Dear Stakeholders.

Sub: Impact Analysis Report in respect of CSR Project executed by Praj Industries Ltd.

We take pleasure in enclosing herewith the Impact Analysis Report, by Independent Agency, in respect of Sustainable Water Resources Development Projects executed by the Company at **Matarewadi, Deo-Pimpalgaon, Dhamangaon (District Jalna) and Koradgaon, Shekte, Sonoshi (District Ahmednagar).**

It may please be noted that though, the Impact Analysis as contemplated under Rule 8 (3) (a) of Companies (Corporate Social Responsibility Policy) Amendment Rules, 2021 dated 22nd January, 2021, is not applicable to the Company for Financial Year 2021/22, as a good governance practice the Company got the Impact Analysis done, on a voluntary basis.

We are sure, you will find the same interesting.

Warm regards,

For Praj Industries Ltd

Dattatraya Nimbolkar

Compliance Officer & Company Secretary

Date: 12th February ,2022

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Impact Analysis Report

for

villages:

(a) Matarewadi, Deo-Pimpalgaon, Dhamangaon (District Jalna)

(b) Koradgaon, Shekte, Sonoshi (District Ahmednagar)

By

Kenshin Consultants

(Report Date: 11th Feb 2022)

Introduction

In the year 2013, Praj Foundation initiated the 'Sustainable Water Resources Development' initiative in severely drought affected village Balamtakali, in Shevgaon taluka of Ahmednagar district. The project was implemented in partnership with NGO and participation of the villagers.

The outcome of the interventions was highly encouraging. The village which was getting drinking water every year by tankers from December onwards has drinking water available throughout the year. In addition, the decentralized storage of water has enhanced ground water levels and farmers have enough water for their crops and livestock. With water available for irrigation and improved soil fertility, farming is less exposed to weather risks and farmers are able to grow more than one crop in the year with enhancing productivity and also earn additional off-farm income from livestock.

Due to encouraging socio- economic outcomes of this project, Praj Foundation decided to undertake this initiative in more villages and so far, has covered 44 villages spread across 10 talukas of Ahmednagar, Jalna, Aurangabad and Pune district in association with 4 NGO's namely Jana Kalyan Samiti, Ahmednagar, Savitribai Phule Ekatma Samaj Mandal, Aurangabad, and Gram Gaurav Pratishthan, Pune.

During the year 2019 an internal evaluation of impact assessment was done involving teams for Praj CSR and NGO partners. The results of this exercise were very satisfying.

Now the Praj Foundation has undertaken a third-party assessment of impact created by Sustainable Water Resources Development in some representative villages in two clusters namely Jalna and Ahmednagar. The assessment was assigned to the third party i.e., Kenshin Consultants.

Objectives

- To record the changes observed in natural resources in the project area. This includes change in Land use & Land cover, Bio-mass, reclamation of marginal lands, change in irrigated areas, change in ground water & surface water profiles
- To assess the change in agriculture sector i.e., change in cropping pattern, area expansion, production, productivity of major crops, cropping intensity and diversity.
- To assess the change in economy of the community in command area of the project-i.e., change in income, employment & expenditure patterns.
- To assess the level of people's participation in the project and its implications.

Methodology

➢ Sample size & area coverage

- The impact analysis was confined to the command area of the project within the villages implemented under the support from Praj Foundation.

- For statistical analysis purposes, the study covered 3 villages in each of the cluster namely Jalna and Ahmednagar covering randomly selected 10 beneficiary farmers from each village. A list of fully and partially benefited farmers was provided by Praj Foundation to Kenshin Consultants. The people for the interviews were randomly selected from this list by Kenshin Consultants.

- In addition, 5 farmers were identified from outside the command area, with similar topography & socio-economic features as control.

- **Note_1:** It was decided that there would be 60 beneficiaries from the respective villages and 30 farmers from outside command areas in the respective villages as control and a comparative analysis of with & without project scenario will be done. However, after completing the first phase of interviews at Jalna, it was noted that it was quite unnecessary to conduct interviews with non-beneficiaries as it was proving to be a redundant activity. Hence the interviews of people from outside the command areas were not conducted in the second phase at villages in Ahmednagar.

- **Note_2:** As baseline values in case of most of the villages in scope are missing, the analysis is made in comparison with the regular values/trends seen in the region and the rough before-after statistics collected from the villagers. As such, the impact measured may vary by 10%.

➢ Analytical frame work

- Natural resources analysis: Covering Land use, Land cover, Hydrological profiles.
- Agriculture sector analysis: Area Production & productivity analysis of agriculture and allied sectors like live stocks, horticulture etc.
- Employment generation and lifestyle changes/improvements
- Community involvement analysis: How far the project has involved community during implementation
- Gender sensitivity: Addressing women's needs
- Status of migration and reverse migration

➢ Resource Mobilization

For the impact analysis 3 villages each from the Jalna and Ahmednagar district were selected by the Praj Foundation. The said study was completed by a team of 5 people (4 surveyors and 1 subject matter expert); other details as following

- District: Jalna
  - ✓ Villages: Matarewadi, Dev Pimpalgoan, Dhamangaon
  - ✓ Dates of the Impact Analysis:
    - Field visits: 6th Dec'21 to 9th Dec'21
    - NGO visit and document checking: 10th Dec'21

- District: Ahmednagar
  - ✓ Villages: Koradgaon, Shekte, Sonoshi
  - ✓ Dates of the Impact Analysis:
    - Field visits: 13th Dec'21 to 15th Dec'21
    - NGO visit and document checking: 16th Dec'21

Note: Profile of the Impact Assessment team is added in Annexure - 1

➢ Methods of data collection

Kenshin has used a common methodology, tools of data collection for all the identified villages. The team interviewed relevant stakeholders over four days in Jalna and three days in Nagar. Additionally, one day each was spent for the discussion with NGO representatives, information collection and document checking in Jalna and Nagar.

Methods of data collection used for the study included interviews and/or group discussions with the following stakeholders

- Local Leaders: both formal and informal that is elected members of Gram Panchayat and opinion leaders
- Farmers: Beneficiaries, Partial beneficiaries, non-beneficiaries
- Representatives of implementation partners (NGOs)

Four pre-designed tools were used for data collection from these stakeholders as below;

Tool 1: Secondary Data Study

Tool 2: Brief walk through the control area and farms (Adjacent to or benefitted from the Sustainable Water Development Project)

Tool 3: Group Discussion (GD) - Questions for Mixed Group Discussion on status of village with reference to the key development aspects of water, livelihood, health and wellness.

Tool 4: One to one interviews of relevant stakeholders.

District Jalna

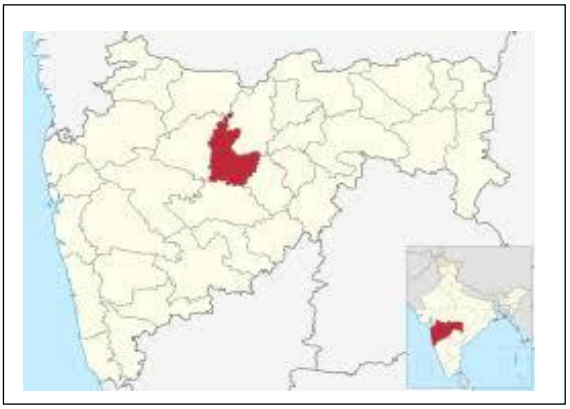
Geography

Jalna district is approximately situated at the center part of Maharashtra state of Republic of India and in northern direction of Marathwada region. The boundaries of Jalna district are adjacent to Parbhani & Buldhana on east, Aurangabad on west, Jalgaon on north and Beed on south. Jalna district covers an area of 7,612 Sq. Kms, which is 2.47% of the total state area. Jalna district is well known for its hybrid seed industries, steel re-rolling mills, bidi industry & agriculture-based industries like dal mill. According to 2011 census, about 98.68% i.e., 7616 sq. Km is rural area. Taluka Badnapur is situated on the right bank of the Dudhna about ten miles west of Jalna.

The district is well drained by river system, which are dendritic type and have matured valleys. There are two main drainage systems viz: (1) Godavari River and (2) the Purna and Dudhna rivers.

The river Godavari is one of the most important rivers of Deccan plateau and whole district of Jalna falls in its great basin. While most of the smaller streams dry up in summer, the major rivers are perennial. The Dudhna river is the largest tributary of the Purna river which is nearly as long as main river itself. It has the longest course in Jalna district and drains parts of Ambad, Jalna and Partur talukas with its tributaries such as the Baldi, the Kundilikha, the Kalyan, the Lahuki, the Sukna, etc. Erosive agents and weathering together have formed good fertile soils near the river beds.

Average temperature is 27°C and Average Annual Rainfall is 725.8 mm (Ranges between 650 to 750mm)



An Overview of Jalna and the villages on Human Development Index

Description		Jalna	Badnapur		
			Matarewadi	Deo Pimpalgaon	Dhamangaon
Actual Population		1,959,046	1,127	2,334	2,431
Male		1,011,473	566	1215	1262
Female		947,573	561	1119	1169
Sex Ratio		937	991	921	926
Child Sex Ratio		870	988	758	758
Total Child Population (0-6 Age)		287,338	163	378	406
Total Literate		1,195,523	913	1674	1583
Literacy		71.52%	81.02%	71.73%	65.14%
Male Literate		81.53%	89.05%	81.80%	79.24%
Female Literate		60.95%	72.92%	61.19%	50.50%
Total Workers		930886	646	1097	1396
Main Worker	Cultivator	398646	275	794	424
	Agr. Labourer	261713	96	134	812
Marginal Worker	Male	128920	7	73	44
	Female	132793	13	38	34

Soil

The Soils of the district are derived from the basaltic lava flows. Thickness of the soil cover is less in northern and western region where ground elevations are higher and consequently soil regur, gravels, soft rock ("*Murum*") are transported down to lower regions through gravity, water or winds. Soils in central, southern and eastern regions of the district near the banks of Godavari and Dudhna rivers are thicker. Here soils ranging in depth from 1 to 2 m are black and rich in plant nutrients. Profile description and analytical data of some typical soils are as follows:

a) **Light soils** occur along hills, rugged regions, plateau and elevate plains. These soils are brown to grey in colour, less fertile as plant nutrients are less and range in depth from 0-15 cm. They comprise grains of basalt, quartz and clays with calcareous nodules and gravels.

b) **medium soils** occur along undulating plains, depressions in hilly regions etc. These are dark brown in colour and contain more plant nutrients. The soil ranges in thickness from 15 to 40 cm and comprises clays with some silica and lie over soft rock ("*Murum*") at 40 to 100 cm depth.

c) **Deep soils** occur along plains of lower elevation, depressions and along river banks. These are dark black cotton soils, plastic, sticky, rich in plant nutrients and are very fertile. These soils range in thickness from 50 to 200 cm and lie over soft rock ("*Murum*") at 2 to 4 meters depth comprising clays, loam, lime etc.

Agriculture

Most of the people of this District are engaged in agricultural activities. According to Census 2011, percentage of the total workers engaged as cultivators is 45.01% and as agricultural laborer is 32.33% (percent) in the district. Together they constitute 71.33 %(percent) of the total workers of the district. **District produces jowar, soyabean, cotton, pearl millet, maize, green gram, peas as most common agricultural crops. Before the drought of year 2012, the district was also known for the highest production of Sweet Lemon (Mosambi) in the state. In the later years, the farms of Sweet Lemon in most of the cases diminished. Where possible, the farms were saved using tankers for water supply; however, only 5 to 10% of such farms could be saved.**

Industries

Jalna district is having good Industrial background, especially famous for the Seed and Steel industries. The industries based on agriculture include pulses mills, oil mills, refineries, fertilizers, insecticides, pesticides, co-operative sugar factories, and most significant being large number of seed manufacturing units; Mahyco, Mahindra, Bejo-Shital are some of them.

Summary: Overall Impact of The Sustainable Water Development Program on villages in Jalna

Jalna is one the 11 districts (Of the 36 districts in Maharashtra) which are highly vulnerable to the extreme weather events, droughts and dwindling water security and accounts for almost 40% of the cropped area across Central Maharashtra. (Reference: The study titled *'Socio-economic vulnerability to climate change – Index development and mapping for districts in Maharashtra'*). Overall, a Changing climate scenario in Marathwada suggests:

•Rainfall Distribution becoming erratic
•Long dry spells and short duration heavy rainfall.
•Crops damaged due to drought or water logging.

The agriculture in Jalna is a rain-fed agriculture (i.e., Kharif Season) that is, farming relies on rainfall for water. Given the erratic rainfall distribution and delayed monsoon due to the climate change, the farmers are forced to resow (*'dubar perni'*) in the absence of protective/alternative irrigation sources. The small water supply available from the aquifers is the only way for these farmers for protecting their rain-fed crops and in some cases growing irrigated crops from the vagaries of Monsoon rainfall. It is also their only source for drinking water for the family and cattle. In the absence of proper and assured irrigation, fluctuations in the monsoon rainfall affect sowing and crop growth, resulting in high vulnerability to the crop yield.

The best way to provide dry season recharge was to create small storages at various places in the basin by bunding streams or deepening the existing percolation tanks or streams having bunds for storing runoff during the rainy season and allowing it to percolate gradually during the first few months of the dry season.

Following table summarizes the work done by Praj Foundation in the Jalna cluster for the villages selected for Impact Assessment –

Villages	Year Of Work	Fund Invested by Praj Foundation	Work Done	Number of Beneficiaries
Matarewadi	2015-16	Rs.23.89 lakhs	Restoration of 1 KTW and 2 Doh Formation	197
Deopimpalgaon	2018-19	Rs 24.50 lakhs	Desilting of 4 Doh, 2 Mati Nala Bunding, 1 Percolation Tank, New construction of 1 Ferro-Cement Nala Bunding	204
Dhamangaon	2018-19	Rs 18.00 lakhs	Repair work of 2 Percolation tanks, 2 New Mati Nala Bunding, Renovation of 5 Mati Nala Bunding, Desilting of 11 Doh	138

The summary of the impact recorded in the Jalna Cluster is as following –

1. The changes observed in natural resources in the project area

- Drinking Water:
    - The 2013 drought in Maharashtra came about after the region received lower rainfall during the monsoon season (June to September 2012). It is considered as the region's worst drought in 40 years. After 2013, dependency on the water supply through tankers was inevitable for more than 6 months as the rain water would only suffice for a couple of months after the rainy season. **The approximate expenditure for the tankers per village per year borne by the local governance was Rs. 35 Lacs.**
    - After The Nala Desilting work carried out by the Praj Foundation, **these three villages are now 100% tanker free** as they have around the year water supply for drinking as well as farming.

- Water for Farming:

  The Nala Desilting work carried out by the Praj Foundation has enabled the residence time of water in the basins from a few months to the full year and the percolated water is available in the wells even during the summer season. It has not only provided access to the protective irrigation but also the year-round irrigation.

Particulars		Unit	Matarewadi			Deo-Pimpalgaon			Dhamangaon		
			Before	Current	% Increase	Before	Current	% Increase	Before	Current	% Increase
Total Land in command area		Ha	200	200	NA	550	550	NA	400	400	NA
Irrigated Land in command area		Ha	20	200	900%	150	500	233%	60	340	467%
Total number of wells which had water		Nos	45	100	122%	60	230	283%	10	210	2000%
Water availability	Farming	Months	Jun to Nov	Jun to Jun	NA	Jun to Nov	Jun to Jun	NA	Jun to Nov	Jun to Jun	NA
	Drinking		Jun to April	Jun to Jun	NA	Jun to April	Jun to Jun	NA	Jun to April	Jun to Jun	NA
Marginal Land becoming cultivable due to silt		Ha	NA	26	NA	NA	15	NA	NA	17	NA
Stretch of access roads built using soft rock ("Murum")		Km	NA	6	NA	NA	1.5	NA	NA	6	NA

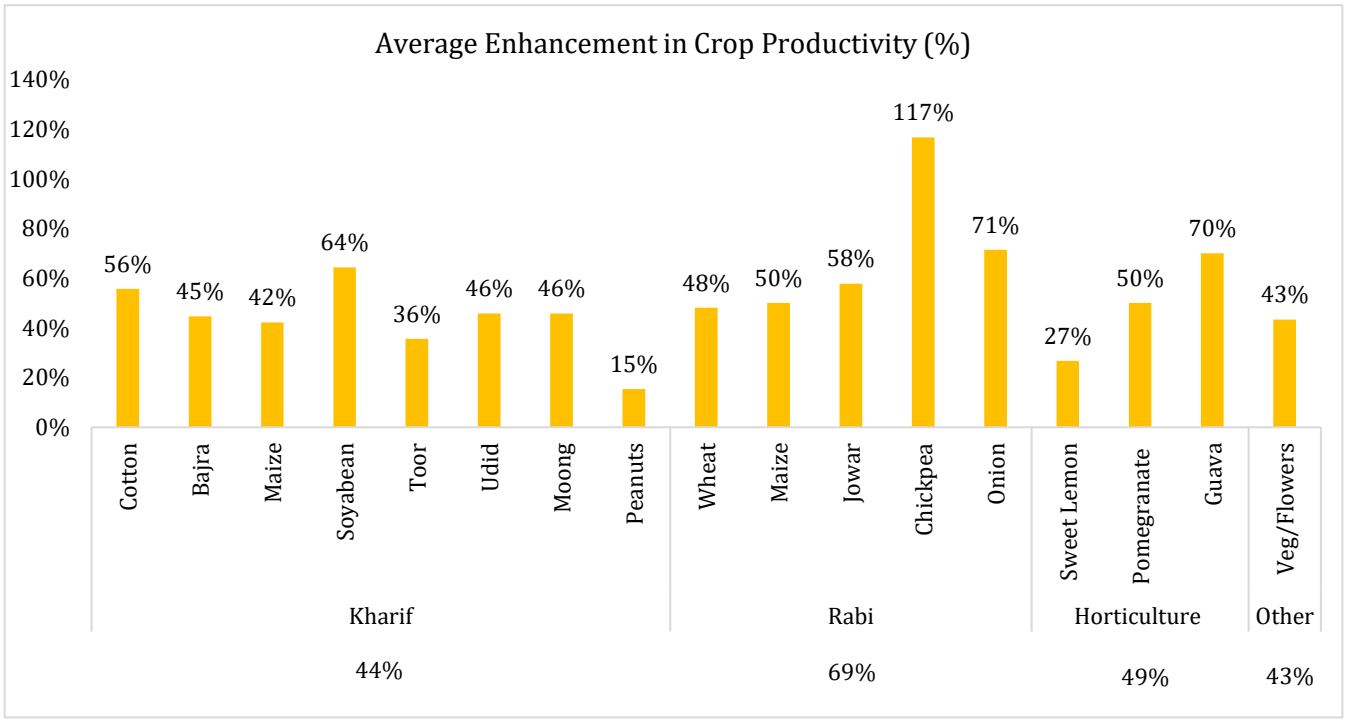
- Surface Water Level: The surface water level observed during the impact assessment conducted in December in Jalna is **3 meters.**

2. The changes observed in agriculture sector

- Kharif Season was earlier jeopardized due to delayed monsoon and the farmers were under constant risk of resowing ("*Dubar Perni*"). Due to availability of protective irrigation, farmers are able to take assured crops during Kharif season. This ensured that no crop failure happens and almost eradicated the expenditure towards re-sowing and loans thereof. **The average increase in the productivity (Quintal/Ha) of kharif crops is 44%.**

- Rabi season: Taking second crops during the Rabi season was not possible earlier due to complete lack of water. After the Nala desiltating, due to water availability and expansion of area under cultivation, **the average increase in productivity (Quintal/Ha) of Rabi crops is 69%.**

- Summer season: Due to availability of year-round irrigation, taking third crop is possible for the farmers. Area under horticulture has expanded due to year-round irrigation. There is a substantial growth in the productivity of existing fruit farms. Also, the area expansion for the increased range of Horticulture, Floriculture and Vegetable is observed. Due to the assured water, the farmers could go back to the tradition horticulture in Jalna (i.e., producing the sweet lime crop); which was almost eradicated due to the drought situation. **This has resulted into 49% increase in the average productivity of horticulture and 43% increase in floriculture and vegetables.**



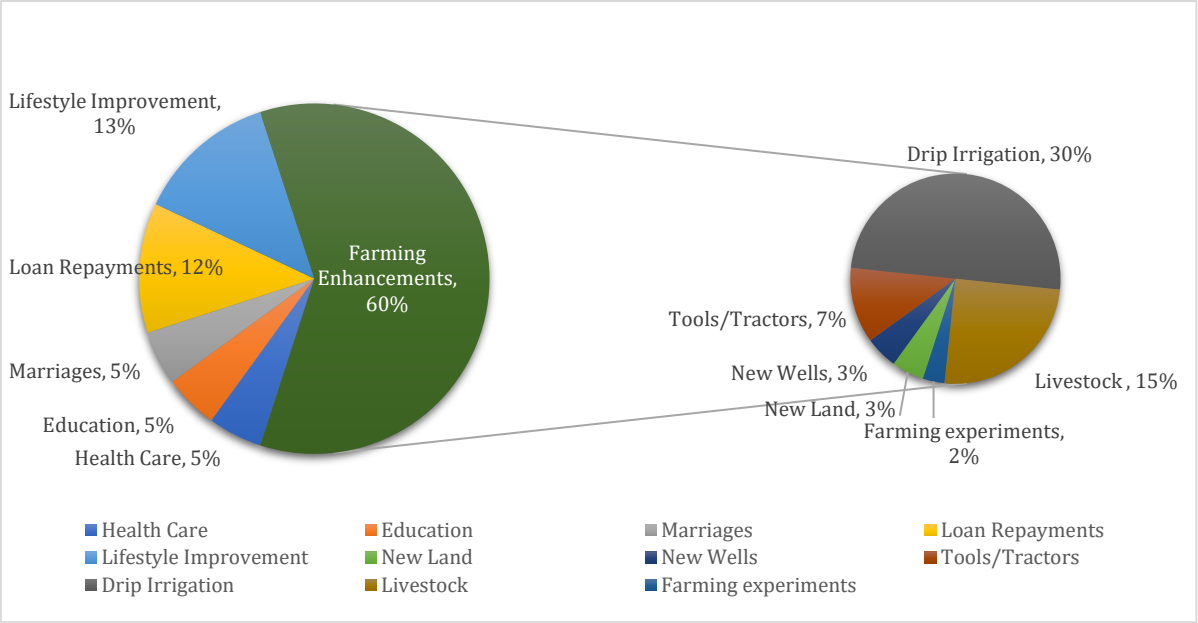
Note – Grapes and Onion seeds are the newly added Rabi crops which were not taken earlier. About 10 Quintal/Ha Onion Seeds are harvested under contract farming. About 371 Quintal/Ha grapes are harvested. Both these crops could be newly added in to cropping pattern due to year-round water availability.

- Off farm activities: With the assured water and availability of fodder, there is an approx. 65% increase in the livestock in the villages. On an average, each family has at least one cow and 2-3 goats. **About 10 to 12% of total income is generated through selling milk to the dairies and selling goats.**

3. The change in economy of the community

An average increase in the profits made by the farmers through agricultural activities is 54%. Year-round water availability, increased land under irrigation, increase and enhancement in the land due to silt, enabled allied businesses are all the contributing factors in increased profit margins.

Following is graph depicting utilization of profit.



Loan repayments: Jalna is notorious for the farmers running high risks of Resowing ("*Dubar Perni*") and getting pressed under the loans taken for the same. With this background, currently, the beneficiary farmers in the command area are utilizing about 12% of the profits generated for the loan repayments.

Farming enhancements: About 60% of the profits made are refed into the farming activities.
About 30% of profits being invested in the drip irrigation shows shift in the farmers' mindset towards sustainable farming through mindful and smart usage of available water.
About 15% profit utilization for the livestock acquisition & management indicates provisions for the additional alternative income sources, making the agriculture more sustainable.

4. Community Involvement Analysis

A clear leadership in all the three villages is observed which is unanimously followed by the community. The community engagement in the project is evident through the village's financial contribution raised by the farmers. Various fund-raising ideas were implemented such as contribution of fixed amount per well in the command area from the owners, fixed amount for per acre land getting benefitted, raising the funds for the desilting and transport through selling the silt to the interested farmers etc. Apart from the monitory contribution, the farmers and their families also added to the in-kind contribution of time, physical efforts, food and water supply etc.

During the Nala Desilting work, water committees in each village were formed to manage the funds and day to day operations. These committees are functional and are resolving the issues raised time to time. Following ground rules are laid down by the implementation partners which are still followed by the farmers and villagers –

- No water-intensive crops like sugarcane, banana etc. are taken
- No direct water lifting from the Nala - Water is only fetched through recharged wells.

The water committee ensures that these rules are followed without any exceptions. Lest there should be a requirement of repair/maintenance work of Nala, it was observed that the farmers together with the water committee would take initiative for the same. The villagers/farmers are treated as the implementation partners, hence there is a sense of responsibility among villagers/farmers towards overall maintenance of the water bodies.

The village has a continued sense of togetherness; some of the wells are shared and access to water is given to the adjacent farmers if needed. There is an increased sense of happiness and well-being in the village. As the benefits of the Nala Desilting work is experienced first-hand, the farmers are ready and willing to make monitory contribution for the maintenance work (if any) for the sustained benefits.

As a community, there is a paradigm shift in the farmers' mindset. They have an increased willingness for sharing knowledge and resources. Market availability, market prices, utilization of government schemes (for drip irrigation, solar pump etc.) and other experimental ideas are exchanged among the community and assistance in farming related decision making is extended. There is also an enhanced business sense among the farmers.

5. Gender Sensitivity

Involvement of women from the discussion phase to the implementation phase was negligible. However, although no substantial statistics could be achieved, it was noted that the stress on the women to fill drinking water everyday was reduced to a great extent, freeing them up for other household chore or being available for the farm work. Since the women are now able to contribute in the farming activities – either in their own farm or as a labor in others' farm – the women feel included and self-sustained.

Since the physical strain of fetching water is reduced, health issues such as body aches, fatigue and weakness etc. have reduced. Also, there is a decline in water borne diseases due to availability of clean water for drinking and other usage. As there are reduced chances of loans or loans going into defaults, women are comparatively stress free.

6. Status of migration and reverse migration

With the assured water availability, farming is possible around the year; keeping the farmers and their families occupied full time unlike earlier when farming got stalled due to lack of water and families had to either migrate to other cities and look for work as a labor in others' farms. Since overall farming activities were restricted, regular labor or those with marginal/small land holding also struggled to get enough jobs to keep them afloat. Currently there is not only enough work for all the farmers in the village (either in own farms or as a labor in others' farm) but also there is an inward migration of labors from other villages as there is a shortage of labors in the villages.

Village Specific Findings

Village 1 – Matarewadi

Matarewadi is a medium size village located in Badnapur Taluka of Jalna district, Maharashtra with total 230 families residing. The Matarewadi village has population of 1127 of which 566 are males while 561 are females as per Population Census 2011. Detailed village profile is as following:

Particulars		Total	Male	Female
Total No. of Houses		230	-	-
Population		1127	566	561
Child (0-6)		163	82	81
Literacy Rate		81.02%	89.05%	72.92%
Total Workers		646	328	318
Main Worker	Cultivator	404	-	-
	Agri. Labourer	108	-	-
Marginal Worker		20	7	13

List of work done under the Sustainable Water Development Project by Praj Foundation

- Restoration of 1 KTW
- Doh Formation: 2

1. The changes observed in natural resources in the project area

Particulars	Unit	Before	After	Difference
Total Cultivable Land in command area	Ha	200	200	-
Irrigated Land in command area	Ha	20	200	900%
Total number of wells which had water	Nos	45	100	123%
Marginal Land becoming cultivable due to silt	Ha	0	26	-
Stretch of access roads built using soft rock ("*Murum*")	Km	0	6	-

2. The changes observed in agriculture sector

After the drought of 2012, the crops taken in Kharif season always ran a risk if resowing in the absence of assured rain or alternate protective irrigation. Earlier, the tradition crops were giving a marginal income – in most of the cases, not even reaching the breakeven and incurring losses, due to the crop failure.

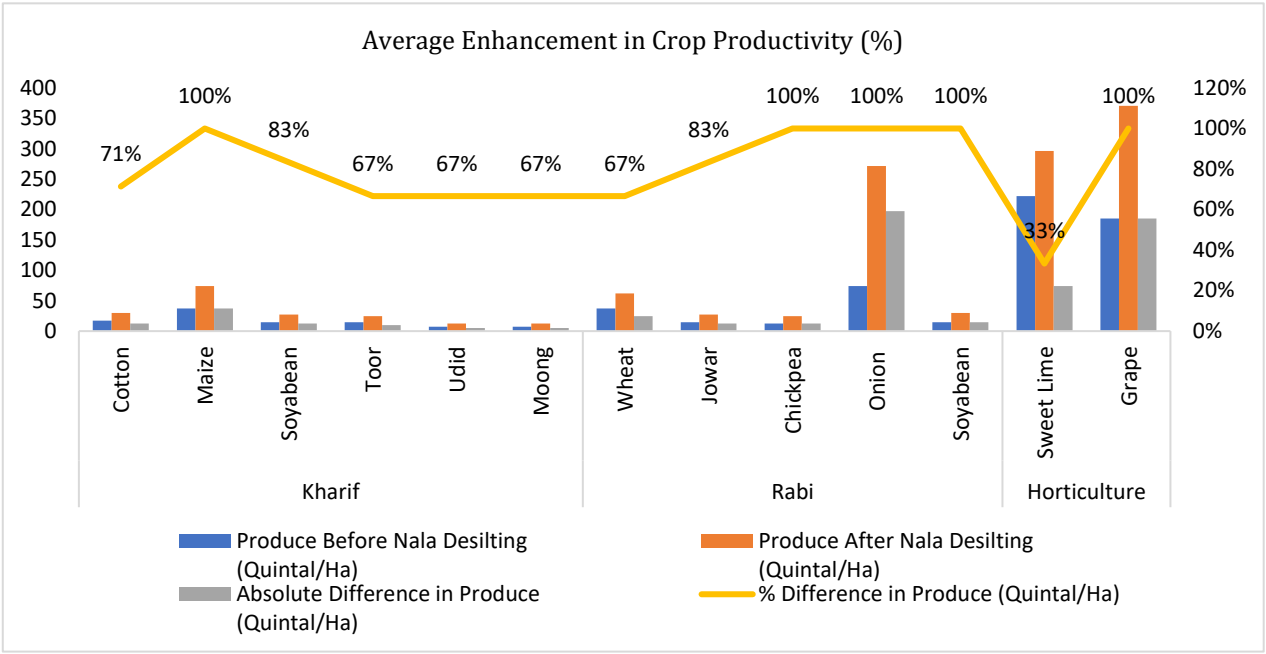
After the Nala Desilting work:

- Kharif Season: An average increase of 75% is observed in the productivity of traditional crops such as cotton and soyabean. Overall increase in productivity across all the Kharif crops such as Cotton, Soyabean, Tur, Moong, Udid and Maize is 76%

- Rabi Season: An average increase of 90% is observed in productivity of Rabi crops such as Wheat, Jowar, Chickpea, Soyabean & Onion. Contract farming of Onion Seeds is newly introduced due to water availability. Onion seeds which were done on a very small scale earlier saw of productivity rise by 300% and the contracts with the seed companies like Elora and Panchaganga for the onion seeds has ensured a definite and secured income.

- Horticulture & Floriculture: Due to assured water availability, area under horticulture and floriculture is increased. Under horticulture, traditional crop such as Sweet Lime and a newly introduced crop such as Grapes are taken. Flowers such as Shevanti are taken under floriculture. An average increase by 67% is noted for the horticulture and floriculture.

Overall average increase in the profits made by the farmers is 55%



- Off farm activities: Due to availability of fodder, farmers are able to be involved in the off-farm activities such as goat raring and dairy farming. Each household has at least 2 cows and 3-4 goats. The milk produced through the dairy farming is sold to the dairies (Rs. 25/- per liter); adding to the per capita income of the family. In a few cases, where the milk is not sold to the dairies, it provides for family's need of milk and milk products. Selling one goat every six months yields an average income of Rs. 12,000 to Rs. 15,000/-

3. The change in economy of the community

The profits made through agricultural activities are utilized for

a. Farming Enhancements: Installation of drip irrigation, livestock, farming tools
b. Repayments the existing loans. Loans are taken for upgrading the farming tools, education, marriages, house repair/renovation, vehicle purchase etc.
c. Lifestyle improvements – House renovations, vehicle purchase etc.

With assured water supply the risk-taking ability of the farmers has increased and they have an elbow room for experimenting with the practices such as contract farming of Onion seeds. The farmers have a comparatively fee hand in turning to the cash crops i.e., a shift from rainfed agriculture ("*Jirayati*") to irrigated agriculture ("*Bagayati*"), deciding the cropping patterns as per market needs, applying for the new loans with a confidence of repayments etc.

Earlier most of the families depended upon the public distribution system for wheat grain. Now due to water availability, every family cultivates wheat for their personal use; surplus is also sold in the market. Cultivation of vegetables for personal use has also seen an increase thereby promoting nutritious food intake and improved health.

Due to individual welfare, there is an increase from 20% to 85% in people paying property tax. Due to this increased revenue to the local governance, following benefits on the community level are observed–

a. The drainage lines which were open earlier are now covered, enabling cleaner and healthier dwelling places. This has resulted into a steady decrease in the number of people affected by the waterborne diseases.
b. RO Water ATM is installed in the village for filtered water availability and measured usage.

The selling of lands was quite regular before the Nala Desilting work due to erratic rains, drought conditions and irregular income through farming. Currently, due to water availability, assured income through agriculture is guaranteed. Land prices have gone high however, now no farmer wants to sell the land!

4. Community Involvement Analysis

The community engagement in the project is evident through the village's financial contribution raised by the farmers. Various fund-raising ideas were implemented such as contribution of Rs.10,000/- from each well owner, raising the funds for the desilting and transport through selling the silt to the interested farmers etc. Apart from the monitory contribution, the farmers and their families also added to the in-kind contribution of time, physical efforts, food and water supply etc.

During the Nala Desilting work, a water committee was formed to take care of finances and day to day operations. The same committee is still in functional and is taking care of any issues raised time to time. The ground rules laid by the implementation partners are still followed completely –

- No water-intensive crops like sugarcane, banana etc. are taken
- No direct water lifting from the Nala; the water is only used fetched through recharged wells.

The water committee ensures that these rules are followed without any exceptions. Lest there should be a requirement of repair/maintenance work of Nala, it was observed that the farmers together with the water committee would take initiative for the same. The village has a continued sense of togetherness and responsibility. For example, some of the wells are shared and access to water is given to the adjacent farmers if needed. There is an increased sense of happiness and well-being in the village. Most of the people are satisfied with life.

5. Status of migration and reverse migration

With the assured water availability, farming is possible around the year; keeping the farmers and their families occupied full time unlike earlier when farming got stalled due to lack of water and families had to either migrate to other cities and look for work as a labor in others' farms. Since overall farming activities were restricted, regular labor or those with marginal/small land holding also struggled to get enough jobs to keep them afloat. Currently there is not only enough work for all the farmers in the village either in own farms or as a labor in others' farm but also the labors from other villages are getting employment in the village.

Other Positive Observations

- Currently an area of 1km to 1.5km radius is benefitted by the Nala Desilting work. Going by the current trend of water percolation and well recharging trend, it may be extrapolated that the beneficiary area may increase to the radius of 1.5km to 2.5km in near future.
- There is an uprise in allied businesses like fertilizer shops, farming tool shops at the nearby marketplace (Shelgaon)
- Focus on the children's education for both male and females is evident. Many students, both male and female, in the village are appearing for the competitive exams like MPSC/UPSC, NIIT etc.

Points of Improvement and Recommendations

- Although a new FPO "SWAD" is already in place, it is suggested that the cropping pattern is studied to avoid crop saturation in the village. The Praj Foundation together with Savitribai Phule Mahila Ekatma Samaj Mandal may build on the existing rapport with the villagers and play an important role in designing cropping patterns for the farmers.
- While the farmers have confirmed the financial gain, the lack of documentation at the farmers' level and financial literacy in the farmers is an area of improvement. Although the farmers have experienced the financial well-being after the Nala Desilting work, the exact quantification of gains is not fully understood and appreciated.
- Since the farmers and their families are now fully occupied with agricultural activities, the agricultural and non-agricultural allied businesses like dairy products etc. need to be explored further.
- Food processing, fruit, dehydration, dairy products units may be considered as various options of allied businesses.

Images – Before

Doh 1 – Original site

Doh 1 – Site Cleaning

Khadekar Well

Doh 1 – Excavation

Doh 1 – Excavation

Images - After

Khadekar Well

Village 2 – Deopimpalgaon

Deopimpalgaon is a large village located in Badnapur Taluka of Jalna district, Maharashtra with total 447 families residing. The Deopimpalgaon village has population of 2334 of which 1215 are males while 1119 are females as per Population Census 2011. Following is the detailed village profile.

Particulars			Total	Male	Female
Total No. of Houses			447	-	-
Population			2334	1215	1119
Child (0-6)			378	215	163
Literacy Rate			71.73%	81.80%	61.19%
Total Workers			1097	660	437
Main Worker	Cultivator		794	-	-
	Agri. Labourer		134	-	-
Marginal Worker			111	73	38

List of work done under the Sustainable Water Development Project by Praj Foundation

- Desilting of 4 Doh, 2 Mati Nala Bunding, 1 Percolation Tanks
- New construction of 1 Ferro-Cement Nala Bunding

1. The changes observed in natural resources in the project area

Particulars	Unit	Deo-Pimpalgaon		
		Before	Current	% Increase
Total Land in command area	Ha	550	550	NA
Irrigated Land in command area	Ha	150	500	233%
Total number of wells which had water	Nos	60	230	283%
Marginal Land becoming cultivable due to silt	Ha	NA	15	NA
Stretch of access roads built using soft rock ("Murum")	Km	NA	1.5	NA

2. The changes observed in agriculture sector

After the drought of 2012, the crops taken in Kharif season always ran a risk if resowing in the absence of assured rain or alternate protective irrigation. Earlier, the tradition crops were giving a marginal income – in most of the cases, not even reaching the breakeven and incurring losses, due to the crop failure.

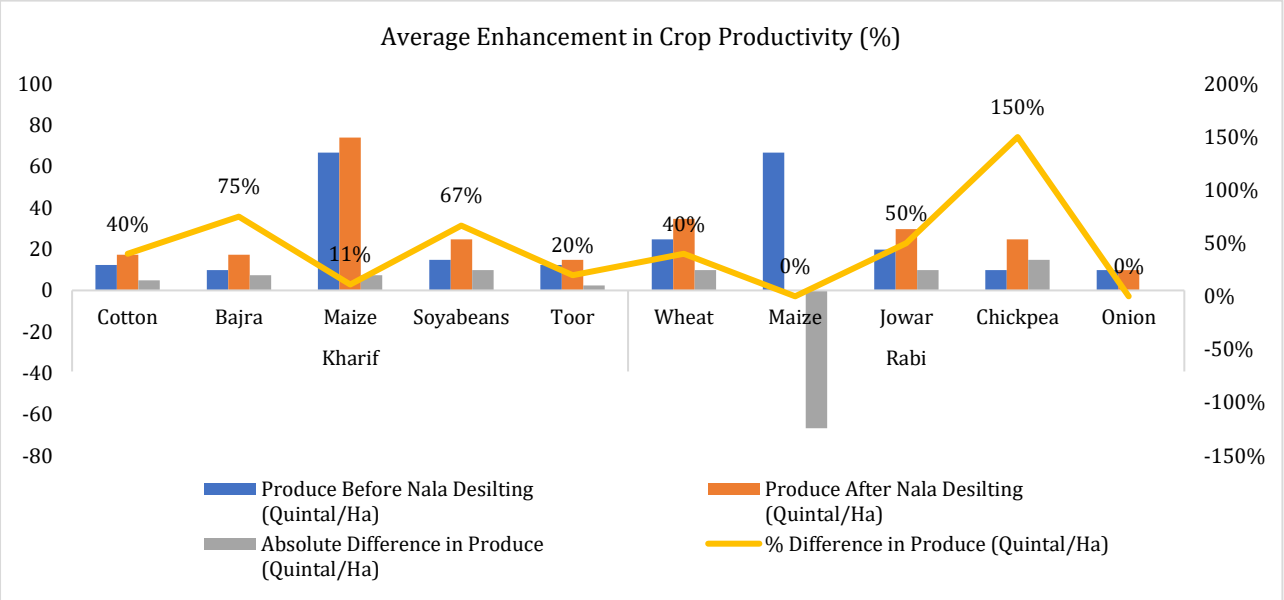
After the Nala Desilting work:

- Kharif Season: Overall increase in productivity across all the Kharif crops such as Cotton, Soyabean, Tur, Bajra and Maize is 43%

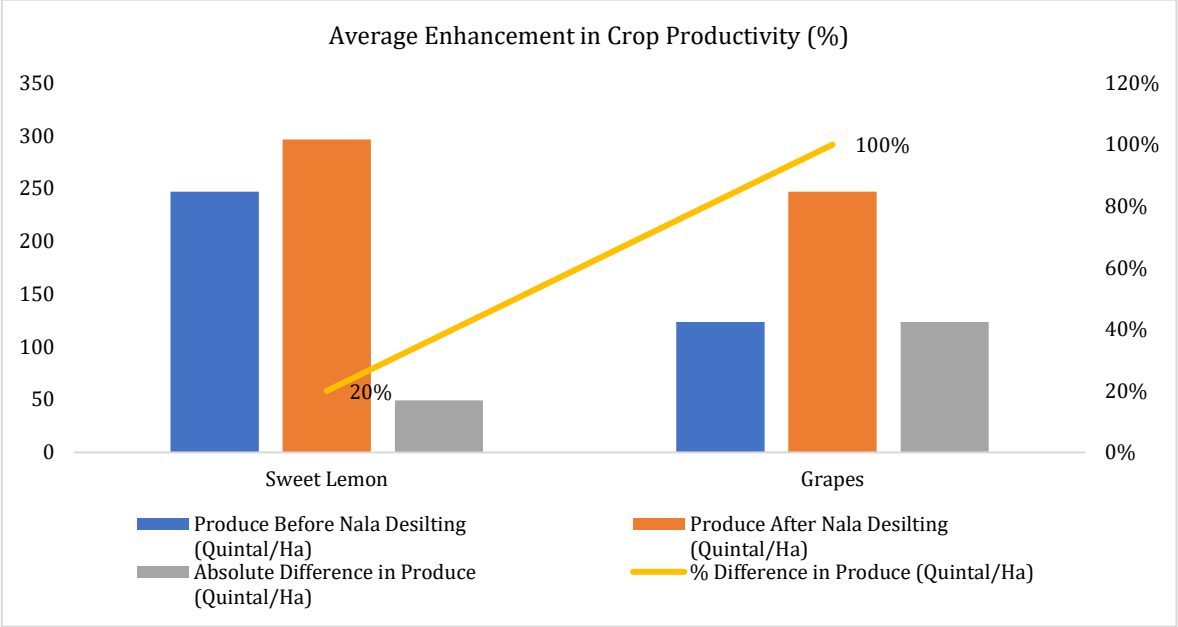
- Rabi Season: An average increase of 80% is observed in productivity of Rabi crops such as Wheat, Jowar, Chickpea. Taking Maize crop has almost stopped as most of the farmers have turned to horticulture for taking a traditional crop of Sweet Lime, Custard Apples, Grapes etc. The crop of onion has only shown a marginal increase; as the land under onion is very limited and most of the land is under cultivation of cash crops.

- Horticulture: Due to assured water availability, area under horticulture is increased. Under horticulture, traditional crop such as Sweet Lime and a newly introduced crop such as Grapes are taken. An average increase by 60% in the productivity is noted for the horticulture. The land holdings are either marginal/small or large. Semi-medium/Medium scale landholdings are negligible. The farmers with large land holding (25+ Acres) have benefitted tremendously through as the horticulture. It includes Sweet Lemons, Pomegranate, Guava, Custard Apple and Keshar Mango. Since this is just the third year after water availability, horticulture is most likely to see exponential profit growth in coming years.

Overall average increase in the profits made by the farmers is 57%



Note – The farmers have shifted to the horticulture and they have completed stopping taking maize; hence the bar shows a negative value.



- Off farm activities: Due to availability of fodder, farmers are able to be involved in the off-farm activities such as goat raring and dairy farming. Each household has at least 2 cows and 3-4 goats. The milk produced through the dairy farming is sold to the dairies (Rs. 25/- per liter); adding to the per capita income of the family. In a few cases, where the milk is not sold to the dairies, it provides for family's need of milk and milk products. Selling one goat every six months yields an average income of Rs. 12,000 to Rs. 15,000/-

3. The change in economy of the community

The profits made are utilized for,

a. Farming Enhancements: Installation of drip irrigation, ground leveling and pipeline installation to fetch water from wells Upgrading the farming techniques and tools such as purchase of foggers, tractors etc.
b. Medium scale farmers could repay the old loans and apply for new ones for upgrading the farming tools, education, marriages, house repair/renovation, vehicle purchase etc.
c. Large scale farmers have achieved a luxurious lifestyle which includes two houses, four wheelers and ample livestock

The profits made through agriculture has also enabled the farmers and their families to start secondary businesses such as running a clothes shop, medical shop etc. This has further enhanced the financial condition and added to the sustainable lifestyle improvements.

4. Community Involvement Analysis

The village's financial contribution for the Sustainable Water Development Program is noteworthy as they implemented various ideas such as contribution of Rs.10,000/- from each well owner, raising the funds for the desilting and transport through selling the silt to interested farmers etc. Those who could only contribute nominal amount such as Rs. 750/- were also accepted. The water committee which was formed during the implementation phase is still in place and is actively monitoring the water bodies. Although there are no concrete plans lest there should be any maintenance work, the unity in villagers/farmers may play a critical role in resolving any issue if any. As a community, the farmers seem to have a changed mindset and improved business sense. There is also a sense of sharing knowledge and resources among the farmers. Market availability, market prices, utilization of government schemes (for drip irrigation, solar pump etc.) and other experimental ideas are discussed among the community and assistance in farming related decision making is given and taken.

5. Status of migration and reverse migration

With the assured water availability and year-round irrigation, farming is done around the year. While the large land holders are occupied full time, there is also an employment availability to marginal/small land holders through the available labor work. The labors from other villages are also benefitted due to farming work availability. Apart from the hour based or contract labors, the large land-holding farmers now have full time labors to work for them.

Images – Before

Shivar Pheri

Measurements

Building the Gabiyan Fero Cement Nala Bunds

Bandhara Work in Progress

Bandhara Work in Progress

Pre-MNB

Images – After

Water availability (Nala)

Post MNB

Water availability (Shet Tale)

Boost in Horticulture

Village 3 – Dhamangaon

Dhamangaon is a large village located in Badnapur Taluka of Jalna district, Maharashtra with total 466 families residing. The Dhamangaon village has population of 2431 of which 1262 are males while 1169 are females as per Population Census 2011. Detailed village profile is as following -

Particulars	Total	Male	Female
Total No. of Houses	**466**	-	-
Population	**2,431**	1,262	1,169
Child (0-6)	**406**	231	175
Literacy	**65.14 %**	79.24 %	50.50 %
Total Workers	**1,396**	708	688
Main Worker	**1,318**	-	-
Marginal Worker	**78**	44	34

List of work done under the Sustainable Water Development Project by Praj Foundation

- Repair work of
    - Percolation tanks: 2
    - New Mati Nala Bunding: 2
    - Renovation of Mati Nala Bunding: 5
    - Doh: 11

1. The changes observed in natural resources in the project area

   The village is situated upstream – at the origin of the stream. However, since it is light soils occurring along hills/elevate plains, it is less fertile as plant nutrients are less and range in depth from 0-15 cm. They comprise grains of basalt, quartz and clays with calcareous nodules and gravels. Due to the rocky region in water flows down-streams leaving the upstream areas with little to no water. Most of the land belonging to the village is a hill land.

Particulars	Unit	Before	After	Difference
Total Land in command area	Ha	400	400	-
Irrigated Land in command area	Ha	60	340	⇧
Total number of wells which had water	Nos	10	210	⇧
Marginal Land becoming cultivable due to silt	Ha	NA	17	-
Stretch of access roads built using soft rock ("Murum")	Km	NA	6	-

2. The changes observed in agriculture sector

   Due to availability of protective irrigation, farmers are able to take the rain-fed crops (i.e., Kharif Season) without having to worry about the resowing ("*Dubar Perni*"). As the year-round irrigation is available, about 70% farmers are now able to take the Rabi and Summer season as well.

   After the Nala Desilting work:

   - Kharif Season: Most of the land is cultivated under cotton; however, due to bondali disease spread on cotton crops and heavy rains this year, the produce is compromised. Since cotton produce is negatively affected and there is a good market for soyabean, farmers are slowing shifting to Soyabean. Overall increase in productivity across all the Kharif crops such as Cotton, Soyabean, Tur, Bajra, Udid, Moong, Chickpea and Maize is 23%

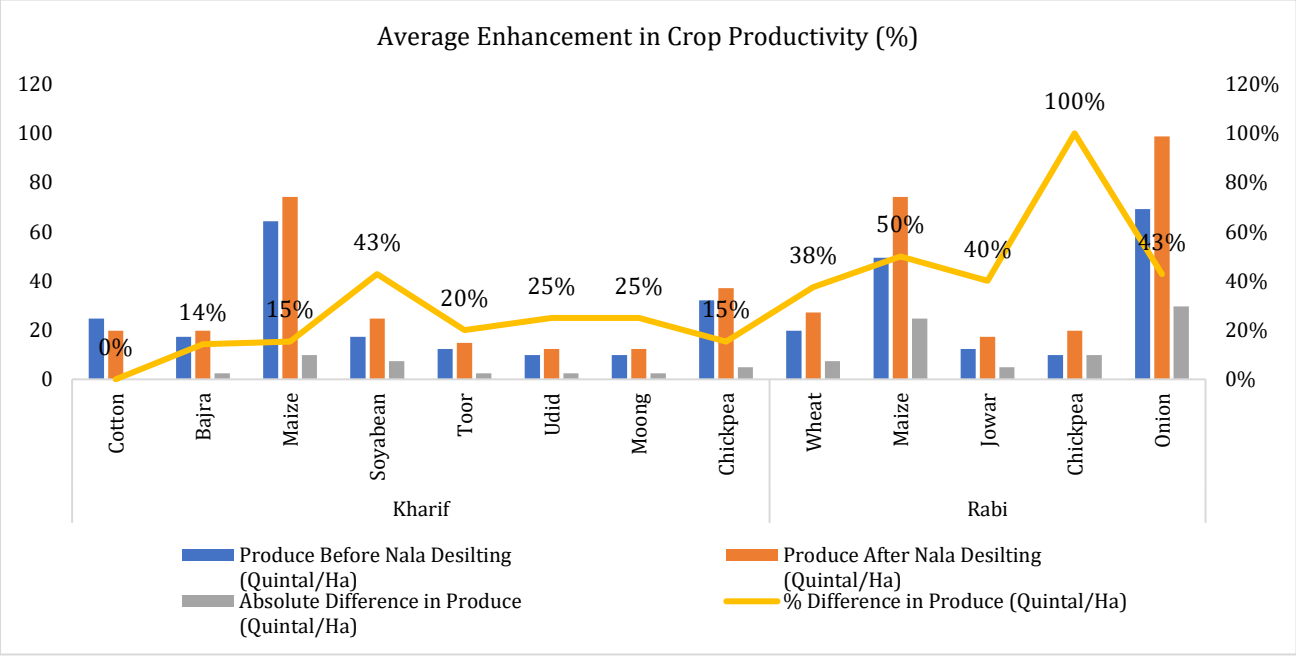
   - Rabi Season: An average increase of 54% is observed in productivity of Rabi crops such as Wheat, Jowar, Chickpea, Onion and Maize. Most of the farmers have turned to horticulture for taking a traditional crop of Sweet Lime, Custard Apples, Grapes etc. The crop of onion has only shown a marginal increase; as the land under onion is very limited and most of the land is under cultivation of cash crops.

- Dhamangaon is one of selected village for the PoCRA scheme (Project on Climate Resilient Agriculture) by the government for the installation of drip irrigation, shade nets and poly nets. Poly nets are utilized for the cultivation of vegetable seeds (Chili, Tomatoes etc.) production to be sold to the companies like Sanjivani.

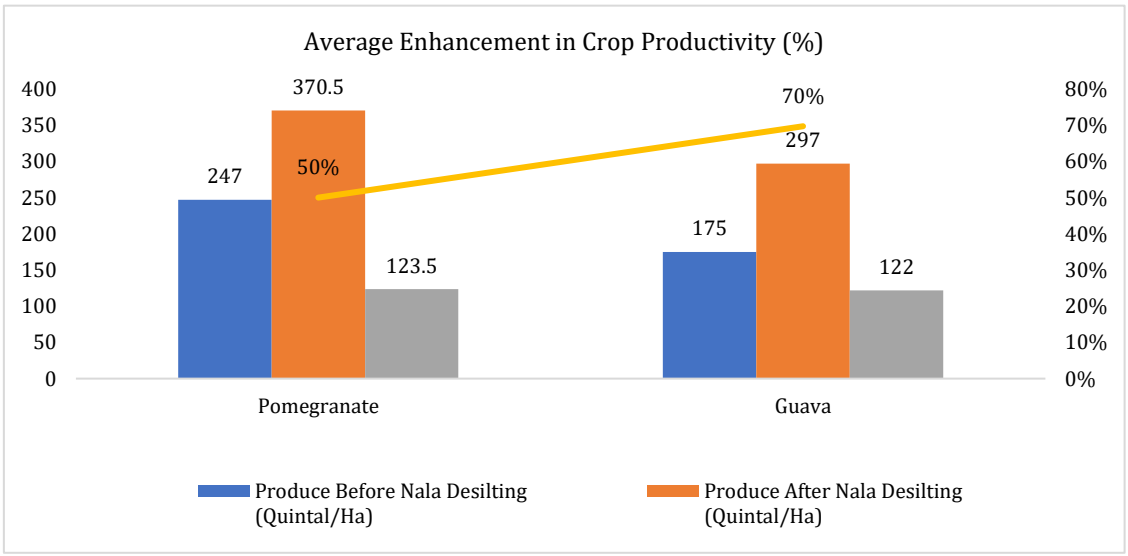
  An average income made through a shade net across 1 acre for the chili seeds in a year is a about 8lacs!

- Horticulture: **About 85 ha land is newly cultivated under Pomegranate, Guava, Custard Apple, etc. Since these fruit farms are comparatively new, the profit margin through horticulture is currently increased by an average of 150%. The profits are anticipated to improve as the as the fruit farms would mature in 2 to 3 years.**

Overall average increase in the profits made by the farmers is 51%



Note: The cotton crop is affected by Boll Worm ("*Bond ali*"); hence the production this year is affected.



Due to water and fodder availability, almost every home has an allied business of goat rearing. An approximate average income through the goat rearing is Rs.50,000/- per year per family. This is a 100% additional income given that due to goat rearing was completely eradicated earlier due to lack of water and fodder.

The earlier practice of cattle keeping is revived due to water and fodder availability. Although very little milk goes to the dairy, it provides for the family needs of milk and milk products.

3. The change in economy of the community

The profits made are utilized for,

a. Farming Enhancements: Installation of drip irrigation, building Shet Tali (Water storages) for making additional water supply for the dry season, ground leveling and pipeline installation to fetch water from wells Upgrading the farming techniques and tools such as purchase of foggers, tractors etc.
b. The large land holders have used the profits in improving the farming practices furthermore and improving lifestyle with better houses and vehicles.
c. Through the profits made, farmers were able to close the old loans, repair/renovate houses, add to the existing livestock and make provisions for the children's education.

4. Gender Sensitivity

Through the poly nets, the women in the family are able to contribute as these poly net projects are fully run by the women. Women are thus generating a supporting income through the Poly Nets installed near to their homes. Along with generating the income for self, women laborers are also getting employed around the year through these projects. The management and labor work are all managed by the women.

5. Status of migration and reverse migration

With the assured water availability and year-round irrigation, farming is done around the year. While the large land holders are occupied full time, there is also an employment availability to marginal/small land holders through the available labor work. The labors from other villages are also benefitted due to farming work availability.

Images – Before

Shivar Pheri

Pre - MNB

Common Drinking Water Well

Silt Deposition on farm

Images-After

Doh -1

Nala

Poly Nets

Farm under cultivation

Case Studies in Jalna

Shri. Bhagwan Matare from Matarewadi is vice-sarpanch of Matarewadi and owns a 10 Acre land in Matarewadi. His land is located within 250 meters from the Nala Desilting work. Before the Nala Desilting work, he used to take the Kharif crops such as cotton and maize; taking Rabi and Summer season crops was not a possibility. He also had 200 old Sweet Lime trees. After the drought in year 2012, it was very difficult to maintain the existing Sweet Lime trees as watering them until summer season was possible only with the tanker water supply. His daily expenditure to water Sweet Lime trees in summer was Rs. 1Lac. The cultivation and maintenance expenditure were so much that loss was incurred every year despite selling the 100% yield. After the Nala Desilting work, both of his wells are recharged and has year-round water availability. Currently due to water availability he could increase the number of sweet lime trees to 1200 and the yearly profit made is close to Rs. 1 Cr. He has built a new house spending Rs. 20 Lac through the profits earned through agriculture and horticulture. He has installed drip irrigation in all the 10 Acres. His both children are studying in CBSE school.

Shri. Eknath Sudake from Matarewadi is a small land holder (4 Acre) who earlier used to work as a sugarcane labor. He had a loan of Rs. 1.5 Lacs incurred due to failed crops during and after the drought period. Currently, due to water availability he has focused on Green Chili and making a handsome profit out of it. He no longer has to work as a sugarcane labor. He has repaid all his loan of Rs. 1.5 Lac. Earlier he owned a tin shade house. Through the profits earned through Chili crop, he has built a pucca home. He has bought a two-wheeler costing Rs. 63,000/- on his own; he uses the two-wheeler for transportation of chilies to the markets. He also helped his son to buy a "pick-up" by contributing Rs.50,000/-

Shri. Govind Nannaware from Deo-Pimpalgoan is a large land holder (27 Acres) of which 13-acre land is within 250 meters from the Nala Desilting work. He owns 8 wells and after the Nala Desilting work, all the 8 wells are recharged. All of his land is under horticulture (Guava and Sweet lime). Wheat and Jowar crops are taken as intercrops. Between the years 2012 to 2018, the farming depended upon the tanker water. Currently, the overall yearly expenditure is Rs. 20 Lac and the income is Rs. 35Lac (Profit is 15 Lac). Through the profits made, he has installed drip irrigation in all 27 acres, spending approx. 25 Lac for the entire land. He has 4 full time agricultural labor working for him.

Shri. Shivnarayan Padol from Dhamangaon is a large land holder (20 Acres). Before the Nala Desilting work, he could only take a marginal produce of Kharif crops like cotton, jowar, toor, moong, chickpea & soyabean. He owned 2 wells before, which had water only till December end. After the Nala Desilting, due to water availability he has ventured into horticulture. He is taking pomegranate in 1 acre land and also has 250+ guava plants in about 1 acre land. He is also doing contract farming of Onion seeds for Elora. Through the profits earned, he could make an initial investment of 15Lac for the Poly net under PoCra scheme. The poly net for the Chili Pollens is completed being managed by his wife, generating an income of Rs. 8Lac per year on her own, also employing other women for the pollination work on per day basis. He has built 2 new shet-tali from the profit he earned. His current yearly profit is about 10 Lac over and above the profits made through Poly nets.

Mr. Satyanarayan Kadam from Dhamangaon is a medium land holder (8 Acres) where, earlier he could only take Kharif crops such as Jowar, Bajra and Cotton. Now due to water availability, the area under horticulture has increased. He currently have 1200 Guava Trees, 250 Lemon trees, 500 custard apple trees and also doing contract farming of Onion seeds. His profit margins have increased from Rs. 50,000/- per year to Rs. 2 Lacs per year.

Evaluation of Sustainable Water Development Program in Jalna

Jalna is one of the districts vulnerable to extreme changes in climatic conditions thereby being prone to the uncertainty of crops. Within year 2001 to 2017, total farmer suicides recorded in Jalna are 288. The reason behind these suicides is mostly the vicious cycle of erratic rain fall, irregularity of water supply, crop failure and inevitable situation of resowing and, never ending loans thereof. Unavailability of drinking water during summers and strenuous efforts to fetch water is making the women's lives beyond challenging.

Now, with the year-round water availability for drinking as well as farming, this project has given the farmers and their families a new hope of better life. Due to water availability, the farmers are able to take first-hand experience of sustainable, climate resilient agriculture. The farmers are not only able to go back to the traditional agriculture but also explore new options such as horticulture, floriculture, contract farming, vegetable farming etc. With the assured income, the young generation now prefers to stay in the villages and continue farming rather than migrating to cities, thereby reducing the inflow and pressure on natural resources, amenities and services in the cities. Farmers are gradually learning to look at farming from a practical, profit-making perspective instead of having a traditional look out.

For the total expenditure of Rs. 66.39 Lacs by the Praj Foundation for three villages in Jalna, a direct or absolute total return on investment of Rs. 5.5 Crore approximately to the 539 beneficiary farmers is achieved over 3 to 4 years since the Nala Desilting work is completed. In other words, on an average 62% return on investment is received by the farmers every year!

Recommendations-

The Praj Foundation and SPMESM may build upon the goodwill and respect in these villages for –

1. Farmers –
    a. Although the farmers are reaping the benefits of available water right now, there is a scope of improvement for conservation of drinking and farming water. The farmers may be helped to implement micro-irrigation systems in their farms, so that the available water is used sparing and responsibly. Water ATMs may be installed for the measured water supply of purified water.
    b. Since the FPOs like SWAD are already operational in the villages, it is recommended that the farmers are given the training and/or hand holding for designing a diversified cropping pattern so as to avoid the crop saturation in the markets.
    c. Trainings and implementation assistance for the Organic Farming may be extended to the farmers; which may create the village's brand in the organic products. This will enable the residue free food production with reduced dependency on the chemical fertilizers. This may also help in exploring the avenues like exporting the farm produce.
2. Youth –
    a. Since young people are taking keen interest in farming now, it is a right time to catch them young and train them on progressive, technologically advanced farming. They can be given the subject matter expertise as well as the technologically advanced farming tools.
    b. The youth may also be trained and engaged into the food processing units such as pulp making, juice making, making the milk products etc.

3. Women –Although there was no direct inclusion of women in the Nala Desilting work, the water availability at door steps has saved a lot of time, efforts and energy for the women. Although currently women are engaged in the farming activities, more options can be explored such as
    a. A project related to "Parasbag" – vegetable farming for self and selling may be implemented for the women where women manage the vegetable farming end to end – also being involved in the post production activities such as packing, marketing and selling of the vegetables. This project may also be connected to "Health" through nutritious food supply.
    b. Women, together with the youth, may also be engaged into the food processing of perishable and non-perishable items.
    c. With the improved financial condition, more attention towards women's health could be given through nutrition i.e., health related programs with women in focus could be taken up.

4. Overall, there is a lack of financial literacy in the villagers (Farmers, Women, Youth) A project dedicated to empower the villagers with the basic understanding of economy and managing personal finances (farming or otherwise) will be a plus as it will promote the smart usage of resources/money, strengthen their decision taking abilities with respect to money and the prosperity is not short lived.

District Ahmednagar – Taluka Pathardi

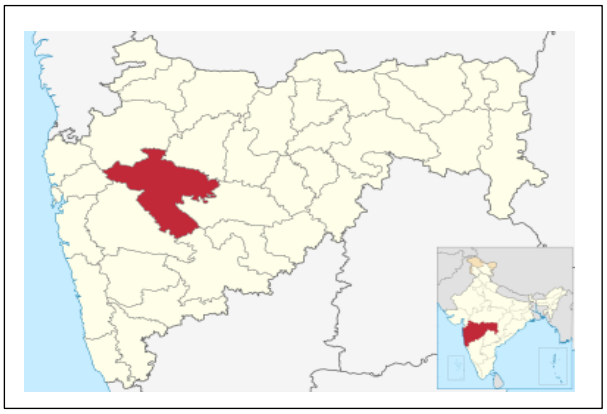
Geography

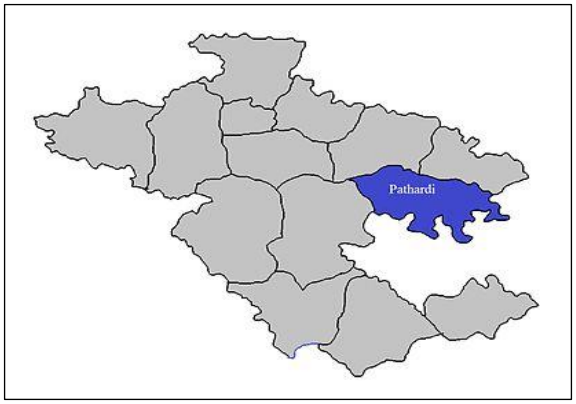
Although Ahmednagar it is considered to be in the Western Maharashtra, geographically and climactically it is similar to the Marathwada region.

Pathardi Tehsil is located in between 19°1719316 North latitude and 75°1790062 East longitude. The total geographical area of Pathardi Tehsil is 1214.10 ha. The elevation in between 504-676 Meter above mean sea level. The Pathardi-Tehsil, is situated about 52 km away from Ahmednagar city, towards north-east.

The Ahmednagar district being situated in "Rain Shadow" zone of Western Ghats, it often suffers the drought conditions. Almost entire district covering Ahmednagar, Rahuri, Nevasa, Shevgaon, Jamkhed, Karjat, Srigonda, **Pathardi** and Parner talukas comes under "Drought Area". It is noticed that the average annual rainfall has decreased during the last 10 years period as compared to the normal annual rainfall.

Spatial Variations in Rainfall of Pathardi during 1981 to 2014 show a mean rainfall of 483mm with a standard deviation of 202.89mm. Pathardi falls under the low rainfall zone (Index value below 575 mm)





Description		Taluka Pathardi (Rural)	Koradgaon	Shekte	Sonoshi
Actual Population		230898	3,481	2,145	1,895
Male		119817	1,819	1,142	970
Female		111081	1,662	1003	925
Sex Ratio		927	913	878	954
Child Sex Ratio		852	689	771	689
Total Child Population (0-6 Age)		32204	462	248	255
Total Literate		151,030	2693	1818	1421
Literacy		65.41 %	77.38%	84.77%	75.00%
Male Literate		73.81 %	87.27%	90.22%	87.06%
Female Literate		56.35 %	66.98%	78.66%	62.97%
Total Workers		124684	2034	984	1042
Main Worker	Cultivator	89.32 %	1037	551	355
	Agr. Labourer	10.68 %	289	73	79

Overall Impact of The Sustainable Water Development Program on villages in Ahmednagar

The sustainable water development program in villages Shekate, Sonoshi and Koradgaon on Tehsil Pathardi was studied.

The Ahmednagar district being situated in "Rain Shadow" zone of Western Ghats and the tehsil Pathardi comes under "Drought Area".

According to a research study - 'Socio-economic vulnerability to climate change – Index development and mapping for districts in Maharashtra', revealed that extreme climate conditions highly affect the livelihoods and agrarian economy of Maharashtra. Ahmednagar is one of districts moderately vulnerable to extreme weather events, droughts and dwindling water security. Overall, a changing climate scenario resulted into the rainfall Distribution becoming erratic, long dry spells and short duration heavy rainfall, and crops damaged due to drought or water logging.

The agriculture is a rain-fed agriculture (i.e., Kharif Season) that is, farming relies on rainfall for water. Given the erratic rainfall distribution and delayed monsoon due to the climate change, many farmers are forced to sow the seeds again (resowing -*'dubar perni'*) in the absence of protective/alternative irrigation sources. The small water supply available from the aquifers is the only way for these farmers for protecting their rain-fed crops and in some cases growing irrigated crops from the vagaries of Monsoon rainfall. It is also their only source for drinking water for the family and cattle. In the absence of proper and assured irrigation, fluctuations in the monsoon rainfall affect sowing and crop growth, resulting in high vulnerability to the crop yield.

Between the years 1972 to 1992, the farmers took crops like cotton and also grapes. After the drought of year 1992, the grape farming had to be stopped and the farmers stared depending on the vegetable farming between 1990 to 2010. However, after the drought of year 2012, vegetable farming and other rain-fed agriculture was badly affected and most of the farmers migrated to other districts (such as Nashik) and worked as Sugarcane workers (ऊस तोडणी कामगार/मजूर) in the North Ahmednagar. Consequences of this kind of migration were unsettled and disturbed family life, affected education of the kids and overall negative impact on life.

Following table summarizes the work done by Praj Foundation in the Jalna cluster for the villages selected for Impact Assessment –

Villages	Year Of Work	Fund Invested by Praj Foundation	Work Done	Number of Beneficiaries
Shekate	2017-18	Rs 29.22 lakhs	Nala Bund Desilting: 1	225
Sonoshi	2019-20	Rs 16.05 lakhs	Nala Bund Desilting: 1	178
Koradgaon	2016-17 and 2017-18	Rs 36.26 lakhs	Nala Bund Desilting: 1	247

The summary of the impact recorded in the Jalna Cluster is as following –

1. The changes observed in natural resources in the project area

- Drinking Water:
    - The 2013 drought in Maharashtra came about after the region received lower rainfall during the monsoon season (June to September 2012). It is considered as the region's worst drought in 40 years. After 2013, dependency on the water supply through tankers was inevitable for more than 6 months as the rain water would only suffice for a couple of months after the rainy season. **The approximate expenditure for the tankers per village per year borne by the local governance was Rs. 32 Lacs.**
    - After The Nala Desilting work carried out by the Praj Foundation, **these three villages are now 100% tanker free** as they have around the year water supply for drinking as well as farming.

- Water for Farming:

  The Nala Desilting work carried out by the Praj Foundation has enabled the residence time of water in the basins from a few months to the full year and the percolated water is available in the wells even during the summer season. It has not only provided access to the protective irrigation but also the year-round irrigation.

Particulars		Unit	Shekate			Sonoshi			Koradgaon		
			Before	After	% Increase	Before	After	% Increase	Before	After	% Increase
Total Cultivable Land in command area		Ha	560	560	NA	200	200	NA	242	242	NA
Irrigated Land in command area		Ha	5	400	7900%	8	200	2400%	40	242	505%
Total number of wells which had water		Nos	200	400	100%	0	100	100%	35	150	329%
Water Availability	Farming	Months	Jun to Nov	Jun to Jun	NA	Jun to Nov	Jun to Jun	NA	Jun to Nov	Jun to Jun	NA
	Drinking		Jun to Feb	Jun to Jun	NA	Jun to Feb	Jun to Jun	NA	Jun to Feb	Jun to Jun	NA
Marginal Land becoming cultivable due to silt		Ha	NA	2	NA	NA	26	NA	NA	20	NA
Stretch of access roads built using soft rock ("*Murum*")		Km	NA	4	NA	NA	6	NA	NA	30	NA

- Surface Water Level : The surface water level observed during the impact assessment conducted in December in Jalna is **3 meters.**

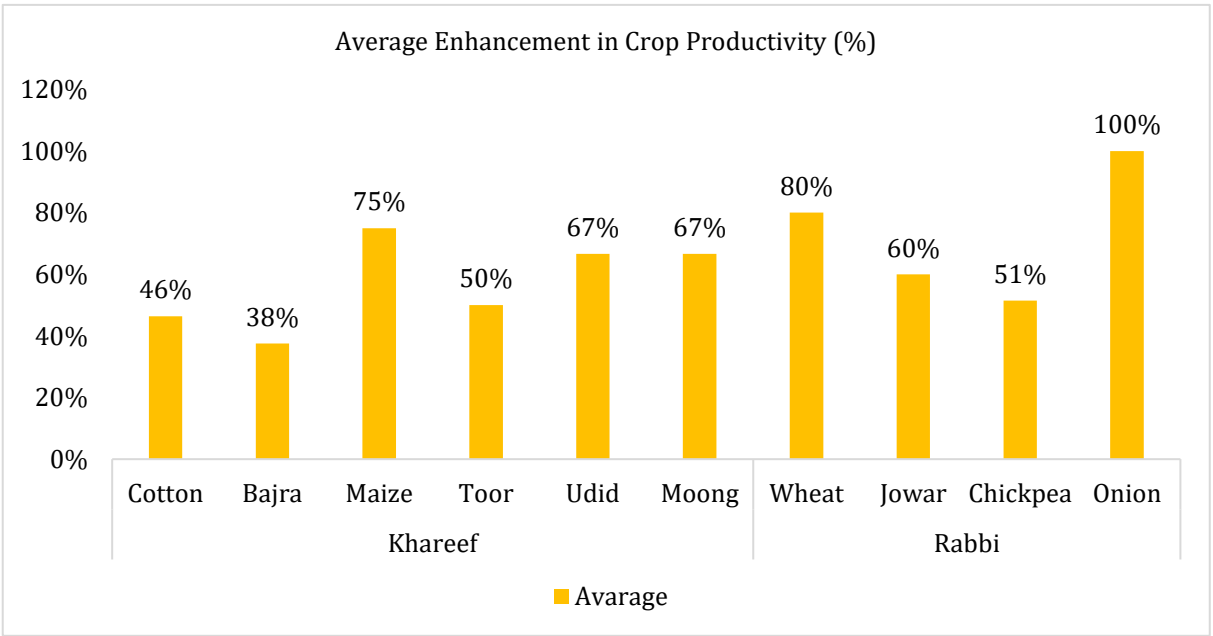
2. The changes observed in agriculture sector

After the drought occurred in 2012, the farmers mostly depended on the crops like cotton and soyabean. Crops like Udid, Toor and Moong were taken on the leftover moisture in the soil; however, water dependent crops like wheat were not taken at all. Most of the families in the villages survived as a laborer in sugarcane farming in others' farms.

- Kharif Season was earlier jeopardized due to delayed monsoon and the farmers were under constant risk of resowing ("*Dubar Perni*"). Due to availability of protective irrigation, farmers are able to take assured crops during Kharif season. This ensured that no crop failure happens and almost eradicated the expenditure towards re-sowing and loans thereof. **The average increase in the productivity (Quintal/Ha) of kharif crops is 57%.**

- Rabi season: Taking second crops during the Rabi season was not possible earlier due to complete lack of water. After the Nala desiltating, due to water availability and expansion of area under cultivation, **the average increase in productivity (Quintal/Ha) of Rabi crops is 64%.**

- Cash-crops: Also, due to the assured water, the farmers have changed the cropping pattern from the Cotton & Bajra to Onion and Sugarcane. Almost every farmer is taking sugarcane as a primary crop. Due to availability of year-round irrigation, taking third crop is possible for the farmers. Substantial land is now under Onion and Sugarcane with only marginal produce of other crops.



Note – Due to water availability a cash-crop Sugarcane is being taken now which was completely irradicated. An average productivity of sugarcane in all the three villages is about 150 tons/Ha.

The Sugarcane crop, thus produced due to the Nala Desilting work done by Praj Foundation is supplied to the Sugar Factories in Ahmednagar. These factories are the clients for the Praj Industries where distilleries by the Praj industries are installed. In this way, the sustainability cycle through the CSR Activities is achieved.

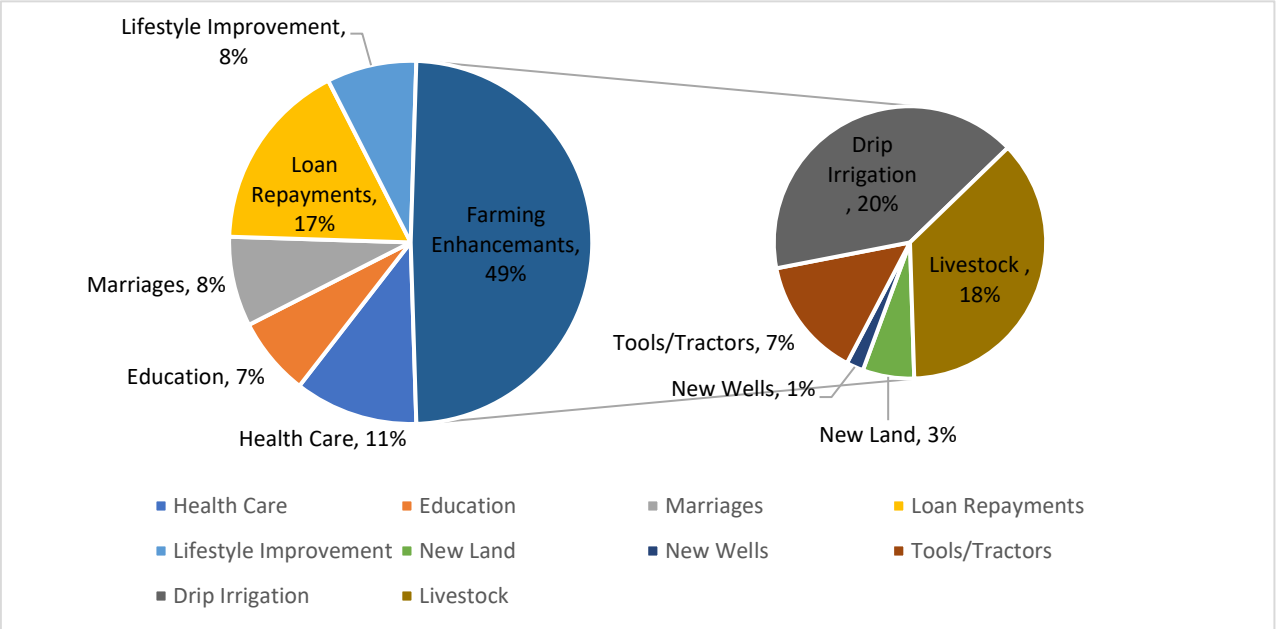
On the flip side, since substantial land is under sugarcane and onion, the farmers are running a risk of over production. Substantially large land is utilized only for two crops and an oversupply is likely to push the price for produce down to a level where the producers are losing money. The farmers must consider a diversified cropping pattern to reduce the risk of market saturation.

- Off farm activities: Fodder camps to survive the farmers' livestock was a common site after the drought. With the assured water and availability of fodder, there is an approx. 45% increase in the livestock in the villages. On an average, each family has at least one cow and 2-3 goats. **About 8 to 10% of total income is generated through selling milk to the dairies and selling goats.**

3. The change in economy of the community

An average increase in the profits made by the farmers through agricultural activities is 52%. Year-round water availability, increased land under irrigation, increase and enhancement in the land due to silt, enabled allied businesses are all the contributing factors in increased profit margins.

The long-lasting impact of the Sustainable Water Development Project is observed as the profits made by the farmers are categorically reused/channelized in the farming activities, to further enhance the farming practices, thereby ensuring the continued improvement in overall income generation. The pie-chart below depicts the profit utilization –



Loan repayments: With a background of highest migration to other locations as Sugarcane Labor, the beneficiary farmers in the command area are able to utilizing about 17% of the profits generated for the loan repayments. This may be considered as an indicator of stability achieved through farming activities in the own villages and reduced migration.

Farming enhancements: About 49% of the profits made are refed into the farming activities.

About 20% of profits being invested in the drip irrigation shows shift in the farmers' mindset towards sustainable farming. However, maximum farmers are still using the flood irrigation for Sugarcane. This will not only affect the water storage negatively but also affect the soil quality. Hence, more farmers must switch to the micro irrigation methods, along with reconsidering the cropping pattern.

About 18% profit utilization for the livestock acquisition & management indicates provisions for the additional alternative income sources, making the agriculture more sustainable.

4. Gender Sensitivity

While there hasn't been a great involvement of women before and during the Nala Desilting work, there is a definite involvement post Nala Desilting work. Due to drinking water availability, the mental and physical work on the women has reduced to a considerable extent. Now the women are able to contribute their time and energy in the farming activities giving them a high sense if inclusion in the family's betterment. Whether at the own farm or in the others' farm as a labor, women are able to earn through agricultural activities.

5. Status of migration and reverse migration

The rate of migration has reduced from the earlier 100% farmers migrating to other villages to currently only 10% farmers migrating as Sugarcane labors. (ऊस तोडणी कामगार/मजूर) Since almost everyone is taking sugarcane as a primary crop, farmers are now fully occupied in their own farms or the labor work in the own village. Due to water availability and assured income, even the younger generation is taking keen interest in farming and the trend of turning to alternative occupation is declined.

Village 1: Shekate

Shekate is a large village located in Pathardi Taluka of Ahmednagar district, Maharashtra with total 382 families residing. The Shekate village has population of 2145 of which 1142 are males while 1003 are females as per Population Census 2011. The village profile is as following

Particulars	Total	Male	Female
Total No. of Houses	382	-	-
Population	2,145	1,142	1,003
Child (0-6)	248	140	108
Literacy	84.77 %	90.22 %	78.66 %
Total Workers	984	466	518
Main Worker	962	-	-
Marginal Worker	22	8	14

List of work done under the Sustainable Water Development Project by Praj Foundation

Nala Bund Desilting: 1

1. The changes observed in natural resources in the project area

The difference in the natural resources before and after the Nala Desilting Work is presented in the table below

Particulars	Unit	Before	After	Difference
Total Land in command area	Ha	560	560	-
Irrigated Land in command area	Ha	5	400	7900%
Total number of wells which had water	Nos	200	400	100%
Land which came under cultivation because if silt	Ha	NA	2	-
Stretch of access roads built using soft rock ("Murum")	Km	NA	4	-

2. The changes observed in agriculture sector

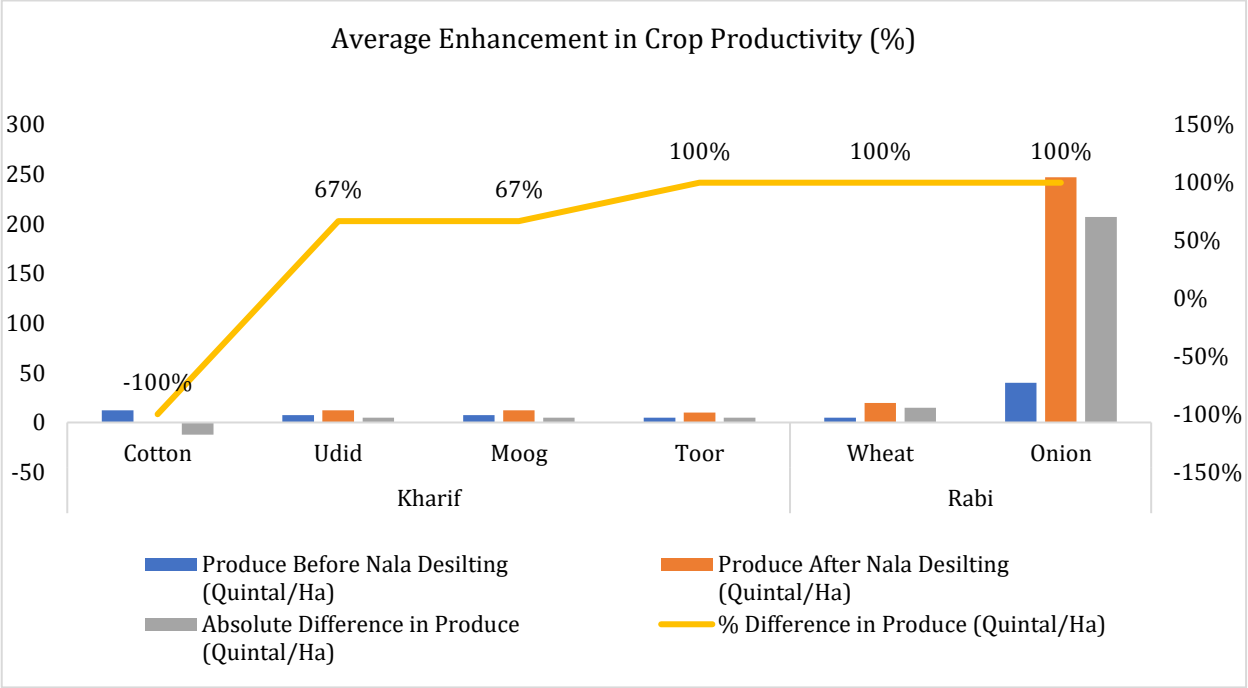
About 80% farmers are marginal/small land holders.

Kharif Season: In this region only rainfed farming was practiced (Kharif). Crops such as Cotton, Udid, Moog, Toor were taken earlier with marginal produced and these crops were prone to failure due to erratic rainfall and lack on protective irrigation. Currently, since the protective irrigation is available, average increase in the productivity of Kharif Crips is 78%. It should be noted that, since this year cotton is affected by the Boll Worm ("Bond ali"), productivity of cotton is affected by about 75%; hence farmers have shifted to Sugarcane and Onion.

Rabi Season: Rabi crops were taken on a miniscule level on the leftover moisture in the soil; however, the yield was negligible. Now the productivity of Rabi crop (Wheat and Onion) due to water availability is increased to 63% of which productivity of wheat is increased by 100%.

The cash crop - sugarcane is a now a primary crop taken which was fully eradicated due to lack of water. Currently, 125 tons/Ha sugarcane is produced in Shekate. About 100ha land is under sugarcane cultivation and about 120 ha land is cultivated for the Onion. About 5 ha land is used for the horticulture crops like sweet lemons.

The average increase in the profits made by farmers is 45% to 50%.



Note – the cotton produce is affected by Boll Worm *("Bond ali")*; hence the farmers have stopped taking this crop and have majorly shifted to sugarcane and onion.

While contracts with the sugar mills like Vrudhheshwar Sugar Mill had once ensured a definite and secured income to the farmers, due to saturation of crop, lack of sugarcane workers etc. about 50% sugarcane is yet to be harvested and may go waste because of the changed market dynamics. As such, farmers will have to reconsider the cropping pattern so as to make a smart and lasting utilization of available water.

Due to the Nala Desilting work and heavy rainfall this year, there is ample water available. Hence, in 70% cases flood irrigation is used for the sugarcane. Using flood irrigation will not only affect the water storage but also compromise the soil quality in near future. Hence, although 25% to 30% farmers have already installed drip irrigation, remaining farmers must opt for the same too.

3. The change in economy of the community

The profits made through the agriculture and horticulture are reinvested for farming enhancements such as installing drip irrigation, livestock, buying farming tools etc. A substantial part of profits is used for the repayment of loans – there is steady decline in loan defaulters. Some part of profits is also used for improving the lifestyle i.e., building/renovating houses, purchasing new lands, etc.

Majority farmers in the village belong to the Dhangar community hence goat raring is a traditional allied business. Almost everyone owns at least one goat. Due to water and fodder availability, the goat raring business is now profitable. An average profit of Rs. 50,000/- per year per family is made through goat raring.

Water and fodder availability has also made it possible to keep cattle. Each household has at least one Desi Cow thereby enabling an allied business of milk and milk products. Every day, around 20 liters milk per family is sent to the dairy; that is Rs.600/- cash income is generated on daily basis for each family keeping cow(s).

During the drought period, most of the families had taken to alternate businesses like clothes shops, medical shops, renting out JCBs etc. Due to the water availability after the Nala Desilting work, farmers are making profits through farming as well as able to run the secondary businesses. The farmers have continued their secondary businesses; and together with the sugarcane farming it has added to the financial well-being of the village.

4. Community Involvement Analysis

The village observes an annual religious ritual called "*Akhand Harinam Saptah*". During this ritual every year, the villagers collect funds to be used for various village development activities. The contribution from the village for the Nala Desilting was also done through these funds. Unity and unanimity were displayed among all the villagers. Most of the decisions concerning the villages are taken with everyone's inclusion and consent.

About the Nala Desilting work and the benefits reaped, the community together said that the life is more stable now that one doesn't have to migrate elsewhere and families are together *("पांगलेला प्रपंच पाण्यामुळे एकत्र आला")*

The youth in the village which had switched to other occupations are slowly returning to farming due to assured water availability and assured income. However, it is suggested that diverse cropping pattern needs to be adopted and micro irrigation methods for sustainable farming.

5. Status of migration and reverse migration

As compared to being the sugarcane workers in others' farm earlier, entire families are now engaged in the agricultural activities in the own farms. The labors also have enough work available in the same village. Although 10% farmers still migrate as sugarcane labors, there is a high sense of stability among the farmers. Overall improvement is observed in the quality of family life, children's education etc. The farmers are now able to provide employment to the labors from within the village as well as the labors from other villages.

Images – Before



Excavation in progress

Images – After



Water Availability in December


Sugarcane Farms

Village 2: Sonoshi

Sonoshi is a medium size village located in Pathardi Taluka of Ahmednagar district, Maharashtra with total 373 families residing. The Sonoshi village has population of 1895 of which 970 are males while 925 are females as per Population Census 2011. The village profile is as following

Particulars	Total	Male	Female
Total No. of Houses	**373**	-	-
Population	**1,895**	970	925
Child (0-6)	**255**	151	104
Literacy	**75.00 %**	87.06 %	62.97 %
Total Workers	**1,042**	543	499
Main Worker	**1,011**	-	-
Marginal Worker	**31**	15	16

List of work done under the Sustainable Water Development Project by Praj Foundation

Nala Bund Desilting: 1

1. The changes observed in natural resources in the project area

The difference in the natural resources before and after the Nala Desilting Work is presented in the table below

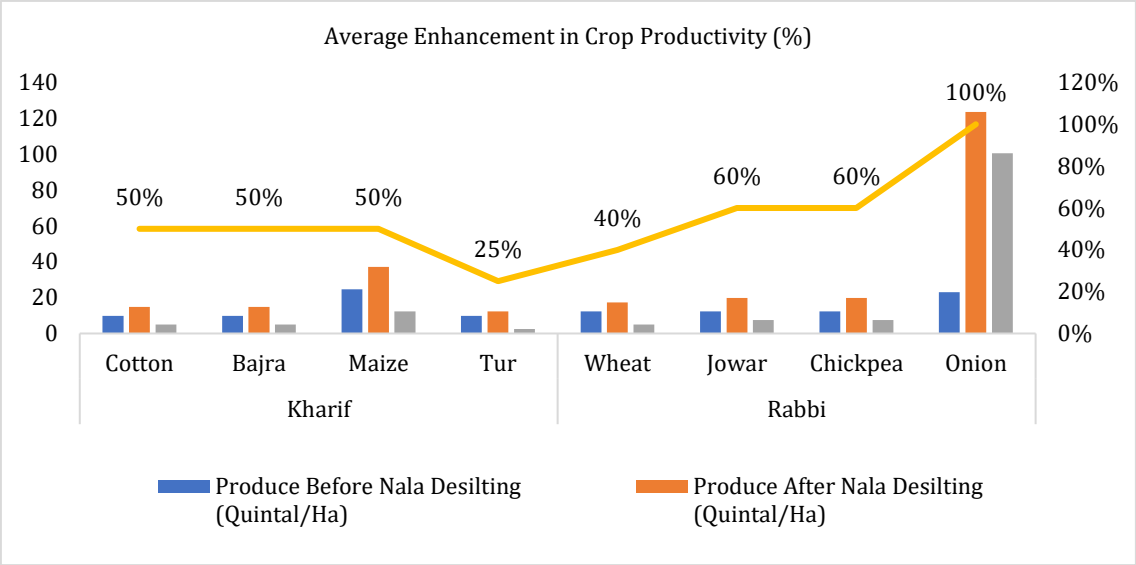
Particulars	Unit	Before	After	Difference
Total Land in command area	Ha	200	200	-
Irrigated Land in command area	Ha	8	200	2400%
Total number of wells which had water	Nos	0	100	100%
Land which came under cultivation because if silt	Ha	NA	26	-
Stretch of access roads built using soft rock ("Murum")	Km	NA	6	-

2. The changes observed in agriculture sector

Because of the uncertain rain, the Kharif season was jeopardized. The rain-fed agriculture i.e., Kharif Season ran a risk of resowing *"Dubar Perni"* due to delayed rain and in the absence of protective irrigation. After the drought occurred in 2012, the farmers mostly depended on the crops like cotton and soyabean. Currently, because of Nala Desilting, protective irrigation is now available for Kharif season, increasing the productivity of Kharif Crops such as Cotton, Bajra, Maize and Tur by 44%. The productivity of cotton crops this year is affected due to Boll Worm *("Bond ali")*, bringing it down to 50%.

Earlier, Rabi crops were taken on a miniscule level on the leftover moisture in the soil; however, the yield was negligible. Crops like Udid, Toor and Moong were taken on the leftover moisture in the soil; however, water dependent crops like wheat were not taken at all. After the Nala Desilting work, currently the main crops taken are sugarcane, vegetables, cotton, wheat etc. Almost 100% farmers in the command area taking sugarcane and about 80% farmers take onions (for sale) and onion-seeds (for self). An increase in Onion crop could also be validated through the 10 to 15 Onion Storehouses (**कांद्याच्या चाळी**) developed in the villages, which was not a common sight earlier. The average increase in the productivity of Rabi crops is 78% -of which the productivity of Onion is increase by 150%

By availing the EGS scheme, the farmers have ventured into the horticulture and experimenting with sweet lemon and mango farms. **The collective profit obtained through assured agricultural activities has increased by 50% approximately.**



While contracts with the sugar mills like Vrudhheshwar Sugar Mill Gangamai Sugar Mill had once ensured a definite and secured income to the farmers, due to saturation of crop, lack of sugarcane workers etc. about 50% sugarcane is yet to be harvested and may go waste because of the changed market dynamics. As such, farmers must consider a diverse cropping pattern.

Due to the Nala Desilting work and heavy rainfall this year, there is ample water available. Hence, in most of the cases, flood irrigation is used for the sugarcane. Despite having government schemes for the drip irrigation, very few farmers have installed the drip irrigation. Using flood irrigation will not only affect the water storage but also compromise the soil quality in near future. Hence, drip irrigation needs to be emphasized upon.

After the drought of 2012, fodder camps to survive the farmers' livestock was a common site after the drought. Due to the Nala Desilting work and water availability, now the farmers are able to sustain the existing livestock and, in some cases, have also added to it. Every family in the village has at least 1 cow. Collectively, about 250 to 300 Liter milk is sold to the dairy in Koradgaon; this has added to the farmers' daily cash income by approximate Rs.300/day/farmer.

3. The change in economy of the community

Before the Nala Desilting work, the rain water collected in the aquifers used to be available only from June to November. For the remaining 6 months, the village depended upon the water tankers for the drinking water. The village required 3 tankers daily for drinking water. Approx. cost of one water tanker is Rs. 5000/- hence approx. Rs. 27 Lac were spent every year, merely for the drinking water. This huge amount is saved as the tanker requirement came to zero after the Sustainable Water Development Project by Praj Foundation in year 2018-19.

Profits made through the agricultural activities are used for life-style improvement such as house repairs, occasional vehicle purchases, repayments of loans/hand loans, education and health. A substantial portion of the profit is refed into the farming such as technological agricultural advancement, purchasing tools and also the mundane purchases such as seeds, fertilizers, pesticides etc. The profits have reduced the farmers' dependency on the bank loans or hand loans.

Due to lack of water, stalled farming activities and never-ending debts, land selling was a prominent practice; although there were not many buyers for the land in a drought hit area. Now, with an improved state of farming with assured water availability, the land prices have gone up and buyers are available. However, with improved financial condition and guaranteed income, farmers are no longer willing to sell their land.

4. Community Involvement Analysis

The monitory contribution from the farmers for the Nala Desilting work was Rs. 3000/- for one acre land. The villagers/farmers were already convinced about the benefits of Nala Desilting work looking at the benefits reaped by other villages where the Nala Desilting was done. Hence, the villagers were united for this work and contributed their time, efforts and money for the Nala Desilting.

Despite taking a water-intense crop like sugarcane, installation of drip irrigation in the village is very limited. In most of the cases, flood irrigation is used for the sugarcane. With the sustainable water development work and a rainfall more than average this year, there is ample of water currently. However, using water through flood irrigation will not only affect the water storage but also compromise the soil quality in near future. Drip irrigation needs to be emphasized upon, especially so, because many government schemes for the drip installation can be availed.

The community could benefit more if a deliberate consideration to all farming facets is given. Since sugarcane and onion are now a saturated crop and losing its market rapidly, the community together must think of crop diversity. The community can also consider co-operative farming, contract farming, organic farming, technological advancement etc.

5. Status of migration and reverse migration

After the drought of 2012, since the farming activities came to halt in the absence of water availability, almost 100 people from the village migrated to other villages like Nashik and worked as a sugarcane labor in others' farm. Due to the Nala Desilting work and water availability, now farmers are not only able to continue the agricultural activities around the year but also provide employment to tribal women as sugarcane labors; from in and outside the village.

Before

After

Village 3: Koradgaon

Koradgaon is a large village located in Pathardi Taluka of Ahmednagar district, Maharashtra with total 635 families residing. The Koradgaon village has population of 3481 of which 1819 are males while 1662 are females as per Population Census 2011.

The village profile is as following.

Particulars	Total	Male	Female
Total No. of Houses	635	-	-
Population	3,481	1,819	1,662
Child (0-6)	462	272	190
Literacy	77.38 %	87.27 %	66.98 %
Total Workers	2,034	1,048	986
Main Worker	1,649	-	-
Marginal Worker	385	201	184

List of work done under the Sustainable Water Development Project by Praj Foundation

Nala Bund Desilting: 1

1. The changes observed in natural resources in the project area

The difference in the natural resources before and after the Nala Desilting Work is presented in the table below

Particulars	Unit	Before	After	Difference
Total Land in command area	Ha	242	242	-
Irrigated Land in command area	Ha	40	242	505%
Total number of wells which had water	Nos	35	150	329%
Land which came under cultivation because if silt	Ha	NA	20	-
Stretch of access roads built using soft rock ("Murum")	Km	NA	30	-

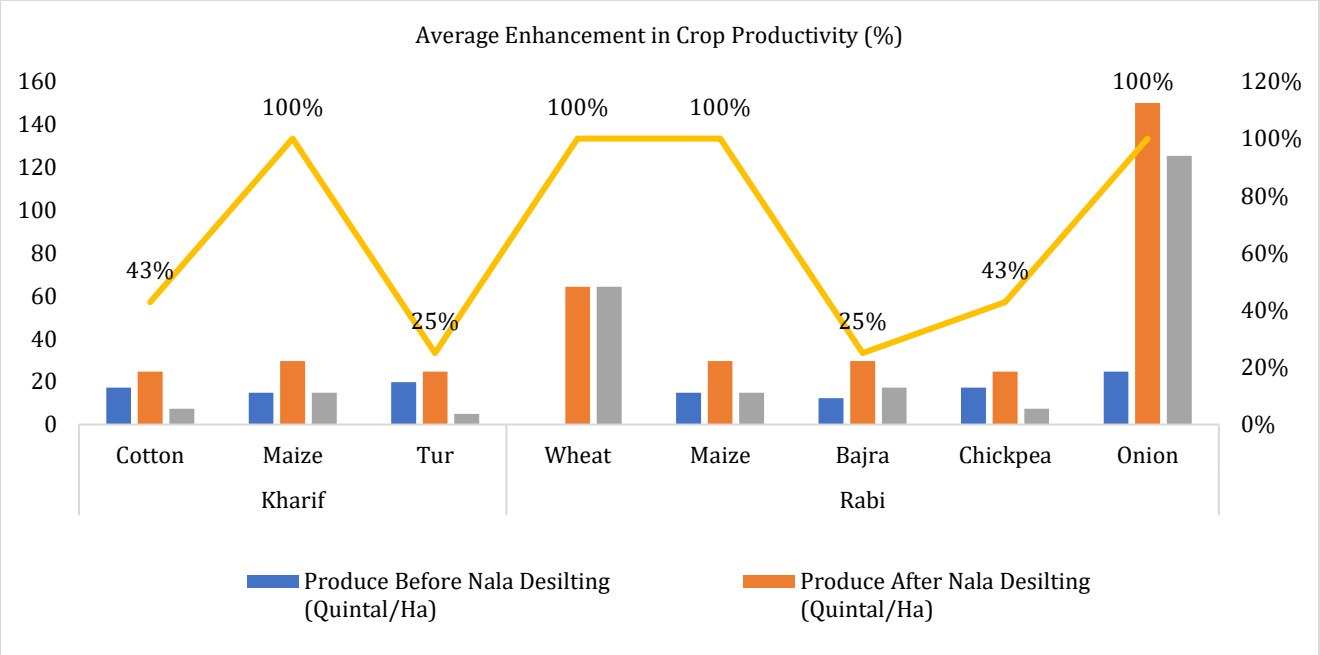
2. The changes observed in agriculture sector

Average land holding in the village is 5 Acre. After the drought of 2012, the farmers could barely take the kharif season with a constant risk of resowing ("*Dubar Perni*") due to erratic/delayed rain and absence of protective irrigation. Farmers depended upon the kharif crops such as cotton, maize, toor etc. however the produce was negligible. Currently, the average increase in the productivity of kharif crops is 56% - the cotton crop is affected due to Boll Worm *("Bond ali")* productivity of which is negatively affected by around 80%

The Rabi crops like bajra, maize, chickpea were taken on the leftover moisture in the soil and produce was marginal. Wheat was not taken at all during Rabi season. After the Nala Desilting work in year 2017, the year-round irrigation is available for the Rabi and summer crops. Currently, the rabi crops taken are Onion along with wheat, bajra, chickpea, cotton, moong etc. The average increase in the productivity of Rabi crops is 58%

Currently the primary crop taken is Sugarcane, yielding about 160 tons/Ha.

An average increase in the profit for the farmers through agricultural activities is 55%.



Although the current situation in the village due to water availability is financially better there are two risk areas.

First, the farmers are heavily depending upon sugarcane and onion risking the over production and over supply of these two crops. Second, the flood irrigation used for the sugarcane may result into shortfall of water storage in coming years; also compromising the soil health. Hence, the farmers must consider a diverse cropping pattern after a thorough market study and must opt for the drip irrigation. While some of the farmers have installed the drip irrigation, majority of them are yet to install it, despite various government schemes.

3. The change in economy of the community

The village Koradgaon is near to the market place. Post the drought period, maximum farmers resorted to the secondary business like running small shops in the market place. In the absence of water availability and stalled farming practices, the farmers had to either migrate to other villages as sugarcane workers or take up alternate professions. Now, as the water for agriculture is available around the year, farmers have returned to farming while still holding on the secondary occupations. Profits made using the farming activities now are refed into the farming activities while also spending a portion of it in improvising upon the secondary occupations.

The profit made through agriculture, are utilized for repayment of loans, the farming enhancements such as installing drip irrigation and acquiring the livestock. Some part of the profit is utilized for the life style improvement such as building/renovating the houses, purchasing vehicles etc.

Earlier, due to lack of water, stalled farming activities and never-ending debts, farmers were willing to sell the land; however, there were no buyers for the land in a drought hit area. Now, with an improved state of farming with assured water availability, the land prices have gone up and buyers are available. However, with improved financial condition and guaranteed income, farmers are no longer willing to sell their land.

4. Community Involvement Analysis

The monitory contribution from the farmers was Rs. 5000/- for one acre land. The villagers/farmers were already convinced about the benefits of Nala Desilting work looking at the benefits reaped by other villages where the Nala Desilting was already done. Hence, the villagers were united for this work and contributed their time, efforts and money for the Nala Desilting.

Currently, since sugarcane and onion are saturated crops and losing their market rapidly, the community together must think of crop diversity. The community can also consider co-operative farming, contract farming, organic farming, technological advancement etc.

5. Status of migration and reverse migration

Relocation to other villages as sugarcane workers has decreased to 10% after the Nala Desilting work as compared to the 90% farmers migrating to other villages/cities after the drought.

Images – Before

Excavation

Images – After

Water availability in December

Sugarcane Farms

Case Studies in Ahmednagar

Shri. Balasaheb Ghule from Shekate is a small land holder (3.5 Acres). He is a bus driver; however, returned to farming due to water availability and assured income. He is making a profit of approx. Rs. 1 Lac through the sugarcane and onion crops. Earlier, only Kharip season crops were possible. i.e., Jowar and Bajra. The profits made through those crops were marginal. Currently he has 2 buffalos and 2 cows and sells 8 to 9 liters of milk daily. He currently has a saving of Rs. 5 to 7 Lac earned through agriculture and he plans to by 2-to-3-acre land using the savings. A new house is built 3 years back, expenditure for the same was Rs. 10 Lac – This was also managed in the profits made through agriculture.

Mr. Vitthal Bansi Glule from Shekate is a small land holder (5.5 Acre). His farm is within 1.5Km from the Nala Desilting. He could realize the benefits of Nala Desilting after he could install a pipeline from the water source to the farm. He was working as a sugarcane labor for 25 years straight in areas like Sangamner, Paithan, Agasti etc.) Since last 2 years that he is working in his own farm where he has cultivated onion and sugarcane. A profit of Rs. 2L approx. is made through agriculture. The profits made was used for the daughter's wedding and installing drip irrigation in 2.5 acres.

Shri. Sanjay Kakade from Sonoshi is a small land holder (3 Acres) Earlier, he used to take only cotton and toor as Kharip crops. After the Nala Desilting work, 2.5 acres is cultivated under Sugarcane and vegetable farming is done in remaining 0.5 acres. The income from selling the vegetables is Rs. 3000/- per month. The profit made through the sugarcane is approx. Rs. 2.4 Lacs. He also has 1 buffalo; 5-liter milk is sold directly in the village at 50/- per liter. This adds an income of Rs. 7500/- per month.

Vishnu Bhagwan Dound from Sonoshi is a medium land holder (12 Acres) His farm is within 250 meters from the Nala Desilting work. Earlier, he could only take the Kharip crops such as cotton and toor. Currently, he is taking sugarcane in 5 acres and cotton, tur and fodder in the remaining land. The profit made through these agricultural activities is approx. Rs. 5 Lac. The profit made is used to install drip irrigation in 5 acres, children's education and purchase of two-wheeler in cash.

Pandurang Ghule from Koradgaon is a medium land holder (16 acre). Before the Nala Desilting, only the Kharif crops such as cotton and toor were taken. The profit made earlier was 2 to 3 Lacs per year. Currently 10 Acre land is under Sugarcane and the profit made is more than 10 Lacs per year. From the profits made, he has purchased a four-wheeler (Nexon) in year 2021.

Shri. Rajendra Andhale from Koradgaon is a small land holder (7 Acres) which is within 1.5 km from the Nala Desilting work. He used to take only Kharif crops like cotton, Bajra and Moong. Now, his well is his farm is fully recharged and has water around the year. He is currently taking sugarcane in 3 acres, wheat in 1 acre and cotton/bajra in the remaining land. The yearly profit made through agriculture is approx. Rs. 3 Lac and compared to No Profit earlier. He was able to repay more than half the loan of 3 Lacs taken for family member's medical emergency.

Evaluation of Sustainable Water Development Program in Ahmednagar

The Pathardi Taluka has always been notorious for extreme weather conditions; either long dry spells and short duration heavy rainfall. The news of hundreds of farmer families from Pathardi migrating to another villages and surviving as sugarcane labours is a common for last few years.

The biggest success of the Nala Desilting program by Praj Foundation in Ahmednagar District is marked by the fact that, the farmers which were forced to migrate to other villages as sugarcane labours are now working in their own sugarcane farms and there is an inward migration of labours from other villages! Not only these farmers have a self-sustained farming but also the labours from other villages are getting source of income. From the entire family being scattered at various location to the current state of entire families being together in the same village and living a satisfactory life is a big transformation brought about by the water availability through the Nala Desilting work.

For the collective expenditure of Rs. 81.53 Lacs by the Praj Foundation for three villages in Ahmednagar, a huge return on investment of Rs. 6.25 crore approximately to the 650 beneficiary farmers over 3 to 4 years since the Nala Desilting work is completed. In other words, on an average 71% return on investment is received by the farmers every year!

The sugarcane thus produced is supplied to the sugarcane factories which are in turn the clients of Praj Industries for the distilleries. This is a classic example of ethical business and sustainable social development. The work done by the Praj Foundation has not only won the hearts of beneficiaries, but also has earned an identity of being a positive force in society by fulfilling environmental, ethical, and economic responsibility through CSR.

Recommendations-

The Praj Foundation may build upon the connect and goodwill in these villages for –

1. Farmers –
    a. Farmers are currently running a high risk of large area being cultivated under the uniform crops i.e., Sugarcane and Onion. An intervention with farmers to educate them of diversifying the cropping pattern may be considered, thereby ensuring that the success achieved is not short-lived. Forming FPCs in these villages or cluster may prove to be crucial for diversified cropping pattern and market availability.
    b. The farmers may be insisted to implement micro-irrigation systems and "No Flood Irrigation" policy in their farms, so that the available water is used sparing and responsibly.
    c. Trainings and implementation assistance for the Organic Farming may be extended to the farmers; which may create the village's brand in the organic products. This will enable the residue free food production with reduced dependency on the chemical fertilizers.
2. Youth –
    a. Since young people are taking keen interest in farming now, it is a right time to catch them young and train them on progressive, technologically advanced farming. They can be given the subject matter expertise as well as the technologically advanced farming tools.
    b. Since in most of villages the secondary businesses are prevent, extending some vocational courses for youth might be effective for sustainable financial well-being.

3. Women –Although there was no direct inclusion of women in the Nala Desilting work, the water availability at door steps has saved a lot of time, efforts and energy for the women. Although currently women are engaged in the farming activities, more options can be explored such as
    a. A project related to "Parasbag" – vegetable farming for self and selling may be implemented for the women where women manage the vegetable farming end to end – also being involved in the post production activities such as packing, marketing and selling of the vegetables.
    b. Women may be engaged into the food processing of perishable and non-perishable items.
    c. With the improved financial condition, more attention towards women's health could be given through nutrition i.e., health related programs with women in focus could be taken up by Praj Foundation.

4. Overall, there is a lack of financial literacy in the villagers (Farmers, Women, Youth) A project dedicated to empower the villagers with the basic understanding of economy and managing personal finances (farming or otherwise) will be a plus as it will promote the smart usage of resources/money, strengthen their decision taking abilities with respect to money and the prosperity is not short lived.

Overall Limitations

1. Since the desilting work is done for the limited length of Nalas, the number of farmers benefited are limited. Although the desilting has solved the drinking water problem of the entire village, the farmers outside command area are not benefitted. Increasing the area of work for Nala Desilting in the same villages will further benefit for the village as a whole.
2. Although the policy - "No Water Lifting from The Nala"- has helped, there is a good scope of improvement with respect to micro irrigation implementation.
3. Uniform Cropping pattern - For the climate resilient farming, the farmers must be educated with the diversified cropping patterns.
4. Lack of financial literacy is keeping the villagers from fully appreciating the profits made and making long term financial plans. Although the monetary benefits are realized now, if not planned well, it can be short lived and dependency on the external helping hands may remain.
5. Overall involvement and inclusion of women in this program was negligible; however indirect benefits such as easily available drinking water are extended to them.
6. Lack of awareness of Government schemes, panchayat laws and various competitions among the villagers is observed. If the villagers improve upon these points, they may get better exposure and more sources for the development.

Overall Evaluation

Apart from the monetary benefits and financial well-being, the project has managed to make a paradigm shift in the villager's mindset from the complaining to problem solving, initiative taking and not being dependent on anyone. The first-hand experience of benefits fetched through the community contribution towards Nala Desilting work has engraved the power of unity and importance of taking initiatives. The villagers are more likely to come together again where individual benefits are evident. This togetherness should be extended for the overall communal betterment.

Apart from the monetary benefits the project has contributed to other social return of investments such as reduced suicides, reduced migration rate and increased gender sensitivity.

The Nala Desilting work done by Praj Foundation with the NGO partners in Jalna and Ahmednagar showcases a well thought of project planning, strategizing and execution. Including the farmers/villagers in the project as a third partner has done wonders and ensured the successful implementation of projects, as compared to some of the government-run programs which are difficult to sustain beyond certain period, due to lack of people participation.

The project could create ripple effect and successfully encouraged the villages to implement this program one after the another. This makes this entire program a replicable and scalable model PAN Maharashtra. Collective CSR with other corporates/foundations may be considered; documentation and other know-how for which could be availed by the Praj Foundation.

Kenshin recommends Praj Foundation to take up the holistic village development programs spanning across agriculture, education, women empowerment and health, in the villages where a great connect and goodwill is already established. This could turn into a flagship program of Self-Sustained Villages to be replicated across Maharashtra. Village specific need analysis targeting the youth and women should be conducted to identify the gaps and better design these programs.

Overall, the Sustainable Water Development Program by Praj Foundation has breathed a new life into the farmers, their families and villages, igniting in them a hope for better, self-sustained tomorrow.

Signed by:

Ameya Joshi
Chief Consultant, Kenshin Consultants

Annexure – 1

Profiles of the Assessment Team

Ameya Joshi

Ameya has over 14 years of diverse experience in the social sector through a charitable trust and an initiative in sustainable development. He was closely involved in the rural development programs with focus on water, education, agriculture, environment etc. He has conducted various baseline and end line surveys, impact studies in villages in Maharashtra (Kokan, Satara, Karad, Kolhapur, Sangali, Velhe, Nagar), Uttar Pradesh (Jhansi), Bihar (Sawali), West Bengal (Haldia), Haryana (Bahadurgarh). Ameya is currently leading the development program of 75+ villages across Maharashtra.

Being a lead of various CSR programs concerning rural development, Ameya has acute understanding on the village's operations & governing bodies, village dynamics, farming insights etc. He has a natural flair of connecting with the villagers/farmers and have a knack of extracting required information from the villagers. Being a keen observer, Ameya is capable of joining the dots and drawing meaningful inferences.

Pallavi Bhave

Pallavi has over 8 years of experience in the social sector and is experienced in rural development programs with focus on water, education, agriculture, environment, health etc. She has conducted the baseline and end line surveys, impact studies in Maharashtra (Velhe, Parbhani, Osmanabad, Mulshi, Satara, Karad, Sangali, Kolhapur)

Apart from being able to connect to various stakeholders in the villages, she expertise in developing the data collection tools, data collation and analysis, documentation and reporting. She is skilled in meticulous detailing and qualitative/quantitative comparative studies.

Sandesh Deo

Sandesh has over 14 years' experience in the agriculture and allied industries. He owns a start up "KrushiCert" which deals in certification of organic agricultural products. He is currently playing a role of Director Sasya Poosha Pvt Ltd dealing in the manufacturing of organic nutrients and fertilizers. He is an expert for sustainable Agriculture and agri-produce forward linkages. He has designed and organized various workshops on opportunities in Agri and allied industries. He has vast experience in Bio-Composting and he has executed numerous projects in India as well as out of India. He has worked closely with the farmers across India and abroad to design cropping patterns and for consultation regarding application of micro irrigation & organic fertilizers etc. Having worked in varied geographic locations enables him to understand the particularities of farming in any given region.

Onkar Mandlik

He is originally from Beed belonging to a farmer's family and is currently doing his internship at Kenshin. Coming from the farming background, he is capable of connecting with the farmers with ease and collect required data. He also expertise in the online research and secondary data collection and analysis.

Nitisha Patil

She belongs to Sangali and currently doing her internship at Kenshin. She is skilled in the photo documentation and administration. She is involved in various rural surveys and connects well with the rural women and children. She is also skilled in the comparative studies.

Shraddha Khandelwal

Shraddha is associated with Kenshin since last 5 years and involved in rural development programs run in 4 villages in Velhe Taluka. She has an understanding of village and farming dynamics. She is skilled in extracting the required information through communication with various stakeholders in the villages and through observations. She is also a key resource for photo documentation.