Impact Assessment Study under Holistic Rural Development Programme (HRDP) Amravati, Maharashtra – P0466

Prepared For:

HDFC BANK | PARIVARTAN
A step towards sustainable progress

HDFC Bank Corporate Social Responsibility (CSR)

Prepared By:

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List of Acronyms

APL	Above Poverty Line
BPL	Below Poverty Line
CSR	Corporate Social Responsibility
FGD	Focus group discussions
HH	Household
HRDI	Holistic Rural Development Index
HRDP	Holistic Rural Development Programme
IDI	In-depth Interview
KII	Key Informant Interview
NRM	Natural Resource Management
SHG	Self-Help Groups
ST&LE	Skill Training & Livelihood Enhancement
VSP	Vikas Sahyog Pratishthan

Executive Summary

This study evaluates the impact of the Holistic Rural Development Programme (HRDP) implemented by the Vikas Sahyog Pratishthan (VSP) with HDFC Bank CSR support in Bhatkuli block, Amravati district, Maharashtra (October2021-March 2023). It examines the implementation process, key milestones achieved, program impact, and challenges faced by VSP and HDFC Bank.

The key focus areas of the intervention were Natural Resource Management (NRM), and Skill Training & Livelihood Enhancement (ST&LE). The framework used for the impact assessment was an adaptive version of the DAC criteria (Relevance, Effectiveness, and Sustainability). This adaptation likely considered the specific context of the intervention to ensure a more relevant and accurate assessment.

The project employed a mixed-methods evaluation approach, utilising both quantitative and qualitative data collection methods. This participatory approach involved all key stakeholders. A household survey (409 households) was conducted using purposive random sampling. Additionally, qualitative data was gathered through focus group discussions (7), in-depth interviews (6), and key informant interviews (2).

Natural Resource Management

This project addressed water scarcity and low agricultural productivity in the region by focusing on irrigation management and farm management to create long-term, sustainable livelihood solutions for the farmers. Its focus on chemical-farming and organic farming bore fruit for the farmers in the form of enhanced income, improved soil health, and better-quality produce.

The project also addressed challenges related to irrigation facilities by supporting the farmers with mini sprinklers and rain port kits. Through these kits, the farmers were able to create a water system that not only reduced the amount of manual labour they needed to employ earlier but was also more effective and efficient in utilising the same amount of water to keep the soil moist as per the requirements of the specific crops.

There has been a 47 percent increase in the average net annual income from agriculture of the beneficiaries from Rs. 1,04,011 to Rs. 1,52,995. Further, 33 percent of the farmers benefitted from the increase in productivity above the median level, of their three main crops, which are tur, soyabean, and cotton.

There is an average increase in production of the key crops, from before the project interventions to post, with a 23 percent increase in tur, 12 percent in soyabean, 33 percent in sorghum, 9 percent in cotton, and 3 percent in onion.

Around 35 percent of the farmers reported a decrease in their input costs and the major factor in this reduction is the decrease in the usage of chemical fertilisers or purchased inputs.

During the last season of the project, there has been an increase in the usage of natural fertilisers by 88 percent of the farmers, and there has been a decrease in the usage of chemical fertilisers by 64 percent of the farmers. This change in the usage of fertilizers was brought about by the support provided during the project in the form of training, setting up and financing of vermi-pits, NADEP pits, and training and demonstration of the preparation of organic manure.

Skill Training & Livelihood Enhancement

The project recognised the limitations of a purely agricultural economy and implemented initiatives to diversify livelihoods. It focussed on imparting training on organic farming and also facilitated the organic certification process, which paved the way for the farmers to continue with organic farming as it has the multi-fold benefits of improving soil health, decreasing input costs, and securing better market rates. Additionally, SHGs were empowered through training in financial management and connections with banks, allowing them to pursue new income-generating activities. This multifaceted approach aimed to equip the local population with the skills and resources necessary for a more resilient future. For example, through the skilling, almost 57 percent of the sample beneficiaries had a positive impact on their regular income generation activities, 65 percent of the households benefitted by starting a business activity, 94 percent of the households reported an increase in income, 88 percent of the households reported an increase in savings, 39 percent of the households were able to expand their businesses, 61 percent of the households gained business skills, and 53 percent of the households gained an additional source of income.

These interventions helped the women participants significantly, **with 68 percent of them reporting that they have benefitted from increased income due to the skills that they learned during the training programs. And they were also able to increase their income from the SHG enterprises and activities by 33 percent, from Rs. 1778 to Rs. 2358.**

Table 1: Summary of Key Income Indicators

Income Indicators (based on mean)	Before	After	% Change
Average Net Income from agriculture (INR)	104011	152995	47%
Average Income from SHG enterprises/ activities	1778	2358	33%

HRDI Indicators

Table 2: Summary of HRDI Indicators

Domain	NRM		ST&LE		Total	
HRDI Score	Base line	End line	Base line	End line	Base line	End line
	0.16	**0.22**	**0.03**	**0.22**	**0.19**	**0.44**
% Change	**36%**		**675.5%**		**131.6%**	

The interventions carried out under both the themes can be looked at as being mutually reinforcing since they had the common goal of improving the agricultural practices in the villages as the main source of income for almost 90 percent of the households is from agriculture. 73 percent of the sample beneficiaries received the agricultural training and support services and almost all of them continue to practice the techniques they learnt through the project.

And lastly, we see a modest improvement of 37% percent in NRM due to the limited activities in farm management and irrigation management, and also due to the relatively shorter duration of the project of around one and half years only. There were no interventions in Health and Education thematic areas. Hence, the HRDI calculations are based on NRM and ST&LE values.

Recommendations

- The shift to organic farming is at a very nascent stage, however, the project has been able to demonstrate its benefits as well as viability. In order to ensure that the farmers continue with organic farming practices, it is required that these practices be enforced and continued without lag, since using chemical fertilisers on organic lands will lead to farmers losing out on their organic certification and erasing substantial inroads made through the project.
- The project also re-introduced crops such as jowar/sorghum which has been native to this region but have been discontinued for a few decades due to the push towards cash crops like cotton. Cultivating crops like sorghum benefits farmers by improving their food security and reducing their dependency on markets for their income. It is advised to continue this initiative since the newer generation of farmers is not used to cultivating sorghum, but they are inclined towards it, and the project needs to capitalise on this aspect and potentially reconnect the farmers to their native crop, thus facilitating their self-consumption and also aligning the indigenous crop with the region.
- The SHG enterprises are still in their infancy and require further assistance and guidance to ensure their long-term viability. In the case of the tomato juicer unit and pulse processing unit, the women are keen to expand their orders and need support in establishing market linkages. Further, all these processing units are seasonal in nature, operating only for three to four months in a year. The SHG members have expressed their aspiration to run their enterprises year-round. For this purpose, they require further assistance, in terms of business management, enterprise development, marketing, infrastructure development, and financial assistance.
- The project could also have women-oriented interventions focussed on empowering them. Through the training sessions conducted during the project, a lot of women have gained self-confidence and have found a support system to seek opportunities outside their home. But they require continued support in order to have a lasting effect on the social standing of these women.

1 Introduction

Though India has made massive strides in human development over the last few decades, the rural areas of the country have not substantially benefited from the growth and development occurring nationwide. Even after seventy-five years of independence, disparities between rural and urban centres in the country have been growing. Agriculture is still the mainstay of the Indian economy due to its high share in employment and livelihood creation, notwithstanding its reduced contribution to the nation's GDP over the last few decades. The challenges in rural areas range from low productivity in agriculture to a lack of irrigation facilities and almost negligible non-farm employment opportunities, to name a few. To mitigate these diverse yet interlinked developmental challenges, HDFC Bank, under its Corporate Social Responsibility (CSR) initiative 'Parivartan,' supports numerous programs that deliver holistic rural development to aid the growth and prosperity of the rural population.

1.1 About HRDP

Under the aegis of *Parivartan*, the Holistic Rural Development Programme (HRDP) is HDFC Bank's flagship CSR programme in collaboration with non-governmental organisations nationwide. The programme focuses on developing human capital, managing natural resources, and improving infrastructure in villages, with the ultimate goal of bringing about a positive socio-economic transformation in the lives of the rural population. Interventions are primarily undertaken in four thematic areas:

a) Natural Resource Management
b) Skill Training and Livelihood Enhancement
c) Health and Sanitation
d) Promotion of Education

The primary objective of HRDP is to provide tools and means for the rural population to grow and prosper, both socially and economically. The HRDP takes a comprehensive approach by addressing various community needs, including promoting economic independence through skill training and livelihood opportunities, enhancing basic infrastructure, and establishing a healthier ecosystem for improved living conditions.

1.2 Objectives of Impact Assessment

This impact assessment study aims to evaluate the tangible effects and outcomes of project initiatives. The study has analysed the influence of the HRDP on the targeted areas and populations. The assessment provides insights into the effectiveness and sustainability of the project's interventions. The study aims at understanding:

- Overall process undertaken for implementing HRDP activities
- Key milestones achieved
- Impact created by HRDP activities
- Challenges faced and how they were managed

The guiding philosophy behind this study is to add value by showcasing successful initiatives and recommending possible ways to address existing challenges.

The study seeks to:

- Critically and objectively evaluate implementation and performance
- Determine reasons for certain outcomes or lack thereof

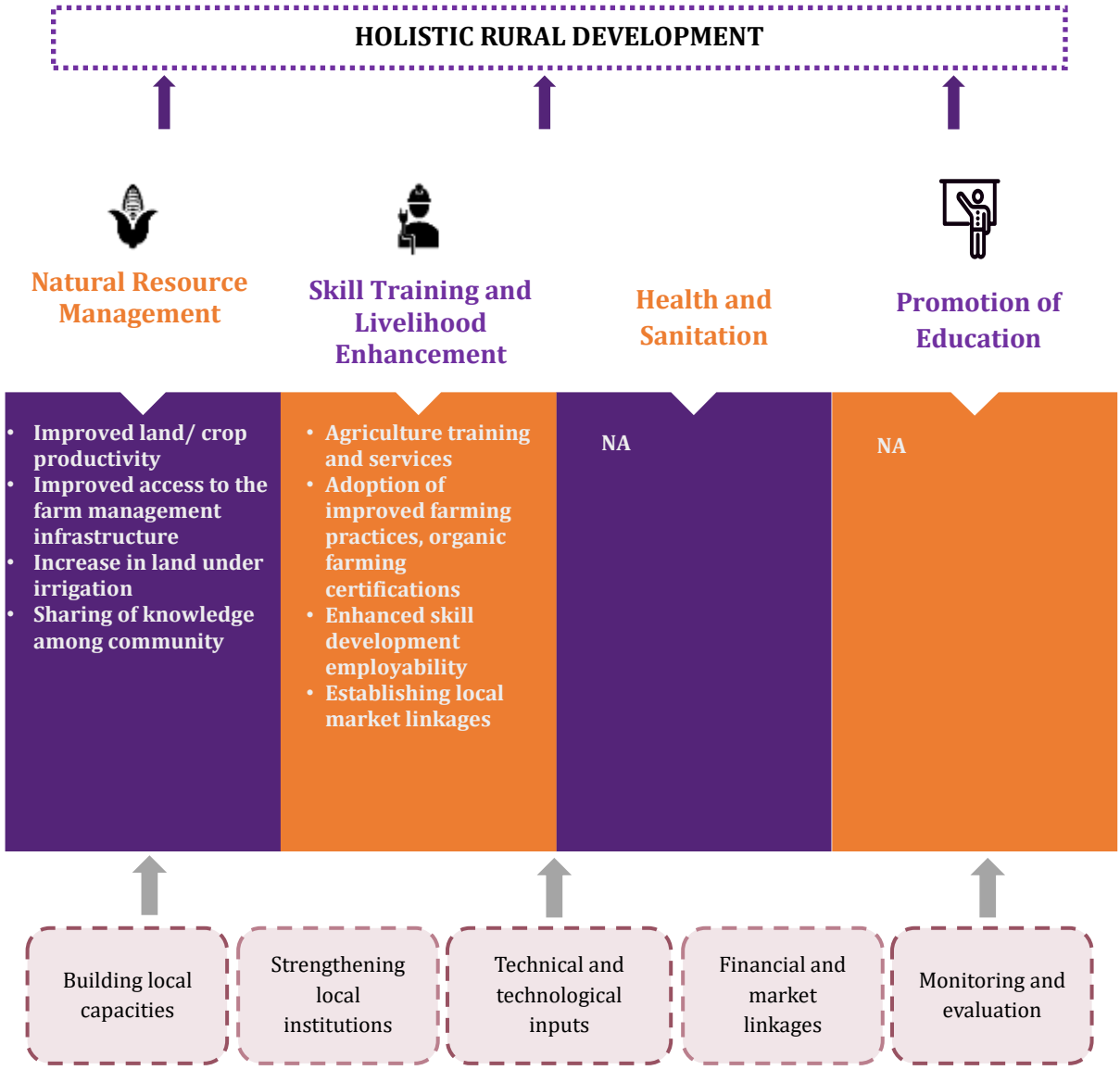
- Derive lessons learned and good practices
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

This study was also an opportunity to assess the on-ground relevance and effectiveness of the programme.

1.3 Conceptual Framework Adopted

The conceptual framework and the areas covered under the assessment are depicted below. The aim is to build local capacities and strengthen local institutions while providing technical inputs and conducting evaluations across the four thematic areas. The objectives under NRM and ST&LE are enumerated in the figure below.

Figure 1: Conceptual Framework



1.4 About the Project Area[1]

Amravati District, situated in the northeast of Maharashtra, covers a total geographical area of 12,212 sq. km., accounting for approximately 3.97 percent of Maharashtra's total area. The district's terrain is predominantly covered by Deccan Trap (75 percent) and Purna alluvium (25 percent). The climate in Amravati is characterised as hot and dry, with three distinct seasons: cold, hot, and monsoon season. During the monsoon season, which is usually from June to October, the district receives rainfall from the southwest monsoon. The average annual rainfall ranges between 700 and 800 mm. During the summer months, temperatures can rise significantly, with maximums reaching up to 46°C. According to the 2011 census, the rural population of Amravati District was approximately 1,851,158, constituting about 64.09 percent of the total population of the district at that time.

Image 1 District map of Amravati

Source: mrsac.gov.in

1.5 Implementing Partner in the District

Vikas Sahyog Pratishthan (VSP, Mumbai was established in 1990 by professional social workers and thinkers. Initially focusing on training and then evolving into a resource and support organisation, VSP has since facilitated people-centric, rights-based movements and pioneered innovative alternatives in its field. Today, VSP is engaged in direct implementation activities, particularly aiming to promote livelihoods, quality education, and dignity for disadvantaged rural communities in Maharashtra.

VSP's interventions span across natural resources management, livelihood enhancement, and gender empowerment. Starting its work in the Konkan region, VSP expanded to western Vidarbha, western Maharashtra, and the Khandesh region, primarily focusing on livelihood initiatives. The organisation advocates for pro-poor policies in rural development and has conducted experiments and initiatives in various sectors, including quality education, sustainable livelihoods, water and sanitation, and soil and water conservation.

In the realm of sustainable livelihoods, VSP has developed models such as nature farming and promoted initiatives like Parisar Baug (Organic Nutritious Plot) in drought-prone villages. The organisation has engaged in livestock rearing, agro-processing units, and has facilitated convergence with government schemes in districts like Amravati and Buldhana. Previously, VSP collaborated with institutions like Konkan Krishi Vidyapith to advocate for initiatives supporting marginal farmers, such as the Sheti Vachva and Shetkari Vachva campaigns, and assisted farmers in accessing insurance for crop losses through respective government departments, particularly focusing on paddy crops.

Image 2 Implementation partner sharing about project in enumerators training

2 Research Design and Methodology

The impact assessment used a mixed method that includes both qualitative and quantitative methods to assess the impact of the project interventions. The impact assessment process was carried out in a consultative manner, engaging with key stakeholders involved in the project design and implementation, including HDFC Bank and VSP.

2.1 Criteria for Assessment

For each thematic area, project activities completed by the VSP were identified from their project documents, and reports that they submitted to HDFC Bank. The impact of those activities was assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness
- Sustainability

Under the criterion of relevance and convergence, the team assessed whether the design of the project interventions was:

1. Aligned with the state's plans and priorities for rural development.
2. Relevant to the local needs of the most vulnerable groups.
3. Converge with (and make use) of the government's existing resources.
4. Enabling different stakeholders to work together to achieve the intended outcomes of the programme.

To assess the impact and effectiveness of the project, the team established the values of outcome indicators for all four thematic interventions. The findings were assessed against these values through the identification of qualitative evidence and analysis of project outcomes (in light of variables identified in consultation with HDFC Bank). The team tried to understand whether and how the project impacted the lives of community members in the project areas. The findings from primary quantitative data were substantiated by the information gathered from discussions with the communities or beneficiaries, teachers, students, entrepreneurs, and local village-level institutions.

For the criteria of sustainability, the team studied the primary data to understand if the project has worked on strengthening the community's capacity, positioned appropriate institutional mechanisms to ensure sustainability, and if any of the activities or strategies adopted have been or could be replicated.

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey that was conducted by a survey team consisting of seven enumerators and one supervisor. The primary quantitative data was collected using the computer assisted personal interview (CAPI) method, where we developed a mobile application to collect data. The qualitative research included in-depth interviews (IDIs), key informant interviews (KIIs) and focus group discussions (FGDs) with project beneficiaries and secondary stakeholders such as the team members of VSP, the HDFC Bank programme team, local leaders from the project area, etc. IDIs were conducted with the specific individuals who were recipients of the project. The qualitative exercise(s) were conducted by our research coordinator.

Secondary data sources included HDFC's CSR policy, programme log frame (logical framework analysis), rapid rural appraisal reports, programme implementation timelines, communication, and documentation products, and various reports shared by the implementation partner, such as annual, impact, monitoring and target versus achievement.

The outcome mapping and result chain development were undertaken in consultation with the HDFC Bank team. Standardised key outcomes and indicators were identified for each thematic area (NRM, ST&LE) and based on this; the questionnaire was developed.

2.3 Sample Size and Distribution

From the ten villages in Amravati where the project was implemented, beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from VSP. Since beneficiary selection was undertaken independently for each thematic area, the selection of more than one beneficiary from a single household was probable. Also, there were instances where a single beneficiary received multiple benefits and support across the thematic areas. The inclusion of beneficiaries in all thematic areas was ensured. The target sample size across ten villages was 400, out of which 409 sample respondents were reached. The thematic area-wise sample covered was as follows:

Table 3 Quantitative sample covered

Village	NRM	ST& LE	Total
Jalka Hirapur	16	25	29
Khalkoni Antapur	25	30	31
Mhaispur	25	34	35
Nanded	35	34	39
Nirul Gangamai	32	49	51
Saur	32	36	40
Udapur	9	14	14
Uttamsara	43	53	53
Waki (Raipur)	45	49	49
Wathoda (shu)	33	67	68
Total	295	391	409

Qualitative methods like FGDs (7), KII (2) and IDIs (6) were also used to collect data from the very same villages, covering various themes of the project intervention.

2.4 Training of Enumerators

A survey team, consisting of seven enumerators and one supervisor, was part of the quantitative data collection process. Two days of training were provided to the team by the field coordinator and research coordinator, during which they were given detailed orientation on the data collection tool, data collection protocols, and also maintaining the quality of the data being collected. The training included both classroom teaching and mock practice of the survey tool. On the second day of the training, the team members of VSP, the implementing partner, gave an

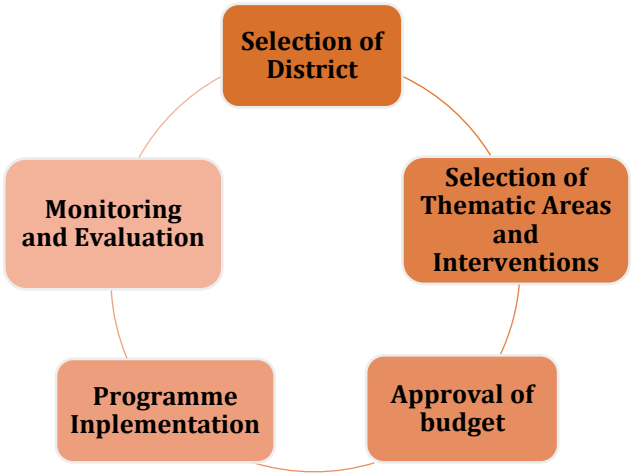
overview of the interventions carried out under the project to the team. They presented a brief introduction of the villages, including the communities.

Image 3 Enumerators training at Amravati

3 Programme Planning and Implementation

The planning and implementation of the programme involved five stages: selection of the project area, viz., district, block, village; selection of thematic areas and interventions; approval of the budget; programme implementation; and monitoring and evaluation. These stages are further explained below.

Figure 2 Planning and implementation process



3.1 Selection of Project Area

The selection of the project area of Bhatkuli block in Amravati district, Maharashtra, was based on the existing operational area of VSP. Major issues in the project villages include:

- Low agricultural productivity is due to degradation of soil quality, a lack of adequate irrigation facilities, and excessive use of chemical fertilisers. Agriculture is extremely unpredictable and not an assured source of livelihood on account of productivity issues, rising input costs, and.
- Unpredictable market rates for produce required the establishment of market linkages in order to give a consistent rate of return to the farmers.
- Lack of support infrastructure for self-help groups, farmer groups, and youth groups to avail financial, and enterprise development related services in order to initiate non-farming as well as farming, and farm-related activities that will create new income opportunities and expand their existing ones for them.

VSP's objectives in the project were directed towards the above issues, focussing on vulnerable farmer households.

3.2 Selection of Thematic Areas and Interventions

Considering the above challenges in the project area, HRDP interventions were designed to address issues not only in agriculture but for the overall improvement of livelihoods. *The interventions in the project were planned under the thematic areas of NRM and ST&LE, and there are no activities under H&S and Education. The duration of the project was for one and a half years only.*

Farm-based livelihoods are extremely vulnerable due to decreasing land productivity, and rising input costs. Further, due to the erratic nature of monsoons and limited irrigation facilities, agriculture is seasonal and difficult to depend on. One of the focus areas was facilitating the adoption of chemical-free farming through organic farming practices such as the application of natural fertilisers, and using organic seeds and fertilizers.

The project also focussed on optimising the efficiency of the irrigation facilities by distributing mini sprinklers, which allowed the farmers to use the same amount of water in a much more efficient and effective manner. This form of irrigation allowed the farmers to keep the soil moist for a longer period of time without having to input additional labour hours.

Improving the skill base and enterprising capabilities of the women and men of the various self-help groups and farmer groups by setting up pulse processing units, vegetable procession units, and market linkages through skill training and enterprise development programs.

The activities specific to each village under the project were decided after in-depth consultation with the respective stakeholders. Activities under each of the thematic areas are as follows:

3.3 Project Implementation

Table 4 Activities under the two thematic areas

Activity Category	Activities	Output Indicators
NRM		
Water Management	Mini sprinklers, rain port kits for irrigation	Increase in income from agriculture
Farm Management	Adoption of chemical free farming through organic farming practices	
ST&LE		
Agriculture Training and Services	Training and demonstration of organic farming, and preparation of self-made natural fertilisers	Improved access to agriculture training and services
Skill and Entrepreneurship Development	Enterprise development activities	Enhanced capacity for regular income generation
Development of Self-Help Groups (SHGs)	Training & awareness programs, bank linkages, business management activities	

3.4 Project Implementation

Based on the needs of the area, the project was designed with the below-mentioned objectives:

- Improvement of agricultural productivity by adopting chemical-free farming practices at the village level
- Securing livelihoods by reducing dependency on chemical fertilisers and purchased inputs, by shifting to self-made natural fertilisers
- Improvement in long-term soil health by switching to organic inputs only and efficient and effective irrigation systems facilitated by mini sprinklers
- Creating opportunities for income generation beyond farming by establishing processing units for pulses and vegetables.

This project aimed to improve the lives of the residents in the villages in the Bhatkuli block in Amravati district by addressing challenges in NRM and ST & LE themes.

The project was implemented by a dedicated team with the support of community-level functionaries, who played a crucial role in mobilising communities and ensuring their active participation in project activities.

3.5 Monitoring and Evaluation

A standardised monitoring and evaluation methodology was adhered to, as endorsed by the implementing partners. This included the periodic submission of progress reports on project implementation to HDFC Bank. Furthermore, the programme implementation team from the bank conducted scheduled visits to the project villages, reviewed the project work sites, and interacted with project beneficiaries.

VSP managed project data, detailing village-wise activities, beneficiaries, and expenditures. An annual progress report along with the plan for the following year was submitted to HDFC Bank. This document summarised activities implemented, outputs delivered, and outcomes achieved.

In addition, HDFC Bank hired Intellecap as an external agency to conduct an impact assessment of the project after one year of project completion. This was an independent assessment that was evaluated using four criteria: relevance and convergence, impact and effectiveness, sustainability, and replicability. This is backed by the creation of a Holistic Rural Development Index (Annexure B) based on selected outcome indicators. The impact (Annexure C) of each activity has also been calculated and classified as high, medium, or low impact. The annexure goes into greater detail on these.

4 Study Findings

This section gives a glimpse of the demographic characteristics of the sample households, followed by an analysis of the findings from the field assessments.

4.1 Demographic Profile

The household survey gathered data across ten villages, namely Jalka Hirapur, Khalkoni Antapur, Mhaispur, Nanded, Nirul Gangamai, Saur, Udapur, Uttamsara, Waki (Raipur), and Wathoda (shu) of Bhatkuli block in Amravati district in Maharashtra.

Table 5 Sample distribution across age, class and caste

Age of the respondent		Social Category		Ration Card	
18-25 years	3%	SC	10%	Antyodaya	7%
26-35 years	17%	ST	3%	BPL	46%
36-45 years	27%	OBC	78%	APL	46%
46-55 years	25%	General	8%	Do not have ration card	0.7%
56-65 years	21%	Gender of the respondent			
More than 65 years	7%	Male	70%	Female	30%

Agriculture is the primary source of income for the majority of households with around 90 percent of the households being engaged in it in a significant way. This is followed by wage labour at around 39 percent, and income from non-agricultural sources such as business, rent, etc. being the primary source for around 25 percent of the households. Most of the households (78 percent) belong to the Other Backward Classes (OBCs) category, followed by Scheduled Castes (SCs) at 10 percent, General at 8 percent and Scheduled Tribes (STs) at 3 percent. In terms of the level of education, around 29 percent of the households have completed high school (9th-10th std), 33 percent have completed higher secondary school (11th-12th std), around 13 percent have completed graduation and only 3 percent of the households are illiterate. There is an almost equal distribution of households into BPL households (46 percent) and APL households (46 percent), and around 7 percent of the households are the most vulnerable ones falling in the Antyodaya category.

Figure 3 Education level of sample beneficiaries (n=409)

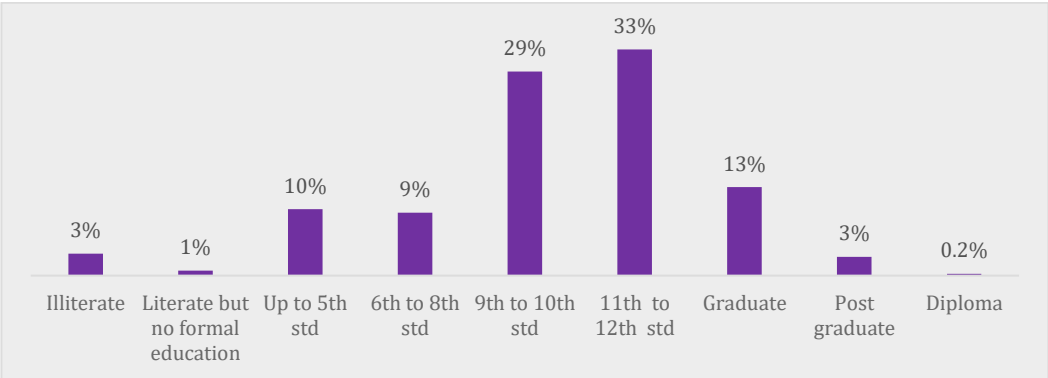
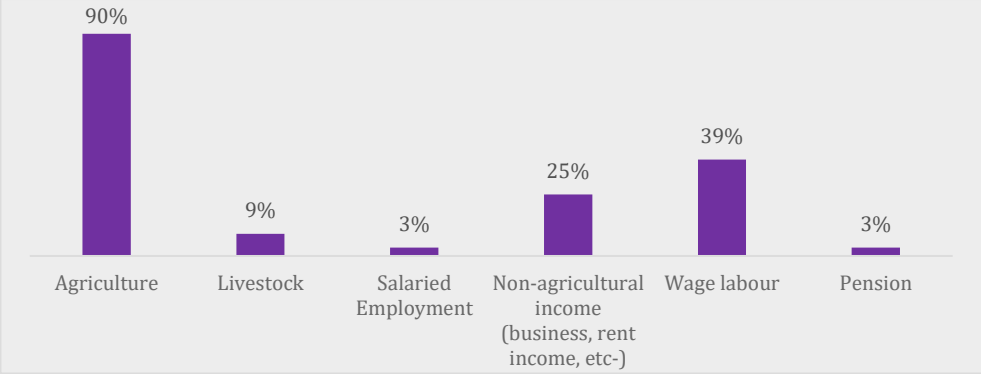


Figure 4 Income sources of sample beneficiaries (n=409)



The following table represents the summary and quantum of activities carried out under each intervention category of the two thematic areas (see Table 6).

Table 6 Quantum of activities under each thematic area

Activity Category	Activities	Nos.(units/farmers) (as provided by IA)
NRM		
Irrigation Management	Installation of drip	1
	Installation of sprinkler/sprinkler set	8
	Nala deepening	12
	Rain port kit	212
Farm Management	Farm pond construction/renovation	2
	Agri Tool Bank/Agro Resource Center	3
	Seed Bank	7
	Nadep pits	3
	Azolla	1
	Shivansh/organic manure	144
	Mulching	2
	Crop diversification	7
	Soil testing	204
	Pesticides/fertilisers	171
	Land treatment	2
	Crop insurance	2
	Organic Input distribution	50
	Develop a model farm/farm field school	1
	Agriculture equipment provided	1
	Intensified Vegetable Cultivation (IVC)	2
	Seed distribution	241
	Soil and water conservation	1
	Information about vermi pits or its installation	113
ST&LE		
Agriculture Training and Services	Training on agricultural practices/organic training	268
	Formation of farmer group and development	49
	Setting up/Strengthening of Farmers Producers Organisation (FPO)	9
	Field school	17
	Exposure visit	16
	Farm techniques training	83
	Demo plots	20
	PoP training	14
	Nature farming- training	249

Skill and Entrepreneurship Development	Skill development training in job-oriented programs/computer centre	3
	Support for enterprise development	43
SHG-Based Women Empowerment	Establishing/reviving SHG	105
	Training for SHG members (record keeping, utilization of savings, loan and repayment etc-)	94
	Establishing linkage with bank	91
	Establishing/expansion of SHG enterprise/ business activities	54
	Training to SHG on income generating activities (IGA)	1
	Training awareness programme for VDC and VO	1

The following sub-sections highlight the key findings from the field survey conducted to assess the impact of the programme after its completion.

4.2 Natural Resource Management

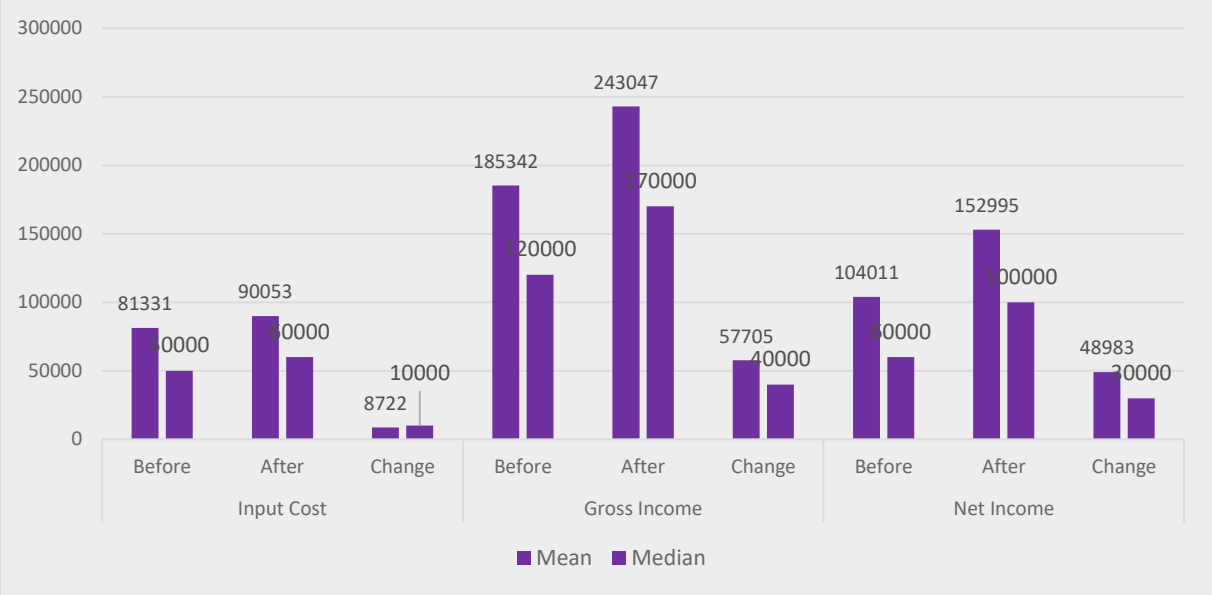
In the Bhatkuli block, Amravati district, agriculture is the primary income source for villagers, predominantly relying on rainfed crops and monsoon-dependent irrigation. However, farmers' socio-economic conditions are dire due to decreasing farm productivity, deteriorating soil health, and the absence of irrigation systems. Recognising these on-ground challenges, Vikas Sahyog Pratishthan (VSP), the implementation partner, identified the following interventions as the goals of the project: to bring 1660 acres of farmland under chemical-free farming cultivation, to reduce the cost of cultivation, and to make the existing agriculture system sustainable. Another agenda of the project was to make agriculture more market-oriented, wherein the involvement of producers will be much higher in the commodity value chain.

Thus, the focus of the project was to spread awareness about organic farming and also facilitate its adoption among households by supporting them with trainings, demonstrations, the distribution of irrigation tools such as mini sprinklers, and rain port kits, and the distribution of organic inputs such as seeds, fertilisers, insecticides, etc.

4.2.1 Income from Agriculture

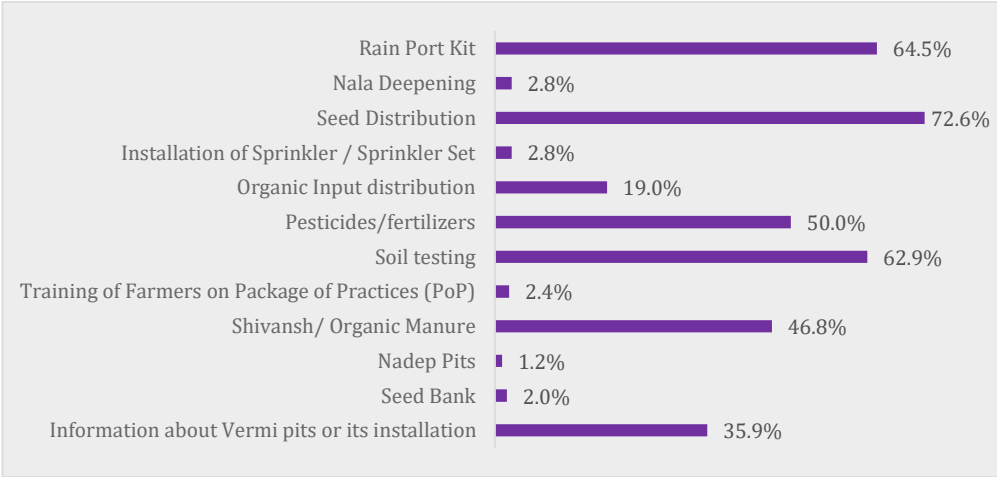
The implemented initiatives have yielded a favourable influence on the farmers' income generation capabilities. Before the intervention, the average input cost was INR 81,330, with a median value of INR 50,000. After the intervention, these amounts rose to INR 90,053 and INR 60,000, respectively. Similarly, the **average gross income before the intervention was INR 185,342, with a median value of INR 120,000, whereas post-intervention, these figures increased to INR 243,047 and INR 170,000, respectively.** Net income also saw an upward trend, with the average rising from INR 104,011 before the intervention to INR 152,995 after, and the median value rising from INR 60,000 to INR 100,000.

Figure 5 Income from Agriculture (n=295)



This positive change in farmers' income-generation capacity is attributed to several factors. Foremost among these has been the distribution of organic seeds, followed by interventions such as the distribution of mini sprinklers, rain port kits, soil testing, the distribution of pesticides, fertilisers, and Shivansh (or organic manure). They have significantly contributed to improving the income levels from agricultural activities for the selected beneficiaries.

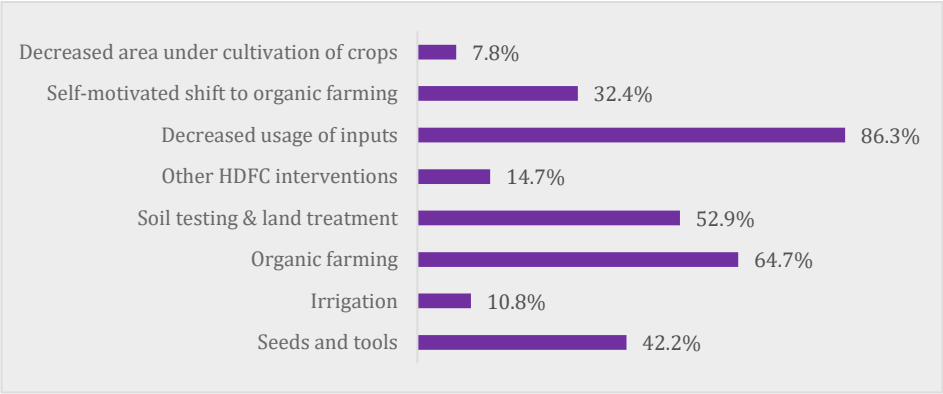
Figure 6 HRDP interventions that contributed towards increased income (n=248)



Around 35 percent of the farmers reported a decrease in their input costs, and the major factor in this reduction is the decrease in the usage of chemical fertilisers or purchased inputs. Soil testing and land treatment carried out during the project, as well as the distribution of organic seeds and farming tools, further facilitated the decrease in input costs. Adoption of organic farming during the project demonstrated its positive impact on the farmers, which then further motivated them to increase the land area under organic farming.

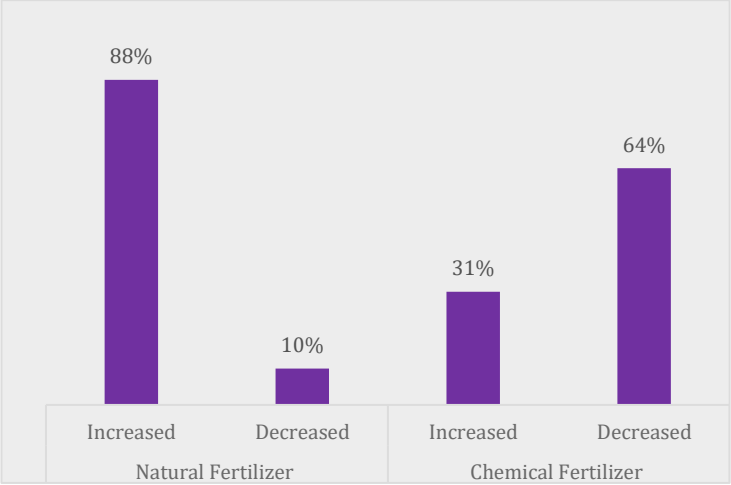
Prior to the HRDP interventions, about 47% of farmers had incomes above the median range; fol lowing the interventions, this percentage rose to 72%.

Figure 7 HRDP interventions that contributed towards decrease in input cost (n=102)



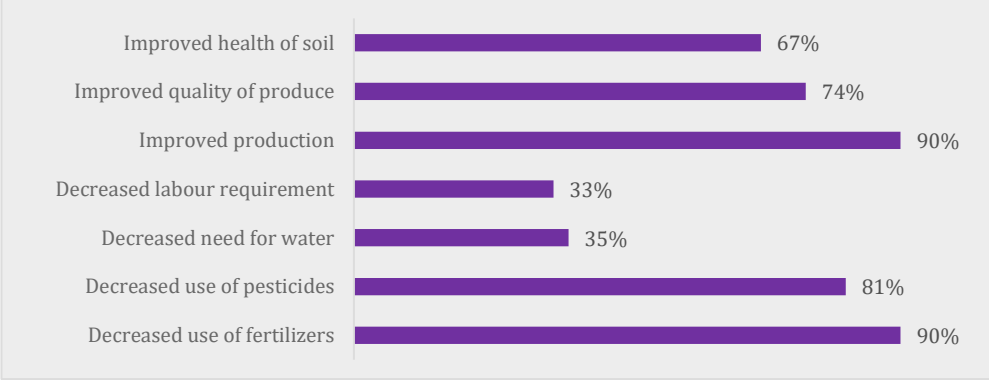
There have also been notable changes in the type of fertiliser used by the farmers during the last season of the project as compared to before the project. During the last season of the project, there has been an increase in the usage of natural fertilisers by 88 percent of the farmers, and there has been a decrease in the usage of chemical fertilisers by 64 percent of the farmers. This change in the usage of fertilisers was brought about by the support provided during the project in the form of training, setting up and financing of vermi-pits, NADEP pits, and training and demonstration of the preparation of organic manure.

Figure 8 Change in the use of natural fertilisers (n=244) and chemical fertilisers (n=251)



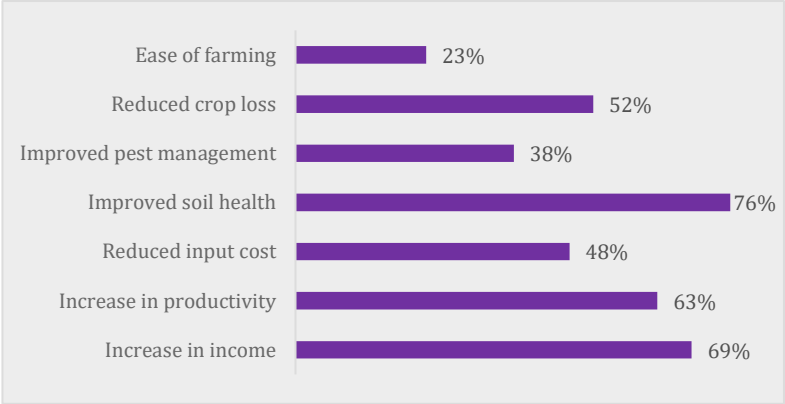
The use of natural fertilisers has had multitude of benefits for the farmers, with the most significant benefit being an improvement in productivity, and decreased use of chemical fertilisers and pesticides, which in turn have reduced the input cost and improved their profitability. The farmers also shared that there is a visible difference in the quality of the produce and that it helps them fetch better market rates. There is also a perceived improvement in the soil health due to the use of natural fertilisers.

Figure 9 Benefits of using natural fertilisers (n=244)



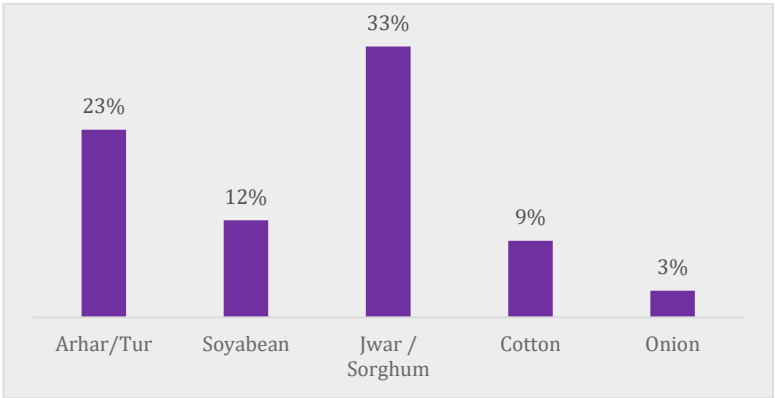
Overall, the agricultural activities taken up through the project have notable benefits, with 76 percent of the farmers reporting a perceived improvement in the overall soil health. Around 69 percent of the farmers reported an increase in their income from agriculture, 63 percent reported an increase in productivity, and 52 percent said that there was a reduction in crop loss due to the cumulative impact of the project interventions.

Figure 10 Overall improvement due to agricultural activities (n=268)



There is an average increase in production of the key crops from before the project interventions to post, with 23 a percent increase in tur, 12 percent in soyabean, 33 percent in sorghum, 9 percent in cotton, and 3 percent in onion. And altogether, around 85 percent of the farmers reported an increase in their annual incomes due to the skills they learnt during the project.

Figure 11 Increase in production of crops (n=268) (Kgs)



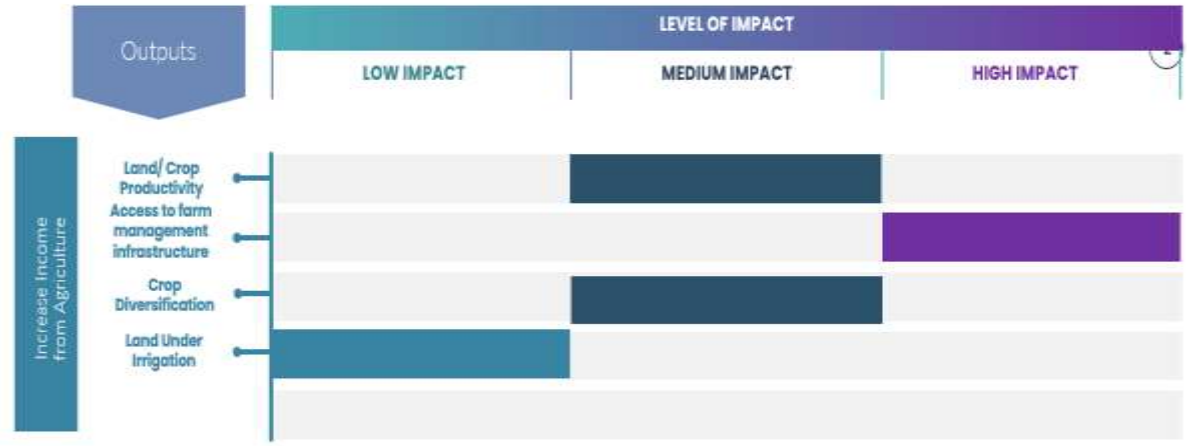
4.2.2 Impact Observations

The high impact of access to farm management infrastructure is due to the increase in income that the farmers were able to achieve after the project interventions. Increased income was attributed to interventions in seeds and tools by 46 percent of the farmers, irrigation by 13 percent, organic farming by 55 percent, soil testing and land treatment by 48 percent. And 88 percent of the farmers attributed the increase in income to the higher market rates that they were able to receive due to the better quality of crop that was produced after the project interventions. Almost 90 percent of the farmers benefitted from the use of natural fertilizers due to decreased use of chemical fertilizers, 81 percent benefitted due to decrease use of pesticides, 35 percent befitted due to decrease need for water, 33 percent benefitted due to decrease labour requirement. Some additional benefits attributed to the project interventions are improved pest management by 38 percent of the farmers, reduced crop loss by 52 percent of the farmers, and ease of farming by 23 percent of the farmers.

The medium impact on land productivity and crop diversification is mainly attributable to the relatively shorter duration of the project, which is around one and a half years. Due to this limited period of the project, farmers could apply the new farming techniques only to the crop that they usually cultivate or the seeds that were supplied to them during the project, so crop diversification was not yet observable. Similarly, higher land and crop productivity could potentially be observed in the next few years, provided the project support is continued or the farmers continue with the practices they adopted during the project.

The limited impact on land under irrigation is due to the fact that the primary focus of the project was the push towards the adoption of chemical-free farming, and organic farming practices. There were irrigation-related interventions through mini sprinklers and rain port kits, but their effect was comparatively lower.

Figure 12 Overview of project effectiveness and impact-NRM



4.2.3 Case Study

Organic Farming & White Onion cluster in Nirul Gangamai

The village of Nirul Gangamai comprises around 350 households, with the majority of them engaged in farming as their primary source of income. But due to decreasing agricultural productivity, increasing input costs, less than favourable market rates, and limited irrigation facilities, the farmers have been finding it challenging to make ends meet with only farming. The main crops in this region are soyabean, tur, okra, and cotton in the kharif season. Chana, onion, wheat, tomato, and pumpkin in the rabi season.

The HDFC project launched interventions that provided very specific need-based facilitations to the farmers in the form of training and demonstration of organic farming and fertiliser preparation, distribution of inputs like organic seeds and fertilisers, and tools such as drum kits for vermi-composting and mini sprinklers for irrigation facilities. With the support provided by the project, the farmers were able to convert 50 percent of their cultivated land into organic, which has also received organic certification (Level 1) through the support extended by the project.

Purushottam Kathe, age 53, is a native of Nirul Gangamai and is the primary provider for a family of six members. Mr. Kathe has around 4 acres of land, on which he used to cultivate soyabean, tur, and onion. During the project, he was encouraged to cultivate the white variety of onion through organic farming, and he started doing it on half of his cultivable land. Since the first harvest, he has been able to observe the benefits of organic farming in general and the cultivation of the white onion in particular. Having converted to organic farming, Mr. Kathe says that there has been an almost 100 percent reduction in the input costs for onion cultivation. Next, he was able to get almost 70 percent higher rates in the market for the white onions, from INR 700 per quintal to INR 1200 per quintal. Further, there is a 67 percent increase in the shelf life of the onions, from 3 months to 5 months. There is a higher demand for white onion in the market due to its milder taste and particular rounder, more uniform appearances, and the project not only rightly identified this demand but was also able to establish a direct link between the farmer and the market in order for the farmers to get the right market rate for their produce. Overall, as per Mr. Kathe, he was able to increase his profit by INR 48,000 in 2022 and by INR 50,000 in 2023. He is one of those beneficiaries who have successfully converted to organic farming, having received its benefits personally, and is spreading awareness about organic farming in his village.

4.2.4 Case Study

Irrigation support through mini sprinklers to Tarun Utsahi Shethkari (SHG-Men)

Shivanand Patil is the president of the Youth Group, Tarun Utsahi Shethkari (SHG-Men). The SHG was formed with 11 members in 2013 under the CAIM project initiative of the state government. The SHG learned about Dal Mill unit through exposure visits to existing units in Ganota Gaon and started their own Dal Mill unit in 2013. The SHG first arranged for a property to establish the unit and then arranged a corpus of around 5 lakhs, out of which 50% was contributed by the SHG members (around 25 thousand per member), and the remaining 50% was taken as a loan from the government. The members got their share back in the next 1-2 years of operating the Dal Mill unit.

This is the only all-men SHG group that is part of the HDFC project beneficiaries. Through the HDFC project, they received machines to further enhance their capacity in the form of a drying unit and a polishing machine. These machines are able to produce better-quality pulses, which then fetch them higher rates in the market. Through the project interventions, they also received training in Organic farming, how to prepare organic fertilisers, and farming tools such a s sprinkler sets, mini sprinklers, organic seeds, and fertilisers.

Through the sprinkler sets, they are able to keep the land irrigated throughout the season instead of doing flood irrigation. Along with the organic fertilisers and rain port kit, the soil had turned soft instead of the hardened soil that the land had become due to overuse of chemicals. The chemical fertilisers reduced the yield year and year, and to achieve the same level of productivity, they had to keep adding more and more chemical fertilisers, which was harming the long-term health of the soil. But by using organic fertilisers, they are able to recover soil health, have better quality crops, and reduce input costs.

There is a 50% increase in the yield of tur and soyabean due to the mini sprinklers' intervention. Especially in the case of soyabean, even a gap of 8-10 days of less water affects its crop, so now they are able to have improved quality produce and better yields. From earning 70 thousand per acre, now, due to the sprinkler intervention, Mr. Patil is earning 90 thousand per acre, an almost 29% increase in his annual income. Also, input costs have come down from 50 thousand rupees to thirty thousand rupees, a decrease of 20%, due to the organic inputs that he makes himself, thus increasing his profit margins further.

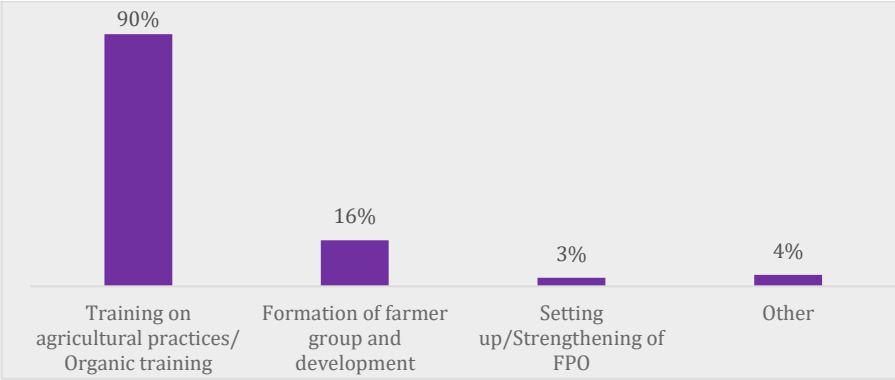
4.3 Skill Training and Livelihood Enhancement

The project was planned with the objective of providing capacity building support to the village and block level institutions in order to create sustainable and resilient farming systems, ready-to-market produce, and linkages for the beneficiaries, as well as to facilitate the formation and involvement of farmer groups, associations, and self-help groups.

4.3.1 Access to Agriculture Training and Services

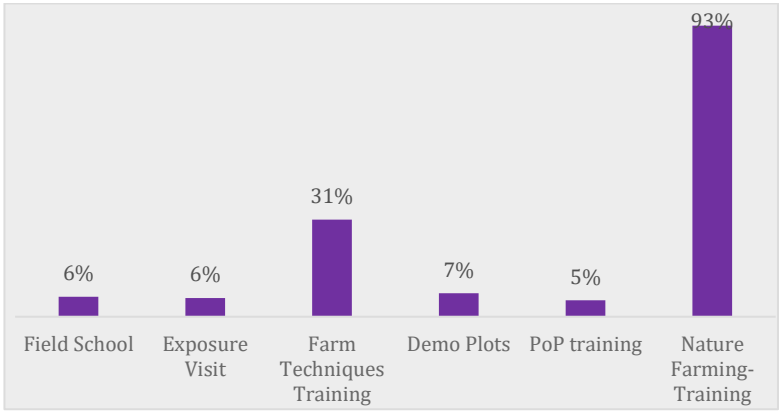
The project initiated various endeavours to enhance access to agricultural training and services. Around 297 farmers benefitted from agricultural training and services, with the majority of them (90 percent) benefitting from training in organic farming, followed by training in the formation of farmer groups and development (16 percent).

Figure 13 Households who received different trainings/support on agriculture (n=297)



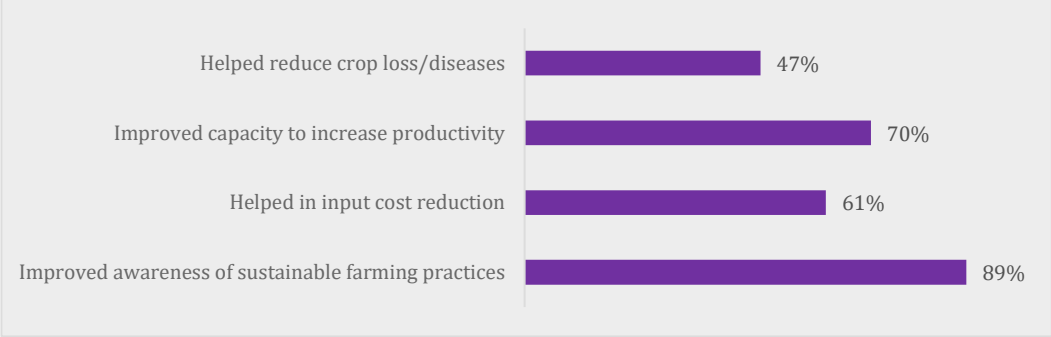
Amongst the farmers who attended the various training sessions, the highest proportion attended training sessions on nature farming (93 percent), followed by training sessions on different farming techniques (32 percent). Around 6 percent of the farmers went for exposure visits and field schools each, 7 percent received demo plot training; and 5 percent received training on the package of practices (PoP)

Figure 14 Proportion of households attending different training sessions (n=268)



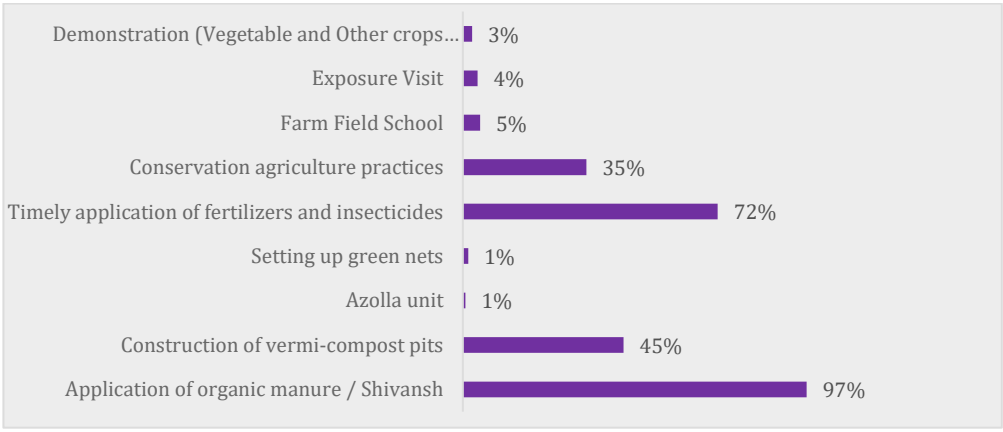
Almost all the attendees reported to have benefitted from attending the training sessions, and 89 percent of the farmers reported that they benefitted from the awareness of sustainable farming practices. Other notable benefits are improved capacity to increase productivity, reduction in input costs, and reduction in crop loss and diseases.

Figure 15 Proportion of households reporting different areas of benefits (n=266)



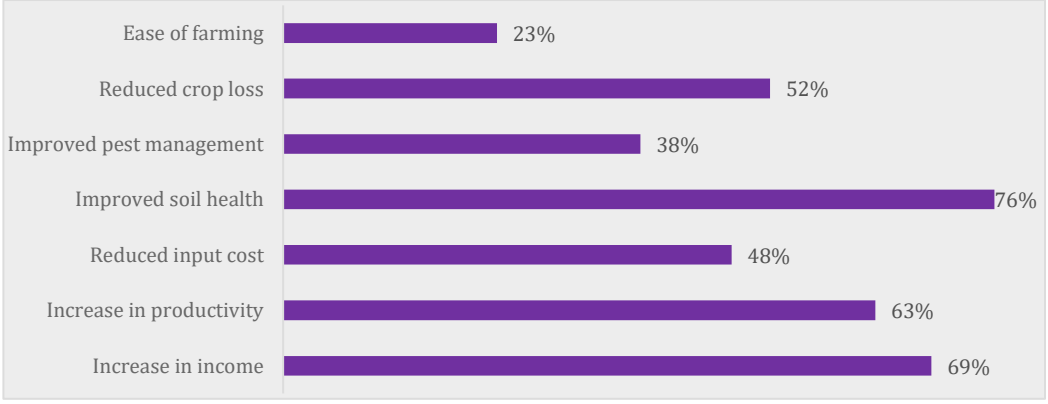
Amongst the farming practices, most of the farmers learned about the application of organic manure/ Shivansh (97 percent), followed by learning about the timely application of fertilisers and insecticides (72 percent), construction of vermi-compost pits (45 percent), and conservation agriculture practices (35 percent). Furthermore, all the sample beneficiaries reported that they continue to practice the farming techniques post-project and apply the practical agricultural knowledge they gained during the training sessions.

Figure 16 Farming practices learnt through HDFC trainings (n=268)



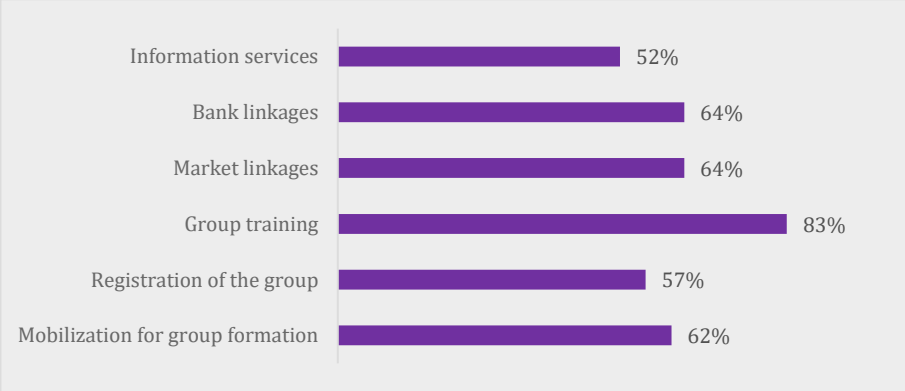
The benefits reported by the farmers are in the form of perceived improvement in soil health (76 percent), increase in income (69 percent), increase in productivity (63 percent), reduction in crop loss (52 percent) and input costs (48 percent), improved pest management, and ease of farming (23 percent).

Figure 17 Improvement due to farming practices (n=268)



The HDFC project also extended support to the farmer groups, associations, and youth groups in the villages in the form of trainings and facilitations for creating market linkages, bank linkages and overall mobilisation for formation of such groups. The project initiated the formation of farmer groups across the 10 villages, and each of these groups participated in the trainings conducted for the various agricultural practices as well as for skill development, and enterprise development. With the knowledge that they acquired during these trainings and demonstrations, they were able to create their own natural fertilisers, start organic cultivation, and sell their produce for better rates. With the knowledge of enterprise development, financial management, and banking linkages, farmers, especially the younger generation, are motivated to take up farming as a full-time activity instead of migrating to urban areas for employment opportunities. The project has also given them the confidence to think long-term, and not only season-to-season, and see the potential of adopting natural farming practices and securing their livelihoods in a sustainable manner.

Figure 18 Type of support received by the farmer groups and associations (n=42)

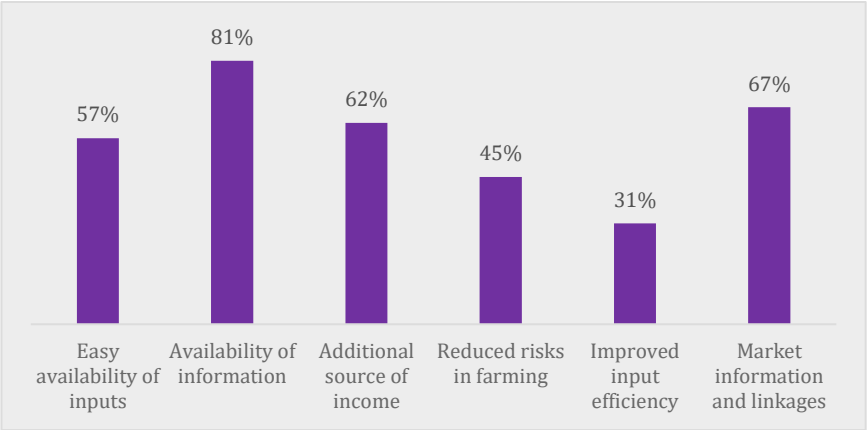


While an increase in income has been noted from the overall project interventions, through the market linkage interventions specifically, the farmers have gained by getting the right price for their produce, experiencing no hassle of the market, and saving on travel time and the cost of going to the market. The market linkages have been established with suppliers looking to procure organic produce, and this has benefitted the farmers who cultivated the organic crops such as white onion, tur, and soyabean using the organic seeds supplied by the project.

Figure 19 Benefits from the market linkages (n=27)

Overall, the farmers reported benefitting from being part of a project supported group since they get access to information readily, and gain from market information and linkages. Additionally, they are able to create an additional source of income, which has greatly benefitted them, and they also get easy access to inputs. Additionally, they now face reduced risks in farming, and are able to have improved input efficiency.

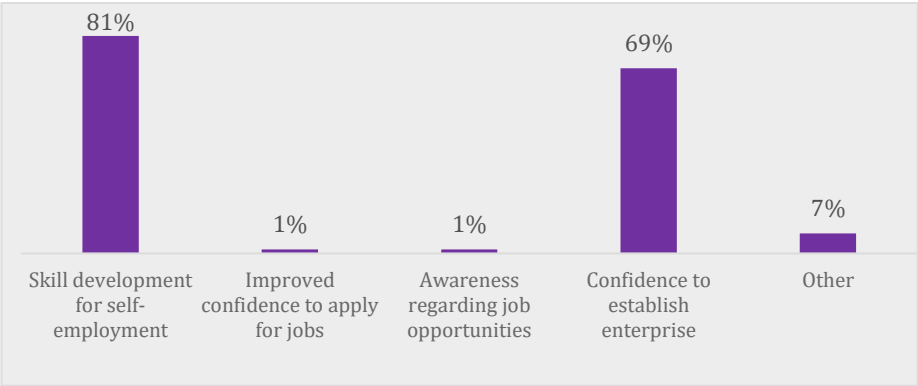
Figure 20 Benefits of being a project supported group member (n=42)



4.3.2 Access to Skill and Entrepreneurship Development

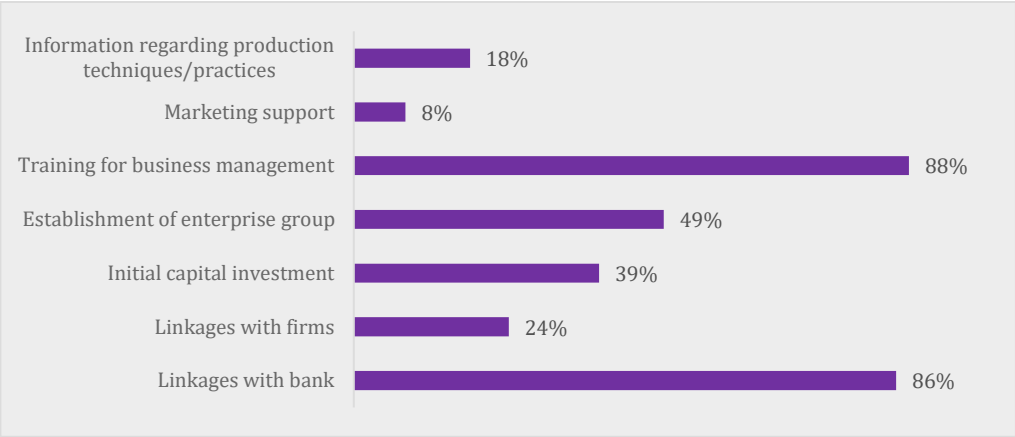
Around 69 beneficiaries received benefits under the skill training and entrepreneurship development interventions. Around 64 percent reported that training for enterprise development was available to them, and around 5 percent reported that job-oriented programs or computer centres were available to them. Around 78 percent said that they were able to apply the skills they learned through the trainings, and 64 percent reported an increase in income due to these newly developed skills, with an average annual increase of INR 19,881 and a median annual increase of INR 21,000. The most significant benefits from the trainings conducted by the project were reported to be skill development for self-employment (81 percent) and developing confidence to establish their own enterprise (69 percent).

Figure 11 Benefits from the trainings received (n=42)



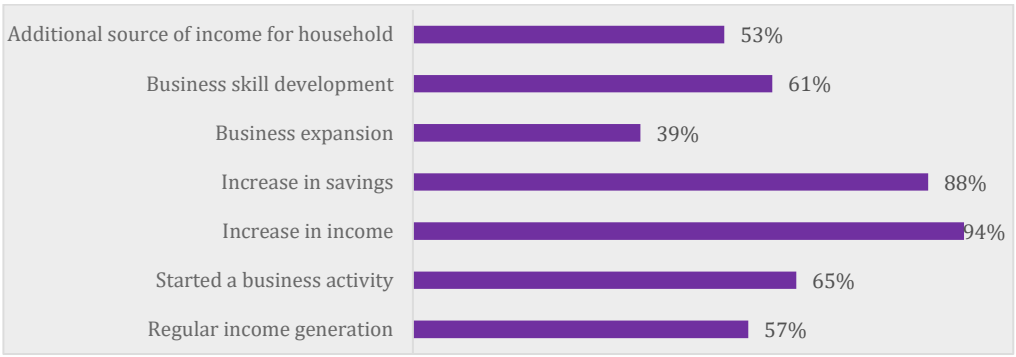
The beneficiaries gained the most from training in business management, followed by linkages with banks, the establishment of enterprise groups, initial capital investment, and other hand-holding interventions to facilitate the establishment of their enterprises.

Figure 22 Project support in enterprise development (n=49)



Through the support extended by the project, 94 percent of the beneficiaries reported having increased their income through entrepreneurial activities. Other significant benefits are increased savings as reported by 88 percent, the development of business skills by 61 percent of sample beneficiaries, and regular income generation by 57 percent. The enterprises set up in the process proved to be an additional source of income for the households, as reported by 53 percent of the sample beneficiaries, and around 39 percent credit the support in business expansion.

Figure 23 Benefits of enterprise development (n=49)

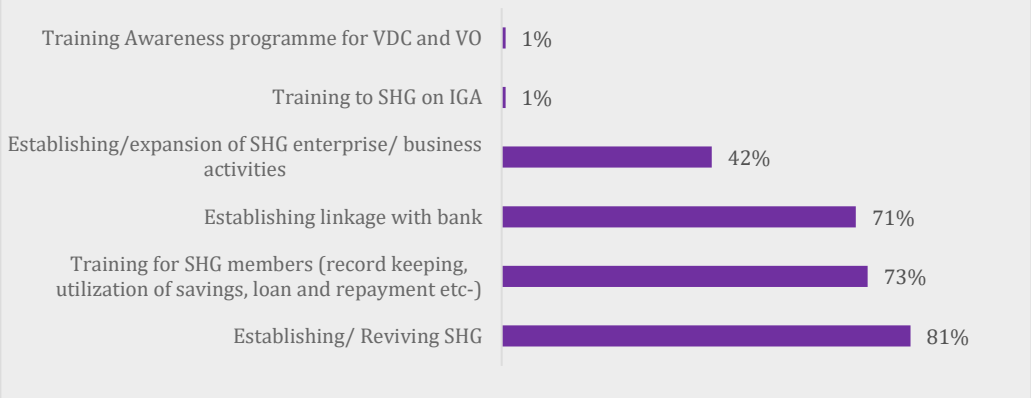


Around 16 percent of the beneficiaries' monthly income comes from the enterprises, and they reported a 48 percent increase in income after the project had started. There is a 38 percent increase in the average monthly income of the enterprises from INR 1954 before the project to Rs. 2690 post project, and a 48 percent increase in the median income from INR 1350 before the project to INR 2000 post project.

4.3.3 Access to development of Self-Help Groups (SHGs)

The HRDP project supported the revival of existing SHGs as well the creation of new ones. Around, 32 percent of the sample beneficiaries received support for SHG development across the areas as described in the figure below, with a significant proportion receiving training in the establishment or revival of SHGs, followed by training in administrative tasks such as book-keeping, utilisation of savings, inter-loaning, etc. The next significant support was extended through the establishment of linkages with the banks, followed by the establishment or expansion of SHG-supported enterprises.

Figure 243 SHG areas supported by the project (n=129)

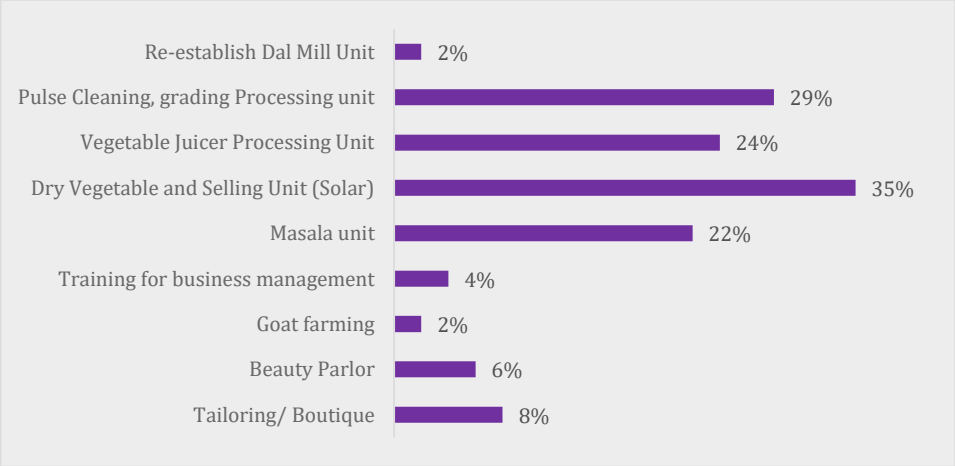


Specifically in context to establishing and reviving SHGs, almost all beneficiaries reported that the project helped in the mobilisation of members, while 88 percent reported that they received support in organising meetings and 83 percent reported receiving support or some sort of training in maintaining records.

Being SHG members empowers the women of the villages by helping them get loans at less interest, encouraging weekly/monthly personal savings, and enhancing their confidence by supporting them to diversify their income sources. The project, through its training programs and support infrastructure, envisioned to increase the breadth and depth of this empowering journey.

Around 49 beneficiaries were trained in different business activities, as per the below figure, in order to start new ventures or expand existing ones.

Figure 45 Trainings conducted in different enterprise/business activities (n=49)

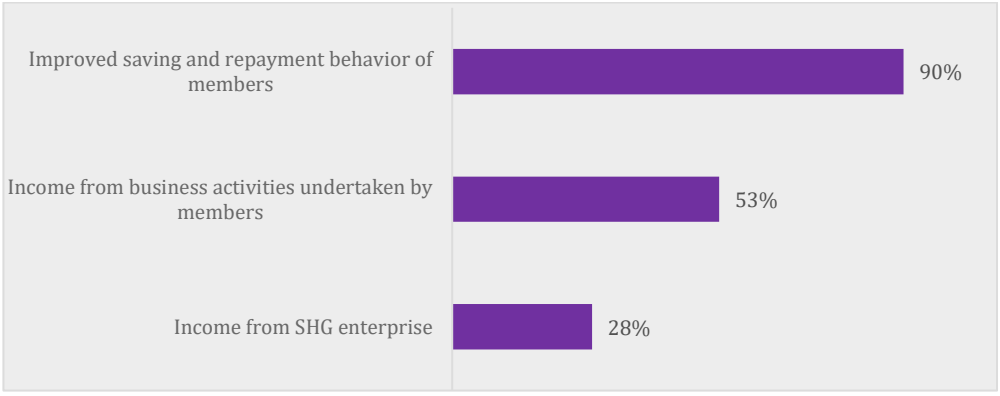


A significant proportion of the women responded that the training conducted through the project helped them increase their confidence. Additionally, the women members benefitted by improving their knowledge of financial management, followed by improving their skills to manage their enterprises or business activities. Other benefits include increased income and reduced income losses, as can be seen in Figure 27 below.

Figure 26 Benefits to the SHG members from the trainings (n=92)

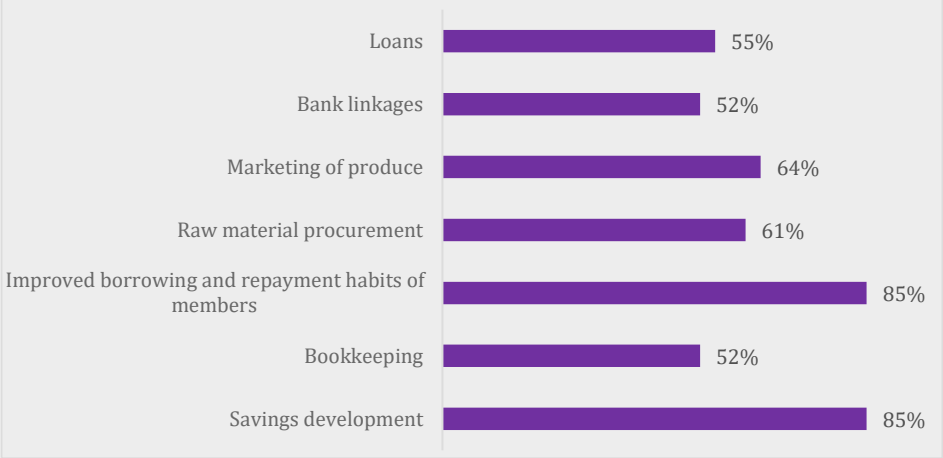
Almost 69 percent of the sample SHG members have reported taking an internal loan of an average amount of INR 46,670, showcasing the fairly well-functioning of the SHGs in performing their regular operations of savings, and credit activities. The loans were taken for various personal reasons, such as children's education and marriage, health expenses, household expenses, construction and renovation of houses and professional reasons such as starting a new business, expanding an existing business, and repaying a revolving fund. Around 77 percent of the sample members reported an increase in the savings of their groups due to the project interventions. One of the most significant factors that contributed to the increase in savings is the consistency shown by the members in saving and repayment. Essentially, each member has upheld the core values of the SHG, and each of them is able to benefit because of their collective good will. Additionally, income from business activities and income from SHG enterprises also contributed to the increase in the overall savings of the SHGs.

Figure 57 Factors contributing towards the increase in the savings of the SHGs (n=79)



In establishing and expanding their business enterprises, the SHG members received support from the project in the form of improved savings, discipline in repayment of credit, marketing of produce, procurement of raw materials, loan facilitations, and financial linkages with banks. And almost 92 percent of the members have reported an increase in their income due to these interventions. There is a 33 percent increase in the average income from INR 1778 before the project to INR 2358 post project, and a similar increase in the median income value from INR 1500 before to INR 2000 after the project.

Figure 28 Supporting areas in establishing/expanding enterprises (n=33)



4.3.4 Impact Observations

High impact on access to agricultural training and services, and adoption of farming practices since the project's main focus area was the adoption of chemical-free farming and organic farming practices in order to address the most crucial challenge of providing long-term sustainable income from agriculture to more than 90 percent of the households in the village. The precarious nature of the livelihoods of the farmers demanded that agricultural interventions be adopted in a major way, and that was demonstrated successfully through the project.

Enhanced employable skill development has a medium impact since the participants received trainings in various topics such as skill development, enterprise development, and setting up linkages with employers, but since such interventions take time to show results, their impact is possibly not observable right now.

Figure 29 Overview of project effectiveness and impact (ST&LE)

4.3.5 Case Study

Dal mill unit by Mahalaxmi Mahila Bacchat Gat (SHG). Processing organic pulses.

The SHG was formed around 10-11 years ago with 10 members. Every month, they save Rs.100 per person and have meetings in the first week of the month. Currently, they have around Rs. 10,000-12,000 in the bank, and have loaned out around Rs.50,000. The dal mill unit was established in 2012. They financed it by contributing 10,000 per member, amounting to Rs. 1 lakh, and also took a loan from ICICI Bank of Rs. 1.5 lakh. They paid off the loan in the next few years, currently, the SHG doesn't have any outstanding loans, in fact, they are able to borrow from their own account in case of any requirements.

The dal mill unit processes tur and channa dal, and is operational for around 4 months a year. In full capacity, the unit can process on average 6 quintals of pulses per day, with the help of 3 labourers. The SHG members also work as labourers in the unit if required and earn a daily wage amount. The SHG receives orders for their processed pulses and has fulfilled large orders for government requirements, such as those for the Amravati Jail.

The HDFC project funded two additional machines for the dal mill unit, a destoner and a drying unit. The destoner helps in removing stones and other waste material, thus improving their quality. The SHG members claim to have benefitted from the destoner, with a visible difference in the quality of the processed pulses. The drying unit is yet to be used for processing, but it has been procured in order to not lose out on orders during the rainy season. Previously, they were unable to fulfil orders of around 4-5 quintals since they did not have the drying unit.

The HDFC project also helped them with training in marketing and entrepreneurship, which have helped them in gain confidence and understand the business functions like marketing and financial management. The SHG wishes to receive further support in the form of financial assistance, enterprise development, and market linkages. They feel they have the potential to brand and sell their produce as a standalone brand of organic pulses and fetch premium prices.

Tomato Juicer Unit in Waki

The SHG was started in 2006 with 10 members from the economically weaker sections. They started by saving INR 20 per month person, and since then they have been able to save a significant amount of money, which has then been utilised to start different initiatives and also to help out members with their needs and personal entrepreneurial pursuits. The majority of the members perform numerous jobs; some operate beauty salons, others work for ASHA or Anganwadi, yet others maintain food stands, etc.

Through the HDFC project, the SHG group started the tomato juicer unit. The unit was established with a capital investment of INR 3-3.5 lakhs, which was almost 90 percent funded by the project and the rest contributed by the members. Since October 2022, they have been processing and making various products such as tomato ketchup, tomato juice, seeds, and also grinding dry spices and wet spices like ginger, garlic etc. The tomato processing is a seasonal activity and is functional for around 3-4 months when they are able to procure the raw materials at a very nominal price. At other times, they are not able to run this operation since the raw materials become very expensive and also because they do not have storage facilities. Apart from tomato processing, the unit also supplies condiments like ginger paste, garlic paste using the grinding machines for events like weddings and functions in the village. During the one year since the establishment of the unit, from Oct'22-23 they have earned a revenue of around INR 70-80 thousand, with a profit of around INR 15000.

The SHG members also received training in marketing and entrepreneurship through the HDFC project, which has helped them immensely in creating their own products. The SHG brands and sells its own tomato ketchup to hotels nearby and also at exhibitions and fairs.

They wish to run the unit for longer periods and hope to receive assistance in setting up storage facilities, especially cold storage facilities, in order to procure and store tomatoes during their peak season, when they are nominally priced at around INR 20 per kg as opposed to off-season, when procuring raw materials becomes challenging since tomatoes can go up to INR 80 per kg. The cold storage facilities can also help them process and store ready-made products, which they can then sell in nearby areas and beyond, in order to have a consistent income year round.

4.4 Holistic Rural Development Index

There are multiple dimensions involved in achieving the goals of HRDP, which include increased agricultural production, the generation of new jobs, and ensuring secure livelihoods, among others.

Based on the design of the HRDP programme, a composite index called the Holistic Rural Development Index (HRDI) has been developed that indicates the achievements of the HRDP interventions that lead to overall improvement in the result indicators. As the programme interventions varied across projects and geographies, it was not possible to assign a single impact indicator that might be able to accurately capture the overall performance of HRDP. Thus, HRDI serves the purpose of quantifying the impact through the blending of the results of various indicators grouped into four thematic areas.

For the calculation of HRDI, the values of the impact indicators at baseline and end line were selected and assigned weights based on their relative contribution to the final expected outcome across four themes. Depending on the variations in the interventions made in each project, the HRDI is customised to accommodate the most significant results that align with the goal of the HRDP program. The detailed methodology and indicators are explained in detail (see Annexure B).

The HRDI calculation for project P0466 implemented in Amravati is given in the following table:

Table 7 HRDI Calculation for Amravati

Domain	NRM		ST&LE		Total	
HRDI Score	Base line	End line	Base line	End line	Base line	End line
	0.16	**0.22**	**0.03**	**0.22**	**0.19**	**0.44**
% Change	**36%**		**675.5%**		**131.6%**	

The table indicates a remarkable 131.6% percent increase in the composite HRDI score compared to the baseline scenario. This surge can be attributed to planned interventions in the sample villages, particularly in the ST&LE and NRM sectors. The 675.5% increase in ST&LE can be explained by its initial low starting point relative to other areas, alongside the focused activities implemented, notably in organic farming, skill training and enterprise development. Further, we see a modest improvement of 36% in NRM due to limited agricultural activities, and also due to the shorter duration of the project, of around one and a half years.

5 Analysis of Assessment Criteria

As outlined earlier in 2.1, for each thematic area, activities completed by VSP were identified and assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness
- Sustainability

The following sub-sections provide an analysis of the HRDP programme with respect to each of these criteria.

5.1 Relevance and Convergence

Once lagging behind on many development indicators, Maharashtra has made significant progress in agriculture, livelihood development, and poverty reduction over the past two decades. However, vast disparities exist within the state. Districts like Amravati in the north-east of Maharashtra face challenges due to unpredictable weather conditions and limited water availability. Bhatkuli block, within Amravati, is where the project aimed to address some of these challenges.

During the monsoon season, which is usually from June to October, the district receives rainfall from the southwest monsoon. The average annual rainfall ranges between 700-800 mm. But due to the high dependency on monsoon rains and the lowering of farm productivity, agriculture is a risky proposition. The region has been facing challenges related to deteriorating soil health due to excessive use of chemical fertilisers and less than adequate rainfall, thus hampering the livelihoods of most of the households in the villages in this area, since agriculture is the primary source of income for more than 90% of the households'.

There was a very urgent need to put a stop to the soil degradation through timely interventions, and the project paved the way for just that. One of the primary focus areas of the project was to ensure large scale adoption of chemical free farming, which has multi-fold benefits that include improvement of soil health, increasing soil fertility, improving agricultural productivity, and producing better-quality harvests, which in turn generate higher incomes for the farmers. In addition, shifting to natural fertilisers also meant that the farmers could adopt a holistic organic farming approach, by using only organic inputs, organic seeds, and self-made natural fertilisers.

Further, the shift to organic farming was capitalised by the project by facilitating the certification of the lands that are cultivating only organic produce. This has the potential to be a complete game-changer if the farmers are able to maintain their land as organic land and continue with the successive levels of certification.

Currently, with just one level of organic certification, the farmers are able to secure better rates in the market, and there has been interest shown by potential clients to procure produce in larger quantities if they are able to produce it consistently incentivised by the project.

Another focus area of the project was developing the skill-sets of the villagers in order to enable them to secure employment, set up their own enterprises, or expand existing ones. With this objective, pulses and vegetable processing units have been set up in the different villages, that has led to a new source of income generation. Further, with its focus on marketing and entrepreneurship development, the project has been able to develop a lot of self-confidence in the beneficiaries, and they are also motivated to utilise the learnings from the project and wish to start independent ventures.

Convergence between the governmental and non-governmental sectors improves service delivery, encourages beneficiaries, and brings services closer to the community, fostering alliances that enhance overall outcomes. While some of the interventions, particularly with respect to agriculture, have converged seamlessly with the government programmes, in many others, more effort needs to be put in. The project needs to continue with the capacity building process in order to sustain the improvements achieved by the project in such a short duration.

5.2 Sustainability

While it is important for an NGO to aim for social change, it is just as important to be able to sustain their programs to maintain the continuity of work, for without sustainability, it becomes increasingly difficult for them to bring about lasting social change. An inbuilt model of sustainability is a crucial feature for an NGO to create impact in the communities and sectors they work in.

Material support provided under the project was accompanied by awareness campaigns and training, educating beneficiaries on the need and relevance of the work ensuring their willing adoption of the interventions. The impact of these interventions was measured to ensure their continued use. This resulted in sustained positive results, even a year after the project ended (see Annexure E). This indicates that the majority of the project activities achieved sustainability and continue to benefit the population.

The project focused on various aspects of socio-economic growth and development for different stakeholders, which included farmers, women, and the youth. As part of the project, SHGs, FPOs and farmer groups were promoted which are now operating independently to sustain the various initiatives.

The project's sustainability plan is centred on ensuring ongoing growth and development in beneficiary areas. VSP has transferred the responsibility for managing resources to local governing bodies. An effort has been made to empower them to maintain and oversee these assets for the community's benefit. The project has also focused on capacity building and raising awareness among local communities about sustainable practices for managing their farmlands. VSP’s approach aims to build strong partnerships with local communities and governing bodies, which develop ownership and a sense of responsibility to sustain these initiatives in the years to come.

6 Recommendations

To further improve the outcomes of HRDP in Amravati district of Maharashtra, the following recommendations are made for the HDFC Bank's Parivartan and HRDP teams and the implementing partner:

Recommendations to Sustain Project Initiatives:

- The shift to organic farming is at a very nascent stage; however, the project was able to demonstrate its benefits as well as viability. In order to ensure that the farmers continue with organic farming practices, it is required that these practices be enforced and continued without lag, since using chemical fertilisers on organic lands will lead to farmers losing out on their organic certification and erasing substantial inroads made through the project.
- The project also re-introduced crops such as jowar/sorghum which have been native to this region but have been discontinued for a few decades due to the push towards cash crops like cotton. Cultivating crops like sorghum benefits farmers by improving their food security and reducing their dependency on markets for their produce. This initiative needs to continue since the newer generation of farmers is not used to cultivating sorghum, but they are inclined towards it, and the project needs to capitalise on this aspect and potentially reconnect the farmers to their native crop, thus facilitating their self-consumption and also aligning the indigenous crop with the region.
- The SHG enterprises are still in their infancy and require further assistance and guidance to ensure their long-term viability. In the case of the tomato juicer unit and pulse processing unit, the women are keen to expand their orders and need support in establishing market linkages. Further, all these processing units are seasonal in nature, operating only for three to four months in a year. The SHG members have expressed their aspiration to run their enterprises year-round. For this purpose, they require further assistance, in terms of business management, enterprise development, marketing, infrastructure development, and financial assistance.

Recommendations to Build Project Efficiency

- The selection of project beneficiaries could be reevaluated from the perspective of reaching out to the most vulnerable section of the villages. The average land holding for the beneficiaries is around 4 acres, but there are a considerable number of farmers who have marginal holdings, and around 20% of the households are also landless, indicating their acutely precarious living conditions.
- The project could also have women-oriented interventions focussed on empowering them. Through the training sessions conducted during the project, a lot of women have gained self-confidence and have found a support system to seek opportunities outside their home. But they require continued support in order to have a lasting effect on the social standing of these women.

Recommendations to Strengthen Project Design

- The potential gap in project implementation could be addressed by building capacity at the ground level, comprising members from the village, selected via a thorough screening process, as well as field experts and subject matter experts.

Annexure

A Sampling Methodology

The quantitative household survey was administered for four thematic areas in each district.

Quantitative Sample Size Calculation

For this study, the formula for calculation of finite sample size for one-time cross-sectional survey (Cochran's 1977), has been deemed appropriate. The formula used to estimate the sample size for the quantitative household survey is given below:

$$N = Z_{1-\alpha}^2 \times P(1-P) \times D_{eff} \div (S_e)^2$$

Where,

N= sample size

P= key characteristic of the population, set at 50%;

$Z_{1-\alpha}$= standard score corresponding to the confidence interval, set at 95% (1.96 for two tailed test);

S_e= margin of error, set at 5%;

D_{eff}= factor for design effect, set at 1 (no design effect)

Thus, the estimated maximum sample size is 400.

Quantitative Sampling Methodology

Sampling methodology to be added

Stage 1 – Selection of villages:

The list of beneficiaries from all the eight villages acted as the sampling frame for the programme. This list was obtained from the implementing partner VSP. Simple random sampling was done to select the required number of households from within the list. Since beneficiary selection was undertaken independently for each programme, the selection of more than one beneficiary from a single household was probable.

Stage 2 – Selection of beneficiaries:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. A total of eight villages were covered under the survey.

Qualitative Sample Size Calculation

Qualitative tools such as in-depth interviews (IDI) and focus group discussions (FGD) were administered to obtain information about the remaining themes and enrich the household survey information with a deeper understanding. Since there was no baseline available for this evaluation, the recall method was used in the household survey to assess the change that has occurred over time. For this purpose, respondents were asked to recall the value of critical indicators at the start of the programme.

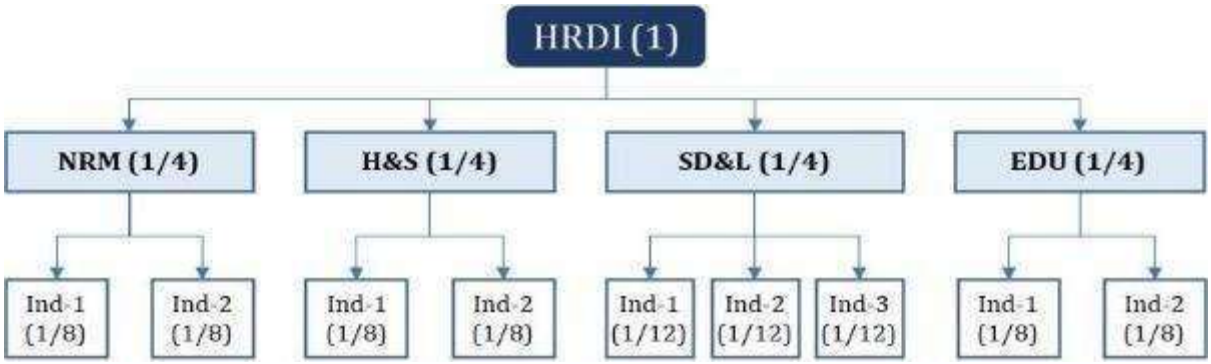
B HRDI Methodology

The outcome indicators included in the HRDI were obtained from different domains and consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables so that they could be measured between 0 and 1. Indicators such as productivity and income, which were measured on a continuous scale, were converted to discrete variables by setting a cut-off. The 50th percentile of these indicators at baseline was chosen as the cut-off point. Thus, a change in the indicator could be captured by recording the proportion of beneficiaries above the cut-off at two distinct points in time.

Indicator Weights

Weights were applied to each of these indicators, similar to the HRDI calculation. Equal weights were attributed to all the domains to create a standard HRDI for each cluster. Equal weights were assigned to each of the four domains. Furthermore, the domain weight was equally distributed among the indicators of that domain, thereby ensuring that the overall equal weightage of the domains was maintained.

Figure 30 Domain and Indicator Weights



The example above is indicative. The domains as well as indicators were different across all projects, and hence the weights were changed slightly for the purpose of the study, following the principle stated above.

Table 8 Sample HRDI Calculation

Project X		
Natural Resource Management	The proportion of farmers with net income above median	(1/4) x (1/2) = 0.125
	Percentage of farmers reporting access to irrigation	(1/4) x (1/2) = 0.125
Health and Sanitation	Percentage of households with access to improved drinking water facility	(1/4) x (1/3) = 0.083
	Percentage of households with access to improved toilet facility	(1/4) x (1/3) = 0.083
	Percentage of households with individual bathing unit	(1/4) x (1/3) = 0.083
	Percentage of SHG members reporting their groups having savings	(1/4) x (1/2) = 0.125
	Percentage of households with improved skills in Agriculture	(1/4) x (1/2) = 0.125

Livelihoods and Skill development	Percentage of students reporting increased access to functional learning infrastructure (library, smart class, BaLA, etc.)	(1/4) x (1/2) = 0.125
Education	Percentage of students reporting increased access to functional school physical infrastructure (hand wash station, separate washrooms, etc.)	(1/4) x (1/2) = 0.125

Once all the indicators were standardized and weighted, a sum of these weighted indicators was utilized to calculate the value of HRDI.

Analysis Plan

HRDI for each cluster/ NGO was calculated at two points in time i.e., before and after HRDP and can be compared cross-sectionally to understand which domains contributed to an increase or decrease in HRDI value. Concurrently, the NGOs can be ranked according to the HRDI score based on their performance across different domains, but care should be taken as the project context varies for each area. Since the value attribution of the indicators is in proportions, the HRDI value numerically ranges between 0 and 1. Once all the indicators were standardized and weighted, a sum of these weighted indicators was utilized to calculate the value of HRDI.

Method to Calculate HRDI

Step 1: All the indicators were cleaned and adjusted for outliers. Only those beneficiaries were considered for the analysis where data on outcome indicators was available for both pre- and post-intervention.

Step 2: A cut-off value was calculated by taking the 50th percentile for each indicator before HRDP (baseline). For instance, consider the indicator- average annual income of farmers, at baseline, then sorted all the farmers across the seven clusters in ascending order based on their income. The 50th percentile i.e., the median value of the income was taken. This median or 50th percentile was taken as the cut-off (baseline cut-off to be precise).

Step 3: Calculated the proportion of beneficiaries above the set cut-off value at the baseline for each indicator.

Step 4: Calculated the same at the end-line i.e., the proportion of beneficiaries above the baseline cut-off for each indicator.

Step 5: Multiplied each proportion of the indicators with the set indicator weights.

Step 6: Sum all the indicators (i.e., weighted sum) to calculate the HRDI value at baseline and end-line.

Step 7: Calculated the relative change in the HRDI value from baseline to end line.

Step 8: Ranked the clusters based on relative change brought about in the HRDI value i.e., the cluster that brought the maximum change in the HRDI value received the first rank.

C Overview of Impact Calculation

The impact assessment process of VSP involved evaluating the effects of various activities. This evaluation is centred on quantifiable output indicators. Impact of each indicator is gauged by

calculating the average proportion of beneficiaries associated with it. The overall impact level of an activity on beneficiaries is then determined by the degree of change in these output indicators. The impact levels are categorized into three tiers according to a predetermined scale:

Low: 0% - 40% change

Medium: >40% - 70% change

High: >70% - 100% change

Overview of Impact in the effectiveness section was calculated based on the averages of quantitative output indicators as demonstrated below.

Table 9 Overview of Impact Calculation

Outputs	Output Indicators		Output Avg	Impact Level
Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting increased productivity of three main crops above median	33%	56%	Medium
	Proportion of farmers reporting increased income from crops that were supported under HRDP.	84%		
	Proportion of farmers whose income are the above median range	51%		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	85%	72%	High
	Proportion of farmers who use both, chemical and natural fertilizers	68%		
	The proportion of farmers reporting a decrease in the use of chemical fertilizers	64%		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops with the project support.	28%	48%	Medium
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	67%		
Land under irrigation	Increased area under irrigation	7%	15%	Low
	Pproportion of farmers who received support for irrigation	8%		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	99%	95%	High
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	90%		
Adoption of improved farming practices	Proportion of farmers who continue to practise conservation agricultural practices	90%	74%	High
	Proportion of beneficiaries reporting an increase in productivity due to better farm management	63%		
	Proportion of farmers reporting increased income	69%		
Enhanced capacity for regular income generation				

Enhanced employable skill development	Percentage of women who accessed skill development training	17%	52%	Medium
	Percentage of women who report improved income through skill development	64%		
	Proportionate increase in average income from enterprise	38%		
	Percentage of women who report increased savings through skill development	88%		

Change	Impact Level
0%-40%	**Low**
>40% - 70%	**Medium**
>70%- 100%	**High**

D Two Sample Proportions Z Test

The two-sample proportions z-test is a statistical hypothesis test used to determine whether two proportions are different from each other. The null hypothesis of the test is that the two proportions are equal; while the alternative hypothesis is that the two proportions are not equal.

The test statistic for the two-sample proportions z-test is given by the following formula:

$z = (p1 - p2) / \text{sqrt}(p*(1-p)/ (n1 + n2))$
where:

p1 is the proportion in the first sample
p2 is the proportion in the second sample
p is the pooled proportion, calculated as $(p1n1 + p2n2)/ (n1 + n2)$
n1 is the sample size of the first sample
n2 is the sample size of the second sample

The z-statistic is then compared to the standard normal distribution to determine the p-value of the test. A p-value less than alpha (typically 0.05) indicates that the null hypothesis can be rejected, and there is evidence to suggest that the two proportions are different.

The two-sample proportions z-test can be used to test for a difference in proportions between two groups of people, such as men and women, or two different brands of products. The test can also be used to compare the proportions of two different populations, such as the population of a city and the population of a state.

Here are some of the assumptions of the two-sample proportions z-test:

- The two samples are independent.
- The two populations are normally distributed.
- The sample sizes are large enough ($n1p1n2*p2 > 10$) (Basically the Central Limit theorem should apply for the sampling distribution of the z-statistic can be approximated by the standard normal distribution.)

If these assumptions are not met, the results of the test may not be reliable.

The two-sample proportions z-test is a powerful tool for comparing two proportions. However, it is important to be aware of the assumptions of the test and to ensure that the data meets these assumptions before using the test.

Assumptions:

- Independence: The two samples must be independent of each other.
- Normality: The two populations must be normally distributed, or the sample sizes must be large enough (n1p1n2*p2 > 10).
- Binomial distribution: The population does not need to follow a binomial distribution, but the test is more powerful if it does.

The z-test conducted for two indicators- Percentage of craft group members reporting increased income above median and Percentage of households reporting increased income from livestock (above median) is shown below.

Table 10 Z-test conducted for P0466

Indicator	Proportion of farmers with income from agriculture above baseline median
p1 (proportion of first sample-endline)	72
n1 (sample size of p1)	295
p2 (proportion of second sample-baseline)	47
n2 (sample size of p2)	295
P	0.201694915
Calculation	0.033039686
z statistic	7.566657846
	Statistically significant at 95% confidence level (or p<0.05)
p-value for the z statistic	<0.00001

Indicator	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self-employment
p1 (proportion of first sample-endline)	69
n1 (sample size of p1)	49
p2 (proportion of second sample-baseline)	12
n2 (sample size of p2)	49
P	1
Calculation	0.076499369
z statistic	7.451041862
	Statistically significant at 95% confidence level (or p<0.05)
p-value for the z statistic	<0.00001

E Theme-wise Sustainability Matrix

The project support provided demonstrated the capability to continue even after the programme ended. The support of the project to sustain improved outcomes is demonstrated below:

Table 11 Sustainability Matrix

Support provided (Enter relevant activity categories)	Structures established	Technical Know-how	Usage	Maintenance
NRM				
Water Management		✓	✓	✓
Farm Management		✓	✓	✓
Skill Training and Livelihood Enhancement				
Agricultural Training & Services		✓	✓	✓
SHG-Based Women Empowerment		✓	✓	✓
Skill Training		✓		

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