendipada; Gandipool;	2
			Sakhari	Ghodichapada;GondeKhurd	2
			Poshera	Dhabanipada;Pardyachimet;Mordhyachpada; Katkaripada;Thakurwadi;Vakharichapada	6
			Ghanval	Jambulmatha;Pimpalpada	2
			Chas	Thakurpada	1
			Khoch	Khoch;Pimpalpada	2
B	Compound wall	**20**	Sayde	Jogalwadi	1
			Saturali	Vikaswadi, Nikamwadi; Shendyachimet	3
			Poshera	Pawarpada;	1
			Mokhada	Ambyachapada;Gabhalpada	2
			Morhanda	Morhanda;Bhoyechepada	2
			Dolhara	Borichiwadi	1
			Koshimbet	Sonarwadi;Sadakwadi;Fanaspada;Behekwadi; Pendekichiwadi	5
			Beriste	Barafpada;Kalamgaon;Patilpada;Jalichapada;	4
			Ase	Navlyachapada	1
C	Classrooms	3	Poshera	Dhabanipada;Pardyachimet	
			Beriste		1
D	Washrooms in Schools	**22**	Sayde	Wagyachiwadi;Borshetti	2
			Poshera	Poshera;Pawarpada; Bijalpada;Dhabanipada;Pardyachimet	6

			Mokhada	Morhadak;Gabhalpada	2
			Koshimshet	Koshimshet;	4
			Beriste	Barafpada;Kalamgaon;Patilpada;Umbarpada	4
			Ase	Ichcharipada;Dhamodi	2
			Khoch	Khoch	1
			Ghanval	Shindepada	1
E	Washrooms in Anganwadis	3	Morhanda	TulyachapadaKelichapada;	2
F	Toilets for Girls	2	Bersite	Kalamgaon; Patilpada	2
G	Computer Lab	**18**	Sayde	Marutichiwadi	1
			Saturali	Bhendipada; Gandipool;	2
			Sakhari	Ghodichapada;GondeKhurd	2
			Poshera	Pawarpada	1
			Beriste	Barafpada;Kalamgaon;Patilpada;Teliumbarpada; Pasodipada;Dhodipada	6
			Khoch	Khoch;Pimpalwada	2
			Mokhada	Morhadak	1
			Koshimshet	Koshimshet;Sonarwadi;Sadakwadi;	3
H	Hostel	2	Sayde	Borichiwadi	1
			Beriste	Beriste	1
I	Kitchen Shed	1	Sakhari	Toranshet	1
J	Solar Kits	11	Sayde	Borichiwadi; Marutichiwadi; Badalpada	3
			Nashera	Thavalpada	1
			Karegaon	Karegaon;Kaduchiwadi;Kochale	3
			Kevnale	Kevnale;Bhavanipada	2
			Dolhara	Borichiwadi	1
			Adoshi	Shirasgaon;	1
K	Solar Panels	4	Sakhari	Sakhari	1
			Pathrdi	Pathrdi	1
			Kevnale	Suryamal	1
			Karol	Wyalyachiwadi	1
	Total	**102**			**102**

The successful conduct of programmes and activities in schools depends on the availability of infrastructure. Schools as per the social analysis required playgrounds, compound walls, washrooms and computer laboratories. Additionally, three schools were in need of classrooms, and others required washrooms in anganwadis, toilets of girl students, hostels and a kitchen shed. It was seen that 102 habitations require infrastructural support in schools and anganwadis.

Table 5: Water related requirements:

	Water Requirements	**No.**	**GP**	**Habitation**	**Total**
A	Water tank	11	Khoch	Shirsonpada	1
			Dolhara	Dolhara	1
			Chas	Chas;Thakurpada;Himbatpada;Hattipada; Panjari;Jambyachapada	6
			Beriste	Barafpada;Kalamgaon;Patilpada	3
B	Water Filter	4	Karol	Pachghar; Wyalyachiwadi	2
			Khodala	Talyachiwadi	1
			Khoch	Khoch	1
C	Water Purifier	7	Koshimshet	Koshimshet;KoshimshetGavthan;Sonarwadi; Sadakwadi;Fanaswadi;Payarwadi; Dhamanshet;	7
D	Wash Basin	1	Kevnale	Amle	1
E	Tap Scheme	6	Kevnale	Suryamal;Katkaripada;Kevnale	
			Karegaon	Karegaon	
			Morhanda	Kakadpada	
			Sayde	Rajewadi	
F	Drinking water	32	Ase	Dhapati;Dhamodi	2
			Mokhada,	Gumbadpada;telipada;Kavalpada; Warghadpada;Gabhalpada	5
			Koshimshet	Koshimshet;Patilpada;Pendekechiwad	3
			Khoch	Pimpalwada	1
			Poshera	Poshera;Radyachapada;Palsapada; Pawarpada;Thakurwadi; Dhabanipada; Pardyachimet;Mordhyachapada; Vakharichapada	9

			Ghanval	Badlyachapada;Ghanval	2
			Sayde	Hattipada	1
			Adoshi	Mohpada	1
			Pathrdi	Dongarwadi; Botoshi	2
			Morhanda	Morhanda;kelichapada;Bhoyechapada;Kakadpada	4
			Vashala	Pimpalgaon; Madkyachimet	2
G	Pipeline in School	1	Koshimshet	Nandewadi	1
	Total	62			

Schools in 32 habitations in 11 gram panchayats cited the need for drinking water in the schools and those in six requested for the tap scheme to be introduced. It was also seen from the social analysis that the schools and anganwadis in several habitations needed essentials such as water tanks, water purifiers, and water filters.

Table 6: Repairs to be undertaken in Schools/Anganwadis

	Repairs to be Undertaken	**Number**	**GP**	**Habitation**	**Total**
A	Repair of School	16	Saturali	Vikaswadi; Nikamwadi	2
			Poshera	Nirgudwadi;Fanaspada;Thakurwadi	3
			Pathrdi	Dongarwadi	1
			Karol	Karol	1
			Dolhara	Borichiwadi	1
			Ase	Karoli	1
			Beriste	Dhodipada	1
			Dandeval	Dandeval	1
			Khoch	Khoch	1
			Ghanval	Badlyachapada;Jambulmatha; Ghanval;Pimpalpada	4
B	Repair of Anganwadi	11	Poshera	Palsapada	1
			Mokhada	Kavalpada;Warghadpada	2
			Beriste	Dhodipada	1
			Ase	Kumbhipada;Brahmangaon	2
			Dandeval	Chinchutara	1
			Morhanda	Kelichapada	1
			Ghanval	Badlyachapada;Jambulmatha; Ghanval	3
C	Repair of School Kitchen shed	1	Morhanda	Kelichapada	1
D	Repair of washrooms	18	Sayde	Badalpada	1
			Saturali	Palsunda; Vikaswadi; Nikamwadi	3

			Pathrdi	Dongarwadi;Botoshi	2
			Kevnale	Kevnale;Bhavanipada	2
			Chas	Chas;Hattipada;Panjari	3
			Dandeval	Dandeval	1
			Mokhada	Morhadak;Telipada	2
			Ghanval	Badlyachapada;Jambulmatha; Ghanval;Pimpalpada	4
E	Repair of Anganwadi Washroom	1	Mokhada	Aasranagar	1
	Total	**47**			**47**

School and anganwadi buildings as well as wash rooms and kitchens need repair in order to ensure safety for the children. It was seen that schools in 47 habitations required several repairs to be carried out.

Table 7: Basic requirements in Schools/Anganwadis

	Basic requirements in Schools/ Anganwadis	**No.**	**GP**	**Habitation**	**Total**
A	Electricity	8	Sakhari	Ghodichapada;GondeKhurd	2
			Ase	Dhapati;Dhamodi;Dapati 2	3
			Poshera	Palsapada; Mordyachapada;Vakharichipada	3
B	Teacher in School	9	Poshera	Pawarpada;Katkaripada;Bijalpada;Pardhyachimet	4
			Morhanda	Tulyachapada	1
			Pathrdi	Markatwadi	1
			Khoch	Dhondmaryachimet	1
			Beriste	Dhodipada;Umbarpada	2
C	Approach Road to school	6	Poshera	Nirgudwadi;Fanaspada; Palsapada	3
			Pathrdi	Bhospoda	1
			Dandeval	Chinchutara	1
			Ase	Kolhadev	1
D	Library	8	Ase	Kumbhipada;Rautpada;Brahmangaon; Kundachipada;Bhowadi;	5
			Beriste	Naviwadi;Pasodipada	2
			Khodala	Talyachiwadi	1
E	Gym	7	Sayde	Hattipada	1
			Beriste	Dhodipada	1
			Ghanval	Pimplepada	1
			Ase	Kumbhipada;Rautpada;Brahmangaon; Kundachipada;Bhowadi;	4
F	Computers	2	Kevnale	Katkaripada;Bhavanipada	2

G	Nutrition for Children	1	Kevnale	Amle	1
H	Digitalisation	22	Kevnale	Bhavanipada	1
			Pathrdi	Botoshi	1
			Sayde	Jogalwadi;Borichiwadi;Badalpada	3
			Sakhari	Darechapada	1
			Karegaon	Kochale	1
			Ase	Dhamani;Dhapati;Ichcharipada;Navlyachapada;Dhapati 2; Biwalpada	6
			Khoch	Dhondmaryachimet	1
			Adoshi	Shirasgaon	1
			Dolhara	Dolhara;Borichiwadi	2
			Chas	Himbatpada;Chikanpada;Hattipada;Jamdyachapada	4
			Mokhada	Mokhada	1
	Total	63			

Some of the basic requirements which should be provided by schools and anganwadis refer to clean drinking water, electricity, approach roads to reach the schools and of course availability of teachers to impart education. Schools in 63 habitations require these basic amenities. Quality of education provided in public schools in tribal areas of rural India is always under question due to understaffed schools in the area. Schools in nine habitations did not have teachers. Eight habitations required libraries for their schools, and these included Khodala, Ase and Beriste.

2. HEALTH

Access to comprehensive, quality health services is important for promoting and maintaining health, preventing and managing disease, as well as achieving health equity. Good health increases the productivity of human beings. Affordability of private hospitals is a concern in rural India, particularly tribal areas. Availability of public health care facilities improves the accessibility of healthcare facilities. Affordability and availability of medicines and diagnostic services can save many lives in rural areas where both availability and affordability are problems. The following section presents the information concerning issues related to health in the Mokhada Block, as shared by the research participants. The information is presented under the following sub headings:

i. Drinking Water
ii. Infrastructure
iii. Health related support and Equipment
iv. Governance

Table 8: Need of access to Drinking water

GP	Habitation	No. of habitations
Mokhada(LS)	Morhadak;Kavalwada;Warghadwad	3
Dolhara(HS)	Sakharwadi; Dolhara	2
Ghanval(HS)	Badlyachapada Ruipada;Jabhulmat Ghanval;Mokashipada;Hirave-Patilpada;Chondipada;Pimpalpada;Shindepada	9
Poshera (MS)	Mordhyachapada;Katkaripada;Thakurwadi; Jambhalwadi;Bijalpada	5
Beriste(HS)	Barafpada; Pasodipada	2
Sakhari(MS)	Charanwadi	1
Vashala(LS)	Madkyachimet	1
Chas (HS)	Himbatpada;Chikanpada;Hattipada;Pangari; Jamlyachapada	5
Ase (HS)	Bhoirpada;Kundachipada;Dhamodi;Bhowadi;	4
Pathrdi(HS)	Pathrdi 1	1
Morhanda (MS)	Morhanda	1
Koshimshet(LS)	Koshimshet;fanaspada;Payarwadi;Behetwadi; Pendekechiwadi	5
Khoch(HS)	Dhondmaryachimet	1
Nashera(LS)	Thavalpada	1
Saturali(MS)	Gandipool(Naviwadi);Badyamohpada; Palsunda;Shendyachimet	4
15		45

Water Stress at village level with respect to water availability, accessibility and quality is calculated as part of this study from habitation level stress categories and population. The stress

categories are broadly divided into four categories, high stress, moderate stress, low stress and no stress. Access to safe drinking water is a basic human right and is something people cannot live without. Feedback from villagers belonging to the 57-gram panchayats in Mokhada Block revealed that nearly 45 habitations in 15 gram panchayats lacked access to safe drinking water. Of these 15 gram panchayats, seven (Dolhare, Ghanval, Beriste, Chas, Ase, Pathrdi and Khoch) are in the High Stress category; Poshera, Morhanda, Sakhari and Saturali belong to the moderate stress category; and Mokhada, Vashala, Koshimshet and Nashera belong to the Low stress category.

Table 9: Health Related Infrastructure

	Access to health related Infrastructure	**No.**	**GP**	**Habitation**	**Total**
A	Toilets	53	Karegaon	Kaduchiwadi;Kochale	2
			Kevnale	Suryamal; Katkaripada;Kevnale;Bhavanipada; Amle	5
			Khoch	Shirsonpada	1
			Chas	Chikanpada;Jamdyachapada	2
			Beriste	Ambyachapada; Barafpada;Kalamgaon;Ramdoh; Jalichapada;Teliumbarpada;Beriste;Jambalichapada	8
			Ghanval	Jambulmatha;Mokashipada;Hirave-patilpada;	3
			Karol	Karol	1
			Adoshi	Adoshi; Shirasgoaon; Devbandh; Mohpada; Pasodipada; Thalekarwadi	6
			Khodala	Talyachiwadi	1
			Sayde	Wagyachiwadi;Hattipada;Borichiwadi; Andheriwadi;	6

				Badalpada;Shelkewadi	
			Saturali	Bitkichapada;Chikadipada;Javalhed;Palsunda Vikaswadi;Nikamwadi; Shendyachimet;	7
			Sakhari	Toranshet	1
			Poshera	Fanaspada;Thakurwadi;Jambulwadi;Bijalpada	4
			Nashera	Nashera	1
			Morhanda	Tulyachapada;Kelichapada	2
			Mokhada	Aasranagar	1
			Koshimshet	Koshimshet; Bedukpada	2
B	Hospital in village	23	Ase	Warghadpada;Kundachipada	2
			Vashala	Madkyachimet	1
			Saturali	Bitkichapada; Badyamohpada; Vikaswadi; Nikamwadi	4
			Poshera	Nirgudwadi;Palsapada;Fanaspada;Katkaripada; Thakurwadi;Dhabhanipada;Pardyachimet	7
			Dandeval	Nilmati	1
			Mokhada	Ghatkarpada;Jhambachapada;	2
			Sakhari	Pasodipada;Borshetti;Charanwadi;Ghodichapada; Toranshet	5
			Khoch	Dhondmaryachimet	1
C	Primary Health Centre	25	Vashala	Pimpalgaon-Chappalpada	1
			Sayde	Rajewadi	1
			Sakhari	Dangadwadi	1
			Dandeval	Nilmati	1
			Poshera	Bijalpada	1
			Morhanda	Bhoyechapada	1
			Kevnale	Kevnale	1
			Koshimshet	Koshimshet;Koshimshet gavthan; Sonarwadi; Sadakwadi; Fanaspada;payarwadi;Phanaspad-thakurwadi;Patilpada;Behetwadi; Pendekechiwadi	10
			Ghanval	Baldyachapada;Ruipada;Jambulmatha	3
			Karol	Karol	1
			Khoch	Khoch;Pimpalwad;Shirsonpada;Pulachiwadi	4
D	Village Clinics	10	Saturali	Bhendipada;Gandhipool;Wadpada;	3
			Sakhari	GondeKhurd	1

			Mokhada	Kavalpada; Warghadpada;Gabhalpada	3
			Khoch	Khoch	1
			Ase	Ichharipada	1
			Dolhara	Sakharwadi	1
E	Soak Pits	4	Saturali	Shendyachimet	1
			Ghanval	Baldyachapada;Jambulmatha	2
			Beriste	Umbarpada	1
F	Gym in village	2	Nashera	Nashera	1
			Karegaon	Kaduchipada	1
G	Sewage system	2	Khodala	Talyachiwadi	1
			Adoshi	Mohpada	1
H	Drainage system	1	Beriste		
I	Effluent treatment facility	1	Adoshi	Devbandh	1

A large part of the population of India lacks access to toilet and sanitation facilities. According to the 2011 census report, more than 69.3 of the rural households in India do not have access to toilets (http://www.indiawaterportal.org). In rural Maharashtra, 62% of the population does not have access to latrines.

Nearly one fourth of the habitations in the entire Mokhada Block (53 out of 218) in this study reported the need for toilets. Eight grampanchayats (23 habitations) evinced the need for hospitals in the villages and four GPs (according to Table 4) ie. Poshera, Pathrdi, Dandeval and Ase required hospitals which were closer to the place of their dwelling.

Number of interventions requested for Health sector during PRA

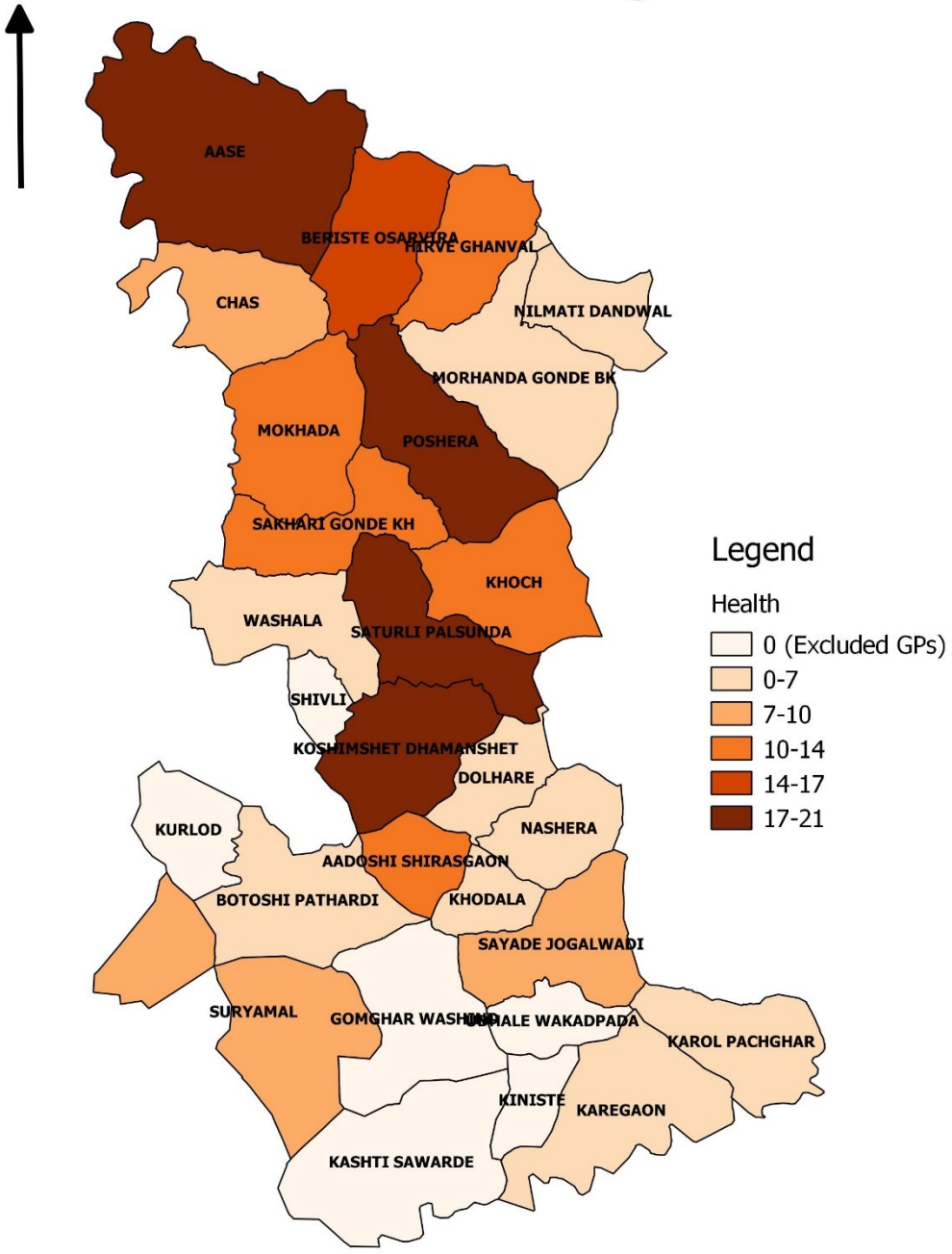

Table 10: Need for Health Related Support and equipment

	Equipments	Number	GP	Habitation	Total
A	Water filtering equipment	1	Sayde	Rajewadi	1
B	Ambulance	4	Sakhari	Ghodichapada	1
			Mokhada	Gabhalpada	1
			Koshimshet	Phanaspad- thakurwadi	1
			Khoch	Khoch	1
C	Sonography Equipment	7	Poshera	Nirgudwadi;Palsapada	**2**
			Dandeval	**Nilmati**	**1**
			Khodala	Talyachiwadi	**1**
			Kevnale	Bhavanipada	**1**
			Dolhara	Borichiwadi	**1**
			Karegaon	Bhasmewadi	**1**
D	X Ray Machine	4	Khodala	Talyachiwadi	1
			Kevnale	Bhavanipada	1
			Karegaon	Bhasmewadi	1
			Dolhara	Borichiwadi	1
E	Drug Storage facility	2	Vashala	Madkyachimet	1
			Beriste	Teliumbarpada	1
F	First Aid Boxes		Dandeval	Nilmati	1
G	Medicine Kits	2	Adoshi Beriste	Shirasgaon Mukundpada	1 1
H	Dustbins	21	Adoshi	Thalekarwadi	1
			Karol	Karol;Pachghar	1
			Ghanval	Ruipada	1
			Sayde	Jogalwadi;Shelkewadi	2
			Sakhari	GondeKhurd;Toranshet	2
			Morhanda	Tulyachapada;Kelichapada	2
			Mokhada	Mokhada;Aasranagar	2
			Koshimbet	Koshimshet;Sonarwadi	2
			Khoch	Dhondmaryachimet;Pulachiwadi	2
			Kevnale	Suryamal	1
			Ase	Brahmangaon, Bhoirpada;Kundachipada;Bhowadi;	4
	Total	**41**			**41**

The PRA exercise revealed that 41 habitations required health related support and equipment such as Ambulances, sonography and X-ray equipment, and a large number (21 habitations) were in need of dustbins.

Table 11: Governance

	Areas	Number	GP	Habitation	Total
A	Need for Regular visits by doctors		All		
B	Need for Regular ANM visits		All		
C	Need for hospital closer to village	8	Poshera	Palsapada	1
			Pathrdi	Botoshi	1
			Dandeval	dandeval	1
			Ase	Dhapati;Ichcharipada; Navlyachipada;Dhamodi; Dhapati 2	5
D	Concrete road to hospital	5	Sakhari	Toranshet;Darechapada	2
			Poshera	Katkaripada	1
			Pathrdi	Kirkirewadi	1
			Ase	Dhamani;Bivalpada	2
E	Govt schemes for expectant women	**2**	Vashala	Vashala	1
			Ase	Warghadpada	1
F	Resident doctor in PHC	1	Sayde	Badalpada	1
G	Govt health schemes	1	Khodala	Talyachiwadi	1

One of the responses from nearly all habitations participating in the PRA exercise is that Doctors and ANM workers do not visit the health centres regularly. This is an area for intervention by officials working on health in the block so as to ensure regular visits by medical personnel.

3. LIVELIHOOD AND GOVERNANCE

Sustainable livelihood depends on capabilities of the household to access assets and resources that include access to land, forest resources and water, along with access to healthcare facilities, means of transport, education, etc. Livelihood activities are required by households to access the above-mentioned resources or services along with food for survival. Effectiveness of the local government determines the ease of access to the public services/assets required for overall wellbeing of people. This includes addressing some of the priority needs like education, healthcare, drinking water, transport, etc. Such needs, if not addressed by the governing authority have negative effect on the livelihood activities.

The information gleaned with respect to livelihood and governance from the villagers in 57 Grampanchayats is presented under the following sub headings:

i. Livelihood related requirements
ii. Livelihood and Governance related Infrastructure and equipment
iii. Repairs to be undertaken
iv. Other facilities

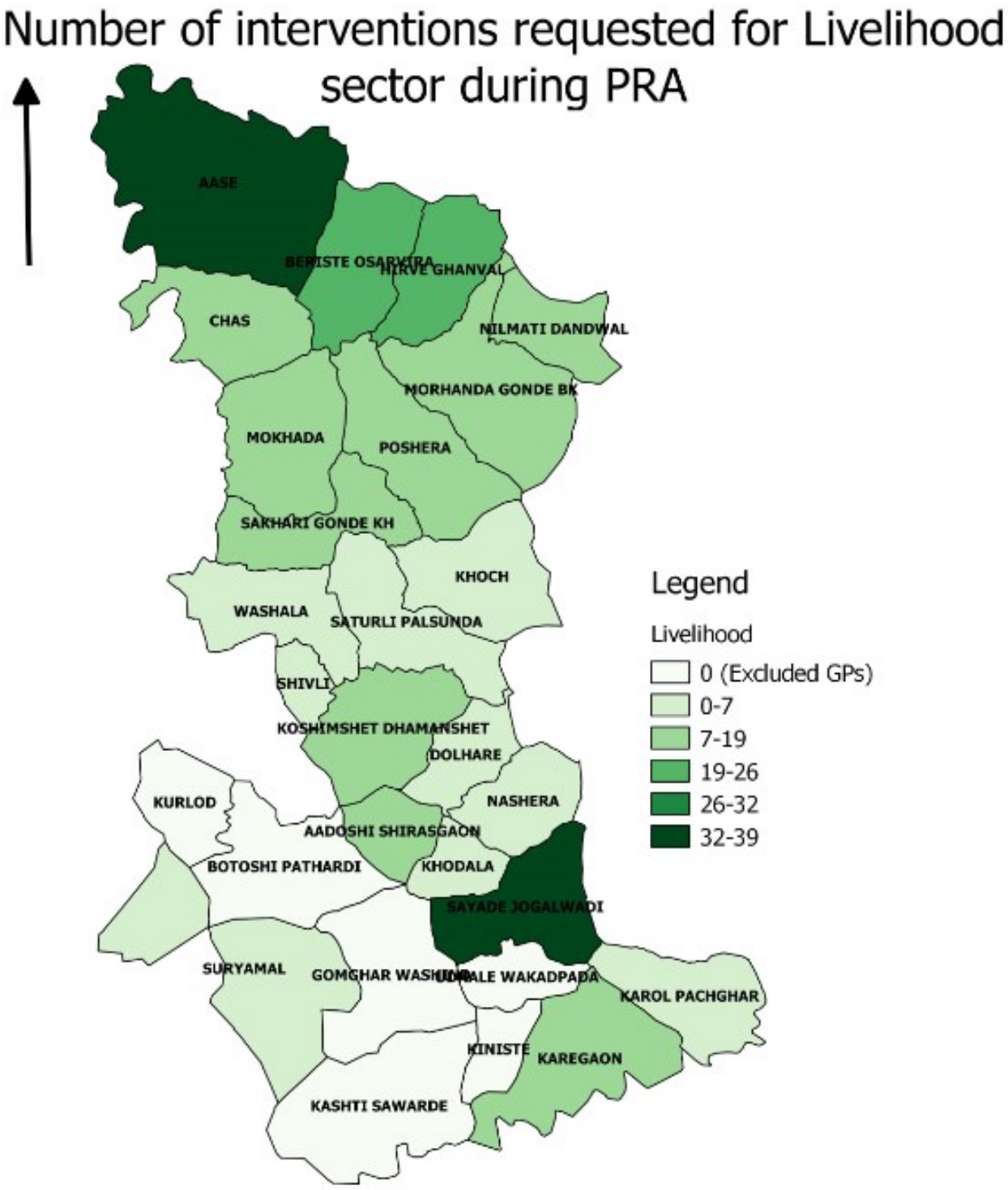
Number of interventions requested for Livelihood sector during PRA
AASE
BERISTE OSARVIRA
HIRVE GHANVAL
CHAS
NILMATI DANDWAL
MORHANDA GONDE BK
MOKHADA
POSHERA
SAKHARI GONDE KH
KHOCH
WASHALA
SATURLI PALSUNDA
SHIVLI
KOSHIMSHET DHAMANSHET
DOLHARE
KURLOD
NASHERA
AADOSHI SHIRASGAON
BOTOSHI PATHARDI
KHODALA
SAYADE JOGALWADI
SURYAMAL
GOMGHAR WASHIND
KAROL PACHGHAR
KINISTE
KAREGAON
KASHTI SAWARDE
Legend
Livelihood
0 (Excluded GPs)
0-7
7-19
19-26
26-32
32-39

Table 12: Livelihood related requirenments

	Livelihood Related Requirements	No.	GP	Habitations	Total
A	Work under EGS	153	Pathrdi	Pathrdi1; Pathrdi2; Dongarwadi;Botoshi;Markatwadi; Bhospoda	6
			Koshimshet	Koshimshet; Koshimshet gavthan;Sonarwadi;sadakwadi;Fanaspada;Payarwadi; Dhamanshet;Nandewadi;Patilpada; Behetwadi;Bedukpada; Phanaspada-thakurwadi;Pendekichiwadi	13
			Nashera	Nashera;Thavalpada	2
			Saturali	Bitkichapada;Chikadpada;Jawalhed;Bhendipada;GandipoolNaviwadi;Wadpada;Badyamohpada;Palsunda;Vikaswadi; Nikamwadi;Shendyachimet	11
			Khoch	Dhondmaryachimet;Khoch;Pimpalwada;Shirsonpada; Pulachiwadi;Khadkachimet;Kalamwadi	7
			Morhanda	Morhanda;Bhoyechapada;Koldyachapada;Kakadpada	4
			Chas	Chas;Thakurpada;Himbatpada;Chikanpada;Panjari;Jamdyachapada	6
			Vashala	Vashala;Pimpalgaon-chappalpada;Madkyachimet;Pimpalgaon	4
			Beriste	Ambyachapada;Chikadipada;Barafpada;Kalamgaon;jalichapada;Teliumbarpada;Umbarpada;Dhodipada;Osarvira;Wangadpada;Patilpada	11
			Sakhari	Sakhari;Pasodipada;Borshetti;Ghodichapada;Dhangadewadi;GondeKhurd;Toranshet;Darechapada	8
			Poshera	Radyachapada;Pawarpada;Jambulwadi;Dhabanipada; Pardhyachamet;Mordyachapada	6
			Ghanval	Ruipada;Jambhulmat;Ghanval;Mokashipada;Hireva-patilpada;Chondipada;Pimpalpada;Shindepada;Kodesagwadi	9

			Mokhada	Ambyachapada;Ghatkarpada;Jambyachpada;Ghosali Loharpada;Gumbadpada;Bakulichapada;Mokhada;Morhadak;Aasranagar;Kavalpada;Warghadpada	12
			Dolhara	Sakharwadi;Dolhara;Borichiwadi	3
			Nimati-Dandeval	Dandeval	1
			Shivali	Shivali	1
			Karol	Karol;Pachghar;Wyalyachiwadi	3
			Sayde	Hattipada;Jogalwadi;Borichiwadi;Hundachiwadi;Rajewadi;Sawarpada;Marutichiwadi;Borsheti;Andheriwadi Badalpada;Shelkewadi;Wagyachiwadi	12
			Khodala	Talyachiwadi	1
			Karegaon	Karegaon, Bhasmewadi;KaduchiwadiKochale	4
			Adoshi	Adoshi;Shirasgaon;Devbandh;Mohpada;Pasodipada Thalekarwadi	6
			Kevnale	Waganpada; Suryamal;Amle;Kevnale;Bhawanipada	4
			Ase	Ase;Warghadpada;Kundachapada;Bhowadi;Kumbhipada;Rautpada;Karoli;Bramhangaon;Bhoirpada;Dhamani Bival Pada;Ikharicha Pada;Dhamodi;Swami Nagar;Navlyacha Pada;Dhapati;Dapati-2;Kudwa	18
B	Increased orchard/vegetable planting	33	Dolhara	Sakharwadi	1
			Karegaon	Karegaon, Bhasmewadi;Kochale, Kaduchiwadi	4
			Vashala	Madkyachimet;	1
			Poshera	Fanaspada	1
			Nashera	Nashera;Thavalpada	2
			Sayde	Wagyachiwadi;Hattipada;Jogalwadi;Borichiwadi;Hundachiwadi;Rajewadi;Sawarpada;Marutichiwadi;Andheriwadi	9
			Adoshi	Adoshi;Shirasgaon;Devbandh;Mohpada;	4
			Khoch	Khadkachimet	1
			Khodala	Talyachiwadi;Bairobawadi	2
			Kevnale	Waganpada; Suryamal;Amle;Kevnale;Bhawanipada	5
			Ase	Brahmangaon; Bhoirpada; Karoli	3

C	Technology/ guidance to improve agricultural practices	25	Dolhara	Sakharwad	1
			Karegaon	Karegaon, Bhasmewadi;Kochale	3
			Poshera	Fanaspada;Katkaripada;Thakurwadi	3
			Nashera	Nashera;Thavalpada	2
			Sayde	Wagyachiwadi;Jogalwadi;Borichiwadi; Hundachiwadi; Rajewadi;	5
			Adoshi	Adoshi;Shirasgaon;Devbandh;Mohpada;Pasodipada	5
			Khodala	Talyachiwadi;Bairobawadi	2
			Pathrdi	Belpada	1
			Kevnale	Kevnale;Bhawanipada;Katkaripada	3
D	Good quality seeds	12	Sayde	Wagyachiwadi; Jogalwadi;Borichiwadi;Rajewadi;	4
			Khodala	Talyachiwadi;Bairobawadi	2
			Ghanval	Mokashipada;Hireva-patilpada;Chondipada; Shindepada;	4
			Ase	Kumbhipada;Bhoirpada	2
E	Implements for agriculture	2	Morhanda	Morhanda;Tulyachapada	2
F	Oil pumps	1	Ghanval	Baldyachapada	1
G	Pipeline	2	Chas	Panjari;Jamdyachapada	2

Villagers in most rural areas face the dearth of livelihood opportunities and lack technical know-how. It is pertinent to note that respondents from nearly all the villages in this study expressed the need for employment opportunities. Given the availability of agricultural land, villagers also need information and guidance to improve their agricultural practices and increase their orchard and vegetable planting. With the use of modern technology, they could try out new cropping patterns. They need to be helped in the development of waste land and with regard to the agriculture and livestock sector. Also, conservation and utilization of natural resources, with particular preference to water and forests is their priority.

Table 13: Livelihood related Infrastructure

	Infrastructure	**No.**	**GPs**	**Habitations**	**Total**
A	Tap Scheme	44	Nashera	Thavalpada	1
			Koshimshet	Koshimshet; Koshimshet gavthan;Sonarwadi;sadakwadi;Fanaspada; Payarwadi; Dhamanshet;Nandewadi;Patilpada; Behetwadi	10
			Chas	Himbatpada	1

			Ase	Warghadpada;Kundachapada;Kumbhipada;Bhoirpada;Dhamani; Ikharicha Pada; Navlyacha Pada;;Dapati-2;	8
			Mokhada	Morhadak;Telipada;Kavalpada;Warghadpada;Gabhalpada	5
			Dandeval	Nilmati;Dandeval;Chinchutara	3
			Sayde	Hattipada;Jogalwadi; Hundachiwadi;Rajewadi; Borsheti;Andheriwadi;Wagyachiwadi	6
			Khodala	Talyachiwadi	1
			Karegaon	Karegaon;Bhasmewadi	2
			Adoshi	Adoshi;Devbandh;Mohpada;	3
			Kevnale	Waganpada; Suryamal;Amle;Katkaripada	4
B	Irrigation facility	22	Ghanval	Jambhulmat;Ghanval;Mokashipada;Hirev a-patilpada;Chondipada;Pimpalpada;Shindepada;	7
			Beriste	Naviwadi	1
			Vashala	Pimpalgaon-chappalpada;Madkyachimet;	2
			Poshera	Modrdyachapada;Palsapada;Fanaspada;Pawarpada	4
			Dandeval	Nilmati; Chinchutara	2
			Dolhara	Sakharwadi;Dolhara	2
			Saturali	Badyamohpada	1
			Khoch	Dhaondmaryachimet; Khadkachimet;Kalamwadi	3
C	Cement bunds	16	Vashala	Vashala	1
			Sayde	Wagyachiwadi; Jogalwadi; Marutichiwadi;Andheriwadi	4
			Nashera	Nashera;Thavalpada	2
			Morhanda	Morhanda	1
			Kevnale	Kevnale	1
			Karegaon	Karegaon	1
			Adoshi	Adoshi	1
			Khodala	Talyachiwadi	1
			Ase	Kumbhipada;Brahmangaon;Warghadpada ;Bhowadi	4
D	Wells/Borewells	11	Vashala	Vashala	1
			Ghanval	Jambhulmat	1
			Beriste	Barafpada;Kalamgaon	2
			Ase	Brahmangaon; Bhoirpada;Kundachapada	3
			Sayde	Borshetti	**1**
			Kevnale	Kevnale;Amle	**2**
			Karegaon	Karegaon	**1**
E	Check dams	3	Sayde	Borshetti	**1**

			Beriste	Barafpada;Kalamgaon	**2**
F	Roads	26	Sayde	Marutichiwadi	**1**
			Morhanda	Kelichapada	1
			Sakhari	Borshetti; Toranshet	2
			Poshera	Pawarpada;Jambulwadi;Bijalpada;	3
			Dandeval	Nilmati;Dandeval;Chinchutara	3
			Ghanwal	Ruipada;Ghanval; Kodesagwadi	3
			Pathrdi	Kirkirewadi	1
			Dolhara	Borichiwadi	1
			Karol	Wyalyachiwadi	1
			Ase	Brahmangaon, Kolhadev,Dhamani;Dhapati,Karoli,Navlyachapada; Dhamodi;Dhapati2	8
			Beriste	Ambyachapada, Naviwadi	**2**
G	Tanker Facilities	3	Khoch	Khoch;Pimpalwad;Pulachiwad	**3**
H	Water facilities	5	Chas Ghanval	Chas; Thakurpada; Himbatpada Jambhulmat;Ghanval	**3** **2**
		128			**128**

According to the information in Table 13, more than one-fifth of the total habitations in the Block (44/218) in 11 GPs expressed the requirement for the tap scheme. It needs to be noted that only Ase, Suryamal Kevnale and Karegaon are in the High-Water Stress category, wheras Adoshi, Sayde, Chas and Nashera fall in the moderate stress category and the remaining Koshimshet, Mokhada and Dandeval have low water stress. Ghanval, Beriste, Dolhara and Khoch which face high water stress require irrigation facilities in the villages, and 27 habitations together need cement bunds, wells and borewells. In addition, roads need to be repaired and maintained in 10 GPs.

Table 14: Requirement of Repair works and maintenance.

	Requirement of Repair works and maintenance	**No.**	**GPs**	**Habitations**	**Total**
A	Repair of cement bunds	5	Ase	Rautpada	1
			Adoshi	Devbandh	1
			Chas	Chikanpada;Jamdyachapada	2
			Beriste	dhodipada	1
B	Repair of dams	2	Ghanval	Jambujmat;Ghanval	2
C	Repair of pipelines	4	Sayde	Marutichiwadi;Borshetti	2
			Beriste	Dhodipada	1
			Chas	Panjari	1
D	Repair of borewell	**10**	Sayde	Borshetti	1
			Mokhada	Telipada;Kavalpada;Warghadpada;Gabhalpada	4

			Karegaon	Kochale	1
			Adoshi	Devbandh	1
			Beriste	Patilpada;Ramdoh	2
			Chas	Hattipada	1
E	Repair of roads	7	Chas	Thakurpada;Himbatpada;Chikan pada	3
			Morhanda	Kelichapada	1
			Sakhari	Borshetti;Toranshet	2
			Shivali	Shivali	1
F	Cleaning of wells and ponds	1	Dandeval	Chinchutara	1
G	Repair of Temple	1	Poshera	Bijalpada	1
H	Repair of solar lamps	2	Ghanval	Jambhulmat;Ghanval	2
I	Repair of toilets in village	1	Adoshi	Devbandh	1
J	TCL in Drinking water	10	Poshera	Radyachapada;Dhabanipada;Pardyachamet	3
			Morhanda	Tulyachapada; Koldyachapada	2
			Mokhada	Bakulichapada;Kavalpada;Wardhadpada;	3
			Adoshi	Adoshi	1
			Beriste	Barafpada	1
	Total	**43**			**43**

As per Table 14, the Block requires several repairs to be undertaken in the villages, ranging from repair of borewells, pipelines, bunds, toilets, temples, dams and roads to cleaning up wells and ponds and treating water with TCL, which is a silicate protectant to stop corrosion of potable and non-potable water tanks.

Table 15: Other facilities should be provided

	Other facilities	**No.**	**GPs**	**Habitations**	**Total**
A	Visits to villages by Govt officials	42	Ghanval	Ruipada;	**1**
			Vashala	Vashala;Pimpalgaon-chappalpada;	2
			Poshera	Mordyachapada;Radyachapada;Katkaripada;Thakurwadi; Dhabanipada;Pardyachamet	6
			Beriste	Beriste; Dhodipada; Jambhlyachapada	3
			Koshimshet	Koshimshet;Koshimshet gavthan; Sonarwadi; Sadakwadi; Fanaspada; Payarwadi; Dhamanshet; Nandewadi; Behetwadi	9
			Dolhara	Dolhara	1
			Pathrdi	Pathrdi2; Botoshi; Bhospoda	3
			Dandeval	Nilmati	1

			Morhanda	Tulyachapada	1
			Mokhada	Mokhada	1
			Khoch	Dhondmaryachimet;Khadkichimet	2
			Sakhari	Ghodichapada;Gondekhurd	2
			Ase	Warghadpada;Kundachapada;Bhowadi;Kumbhipada;Rautpada; Karoli;Bramhangaon; Dhamodi;Navlyacha Pada;Dhapati;	10
B	Solar lamps	36	Sayde	Wagyachiwadi;Hattipada;Borichiwadi;Hundachiwadi;Sawarpada Marutichiwadi;Andheriwadi;Badalpada;Shelkewadi	9
			Sakhari	Dhangadewadi;Gondekhurd;Toranshet	3
			Poshera	Jambulwadi	1
			Nashera	Thavalpada	1
			Morhanda	Kelichapada	1
			Mokhada	Morhadak;Aasranagar,Telipada	3
			Koshimshet	Bedulpada;Patilpada	2
			Khodala	Talyachiwadi;Bairobawadi	2
			Kevnale	Suryamal;Katkaripada;Bhavanipada;Amle;Wanganpada	5
			Karol	Karol; Wyalyachiwadi	2
			Karegaon	Karegaon;Bhasmewadi;Kaduchiwadi	3
			Adoshi	Adoshi; Devbandh;Mohpada;	**3**
			Beriste	Patilpada	1
C	Light poles	2	Karegaon	Karegaon	2
			Ase	Kudwa	1
D	Internet facility	4	Sayde	Rajewadi	1
			Khoch	Dhonmaryachimet	1
E	Solar energy	1	Ghanval	Ruipada	1
F	Electricity	1	Poshera	Bijalpada	1
G	Bus services in villages	5	Sakhari	Ghodichapada;Dhangadewadi;GondeKhurd;Darechapada	4
			Beriste	Wangadpada	1
H	Graveyard	3	Poshera	Jambulwadi	1
			Dolhara	Sakharwadi	1
			Ase	Warghadpada	1
I	Temple	20	Shivali	Shivali	1
			Sayde	Sawarpada;Borshetti	2
			Poshera	Nirgudwadi, Palsapada;	2
			Morhanda	Kakadpada	1
			Koshimshet	Nandewadi	1
			Kevnale	Wanganpada	1
			Ase	Brahmangaon;Kolhedev;Dhamani;Karoli; Navlyachapada;Dhamodi;	8

				Dhapati2;Swaminagar	
			Ghanval	Kodesagwadi	1
			Beriste	Naviwadi;Ramdoh;Teliumbarpada	3
J	Cordon tank to Village	1	Kevnale	Kevnale	1
K	Implementation of Government schemes	4	Vashala Beriste	Vashala;Pimpalgaon-chappalpada;Madkyachimet; Jalichapada	4
L	Transformer	1	Karol	Wyalyachiwadi	1
	Total	**120**			**120**

It must be noted that villagers in 42 habitations reported the non-availability of government officials and their very infrequent visits to the villages. The other facilities and support required are solar lamps, bus services in the villages, as well as temples and graveyards.

Conclusion: The above report highlights the requirement for several constructions and repairs to be undertaken by the Block Authorities, as well as the requirement for materials in schools and health centres, infrastructure, water related support and employment opportunities.

Table 16: Work details

Type of Work	Area	Particulars	Gram Panchayats	Habitations
Livelihood	Livelihood	Work under EGS	23	153
Infrastructure	Health	Toilets	17	53
Repairs in schools	Education	Repairs of schools, anganwadis, washrooms, kitchen	26	47
Infrastructure	Health	Drinking Water in Villages	15	45
Water related assistance	Livelihood	Tap Scheme	11	44
Repairs and Maintenance	Livelihood	Repairs of pipelines, bunds, dams, water tanks, solar lamps,	14	43
Livelihood and other support	Livelihood	Solar lamps	13	36
Agricultural assistance	Livelihood	Increased orchard/vegetable planting	11	33
Essentials	Education	Drinking water in schools/anganwadis	5	32
Materials	Education	Educational Materials	12	26
Travel support	Livelihood	Roads	11	26
Awareness building	Livelihood	Technology/guidance to improve agricultural practices	9	25
Infrastructure	Health	Primary Health Centre	11	25
Construction	Education	Requirement of New School	11	23
Infrastructure	Health	Hospital in village	8	23
Water related assistance	Livelihood	Irrigation facility	8	22
Infrastructure	Education	Washrooms in Schools	8	22
Infrastructure	Education	Compound Wall	9	20
Initiation of educational institution	Education	Requirement of New Anganwadi	12	18
Infrastructure	Education	Computer Labs	8	18
Infrastructure	Education	Playground/Compound	7	16
Water related assistance	Livelihood	Cement bunds	9	16
Construction	Education	Construction of New Anganwadi Building	11	15
Infrastructure	Education	Solar Kits and Panels in schools	10	15
Agricultural assistance	Livelihood	Good quality seeds	4	12

Infrastructure	Education	Water tanks in schools	3	11
Infrastructure	Health	Village Clinics	6	10
Essentials	Education	Electricity	3	8
Follow-up	Health	Regular visits by doctors	All	All
Follow-up	Health	Regular ANM visits	All	All

Table 17: Habitation wise details of these sectors

GP	**Habitation**						
ADOSHI **EDUCATION**	Adoshi	Shirasgaon	Devbandh	Mohpada	Pasodipada	Thalekarwadi	Total
New Anganwadi Building						y	1
School						y	1
Educ Material	y						1
Play material		y					1
Solar kits		y					1
Drinking water				y			1
Tap Scheme				y			1
Digitalisation		y					1
Benches	y						1
HEALTH	Adoshi	Shirasgaon	Devbandh	Mohpada	Pasodipada	Thalekarwadi	
Toilets,	y	y	y	y	y	y	6
Sewage system,				y			1
Effluent treatment			y				1
Medicine Kits for ASHA workers		y					1
Dust Bins						y	1
LIVELIHOOD	Adoshi	Shirasgaon	Devbandh	Mohpada	Pasodipada	Thalekarwadi	
Work to be available under Employment Guarantee Scheme	y	y	y	y		y	5
Repair of Cement Bunds			y				1
Increase orchard/vegetable planting/	y	y	y	y			4
Need good quality seeds	y	y	y	y			4

Guidance/ technology to modify agricultural practices	y	y	y	y	y		5
Build well			y	y			2
Repair well			y				1
GOVERNANCE	Adoshi	Shirasgaon	Devbandh	Mohpada	Pasodipada	Thalekarwadi	
Tap Scheme	y		y	y			3
Build bunds	y						1
TCL in drinking water	y						1
Grampanchayat building			y				1
Solar Lamp	y		y	y		y	4
Repair toilets in village			y				1

Recommendations

Education

- Digitalisation of school records
- School Management Committees to see to efficiency in schools
- Cluster Resource Centre can be initiated where educational and other materials can be shared across nearby schools
- Provide Water filters, tanks, in schools.
- Midday Meals and Special Feed programme in schools (Example of TN)
- Construct new Schools and Anganwadis; and appoint teachers and anganwadi workers
- Interaction with Teachers' Training Colleges, regarding training of quality teachers to meet learning needs
- Conduct awareness session on education with parents, children, school and ashram shala functionaries
- Construct and repair approach roads to schools.

Health

- Digitalisation of health records
- Sonography machines, X-Ray machines, Drug Storage cabinets, Refrigerators in health clinics
- Nutrition Education for Mother Support Groups
- Kitchen gardens; Tree Planting
- Conduct awareness sessions and meetings with people regarding sanitation and personal hygiene
- Construct and repair approach roads to PHCs,
- Community taps for clean water for cooking and drinking purposes, within reasonable distance Construct community toilets and individual toilets, with people's participation
- Construct closed drainage lines and soak pits in the villages
- Provide hand pumps at several places in the villages
- Setting up a central filtering system for drinking water

Livelihood

- Establish community water processing units
- Given the importance of rain water harvesting facilities, especially with recent report on ground water decline in Maharashtra- Introduce modern methods such as mulching and drip irrigation in all GPs.
- Create water conservation mechanisms to increase ground water level near wells
- Skill Based training for youth and women; help them access small scale loans to start small enterprises;
- Provision of alternate livelihood opportunities such as poultry farming
- Build farmers' Cooperatives to pool resources and improve bargaining
- Help farmers with Choice of Correct Crop, crop rotation, Soil Nutrition; the system of soil health card may help
- Help farmers avail credit from formal banking system
- Help purchase farm equipment at community level
- Construct small dams, check dams, wells,
- Farmers need spot help to deal with issues such as pest attack, too much rains, too less rains etc.
- Maintain interaction with state government AEOs. Agricultural extension officers under the T&V system (Training and Visit) are expected to visit farmers regularly and hold farmer meetings as well as advise them on the issues concerning the forthcoming crop
- Ensure Regular visits by experts from agricultural universities
- Facilitate support for Output Marketing

Others

- Follow up with Electricity Board regarding inadequate light poles in few villages
- Allocate space for graveyards; build crematoriums
- Repair solar powered lights, solar lamps,
- Improve bus services with help of state transport authorities

Annexures

Annexure 1 Habitation wise work details

ASE **EDUCATION**	Kumbhipada	Rautpada	Brahmangaon	Bhoirpada	Warghadpada	Kolhedhav	Kundachapada	Bhowadi	Dhamani	Dhapati	Ase	Karoli	Ikharichapada	Navlyachapada	Dhamodi	Dhapati 2	Bivalpada	Swami N	Kudava	Total
New School Building	Y	Y	Y	Y																04
New Anganwadi Building		Y																		01
School					Y	Y														02
High School							Y	Y												02
College							Y	Y												02
Anganwadi				Y	Y															02
Sports Eq									Y	Y										02
Toys in ZP S	Y							Y												02
Repair of school/HS												Y								01
Repair of Anganwadi	Y		Y																	02
Compound wall														Y						01
Trees opp school									Y											01
Electricity										Y					Y	Y				03
Drinking water										Y					Y					02
Washrooms													Y		Y					02
Library	Y	Y	Y				Y	Y												05
Digitalisation									Y	Y			Y	Y		Y	Y			06
Laptop																			Y	01
Gym	Y	Y					Y	Y												04
Benches			Y																	01

Approach Roads						Y														01
ASE **LIVELIHOOD**	Kumbhipada	Rautpada	Brahmangaon	Bhoirpada	Warghadpada	Kolhedhav	Kundachapada	Bhowadi	Dhamani	Dhapati	Ase	Karoli	Ikharichapada	Navlyachapada	Dhamodi	Dhapati2	Bivalpada	Swami N	Kudava	Total
Work to be available under Employment Guarantee Scheme	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	18
Building Cement Bunds	Y		Y		Y			Y												06
Repair Bund		Y																		01
Increase orchard/vegetable planting/			Y	Y								Y								03
Need good quality seeds	Y		Y	Y								Y								04
Build well			Y	Y			Y													03
Repair well					Y															01
Repair road										Y	Y	Y		Y	Y	Y				

ASE **HEALTH**	Kumbhipada	Rautpada	Brahmangaon	Bhoirpada	Warghadpada	Kolhedhav	Kundachapada	Bhowadi	Dhamani	Dhapati	Ase	Karoli	Ikharichapada	Navlyachapada	Dhamodi	Dhapati2	Bivalpada	Swami N	Kudava	Total
Drinking Water,				Y			Y	Y							Y					4

Primary Health centre,	Y	Y	Y																	3
village clinics													Y							1
Dust Bins			Y	Y			Y	Y												4
Regular doctors' visits	Y	Y	Y		Y		Y	Y					Y							7
Govt Schemes for pregnant women					Y															1
Hospital in Village					Y		Y													2
Medicines for villagers						Y														1
Concrete road to go to hospital									Y								Y			2
Hospital far away from village										Y			Y	Y	Y	Y				5
ASE **GOVERNANCE**	Kumbhipada	Rautpada	Brahmangaon	Bhoirpada	Warghadpada	Kolhedhav	Kundachapada	Bhowadi	Dhamani	Dhapati	Ase	Karoli	Ikharichapada	Navlyachapada	Dhamodi	Dhapati 2	Bivalpada	Swami N	Kudava	Total
Tap Scheme	Y			Y	Y		Y		Y				Y	Y		Y				08
Graveyard					Y															01
temple,			Y			Y			Y			Y		Y	Y	Y		Y		08
Light Poles																			Y	01
Irregular visits of government officers to village	Y	Y	Y		Y		Y	Y		Y		Y								08
Work on Malnutrition		Y																		01
Roads			Y			Y			Y	Y		Y		Y	Y	Y				08

Annexure 2 Habitation wise work details

BERISTE **EDUCATION**	Ambyachapad	Chikadipada	Navi wadi	Barafpada	Kalamgaon	Patilpada	Ramdoh	Jalichapada	Teli Umbarpada	Beriste	Umbarpada	Pasodipada	Dhodipada	Osarvira	Mukundpada	Wanganpada	Jambhalichapada	Total
New School Building											y							1
New Anganwadi Building								y			y	y						3
School			y				y	y						y		y	y	6
Anganwadi		y	y											y				3
Educ Material	y																	1
Toys in ZP S								y				y						2
Play material															y			1
toys in Anganwadi															y			1
Repair of school/HS													Y					1
Repair of Anganwadi													y					1

Compound wall				y	y	y		y										4
classrooms										Y								1
Electricity								y								y	y	3
Washrooms				y	y	y					y							4
Water tank				y	y	y												3
Library			y									y						2
Computer lab				y	y	y			y			y	y					6
Hostel										y								1
Gym													y					11
Toilets for girl students					y	y												2
Teachers											y		y					2
HEALTH	Ambyachapada	Chikadipada	Navi wadi	Barafpada	Kalamgaon	Patilpada	Ramdoh	Jalichapada	Teli Umbarpada	Beriste	Umbarpada	Pasodipada	Dhodipada	Osarvira	Mukundpada	Wanganpada	Jambhalichapada	
Toilets,	y			y	y		y	y	y	y							y	8
Drinking Water,				y								y						2
Drainage system											y							1

Soak pits									y		y							2
PHC													y					1
Drug Storage									y									1
Medicine Kits for ASHA															y			1
doctors' visits			y				y					y					y	4
Medicines														y				1
LIVELIHOOD	Ambyachapada	Chikadipada	Navi wadi	Barafpada	Kalamgaon	Patilpada	Ramdoh	Jalichapada	Teli Umbarpada	Beriste	Umbarpada	Pasodipada	Dhodipada	Osarvira	Mukundpada	Wanganpada	Jambhalichapada	
Work EGS	y	y		y	y	y		y	y		y		y	y		y		11
Building /Repair of Cement Bunds													y					1
Build Roads,	y		y															2
Irrigation facility			y															1
Build small well				y	y													2

Repair well						y	y											2
GOVERNANCE	Ambyachapad	Chikadipada	Naviwadi	Barafpada	Kalamgaon	Patilpada	Ramdoh	Jalichapada	Telimbarpada	Beriste	Umbarpada	Pasodipada	Dhodipada	Osarvira	Mukundpada	Wanganpada	Jambhalichapada	
Build check dam				y	y													2
Build borewell						y	y											2
TCL in drinking water				y														1
Temple			y				y		y									3
Temple repair											y							1
Roads				y	y		y						y					4
Irregular visits of government officers to village										y			y				y	3
Solar Lamp						y												1
Information on GPmembers	y																	1

Govt Schemes								y								y		2
Bus services																y		1

Annexure 3 Habitation wise work details

CHAS Education	Chas	Thakurpada	Himbatpada	Chikan pada	Hattipada	Pangari	Jamdyachapada	TOTAL
Playground		Y						1
Repair of washroom	Y				y	y		3
Water Tank	Y	Y	y		y	y	y	6
Digitalisation			y	y	y		y	4
HEALTH	Chas	Thakurpada	Himbatpada	Chikan pada	Hattipada	Pangari	Jamdyachapada	
Toilets,				y		y	y	3
Repair Toilets		y						1
Drinking Water,			y	y	y	y	y	5
LIVELIHOOD	Chas	Thakurpada	Himbatpada	Chikan pada	Hattipada	Pangari	Jamdyachapada	TOTAL
Work to be available under Employment Guarantee Scheme	y	y	y	Y		Y	Y	6
GOVERNANCE	Chas	Thakurpada	Himbatpada	Chikan pada	Hattipada	Pangari	Jamdyachapada	TOTAL
Tap Scheme			y					1
Water facilities	y	y	y					3
Repair old bund				y			Y	2
Pipelines						Y	Y	2
Repair pipe lines						Y		1
Repair borewells					y			1
Repair road to well		y	Y	Y				3

Annexure 4 Habitation wise work details

DOLHARA Education	Sakharwadi	Dolhara	Borichiwadi	TOTAL
New Anganwadi Building			y	1
Educ Material			y	1
Repair of school/HS			y	1
Compound wall			y	1
Solar kits			y	1
Water Tank		y		1
Digitalisation		y	y	2
HEALTH	Sakharwadi	Dolhara	Borichiwadi	Total
Drinking Water,	y	y		2
Village clinics	y			1
X Ray machines			y	1
Sonography equipment			y	1
Govt Schemes		y		1
Regular doctors' visits			y	1
LIVELIHOOD	Sakharwadi	Dolhara	Borichiwadi	Total
Work to be available under Employment Guarantee Scheme	y	y	y	3
Irrigation facility	y	y		2
Increase orchard/vegetable planting/	y			1
GOVERNANCE	Sakharwadi	Dolhara	Borichiwadi	Total
bridges on rivers			y	1
Graveyard	y			1
Roads			y	1
Irregular visits of government officers to village		y		1

Annexure 5 Habitation wise work details

GHANVAL **EDUCATION**	Baldyachapada	Ruipada	Jabhulmatha	Ghanval	Mokashipada	Hirave-Patilpada	Chondipada	Pimpalpada	Shindepada	Kodesagwadi	Total
New Anganwadi Building		y									1
School										y	1
Anganwadi										y	1
Educ Material					y	y	y	y	y		5
Playground			y								1
Repair of school/HS	y		y	y				y			4
Repair of Anganwadi	y		y	y							3
Drinking water	y			y							2
Washrooms									y		1
Repair of washroom	y		y	y				y			4
Laptop					y	y	y	y	y		5
Gym								y			1
HEALTH	Baldyachapada	Ruipada	Jabhulmatha	Ghanval	Mokashipada	Hirave-Patilpada	Chondipada	Pimpalpada	Shindepada	Kodesagwadi	
Toilets,	y		y		y	Y					4
Drinking Water,	y	y	y	y	y	y	y	y	y		9

Soak pits	y		y								2
Primary Health centre	y	y	y								3
Dust Bins		y									1
LIVELIHOOD	Baldyachapada	Ruipada	Jabhulmatha	Ghanval	Mokashipada	Hirave-Patilpada	Chondipada	Pimpalpada	Shindepada	Kodesagwadi	
Work EGS		y	y	y	y	y	y	y	y	y	9
Build Roads,		y		y						y	3
Repair dam			y	y							2
Irrigation facility			y	y	y	y	y	y	y		7
Oil Pumps	y										1
Need good quality seeds					y	y	y		y		4
Build small well			y								1
Water facility			y	y							2
GOVERNANCE	Baldyachapada	Ruipada	Jabhulmatha	Ghanval	Mokashipada	Hirave-Patilpada	Chondipada	Pimpalpada	Shindepada	Kodesagwadi	
Build borewell		y									1
Temple										y	1
Roads	y	y	y								3
Irregular visits of government		y									1

officers to village											
Repair of solar lamp			y	y							2
Solar energy		y									1

Annexure 6 Habitation wise work details

KAREGAON **Education**	Karegaon	Bhasmewadi	Kaduchiwadi	Kochale	Total
Anganwadi		y			1
Solar kits	y		y	y	3
Tap Scheme	y				1
Digitalisation				y	1
Laptop			Y		1
Printer			y		1
HEALTH	Karegaon	Bhasmewadi	Kaduchiwadi	Kochale	
Toilets,			y	y	2
X Ray machines		y			1
Sonography equipment		y			1
GYM			y		1
Regular doctors' visits			y	y	2
LIVELIHOOD	Karegaon	Bhasmewadi	Kaduchiwadi	Kochale	
Work to be available under Employment Guarantee Scheme	y	y	y	y	4
Increase orchard/vegetable planting/	y	y	Y	y	4
Guidance/ technology to modify agricultural practices	y		y	y	3
GOVERNANCE	Karegaon	Bhasmewadi	Kaduchiwadi	Kochale	
Tap Scheme	y	y			2
Build bunds	y				1
Repair borewells			y	y	3
Build borewell	y				1
Light Poles	y				1
Solar Lamp	y	y	y		3

Annexure 7 Habitation wise work details

KAROL Pachghar **EDUCATION**	Karol	Pachghar	Wyalyachiwadi	Total
Anganwadi		y		1
Repair of school/HS	y			1
Solar panel		y		1
Water filter		y	y	2
Computer	y			1
Dustbin		y		1
Solar Lamp			y	1
HEALTH	Karol	Pachghar	Wyalyachiwadi	
Toilets,	y			1
Primary Health centre	y			1
Dust Bins	y	y		2
Regular doctors' visits	y			1
LIVELIHOOD	Karol	Pachghar	Wyalyachiwadi	
Work to be available under Employment Guarantee Scheme	y	y		2
Build Roads,			y	1
GOVERNANCE	Karol	Pachghar	Wyalyachiwadi	
Transformer in village			y	1
Solar Lamp	y		y	2

Annexure 8 Habitation wise work details

SURYAMAL KEVNALE **EDUCATION**	Suryamal	Katkaripada	Kevnale	Bhavanipada	Amle	Wanganpada	Total
Educ Material	Y			Y		Y	3
Play material			Y		Y		1
Solar kits			Y	Y			2
Solar panel	Y						1
Wash basin					Y		1
Repair of washroom			Y	Y			2
Tap Scheme	Y	Y	Y				3
Computer		Y		Y			2
Digitalisation				Y			1
Nutrition					Y		1

HEALTH	Suryamal	Katkaripada	Kevnale	Bhavanipada	Amle	Wanganpada	Total
Toilets	Y	Y	Y	Y	Y		5
Primary Health centre, ,			Y				1
X Ray machines,				Y			1
Sonography equipment				Y			1
Regular doctors' visits						Y	1
Lack of experienced doctor in Village			Y				1
Dustbins	Y						1

LIVELIHOOD	Suryamal	Katkaripada	Kevnale	Bhavanipada	Amle	Wanganpada	Total
Work to be available under Employment Guarantee Scheme	Y		Y	Y	Y	Y	5

Building /Repair of Cement Bunds					Y		1
Increase orchard/vegetable planting/	Y	Y	Y	Y	Y	Y	6
Guidance/ technology to modify agricultural practices		Y	Y	Y			3

GOVERNANCE	Suryamal	Katkaripada	Kevnale	Bhavanipada	Amle	Wanganpada	Total
Tap Scheme	Y	Y			Y	Y	4
Bunds,			Y				1
Build borewell			Y		Y		2
Temple,						Y	1
Solar Lamp	Y	Y		Y	Y	Y	5
Cordon Tank to village			Y				1
Build roads				Y			1

Annexure 9 Habitation wise work details

KHOCH **EDUCATION**	Dhondmary achimet	Khoch	Pimpalwa da	Shirsonpa da	Pulachiwa di	Khadkachi met	Kalamw adi	Total
New Anganwadi Building				y				1
Anganwadi	y							1
Educ Material					y			1
Repair of school/HS		y						1
Compound		y	y					2
Drinking water			y					1
Washrooms		y						1
Water Tank				y				1
Water filter		y						1
Computer lab		y	y					2
Digitalisation	y							1
Teacher in school	y							1
HEALTH	Dhondmaryach imet	Khoch	Pimpalwa da	Shirsonpa da	Pulachiwa di	Khadkachi met	Kalamw adi	Total
Toilets,				y				1
Drinking Water,	y							1
Primary Health centre		y	y	y	y			4
Village clinics		y						1
Ambulance		y						1
Dust Bins	y				y		y	3
Regular doctors' visits							y	1
ANMs' visits		y	y		y			3
Hospital in village	y							1
LIVELIHOOD	Dhondmaryach imet	Khoch	Pimpalwa da	Shirsonpa da	Pulachiwa di	Khadkachi met	Kalamw adi	Total

Work to be available under Employment Guarantee Scheme	y	y	y	y	y	y	y	7
Tanker facility		y	y		y			3
Irrigation facility	y					y	y	3
Increase orchard/vegetable planting/						y		1
GOVERNANCE	Dhondmaryachimet	Khoch	Pimpalwada	Shirsonpada	Pulachiwadi	Khadkachimet	Kalamwadi	Total
Online facility in village	y					y	y	2
Irregular visits of government officers to village	y					y	y	2

Annexure 10 Habitation wise work details

KHODALA **EDUCATION**	Bairobawadi	Talyachiwadi	TOTAL
School	y		1
High School	y		1
Water filter		y	1
Library		y	1
HEALTH	Bairobawadi	Talyachiwadi	
Toilets,		y	1
Sewage system,		y	1
X Ray machines		Y	1
Sonography equipment		y	1
Govt Schemes	y		1
LIVELIHOOD	Bairobawadi	Talyachiwadi	
Work to be available under Employment Guarantee Scheme		y	1
Increase orchard/vegetable planting/	y	y	2
Need good quality seeds	y	y	2
Guidance/ technology to modify agricultural practices	y	y	2
GOVERNANCE	Bairobawadi	Talyachiwadi	
Tap Scheme		y	1
Build bunds		y	1
Solar Lamp	y	y	2

Annexure 11 Habitation wise work details

KOSHIMSHET **EDUCATION**	Koshimshet	KOSHIMSHET Gavthan	Sonarwadi	Sadkwadi	Bedukpada	Fanaspada	Payarwadi	Dhamanshet	Nandewadi	Phanaspada Thakurwadi	Patilpada	Bhethwadi	Pendekichiwadi	TOTAL
New School Building									y					1
New Anganwadi Building									y					1
Educ Material						y	y	Y						3
Play material					y									1
Compound wall			y	y		y						y	y	5
Electricity			y			y						y		3
Drinking water	y										y		y	3
Washrooms	y				y			y					y	4
Repair of washroom												y		1
Water purifier	y	y	y	y		y	y	y						7
Computer lab	y		y	y										3
Laptop											y			1
Projector					y						y			2
Dustbin					y				y					2
Pipe Line in school									y					1
HEALTH	Koshimshet	KOSHIMSHET	Sonarwadi	Sadkwadi	Bedukpada	Fanaspada	Payarwadi	Dhamanshet	Nandewadi	Phanaspada Thak	Patilpada	Bhethwadi	Pendekichiwadi	

		Gavthan								urwadi				
Toilets,	y				y									2
Drinking Water,	y					y	y					y	y	5
Primary Health centre	y	y	y	y		y	y			y	y	y	y	10
Ambulance										y		y		2
Dust Bins	y		y											2
irRegular doctors' visits						y			y		y	y		4
LIVELIHOOD	Koshimshet	KOSHIMSHET Gavthan	Sonarwadi	Sadkwadi	Bedukpada	Fanaspada	Payarwadi	Dhamanshet	Nandewadi	Phanaspada Thakurwadi	Patilpada	Bhethwadi	Pendekichiwadi	
Work to be available under Employment Guarantee Scheme	y	y	y	y	y	y	y	y	y	y	y	y	y	13
GOVERNANCE	Koshimshet	KOSHIMSHET Gavthan	Sonarwadi	Sadkwadi	Bedukpada	Fanaspada	Payarwadi	Dhamanshet	Nandewadi	Phanaspada Thakurwadi	Patilpada	Bhethwadi	Pendekichiwadi	
Tap Scheme	y	y	y	y		y	y	y	y		y	y		10
Temple									y					1

Irregular visits of government officers to village	y	y	y	y		y	y	Y	y			y		9
Solar Lamp					y						y			2

Annexure 12 Habitation wise work details

MOKHADA **EDUCATION**	Ambyachapada	Gumbadpada	Ghatkarpada	Jhambachapada	Ghosali	Loharpada	Bakulichapada	Mokhada	Morkhadak	Aasra Nagar	Telipada	Kavalpada	Warghadpada	Gabhalpada	Toatl
New Anganwadi Building									y						1
School					y	y				y					3
Anganwadi				y											1
Toys in ZP S												y	y		2
toys in Anganwadi											y				1
Repair of Anganwadi												y	y		2
Repair of Anganwadi washrooms										y					1
Compound wall	y													y	2
Drinking water		y									y	y	y	y	5
Washrooms									y					y	2
Repair of washroom									Y		y				2
Computer lab									Y						1
Computer	y		y												2
Digitalisation								y							
HEALTH	Ambyachapada	Gumbadpada	Ghatkarpada	Jhambachapada	Ghosali	Loharpada	Bakulichapada	Mokhada	Morkhadak	Aasra Nagar	Telipada	Kavalpada	Warghadpada	Gabhalpada	
Toilets,										y					1
Drinking Water,									y			y	y		3
Village clinics												y	y	y	3
Ambulance														y	1

Dust Bins								y		y					2
Doctors' visits		y				y									2
Hospital in village			y	y											2
LIVELIHOOD	Ambyachapada	Gumbadpada	Ghatkarpada	Jhambachapada	Ghosali	Loharpada	Bakulichapada	Mokhada	Morkhadak	Aasra Nagar	Telipada	Kavalpada	Warghadpada	Gabhalpada	
Work to EGS	y	y	y	y	y	y	y	y	y	y		y	y		12
GOVERNANCE	Ambyachapada	Gumbadpada	Ghatkarpada	Jhambachapada	Ghosali	Loharpada	Bakulichapada	Mokhada	Morkhadak	Aasra Nagar	Telipada	Kavalpada	Warghadpada	Gabhalpada	
Tap Scheme									y		y	y	y	y	5
Repair borewells											y				1
TCL in drinking water							y					y	y		3
Irregular visits of government officers to village								y							1
Solar Lamp									y	y	y				3

Annexure 13 Habitation wise work details

MORBANDA **EDUCATION**	Morhanda	Tulyachapada	Kelichapada	Bhoyechapada	Koldyachapada	Kakadpada	TOTAL
New Anganwadi Building						y	1
Toys in ZP S		y	y				2
Repair of Anganwadi			y				1

Compound school	y			y			2
Drinking water	y		y	y		y	4
Wash room in Anganwadi		y	y				2
Tap System						y	1
Repair of Kitchen Shed			y				1
First aid box						y	1
Teacher in School		y					1
HEALTH	Morhanda	Tulyachapada	Kelichapada	Bhoyechapada	Koldyachapada	Kakadpada	
Toilets,		y	y				2
Drinking Water,	y						1
PHC				y			1
Dust Bins		y	y				2
LIVELIHOOD	Morhanda	Tulyachapada	Kelichapada	Bhoyechapada	Koldyachapada	Kakadpada	
Work under EGS	y			y	y	y	4
Building of Cement Bunds	y						1
Implements for Agriculture	y	y					2
GOVERNANCE	Morhanda	Tulyachapada	Kelichapada	Bhoyechapada	Koldyachapada	Kakadpada	
Build bunds		y					1
TCL in drinking water		y			y		2
Temple						y	1
Irregular visits of government officers to village		y					1
Solar Lamp			y				1
Approach road to well			y				1

Annexure 14 Habitation wise work details

NASHERA **EDUCATION**	Nashera	Thavalpada	Total
Educ Material	y	y	2
Solar kits		y	1
Computer	y	y	2
Tap Scheme	y		1
HEALTH	Nashera	Thavalpada	
Toilets,	y		1
Drinking Water,		y	1
ANMs' visits	y		1
Gym in village	y		1
LIVELIHOOD	Nashera	Thavalpada	
Work to be available under Employment Guarantee Scheme	y	y	2
Increase orchard/vegetable planting/	y	y	2
Guidance/ technology to modify agricultural practices	y	y	2
GOVERNANCE	Nashera	Thavalpada	
Tap Scheme		y	1
Build bunds	y	y	2
Solar Lamp		y	1

Annexure 15 Habitation wise work details

NILMATI-DANDAVAL **EDUCATION**	Nilmati	Dandaval	Chinchutara	Total
Educ Material	y		y	2
Repair of school/HS		y		1
Repair of Anganwadi			y	1
Repair of washroom		y		1
Tap Scheme	y		y	2
First aid box	y		y	2
Approach Roads			y	1
HEALTH	Nilmati	Dandaval	Chinchutara	
Primary Health centre	y			1
Sonography equipment	y			1
First Aid boxes	y			1
Hospital in village	y			1
Hospital far from village		y		1
LIVELIHOOD	Nilmati	Dandaval	Chinchutara	
Work to be available under Employment Guarantee Scheme		y		
Build Roads,	y	y	y	3
Irrigation facility	y		y	2
Remove mud from well and pond			y	1
GOVERNANCE	Nilmati	Dandaval	Chinchutara	
Tap Scheme	y	y	y	3
Irregular visits of government officers to village	y		y	2
Library in Village	y			1

Annexure 16 Habitation wise work details

Table 1. PATHRDI Education	Pathrdi1	Pathrdi2	Dongar wadi	Botoshi	Kirkire wadi	Markat wadi	Bhospo da	Belpa da	Total
School					Y				1
Anganwadi					Y				1
Repair of school/HS			Y						1
Solar panel	Y								1
Drinking water			Y	Y					2
Repair of washroom			Y	Y				Y	3
Computer	Y								1
Digitalisation				Y					1
Approach Roads							Y		1
Need school teacher						Y			1

In

Table 2. Pathrdi Health	Pathrdi1	Pathrdi2	Dongarwadi	Botoshi	Kirkirewadi	Markatwadi	Bhospoda	Belpada	Total
Drinking Water,	Y								1
ANM's /MPW's visits						Y			1
Concrete road to reach hospital					Y				1
Hospital far from village				Y					1

Table 3. Pathrdi Livelihood	Pathrdi1	Pathrdi2	Dongarwadi	Botoshi	Kirkirewadi	Markatwadi	Bhospoda	Belpada	Total
Work to be available under Employment Guarantee Scheme	Y	Y	Y	Y		Y	Y		6
Guidance/ technology to modify agricultural practices								Y	1

Table 4.Pathrdi Governance	Pathrdi1	Pathrdi2	Dongarwadi	Botoshi	Kirkirewadi	Markatwadi	Bhospoda	Belpada	Total
Roads					Y				1
Irregular visits of government officers to village		Y		Y			Y		3

Annexure 17 Habitation wise work details

POSHERA **EDUCATION**	Posheра	Radyachapada	Nirgudwadi	Palsapada	Fanaspada	Pawarpada	Katkaripada	Thakurwadi	Jambhulwadi	Bijalpada	Dabhanipada	Pardhyachimet	Mordhyachapada	Vakharichapada
New Anganwadi Building			y						y	y				
School									y					
toys in Anganwadi														y
Playground											y	Y	y	
Repair of school/HS			y		y			y						
Repair of Anganwadi				y										
Compound wall						y								
Compound							y	y						y
classrooms											y	Y		
Electricity				y									y	y
Drinking water	y	y		y		y		y			y	Y	y	y
Washrooms	y					y				y	y	Y		y
Wash basin														
Computer lab						y								
Computer	y	y				y								
Laptop	y													
First aid box			y		y			y		y				
Approach Roads			y	y	y									

Teacher						y	y			y		Y		
HEALTH	Posheра	Radyachapada	Nirgudwadi	Palsapada	Fanaspada	Pawarpada	Katkaripada	Thakurwadi	Jambhulwadi	Bijalpada	Dabhanipada	Pardhyachimet	Mordhyachapada	Vakharichapada
Toilets,					y			y	y	y				
Drinking Water,	y						y	y	y	y				
Soak pits	y													y
Primary Health centre										y				
Sonography equipment			y	y										
Regular doctors' visits	y	y		y			y				y	Y	y	
Hospital in village			y	y	y		y	y			y	Y		
Concrete road to reach hospital							y							
Hospital far from village				y										
LIVELIHOOD	Mordhyachapada	Radyachapada	Nirgudwadi	Palsapada	Fanaspada	Pawarpada	Katkaripada	Thakurwadi	Jambhulwadi	Bijalpada	Dabhanipada	Pardhyachimet	Mordhyachapada	Vakharichapada
Work to be available under Employment		y				y			y		y	y	y	

Guarantee Scheme														
Build Roads,						y			y	y				
Irrigation facility	y			y	y	y							y	
Increase orchard/vegetable planting/					y									
Guidance/ technology to modify agricultural practices					y		y	y						
GOVERNANCE	Mordhyachapada	Radyachapada	Nirgudwadi	Palsapada	Fanaspada	Pawarpada	Katkaripada	Thakurwadi	Jambhulwadi	Bijalpada	Dabhanipada	Pardhyachimet	Mordhyachapada	Vakharichapada
Tap Scheme	y	y							y			Y		y
TCL in drinking water		y									y	Y		
Graveyard									y					
Temple			y	y										
Repair Temple										y				
Roads			y					y						
Irregular visits of government officers to village	y	y					y	y			y	Y	y	
Solar Lamp									y					
Electricity										y				

Annexure 18 Habitation wise work details

SAKHARI Gonde Khurd **EDUCATION**	Sakhari	Pasodi pada	Borshetti	Charanwadi	Ghodic hapada	Dhanga dewadi	Gonde Khurd	Toranshet	Darecha Pada	Total
New Anganwadi Building			y							1
School								Y		1
Anganwadi		y				y				2
Sports Eq				y					y	2
toys in Anganwadi								Y		1
Playground					y		y			2
Solar panel	y									1
Electricity					y		y			2
Computer lab					y		y			2
Computer				y						1
Digitalisation									y	1
Kitchen Shed								Y		1
HEALTH	Sakhari	Pasodi pada	Borshetti	Charanwadi	Ghodic hapada	Dhanga dewadi	Gonde Khurd	Toranshet	Darecha Pada	
Toilets,								Y		1
Drinking Water,				y						1
Primary Health centre						y				1
Village clinics							y			1
Ambulance					y					1
Dust Bins							y	Y		2
Hospital in village		y	y	y	y				y	5
Concrete road to reach Well								Y		1
LIVELIHOOD	Sakhari	Pasodi pada	Borshetti	Charanwadi	Ghodic hapada	Dhanga dewadi	Gonde Khurd	Toranshet	Darecha Pada	

Work under Employment Guarantee Scheme	y	y	y		y	y	y	Y	y	8
Repair Roads,			y					Y		2
GOVERNANCE	Sakhari	Pasodi pada	Borshetti	Charanwadi	Ghodichapada	Dhangadewadi	Gonde Khurd	Toranshet	Darecha Pada	
Irregular visits of government officers to village					y		y			2
Solar Lamp						y	y	Y		3
Bus System in Village					y	y	y		y	4

Annexure 19 Habitation wise work details

SATURALI-PALSUNDA **EDUCATION**	Bitkichapada	Chikadipada	JavalHed	Bhendipada	Gandhipool (Naviwadi)	Wadpada	Badyamoh Pada	Palsunda	Vikaswadi	Nikamwadi	Shendyachimet	Total
School	y	y					y	y				4
Anganwadi	y	y						y				3
Educ Material				y	y							3
Sports Eq								y				1
Primary education facility					y							1
Playground				y	y							2
Repair of school/HS									Y	y		2
Compound wall									Y	y	y	3
Drinking water									Y	y	y	3
Repair of washroom								y	Y	y		3

Computer lab				y	y							2
Computer											y	1
Digitalisation				y	y							2
Laptop											y	1
First aid box								y			y	2
HEALTH	Bitkichapada	Chikadipada	JavalHed	Bhendipada	Gandhipool (Naviwadi)	Wadpada	Badyamoh Pada	Palsunda	Vikaswadi	Nikamwadi	Shendyachimet	
Toilets,	y	y	y					y	Y	y	y	7
Drinking Water,					y		y	y			y	4
Soak pits											y	1
Construct ponds											y	1
Village clinics				y	y	y						3
ANMs' visits	y											1
Hospital in village	y						y		y	y		4
LIVELIHOOD	Bitkichapada	Chikadipada	JavalHed	Bhendipada	Gandhipool (Naviwadi)	Wadpada	Badyamoh Pada	Palsunda	Vikaswadi	Nikamwadi	Shendyachimet	
Work under EGS	y	y	y	y	y	y	y	y	y	y	y	11
Irrigation facility							y					1
GOVERNANCE	Bitkichapada	Chikadipada	JavalHed	Bhendipada	Gandhipool (Naviwadi)	Wadpada	Badyamoh Pada	Palsunda	Vikaswadi	Nikamwadi	Shendyachimet	
Irregular visits of government officers to village		y						y	y			3

Annexure 20 Habitation wise work details

SAYDE **EDUCATION**	Wagyachiwadi	Hattipada	Jogalwadi	Borichiwadi	Hundachiwadi	Rajewadi	Sawarpada	Marutichiwadi	Borsheti	Andheriwadi	Badalpada	Shelkewadi	Total
New Anganwadi Building					y								1
School										y		y	2
Anganwadi										y		y	2
Educ Material							y	y			y		3
Play material					y								1
Playground		y											1
Compound wall			y										1
Solar kits				y				y			y		3
Inverter						y							1
Drinking water		y											1
Washrooms	y								Y				2
Repair of washroom											y		1
Tap Scheme						y							1
Water filter			y										1
Library													1
Computer lab								y					3
Computer	y	y							Y				3
Digitalisation			y	y							y		3
Projector	y							Y	Y				3
Hostel				y									1
Gym		y											1
Tap scheme						y							1
HEALTH	Wagyachi	Hattipada	Jogalwadi	Borichiwadi	Hundachiwadi	Rajewadi	Sawarpada	Marutichiwadi	Borsheti	Andheriwadi	Badalpada	Shelkewadi	

	wadi												
Toilets,	y	y		y						y	y	y	6
Water filter						y							1
Primary Health centre						y							1
Dust Bins			y									y	2
Regular doctors' visits	y												1
Resident doctor in sub centre					y						y		2
ANMs' visits	y	y	y	y			y	y	Y	y			8
LIVELIHOOD	Wagyachiwadi	Hattipada	Jogalwadi	Borichiwadi	Hundachiwadi	Rajewadi	Sawarpada	Marutichiwadi	Borsheti	Andheriwadi	Badalpada	Shelkewadi	
Work under EGS	y	y	y	y	y	y	y	y	Y	y	y	y	12
Building Cement Bunds										y			1
Build Roads,	y		y	y	y						y		5
Repair pipeline								y	Y				2
Increase orchard/vegetable planting/	y	y	y	y	y	y	y	y		y			9
Need good quality seeds	y		y	y		y							4
Guidance/ technology to modify agricultural practices	y		y	y	y	y		y					6
GOVERNANCE	Wagyachiwadi	Hattipada	Jogalwadi	Borichiwadi	Hundachiwadi	Rajewadi	Sawarpada	Marutichiwadi	Borsheti	Andheriwadi	Badalpada	Shelkewadi	
Tap Scheme	y	y	y		y	y			Y	y			7
Build bunds	y		y					y					3
Build check dam									Y				11
Repair well		y	y							y			3

Build well									y				1
Temple							y		y				2
Roads								y					1
Internet facility in village						y							1
Solar Lamp	y	y		y	y		y	y		y	y	y	9

Annexure 21 Habitation wise work details

	Shivali	
SHIVALI **EDUCATION**	------	Total
HEALTH	-------	
LIVELIHOOD		
Work to be available under Employment Guarantee Scheme	y	1
Repair road	y	1
GOVERNANCE		
Temple	y	1

Annexure 22 Habitation wise work details

VASHALA **EDUCATION**	Vashala	Pimpalgaon-chappalpada	Madkyachi Met	Pimpalgaon	Total
Anganwadi	y				1
Educ Material		y			1
Play material			y		1
toys in Anganwadi	y				1
Drinking water		y	y		2
Projector		y	y		2
HEALTH	Vashala	Pimpalgaon-chappalpada	Madkyachi Met	Pimpalgaon	
Drinking Water,			y		1
Primary Health centre		y			1
Drug Storage facility			y		1
Regular doctors' visits	y				1
ANMs' visits	y				1
Govt Scheme for preg women	y				1
Hospital in village			y		1
Medicines for villagers				Y	1
LIVELIHOOD	Vashala	Pimpalgaon-chappalpada	Madkyachi Met	Pimpalgaon	
Work to be available under Employment Guarantee Scheme	y	y	y	Y	4
Irrigation facility		y	y		2
Increase orchard/vegetable planting/			y		1
Build small well	y				1
GOVERNANCE	Vashala	Pimpalgaon-chappalpada	Madkyachi Met	Pimpalgaon	
Build bunds	y				1
Irregular visits of government officers to village	y	y			2
Government scheme	y	y	y		3