Voltas Limited

IMPACT ASSESSMENT REPORT

Participatory Ground Water Management and Sustainable Agriculture

March 2023

Price Waterhouse Chartered Accountants LLP

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List of Abbreviations

AA	Affirmative Action
AFPRO	Action for Food Production
BPL	Below Poverty Line
CSR	Corporate Social Responsibility
DNT	De-notified and Nomadic Tribe
DPR	Detailed Project Report
FGD	Focussed Group Discussion
FPO	Farmers Producer Organization
GP	Gram Panchayat
HH	Household
IDI	In-depth Interview
IRECS	Inclusiveness, Relevance, Effectiveness, Convergence & Sustainability
KPI	Key Performance Indicators
KVK	Krishi Vigyan Kendra
OBC	Other Backward Classes
PRI	Panchayati Raj Institution
PWD	People with Disabilities
PW	Price Waterhouse
SC	Scheduled Caste
SHG	Self Help Group
ST	Scheduled Tribe
VWC	Village Water Committee

Executive Summary

Executive Summary

Voltas Limited (Voltas) initiated the Participatory Ground Water Management and Sustainable Agriculture Project in six (6) villages of Beed district of Maharashtra since 2019[1] implemented by Action for Food Production (AFPRO). This four (4) year programme aims at building capacity of the farmers through strategic interventions and technology transfer for creation and efficient management of water resources and promoting sustainable farming practices. The goal of the project is to address or mitigate perennial drought situation in the area. Voltas considers this program as an Issue of National Importance.

A mixed methods approach leveraging both quantitative and qualitative research methods, in consultation with Voltas, was deployed to assess the impact of the programme on the lives of communities or beneficiaries. For this study a sample size of **111 beneficiaries** was collected in through quantitative survey and **284 samples** were covered through qualitative method - **14 Focussed Group Discussions (FGDs) with 245 beneficiaries** and In-Depth Interviews (IDIs) with **6 Farmer Producer Organisations (FPO)** members and **16 Panchayati Raj Institution (PRI)** members. Additionally, **11 physical visits** through purposive sampling for Community level & individual level water harvesting/ recharging structures and **6 vermicompost units** were conducted.

Majority (88%) (N= 111) of the study respondents were males. The average age of respondents was 46 years of age. The highest number of beneficiaries as a part of the study belonged to the De-notified and Nomadic Tribe category, while the lowest percentage belonged to the Scheduled Tribe. 58% of individuals belong to De-notified and Nomadic Tribes (DNT) followed by 13% from Scheduled Caste (SC) contributing towards the Affirmative Action[2] principal of Voltas. Moreover, 21% of the total respondents belonged to the General category.

Key findings:

Sustainable Agriculture and Soil Testing:

Beneficiaries of this intervention were provided with various trainings on better crop management, vermicomposting unit and exposure visits to support them in improving productivity and knowledge.

- 85% respondents have received the training on Better Crop Management and on various topics related to the agriculture such as crop residue management, fertilisers & pesticide management, seed management etc.
- Prior to the intervention, every household had an average of 2.2 acres of irrigated land which increased by an average of 2 acres per household after the intervention.
- Trainings provided under the programme have improved the awareness level of programme beneficiaries regarding sustainable agricultural practices and soil health which helped them improve productivity. Changing the crops by season and quality, and by monitoring the quantity of fertilisers, based on the trainings provided to them under the program, helped them reduce the cost and enhanced the quality of the yield.
- 93% of the beneficiaries have received training on soil management which covered trainings on crop residue management, importance of soil testing, fertilisers & pesticides management, and seed selection treatment which resulted in improved quality of farming.

Improved water productivity and water use efficiency:

Beneficiaries of this intervention were provided with water harvesting/ recharging structures within the village at community level & individual level as well to improve the ground water recharge level.

- Village Water Committees (VWCs) were formed in each village who played a vital role in identification of project sites and in convincing the people to support in providing space for Nala (stream) widening & deepening, if needed.

[1] Source: As per MoU document with AFPRO
[2] Voltas focuses on Affirmative Action, a common thread for all the Corporate Social Responsibility (CSR) initiatives of Voltas, where projects actively work towards inclusion of SC and ST communities, Women and People with Disabilities (PwD).

- 55% of the community people shared that the place for water harvesting/ recharging structures was decided through community meetings and in consultation with villagers. 20% of the respondents stated that resource mapping was done and 10% of them opined that need assessment survey was also conducted before the project implementation.

- Due to the constructive process followed for selection of villages, 45% of respondents agreed that the intervention ensured the participation of all community members, because of which they contributed to the implementation of the activities through labour support in creating the structures whereas 30% have contributed by providing financial support for developing water harvesting/ recharging structures. 25% of the respondents agreed to provide some space from their available land to establish the structure. The structure of the process adopted for implementation of intervention has ensured the community contribution and enabled the ownership among community.

- Prior to the intervention, multiple beneficiaries shared that they had to use bullock carts to carry the water from wells which were far away from the villages, at least for the duration of 8 months in a year. As an impact of the Water Resource Development initiatives within the village, the water is now available to the beneficiaries throughout the year. Moreover, after the intervention, the Gram Panchayat installed borewells on their own for the community to solve for water scarcity issues.

- 40% of the respondents stated that after the intervention, availability of water for irrigation purposes increased to 10-12 months due to which cultivation during Rabi season has started whereas prior to the intervention, 40% of the respondents stated that water used to be available within the village just for 1 to 3 months only due to which lot of people had to migrate for other livelihood opportunities. The remaining beneficiaries highlighted less than 7 months of water availability.

Impact of Livelihood Enhancement:

- Exposure visits organised helped beneficiaries enhance their knowledge on livelihood activities such as tailoring, goat and chick rearing and its management practices. Majority of the respondents found the quality of training good and were very satisfied with the training provided to them.

- Beneficiaries stated that the programme impacted their income and quality of life over the past two years.

Findings from physical visits:

- All (100%) of the community level water harvesting/ recharging structures were clean and clearly defined. Demarcation was properly done for all the structures to ensure that Voltas branding was visible.

- Individual structures provided to the villages were properly constructed, surrounded by proper fencing with Voltas's branding.

- Vermicomposting units provided beneficiaries with better quality of produce; increased quantity of crop produced and, in some cases, even gave additional income from sale of excess vermicompost produced.

Recommendations:

- **Greater ownership & timely strengthening of Gram Panchayat:** A recent change has been seen in Gram Panchayat body due to recent elections, so it needs to be ensured that Gram Panchayat members are facilitated about the programme and are oriented to take the ownership of the existing work for the programme to be sustainable in the villages.

- **Consultation with newly elected GP body and better usage of bigger water harvesting/ recharging structures:** Since new Gram Panchayat body has been elected so it is recommended to consult them before starting the next phase in the villages to understand the requirements and for smooth & effective implementation of the project.

- **Expansion of Vermicomposting model**: Detailed discussions with intervention beneficiaries have revealed that a selected number of people from the village have been provided with vermicompost beds and training. As suggested by the community people, more intensive training for vermicomposting could be provided to a larger number of people as those who are producing vermicompost are not selling it to others and remaining villagers can also carry out the activity which will help them in reducing their cost for fertilisers & pesticides further.

- **Supporting Farmers in establishing market linkages:** Many farmers have started growing cash crops and vegetables like chillies, capsicum, cauliflower etc. due to availability of water but are lacking a proper platform to sell their products. There is a need to establish market linkages and connect them with the beneficiaries. This will also be helpful for the beneficiaries of livelihood enhancement project as currently they are only using their skills for their own self. However, the Farmer Producer Organization (FPOs) could be further strengthened to help bridge the gap of market linkages.

- **Awareness & knowledge about Saturation Model for Livelihood Project**: As a part of sustainability model, the beneficiaries of livelihood project must escalate their model to other people after one (1) year of receiving the benefits. However, it was observed that people are not aware about this rotational model to ensure maximum people receive the benefits. AFPRO project officials should spread awareness around the escalation model of livelihood project among beneficiaries and make the rotational model clear to every beneficiary so that this one-time support would also benefit others to make the programme more sustainable and will also hold the villagers more accountable.

A detailed analysis of the assessed impact of all the interventions can be found in the Findings of the Study section, and recommendations can be found in the section titled Recommendations in the report.

1. About the Study

About the Study

1.1. Participatory Ground Water Management and Sustainable Agriculture

Voltas initiated the Participatory Ground Water Management and Sustainable Agriculture Project in six (6) villages of Beed district of Maharashtra since 2019[3] implemented by AFPRO. This four (4) year programme aims at building capacity of the farmers through strategic interventions and technology transfer for creation and efficient management of water resources and promoting sustainable farming practices.

The overall programme objectives are as follows:

Table 1: Programme Objectives

S. No.	Objectives
1.	Working with the community to integrate the principles on Water stewardship and sustainable agriculture
2.	Promoting water literacy among village community to understand water related risk and work towards improved water resource planning
3.	Promoting supplementary and alternative income generation opportunities

Key project indicators: [4]

Table 2: Key indicators of the programme

Key Indicators	FY 19-20[5]	FY 20-21	FY 21-22	FY 22-23	Total
No. of villages selected for water conservation and harvesting initiatives (check-dams, cement bunds, de-silting, farm ponds, percolation tanks, nala deepening, well recharge)	6	6	6	6	6
No of water conservation/ harvesting structures constructed/refurbished	46	47	18	12	123
No of persons benefitted through water conservation and harvesting initiatives	1650	1458	1775	1197	6080
Land brought under irrigation through water conservation/harvesting initiatives (in hectors)	475	632	539	158	1804
No of persons trained in sustainable agriculture	165	497	1123	657	2442

[3] Source: As per MoU document with AFPRO
[4] Source: As per details shared by Voltas
[5] The programme was initiated in September 2019. After about 6 months of initial activities, the work progressed at a slower pace due to frequent lockdown due to the pandemic. However, a considerable number of infrastructure and training related activities have been completed by the end of FY 21-22 including some construction related activities which were completed during the lockdown period as well.

Key Indicators	FY 19-20[5]	FY 20-21	FY 21-22	FY 22-23	Total
No of persons trained in water budgeting	0	120	91	103	314
No of persons benefitted through agro-based livelihood program	0	11	21	64	96
No of vermicomposting units initiated	0	30	24	66	120
No of soil testing done	0	316	60	66	442
No of Farmer Producer Groups (FPO) constituted	0	0	2	2	2

1.2. About Voltas Limited

Incorporated in 1954, Voltas Limited[6] is a part of the Indian multinational conglomerate, the TATA Group. It is India's largest air conditioning company, with a strong presence offering leading engineering solutions across Air Conditioning and Cooling Products (Unitary Products), Engineering Projects and Engineering Products & Services[7]. Impacting lives positively is deeply rooted in the philosophy of Voltas Limited. Over the decades Voltas Limited has put in place numerous programmes, with a focused approach to Engage, Equip and Empower - building people's participation, equipping them to work towards social development and bringing in ownership[8]. Voltas also focuses on Affirmative Action, a common thread for all the Corporate Social Responsibility (CSR) initiatives of Voltas, where projects actively work towards inclusion of SC and ST communities, Women and People with Disabilities (PwD)[9]. One of Voltas CSR programmes is the Participatory Ground Water Management and Sustainable Agriculture in Beed District. As a part of this intervention Voltas plays the following role:

Table 3: Role of Voltas in interventions

S. No.	Role
1.	**Funding support** for programme activities, operations, and implementation
2.	**Strategy building support** with guiding inputs and suggestion on the programme to enhance its efficacy on the ground
3.	**Monitoring and review** of the programme on mutually aligned intervals, and guidance on programme implementation and activities

1.3. About Action for Food Production (AFPRO)

AFPRO is dedicated towards alleviating rural poverty with a focus on marginalised and weaker sections of the society since 1966. AFPRO provides socio-technical services in the areas of Water, Sanitation, Watershed Management, Climate Resilient Sustainable Agriculture, Livelihood Diversification, and Climate Change for effective management of natural resources.

AFPRO aims to empower the rural communities by strengthening their resource base and capabilities. through improved knowledge and skills, both in the technical and socio-economic development areas. Additionally, they work towards enabling the rural poor communities to help them progress towards sustainable development and

[6] https://www.voltas.com/
[7] https://www.voltas.in/file-uploads/investor-toolkit/ABOUT_VOLTAS-23-05-2022.pdf
[8] https://www.voltas.in/sustainability/sustainability-overview/
[9] As per details shared by Voltas

achieve enhanced socio-economic and personal status in the society through appropriate technologies for the management of natural resources.[10]

1.4. Scope of work of the impact assessment

Price Waterhouse Chartered Accountants LLP was engaged to conduct an independent Impact Assessment study of Participatory Ground Water Management and Sustainable Agriculture Programme of Voltas in six (6) villages in Beed district, Maharashtra. The scope of work includes understanding the Project implementation plan and process followed and reviewing the Key Performance Indicators (KPIs) as defined by the Management under the framework for implementing the Project for the outputs, outcomes, and impact of the Project. The Framework used was Inclusiveness, Relevance, Efficiency, Convergence and Sustainability framework (the 'IRECS') and which helped provide recommendation on the project performance for Management's evaluation.

1.5. Study Limitations

- Gram Panchayat elections and selection of totally new Gram Panchayat body in all project villages has attributed in delay in data collection process.

[10] https://afpro.org/about-us/

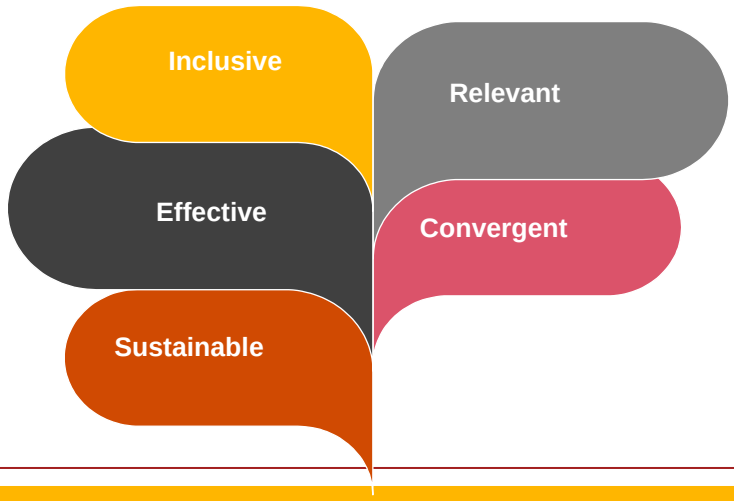
2. Methodology for Impact Assessment

Methodology for Impact Assessment

2.1. IRECS Framework

The impact of the programme was assessed using the IRECS framework. IRECS is geared to provide overall feedback on the efficacy of implementation as well, as its efficiency in terms of achievement of the desired project outputs with reference to inputs. IRECS framework measured the performance of programme on five parameters – Inclusiveness, Relevance, Effectiveness, Convergence and Sustainability. Overview of areas assessed under each of these five parameters is provided below:

Figure 1: IRECS Framework



Key Evaluation Parameters under IRECS

Inclusiveness	Relevance	Effectiveness	Convergence	Sustainability
Ability of different stakeholders (particularly poorest and most marginalised) to access the benefits of activities and derive equitable benefits from assets created.	Are the services /inputs /institutions facilitated in the project able to meet community priorities? Are the services provided needed by beneficiaries?	How effectively the activities have been able to manage/mitigate community expectations? How efficiently have the resources been deployed, monitored and utilized?	Degree of convergence with government/other partnerships; relationship between individuals, community, institutions and other stakeholders	How will the projects help beneficiaries sustain in the long run?

2.2. Approach and Methodology

Guided by the overall IRECS framework as presented earlier, the study took a cohesive approach to assess the socio-economic impact of the Participatory Ground Water Management and Sustainable Agriculture project implemented by Voltas. A mixed methods approach leveraging both quantitative and qualitative research methods, in consultation with Voltas, was deployed to assess the impact of the programme on the lives of communities or beneficiaries. The entire study exercise was executed using the following methodology:

1. Engagement kick-off stage:

PW team initiated the assignment by conducting an inception meeting with the Voltas CSR Team. Post the inception meeting, PW team prepared a formal request for information including the required list of documents for desk research to validate as well as augment our understanding about the Voltas project. PW and Voltas team agreed and finalised the scope of impact assessment as per specific requirements for each intervention. To further understand the overall mechanism of how the programme is being implemented on ground by Voltas, PW team reviewed and understood the implementation processes from the CSR team and the implementing partner.

2. Planning and tool preparation:

The documents available with Voltas (i.e., Memorandum of Agreement, baseline report, monthly reports and Annual completion report etc.) were shared and a desk review of the project documents was conducted. The next step was the identification of the key stakeholders for data collection, such as beneficiaries (direct & indirect), Gram Panchayat members, Farmers Producers Organisations (FPO) members, Village Water Committee (VWC) Members amongst others such as FGD/IDI guides and the household survey. Basis the desk review of the documents, the team developed the tools for data collection and field visit plan in consultation with the Voltas team.

Sampling:

Based on the project nature, a mix of quantitative and qualitative research method was adopted. The sampling design for quantitative data collection is provided below.

The sample size for quantitative was calculated using the following:

$n' = n/1+ \{[z^2 * p (1-p)]/m^2*N\}$

where the parameters are.

- n' – sample
- Z is z score depending on Confidence Interval (in this case CI = 90% and z = 1.645)
- $n = z^2 * p(1-p)/m^2$
- N = population size (depending on individual projects as obtained from each project MOA)
- M = margin of error (10%)
- p = population proportion (considered as 50%,0.5)

3. Data collection and field visit:

The data collection plan was prepared and finalised in consultation with Voltas and AFPRO team. The research team was deployed on the field for data collection through Quantitative survey with beneficiaries, IDIs with stakeholders and group discussions with beneficiaries and AFPRO team. Interaction with the implementing partner, beneficiaries and other project stakeholders were held for understanding the projects' impact, as well as the sustainability aspect of the programme and long-term benefits. Apart from the interactions with the stakeholders, physical visits were also made to the water harvesting/ recharging structures developed for individuals and community. Review from a civil perspective was not scope of the engagement.

4. Data analysis and report writing:

The data thus collected was further collated, cleaned and analysed. The analysis of the data collected from the study was carried out and the inferences and findings were summarised, and a report was developed for the consideration and feedback of Voltas.

2.3. Coverage of the Study

Selection of Villages

- A cluster of six villages/Gram Panchayats falling in Ambajogai and Dharur blocks of Beed district (Maharashtra) where project support was provided were selected and visited for the study.
- Simple random sampling was deployed for selection of sample beneficiaries (HHs) keeping in mind distribution across the villages. The sample was derived from the overall population shared by the Voltas CSR Team and finalised in consultation with them. The key performance indicators were covered and bucketed within the intervention. Samples has then been chalked out for each intervention.

Table 4: Intervention wise quantitative sample size

Type of intervention*	Total beneficiaries across 3 years*	Estimated Sample	Actual Sample covered
Training in livelihood generation activities	32	5	6
Training in sustainable agriculture + Soil Testing	1785+376	50+35	85
Training in water budgeting	211	20	20
Total	**2404**	**110**	**111**

*As per details shared by Voltas

Table 5: Stakeholder wise sample covered for qualitative interactions and physical visit

Type of tool	Stakeholders	Estimated Sample	Actual Sample Covered
FGD/KII	Farmer Groups (FPO)	6	6
	Households	240	245
	PRI members & any other relevant stakeholders	14	16
Physical verification visits	Rainwater harvesting structures	11	11
	Vermicomposting units	6	6
Total		**277**	**284**

The break-up of the sample size as per villages is provided below:

Table 6: Sample size as per village

Village	Stakeholders and tool	Sample
Kuranwadi	FGD with beneficiaries of programme	45
	Survey with beneficiaries of Water Resource Development	3
	Survey with beneficiaries of Sustainable Agriculture	14
	Survey with beneficiaries of Livelihood	1
	Physical visit of Community Water Structure	1
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1
Chichkhandi	FGD with beneficiaries of programme	37
	Survey with beneficiaries of Water Resource Development	3
	Survey with beneficiaries of Sustainable Agriculture	13
	Survey with beneficiaries of Livelihood	1
	Physical visit of Community Water Structure	1
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1
Asardoh	FGD with beneficiaries of programme	40
	Survey with beneficiaries of Water Resource Development	6
	Survey with beneficiaries of Sustainable Agriculture	18
	Physical visit of Community Water Structure	1
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1
Umarewadi	FGD with beneficiaries of programme	47
	Survey with beneficiaries of Water Resource Development	3
	Survey with beneficiaries of Sustainable Agriculture	17
	Physical visit of Community Water Structure	1
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1
Umrai	FGD with beneficiaries of programme	39
	Survey with beneficiaries of Water Resource Development	3
	Survey with beneficiaries of Sustainable Agriculture	11
	Survey with beneficiaries of Livelihood	1
	Physical visit of Community Water Structure	1

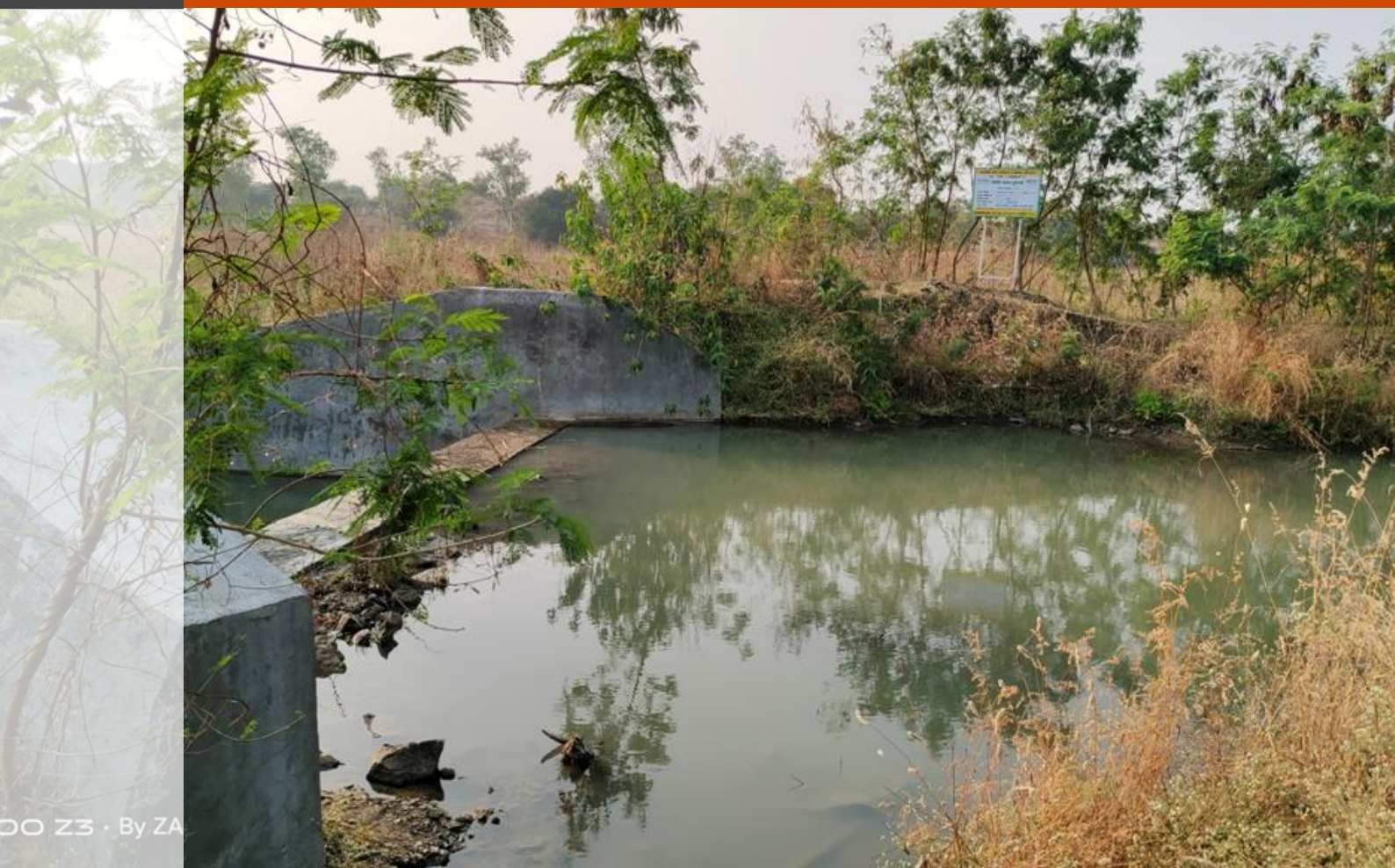
Village	Stakeholders and tool	Sample
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1
Ruidharur	FGD with beneficiaries of programme	37
	Survey with beneficiaries of Water Resource Development	2
	Survey with beneficiaries of Sustainable Agriculture	12
	Survey with beneficiaries of Livelihood	3
	Physical visit of Community Water Structure	1
	Physical visit of Individual Water Structure	1
	Physical visit of Vermicompost Unit	1

Interaction with stakeholders (Qualitative)

The interaction with the stakeholder comprised of Key Informant Interviews and FGD's. The stakeholders involved were the beneficiaries who received direct support from each of the interventions, Gram Panchayat officials, opinion leaders, FPO Members and AFPRO team.

- Seven (7) FGDs were conducted with the project beneficiaries covering 267 respondents.
- One (1) FGD was conducted with 4 members of AFPRO project team deployed at Beed District.
- Two (2) KIIs covering 2 villages were conducted with the Gram Panchayat Members.
- One (1) FGD covering 4 villages was conducted with the Panchayat Members
- Twelve (12) FGDs were conducted covering villagers/beneficiaries from all 6 project villages i.e., 2 in each village

3. Findings of the study



Findings of the Study

This section of the report highlights the key findings of the impact assessment study as per each of the programmatic activities and interventions. It provides a basis for recommendations for the programme.

3.1. Profile of the Respondents

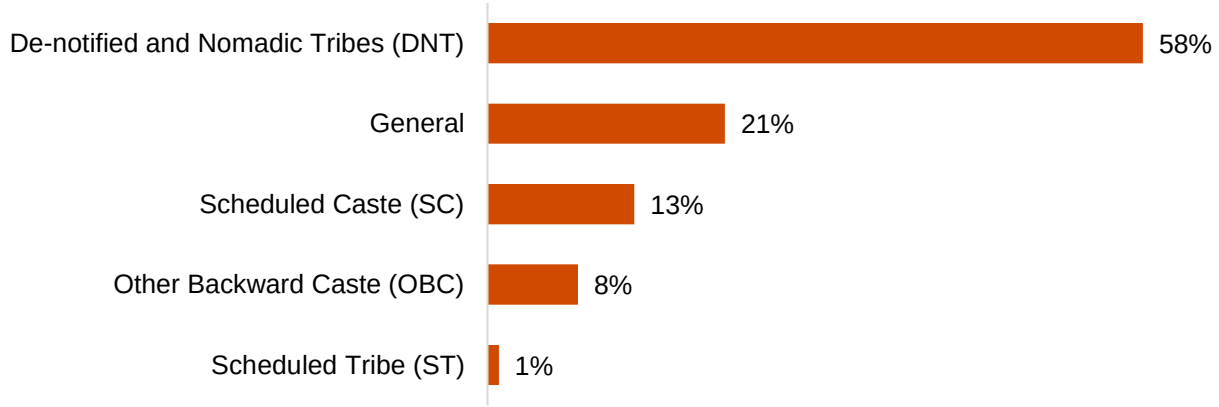
Majority (88%) (n=111) of the study respondents were males. The average age of respondents was 46 years of age. The highest number of beneficiaries as a part of the study belonged to the De-notified and Nomadic Tribe category, while the lowest percentage belonged to the Scheduled Tribe. 58% of individuals belong to De-notified and Nomadic Tribes (DNT) followed by 13% from Scheduled Caste (SC) contributing towards the Affirmative Action[11] principal of Voltas. Moreover, 21% of the total respondents belonged to the General category.

Refer below a snapshot of the distribution of respondents based on gender, social category, and economic profile.

88%

12%

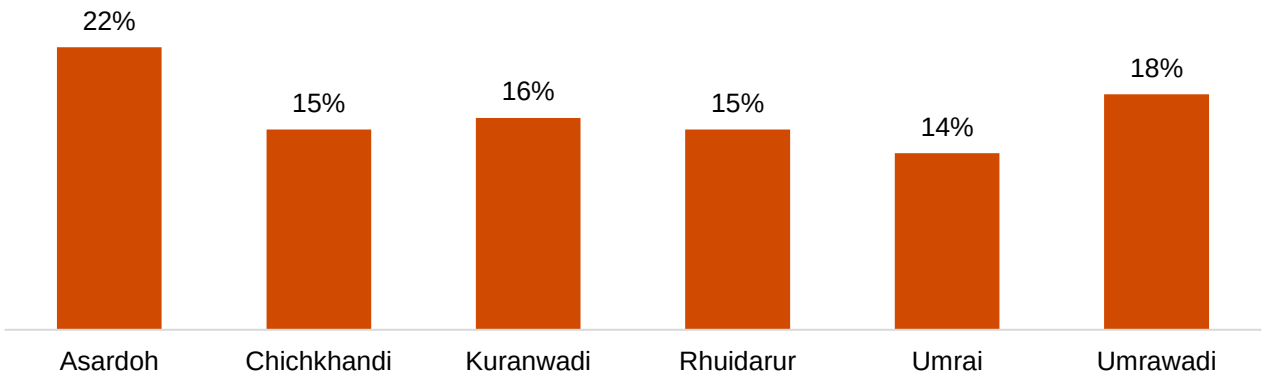
Figure 2: Social category wise distribution of Respondents (n=111)



Majority respondents (92%, n=111) reported to belong to Below Poverty Line (BPL) category, when asked about their economic status.100% of the respondents reported to have an Aadhar Card and an active Bank account on their own name.

[11] Voltas focuses on Affirmative Action, a common thread for all the Corporate Social Responsibility (CSR) initiatives of Voltas, where projects actively work towards inclusion of SC and ST communities, Women and People with Disabilities (PwD).

Figure 3: Village wise distribution of respondents (n=111)



Since Asardoh was the largest village among the intervention villages, the highest 22% of the respondents were selected from Asardoh, this was followed by Umarewadi (18%) and Kuranwadi (16%).

The data reflects that 78% respondents in the intervention villages primarily indulged in agricultural activities and 5% were involved in agricultural labourer in other's farms. The remaining 18% of population were engaged in other occupations such as small business, driver, watchman and in different private jobs. The average monthly income of the respondents was in the range of INR 5,001/- to INR 10,000/-.

3.1.1. Average Landholding and Cultivation Practices

Prior to the intervention, every household had an average of 2.2 acres of irrigated land which **increased by an average of 2 acres per household** after the intervention. During the discussions, community members highlighted that their irrigated land had increased since the intervention and that they had started growing more cash crops along with vegetables. No change has been observed in the average landholding of the respondents as landholding does not change in short term period. Beneficiaries reported that the increase in irrigated land and growing of cash crops was due to the consistent availability of water in their area which positively impacted the farmers and enhanced their family income.

Table 7: Landholding Overview and Improvement (n=111)

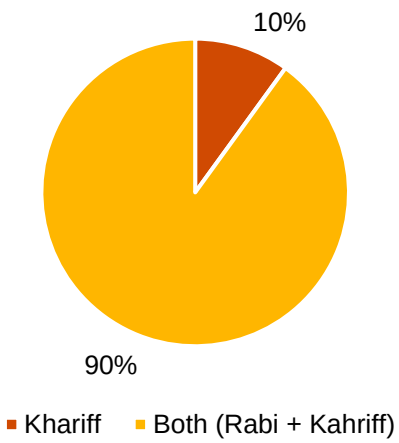
	Pre-Intervention	Post-Intervention	Improved by
Avg. Land suitable for Agriculture	4.6 Acres	5.4 Acres	0.8 Acres
Avg. Irrigated Land	2.2 Acres	4.2 Acres	2 Acres

Before the programme, beneficiaries stated that they could not cultivate during Rabi season due to scarcity of water. Villagers shared that they would often migrate to Karnataka to work in sugarcane fields during Rabi season. This migration used to occur since Karnataka started early with its sugarcane production, which made it easier for the villagers to return in time for the Kharif season to their respective villages. However, post the programme activities being implemented, as depicted in the figure below, 90%[12] respondents reported that they have started cultivating in both Rabi & Kharif seasons. Consequentially, that has led to a drop in the migration level in the villages.

[12] In this data, 6 interviewed beneficiaries of livelihood had not been included as they did not cultivate any crops through which they could have benefitted under livelihood enhancement intervention.

During community interactions, many respondents highlighted that prior to the intervention, there was shortage of water and lack of irrigation sources for a major land parcel. This was also cited as a reason for villagers to not engage in major agricultural activities in the Rabi season. As a result, a majority of the community members used to grow hybrid jawari as it needed less water and productivity was also higher. However, it has affected soil health of their agricultural lands. After the intervention, many of the intervention beneficiaries started growing soyabean on the same land parcel which was not harmful to their soil and the quality of farm produced goods also improved.

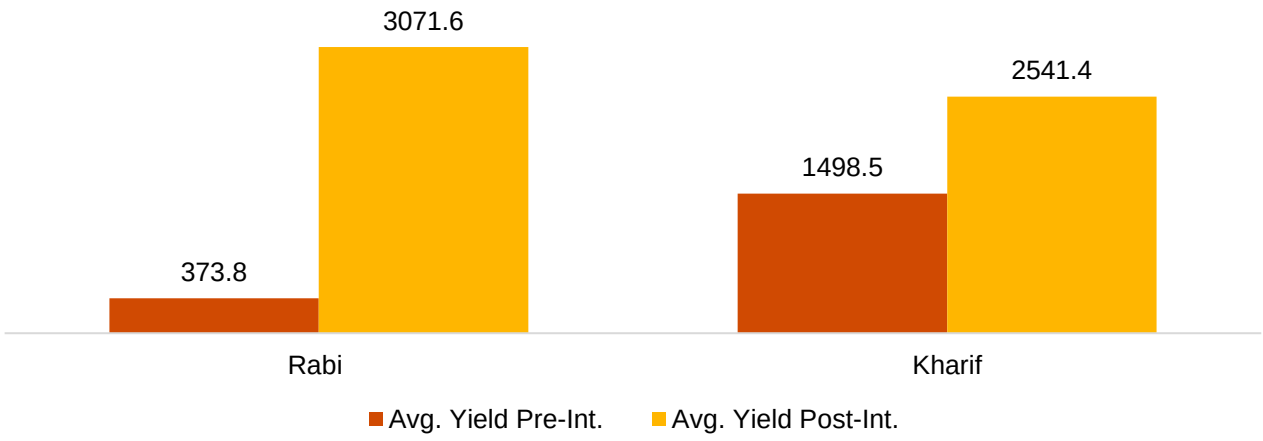
Figure 4: % of respondents on cultivation season (n=105)



3.1.2. Changes in the Yield and Crops during different seasons

The average yield was reported to have increased during both Rabi and Kharif seasons. However, the major impact of the intervention was seen during the Rabi season where the average yield increased by 2,697 Kg while during the Kharif season it improved by 1,042 Kg in a year, considering there was limited agricultural activity during the Rabi season.

Figure 5: Changes in Yield (in Kg.) post-intervention during different season



Beneficiaries shared that due to availability of water in their area, they started growing cash crops like soyabean, Rajma etc. as well and have begun experimenting with additional crops such as chillies, groundnut, pulses, beans and sugarcane resulting in an increase in beneficiary income.

3.2. Improved Water Productivity & Water use Efficiency

3.2.1. Village Water Committee (VWC)

About the intervention

Under this initiative, wells were kept under observation in each village based on their strategic location as suggested by a hydrologist. Water level indicators were installed in the wells to record the water level, understand fluctuations, and thereupon customise the mechanism for the use of available water for irrigation. **A Village Water Committee (VWC)** was formed in each village.

75% (i.e., 13) (n=20) of the respondents were a part of Village Water Committee. These committees had been formed 2 years back in 2020 and consisted of 13 members from each of the 6 VWCs. According to majority of the VWC members "management of available water resources and ensuring its economical usage by the beneficiaries' was their primary responsibility while some of them felt that they were also responsible for the 'maintenance of water harvesting/ recharging structures provided under the intervention'.

31% (n=13) of the VWC members who were interviewed stated that the VWC uses/will use the funds collected for the renovation of water harvesting/ recharging structures as per the need of the villages at a community level as well as the cleaning of the constructed water harvesting/ recharging structures such as Artificial Recharge Structures, Farm Ponds, Cement Bunds, etc.

Figure 6: Aspects of Village Water Committee & its roles

Roles & responsibilities of members of VWC	VWC members received trainings under the programme	Sources of maintenance funds	Exposure Visits
Respondents have opined that major responsibility as member of VWC member is to generate awareness among the community members & farmers related to water conservation and arranging funds for the maintenance of water structures.	100% (n=13) of the respondents have received the training on water management, seed selection, correct use of pesticides & fertilizers, better crop management and maintenance of funds.	It was common in all the villages, that they are collecting one time contribution of INR 500 from the beneficiaries of livelihood enhancement programme and the people who have land adjacent to water structures and benefitted.	All the VWC members from these 6 villages have been on exposure visits to, Sahyadri Agro Industry, Nashik, other farms in Jalna and Parbhani where they have witnessed to different cropping patterns.

Impact of the intervention

In terms of impact, members of VWC reported that these water harvesting/ recharging structures benefitted the community due to which the cultivation area and productivity increased which also in turn positively impacted their family income. While talking about the importance of VWC in the village, beneficiaries shared that the committee has played a vital role in identification of project sites and in convincing people to support in providing space for Nala (stream) widening & deepening if needed.

One of the committee members mentioned that formation of VWC has streamlined the processes and given a platform to villagers to discuss village matters especially if matters are related to water. Everyone knows whom to approach for village water related matters and villagers value the opinion of the committee members. VWC has helped the community in solving the issues at fast pace.

3.2.2. Water Harvesting / Recharging Structures

Total 20 beneficiaries from six (6) project villages were interacted with on the Ground Water Augmentation initiative. The analysis of this section is based on the information provided by them and the information shared by other community members during group discussions.

Under the programme a total of six (6) water harvesting/ recharging structures have been provided to the villages. Out of these six (6) structures, four (4) of them were community structures **(Percolation tanks, Repair of cement nala bunds, new cement bund and Nala deepening & widening)** while 2 **(Farm Pond & Artificial Recharge)** were provided to individual beneficiaries.

The AFPRO team highlighted key challenges affecting agricultural activities in the area, basis which villages were selected for the intervention:

- Both the selected blocks (Ambajogai & Dharur) were considered as highly drought prone areas of Beed District.
- There were no major crops grown due to scarcity of water especially in Rabi season which had led to high level of migration from these villages for a duration of 6-9 months in one year.

A robust selection process was followed for the selection of the project villages by using technical methods (refer Figure 7), to ensure that the process is inclusive and participatory in nature to help develop a sense of ownership among the community members.

55% of the community people interacted with shared that the place for water harvesting/ recharging structures was decided through community meetings and in consultation with villagers while 20% of the respondents stated that Resource mapping was done and 10% of the respondents have opined that need assessment survey was also conducted before the project implementation. The process of site identification also included the members of Village Water Committee to hold the accountability and it was mutually decided after the consultation with community people where and which structured should be plotted.

Figure 7: Process for the selection of villages

Impact of the intervention

Due to the constructive process followed for selection of villages, 45% of respondents agreed that the intervention **ensured the participation of all community members**, because of which they contributed to the implementation of the activities through labour support in creating the structures whereas 30% have contributed by providing financial support for developing water harvesting/ recharging structures. 25% of the respondents agreed to provide some space from their available land to establish the structure. The structure of the process adopted for implementation of intervention has ensured the community contribution and enabled the ownership among community. The beneficiaries reported that individual structures have also helped in improving the ground water recharge level for other farmers who have cultivable farmland adjacent to individual structures. Multiple beneficiaries stated that they have shared the cost of blasting and machines for creation of Farm Pond and other structures as well and provided their support as manual labours for extracting the waste.

Multiple beneficiaries shared that they had to use bullock cart to carry the water from wells which was far away from the village at least 8 months in a year, prior to the intervention. As an impact of the Water resource development initiatives within the village, now the water is available throughout the year. Moreover, after the intervention, the Gram Panchayat installed borewells on their own for the community to solve for water scarcity issues.

"Earlier we used to face lot of problems in reaching to our farmlands especially during monsoon as there was no proper way and that was the only season when we could have cultivated so we have used the extracts taken out from the blasting and deepening activities to make a proper way where the programme implementation team has also supported us"- Beneficiary of Farm Pond

In Asardoh village, beneficiaries shared that earlier few members of the community had disagreed to spare a little part of their land parcel for Nala widening & bunding activities. However, once they saw the productivity increase in other's farmland, they came forward and provided required land parcel to carry out the activities.

3.2.3. Irrigation- Source of water, Period of availability and Cropping pattern

Source of water for irrigation

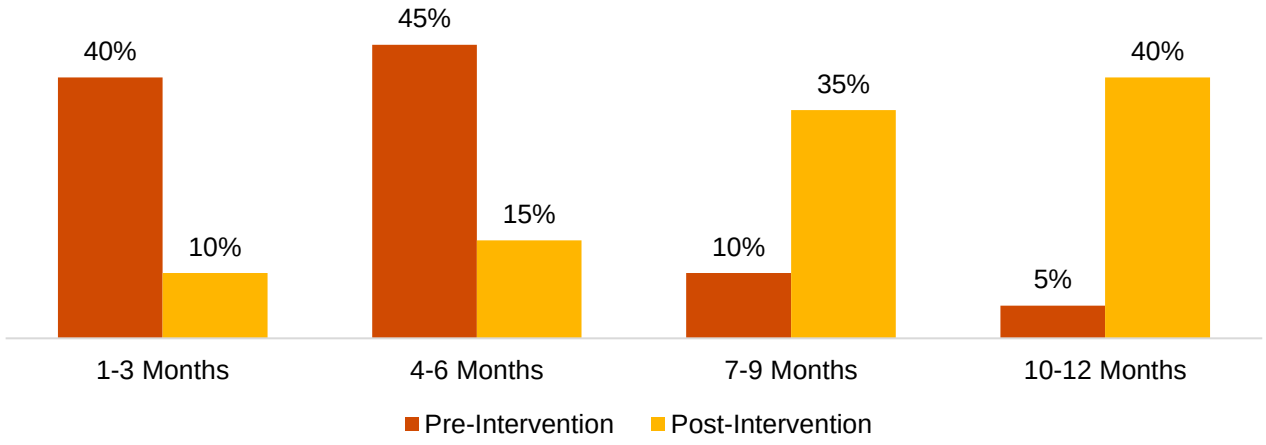
Water availability has always been a major issue in the region as stated by the community. 40% of the respondents said that prior to the intervention, borewells were major source of irrigation in the village but very few people had the borewell facility and others had to borrow water from them for the irrigation activities. 30% of respondents recognised wells as another major source of irrigation especially during monsoon season.

Post the intervention, according to 60% of the respondents **Farm ponds** became the major source of irrigation for all seasons and 20% are still using the borewells as their major source of water for irrigation. Another 20% of the sample intervention beneficiaries are using other sources of water for the irrigation purpose such as nala, canal, check dams etc. As shared by the beneficiaries *"now we have multiple sources of water for the irrigation even if the nala or tank gets dried up, but we still have water available in the borewells due to which we can cultivate entire year."*

Period of availability of water for irrigation

According to 40% of the respondents prior to the intervention, water used to be available within the village just for 1 to 3 months only due to which lot of people had to migrate for other livelihood opportunities whereas 40% highlighted that after the intervention water is available **throughout the year** (10-12 months) due to which cultivation during Rabi season has started. Beneficiaries have also mentioned that *"we all used to migrate for 7-8 months from the village along with our livestock due to water scarcity."*

Figure 8: Period for availability of water



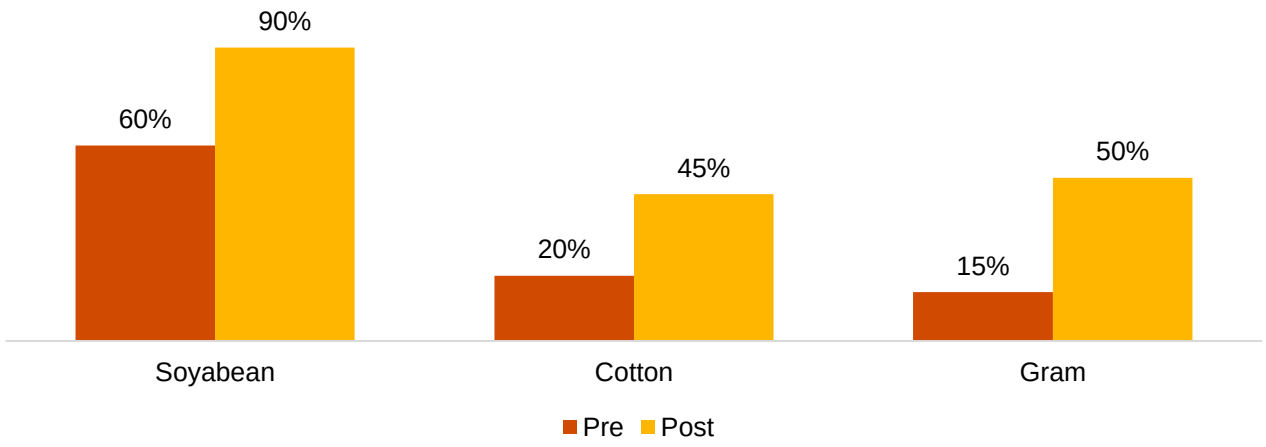
40% of the respondents agreed that after the intervention availability of water for irrigation purposes has been increased to 10-12 months and according to 35% of respondents, water is available now for 7-9 months suggesting an increase in the number of months of water availability from earlier scenario. Since this region has mostly rocky soil due to which water could not be stored even during monsoon season and water harvesting/ recharging structures like nalas & canals were left with no water. Nala deepening and widening activity has helped in storing the water which automatically improved the ground water recharge level. Beneficiaries of the initiative have stated that due to the nala & percolation tanks renovation, the wells now continue to have water throughout the year.

People have installed borewells in their farmlands and use wells to irrigate their land. All the wells visited during survey were observed to have adequate water level even when it was not monsoon season, which the beneficiaries recognised as they could now engage in agricultural activities during the rabi season as well.

Changes in Cropping Pattern

Beneficiaries of this intervention shared that water availability has significantly impacted the cropping pattern. Beneficiaries stated that they have started growing more cash crops after the intervention. As shared by the beneficiaries their land is suitable for very selective crops such as soyabean, rajma, vegetables but the cultivation was limited due to unavailability of water. 90% respondents have started growing soyabean after the intervention whereas prior to the intervention only 60% were cultivating soyabean. Approximately 50% of the respondents have started growing cotton and Gram each whereas before the intervention, only 15%-20% were growing these crops. As a result of the intervention, total average cultivable land for soyabean has also increased from 1.5 acres to 3.5 acres per household.

Figure 9: % change in cultivation of crops pre-intervention and post-intervention



Since this region is predominantly growing cotton and have been considered as a profitable business as informed by the beneficiaries but in project villages 80% respondents could not cultivate cotton due to lack of water earlier. However, after the intervention 40% of them have started growing cotton on approximately 2 acres of land and have also tied up with industries through Krishi Vigyan Kendra (KVK) with handholding support of Voltas programme

The impact of the intervention can also be seen on the average yield for all the cash crops along with the increase in land usage. As depicted in the table below, maximum impact on the yield can be seen in the production of Gram (73%) followed by soyabean (45%) Beneficiaries have mentioned that many people of the community have started growing soyabean instead of cotton as it is high valued in the market and needs less efforts than cotton and it has only been possible due to continuous availability of water in the area for irrigation.

Table 8: Change in Average Yield pre & post Intervention annually

Average Yield (Kg.)	Pre-Intervention	Post-Intervention	Improved by
Soyabean	740.0	1944.0	1204.0 (45%)
Cotton	555.0	610.0	55.0 (5%)
Gram/Harbara	40.0	257.5	217.5 (73%)

3.2.4. Sources of drinking water & other domestic usage and challenges

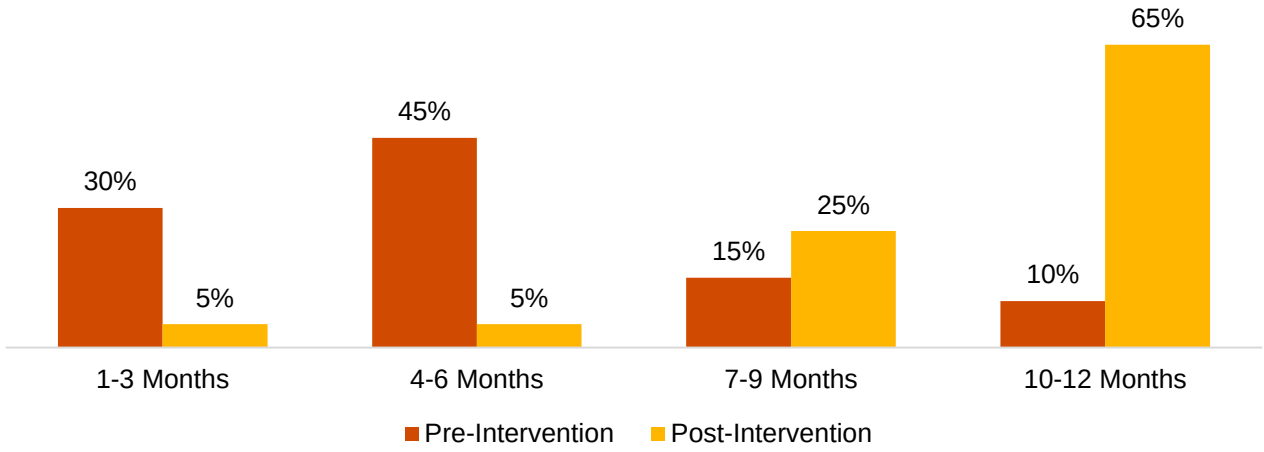
Source of water for drinking purposes

According to the people interacted with, prior to the intervention, well was the major source of drinking water across the villages and 45% of the respondents also agreed to the same thing. 40% of the respondents have been using borewell as major source of drinking water. Beneficiaries shared that people who had their own borewell facility either at home or at their farmlands have been using it as their source of water for drinking & irrigation purposes both. There are bigger villages in Dharur block where many people have borewell facility at their home and other people also used to draw water from these facilities when there was no other source of water in village or when the wells used to dry up during summer season.

Period of availability of drinking water

Prior to the intervention, water was available only for 4-6 months across all the project villages and beneficiaries were using same sources of water for both irrigation and drinking purposes. 30% of the respondents mentioned the water availability only for 1-3 months prior to the intervention which reduced to just 5% for post intervention.

Figure 10: Period of availability of drinking water



After the intervention, 65% of respondents stated that after the programme, drinking water is available throughout the year. Earlier, the ground water, wells and nalas used to get dried up in the months of March to June due to scorching summer season. However, after the intervention, the situation is quite different as ground water recharge level has improved due to artificial recharge and percolation tanks, as stated by the beneficiaries and borewells also have ground water throughout the year.

According to the villagers of Kuranwadi, there were no proper source of drinking water within the village. They used to fetch water from neighbouring villages and used to struggle a lot especially during summer seasons as water from those villages also used to get dried up. In Chichkhandi & Umrai village, panchayat samiti used to arrange water tankers for 4-5 months of summer season. These tankers used to fetch water from nearby river or canal with the help of motor and the used to distribute in the village for free of cost.

Impact in the daily lives of people through this initiative

People have reported that a major impact of the intervention was increase in the ground water recharge level which has made their lives easier. Now, the migration level has also reduced due to the availability of water throughout the year. People do migrate but the number of people opting migration has decreased. 55%[13] of the respondents highlighted that now they need less efforts to arrange water and now have more time for other productive activities such as agriculture and/ or other income generation activities. 50% of the respondents felt that their quality of life has improved. Beneficiaries feels that they have more time for household chores and can spend more time with their children. 35% of respondents stated that their family income has increased due to increased agricultural activities and they can contribute more towards their family.

[13] This was a multiple coded question due to which value will not add up to 100.

3.3. Sustainable Agriculture

About the intervention

The Sustainable Agriculture activities entailed conducting trainings on Better Crop management, soil testing, promotion of vermicomposting unit and strengthening FPOs. These trainings were conducted by subject matter experts and soil testing was done through Krishi Vigyan Kendra and provided soil health cards to the farmers. Based on the soil testing results, the training was conducted on better crop management. During the study, 85 beneficiaries who have been benefitted from the intervention from all six (6) project villages were interacted with. The responses of this section are based on the information provided by them and information shared by other community members during group discussions.

3.3.1. Awareness about the initiative and trainings

As depicted in the figure, majority of the respondents were informed about initiatives under the program during Gram Panchayat meetings. Beneficiaries during group discussions also mentioned that the programme implementation team had organised a meeting at Gram panchayat level where they were informed about the activities that are going to be started within the village. Same process was followed across all project villages.

During interviews beneficiaries responded that some campaigns were held in their village and banners were put informing about the trainings and the programme for their awareness.

Figure 11: Mode of finding about project (n=85)

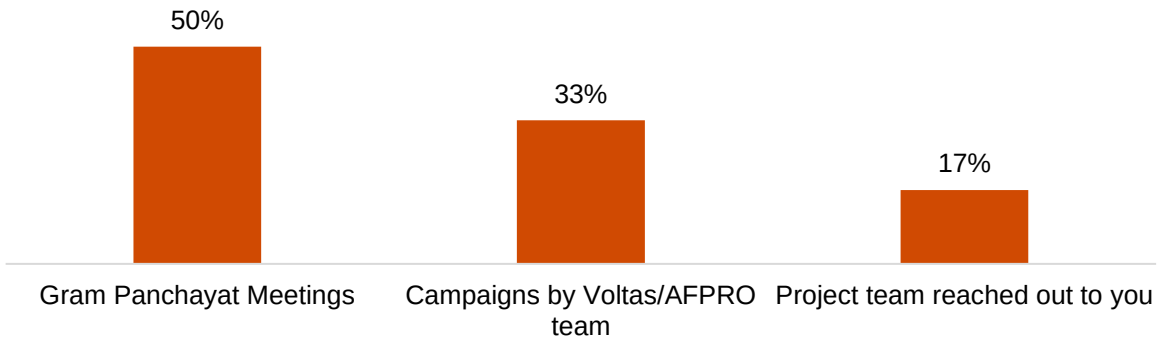


Figure 12: Received training on Better Crop Management (n=85)

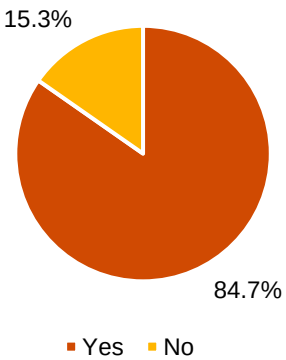
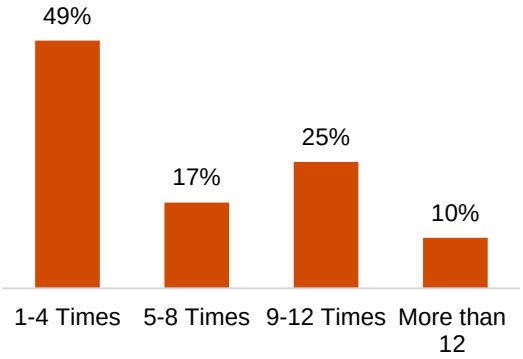


Figure 13: Number of trainings received (n=72)



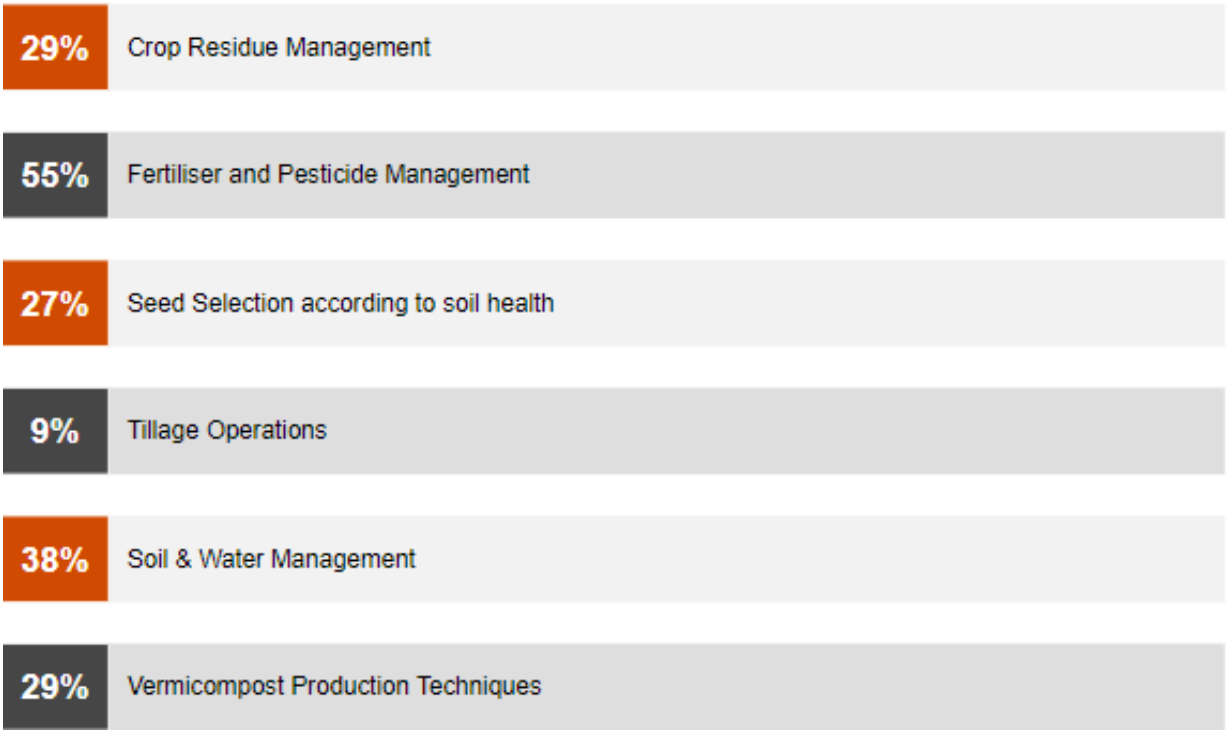
85% respondents have received the training on better crop management and on various topics related to agriculture such as crop residue management, fertilisers & pesticide management, seed management etc. Majority of the respondents i.e., 49% have received training 1-4 times in past two years while 25% of them have been part of the trainings for 9-12 times. These were the people who have been part of more than one initiative within the programme due to which they were eligible for various trainings.

Impact of the intervention

Beneficiaries mentioned that they received trainings through online and offline modes. According to them, offline mode of the training was more impactful, and they could have clarified their doubts immediately. Beneficiaries shared that due to the trainings they were able to identify the appropriate seeds for their crops and could do the selection of suitable fertiliser in sufficient quantity. As mentioned by the beneficiaries, earlier when they were not aware on the appropriate quantity and used to put extra pesticides & fertilisers which caused damage to the crops and reduced productivity as well.

The below mentioned figure highlights the percentage of respondents who have attended these trainings over the period of two years. People might have attended trainings on 2-3 different topics[14].

Figure 14: % of respondents attended training for Better Crop Management



Apart from the trainings mentioned above, there were few additional aspects which were covered during the trainings such as organic farming, how to establish market linkages, importance of soil testing etc. 68% of the respondents considered the training provided to them as 'Good' whereas 31% of them found those trainings 'very good' in nature and useful for them. During the discussions, beneficiaries opined that the trainings provided under the programme team improved the awareness level of programme beneficiaries regarding sustainable agricultural practices and about the soil health which helped them in improving productivity.

Beneficiaries also mentioned that based on the training provided they have now changed the crops and crops are harvested depending upon the season. Also, now the beneficiaries are aware of the quality & quantity of fertilisers to be used which has reduced the cost and improved the yield. Majority of the beneficiaries shared that the trainings provided under the initiative has helped them in improving their productivity which eventually increased their family income and quality of life.

3.3.2. Crop Demonstration Visits and its Importance

About the intervention

As a part of crop demonstration activity, farmers were provided exposure visits to the crop demonstrations for sharing ideas, teachings and showcasing a proven agricultural practice on crop management, pest management and other areas of cropping pattern.

[14] This was a multiple coded question due to which it shows low values in the figure.

Respondents (n=36) had been a part of crop demonstrations visits to the different districts, villages and industries such as Sahyadri Agro Industries in Nashik for cotton and soyabean. Majority of them got a chance to understand cropping patterns crops such as soyabean and cotton. Some of the respondents also visited fields for grapes, gram and other vegetables. Beneficiaries shared that these visits helped them develop their understanding about different types of cropping, farming accessories, crop management and how vermicompost can be effective fertilisers for their crops. Few visits were also made to grape farms, but beneficiaries stated that they could not relate to the grape farming particularly because their soil is not favourable for grape farming and did not find it relevant.

Figure 15: % of respondents participated in Crop Demonstration visits (n=85)

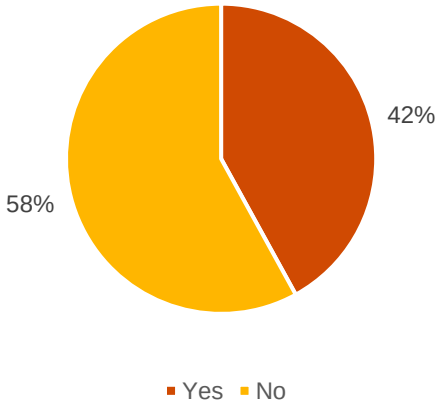
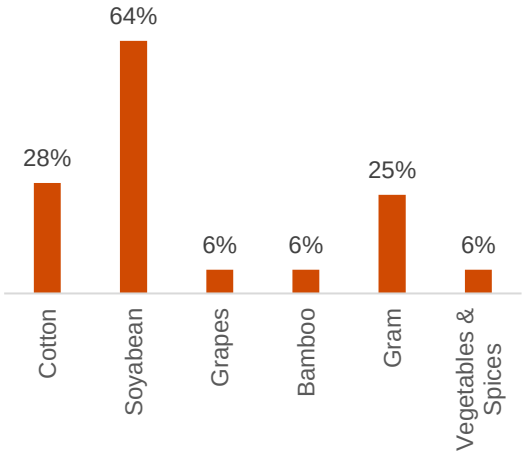


Figure 16: Types of crops demonstrated during visits (n=36)



Impact of the intervention

During the discussions, beneficiaries mentioned that their crops were suffering from insect attacks especially on cotton & soyabean crops due to lack of awareness on the pest management practices. As a solution, beneficiaries used to put additional pesticides which caused greater damage to the productivity. The trainings provided by the programme team on integrated pest management practices helped them in reducing the insect attack and increasing the yield for the same crops.

Beneficiaries mentioned that they had started growing cash crops after receiving training and participating in the exposure visits. Beneficiaries also started cultivating various vegetables, rajma, chillies, groundnut, sugarcane etc. which has eventually helped them in improving their family income and live a quality life.

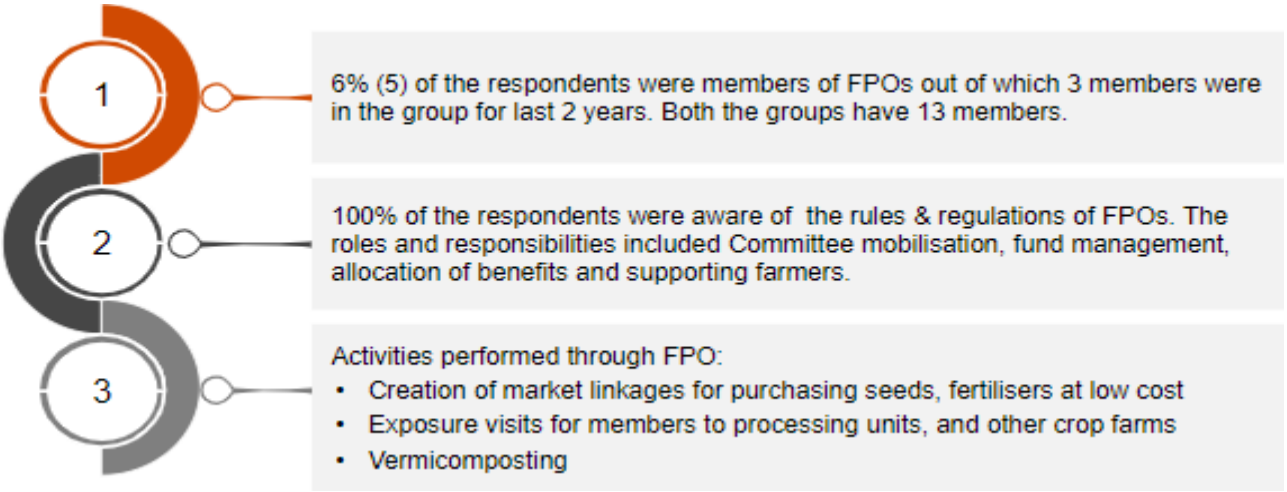
Strengthening of Farmers Producers Organisation (FPO)

About the intervention

In Ambajogai and Dharur block, two (2) FPOs were formed having representation from all the six (6) intervention villages. The FPO formed for Ambajogai block had already been registered and had an active open bank account for which the members have mobilised INR 1 Lakh from the members to get it operational. On the other hand, the FPO formed for Dharur block had just been registered and will be operational soon.

The major objective of forming the FPOs was to organise & strengthen the farmer groups who can support other farmers in the villages. As part of the survey, we conducted 6 In-depth interviews with the FPO members across all project villages. Another 5 FPO members were covered thorough quantitative interactions. The information and responses of this section are based on the interaction with all of them.

Figure 17: Overview of Farmers Producer Organisation



FPO members generated awareness among the farmers for following correct cropping pattern and supported them in identifying appropriate seeds for their crops, getting fertilisers & pesticides at low prices, this was identified as one of their major responsibilities.

Impact of the intervention

Beneficiaries shared that FPO members had supported farmers in purchasing quality seeds and fertilisers from the market at low cost. FPO formed in Ambajogai block (including 3 project villages of block) was already operational, however it was at an initial stage. More impact was yet to be observed from the activity.

Beneficiaries had been provided trainings on formation process of FPOs and its business model. FPO members mentioned that the initiative increased the awareness level among members in terms of agriculture related activities and also the platforms where they could get the help such as Krishi Vigyan Kendra (KVK).

3.3.3. Soil Testing and its impact on Crops

About the intervention

Under the initiative, total sixty (60) soil samples have been collected and testing has been completed successfully through Krishi Vigyan Kendra (KVK), Digholamba, Ambajogai[15] from all project villages and soil health cards were provided to them. 21% people had conducted the soil testing for their land prior to the intervention. 82% (n=85) respondents conducted the soil tests under the project. After the soil testing, beneficiaries were trained on soil management and importance of soil testing

70% respondents mentioned that their land patches were selected for soil testing once in a year whereas 30% of them had tested the soil once since 2020. Majority of the sample was collected from the cultivable land of 57% respondents and 14% respondents had given samples from their irrigated land. 83% of the respondents received their soil health card from KVK after the testing whereas 17% of the beneficiaries informed that their soil health card was still pending with KVK.

Impact of the intervention

93% of the beneficiaries had received training on soil management. Beneficiaries shared that they received trainings on crop residue management, importance of soil testing, fertilisers and pesticides management, and seed selection treatment which resulted in improved quality of farming. After the trainings, they made changes into their cropping pattern due to which their yield had increased, changes in fertilisers and pesticides had reduced the cost incurred for agricultural activities. Some of the beneficiaries stated that they changed their irrigation pattern which resulted in improving the quality of farm produce.

[15] Source: AFPRO Annual Report- 2021-22

3.3.4. Vermicomposting and its impact

About the intervention

Vermicompost beds were distributed to farmers for demonstrating the technique of Vermicompost and effective use of domestic and animal waste. The size of the beds is 12*4*2 feet. The beneficiaries were given training with reference to installation, composting method, its maintenance, and its appropriate application for agriculture land.

Total of 30 people are engaged in vermicomposting out of 85 respondents interviewed out of which only 3 are selling the compost produced. 2 of them have earned INR 10,000 over the period of two years by selling the vermicompost. All the respondents are using bed method which was provided under the initiative and 100% of them have received training through the programme. On an average, respondents are producing 1,000 Kg compost every year. There are 9% people who are producing vermicompost from 2000 Kg to 3000 Kg in a year.

Figure 18: % of respondents practicing Vermicomposting (n=85)

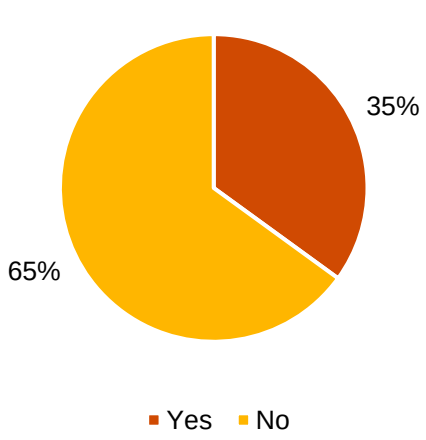
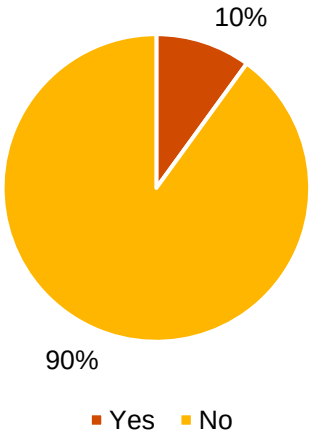


Figure 19: % of respondents selling Vermicompost (n=30)



Impact of the intervention

Beneficiaries shared that on an average they are producing 300 Kg vermicompost every quarter which has helped them in reducing the cost of fertilisers & pesticides and improved the soil health. As a result of the training received on vermicompost, many beneficiaries started vermicomposting through pit method on their farmland.

"I started vermicomposting in 2021 through this intervention and now producing 10 quintals vermicompost per year. Earlier I used to spend INR 15,000/- on fertilisers and pesticides which has been reduced to INR 1,200/- because I am using vermicompost. I have also sold vermicompost to others." -Beneficiary of vermicomposting initiative

3.3.5. Impact of the Initiative on Migration Level and Family Income

About the intervention

As shared by beneficiaries, there was high level of migration due to lack of livelihood opportunities across all the project villages. The entire Beed district comes under Deccan of Pathar which has rocky soil and is less productive. Due to the same reason water couldn't be stored and agricultural activities could not take place and community people had started migrating to other districts and/ or states in the search of employment prior to the intervention.

Figure 20: % of respondents on period of Migration pre-intervention and post-intervention

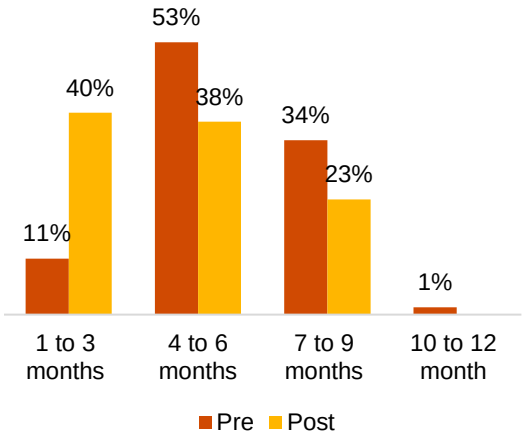
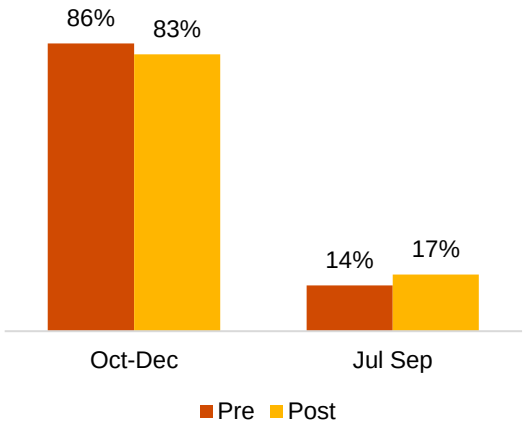


Figure 21: % of respondents on months of migration pre-intervention and post-intervention



Beneficiaries agreed that after the programme the migration level has reduced in all the six (6) villages. People are still migrating, but the number of people and duration has decreased. 74% respondents have agreed that there was heavy migration earlier and it has reduced to 62% but the duration for the migration has reduced. 44% of the respondent has agreed that the project has helped to a great extent in reducing the migration from the village whereas 40% of them said that it has helped to a minor extent. On the other hand, 8% of them felt that it has not helped them at all. Beneficiaries mentioned that earlier all the family members used to migrate but as a result of the programme only one or two members go to other states for employment opportunities. Earlier, majority of the household members used to migrate along with their livestock whereas after the intervention, livestock stays within the village as water is available throughout the year.

Impact on income level and quality of life of respondents

People have stated that the sustainable agriculture intervention has impacted their income and quality of life over the past two years. Beneficiaries responded that on an average the monthly income has improved by **39%** from INR 10,407/- to INR 26, 542/- per household after the intervention. The average monthly savings for respondents has improved by **35%** from INR 4,007/- to INR 11, 491/- per household after the intervention. Beneficiaries mentioned that increased income level has resulted in better quality of life as they are able to spend on additional activities.

Beneficiaries were asked about their perceptions on the various benefits that they have received through the programme on a rating scale of one to five (1-5, with 1 being the highest impactful & 5 being the least impactful) to assess the aspect which has been impacted the most.

Table 9: Perceptions of respondents on benefits through project

Benefits received through initiative	1	2	3	4	5
Created more assets at my home	5%	20%	16%	12%	20%
The land productivity has improved	61%	12%	11%	7%	8%
Reduced migration	7%	25%	29%	7%	20%
Children started going to school due to affordability	8%	9%	11%	13%	25%
Increased Savings	14%	25%	15%	14%	14%
More Disposable Money	1%	6%	6%	13%	46%

Created more assets at home: 20% respondents have ranked this benefit at second and at fifth position each whereas only 5% of the respondents have considered this as the most benefitted **and ranked it at number one position.**

The land productivity improved: Majority of the respondents with 61% has ranked this as the highest benefit and ranked it at number one followed by 12% beneficiaries responded it as second highest benefit.

Reduced migration level: 29% beneficiaries considered reduced migration as the third highest benefit followed by 25% beneficiaries who ranked this benefit as second highest.

Increased savings: 25% respondents ranked the benefit as second highest, and 14% to 15% beneficiaries ranked this benefit as other positions as mentioned in the table above. Beneficiaries shared during interaction that many people have created more assets at the household level for their comfort due to the increased savings.

Children started going to school due to affordability: Maximum 25% beneficiaries have rated 5 because they were already sending their children to school whereas 8% of the beneficiaries considered this as highest benefit and ranked number one (1).

More disposable income: 46% of the beneficiaries ranked creating more disposable money at fifth ranked benefit because according to them it is difficult for them to have disposable money due to increased expenses.

3.4. Livelihood Enhancement

About the intervention

The livelihood enhancement programme was initiated for the women of the family to make them more empowered. There was a specific criterion defined for the selection of beneficiaries under the programme. Every village had fourteen to fifteen (14-15) Self-Help Group members (SHG) who had conducted a meeting where they had decided who all should be provided with the livelihood opportunities of Goat Rearing, Poultry Farming and Stitching & tailoring.

- The beneficiary should belong to SC or DNT community.
- They should be landless people or with uncultivable land.
- Goats were provided to people with minimal landholding so that they can arrange fodder for them.
- Provided to only women member of the family

Total six (6) beneficiaries of livelihood enhancement were covered under the study from all six (6) project villages. The responses of this section are based on the information provided by them and information shared by other community members during group discussions.

3.4.1. Awareness about the initiative and trainings

Majority of the respondents came to know about the Voltas's initiative through campaigns and meetings done by the programme team within the village. Beneficiaries shared that a meeting was organised at Gram Panchayat level where everyone was informed about the intervention. While talking about the selection process and training beneficiaries mentioned that selection of eligible beneficiaries was done in consultation with Gram Panchayat members, Self-Help Group members and beneficiary itself.

Beneficiaries mentioned that they participated in two (2) different trainings one was general skill development training and another was based on the livelihood opportunity they have been identified for. Beneficiaries for specific income generation activities were identified from the people who had attended skill development training.

Ten (10) days training was provided to beneficiaries of stitching & tailoring and three (3) days trainings were organised for beneficiaries selected for goat rearing & chick rearing. All the respondents mentioned that the trainings have helped them in gaining knowledge & has deepened their understanding about the livelihood opportunity, its nuances and growing the business as well. It was also shared that exposure visits organised has helped the beneficiaries in enhancing knowledge and its management practices especially based on the geoclimatic conditions. Majority of the respondents found the quality of training good and were satisfied with the training provided to them.

3.4.2. Poultry Farming

Beneficiaries of the initiative were provided with twenty-eight (28) chicks and two (2) cocks for the breeding purposes along with the cage and water pots. All of them were provided trainings at KVK, Ambajogai and were taken to exposure visits to chick rearing farms at Talika Animal Husbandry Polyclinic, Ambajogai.

Beneficiaries mentioned that some of them already had experience of chick rearing but it was being used only for the domestic use. Beneficiaries shared that it could not be used as a source of income due to lack of knowledge and opportunities. It was opined by the beneficiaries that since there was no structured market linkages for selling the products, they sold eggs in local markets in Ambajogai, especially during weekly markets for income generation.

3.4.3. Stitching & Tailoring

Beneficiaries provided with stitching and tailoring training were given sewing machine, sewing tools, fabrics and other raw materials as onetime support. Beneficiaries of the initiative were provided with a ten (10) days training by a local organisation named 'Manasvi' in Ambajogai. Beneficiaries mentioned that some of them had prior experience of tailoring which was the primary reason for their selection under this initiative. Though, they were using this skill only for the domestic purposes, some of the beneficiaries started teaching stitching & tailoring to other women of the village and earned a minimal fee from them which helped them earn a living.

Impact of the intervention

During the interaction, beneficiaries who has been benefitted under livelihood enhancement initiative through poultry farming mentioned that because of this intervention they started other small businesses from the income generated through the initiative. One of the female beneficiaries who was involved in chick rearing activity shared that *"I have been given this opportunity and from the income generated I have started the business of selling bangles & artificial jewellery in other villages and local markets. I can easily manage both businesses and it has created a great impact on my family income due to which I could marry one of my daughters with full respect in society."*

Another beneficiary benefitted through stitching & tailoring initiative mentioned that with the income & savings from this initiative *"I have started making steel scrubs which is being used to wash the utensils at home and sell it in local market of Ambajogai. As shared by her, she was able to save money through both the establishments and could support her husband in building their house."*

Beneficiaries stated that the programme impacted their income and quality of life over the past two years. The overall annual income of the respondents observed significant improvement due to the initiative. Beneficiaries responded that on an average their monthly income increased from INR 917/- to INR 4,667/- per household. The average monthly savings for respondents improved from INR 417/- to INR 2,500/- per household after the intervention. Beneficiaries also mentioned that improvement in their income level also led to an increased expenditure which they could not afford earlier.

3.5. IRECS Analysis

Based on the interactions with the key stakeholders and desk review of the documents, the impact of the project was evaluated on 'IRECS framework'. The IRECS analysis summary has been presented in below table:

Parameter	Assessment from the study
Inclusiveness	• The support provided by Voltas to the intervention villages is **inclusive in nature as all the households of the intervention villages** received support with reference to water infrastructure in terms of nala deepening & widening, repair of cement bunds, repair of public percolation tank, farm ponds & artificial water Recharge. • Additionally, the individuals were purposefully **provided livelihood opportunities** to the landless people who also belong to SC or DNT communities as a source of income for their family. • Trainings were provided **irrespective of any discrimination basis caste, class or social category of the villagers**. • The benefits of the support provided by Voltas especially the benefits of water harvesting/ recharging structures **are being utilised without any discrimination by all the villagers irrespective of their social community or gender.** • However, detailed discussions with intervention beneficiaries have revealed that a selected number of people from the village have been provided with vermicompost beds and training.
Relevance	• The project support with reference to Water harvesting/ recharging structures was **relevant for the intervention villages as there was a scarcity of water for agriculture as well as for drinking purposes and low groundwater availability in these villages.** Earlier groundwater availability was very low from Feb to June and people had to fetch water from neighbouring villages. • Respondents stated that the programme was particularly relevant to them as they were fighting with scarcity of water and had no other sources of water and community members who have received trainings had no idea about the crop management and were keen to learn about new cropping pattern.
Effectiveness	• A significant degree of effectiveness has been observed in the support provided as most of the respondents have benefited from the support provided. • 44% of the respondents have agreed that Voltas's initiative has helped to a greater extent in reducing the migration from the village. People are still migrating but for a lesser period and less people are migrating. • Additionally, activities such as vermicomposting added to incomes of households, and even helped increase their savings. Hence it was effective in addressing the gaps.
Convergence	• Convergence with Gram Panchayat, KVK and agri based industries had been made clear since the beginning of the engagement. • However, future convergence of projects such as the Sustainable Agriculture, Vermicomposting (no support from Panchayat besides permission), remains a question hence moderate convergence is noted.

Parameter	Assessment from the study
Sustainability	• Sustainability of the programme interventions has been thought through - for example, beneficiaries of water harvesting/ recharging structures are supporting the programme within the community through a Village Water Committee representing a self-sustaining model for the future. • Currently, people who have been benefitted through Livelihood project are contributing one time fund for the maintenance of community water harvesting/ recharging structures. • Greater community ownership & accountability of the Gram Panchayat is **required to leverage more funds/support from other alternative sources**, be it Government or other corporates is required to ensure long term sustainability of the project.

4. Recommendations

Recommendations

Greater ownership & timely strengthening of Gram Panchayat

- It was observed that the involvement of the Gram Panchayat was limited to ensuring the maintenance of the community water harvesting/ recharging structures in the villages. However, there is a need to ensure greater ownership & accountability of the community as well. Recently, there was a change in Gram Panchayat body due to recent elections, so it needs to be ensured that Gram Panchayat are facilitated about the initiatives under the programme and orient Gram Panchayat body to take the ownership of the existing work through the programme to be sustainable for the villages.

Consultation with newly elected GP body and better usage of bigger water harvesting/ recharging structures

- It was observed that there were bigger ponds or water harvesting/ recharging structures close to villages which could be used to build water harvesting/ recharging structures to improve the groundwater level. A new Gram Panchayat body has been elected so it is recommended to consult them before starting the next phase in the villages to understand the requirements and for smooth & effective implementation of the project. Panchayat members were keen to provide all needed support and help in making the Umrai village as model village in water conservation & sustainable agriculture for other districts and states.

Expansion of Vermicomposting model

- Detailed discussions with intervention beneficiaries have revealed that a selected number of people from the village have been provided with vermicompost beds and training. As suggested by the community people, more intensive training for vermicomposting could be provided to a larger number of people as those who are producing it are not selling it to others and remaining villagers can also carry out the activity which will help them in reducing their cost for fertilisers & pesticides further.

Supporting Farmers in establishing market linkages

- Many farmers have started growing cash crops and vegetables like chillies, capsicum, cauliflower etc. due to availability of water but lacked a proper platform to sell their products. There is a need to establish market linkages to connect them with the beneficiaries. This will also be helpful for the beneficiaries of livelihood enhancement project as currently they are only using their skills for their own self. However, the FPOs could be further strengthened to help bridge the gap of market linkages.

Awareness & knowledge about Saturation Model for Livelihood Project

- As a part of sustainability model, the beneficiaries of livelihoods project must escalate their model to other people after one (1) year of receiving the benefits. Those who have been provided chicks have to give four (4) chicks to other needy persons in the village after one year after he/she has received the benefit. Similarly, if someone has been provided goats has to give two (2) goats / lambs to someone else from the village as a part of the programme. However, it was observed that people are not aware about this rotational model to ensure maximum people receive the benefits. AFPRO project officials should spread awareness around the escalation model of livelihood project among beneficiaries and make the rotational model clear to every beneficiary so that this one-time support would also benefit others to make the programme more sustainable and will also hold the villagers more accountable.

Data Classification: DC2 (Confidential)

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