

Impact Assessment Study Of Holistic Rural Development Programme (HRDP)

Maharashtra



Prepared For:



HDFC Bank CSR

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Executive Summary

Table 1: Summary of key income indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	65000	82850	27%
Average Income from Skill (income from enterprises) (INR)	36000	84000	133%
Average Income from SHG (INR)	84000	96000	14%
Average Income from Livestock (INR)	57000	84000	47%
Average Productivity of 3 major crops (kg/acre)	1711	2108	23%

The impact assessment study focuses on measuring the impact of the Holistic Rural Development Programme (HRDP) of HDFC Bank that was implemented by the Sanjeevani Institute of Empowerment and Development (SIED) in project clusters of the Satana block of Nasik district in Maharashtra. The study focused on understanding the overall process undertaken by HDFC Bank and the partner organization in implementing the project activities, key milestones achieved, the impact created by these activities, challenges faced, and the manner in which such challenges were handled. The overall framework for assessment was an adaptive version of the DAC criterion - Relevance, Impact, Effectiveness, and Sustainability. A comprehensive methodology was used comprising both primary and secondary data collection. Overall, 400 beneficiaries were selected through a robust sampling method from across 11 project villages. Further, qualitative discussions were done using Focus Group Discussions (FGDs) and In-depth Interviews (IDIs) to gather key information to substitute and qualify the quantitative information.

Natural Resource Management

Interventions under HRDP included the construction of water management structures (check-dams etc.), and activities to enhance agriculture production and productivity such as trellis cultivation, crop diversification, on-farm demonstrations, and Farm Field Schools (FFS). Check-dams have led to improved access to irrigation infrastructure due to which the average **area irrigated has increased from 4.52 acres to 4.7 acres**. Coupled with improved irrigation, agriculture interventions have been pivotal in enhancing production and decreasing the cost of cultivation and agricultural income from agriculture. While the gross income for crops such as bajra, onion, groundnut, and other crops has improved, the **overall net income change has been to the tune of 27%**.

The HRDP interventions for Natural Resource Management have also incorporated activities like livestock health services and vaccination. Some of the benefits of livestock-related interventions have been an increase in income from livestock, an increase in production, reduced livestock death, and increased household savings from livestock amongst others.

Recognizing the irregularity in power supply and poor power quality, clean energy devices such as solar home lanterns and solar street lights were promoted under the HRDP programme. Respondents have immensely benefitted from the clean energy activities promoted under the programme. While solar home lights are being used for studying, cooking, lightning, and other purposes, solar street lights have led to improved safety for women and children. Further, with the help of solar lanterns provided under HRDP intervention, farmers have been able to return from or visit the field in the evening/night.

Skill Training and Livelihood Enhancement

The project focused on skill development and livelihoods in the 11 villages of Satana block, especially for the sections in the area that belong to traditionally marginalized social and occupational groups. The activities include SHG-based women empowerment; agriculture training and support; livestock management; and entrepreneurship development. To strengthen and enable women's group-based institutions such as self-help groups to promote savings and build productive assets of their own, new SHGs were set up, and the rebuilding of existing defunct SHGs into robust grassroots institutions of their own was done by providing them with necessary inputs and developing further linkages with banks and convergent initiatives. A total of **33 SHGs have been formed** and revived and training undertaken during the project implementation period. The project has successfully worked on financial inclusion, social inclusion, and mobilization.

The HDFC Bank project emphasized skill development of the farmers mainly through agriculture training to improve their skills and knowledge in areas like field preparation, sowing, planting techniques, more efficient irrigation practices, pesticides, crop rotation, improved storage, and other post-harvest practices. The idea was to impart skills that enable farmers to enhance their crop yields, apart from protecting their crops against risks due to weather-related shocks and improving their soil health.

The project tried to seed the concept of FPO formation to organize the farming community so that they could access information about the market, consumer preferences, quality standards, marketing outlets, costing, inputs, organic inputs, etc. Based on the produce to be aggregated, the farmers could decide on the cropping patterns, input application scheduling, water management, harvesting, storage, and organized bargaining and marketing.

The interventions focused on setting up micro-enterprises such as chicken shops, welding shops, puncture or tailoring shops, etc. This has resulted in the economic empowerment of the beneficiaries from the weaker section who were working as agricultural labour before the intervention. Since the financial and handholding support provided was satisfactory, the micro-enterprises established would ensure the sustainability of the intervention.

Promotion of Education

Activities under education in Nashik, Maharashtra included (a) Educational Institutions Development: Educational paintings, school repair work, installation of school library- providing cupboards and books, smart class/parivartan kaksha (solar powered digital screen), installation of drinking water posts/RO filter; and (b) Awareness Generation: Computer education training for teachers, WASH session for students. The intervention under HRDP in promoting education aligns with the central and state government objective of providing quality education to the marginalized section of society. Upgradation of physical infrastructure in terms of providing solar-powered digital screens or parivartan kaksha, providing books and cupboards, educational paintings, and installation of RO filters has led to visible positive outcomes. The program supported the government's vision of providing quality education in terms of infrastructure and services which can empower the vulnerable sections.

Health and Sanitation

Health and sanitation are essential components contributing to rural development. In the programme villages, diverse interventions for improving health and sanitation were carried out. Activities under the theme include (a) Health: Health-related awareness input session for women and (b) Sanitation: Construction of household wastewater soak pits. Health awareness input sessions were organized where women were made aware of the importance of frequent health checkups, menstrual hygiene, the importance of a balanced diet during pregnancy, pre-natal and post-natal checkups, and the importance of institutional delivery. Through the project interventions, there is a considerable improvement with regard to a better understanding of the health issues in the villages.

As a part of the project, work was done on raising awareness about health through the usage of audio-visual tools and community health-related input sessions, exhibitions, etc. The quantitative survey indicates that 95.8% of respondents were using toilets instead of opting for open defecation while 70.4% stated that they were washing their hands using soap after using toilets. Construction of household wastewater soak pits was done to improve the hygiene conditions in each village.

TABLE 2: OVERALL HRDI SCORE

Overall HRDI		
Base line	End line	% Change
0.27	0.40	50%

RECOMMENDATIONS

Natural Resource Management

- Post-project follow-up is important to ascertain the sustainability of the intervention. A system may be put in place to ensure check on respondents who adopted practices such as crop diversification, trellis cultivation, and other crops that were promoted through on-field demonstrations and farm field schools (FFS) on the difficulties being faced and any additional soft interventions that may be required for them to carry on the activities after project completion.
- For effective implementation of interventions while also ensuring the satisfaction of beneficiaries, establishing grievance redressal mechanisms for beneficiaries is vital. A system that enables beneficiaries to raise their grievances related to the selected activities, would have provided opportunities for any mid-course corrections, effective planning for future interventions, and resolution of problems.
- The interventions taken up under livestock management benefitted the respondents by improving livestock health in the project clusters. For the long-term sustainability of the interventions, the project could have incorporated training of youth in the villages on para-vet services for better access to basic veterinary services as well as information on livestock management.

Skill Development and Livelihoods

- The programme theme aimed at achieving women's empowerment by developing self-sustaining, community-led savings and credit institutions and increasing socio-economic empowerment of women at household and community levels. The qualitative and quantitative study found that the women participating in the program did report greater economic empowerment and an improvement in status/ quality of life and their overall agency.
- On the intervention in setting up of women's SHGs, the study indicates that a future programmatic intervention can create a three-tiered institution of SHGs, VOs, and federations that are self-sustaining and community-led. The institutional structure created under the program can be made more robust and there are immense opportunities for (a) broadening the leadership base of the institutions, and (b) making savings-based financial resources available for lending at all levels. Some critical processes can be put in place to ensure that the institution remains vibrant and sustained over time.
- The sustainability of the program can be ensured only by strengthening the institutions created under the program and ensuring that these are capable of dealing with risks and uncertainties. The convergence support of GoM's programme 'Umed' is an effective strategy in the programme.
- Participation from the farmers and community for agriculture-based training has been challenging across the clusters, so the activity's scaling up should be linked to clear-cut outcomes through a 'training of trainer' model or 'farm field school' model to increase the outreach and effectiveness.
- The project's work on FPO formation could be preceded by a feasibility study and capacity building on market information, consumer preferences, quality standards, marketing outlets, costing, inputs, etc.

Education

- In the project, it was observed that smart classes were not operated to the optimum due to a lack of technical know-how. This needs to be backed by new skills, competencies, and attitudes among teachers who are going to design and develop materials and support learners using these aids. It is not enough to establish the basic infrastructure but it has to be consistently maintained and upgraded. Therefore, appropriate technical knowledge needs to be ensured to operate smart classes, and also to optimize the use of educational aids.
- An asset maintenance fund/ committee needs to be established in the programme-supported schools to ensure the necessary maintenance of supports such as - drinking water posts and smart classes. Proactive convergence with ongoing schemes of the government will ensure efficient use of resources.

Health and Sanitation

- The programme had established drinking water facilities in the schools, however, a maintenance fund under the school committee is required for better maintenance and upkeep of the facility created
- The intervention in soak water pits had a recurring operation cost and options for convergence with government schemes should be looked at in close consultations with the community and respective Sarpanch of the village. An agreed plan of action for the community may be prepared to ensure sustainability.

Figure 1: Overview of project outcomes 1.

	Health and Sanitation	Skill Training and Livelihood Enhancement	Natural Resource Management	Promotion of Education
Overview of Activities	Health related awareness in session for women, construction of waste water soak pits	SHG strengthening Training on agricultural practices, support for FPO, Livestock vaccination camp, livestock rearing Promotion of enterprise	Trellis vegetable cultivation, shade net development, vegetable demonstration, crop demonstration, livestock health camps, livestock vaccination camp, construction of check dams, construction of soak pits Street solar lights, solar home lanterns	Educational paintings, school, repair work, Installation of school library providing cupboards and books, smart class, computer education training for teachers, WASH session for students
Areas of Improvement	<ul style="list-style-type: none"> 73 percent reported increased safety of women members 75 percent reported better overall health of household Less spreading of diseases 	<ul style="list-style-type: none"> 50 percent of the respondents reported increase in income due to their involvement in SHG's 47 percent respondents reported change in average monthly income due to livestock intervention 	<ul style="list-style-type: none"> 28 percent change in income due to agricultural interventions 9.3 percent increase in households adopting crop diversification 	promoting quality education through infrastructure development such as installation of drinking water posts or RO filters, smart class
Challenges	<ul style="list-style-type: none"> The intervention on soak water pits had a recurring operation cost and options Better maintenance and the upkeep of the facility is required 	Participation from the farmers and community for agriculture based trainings has been challenging across the clusters, as the farmers reported that they are busy with agricultural work throughout the day	<ul style="list-style-type: none"> No grievance redressal mechanism Unavailability of post harvest techniques for collection and storage 	<ul style="list-style-type: none"> smart classes were not operated to the optimum consistently maintenance and upgradation of infrastructure required
Recommendations	Options for convergence with government schemes should be looked at in close consultations with the community and respective sarpanch of the village.	The institutional structure created under the program can be made more robust (a) broadening the leadership base of the institutions, and (b) making savings based financial resources available for lending at all levels	A system may be put in place to ensure a check on respondents on the difficulties being faced and any additional soft interventions that may be required for them to carry on the activities after project completion	<ul style="list-style-type: none"> Appropriate technical knowledge needs to be ensured to operate smart classes and also to optimize the use of educational aids. An asset maintenance fund/ committee needs to be established

1. Introduction

1.1 Background of the Study

As part of HDFC Bank's CSR initiative, programs are supported to deliver holistic rural development. Within Parivartan, the "Holistic Rural Development Programme" (HRDP) is the flagship CSR program, under which non-governmental organizations across the country are supported to deliver development interventions. The vision of the program was to create happy and prosperous communities in terms of socio-economic and ecological development which is sustainable. The holistic approach supports the lives of communities by providing necessary inputs on issues like shaping economic independence through skilling, providing basic infrastructural development, and establishing a better ecosystem thereby promoting better living conditions. Developing human capital, natural resources, and infrastructure in poor and backward villages would bring about their socio-economic transformation.

The program was implemented by an NGO partner Sanjeevani Institute for Empowerment and Development (SIED) with HDFC Bank support. The major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement, Promotion of Education, Healthcare & Hygiene. However, the extent of the work in each village was undertaken based on the need and varied from place to place.

1.2. Partner Organization-(SIED)

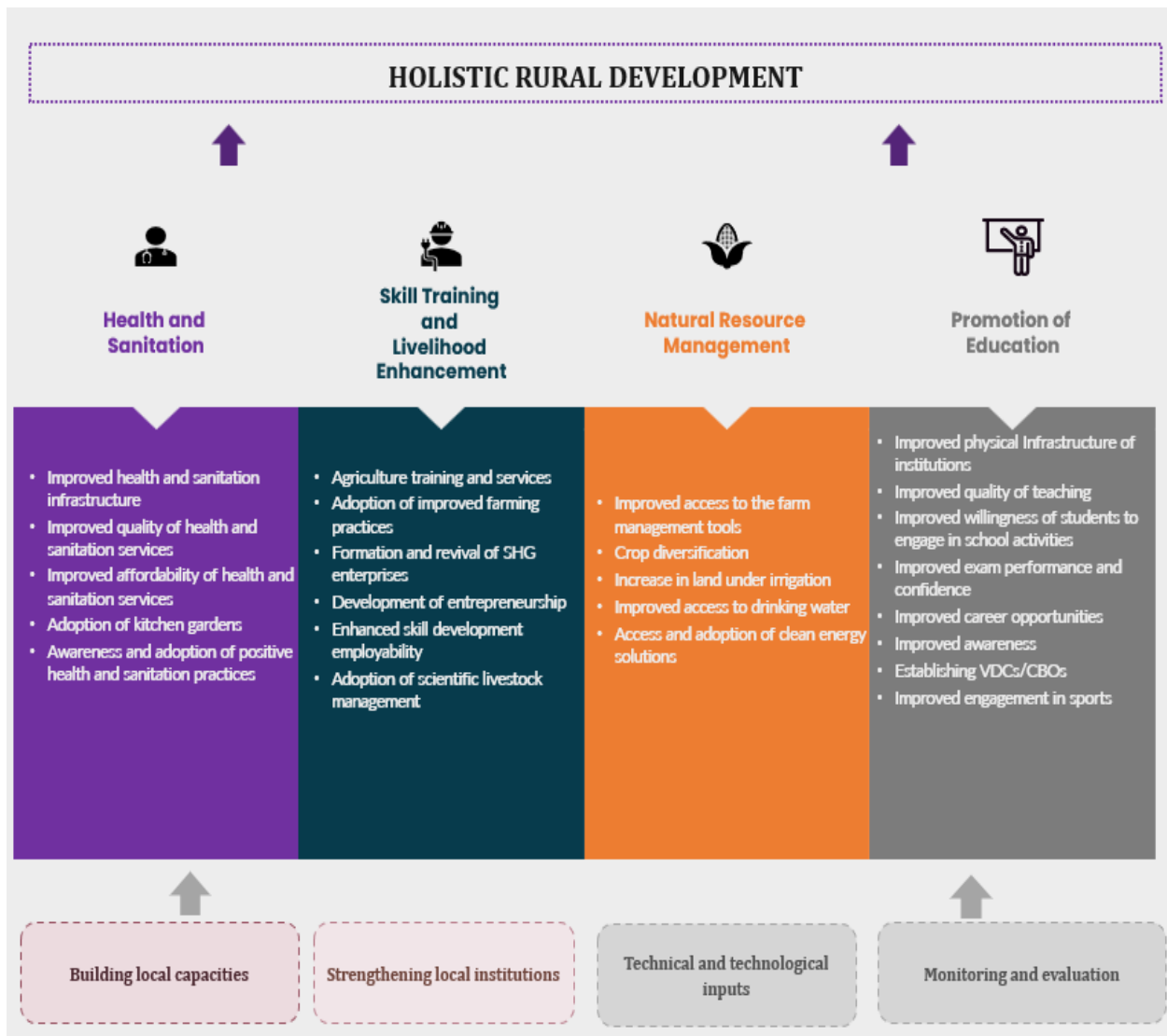
Sanjeevani Institute of Empowerment and Development (SIED) is an NGO established in May 2007 with the objective of focusing on the implementation of projects in rural Maharashtra. Its preference is to work for the tribals, scheduled castes, backward castes, and landless regions, especially where the environment is degraded. Women are given special attention both in the watershed projects as well as in the SHG promotion.

The key mandate of SIED is to undertake the implementation of development projects based on natural resources management in villages in Maharashtra. SIED works on a wide range of agriculture-based livelihood activities, including watershed management and land development, water resource development for seasonal and perennial irrigation, stream diversion, participatory irrigation management through user groups, climate change adaptation projects, promotion of sustainable agriculture, formation of liability groups, producer company and market linkages for agricultural products.

1.3. Purpose and objectives of the study

The impact assessment aims at understanding the overall process undertaken by HDFC Bank and partner organizations in implementing the programme activities, key milestones achieved, impact created by these activities, challenges faced, and the manner in which such challenges were handled. The guiding philosophy behind this study is to add value by showcasing successful initiatives and recommending possible ways to address challenges that exist. The impact assessment aims to critically and objectively evaluate the implementation and performance, determine the reasons why certain results occurred or not, draw lessons, and derive good practices and lessons learned. The study is expected to provide evidence-based findings which would inform HDFC Bank in taking operational and strategic decisions while planning and funding partner organizations for such programmes. The evaluation was also an opportunity to learn about the relevance of the programmes implemented and the effectiveness of such programmes.

Figure 2: Conceptual framework of the implementation



Agriculture is one of the main occupations in the state of Maharashtra. About 82% of the rural population depends on agriculture for livelihood. The total irrigated area used for crop cultivation is 33,500 square km, which amounts to about 18% of the gross cropped area. In Maharashtra, rain patterns differ from region to region.

Issues such as delays in rainfall and depleting groundwater levels have led HDFC Bank's HRDP to focus on the construction and repair of check dams which can ensure an adequate supply of water for agriculture. Apart from agriculture, the programme also focused on providing other livelihood opportunities through goat-rearing units, providing entrepreneurial support in setting up welding, tailoring, chicken shops, puncture shops, and strengthening SHGs. Through these interventions, the program was implemented to create sustainable communities in 12 villages in the Nashik district of Maharashtra state.

With the objective to achieve holistic rural development in these areas, the programme has focused broadly on four thematic areas of intervention – promoting education, health and sanitation, natural resource management, and skill building and livelihood enhancement.

2. Research Methodology

The assessment used both qualitative and quantitative methods. For each cluster and thematic area, activities completed were identified. The impact generated by these activities was assessed using the criterion of Relevance and Convergence, Effectiveness and Impact, Sustainability and Replicability. The evaluation process was carried out in a consultative manner involving interactions with both HDFC Bank and Sanjeevani Institute for Empowerment and Development teams at key junctures.

Under the criteria of relevance and convergence, the evaluation sought to answer whether the design of the program interventions is aligned with the state's plans and priorities for rural development. In addition, the evaluation examined whether the design and implementation of the programme were relevant to the local needs of the most vulnerable groups. The evaluation tried to understand contextual factors that influence the program design and its implementation and the extent to which such factors have been considered to tailor the program design to suit the local needs. The study has observed if there has been a convergence/ made use of the existing resources of the government and whether different stakeholders involved have worked together to achieve the outcome of the program.

To assess the impact and effectiveness¹ of the program, the findings seek to establish the values of outcome indicators of all the thematic interventions. These findings are assessed against the outcome indicators finalized during the outcome harvesting stage. Further, through qualitative evidence, the evaluation tries to understand whether and how the program impacted the lives of the community members in the program areas. This was done through an analysis of program outcomes in light of certain variables identified in consultation with HDFC Bank. The findings from primary quantitative data have been substantiated by the information gathered from discussing with the communities/beneficiaries, teachers, students, entrepreneurs, and local institutions at the village level. Through primary data, the study has tried to understand if the program has worked on strengthening the community's capacity to ensure sustainability, and whether any of the activities or strategies adopted have been/could be replicated.

2.1. Design and Methodology

A review of various program documents including HDFC Bank's CSR Policy, Rapid Rural Appraisal Reports, Program implementation timelines, Communication, and Documentation Products, and other relevant reports/literature related to the program was utilized for a secondary review.

The primary research included a quantitative household survey as well as in-depth interviews and focused group discussions with program beneficiaries and the partner NGO. The outcome mapping and result chain development were undertaken in consultation with the HDFC Bank team. The exercise resulted in the identification of standardized key outcomes and indicators related to each of the programme's thematic areas. Based on the standardized list of outcomes and outputs, the questionnaire for the state was developed.

2.2. Sample size and distribution

The sample size covered during the field is as follows:

¹ While from an evaluation perspective impact and effectiveness are two different aspects, in the report, these are used interchangeably

Table 3- Quantitative sample covered

District	Total Households	NRM	Skill Training and Livelihood Enhancement	Health and Sanitation	Promotion of Education
Nashik (Total)	411	371	128	127	73
Planned	400	200	100	100	100

* The sample size covered in the thematic area- promotion of education amongst students and teachers was 73 across all the twelve villages

Table 4- Qualitative sample covered

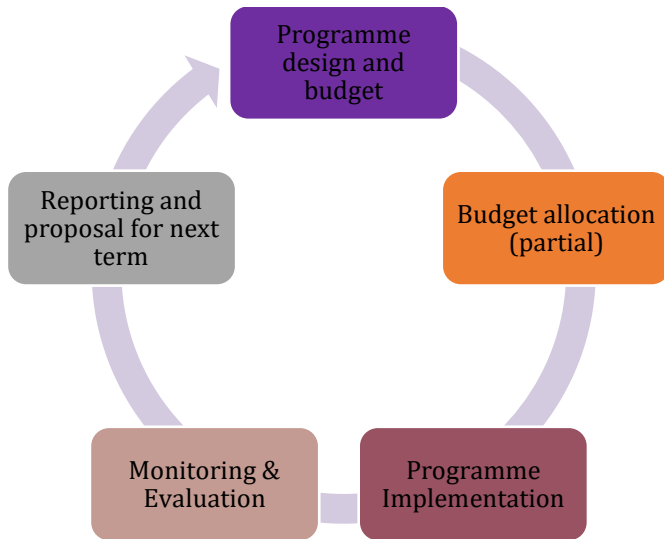
District		Nashik
FGDs	Check dam beneficiary farmers group	3
	SHG	2
	Livestock vaccination camp beneficiary	2
	Health awareness input session women beneficiary	1
IDIs	School teacher	2
	Micro-enterprise	4
	Livestock beneficiary	2
	Clean energy beneficiary	2
	Gram Sevak	1
	Shade net beneficiary	1

Teams of local enumerators, with requisite education and experience, were hired for data collection. Two days of training in Maharashtra were provided to enumerators and supervisors by the NRMC team.

3. Program review

3.1 Program design and implementation

Figure SEQ Figure * ARABIC 3: Project Planning and implementation process



The programme interventions are decided on an annual basis, with an annual budget allocation based on the proposal by SIED to HDFC Bank. The baseline/need assessment study was not available for Maharashtra. Based on the preliminary assessments, the partner organization prepared an annual work plan wherein activities were proposed on a need basis. While this approach has helped in providing support to the immediate needs of the communities, a systematic approach to resolving issues around such needs and a long-term vision and outcomes towards the thematic areas for HRDP remain desirable.

Based on the observation in the field, budget allocation was largely provided for infrastructure and material support along with skill training and livelihood, whereas behavioural interventions were very limited in Maharashtra.

3.2 Program relevance

The irrigation situation in the selected project cluster has been challenging since the irrigation percentage of the selected cluster was 10%, lower than the state average of 17% and the national average² of 46%. Further, water levels fall in the pre-monsoon season by up to 2m in the region. Even though most rainfall occurs in the months from June to September, the region faces an acute shortage of water owing to a lack of infrastructure to support water storage and management. Water shortage often translates to poor agricultural productivity and the cultivation of low-value crops with lower water requirements in Satana. Further, poor availability of water limited the extent of livestock rearing in the block. In this background, the interventions were designed around creating infrastructure to support water management and storage for agriculture purposes. The construction of the check dam has altered the picture of water scarce region in the Satana block of Nashik district,

² RRA Report for Satana

Image SEQ Image * ARABIC 1: Check dam built under HRDP in Khamtane village, Nashik



Under HRDP intervention for NRM, tried and tested activities such as diversified cropping patterns, on-field demonstration of vegetable cultivation, shade net development, making field knowledge available for farmers through Farmer Field School (FFS), and farmers' exposure visits were promoted. The shift from mono-cropping systems to a more diversified cropping system has an impact on income, especially for smallholder farmers who possess smaller parcels of land.

The rural population in Maharashtra is predominantly dependent on agriculture and allied activities for their livelihoods and a significant proportion of them are at a subsistence level of income and livelihood. The state government has made substantial efforts toward the promotion of micro-enterprises for sustainable development. However, despite the effort, the state faces impediments like inadequate infrastructure, lack of access to markets, etc., in its endeavour. Under HRDP intervention for skill training and livelihood enhancement, efforts have been made for the promotion of enterprises.

Image SEQ Image * ARABIC 3: Welding workshop in Khamtane village, Nashik



of loans.

Maharashtra. Most of the Satana block is

Image SEQ Image * ARABIC 2: Trellis vegetable cultivation in

landlocked and does not have perennial access to water bodies like rivers or canals.



The programme has worked towards women's empowerment by strengthening the self-help groups in the intervention villages. Each SHG has an average of 10-12 members engaged in different activities such as savings and lending.

SHG members were encouraged to start their own micro-enterprises which could generate an additional source of income for livelihood. For the smooth functioning of the group, training sessions were organized. These training sessions focused on encouraging members to conduct and attend regular meetings and promoted internal lending, regular savings, and repayment

While Maharashtra is today one of the most affluent states in India in terms of its per capita income, it still continues to have high levels of poverty and inequality which gets reflected in the health outcomes of the state. Maharashtra's performance in the health and sanitation sector is average even though it is the most urbanized and the largest state economy in India. Deaths due to malnutrition, low levels of access to various healthcare services, and lack of sanitation and hygiene practices are some of the reasons why the state is still struggling to achieve the desired health outcomes.³

Though Nashik district is considered to be among the top-ranking districts in the state in terms of the human development index (HDI), the HDFC Bank project area in Satana block is deficient in socio-economic terms. The spread and number of hospitals close to the communities are poor even when the number of people needing inpatient facilities is on the rise in the area. The public healthcare system is marked by poor facilities, poor services, and overcrowding.

In rural areas in Maharashtra, there are still many myths related to menstruation and menstrual hygiene practices and it is the need of the hour to dispel them and help women to separate facts from fiction. Menstrual health needs go unmet due to poverty, gender inequality, and cultural taboos. It is very critical that women be educated regarding good menstrual and personal hygiene as many women continue to use cloth and old rags which can cause allergies, bacterial or fungal infections, and urinary tract infections.

Image SEQ Image * ARABIC 4: Parivartan kaksha in Mulane village, Nashik



While Maharashtra had ranked third among 20 big states in 2018, the rank fell to 6 this time with the state performing poorly, especially in areas like infrastructural facilities and outcomes and equity. In Maharashtra, drop-out rates show a slightly decreasing trend at the upper primary and secondary levels but vary at the primary level. Compared to primary and upper primary, drop-out rates are high at the secondary level. If we look at the gender-wise distribution, drop-out rates are higher among girls as compared to boys.

The intervention under HRDP in promoting education aligns with the central and state government objective of providing quality education to the marginalized section of society. HRDP is working on promoting quality education through infrastructure development and various other activities such as providing cupboards and books, installation of drinking water posts or RO filters, and encouraging digital education through smart class/parivartan kaksha. The program supported the government's vision of providing quality education in terms of infrastructure and services which can empower the vulnerable sections.

³ <https://www.cehat.org/go/uploads/Hhr/hhcm.pdf>

4. Study Findings

4.1 Demographic profile

This section provides the demographic profile of the respondents covered in the sampled program villages under the assessment.

Table 5: Demographic profile: Respondents

Gender	
Male	71%
Female	29%
Age	
18-25 Years	5.4%
26-35 Years	17.5%
36-45 Years	31.6%
45-55 Years	23.8%
More than 55 Years	21.7%
Educational Status	
Illiterate	11.2%
Literate but no formal education	5.1%
Up to 5th std	11.7%
6th to 8th std	13.9%
9th to 10th std	26.8%
11th to 12th std	18.2%
Graduate	9.2%
Post graduate	1.5%
Social category	
Scheduled Caste (SC)	4.1%
Scheduled Tribe (ST)	14.4%
Other Backward Classes (OBC)	56%
General	25.5%
Poverty status	
Antyodaya	7.8%
BPL	71%
APL	19.2%
Do not have a ration card	1.9%
Income sources	
Cultivation	84.7%
Livestock	17.3%
Salaried employment	2.2%
Non-agricultural income	5.6%
Wage labor	15.1%
Pension	0.2%

4.2 Natural resource management

With a total cultivable land of 809 thousand ha⁴ which is 52.6% of the total geographical area, agriculture is the mainstay of the rural population in Nashik. The majority of the farmers in Nashik are smallholders (54%) followed by marginal farmers (44%) and others (2%)⁵. Around 70%⁶ of the area in Nashik district is drought-prone. Further, agriculture in Nashik is mainly rainfed with low agricultural productivity, resulting in low farm income. Against this backdrop, the Satana block, which falls in the eastern part of Nashik and is a drought-prone area, was selected as the project area with a focus on Natural Resource Management (NRM). The majority of the project clusters in the Satana block that face drought-like situations had been selected under the project.

Natural Resource Management is one of the most important pillars under HRDP. The interventions in this pillar were designed and implemented keeping in view the needs of the community as well as its suitability to the geography. The programme continued for three years from 2018-2021 resulting in interventions under various activities such as construction and repair of existing check dams, farm management (crop diversification), water management in agriculture (irrigation), and interventions under clean energy such as solar street lights and solar lanterns. Since the focused region is drought-prone, intervention in NRM is expected to ease the water-related issues for both household and agricultural purposes. Further, multiple support provided under the interventions such as crop diversification, shade net development, and trellis vegetables were aimed at diversifying the crops cultivated and increasing the income for the farmers.

Table 6: Activities under NRM in Maharashtra

Activity Category	Activities
Farm Management	Trellis vegetable cultivation, shade net development to promote high-value crops, diverse crops introduced in the field, vegetable demonstration, crop demonstration, livestock health camps, livestock vaccination camps,
Water Management	Construction of check dams, construction of soak-pits
Livestock Management	Livestock health camps, Livestock vaccination camps
Agriculture Support and Training	Trellis vegetable cultivation
Clean Energy	Street solar lights, solar home lanterns
Awareness Generation	Biodiversity awareness generation

Thematic area-wise number of beneficiaries covered during the study is given in the methodology and sampling section. Further, the relevance, effectiveness, and sustainability of activities under Natural Resource Management will be discussed in detail.

4.2.1. Effectiveness and Impact

The interventions by HRDP have resulted in achieving low to high impacts across different output indicators under the project intervention in project clusters of Maharashtra. In summary, the following indicator boxes show in which outcome indicators the programme has performed well.

⁴ <https://agricoop.nic.in/sites/default/files/Nasik.pdf>

⁵ <https://nashik.gov.in/agriculture/>

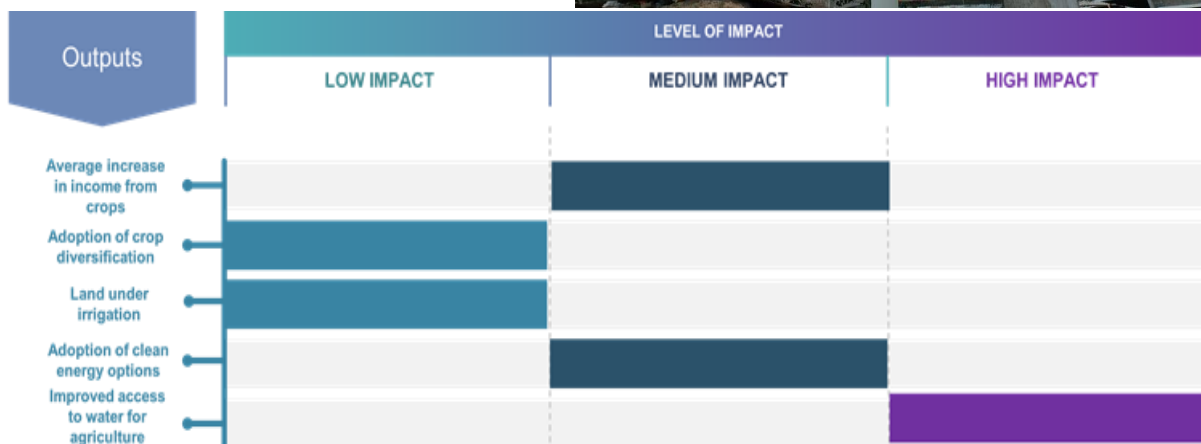
⁶ RRA Report for Satana

While the overall access to water for agriculture improved significantly, the average increase in income from crops has had a medium impact. Even with improved access to water for agriculture, the average area under irrigation did not increase significantly resulting in low impact. Further, the adoption of clean energy has had a medium impact since overall adoption and usage of clean energy solutions such as solar home lanterns and street lights have only been significant to an extent.

Image SEQ Image * ARABIC 5- Solar Street light,



Figure 4: An overview of project effectiveness and impact in Natural Resource Management



**Based on a qualitative study*

Water management for agriculture

Field-level findings have ascertained that the construction of check-dams has helped in increasing the water availability in the selected village of Satana block in Nashik that was covered under HRDP intervention. With the availability of water in the summer months from April to June, water is perennially available in the villages. Farmers have been able to shift from the cultivation of crops like maize and bajra to onions which fetch them better prices. The average area under irrigation increased from 4.52 acres prior to project intervention to 4.7 acres post-intervention in the selected villages. Further, due to the percolation of rainwater, the groundwater level has increased and has led to well recharge, as per the qualitative study.

Due to improved water availability and other agriculture interventions promoted under the HRDP programme, 42% of the respondents state that the cost of cultivation has decreased, while 68.6% of the respondents stated that there was an increase in income. **The average net income (median) from Agriculture increased from Rs 65,000 to Rs 82,850. The increase in net income has been to the tune of 27%.** However, the sample size is not enough to establish a significant correlation between the agricultural interventions and an increase in income at a 95% confidence interval (P=0.956) (Independent sample T-test)

On the aspect of the effectiveness of the check-dam, around **83% of the respondents stated that they were fully satisfied** with it since the quality of infrastructure is good and there has been no damage to the infrastructure. Further, they stated that check-dams were needed in the project clusters since most of the villages were drought-stricken for over a decade in the past.

Image SEQ Image * ARABIC 6: Crop diversification - chilli and brinjal, Pimpaldar village, Nashik

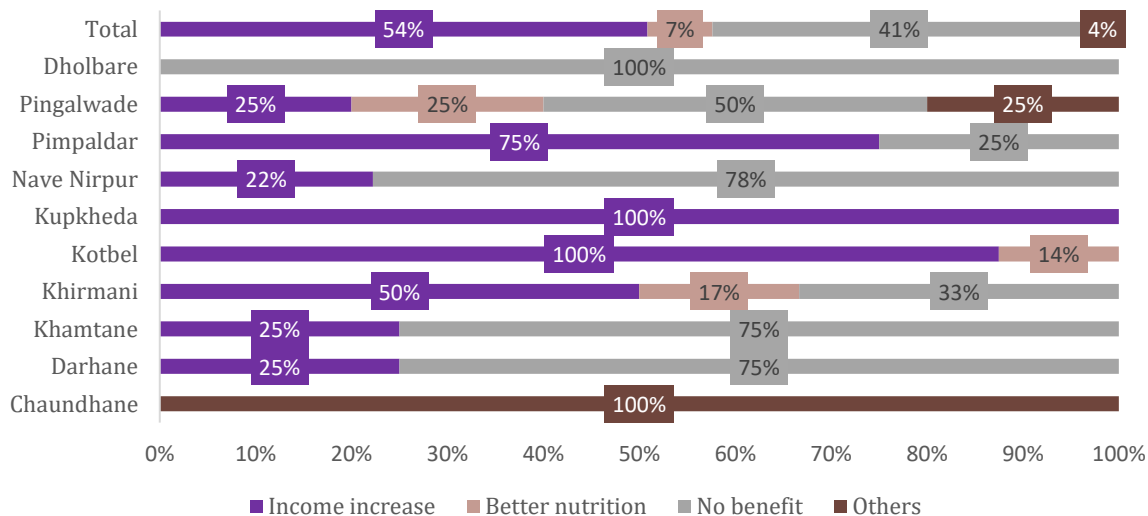


Adoption of horticulture and crop diversification

The field-level findings indicate that there has been an overall increase in income. Other than increasing income from horticulture, many of the farmers have obtained alternate sources of income as well.

Around **20% of the respondents either started growing crops or expanded their area under high horticultural crops** like lemon, pomegranate, custard apple, grapes, and watermelon. Respondents highlighted that quality of produce has been good owing to the technical information provided under the project. While farmers have been able to grow high-value crops, nutrition at the household level has improved as well due to the increased consumption of fruits in the region.

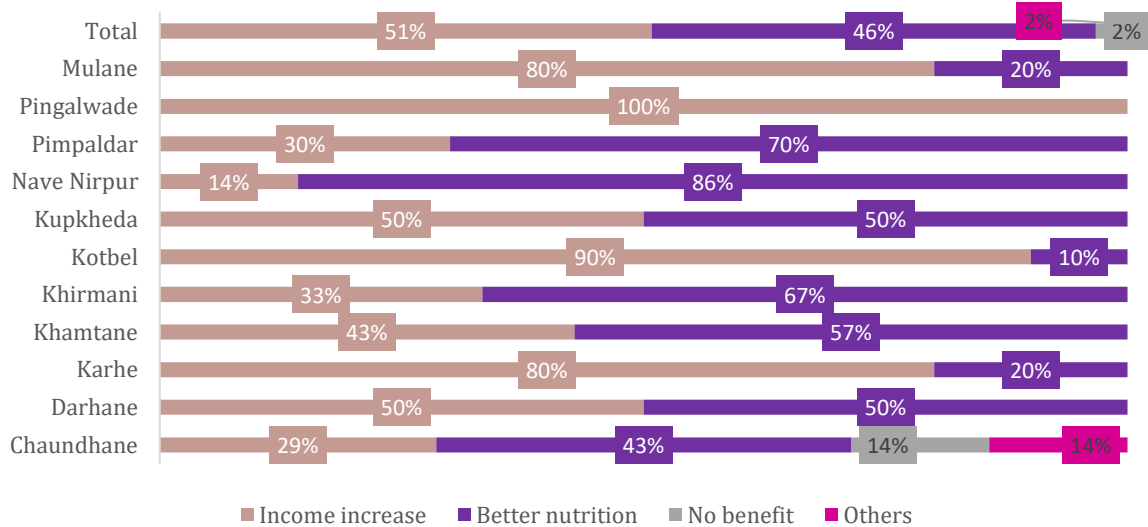
Figure 5: Perceived benefits of adoption of horticulture



Across the project clusters, the farmers diversified agriculture practices into the production of diverse agricultural crops. Of the sample respondents, 22% of them changed the crops grown in their agricultural field since the project started. Many of the respondents (35%), diversified to the production of other vegetables, followed by Maize (11%), Onion (9.3%), Chilly (5.6%), Guava (3.7%), and Bajra (1.9%), Groundnut (1.9%), Moong (1.9%) and others (43%). Very few respondents, i.e., 1.9% of them, did not diversify their cropping pattern at all.

The field-level findings indicate that there has been an overall increase in income. There exists a positive significant correlation between change in income due to various interventions under HRDP and total income now ($p < 0.01$) (Pearson correlation significance test). Further, the nutrition level of respondents improved due to increased consumption of diverse agricultural produce.

Figure 6: Perceived benefit of adoption of crop diversification

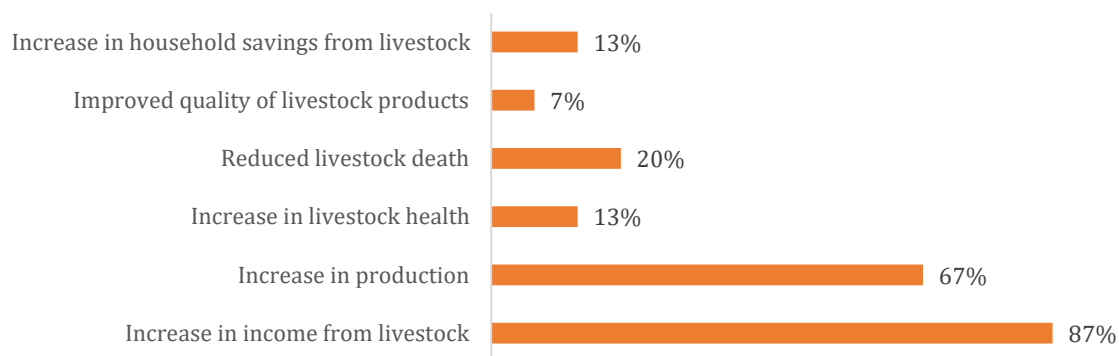


Livestock Management

Vaccination camps and services have been efficient in preventing the transmission and spread of diseases in livestock. While the primary benefits of vaccination on cows and buffaloes have been to improve their health, the benefits of it on goats have been multifarious. Some of the benefits increasing income from livestock, an increase in production, reduced livestock death, and increased household savings from livestock amongst others such as the increase in livestock health and improved quality of livestock products.

Improved livestock health and production have a direct bearing on the income of livestock farmers. There has been an increase in median income (annual) from **Rs. 57,000 before project intervention to Rs. 84,000 after project intervention. The overall increase in income has been to the tune of 47%**. There is a significant positive correlation between livestock management practices adopted under the intervention and an increase in income at a 95% confidence interval ($p < 0.01$) (Pearson correlation significance test).

Figure 7: Perceived benefit of livestock management on goats



Use

Clean energy solutions

Providing solar streetlights and solar lanterns under the HRDP intervention has enhanced basic energy access to rural households. Installation of solar-powered lighting has helped improve the quality of education in rural areas, and safety for those who return from fields at night and for anyone who wants to use public spaces in the evening.

The selected villages in the project areas had an erratic supply of electricity. The majority of the respondents of clean energy under the HRDP intervention, i.e., 48% of the respondents, stated that electricity was available for 10 to 15 hours, 40% of them stated electricity availability for 4 to 10 hours, 8% of them stated less than 4 hours of electricity and only 4% of them stated that electricity was available for more than 15 hours. The findings have shown that the use of solar street lights and solar home lanterns has resulted in improved quality of lighting post-sunlight hours.

The programme has distributed solar lights to students and households for their lighting and studying needs. In comparison to a kerosene lamp or candlelight, the device is easier to use. Respondents have been using solar lights for studying, cooking, lightning, and other purposes. With the help of solar lanterns provided under HRDP intervention, farmers have been able to return or visit the field in the evening or at night times. Respondents have reported that the solar lanterns have provided them and their families relief from erratic electricity as now their children are able to study after the sun sets which can improve their grades and study timings. Households have reported that solar street lights and home lanterns have provided cost-effective and environment-friendly solutions to access energy.

Figure 8: Perceived benefit of solar home lanterns

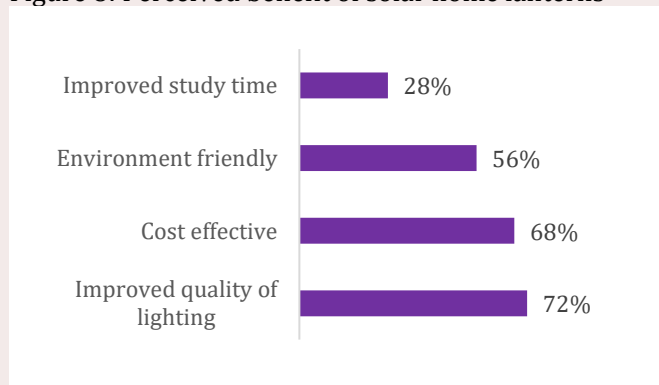
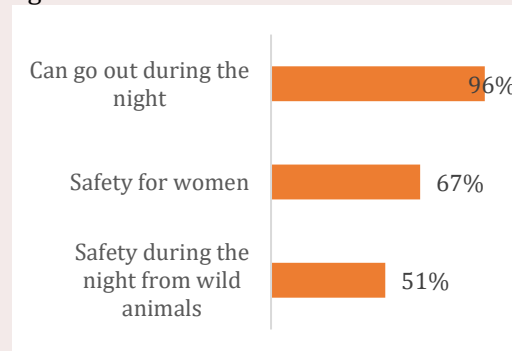


Figure 9: Perceived benefit of solar street light

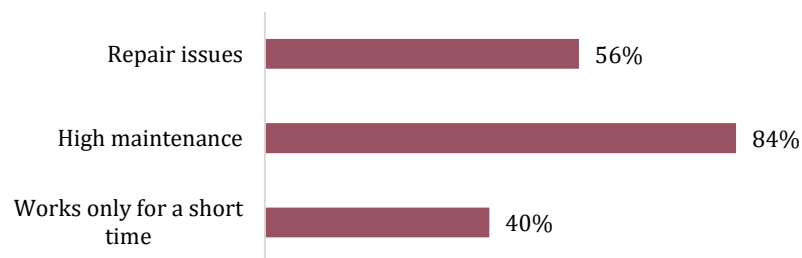


The solar street lights have been strategically erected at locations where no other lighting source was present and the maximum number of households can benefit. The intervention providing street solar

lights in the program villages has made it safe for women to walk around in the village even after dark. In the past before the intervention, villagers, especially women and children could not go out once the sun goes down as the streets would usually go completely dark at night. Respondents reported an increase in the level of safety after the installation of solar streetlights which helped in breaking the darkness after sunset.

Moreover, there are certain challenges that the community shares after receiving benefits under the intervention. The challenges reported were the high cost of maintenance, repair issues once damaged and that solar lights work for a short duration.

Figure SEQ Figure * ARABIC 10: Challenges in use of solar lights



Although the interventions under HRDP have led to positive impacts across project clusters, respondents stated certain challenges in availing of these services. Lack of follow-up support was identified as the most important challenge. Other challenges identified were inadequate information and adoption being expensive.

4.2.2 Case Study 1: Solar Street light leads to safety in Pimpaldar village

Image 7- Solar Street light installed in Pimpaldar village



Solar street lights were installed in Pimpaldar village under HRDP intervention in the year 2018-19. Prior to the project, there were issues of safety for women and children in the village. Women did not move out of their homes after day light since there was no source of lighting in the alleys. Earlier, children would also not play after dark. With solar street lights set up at the major entry and exit locations in the village, women and children safely move out now.

The solar street lights recharge during the day and switch-on automatically at 9pm each night and function till early morning hours. Women inhabiting nearby come out of their home, sit and complete their chores while also socializing with their neighbors, which was not possible earlier.

As stated by the beneficiary, Ms Jagruti Pawar who is a second-year student in college, no challenges exist with the functionality of the solar street light. For the past three years, the solar street light has been functioning well. She further highlighted that social harmony in their neighbourhood has improved since people sit in the common area under the street lights and discuss their day-to-day life and issues. Realizing the usefulness of the installation, she also highlighted that if there would be any challenges with the street lights installed under the HRDP project, they would contribute towards its repair works.

4.2.3 Case Study 2: Improved water availability in Pimpaldar due to check dam construction

Scenarios	Water availability
With check-dams constructed under HRDP intervention and above-average rainfall	All around the year water availability
With check-dam but below-average rainfall level	Scarcity of water for 1.5 months in the summer months (May-June)
Without check-dams and poor rainfall	Scarcity of water for 3 months in the summer months (April, May, and June)

Prior to the HRDP intervention, the farmers in the village used to cultivate Maize, Bajra, and a few vegetable crops with less requirement for water. Due to improved water availability, farmers are now able to cultivate horticulture crops like onion, coriander, and chilli, which was not possible earlier. The overall agricultural production has increased by 25% and their agricultural income has increased 1.5 times.

Other than its direct impact on agriculture, check-dams have also led to well-recharge and positively impacted the availability of drinking water. Prior to the project implementation, the wells used to dry up in the summer months (i.e., from April to June). Now, the wells have water throughout the year. Realizing the benefits of water conservation, some of the farmers have also adopted drip and sprinkler irrigation with support from Government and HDFC bank.

Even though there has been an improvement in water availability, the livestock population dropped in the village. This was mainly attributed to the decrease in area under fodder crops and the diversion of land under fodder crops for horticulture production as a result of increased water availability.

Beneficiaries in the village stated that the check-dams constructed under the HRDP intervention are of superior quality. No leakages or damages were observed or reported by the beneficiaries. They further indicated their willingness to take up repair and maintenance through the village development committee in the future, in case of any damages. Overall, the beneficiaries were satisfied with the project.

would have run-off. Some of the farmers had supported the initiative by allotting their land for check-dams while others contributed by means of their labour in construction works. Check-dams have widely altered the water situation in the village becoming an important source of irrigation. The change in water availability is indicated as follows:

4.3 Skill Training and Livelihood Enhancement

In the project area, a significant proportion of the population depends on agriculture for their livelihood. This sector has been the single largest provider of employment to the rural people in the block. Animal husbandry is the next largest provider of livelihood to the farmers in the area and has been helping them to reduce pressure on crop production. Apart from that, wage labour contributes to the bulk of the livelihood of poor and vulnerable households, especially for the small farmers and landless who are mostly unemployed or underemployed. The HDFC Bank Parivartan project focused on skill development and livelihoods in the 11 villages of Satana block, especially for the sections in the area that belong to traditionally marginalized social and occupational groups.

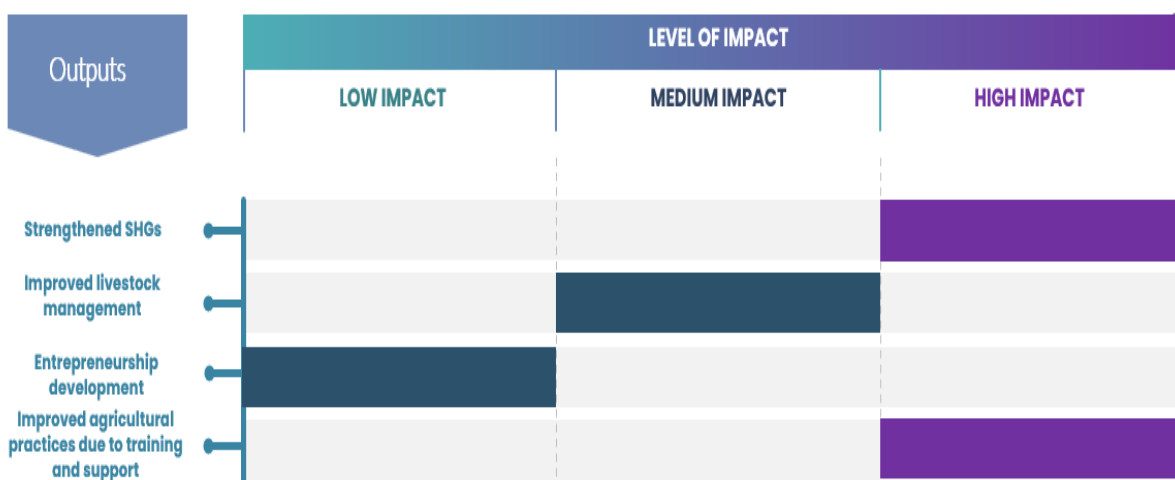
Table 6: Activities under skill training and livelihood enhancement in Nashik

Activity Category	Activities
SHG-Based Women Empowerment	Strengthening of SHG
Agriculture Training and Support	Training on agricultural practices, support for farmers association group
Livestock Management	Livestock vaccination camp, livestock rearing (goatery)
Entrepreneurship Development	Promotion of enterprises such as a chicken shop, welding shop, puncture and tailoring shop

The activity-wise number of beneficiaries covered during the study is given in the methodology and sampling section. Further, the relevance, effectiveness, and sustainability of activities under Skill Training and Livelihood Enhancement will be discussed in detail.

4.3.1 Effectiveness and Impact

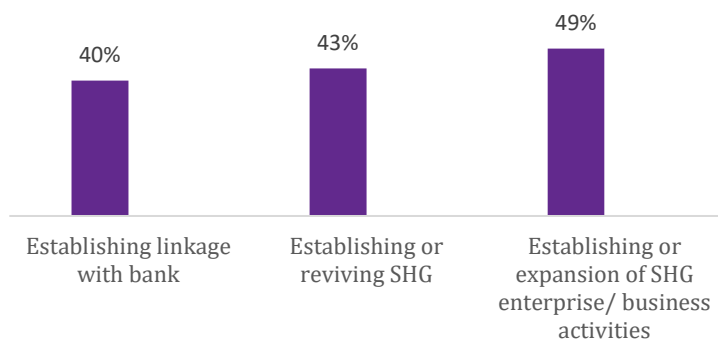
Figure 13: An overview of project effectiveness and impact and skill training and livelihood enhancement (based on qualitative study)



Self Help Groups

In the project area, there were a number of informal groups formed by women for addressing their routine credit needs for consumption purposes before the project with HDFC Bank commenced. Though these were formed to function with a broad objective of cooperation and mutual trust, many of the groups had broken up due to conflicts and some had become defunct. Because most of these groups were not linked to the banks, the institutional credit facility was available to the poor women in the group when they needed it. During the HDFC Bank project, SIED started promoting new self-help groups as well as strengthening the old ones (around 57) on a large scale. They also helped in providing support to the SHGs to open savings accounts in banks if they did not have one. Also, after

Figure SEQ Figure * ARABIC 11: Support services for SHG

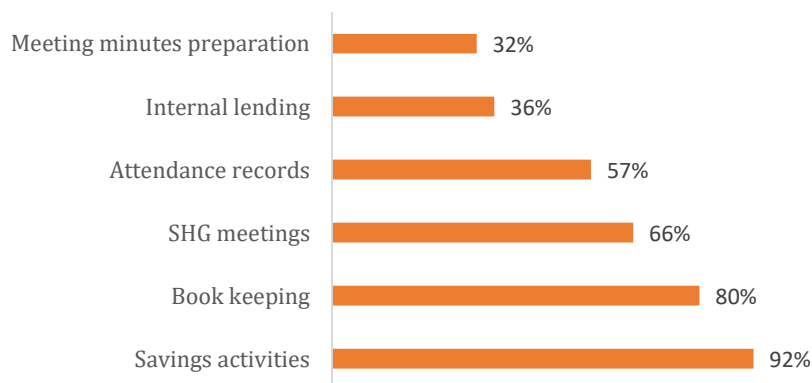


2011 many of the groups proliferated after the evolution of NRLM (National Rural Livelihoods Mission) took place to include the scope of the SHGs under it for effective promotion as well as the development of the SHGs; these groups typically had bank accounts but many were defunct or were controlled by a few members in the project area.

The effort of SIED as a part of the project has been to provide better skills, abilities, and functional capacities among the poor and marginalized members of the SHGs in the area of employment and income-generating activities. For the defunct SHGs that were being revived as a part of the project, SIED was involved in the resolution of the conflict between members through dialogue between the parties and mediation.

The HDFC Bank project tried to improve the thrift and savings habits among the group members. The project's endeavour was to help the groups get collateral-free loans from the banks and thereby

Figure SEQ Figure * ARABIC 12: Percentage respondents who feel that the activities are undertaken regularly

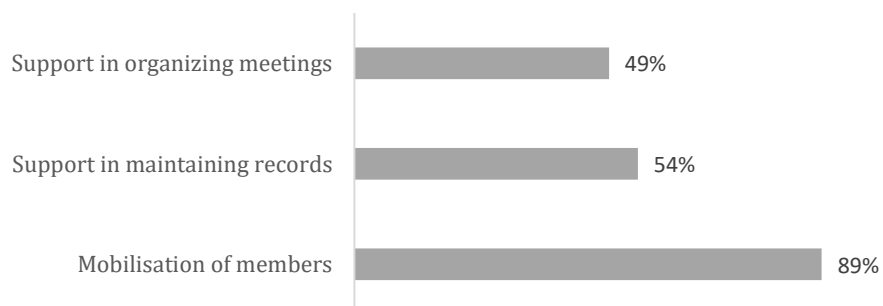


support the poor and weaker sections of people within the groups who have limited credit access. The functioning of the groups was strengthened as the loans were available for trading and other economic activities. The weak credit absorption capacity of individuals and also their ability to access loans improved once they received some training. Many members reported the positive effects it had on other activities (income generation, literacy, child care, nutrition, etc.).

The work on women's self-help groups was intended to bring financial independence to women as well as to meet the credit needs of women who were planning to set up various profitable activities. The savings of the women that are pooled together create a fund from which vital operations can be carried out. The members of the group can borrow the money to meet their consumption and production needs at 2% interest per month. Members attend monthly meetings and save anything ranging from Rs. 50-200 a month (varying for groups). Once the group achieves sufficient collection, the loaning mechanism begins. Most of the groups created (or revived) under the HDFC Bank project have around Rs. 50000 to Rs. 100000 of savings. Bank accounts have been created for these groups and the group-based approach has shielded the women from the exploitation of money lenders by providing them with loans at low interest. This way the members have been able to accumulate capital by way of small savings. Inter-loaning in the groups has helped some women start small businesses. Of the respondents, 88.4% said that their SHG is currently active.

The women's awareness about other issues of concern such as health, hygiene, their rights, entitlements, etc., has improved and their decision-making power has gone up, including in economic aspects. The project has successfully worked on financial inclusion, social inclusion, and mobilization.

Figure SEQ Figure * ARABIC 13: Percentage respondents on how the project helped them in reviving or establishing their SHG



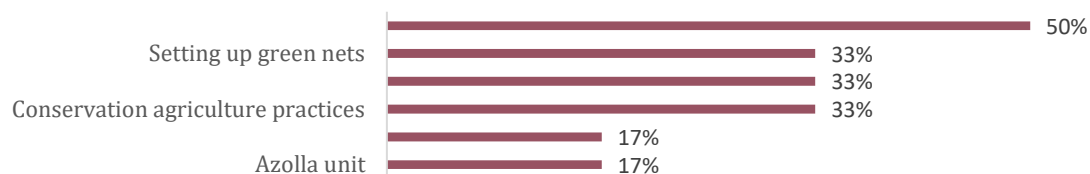
With regards to the benefits of being an SHG member, 39.5% stated that they benefitted from income generation, 97.7% benefitted from personal savings, 46.5% stated that it led to an increase in confidence while 58.1% said that it helped them in getting a loan with less interest amount. Under HRDP, SHGs were strengthened through various exposure visits to the microenterprises and conducting training sessions to help members in better savings and lending loans. There has been an increase in median income (annual) from SHG from **Rs. 84,000 before project intervention to Rs. 96,000 after project intervention. The overall increase in income has been to the tune of 14%. On performing the one-sample T-test it can be concluded that income has significantly increased in comparison to the reference value (p<0.05 at a 95% confidence interval).**

Agriculture training and support

As per the quantitative survey in the project area, of the respondents, 60% benefitted from agricultural training while 40% benefitted from the support from HDFC Bank for the creation of Farmers' Associations (Groups) or Farmer Producer Organizations. The awareness about sustainable farming practices among the respondents was - the application of organic manure (70%), construction of vermicompost pits (20%), Azolla unit (10%), setting up shade nets (20%), timely application of fertilizers and insecticides (20%), conservation agriculture practices (10%) and trellis vegetable cultivation (80%). 85.7% of the respondents said that they learned about it when asked about the application of organic manure from family/friends/relatives while 28.6% said that they learned it from HDFC Bank training.

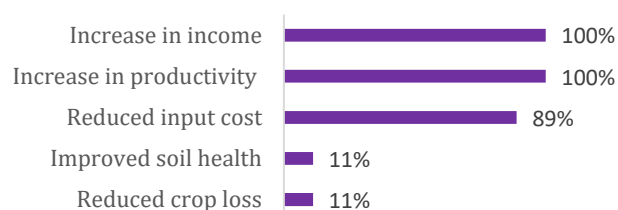
100% of the respondents stated that they learned about the construction of vermicompost pits from family/friends/relatives while 50% said that they learned it from HDFC Bank training. 100% of the respondents stated that they learned about Azolla units from family/friends/relatives as well as from HDFC Bank training. 50% of the respondents stated that they learned about setting up shade nets from family/ friends/ relatives.

Figure SEQ Figure * ARABIC 15: Percentage respondents who learnt about various farming practices covered through HDFC Bank trainings



All respondents stated that they learned about the timely application of fertilizers and insecticides as well as about conservation agriculture from family/ friends/ relatives. The percentage distribution of respondents who attended training was – Exposure Visit (33%), Farm Techniques Training (33%), Package of Practices Training (17%), and Natural Farming Training (50%). Of the respondents, **83% said that they found the training useful** while the rest did not find it useful.

Figure SEQ Figure * ARABIC 14: Percentage respondents who noticed improvements due to initiation of these farming practices



When asked how the reason why they found it useful 60% responded that it helped in cost reduction, **100% said that it improved the capacity to increase productivity, and 20% said that it helped reduce crop loss/diseases.** Yet,

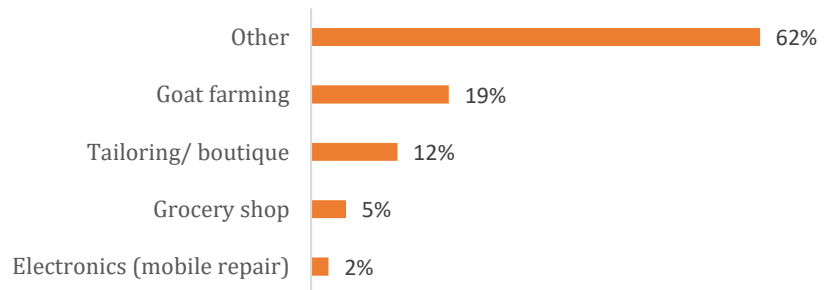
none of the respondents mentioned that it improved awareness of sustainable farming practices. 100% of the respondents felt that the low frequency of training reduced its usefulness. 100% of the respondents stated that the reason for not adopting any of these practices was a lack of follow-up services. 70% of the respondents stated that they were applying organic manure before the project started while 10% stated that they were constructing vermicompost pits before the commencement of the project.

Skill development for enterprises

The HDFC project interventions focused on setting up micro-enterprises such as chicken shops, welding shops, puncture or tailoring shops, etc. This has resulted in the economic empowerment of the beneficiaries from the weaker section who were working as agricultural labour before the intervention. Since the financial and handholding support provided was satisfactory, the micro-enterprises established would ensure the sustainability of the intervention. **There has been an increase in median income (annual) from enterprises from Rs. 36,000 before project intervention to Rs. 84,000 after project intervention. The overall increase in income has been to the tune of 133%.** 100% of the respondents stated that the key benefit of the training received was skill development for self-employment. None of the respondents said that it improved their confidence to apply for jobs, improved awareness regarding job opportunities, boosted their confidence to establish an enterprise, or helped them in getting a job.

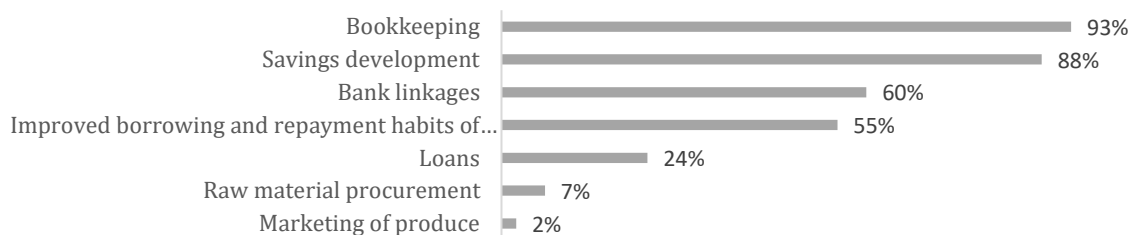
While most respondents said during the qualitative study that they had benefitted from the various self-employment options, they felt that the programme could have focused on getting some of the promising activities financed by linking them with banks for loans.

Figure SEQ Figure * ARABIC 16: Enterprise/business activities taken up under the HDFC Bank project through SHG (% respondents)



50% of the respondents stated that SHGs were provided training on goatery while another 50% stated that the women SHGs were trained on fisheries. The survey indicates that the median number of training received was 5. Business activities/enterprises taken up under the HDFC Bank project through SHGs have led to an increase in net income which has shown a significant positive relationship at a 95% confidence interval ($P < 0.01$).

Figure SEQ Figure * ARABIC 17: Help received from the project by SHG in establishing/expanding the enterprise



4.3.2. Case Study 3: Goatery, Satana Block

Kiran Vijay Singh Pawar is a 37-year-old man from Pimpaldar village of Satana block in Nasik. His household has six members and is headed by his father, Vijay Singh Pawar. While his wife is a wage earner, other four members of his family which include his children and parents, are dependents. Vijay belongs to the NT Rajput caste category.

Vijay was an auto-rickshaw driver in Mumbai, Maharashtra. However, due to COVID-19 restriction across the country, he lost his source of livelihood and had to return to his village. Under the HRDP intervention for *Skill Development and Livelihood*, Vijay received assistance for goat rearing since he was landless and did not have any alternate livelihood. While he received an amount of Rs. 20,000 under the intervention through the market committee, he equally contributed an amount of Rs. 20,000 for purchasing goats. He purchased four goats which included three female goats and one male goat and all of them were of local breed.

Vijay had prior experience in goat rearing as his father was involved in the same activity in the past. Hence, he did not require additional training. Since goat rearing is a cost-effective activity, annual expense on goat rearing is minimal. Further, goat meat prices have been increasing thus, making the activity profitable and in demand. In a year's time, six goat kids were born all of which were sold directly at the market at the rate of Rs. 4000 each, earning Vijay an amount of Rs. 24000 annually. Around Rs. 16000 was incurred as cost towards goat rearing. The major cost components for rearing goats were towards purchase of fodder, availing veterinary services and medicines.

Vijay invested around Rs. 5000 from the amount he received after sale of goat kids to establish a food stall business. Annual income from the food stall was to the tune of Rs. 1,08,000. The cost economics of the intervention has been provided below. In the absence of the HRDP intervention, the net benefit from the intervention would have been comparatively less while the initial investment would have been very high.

Vijay stated that the assistance was provided timely and suited his needs. Further, he commented that the HRDP intervention provided him with a stable source of income because of which he may not have to out-migrate to cities for work and he can stay with his family.

Cost economics of the Goat farming intervention of HRDP

Particulars	Amount (in Rs.)
Costs	
Financial assistance under HRDP programme	20,000
Initial investment in purchase of goats	20,000
Total expenditure on fodder, veterinary services and medicines	16,000
Amount invested in establishing the food-cart	5,000
Expenses on food material	10,000
Earnings	
Amount earned after sale of kids annually	24,000
Annual earnings from food-stall	1,08,000
Total earnings	1,32,000
Net Benefits after accounting in the financial assistance under HRDP	
Net benefit in the first year-(Earnings-Costs excluding financial assistance under HRDP programme)	71,000
% of net benefit in the first year	158%
Net Benefits after excluding the financial assistance under HRDP	
Net benefit in the first year (without accounting for the financial assistance under HRDP) - (Earnings-All Costs)	61,000
% of net benefit-without assistance under HRDP	85.9%
Net benefit from second year onwards	
Annual earnings from second year	1,32,000
Annual expenses from second year	31,000
Net benefits from second year onwards	1,01,000
% of net benefit from second year onwards	325.8%

4.4 Health and Sanitation

Health and sanitation are essential components contributing to rural development. In the programme villages, diverse interventions for improving health and sanitation were carried out. The time period during which the project interventions took place is 2018-2021. Mapping of the villages was done in the initial phase which was later followed by the execution of the programme. The programme was disrupted in the year 2020 when the pandemic hit as social gatherings were completely prohibited. During the designing of the project, it was observed that women were less aware of the various aspects related to health and hygiene. The intervention focused on creating awareness by organizing health sessions for women to help them adopt better health practices.

Table 7: activities under health and sanitation in Maharashtra

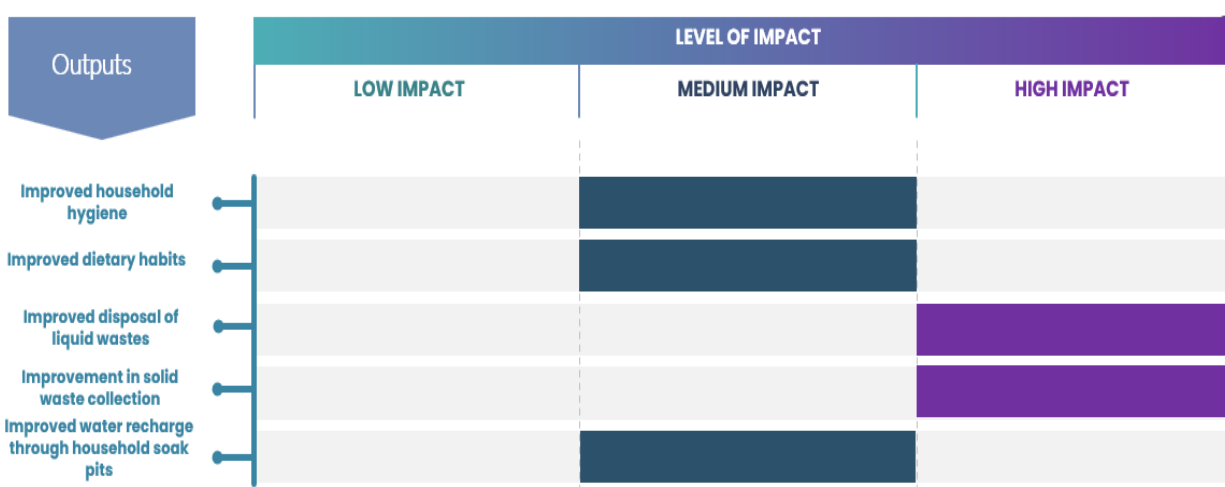
Activity Category	Activities
Health	<i>Health-related awareness input session for women</i>
Sanitation	<i>Construction of household wastewater soak pits</i>

The activity-wise number of beneficiaries covered during the study is given in the methodology and sampling section. Further, relevance, effectiveness, and sustainability for activities under Health and Sanitation will be discussed in detail.

4.4.1. Effectiveness and Impact

Under HRDP, efforts were undertaken to advocate for the importance of sanitation and hygiene practices so that the incidence of neonatal deaths, maternal undernutrition, or infectious diseases could be avoided. The health and sanitation interventions in the project area aim to improve health-seeking behaviour among disadvantaged sections of the community.

Figure 18: An overview of project impact and effectiveness in health and sanitation (*based on qualitative study*)



According to the qualitative findings, as part of the interventions under HRDP, health awareness input sessions were organized where women were made aware of the importance of frequent health checkups, menstrual hygiene, the importance of a balanced diet during pregnancy, pre-natal and post-natal checkups, and the importance of institutional delivery. **The discussion on menstrual hygiene helped reduce the stigma, harassment, and social exclusion women faced during menstruation and also encouraged them to better access the materials and facilities they need**

from the public systems (like schools for adolescent girls). With regard to maternal care, the programme helped guide pregnant women to referral facilities, as also as antenatal care and child checkups that could help identify postnatal infant danger signs.

Under the intervention, trained medical personnel visited the project villages, where they organized sessions on the various components of women’s health, encouraged them to adopt healthy practices such as the use of sanitary napkins, discussed various health issues women face, and tried to motivate the community to improve its health seeking behaviour. In these sessions, women were taught to live with dignity and to openly discuss the issues without any awkwardness.

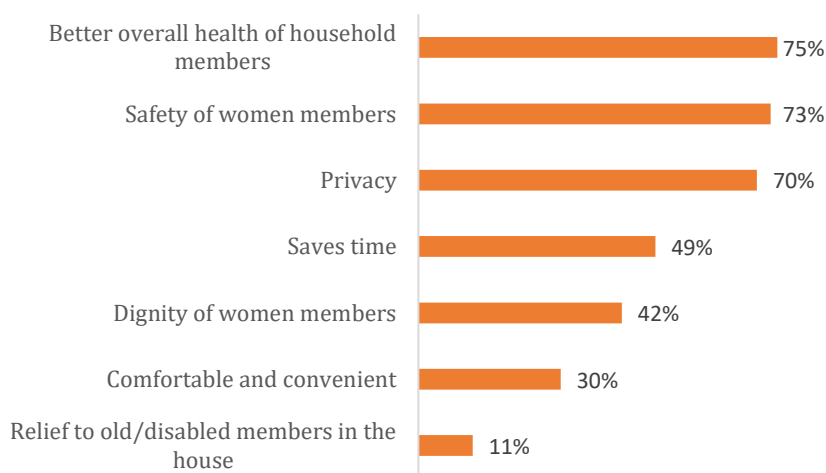
Through the project interventions, there is a considerable improvement with regard to a better understanding of the health issues in the villages. Beneficiaries reported that the information given through the health input session **helped pregnant women in the community by improving awareness of health practices and improving confidence to openly discuss the health issues they faced.**

Health camps

The work on the theme of health focused on knowledge, information, awareness, precautions, preventive measures, routine check-ups, timely access to health services, proper treatment, and aftercare. The various levels looked at were the individual, family, and community. Preventive aspects like a balanced diet, nutritious food, food for growing children, etc., were addressed at the household level while at the community level the thrust was on improved public health through clean drinking water, pollution-free environment, waste management, wastewater management, use of toilet, open defecation free village, etc.

Construction of household wastewater soak pits

Figure SEQ Figure * ARABIC 19: Benefits of sanitation services

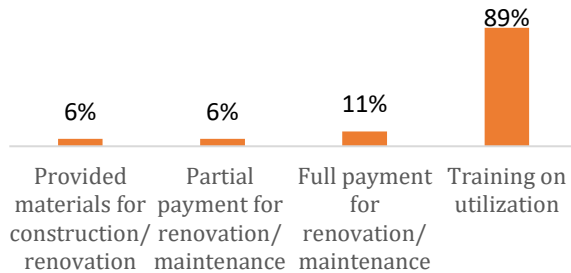


In the project villages, poor standard of sanitation could be a reason for the prevalence of vector-borne diseases. The stagnation of wastewater near houses led to unhygienic conditions, which makes it a perfect breeding ground for mosquitoes. This increases the spread of diseases such as malaria. The most important objective of the construction of soak pits in the villages is to improve the hygiene conditions in each village.

The construction of soak pits also helps in the recharging of groundwater aquifers in the villages. The construction of soak pits under HRDP was in line with the initiatives and programs undertaken by both central and state governments to ensure hygiene and sanitation in villages. Under HRDP intervention, household water soak pits were constructed in each village, averaging out to ten soak pits per village. The soak pits were constructed to safely dispose of wastewater or unusable water in 2018. For the

construction of soak pits, either respondent received support from the HDFC bank in terms of tools or construction materials or partially funded the activity.

Figure SEQ Figure * ARABIC 20: HDFC Bank support for sanitation unit

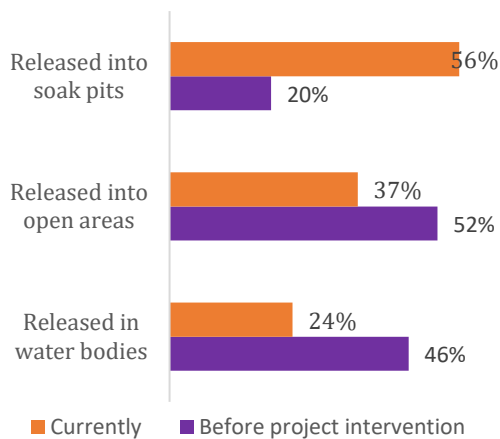


The soak pits constructed on average were three to four meters deep. The soak pit is filled with gravel so that when effluent is discharged, the filler material filters the water and other organic material. Whatever water is flowing into the soak pit is subjected to filtration as organic particles settle down at the bottom. Thus, filtered water then gets soaked into the surrounding soil which recharges the groundwater aquifers in the villages.

Soak pits are best suited for soils having high absorption or infiltration rate. The construction of soak pits proved to be beneficial for the sample villages as it recharged the groundwater and reduced the infestation of vector-borne diseases.

The quantitative survey indicates that the benefits of sanitation services as per respondents are – a relief to old/disabled members in the house (11%), saves time (49%), comfortable and convenience (30%), privacy (70%), the dignity of women members (42%), the safety of women members (73%) and better overall health of household members (75%).

Figure SEQ Figure * ARABIC 21: Disposal of liquid waste before and after the project



Most people were of the view that the soak pits purify the collected wastewater to some extent and serve as a partial treatment unit. They stated that the soak pits if maintained properly allow the discharge of relatively clean water to the ground. A pre-post analysis of disposal of liquid waste before and after the project indicates that (a) 56% of liquid waste is released into soak pits against just 20% of respondents who did so before the project (b) 52% of respondents stated that they released liquid waste into open areas before the project while this has reduced to 37% now (c) 46% respondents stated that they released liquid waste into water bodies before the project while this has reduced to 24% now.

Figure 22: Respondents on where they learned about the liquid waste management



4.5 Promotion of Education

The work of HRDP in promoting education aligns with the Sustainable Development Goal (SDG) 4, which aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”⁷ In the assessed programme clusters, HRDP is working on promoting quality education through infrastructure improvements and various other activities as listed below:

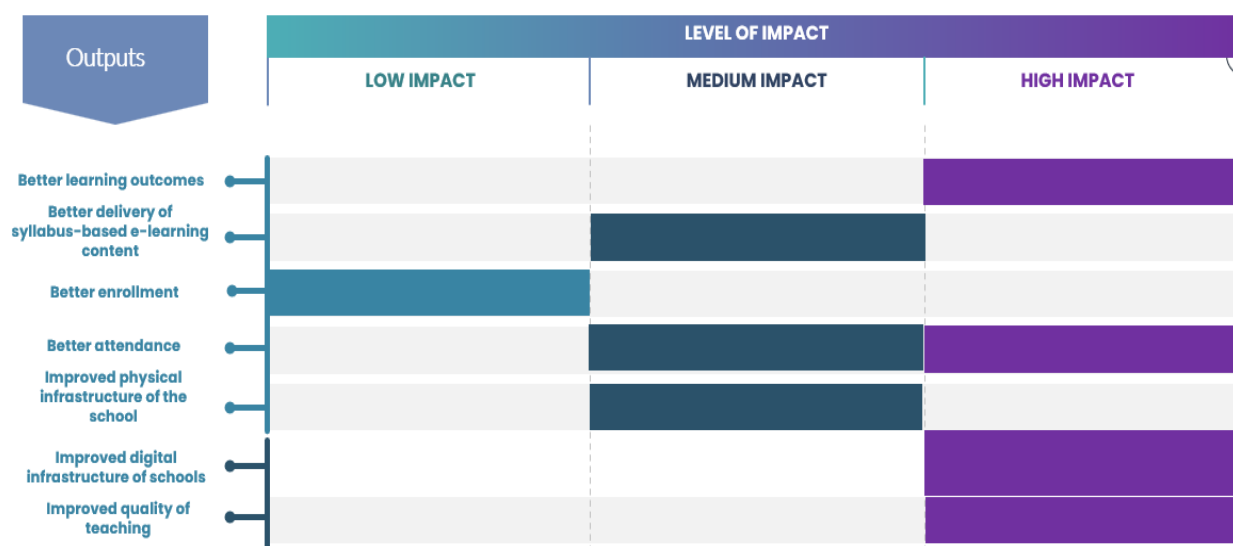
Table 8: Activities under Education in Nashik

Activity Category	Activities
Educational Institutions Development	Educational paintings, school repair work, Installation of school library-providing cupboards and books, smart class/ <i>parivartan kaksha</i> (solar-powered digital screen), Installation of drinking water posts/RO filter
Awareness Generation	Computer education training for teachers, WASH session for students

The activity-wise number of beneficiaries covered during the study is given in the methodology and sampling section. Further, relevance, effectiveness, and sustainability for activities under Education will be discussed in detail.

4.5.1. Effectiveness and Impact

Figure 23: An overview of project effectiveness and impact on education (based on qualitative study)



Educational Institutions Development

The intervention under HRDP has resulted in achieving better learning outcomes in school due to the upgradation of physical infrastructure facilities. The improvement in the facilities has been by way of renovating the school, making learning more joyful by means of educational paintings, installing of RO filter for access to clean drinking water, and making classrooms digital. Under the intervention, only primary schools were targeted.

⁷ Sustainable Development Goal 4 (SDG 4) | Education within the 2030 Agenda for Sustainable Development (sdg4education2030.org)

Image SEQ Image * ARABIC 10: Educational paintings, Nave Nirpur village, Nashik



Prior to the intervention of the programme, there were no smart classrooms or digital screens in any of the villages. Smart classrooms were set up in the schools to achieve better learning outcomes.

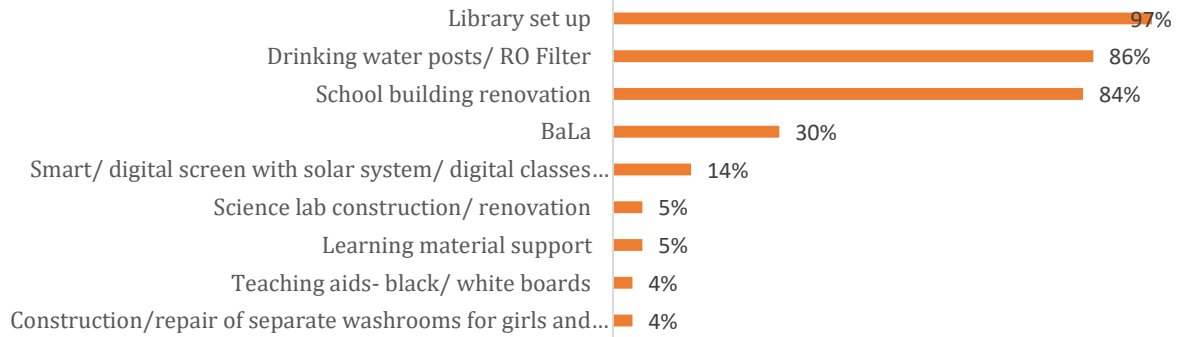
Under the intervention, along with a digital screen that is completely solar-powered, the school received a projector, a solar kit, two batteries, and an inverter. Engaging audio-visuals made parivartan kaksha a successful intervention as students became more interested in learning new courses. Teachers reported that they were able to deliver the courses in a more efficient manner after the intervention and believed that the quality of teaching has certainly enhanced. With the help of computer education given to teachers, now they are able to make the sessions more interactive with the help of PowerPoint presentations.

Image SEQ Image * ARABIC 11: Installation of RO Filter, Mulane, Nashik



Under this initiative, HDFC Bank is working to create digital classrooms in government schools. IT infrastructure such as desktops and projectors has been installed in classrooms to deliver syllabus-based e-learning content. Further, the Bank has also trained teachers to use the digital infrastructure.

Figure SEQ Figure * ARABIC 24: School facilities provided under HRDP



Smart classrooms enable technology-in-education to provide an interactive learning environment in the school. At the core of it is a multimedia device that acts like an educator's tool making learning engaging and interactive, designed with a teacher-centric approach to support blended and participatory teaching methodologies.

Digital classrooms make learning fun for children and also help teachers acquire modern techniques. Going forward, HDFC can plan to digitize more such classrooms in the district in partnership with the state education board.

However, during the qualitative study, there were some issues that emerged regarding smart classrooms. The teacher reported that once the solar panel was installed under the intervention, no service was provided for its operation and maintenance. Due to the lack of technical know-how amongst teachers on how to fix small issues, maintenance of solar panels has become a bottleneck.

From qualitative discussions, teachers reported that the intervention has helped in improving learning outcomes. The WASH session has created awareness amongst the students with respect to health and hygiene practices. After the demonstration, students have been actively following the hygiene practices and the school has reported better attendance.

Table 9- Perceived benefits of education intervention

Perceived benefits	Lessons are more interesting	Lessons are easier to understand	Syllabus covered faster	Lessons are easier to remember
Intervention				
Science labs	100%	67%	67%	67%
Smart class	100%	87%	75%	37%
Drinking water posts	30%		36%	80%
Classroom furniture	100%	40%	100%	
BaLA	80%	60%	80%	100%
Separate washrooms	100%		45%	80%
Other	100%	35%	100%	67%

4.6 Sustainability and Replicability

Under this thematic intervention, the project support provided demonstrated the capability to continue even after the program ended. The project's support to sustain improved farm income, agriculture water management, livestock management, adoption of clean energy, shade net, and trellis vegetable cultivation outcomes.

Support provided for setting up of the micro-enterprises such as chicken shops, welding shops, and puncture or tailoring shops has resulted in economic empowerment of the weaker section who was working as agricultural labors before the intervention. Since the quality of material support provided was satisfactory, the micro-enterprises established would ensure the sustainability of the intervention.

In terms of sustainability, while the programme focused on the need to shift to sustainable menstrual products, the issue of poor access to sanitary products remains as only awareness generation sessions were conducted as part of HRDP intervention in the project villages. Since, sanitary products cannot be easily availed in rural areas, despite having adequate knowledge and information, women continue to follow old practices for menstrual hygiene. Disposable pads being costly, women in the project villages mostly use traditional cloth while menstruating. While it is necessary to encourage women to shift away from traditional practices on grounds of hygiene, there is a need to also explore more sustainable options that are cheaper such as menstrual cups and reusable pads.

The sustainability of the support provided has been considered in terms of establishing structures, technical know-how, usage, and maintenance. The interventions in education have performed well in most aspects of the programme, which has resulted in creating a conducive environment by achieving improved sanitation facilities, use of smart classrooms for better delivery of courses, using computers for doing administrative work, upgraded infrastructures, and even the installation of RO filter. All these have had direct positive results and have encouraged higher attendance and enrollment

However, some of the intervention outcomes do not seem to be sustainable. The hand wash stations established in some of the schools were not functional as it has no water supply. In the case of parivartan kaksha which has a solar-powered digital screen, teachers lack the know-how on the maintenance of solar panels installed. Improvements in this aspect will have a direct positive impact on this thematic intervention.

4.7 Holistic Rural Development Index (HRDI)

HRDI is a composite index developed to measure and rank the clusters and thereby the NGO partners based on their performances on key outcome indicators across these domains. HDFC Bank in its document explaining HRDI stated that since the aim of HRDP was to achieve holistic rural development through a multitude of interventions that would lead to overall improvements across related dimensions and therefore the programme introduced significant variability in the interventions. Therefore, it was not possible to ascribe a single impact indicator that might be able to accurately, capture the overall performance of HRDP.

Since the aim of the index was to create comparability across the various clusters, similar indicators were used for the calculation of HRDI in the project area in Nashik, Maharashtra.

Based on our calculation, the HRDI for the studied clusters is presented in the table below, since the programme did not have an available baseline, the baseline was captured through recall during the study.

The index indicates an improvement in various indicators in the project area over the baseline. Typically, HRDI comprises nine key performance indicators selected from the four domains of focus of the HRDP. The indicators selected were based on their relative contribution to the final expected outcome across all domain-wise interventions. Most of the indicators were found to be relevant for the study in Maharashtra but some needed modifications in accordance with the programme and also in accordance with the study design and information collected.

Table 10: Holistic rural development index for Maharashtra project

Domain	NRM ⁸		Skill and Livelihood		Health and Sanitation		Education		Overall HRDI	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.04	0.05	0.08	0.13	0.10	0.17	0.19	0.20	0.27	0.40
% Change	25%		63%		70%		5%		50%	

Health and sanitation performed better among all other thematic areas due to the intervention that led to better awareness about the health issues in the villages. The construction of wastewater soak pits considerably reduced the infection of vector-borne diseases such as malaria. The improvement in the hygiene condition in each village and a better understanding with regard to health are essential factors contributing to improved health and sanitation practices in the villages. Under the thematic area- of skill and livelihood, the intervention focused on setting up micro-enterprises, strengthening the SHG, and organizing the farming community so that they could better access the market information. This has resulted in the economic empowerment of the beneficiaries from the weaker section. Development of educational institutions such as setting up of a library, installation of RO purifier, and Upgradation of physical infrastructure in terms of providing solar-powered digital screens or Parivartan kaksha, has led to visible positive outcomes. The interventions successfully worked towards the larger goal of providing quality education to empower the vulnerable sections of society.

⁸ The HRDI calculation excludes two indicators i.e. a) Proportion of farmers reporting access to irrigation and b) Area under irrigation (acre) as the adaptation by beneficiaries was low.

5. Conclusion

Based on the observations and analysis of primary and secondary information presented in the report, the study presents the following conclusions:

- High-value horticulture crops and vegetable cultivation have been promoted under the programme by means of shade net, trellis vegetable cultivation, and crop diversification. Farmers have benefited from these interventions in terms of an increase in income and crop productivity. There has been observed increased area under cultivation through shade net installation after the intervention. The interventions taken up under livestock management benefitted the respondents by improving livestock health in the project clusters. To ascertain the sustainability of the intervention, post-follow-up of the project is important.
- The programme theme aimed at achieving women's empowerment by developing self-sustaining, community-led savings and credit institutions and increasing socio-economic empowerment of women at household and community levels. The qualitative study found that the women participating in the program did report greater economic empowerment and an improvement in status/ quality of life and their overall agency. The quantitative study indicates that women who set up small-scale enterprises reported an improvement in savings (above Rs. 90000); some women also reported greater access to formal credit through banks. The women have reported enhanced savings due to the program.
- The sustainability of the program can be ensured only by strengthening the institutions created ensuring that these are capable of dealing with risks and uncertainties. The convergence support of GoM's programme 'Umed' is an effective strategy. The project could move in a direction where it creates decent quality employment based on the creation of micro and small enterprises as it continues to strengthen the backward and forward linkages.
- Participation from the farmers and community for agriculture-based training has been challenging across the clusters, as the farmers reported that they are busy with agricultural work throughout the day or are not willing to travel a distance for such training. This often leads to a cost for the programme if the batch size is small. The work on skill development of the farmers mainly through agriculture training to improve their skills and knowledge in areas like field preparation, sowing, planting techniques, more efficient irrigation practices, pesticides, crop rotation, improved storage, and other post-harvest practices could have been scaled up and linked to clear-cut outcomes through a 'training of trainer' model or 'farm field school' model to increase the outreach and effectiveness.
- The programme had established a drinking water facility in the schools, however, a maintenance fund under the school committee is required for better maintenance and upkeep of the facility created. The intervention in soak water pits has reduced the prevalence of vector-borne diseases in the project area. Women have become more aware of menstrual health and hygiene practices after the awareness generation session conducted under the intervention
- Teaching aids have changed the relationship between teacher and learner and have the potential to be more than a medium for the transmission of knowledge. But this needs to be backed by new skills, competencies, and attitudes among teachers who are going to design and develop materials and support learners using these aids. It is not enough to establish the basic infrastructure, it has to be consistently maintained and upgraded. In the Nashik project, it has been observed that smart classes were not operated to the optimum due to a lack of technical know-how.

5.1 Summary of findings

A central thrust of the HDFC project was to strengthen and enable women's group-based institutions such as self-help groups to promote savings and build productive assets of their own. The project tried to build the skills of the members and helped them develop their capacities to gain a voice in local governance institutions, and better negotiate for improved services with the strength of the group behind them. For this, while new SHGs were set up, rebuilding existing defunct SHGs into robust grassroots institutions of their own was also done by providing them with necessary inputs and developing further linkages with banks and convergent initiatives. A total of 33 SHGs have been formed and revived and training undertaken during the project implementation period. This was done through convergence support of GoM's programme 'Umed' whose core strategy is to build vibrant community institutions of rural poor household women, which through member saving, internal loaning, regular repayment, and economic activities become self-managed institutions. The idea was also that the SHG once formed as a primary-level community organization, could be federated at a higher level at a later date to become social service providers, business entities, and valued clients of the banking system.

The project tried to seed the concept of FPO formation to organize the farming community so that they could access information about the market, consumer preferences, quality standards, marketing outlets, costing, inputs, organic inputs, etc. Based on the produce to be aggregated, the farmers could decide on the cropping patterns, input application scheduling, water management, harvesting, storage, and organized bargaining and marketing. This could provide end-to-end support and services to the small farmers, cover technical services, marketing, processing, and other aspects of cultivation inputs, and bring the farmers together. The skills and expertise of the farmers would also get a boost, but most importantly they would get support for marketing. An exposure visit of the FPO was planned to an already working FPO so farmers could be informed of the structure, working, roles and responsibilities, etc., related to FPOs.

The health camps and the awareness generation sessions under HRDP intervention very well align with the state intervention in terms of creating awareness about nutrition, health practices, and the importance of a balanced diet. It also aligns with the priorities under Sustainable Development Goals (SDG) 2 and 3 targets such as universal health access, increasing health financing, and removal of malnourishment among others. The work of HRDP in promoting education aligns with the Sustainable Development Goal (SDG) 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."⁹ In the assessed programme clusters, HRDP is working on promoting quality education through infrastructure improvements and awareness generation activities.

5.2 Recommendations

Based on the observations and analysis of primary and secondary information presented in the report, the study recommends strategies for the program to meet the desired outcomes better.

- A system may be put in place to ensure a check on respondents on the difficulties being faced and any additional soft interventions that may be required for them to carry on the activities after project completion, by the adoption of different farming practices that were promoted through on-field demonstrations and farm field schools (FFS). Adoption of agricultural practices and shift from traditional practices amongst farmers require time. Hence, from time to time dissemination of information on farming techniques and innovative methods of farming backed by expert advisory in future interventions would ensure sustainability in the adoption of these practices.

⁹ Sustainable Development Goal 4 (SDG 4) | Education within the 2030 Agenda for Sustainable Development (sdg4education2030.org)

Along with the promotion of high-value horticultural crops, market linkages would have ensured better price realizations for farmers and tangible impacts. Since the traditional channels are long with a large number of intermediaries, the share of farmers in consumer prices is comparatively lower. Activities around connecting farmers directly to consumers or linking them to smaller market channels would have impacted farmers' share in consumer prices. Further, promoting post-harvest techniques for collection and storage would have impacted the shelf-life and quality of products

- The planning and sequencing of skill development of institutions are crucial for the sustenance of the programme outcomes. In setting up women's SHGs, the study indicates that a future programmatic intervention can create a three-tiered institution of SHGs, VOs, and federations that are self-sustaining and community-led. The institutional structure created under the program can be made more robust and there are immense opportunities for (a) broadening the leadership base of the institutions, and (b) making savings-based financial resources available for lending at all levels. Some critical processes can be put in place to ensure that the institution remains vibrant and sustained over time. The efforts include strong capacity-building measures, developing an effective cadre of women to provide handholding support to the groups to expand institutional outreach by having a viable revenue model, developing a robust grading system (comprehensive in its approach, incentives, and punitive measures) for the members at the SHG level for all the 33 SHGs that were created, and putting in place some process related innovations that can contribute to the success of the credit and savings program, like innovative management of the cash box and data entry using tablets.
- As the soak pits entail recurring operation costs, options for convergence with government schemes should be looked at in close consultations with the community and respective sarpanch of the village. An agreed plan of action for the community may be prepared to ensure sustainability.
- Appropriate technical knowledge needs to be ensured to operate smart classes, and also to optimize the use of educational aids. An asset maintenance fund/ committee needs to be established in the programme-supported schools to ensure the necessary maintenance of supports such as - drinking water posts and smart classes. Proactive convergence with ongoing schemes of the government will ensure efficient use of resources.

6. Annexures

6.1 Detailed Activity list

Sl No.	Focus area	Category	Sub-category	Activity	Beneficiary Type
1	Promotion of education	Educational Institutions Development	Infrastructure - Infrastructure renovation	Educational paintings, school repair work, installation of school library- providing cupboards and books, installation of drinking water posts/RO filter, Smart class/parivartan kaksha (solar powered digital screen), Computer Education training for teachers, WASH session for students	Students and teachers
2	Health and sanitation	Sanitation	Community health session, Construction/ Renovation	Health awareness input session for women, construction of waste water soak pits	Community
6	NRM	Farm Management	Crop Diversification	Demonstration of methods of crop diversification	Farmers
7	NRM	Farm Management	Farm technique - Other	Trellis vegetable cultivation, shade net development	Farmers
8	NRM	Farm Management	Farm technique - Other	The farm field school, construction of vermicompost pits, application of organic manure	Farmers
9	NRM	Clean Energy	Solar street lights installation	Installation of street solar lights/ solar home lanterns	Farmers
10	NRM	Water Management - Agriculture	Irrigation method - Other	Construction of check dam	Farmers
13	Skill development and livelihood enhancement	Skill Training	Skill Training	Training cum entrepreneurship development support to youth and women	youth and women
14	Skill development and livelihood enhancement	Entrepreneurship Development	Goatry	Development of Goat breeding farm.	Farmers
16	Skill development and livelihood enhancement	Entrepreneurship Development	Poultry	Development of poultry farm model	Farmers
19	Skill development and livelihood enhancement	Entrepreneurship Development	Other Small business	Welding shop, chicken shop, and tyre puncture shop	Individual

6.2 Sampling methodology

6.2.1 Quantitative sample size calculation

For this study, the formula for calculation of finite sample size for a 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 the 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

In this cluster, twelve intervention villages were selected for the study.

Stage 1 – Selection of villages

All the intervention villages were selected as sample villages. Samples from each village were selected by using Probability Proportionate to Size (PPS) sampling method. Care was taken to cover the maximum sample from the villages that have received a maximum number of interventions in order to get appropriate coverage of all components of the program.

Stage 2 – Selection of beneficiaries

The list of beneficiaries was obtained from the implementing partner - Sanjeevani Institute for Empowerment and Development (SIED). Since beneficiary selection was undertaken independently for each programme, the selection of more than one beneficiary from a single household was probable. Also, there have been instances where a single beneficiary received multiple support for the intervention.

6.2.2 Qualitative sample size calculation

Qualitative tools of In-depth Interviews (IDI) and Focus group discussions (FGD) were administered for obtaining information about the remaining themes as well as to 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 happened over time. For this purpose, the respondents were asked to recall the value of critical indicators at the start of the program.

6.3 Sustainability thematic matrix

Support provided	Structures established	Technical Know-how	Usage	Maintenance
<i>NRM</i>				
Construction and repair of check-dams	✓	✓	✓	✓
Distribution of shade net structures	✓	✓	✓	✓
Trellis Cultivation	✓	✓	✓	✓
Crop Diversification, Farm Demonstration, and Farm Field Schools	✓	✓	✓	✓
<i>SKILL TRAINING AND LIVELIHOOD ENHANCEMENT</i>				
Livestock Management	✓	✓	✓	✓
Distribution of solar home lanterns	✓	✓	✓	✓
Distribution of Street solar light	✓	✓	✓	✓
Promotion of micro-enterprises	✓	✓	✓	X
Strengthening of SHG	✓			X
<i>HEALTH AND SANITATION</i>				
<i>Health awareness input session for women</i>		✓		
<i>Construction of waste water soak pits</i>	✓	✓	✓	✓
<i>EDUCATION</i>				
Educational paintings, school repair work, installation of school library-providing cupboards and books, installation of drinking water posts/RO filter	✓	✓	✓	✓
Smart class/parivartan kaksha (solar-powered digital screen),	✓	✓	✓	X
Computer education training for teachers,	✓	✓	✓	✓
WASH session for students	✓	✓	✓	✓

6.4 HRDI Methodology

The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators 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

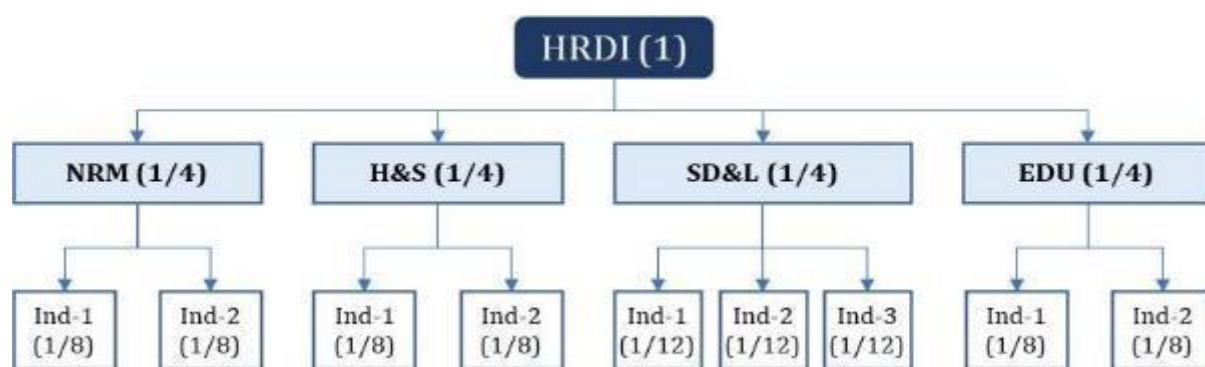
indicators at baseline was chosen as the cut-off point. **Thus, a change in the indicator could be captured by recording the proportion of beneficiaries above the cut-off at two distinct points in time.**

Indicator Weights

Weights were applied to each of these indicators, along similar lines to the HRDI calculation. Attribution of equal weights to all the domains was done in order to create a standard HRDI.

Equal weights were assigned to each of the four domains. Further, the domain weight was equally distributed among the indicators of that domain; thereby ensuring that equal weightage of the domains was maintained overall.

DOMAIN AND INDICATOR WEIGHTS¹⁰



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.

Project X

Natural Resource Management	Average net income from farming	$(1/4) \times (1/3) = 0.083$
	Percentage of farmers reporting access to irrigation	$(1/4) \times (1/3) = 0.083$
	The area under irrigation (Ha)	$(1/4) \times (1/3) = 0.083$
Health and Sanitation	The average number of months with access to adequate drinking water	$(1/4) \times (1/3) = 0.083$
	Percentage of households with access to an improved toilet facility	$(1/4) \times (1/3) = 0.083$
	Percentage of households utilizing soak pits	$(1/4) \times (1/3) = 0.083$

¹⁰ NRM: Natural Resource Management | H&S: Health and Sanitation | SD&L: Skill Development and Livelihoods | EDU: Education

Livelihoods and Skill development	Average monthly income of household from Livestock (INR)	$(1/4) \times (1/3) = 0.083$
	Average monthly income from enterprises (INR)	$(1/4) \times (1/3) = 0.083$
	Average monthly income of SHG women from enterprise (INR)	$(1/4) \times (1/3) = 0.083$
Education	Percentage of students reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, etc.)	$(1/4) \times (1/2) = 0.125$
	Percentage of students reporting increased access to functional learning infrastructure (library, science labs, learning aids, etc.)	$(1/4) \times (1/2) = 0.125$

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 proportion, the HRDI value numerically ranges between 0 and 1.

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

Step-9: Calculated the percent change for each of the thematic areas and the overall HRDI score.

Domain	Indicators	Baseline	Weight	HRDI	Endline	Weight	HRDI	% Change
NRM	The proportion of farmers reporting net farm income above baseline median.	49.50	33%	0.04	54.80	33%	0.05	25%
H&S	The proportion of households utilizing soak pits	19.00	50%	0.10	56.00	33%	0.17	70%
H&S	The proportion of households with access to improved toilet facilities.	59.00	50%		80.00	33%		
Skill	The proportion of livestock owners reporting average monthly livestock income above baseline median.	50.00	25%	0.08	68.00	25%	0.13	63%
Skill	The proportion of members reporting entrepreneurial activities undertaken by SHGs	11.00	25%		49.00	25%		
Skill	The proportion of beneficiaries reporting a monthly income of SHG from enterprises above the baseline median.	17.00	25%		25.00	25%		
Skill	The proportion of beneficiaries reporting monthly income from enterprises above the baseline median.	46.00	25%		73.00	25%		
ED	The proportion of teachers reporting increased access to functional school physical infrastructure (drinking water posts, libraries, Bala,.)	75.00	50%	0.19	92.00	50%	0.20	5%
ED	Percentage of students reported conducting sanitation, hygiene, and cleanliness awareness generation session	77.00	50%		70.00	50%		
