

Impact Assessment Study Of Holistic Rural Development Programme (HRDP) Madhya Pradesh



Prepared For:



HDFC Bank CSR

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An Intellicap Subsidiary

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Executive Summary

The study centres on measuring the impact of the Holistic Rural Development Programme (HRDP) of HDFC Bank that was **implemented by Abhyuday Sansthan in the Sagar district of Madhya Pradesh**. This study largely focused on understanding the overall process that the HDFC Bank and the implementing organization undertook in carrying out the programme activities, the key milestones achieved, the impact created by these activities, and the challenges faced. The **key focus areas of the intervention were Natural Resource Management, and Skill Training & Livelihood enhancement, Health and Hygiene and Education**. The framework used for the impact assessment was an adaptive version of the DAC criteria - Relevance, Effectiveness, and Sustainability. **A comprehensive methodology, comprising both primary and secondary data collection, was used for the assessment** which was carried out in a participatory manner involving all the key stakeholders of the programme. The study included a **sample size of 404** project beneficiary households as respondents as against the planned sample of 400.

NRM: Increasing agriculture productivity and farmers' income was one of the major objectives of the programme as farmers had a relatively marginal size of land, with limited access to modern agricultural engineering and technology, and unassured irrigation measures. Thus, as a result of the support in seeds, and farm inputs, an **86% increase in the net median income** of farmers was observed. The reasons accredited for the increase were mainly the programme's support in seeds and tools (60%), farming techniques (32%), organic farming (57%), irrigation (53%), soil testing and land treatment (38%). However, favourable weather (59%), and market prices (85%) played an important role in influencing income. However, **the majority of the respondents mentioned market prices (69%), and increased area under cultivation of crops (40%), as other reasons for an increase in income** since the inception of the programme.

Respondents have reported **an increase in the median productivity of the major crops grown in the area, which are wheat, gram, tomato, and onion**. The reason for this could be attributed to two main interventions: seed distribution and irrigation. The interventions such as distribution of better yielding seeds and improvement in irrigation through check dam repairs, lift irrigation and drip irrigation gave more yield from the same land. Further, **there has been a 6% increase in the average irrigated land of the area. The solar street lights installed in the programme villages have benefited 97% of the community**.

Skill Training and Livelihood Enhancement: In order to tackle the problem of low crop productivity and limited returns, the programme trained farmers on improved packages of practices and formed farmer collectives. **HDFC Bank training has made the farmers aware of sustainable farming practices**. Through the HDFC intervention, 91% of households have reported that they learned about the application of organic manure, timely application of fertilisers and insecticides (75%), **construction of vermipits (70%) and conservation agriculture practices (70%)**. 75% of households reported that they have attended sessions on nature farming-training, 67% on farm techniques training, 16% on PoP training and 6% of households have taken part in SRI training. The exposure visit was attended by 48% households and field school was attended by 64%. The perceived benefits of these programmes have been that they **improved productivity as reported by 81% of attendees. After adopting these techniques, 75% of farmers reported an increase in income**. The median income increase after adopting these practices has been Rs 30,000 per

household. Only 4% of the respondents benefitted from skill training and entrepreneurship development. Those reported being part of entrepreneurship development have set up sanitary pad unit, tailoring unit, flour mill and *papad* making unit. With the exception of tailoring unit, the rest of the enterprises are joint ownership. They have reported a median increase of Rs 7200 annually.

Health and Sanitation: The challenges faced by the community in terms of accessing safe drinking water, household toilets and awareness regarding health and hygiene management were recognized by the programme. The programme had a component to create health awareness among the people, and **30% of the respondents have received health services**. Around 30% of the respondents are beneficiaries of this intervention. Of this, 91% have attended a hygiene related health session and 71% have availed of health services in the form of health sessions, and 11% got help attending a health clinic. 74% of respondents surveyed stated improvement in physical activity as the prime benefit from the health sessions, 71% reported easy access to health services to women, 64% stated improvement in the health status of household members, and 63% reported the perceived benefit to be less spread of diseases.

The qualitative study shows that the **benefits are limited to awareness generation and not access to healthcare**, which shows scope for improvement. The community dustbins were installed at various points in the village, but they were not in regular use and did not have waste segregation compartments. A majority of the respondents were found using the produce from their kitchen gardens for self-consumption (88%), and very few were selling the produce. The data shows that a **median monthly amount of Rs 100 is reported to have been saved by the households due to kitchen gardens**.

Since programme villages experienced a shortage of safe drinking water, overhead tanks were set up in some villages along with piped water connections to cater to the demand for safe drinking water. **76% of the households have received benefits from drinking water interventions**. The majority (74%) of the beneficiaries have been consuming the water for about two years. **Field observation attests to the fact that the piped water supply is reaching the community, and members are extremely pleased with the intervention**. The change in the source of drinking water has brought about a change in the household with 70% of households reporting improvements in overall health. The drinking water interventions have greatly benefitted women, as 99% of the households reported that it saved time for fetching water.

Promotion of Education: A combination of multiple activities targeted towards improving enrolment, attendance, and learning outcomes were undertaken in the programme area. The programme heavily focused on equipping schools with infrastructure facilities. **30% of the respondents have reported that their child has benefitted from the interventions in school**. Of this percentage, 81% were benefitted by BaLA paintings, 74% by sports equipment distribution, 66% by drinking water interventions in school, 49% and 34% respectively through library set up and science labs. **All teachers interviewed have stated that they use science labs on most days and 40% stated they use smart class every day**. While 80% of teachers said that they did not have science lab in their school before the HDFC Bank project intervention, none of the schools surveyed had smart classrooms before the project. Even though there has been significant interventions in infrastructure development, the project has lagged in providing teacher training.

HRDI Indicators: For assessing the effectiveness of the interventions, the study has used the Holistic Rural Development Index (HRDI) developed by the programme. The HRDI is arrived at by defining key outcome indicators for each of the domains and developing a composite index. The **composite HRDI score indicated a positive impact at 0.42 for Sagar, Madhya Pradesh, indicating a 45% increase from the baseline HRDI score of 0.29.**

Table 1: Summary of HRDI Score for Sagar, Madhya Pradesh

HRDI Score	Baseline	End line	% change
	0.29	0.42	45%

Table 2: Summary of Key Income Indicators

Income indicators (based on median)	Before	After	% Change
Median net income from Agriculture (INR)	20,000	50,500	153%

Figure 1: Overview of Project Impact



1. Introduction

1.1 Background of the Study

Even with the massive strides in development that Indian society has undergone, the rate of poverty continues to be high with a large proportion of rural India engaged in agriculture with no stable source of irrigation. There also remains the threat of disguised unemployment due to a lack of non-agrarian work, lack of skill development, unscientific practices in healthcare, illiteracy and environmental degradation. To mitigate these developmental challenges, under its CSR initiative, the HDFC Bank supports programs to deliver holistic rural development and aid the growth and prosperity of the rural population. Within Parivartan, the “Holistic Rural Development Programme” (HRDP) is the flagship CSR program under which non-governmental organizations (NGOs) across the country are supported to undertake development interventions. The idea of these programs is to ensure the creation of prosperous and content communities by initiating sustainable socio-economic and ecological development. With its holistic approach, the programme caters to the needs of the communities by providing necessary inputs on issues like promoting economic independence through skilling and livelihood opportunities, providing basic infrastructural development, and establishing a better ecosystem that promotes better living conditions. By focusing on the development of human capital, the management of natural resources, and infrastructure in poor and backward villages, it plans to bring about a socio-economic transformation in the lives of the rural community.

In the assessed HRD programme, Abhyuday Sansthan was the implementing partner in 3 blocks of Sagar district of Madhya Pradesh in the Bundelkhand region. The programme covered a total of 19 villages across the blocks. The villages were divided into two clusters: Sagar and Bina. Sagar cluster consisted of 9 villages in Sagar block, while Bina cluster comprised of 11 villages in Bina and Khurai blocks. The major focus areas for the intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement, Promotion of Education, and Healthcare & Hygiene. However, the extent of the work in each village was undertaken based on the need and varied from village to village.

1.2 Partner Organization- Abhyuday Sansthan

Abhyuday Sansthan was set-up in 1997 in Uttar Pradesh (UP) to work in the community health sector. The NGO expanded its thematic areas by including other pertinent rural issues from eastern UP to the whole Bundelkhand and Malwa regions of Uttar Pradesh and Madhya Pradesh (MP). In 2017, it started its partnership with HDFC Bank’s CSR to implement integrated rural development practices, which are based on comprehensive sustainable development goals. **The Holistic Rural Development Project (HRDP) was initiated in 19 villages across 3 blocks in Sagar district of Madhya Pradesh with the support of HDFC Bank Ltd.**

The NGO seeks to establish a prosperous, healthy, just, and equal society through empowered community participation. It strives to ensure an integrated and sustainable socio-economic development of marginalised and deprived communities through empowerment and facilitation, thus enabling the community to lead a life of dignity and equality. Presently, the NGO focuses on women’s empowerment and livelihood promotion, COVID relief interventions, nutrition promotion, drought resilience, financial literacy, and elimination of vector borne diseases in targeted tribal villages.

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 how 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 ensued 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 and effectiveness of such programmes.

Figure 2 Conceptual Framework of Implementation

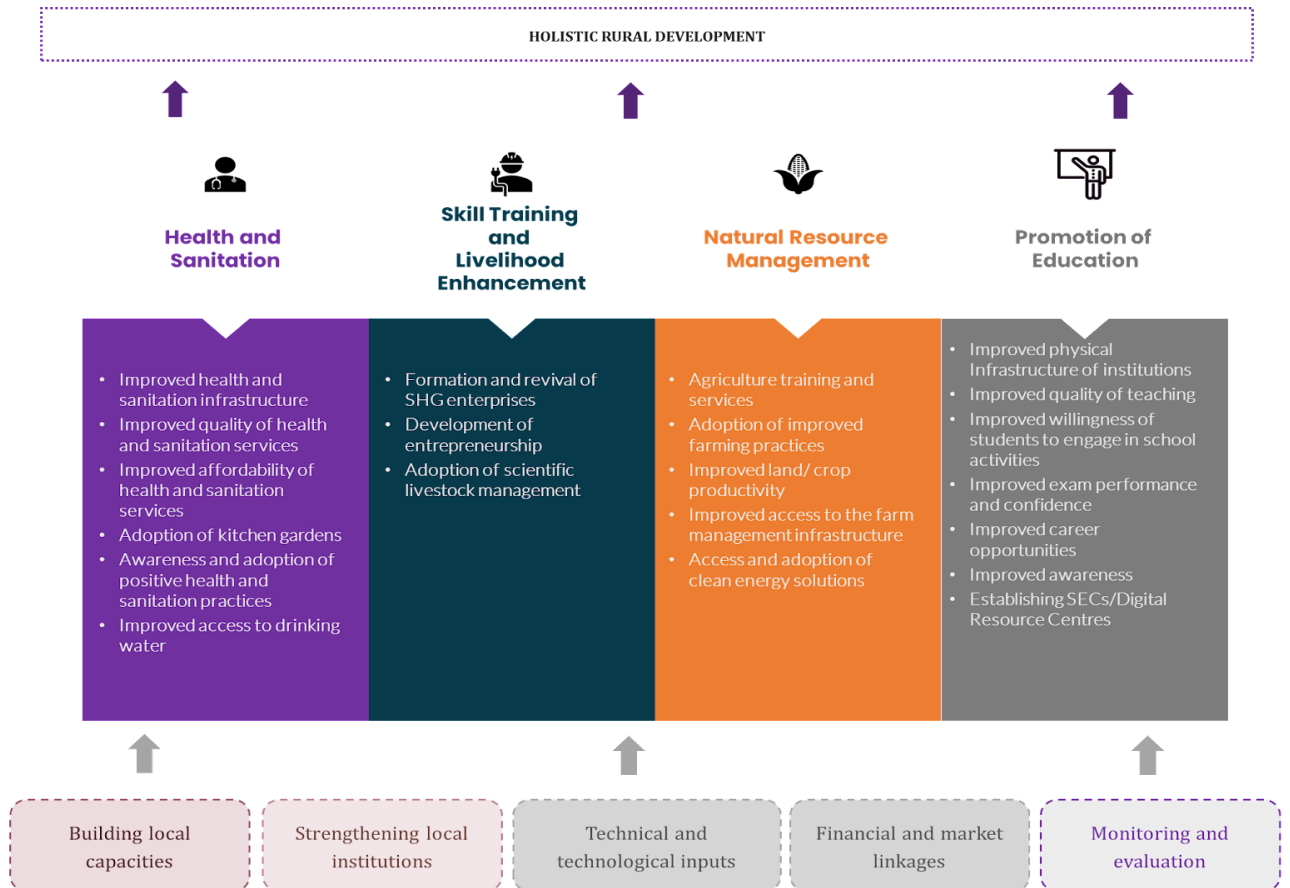
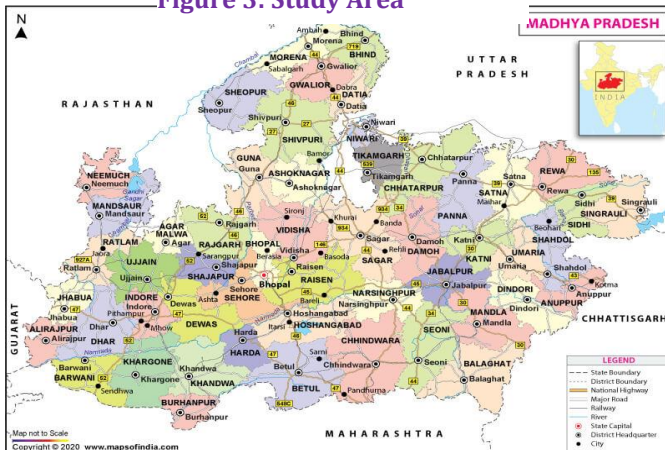


Figure 3: Study Area



The study was conducted in Sagar district of Madhya Pradesh, particularly in the 9 villages of Sagar block. As the challenges that people of these villages face are in the form of water security, poor hygiene and hygiene, and inadequate income from agriculture, the HRDP focused on promoting water and farm management in addition to clean energy under **Natural Resource Management**.

Further, the programme also focused on agriculture training and support, self-

help group (SHG)/women development, skill training, livestock management, entrepreneurship development under **Skill Training and Livelihood Enhancement**; educational institutions development and education support under **Promotion of Education**; health and sanitation and kitchen garden, under **Healthcare and Hygiene**.

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, and Sustainability and Replicability**. The evaluation process was carried out in a consultative manner involving interactions with both HDFC Bank and the Abhyuday Sansthan team 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 program were relevant to the local needs of the most vulnerable groups. The study has observed if there has been a convergence/ if the existing resources of the government had been used and whether different stakeholders involved have worked together to achieve the outcome of the program.

To assess the impact and effectiveness 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 area. 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 programme 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, 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 focus group discussions with program beneficiaries, the partner NGO, and the HDFC program team. The outcome mapping and result chain development were undertaken in consultation with the HDFC team. The exercise resulted in the identification of standardized key outcomes and indicators related to each of the program's thematic areas. Based on the standardized list of outcomes and outputs, the questionnaire for the project was developed.

2.2 Sample Size and Distribution

Quantitative sampling methodology

From the project area, 9 villages of Sagar block were selected for the study.

Stage 1 – Selection of villages

The 9 villages were chosen based on the intensity of interventions implemented by the partner NGO through a consultative process. Sample from each village was 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 programme.

Stage 2 – Selection of beneficiaries

The beneficiaries were selected using random sampling from the list of beneficiaries obtained from the implementing partner, Abhyuday Sansthan. 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. Care was taken to include all focus areas of intervention.

The sample size of 400 was covered, across all sample villages and thematic areas. 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. The sample covered during the field is as follows:

Table 3 Quantitative Sample Covered

Domain	Bhainsa	Dhana	Hanota	Majhguw	Majhguw	Masanjhir	Salaiya	Suwatala	Sultanpur
Natural Resource Management (Village-wise)	8	14	11	24	11	19	16	20	19
Skill Training & Livelihood Enhancement (Village-wise)	16	21	12	13	8	14	13	18	18
Promotion of Education (Village-wise)				5	2	13		9	6
Healthcare & Hygiene (Village-wise)	13	15	6	11	6	9	7	13	11
Sample covered village-wise	37	50	29	53	27	55	36	60	54

Qualitative sampling methodology

Qualitative tools of in-depth interviews (IDI) and focus group discussions (FGD) were administered for obtaining information about the various themes as well as to enrich the household survey information with a deeper understanding. The sample size covered during the field is as follows:

Table 4 Qualitative Sample Covered

District		Sagar
FGD	Farmer's Group	3
	Self Help Group	1
	Women's Group	2
	Village Development Committee (VDC)	1
	Group Enterprise	1
	Community Group	1
	Total	9
IDI	Farmer	2
	Entrepreneur (Tailor, atta chakki, sanitary pad)	3
	Anganwadi Teacher	1
	Spandan Literacy Trainer	1
	Spandan Beneficiary	1
	Implementing Partner	1
	School Principal	1
	Community Volunteer	1
	Panchayat Secretary	1
	Total	12

A team of local enumerators, with requisite education and experience, was hired for data collection. Two days of training at Sagar, Madhya Pradesh was provided to the enumerators and supervisors by the NRMCM team.

Image 1 FGD at Suwatala



3 Program Review

3.1 Program Design and Implementation

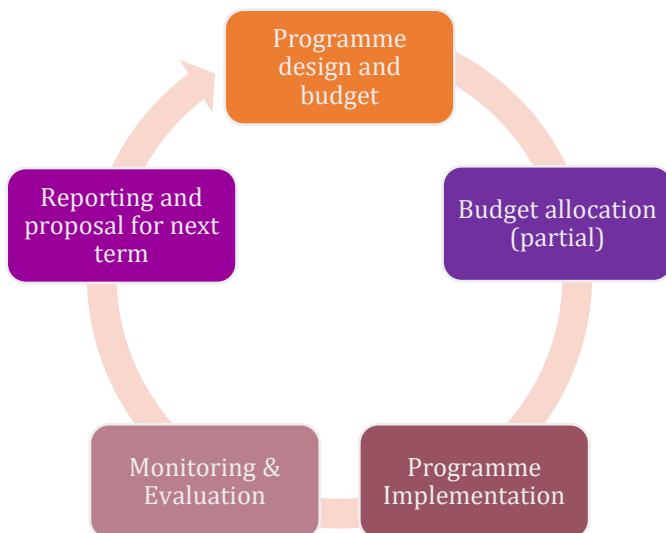
The programme’s interventions are decided on an annual basis, with an annual budget allocation based on the proposal by Abhyuday Sansthan to HDFC Bank. Based on our discussions with the partner team, a preliminary rapid rural appraisal (RRA) was conducted to explore the problems and constraints in the villages. The partner organization prepared an annual work plan wherein activities were proposed on a need basis, which emanated from the preliminary assessments. While this approach has helped in providing support to the immediate need 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 the Sagar project.

3.2 Program relevance

The study area belongs to the Bundelkhand region, and receives an average annual rainfall of 846mm and is drought-prone. The region is considered to be most under developed faced with poverty and food insecurity due to depleting natural resource base. The area is known for its arid climate, and the region is facing severe water scarcity due to overexploitation of groundwater

Figure 4 Project Planning and Implementation



and low rainfall. The families face severe water insecurity with women spending long hours fetching water from faraway places outside their village. Often hand pumps are non-functional and they receive contaminated water, posing a huge health risk. Many villages in the region face acute water shortage, forcing people to rely on tanker water supply. The region has been facing deforestation due to overgrazing, firewood collection, and illegal logging. This has resulted in soil erosion, loss of biodiversity, and reduced groundwater recharge. Soil degradation is a major problem in Bundelkhand due to erosion, nutrient depletion, and salinization. This has resulted in reduced agricultural productivity and increased land degradation.

The project area in Bundelkhand is vulnerable to the impacts of climate change, including increased temperatures, changes in precipitation patterns, and extreme weather events like droughts and floods. These changes have a significant impact on the region's natural resources and the livelihoods of its people. Overall, these problems have led to a decline in the quality and quantity of natural resources in Bundelkhand, which has resulted in reduced agricultural productivity, increased poverty, and social and economic distress. Most households are dependent on agriculture, which provide inadequate income due to drought conditions and lack of irrigation.

Here, the intervention of community empowerment and rural development is crucial for targeted villages. **Under the HRDP intervention for Natural Resources Management**, activities under water management, farm management and clean energy were promoted. In water management,

activities such as check dam construction, lift irrigation, repair of water sources, installation of pipelines, water wheel distribution, water quality testing, etc. were implemented to mitigate water related challenges in agriculture and domestic water use. Farm management techniques for better crop production and increased income were implemented. There were trainings conducted on tillage and ploughing techniques, vermi-compost production, soil testing, seed bank, etc. In order to promote clean energy, biomass chulha, solar home lights and street lights were installed.

The project has also attempted to influence the status of women empowerment in the villages and ensure women with sustained sources of income due to the poor economic status women hold in their families. Therefore, under **Skill Training and Livelihood Enhancement**, women SHG members were supported with microenterprises such as tailoring units, food production, and sanitary pad making to promote entrepreneurship and livelihood diversification among them. To provide agriculture training and support, exposure visits of farmers were done along with demo plots and trainings on better farm techniques. As livestock is a major source of income for agrarian households, health services from veterinary clinic were made available to livestock owning households, along with distribution of poultry sheds.

The food insecurity was addressed under **Healthcare and Hygiene** mainly through promotion of kitchen garden. The seeds of everyday use vegetables were distributed and training was given on how to grow a kitchen garden to ensure consumption of adequate nutrients. There were health sessions and camps conducted in the village for overall health awareness.

Through HRDP, **Promotion of Education** was undertaken, where the village schools were renovated with BaLA paintings, provided lab equipments, and smart class in addition to the construction of washrooms for girls and installation of reverse osmosis (RO) drinking water plants in school. Rainwater harvesting system and water pump to supply water in washrooms were also installed. Furthermore, the project also aimed at bridge the skill gaps among the youth by setting up a Digital Resource Learning Centre wherein students were provided coaching in information technology (IT) skills. Upon completion of the project, the implementation partner is continuing its operation with the support of the community and other stakeholders.

4 Study Findings

This section highlights the key findings from the field survey conducted to assess the impact of the programme after its completion.

4.1 Demographic profile

This section provides the demographic profile of the respondents covered in the sampled programme villages. In Madhya Pradesh, the assessment was undertaken in 9 villages of Sagar block in the Sagar district.

Table 5 Demographic Profile of the Respondents

Gender	
Male	54%
Female	46%
Age	
18-25 Years	14%
26-35 Years	30%
36-45 Years	23%
45-55 Years	17%
More than 55 Years	17%
Educational Status	
Illiterate	21%
Literate but no formal education	7%
Up to 5th std	15%
6th to 8th std	24%
9th to 10th std	21%
11th to 12th std	7%
Graduate	3%
Postgraduate	2%
Social category	
Scheduled Caste (SC)	28%
Scheduled Tribe (ST)	21%
Other Backward Classes (OBC)	42%
General	8%
Poverty status	
Antyodaya	6%
BPL	38%
APL	44%
Do not have a ration card	12%
Income sources	
Cultivation	52%
Livestock	42%
Salaried employment	10%
Non-agricultural income	12%
Wage labour	72%
Pension	14%
Remittances	2%

In the sample villages, 54% of the respondents were male and 46% were female. The highest number of respondents, 30% belonged to the age category of 26-35 years. This was followed by 23% of the respondents belonging to 36-45 years, while only 14% belonged to 18-25 years.

The educational status of the respondents shows that 21% of the respondents are illiterate and do not know how to read and write. The highest number of respondents or 24% have received education between 6th to 8th std, 21% till 9th to 10th std, 15% and 7% up to std 5th and 11th to 12th std respectively. 7% of the respondents have reported they are literate but have not received any formal education. In higher education, 3% of respondents are graduates and 2% post graduates.

The social category of the interviewees is a mix of Schedule Castes (SC), Schedule Tribes (ST), Other Backward Classes (OBC) and general category. The majority of the respondents, 42% belong to OBC, 28% are SC, 21% belong to ST category and 8% to general category. 12% of the respondents do not hold any ration card. Among the ration card holders, 44% have APL cards, 38% have BPL cards and 6% have Antyodaya cards.

All respondents have more than one source of income. Over 52% of respondents have cultivation as their major source of income, followed by 42% reporting income from livestock. But the highest number or 72% have said wage labour as their major income source. 12% of respondents receive major source of income from non-agricultural activities such as business or income from rent, 10% reported salaried employment and 2% of respondents attributed their major income source to remittances.

4.2 Natural Resource Management

Natural Resource Management is one of the most important pillars of HRDP. The interventions in this pillar were designed and implemented keeping in view the needs of the community as well as suitability to the geography.

Table 6 Activities under NRM in Sagar

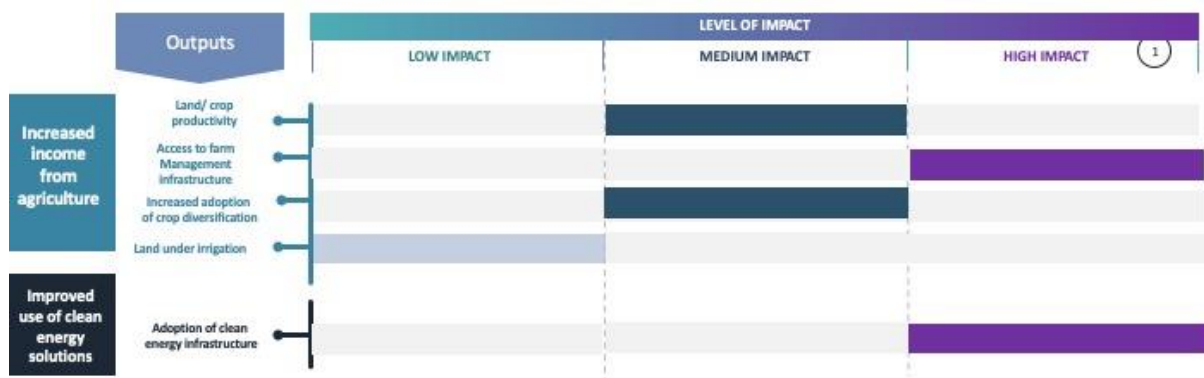
Activity Category	Activities
Clean Energy	Biomass chullah, Solar home lights distribution, Street Solar Lights installation, Water Wheels
Farm Management	Farm technique - Tillage, Ploughing across slope, Vermipits, Soil Testing, Seed Bank, Village Nursery, Plantations
Irrigation Management	Check Dam Construction, Lift Irrigation
Water Management - Drinking	Handpump Installation, Pipeline laying, Source repairs, Water quality testing, tap installation

The programme consisted of interventions under various activities such as installation of biomass chullah, solar lights, water wheels, vermipits, distribution of seeds, imparting knowledge of various farm techniques, irrigation management, and drinking water interventions. Since the focused region is drought-prone, intervention in NRM is expected to ease the water-related issues for both household and agricultural purposes.

4.2.1 Effectiveness and Impact

This section provides an overview of the effectiveness of the project activities and their contributions to the outcomes defined in consultation with HDFC Bank. The figure below highlights the impact level attained for defined outputs. The impact under each category is calculated based on the average of output indicators under each activity category and a detailed overview of the project impact (for all thematic areas) is attached in the Annexure.

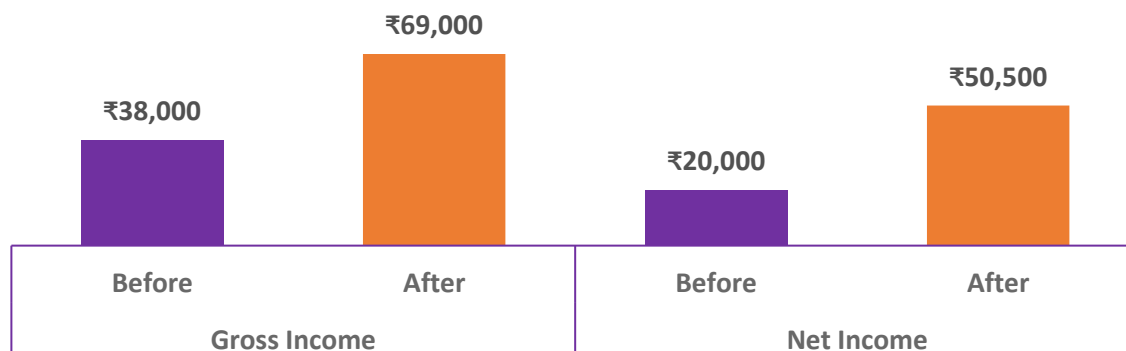
Figure 5 Overview of Project Impact and Effectiveness



Income from agriculture

In the survey sample, the **benefits from agricultural activities were availed by about 20% of the total respondents**. The interventions around installation of vermi pits, seed distribution, lift irrigation, check dam construction, cattle fodder farming, pesticide/fertiliser distribution, land treatments, and provision of agriculture equipment have been the most availed and practised activities among all the agricultural activities conducted under the intervention.

Figure 6 Increase in Agricultural Income



The figure 6 compares the **median gross income and median net income before and after the project intervention**. The gross income increased by **82%** and net income increased by **153%**. The median input cost has also risen by 35%, but the increase in the gross income is greater than the increase in the input cost, thus leading to a rise in the net income trends.

In terms of total households reporting a change in income, about 90% of the households reported increase in income and 84% of the households reported an increase in profit after the project interventions. The reasons accredited for the increase were mainly the programme's support in seeds and tools (60%), farming techniques (32%), organic farming (57%), irrigation (53%), soil testing and land treatment (38%) (Ref. Fig. 7). However, **majority of the respondents mentioned market prices (69%) and increased area under cultivation of crops (40%) as other reasons for an income increase** since the inception of the programme.

While income has increased, **input cost has also increased for 74%** of the respondents, the primary reason being increase in the price of inputs reported by 76% of respondents.

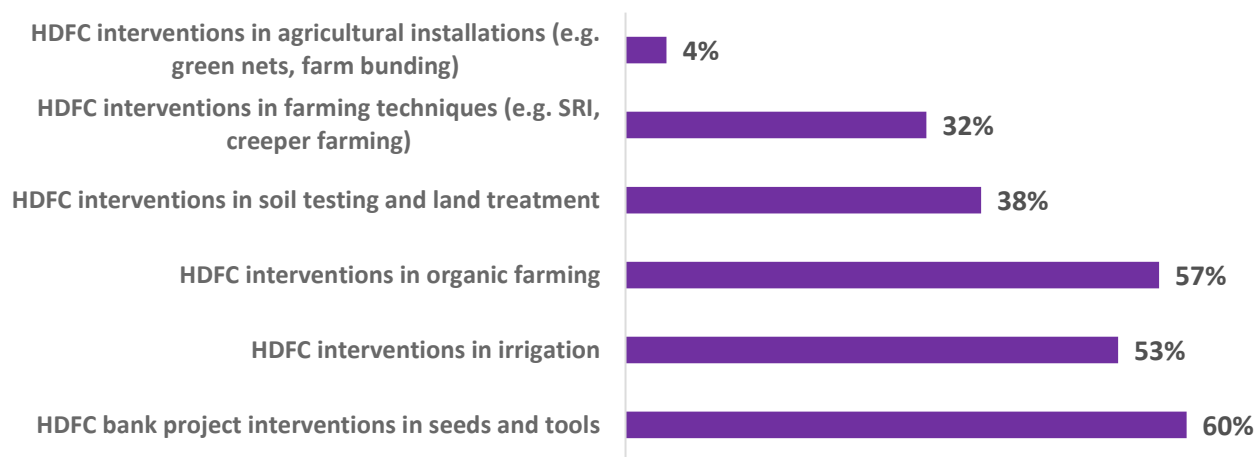
Respondents have reported an increase in the median productivity of the major crops grown in the area which are wheat, gram, tomato and onion. The reason for this could be attributed to two main interventions, seed distribution and irrigation. The interventions such as distribution of better yielding seeds and improvement in irrigation through check dam repairs, lift and drip irrigation gave more yield from the same land. As a result, **the average irrigated land also increased from 3.92 acres to 4.15 acre or 6% during the period of intervention**.

Table 7 Increase in Agricultural Production After the HDFC Project

Crop Name	Median Production Before (kg)	Median Production After (kg)
Wheat	1750	2000
Gram	400	550
Tomato	400	400
Onion	3800	3000

The reasons reported for the increase in production as per the farmers' own understanding can be seen in Figure 7.

Figure 7 Reasons for Increase in Agriculture Production



Apart from the above, the production decrease was also reported due to decreased area under cultivation and poor weather.

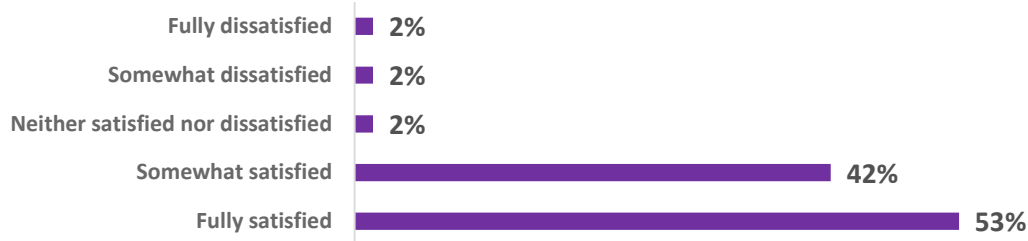
Table 8: HRDP Interventions that led to increase in agriculture production

Project Interventions (% respondents)	Wheat	Gram	Tomato	Onion
HDFC bank project interventions in seeds and tools	63	82	67	36
HDFC interventions in irrigation	46	65	83	55
HDFC interventions in organic farming	46	47	83	27
HDFC interventions in soil testing and land treatment	51	47	50	27
HDFC interventions in farming techniques (e.g. SRI, creeper farming)	37	53	0	36
HDFC interventions in agricultural installations (e.g. green nets, farm bunding)	12	0	17	0
Other HDFC interventions	7	0	17	9
Weather	4.9	5.9	33	27
Increased area under cultivation of crops	22	18	50	27
Improved irrigation	71	71	100	64
Support from other projects/institutions	17	12	17	18

Currently, 79% of households report using both natural and chemical fertilisers. During the last season of the project's intervention, 81% of respondents reported an increase in the use of natural fertilisers and 68% reported a decrease in the use of chemical fertilisers. This is mainly due to the promotion of vermipits during the project period. The sample survey notes that 98%, 13%, and 64% had received support in terms of training, financial aid and setting up of vermipits respectively. The survey also reports that 81% of the respondents use vermipits to produce natural fertilisers. The increased use of natural fertilisers has led to the benefits such as improved

soil health (73%), improved production (61%), improved quality of production (67%) among other benefits.

Figure 8 Satisfaction level of Farmers on Vermi Compost Intervention



As shown in the fig 8 , more than half of the farmers are fully satisfied with the information provided on vermi compost.

Image 2 Cattle Fodder Harvested



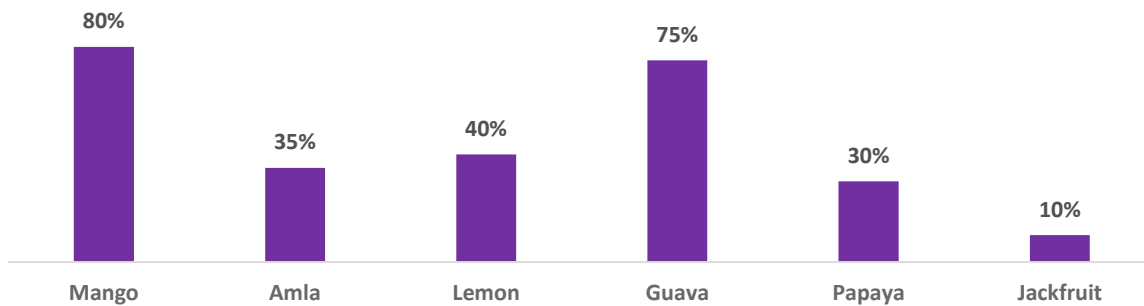
Case Study: Cattle fodder farming in Bhainsa Village

Durgesh Patel is a farmer from the village of Bhainsa. He used to grow wheat and chana on around 5 acres of land with his brothers. Through HDFC intervention, he received training in cattle fodder farming and received seeds for the initial demonstration plot. The farmer training on cattle fodder cultivation was a context specific intervention that rightly took advantage of the presence of a number of dairies around the village to increase farmer income. After the training, he also received seeds for the initial demo plot. As the crop was successful, he is continuing to harvest cattle fodder. Now, he grows cattle fodder on two and a half acres of land. He sells the harvested fodder to three dairies in the village, earning an additional Rs 15,000–20,000 per year. The cattle fodder, or *chara*, is an all-year-round crop, which further benefits the farmers. Considering this, under this project he was also provided training for dividing his plot and growing the fodder, so that when the harvest of one plot is over, the other plot is growing, thus ensuring an all-year supply and a steady income. He says, "At first, I had a fear of trying something new as it could lead to a loss if the crop fails. But the trainers gave me confidence to give it a try, and now it has benefitted me a lot." Further, he has also invested in a cattle fodder machine himself to crush the fodder before supplying it to the dairies. The new crop training has increased his annual income and given him a new source of regular income.

Adoption of horticulture and crop diversification

From the sample survey, 80% of farmers have reported an increase in productivity and 93% have reported an increase in income. 45% of farmers reported that they grew onion after the project intervention. Similarly, 40%, and 21% of respondents reported that they started growing tomato and garlic with the support of HDFC intervention.

Figure 9 Percentage of Farmers' who started Horticulture



Also, (fig 9) 50% of the farmers have reported that they engaged with horticulture with HDFC project support. The most planted tree was mango (80%) and guava (75%), of which 16% mango trees and 53% guava trees have borne fruit. However, 53% of the respondents reported that they perceive no benefit from horticulture. It could be that the trees are taking time to bear fruits and presently the cost of horticulture is more for the farmers than benefits.

Use of clean energy solutions

Through the HDFC project, interventions such as solar home light distribution (22%), solar street lights (97%) and biomass chulhas (12%) were given as part of promotion of clean energy. The qualitative understanding shows that the solar street lights were the most beneficial among these interventions. The biomass chulhas often went out of use due to small size, and slow cooking time. Many reported that the home lights got faulty and did not light up, even when the solar panels worked fine.

Figure 10 Clean Energy Intervention and Benefits of Solar Street Light Distribution

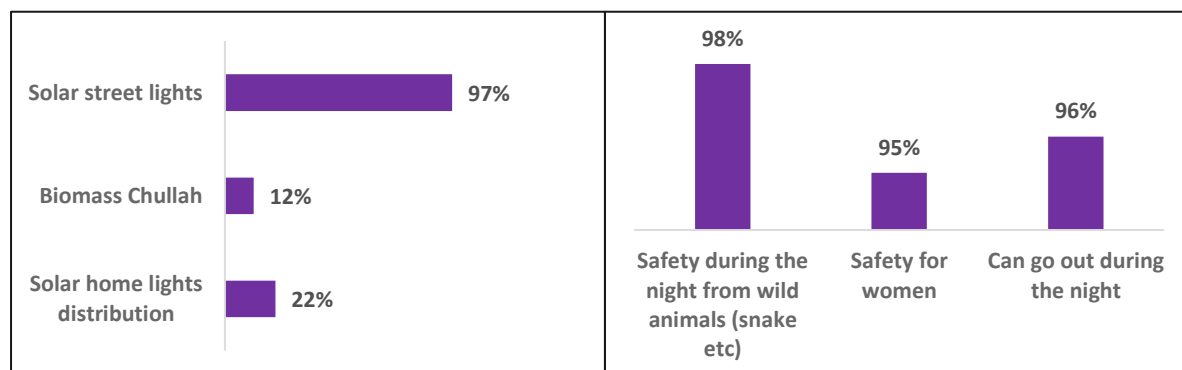


Image 3 Solar Street Light.



Image 4 Biomass chullah



4.3 Skill Training and Livelihood Enhancement

The activities are:

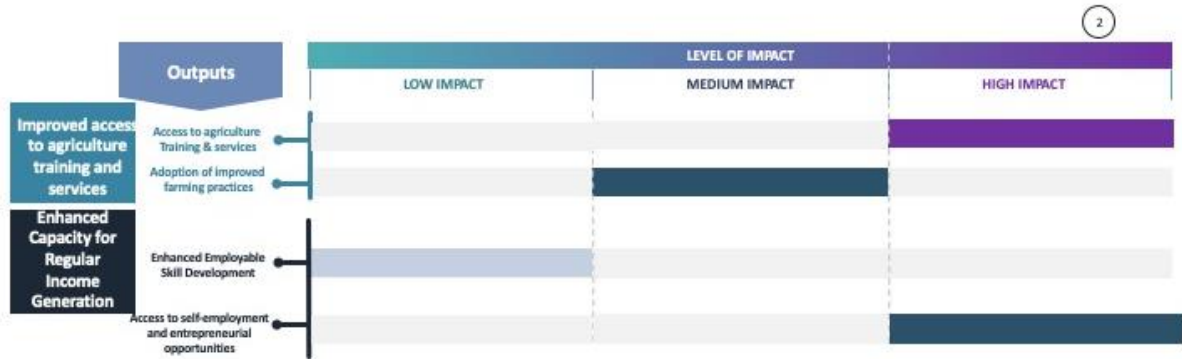
Table 9 Activities under Skill Training & Livelihood Enhancement in Sagar

Agriculture Training and Support	Exposure visit, demos of new crops, fodder farming technique training, formation of association
Entrepreneurship Development	Group enterprise development for tailor unit, papad production, sanitary pad unit and atta chakki unit
Livestock Management	Health services to livestock from veterinary department
SHG/Women Development	Strengthening of SHGs

4.3.1 Effectiveness and Impact

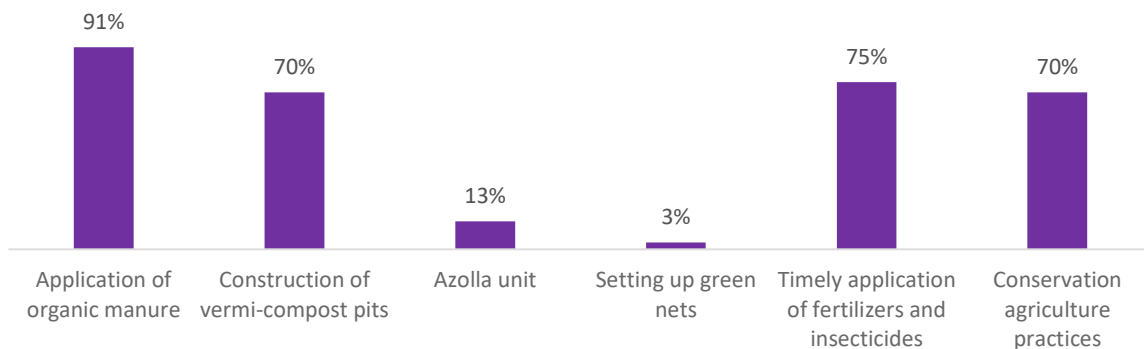
Under skill training and livelihood enhancement, the project was successful in skilling farmers in improved farming practices and establishing farmer collectives. The figure below is a pictorial representation of the project’s impact on skill training and livelihood enhancement.

Figure 11 Overview of Impact and Effectiveness of Skill Intervention



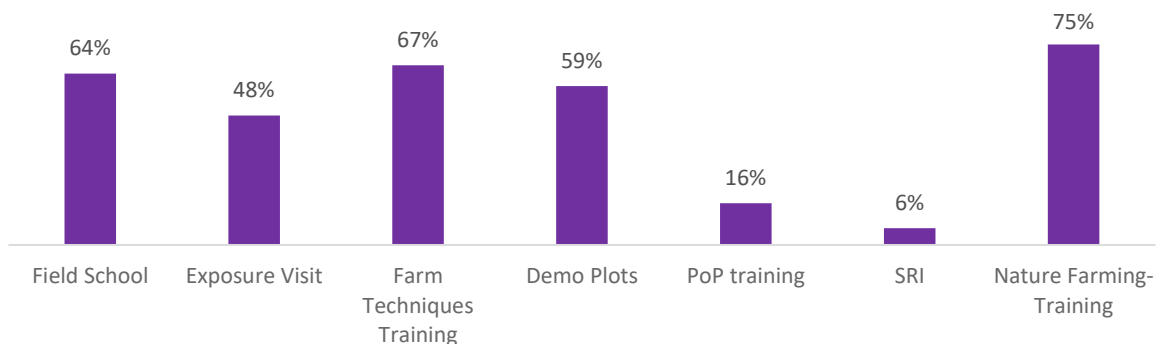
From the surveyed households, 84% has benefitted from the intervention on agricultural training and support. From the households who benefitted, all households have received support in terms of agricultural training practices; 38% for support to form farmers’ groups.

Figure 12: Percentage of Farmers who learned new agriculture practices



Through the HDFC intervention, 91% of households have reported that they learned application of organic manure, timely application of fertilisers and insecticides (75%), 70% each construction of vermipits and conservation agriculture practices.

Figure 13: Percentage of Farmers who received agriculture training on new techniques



75% of households reported that they have attended sessions on nature farming-training, 67% on farm techniques training, 16% on PoP training and 6% of households have taken part in SRI training. The exposure visit was participated by 48% households and field school was attended by 64%.

Figure 14: Perceived Benefits of learning agriculture practices



The perceived benefits of these programmes have been that it improved capacity to increase productivity as reported by 81% of attendees. 80% of attendees reported that it improved awareness of sustainable farming practices, 73% of beneficiaries reported that the trainings helped reduced input costs and 58% said it helped reduce crop loss/disease.

Figure 15: Improvements in Farming after adopting the agriculture techniques

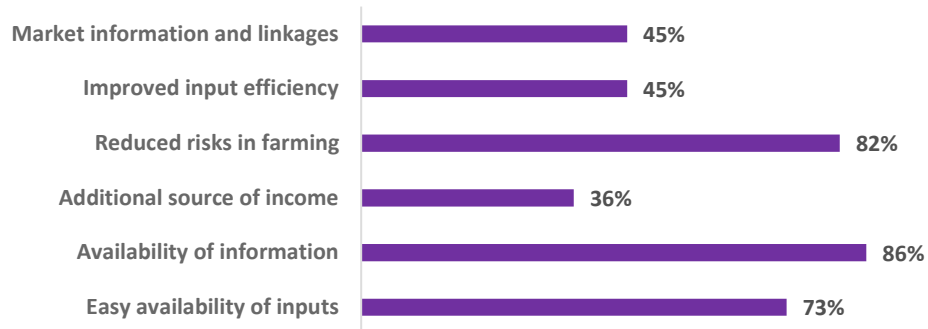


From figure 15 we can see that, after adopting these techniques, 75% of farmers reported increase in income. The median income increase after adopting these practices has been Rs 30,000 per household.

Economic Empowerment through Collectivization

From the sample survey, 34% of households are part of a farmers' group. Through the project, mobilisation of farmers and training were the main support provided. The farmers' reported that as they sell to the market together, it has reduced their transport cost. The main benefits as reported by farmers from being part of a farmers' group are shown in Figure 16.

Figure 16 Benefits of being in Farmers' Group

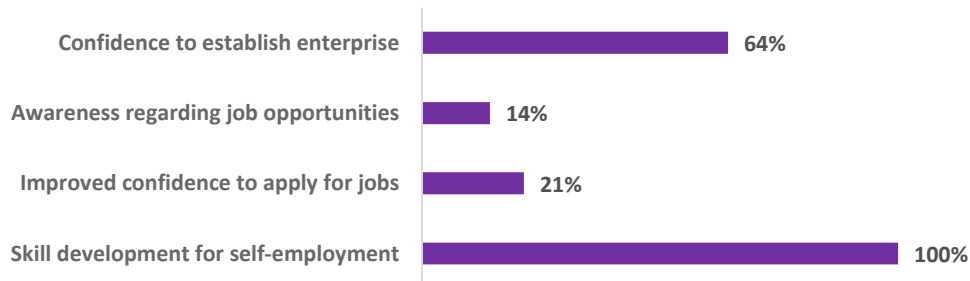


In Bhainsa village, the farmers reported that as they weighed their produce collectively before going to the market, they could stand against the previous malpractices of reducing the weight and paying them less in the *mandis*. The farmers who were part of a farmers' group reported that the availability of information and reduced risk of farming were the two main benefits they received by being part of a collective group.

Skill and Entrepreneurship Development

The sample survey data shows that only 4% of the respondents benefitted from skill training and entrepreneurship development. Those reported being part of entrepreneurship development have set up sanitary pad unit, tailoring unit, flour mill and *papad* making unit, Except training, the rest our joint ownership. They have reported a median increase of Rs 7200 annually.

Figure 17 Benefits of skill development



Apart from increase in income other benefits reported by the beneficiaries are skill development for self-employment (100%), and confidence to establish enterprise (64%), among others.

The project has not focussed much on SHG development, with just 9% of respondents reporting they have benefitted from SHG development. The qualitative study shows that the main support has been provided to existing SHGs by strengthening them through entrepreneurship opportunities. They have been made aware of entrepreneurship opportunities that they could take up and support provided based on consultations with them for the above mentioned activities.

Case Study: Sanitary Pad Unit in Dhana

Through an intervention under the HDFC project, a group of 11 women have started a sanitary pad production unit in the village of Dhana. Varsha, a member of the group enterprise, says "we chose the sanitary pad unit as women face issues during menstruation in the village and we believe there is nothing shameful regarding making pads".

Through the project, they received extensive training over 15 days on all stages of pad production, the machines to manufacture pads, and the initial raw materials for producing 15,000 pads. They were also provided with initial branding and packaging material. The unit operates from a panchayat building by paying a nominal rent. Two of the members in the group primarily manage the machine, and others pre-make the unpressed pads and handle sanitising and packaging.

They sell a packet of pads consisting of 6 pads for Rs 21 and mainly supply the local village shops and bigger shops in Sagar, the district headquarters. They received the highest sales during the COVID-19 lockdown. In a month, each woman receives an income of Rs 1000 or more, depending on the sale, after deducting raw material, rent, electricity, and other costs.

When they started the unit, many in the village were sceptical and hesitant to support them. As income began to come in, the attitude also began to change. Now many women of the village approach them, asking if they could join. In the process of making pads, they face the challenge of swelling on the hands and shoulders and backaches as the process demands steady physical labour. The unit also faces the challenge of having better market linkages and a steady consumer base. They have further plans and aspire to invest in one more machine and scale up the production.

Livestock Management

Through the HDFC interventions, only 8% of the respondents have benefitted from interventions in livestock management. The two main interventions that the beneficiaries have received are the vaccination camps for livestock by linkage to local veterinary clinic and sheds for keeping poultry. All the reported beneficiaries have received vaccination facility for their animals and select beneficiaries have received poultry sheds. There have been a noted improvement in livestock health. However, the qualitative study notes that many of the poultry sheds have been out of use and in bad shape. Upon further enquiry, it was found out that the community faced difficulties in managing poultry due to the summer heat and frequent diseases affecting the animals.

Image 5: Vermicompost Pit



4.4 Health and Sanitation

The activities are:

Table 10 Activities under Health & Sanitation in Sagar

Activity Category	Activity
Kitchen Garden	Kitchen Garden Promotion, training, distribution of seeds
Health	Health Camps
Sanitation	Community dustbins

4.4.1 Effectiveness and Impact

The figure below is a pictorial representation of the project’s impact on health and sanitation.

Figure 18: Overview of Impact and Effectiveness of Health and Sanitation intervention

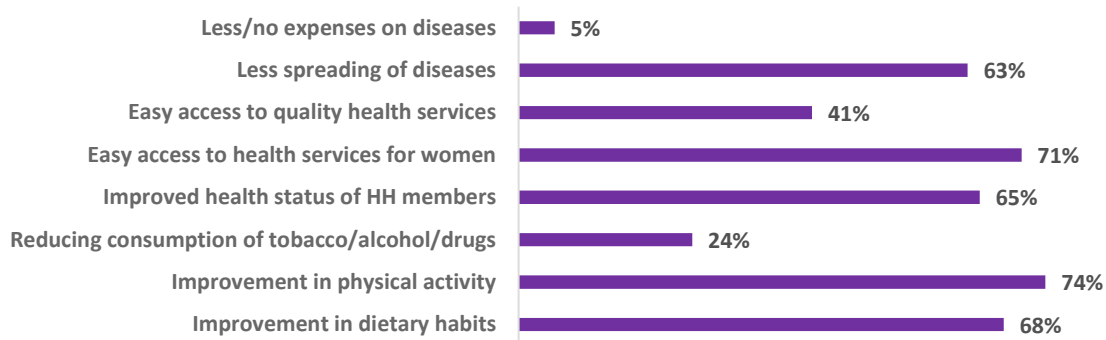


Health infrastructure and services

The programme had a component to create health awareness to the people, where 30% of the respondents have received health services. Of this percentage of beneficiaries, 91% have attended a hygiene related health session and 71% have availed health service in the form of health sessions, and 11% got help in attending health clinic.

74% of respondents surveyed stated improvement in physical activity as the prime benefit from the health sessions, 71% reported easy access to health services to women, 64% stated improvement in health status of household member, and 63% reported the perceived benefit to be less spread of diseases. However, the ease in access to quality health services and reduced expense on diseases is reported by 41% and 5% of beneficiaries. This shows that benefits are limited to awareness generation and not access to healthcare, which shows scope for improvement.

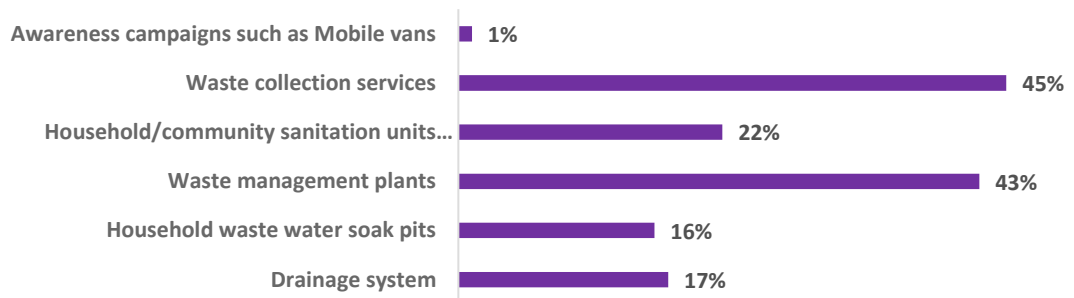
Figure 19: Benefits of Health Interventions



Sanitation infrastructure and services

From the sample study, 55% of the respondents are reported to have been benefitted from sanitation services.

Figure 20: Percentage of households who benefitted from different interventions under Sanitation

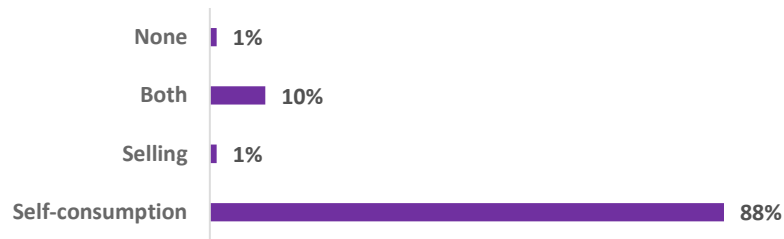


The two main interventions as reported by respondents are waste collection services (45%) and waste management plants (43%). Under waste management plants, the biogas plant was promoted through awareness generation and the convergence of government schemes to procure a grant for the biogas plant being proposed. Under waste collection services, community dustbins were installed at various points in the village. However, the qualitative study shows that many of these dustbins are not functional and have even broken down. They were not in regular use, and it also did not have waste segregation compartments, which shows this intervention has scope for improvement.

Kitchen Garden

To improve the nutritional status of the community and tackle the problem of malnutrition, especially in ultra-poor households, the project supported the community with kitchen gardens and 21% of the surveyed households received seeds (96%), and training (93%) under the intervention. They received support for a variety of vegetables such as beans, brinjal, tomato, lady finger, pumpkin, etc.

Figure 21 Use of kitchen garden produce by households



A majority of the respondents were found using the produce from their gardens for self-consumption (88%), and very few were selling the produce (fig 22). The ones involved in selling the produce reported a median monthly income of ₹750.

While 76% of the beneficiaries observed a decrease in the amount they spent on fruits/vegetables from the market, 94% of the beneficiaries observed an increase in the quantity of consumption of fruits/vegetables from the kitchen garden since the project started. The data shows that a median monthly amount of Rs 100 is reported to have been saved by the households due to kitchen garden.

Case Study: Spandan Literacy Centre in Suwatala Village

Through intervention under HDFC Bank project, a Spandan literacy centre was set up in village Suwatala to increase literacy among women. Sangita Patel, hailing from the same village, is 26 years and studied till 10th standard.

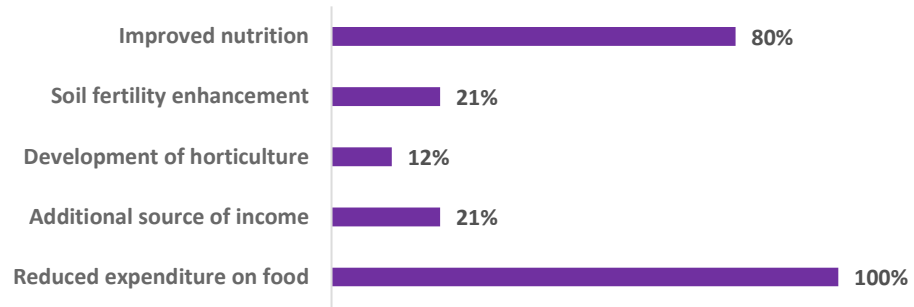
She played a crucial role in working as a literacy trainer in the literacy centre. She got together the women of the village who could not read and write and encouraged them to come to the centre. She trained around 25 women of the village to read and write English and Hindi letters and to sign their name.

She says that, “women were happy to sign their own name instead of using thumbprint”. She started with letters and completed the rest of the training in 3 months. She received Rs 200 for her service and slates and pencils for the women who came to learn. Sangita says, “it is important for women who previously could not attend school to learn basic reading and writing and to most importantly sign their name”.

Many people had negative attitude towards this initiative but women came out on themselves to learn. She says that after the training, women gained confidence to take part in general discussions and in interacting with outsiders.

Moreover, the community is even aware of the benefits of having a kitchen garden as can be inferred from Figure 22

Figure 22: Benefits of kitchen garden as reported by beneficiaries

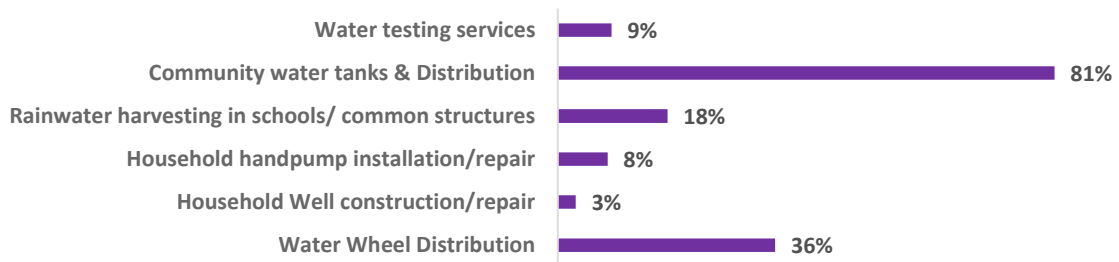


However, 50% of the respondents have said they are only somewhat satisfied with the intervention. Upon enquiry of additional support required for this intervention, 50% of the respondents reported more training and another 50% wanted more inputs. The qualitative study also showed that even though, the households benefited from this initiative, there were issues such as lack of consistent follow up on the state of kitchen garden. Women reported that they faced water issues to maintain the garden during summer, lack of second round of seeds, space constraint in the house to develop the garden, etc. as reasons for dissatisfaction.

Drinking Water Interventions

Since programme villages experienced a shortage of safe drinking water, overhead tanks were set up in some villages along with piped water connections to cater to the demand for safe drinking water. 76% of the households have received benefits from drinking water interventions.

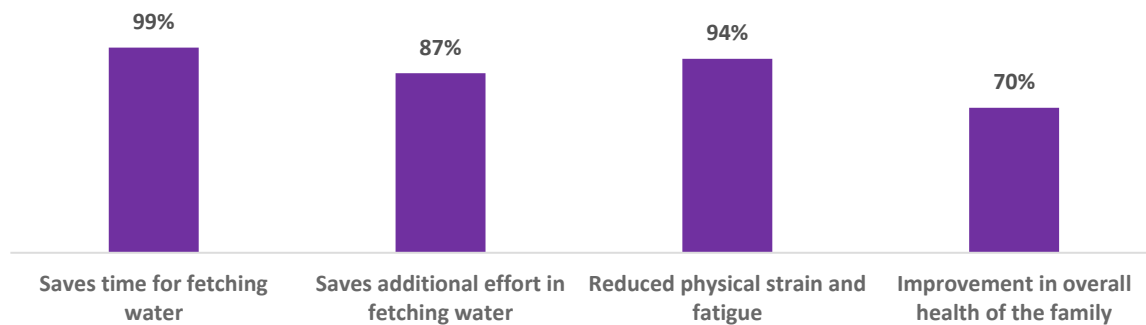
Figure 23 Percentage of households who benefitted from different drinking water interventions



The major intervention (81%) has been done in terms of overhead community water tanks and distribution, and (35%) in water wheel distribution. 97% have reported their drinking water source has changed with the project intervention. Prior to the programme, the main sources of drinking water remained the dug well (31%) and the tube well (23%), which were causing gastric issues in the community. Some are even receiving water through the government-piped water supply (25%).

The majority (74%) of the beneficiaries have been consuming the water for about two or more than two years. Field observation attests to the fact that the piped water supply is reaching the community and members are extremely pleased with the intervention.

Figure 24: Changes reported after drinking water interventions by households



The change in the source of drinking water has brought a change in household with 70% reporting improvement in overall health of the family. The drinking water interventions have greatly benefitted women as 99% of the households reported that it saved time for fetching water. As women bear the gendered responsibility in a rural households to provide water, it leads more saved time and reduced health issues in women. People also reported that, in the event of motor not functioning and they are not receiving pipe water, the water wheels proved beneficial. When they have to depend temporarily on the previous water source away from the home, they collect water in the water wheels and thus women do not have to carry heavy loads of water like earlier.

Case Study: Water Intervention in Salaiya

Anil Patreya, 33, from the village Salaiya have been engaged as a community volunteer with the implementing partner, Abhyuday Sansthan, since last 5 years. Being associated with the NGO, he played a key role in taking up interventions of HDFC Bank project in his village.

Apart from the tangible outcomes of the project, he narrates the story of the multitude of intangible benefits that the project has brought to his village. One of the crucial interventions that happened in Salaiya, through the HDFC Bank project, was that of overhead water tank and water supply through pipeline.

Previously, they had to go up to 3 km to fetch water from the nearby river or well. Women used to go by 7 am in the morning to collect water and would return after 2 hours. This everyday walk carrying water was proving to be difficult for women's health. He says that "the most important need in water intervention is to have participation of women, as water issues mainly affect women of the village."

When the project started, women did not used to come out of their own houses. In Saliaya, a separate meeting exclusive for women was conducted in the early stages to ensure their participation. Gradually, women attained the confidence to come out and speak up. Women came to play an active role in the water interventions of the village such as in deciding the pathway of the pipelines to benefit all households.

Many women of the village started addressing the NGO field staff of the village, Mr Krishnakanth Mishra, as "*paniwale bhaiya*" when he used to come to the village - a heartwarming yet important nickname that showcases how crucial the water intervention was for them. Later, in a farmers' exposure visit to Sagar, the district headquarters, women came in three tractors full from his village to participate, something which was unheard before!

4.5 Promotion of Education

The activities are:

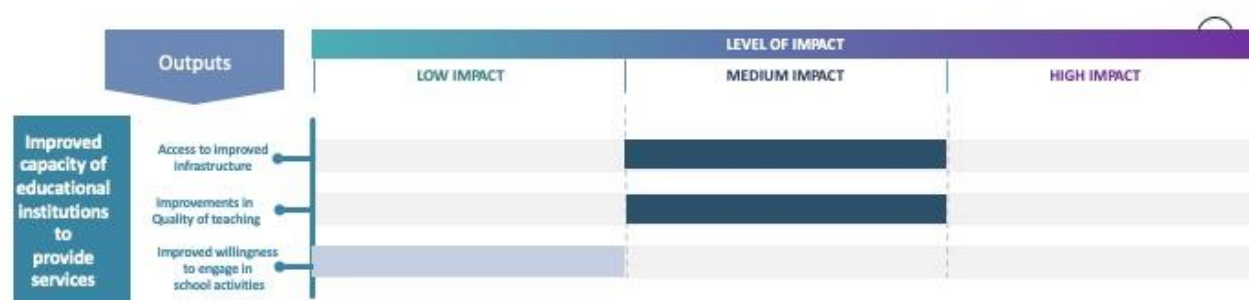
Table 12: Activities under promotion of education in Sagar

Awareness Generation		Awareness Generation Events
CBO/VDC/Volunteers		Committee/Volunteer Capacity Building
Education support		Digital Training
Educational Development	Institutions	Infrastructure – BaLA, Creation of Model Angawadi, Literacy Centres, Smart/Digital Class

4.5.1 Effectiveness and Impact

The figure below is a pictorial representation of the project's impact on promotion of education.

Figure 25: Overview of Impact and Effectiveness of Education intervention



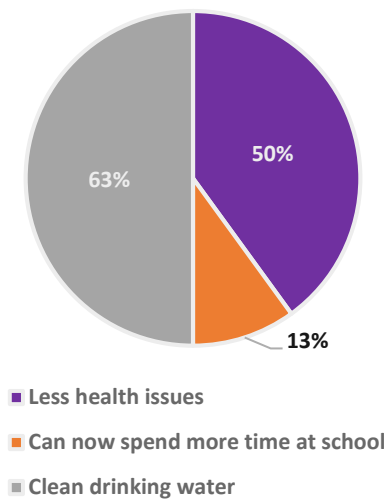
Educational Institutions

A combination of multiple activities targeted towards improving enrolment, attendance, and learning outcomes were undertaken in the programme area. The programme heavily focused on equipping schools with infrastructure facilities. 30% of the respondents have reported that their child has benefitted through the interventions in school. Of this percentage, 81% were benefitted by BaLA paintings, 74% by sports equipment distribution, 66% by drinking water interventions in school, 49% and 34% through library set up and science labs respectively.

From these interventions, drinking water has been a crucial activity. Over 90% households reported that the children now spent more time in schools, 84% reported that their children face less health issues.

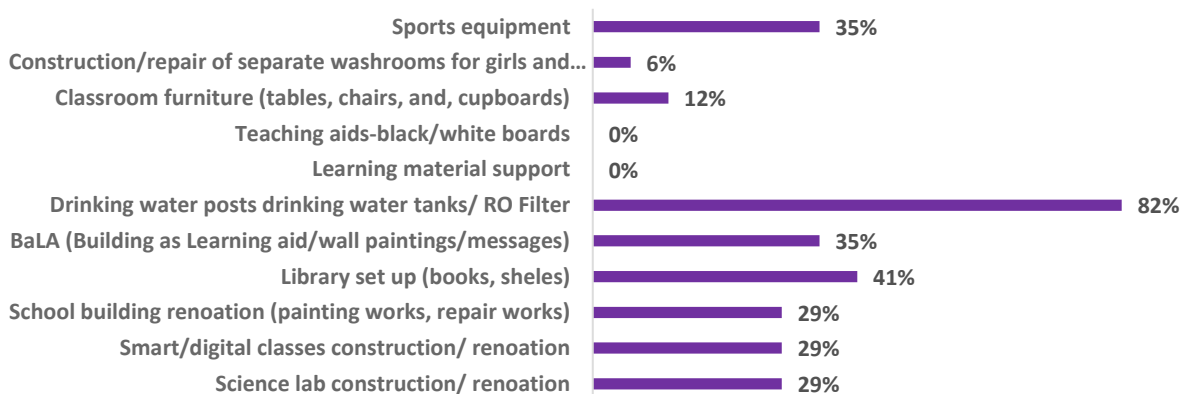
The students interviewed also noted that they received benefits in terms of better health, clean drinking water and are able to be in school for more duration Figure 26

Figure 26 Percentage of students who reported benefits due to drinking water intervention in schools



The principal of Dhana Higher Secondary school had remarked that earlier, it was frequent for students to go home during intervals due to stomach pain but now absenteeism due to water issues are no longer there. There were also other initiatives on awareness generation such as enrolment drive, health awareness in schools, and special day celebrations such as kisan diwas, environment day, etc.

Figure 27 Percentage of teachers who reported different interventions under education in their school



All teachers interviewed have stated that they use science labs on most days and 40% stated they use smart class every day. While 80% of teachers said that they did not have science lab in their school before the HDFC project intervention, none of the schools surveyed had smart classrooms before the project. 67% teachers said they did not have BaLA paintings before the project. All teachers have noted that all the washrooms built during project intervention are still in working condition.

Image 6 BaLA Painting at Dhana Higher Secondary School



Even though there has been significant interventions in infrastructure development, the project has lagged in providing teacher training. 88% of teachers have reported that they did not receive any training as part of the project.

School Management Committees

Over 18% of respondents are active members of the SMC. The SMCs are beneficial in terms of active participation of community members in school activities (79%) and better coordination of school activities (90%).

Figure 28 Percentage of households who reported the support they received from HDFC intervention for SMC strengthening



Through HDFC intervention, major support has been provided in terms of mobilisation, capacity building for members and reviving existing committees.

Case Study: School Interventions in Dhana village

Through HDFC interventions, a RO drinking water plant, overhead tank, computer lab, science lab, books for library, vegetable garden and school building renovation was undertaken with BaLA painting in Dhana Girls' Higher Secondary school. The RO plant caters to a strength of 933 students. Before the RO drinking water plant was installed, the drinking water needs of the school was met using tube well water which had to be filtered manually with the help of a cloth.

Mr Arun Jain, school principal notes that the quantity and quality of drinking water in school has increased after RO plant as well as their effort in providing the same have reduced considerably. He also remarks that earlier the unfiltered water used to invite health issues as the water was mineral heavy. Now the attendance of students does not

reduce due to stomach issues. The students and teachers bring empty bottles alone to school and get to fill clean and sufficient drinking water due to RO plant.

The overhead tank stores water from the motor pump and supplies water to 10 toilets of the school. The provision of running water inside toilets have increased the hygiene of the school and considerably reduced the absence of girls during the period of menstruation. Through the HDFC interventions, a computer lab consisting of 5 computers have been set up in the school.

The students are really excited about the computer lab and the fear of computer have disappeared from the minds of students. They look forward to engage in painting and learning new information, however the principal mentions that the number of computers do fall short to cater to the strength of the school.

The principal observed that after the interventions through HDFC project, absenteeism of enrolled students have reduced significantly leading to a better attendance rate among students. He says “the small things that the HDFC project has provided has led to big changes in the lives of students!”.

4.6 Sustainability

The interventions in agriculture have yielded results in terms of output increase and increase in income. **Most of the beneficiary farmers are currently practising the services and practices accessed through the project under farm management.** The **cattle fodder farming has been giving a sustained impact on income and many more farmers have adopted the new crop** even after the completion of the project. The beneficiaries are still using the inputs provided through the project. The tools and machines that have been handed over to the farmer groups are being actively used by the farmers. The vermi compost training have largely been successful and most farmers continue to practice it.

Farmers believe that continued adoption of sustainable farming solutions will result in notable improvements in productivity. However, many farmers reported the amount of compost produced from the vermipits to be inadequate for the crops they undertake, and hence have gone back to be dependent on other natural fertilizers or even chemical fertilisers. Although, the project has managed to engage over 50% of the farmers to take up horticulture, awareness regarding the time delay to attain benefits from the trees planted seems to be missing. Hence, many reported they perceive no benefits from horticulture and puts the sustainability of this activity into question. **The adoption of clean energy solutions has been taken up in large numbers.** Even though the use varied from one household to another, respondents have narrated positively regarding adoption of solar lights and biomass chulhas. Despite this, it was observed in the field study that the **maintenance requirement of any technological solution was largely overlooked in this intervention.** Hence, once the solar light is dimmed or the panels require replacement, the local community has not been capacitated with the know-how on how to go about it and show cases a huge scope of improvement for this intervention.

The skill development for self-employment has benefitted women in terms of undertaking joint and individual enterprises. The active enterprises in the area were of sanitary pad production, food processing and tailoring. The **continued functioning of these enterprises** indicates the

impact of the project. The main challenges for these enterprises to continue functioning were the **rising input costs, investment for more machinery and market linkages**. Addressing these challenges would enable these enterprises to function better. The Spandan literacy centre, for educating adult women have been one of the most successful initiatives undertaken. **Women continue to fondly remember their first lessons and are proud of themselves to be able to sign documents instead of using thumb prints.**

Another successful initiative in terms of sustainable impact have been the drinking water interventions. The **support provided for drinking water has resulted in the continued usage of the facilities in most villages**. Apart from issues of electricity, in most places the overhead tank, pipelines and taps seem to be functioning well. The distribution of water wheels proved a key initiative to ensure sustainability of alleviation of drinking water issues. This is because when the electricity fails, they are dependent on previous water sources which might be far from the village. But they can now collect water in water wheels instead of carrying heavy loads.

The health awareness even though conducted as part of the project, have not been done in a continuous manner. This has resulted in many beneficiaries forgetting what they learned during such sessions. Kitchen garden, to increase the nutrition status, have been adopted by many beneficiaries and many continue to do so. The **seasonal change of summer is proving to be a challenge as many crops have died down due to lack of water and lack of space.**

With regard to education, **assets like the library, RO water filter, smart class, science lab, computer lab, and sports equipment provided to the school have been handed over to the schools**. The drinking water intervention and digital support have certainly benefitted the students. However, the scale of these interventions have been less in the project area.

While assessing the sustainability of this project, it is crucial to keep in mind that the **COVID-19 pandemic hit in the middle of the project implementation** period. Hence the scale of the project and continuous follow up got limited. Even with this huge challenge, the project has still managed to gain on-ground results.

4.7 Holistic Rural Development Index (HRDI)

According to the World Bank, there are multiple dimensions involved in achieving the goals of rural development and the resulting mixture raises agricultural production, generates new jobs, enhances health, increases communication, and provides better living infrastructure. Rural development is defined by the World Bank as the improvement in the social and economic environment of the rural population. Thus, the fundamental aims of rural development include planning, creating and using the resources such as land, water, and manpower to promote equal opportunity for the population reliant on them.

HDFC Bank in its document explaining HRDI stated that since HRDP aimed 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 index aimed to create comparability across the various blocks, similar indicators were used for the calculation of HRDI in Madhya Pradesh. Based on our calculation, the HRDI for the studied clusters is presented in the table below.

Table 133: Holistic Rural Development Index for Sagar, Madhya Pradesh

Domain	NRM		H&S		Skill		ED		Overall HRDI	
HRDI Score	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
	0.48	0.75	0.06	0.07	0.04	0.08	0.07	0.08	0.29	0.42
% change	56%		17%		100%		14%		45%	

Since the program did not have an available baseline, the baseline was captured through the recall method. The indicators were selected and assigned weights based on their relative contribution to the final expected outcome across all domain-wise interventions. While most of the indicators were found to be relevant for the study in Madhya Pradesh, some needed modifications in accordance with the program and also in accordance with the study design, and the information collected. **The detailed methodology and indicators selected can be accessed in Annexure 6.3.**

Further, the thematic-wise indicators were assigned weights to arrive at the composite HRDI score of **0.42** indicating **a notable positive change toward the desired impact** from the baseline score of 0.29.

5 Conclusion

5.1 Summary of Findings

The HRDP project is aimed to support the lives of poor and vulnerable communities by adopting a holistic approach toward development. This involved providing necessary inputs on issues like shaping economic independence through skilling, providing basic infrastructural development, and entrepreneurship support. The development of human capital, natural resources, and infrastructure in poor and backward villages was expected to bring about their socioeconomic transformation. In **the assessed HRD program in the Sagar district, Madhya Pradesh**, the major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement, Healthcare & Hygiene and Promotion of Education.

The project interventions have been **effective in bringing about some changes in the income of farmers through improved production, provision of seeds and irrigation facilities, and improved agricultural practices**. However, income has also increased because of a change in market prices and **water issues** continue to be a challenge for farmers. The adoption of organic farming has been successful, with awareness generation and **training for vermicompost production and other natural fertilisers**. The project has positively influenced awareness generation on improved agricultural practices. The demonstration of a new crop of **cattle fodder farming** has led to adopted by many farmers and gave a sustained increase in their income. The project also brought about changes in **facilitating access to clean energy solutions**, especially solar lights.

The project has enabled **women to take up business enterprises**, however they face various challenges in terms of **input costs and market linkage**. The support for these enterprises need to be more for them to earn sustained income from it. The **Spandan Kendra for educating women** have proved to be successful where women have learnt basic reading and writing and to sign their name. This has increased agency and confidence of the women beneficiaries.

The drinking water interventions have solved the water woes of the villages to a large extent. Moreover, while **the piped water supply is reaching households** and people are satisfied with its quality, there are certain hamlets of the project villages that lack access (due to logistical and technical reasons) despite the provision of an overhead tank. The **water wheels** also act as a backup in event of motor not working and aid in ease in collection of water.

The **health interventions** aimed at facilitating access to health and sanitation services have been not greatly effective in terms of improving household health status and bringing about positive lifestyle changes. Though the quantitative data shows changes, the qualitative study finds that people are unable to recall the awareness sessions. The community dustbins installed have not been used by the people of the village, with some of the dustbins even breaking down. Those functional are also not used properly, with no waste segregation in it.

The project has also contributed toward improving and enhancing **the infrastructural and learning environment at schools**. To facilitate the same, several project interventions were undertaken in schools including the construction and renovation of physical infrastructural facilities such as **drinking water posts**, and **installation of RO filter**, which has **increased the capacity of students to spend more time at school**, and has even led to **decreased absenteeism due to health issues according to the teachers**. Furthermore, to improve the learning environment, project support was also provided in terms of computers and smart class, and the upgradation of libraries. Most of these interventions are functioning well, however the scale of these interventions were low.

Nevertheless, to bridge the gaps in implementation and address the challenges, some of the recommendations are discussed in the following section.

5.2 Recommendations

NRM

- There needs to be more investment in seed banks and other input provision which has been most crucial in increasing farmers' income
- There is a scope for scaling up the vermicompost production, even to commercial level, as farmers have adopted this initiative and are falling short of their own compost to use in their farms
- A follow-up by agriculture experts is needed to ensure farmers are making use of the practices taught and assist them in their problems.
- Increase in the budget for installation of more lift irrigation systems as irrigation continues to be a challenge in the area.
- The repair and maintenance of installed solar home and street lights need to be done and community ownership of these ensured.

Skill Training and Livelihood Enhancement

- Handholding support to enterprises so they have marketing tie-up, business plan development, linkages with government schemes, etc. is essential
- More income-earning opportunities and business-related training for women and youth
- More advanced training on production practices and the use of machines/tools for farmers to keep pace with the demands of the market.
- More Spandan Kendras can be opened for adult literacy training of women

Health and Sanitation

- The project's scope to focus on capacity building and awareness generation regarding health and sanitation will improve health conditions.
- The sensitization programmes on health issues and menstrual hygiene should be conducted in periodic manner and not at one time.
- Expanding the coverage of piped water supply to more villages as the problem of safe and accessible drinking water continues.

Promotion of Education

- The scaling up of learning and digital support to schools is crucial.
- Assistance in infrastructure development like classroom construction as the student-classroom ratio is low and the funds received by the government are insufficient for construction work.

6 Annexures

6.1 Sampling Methodology

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

6.1.1 Quantitative Sample Size Calculation

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

$$N = \frac{Z_{1-\alpha/2}^2 \times P \times (1-P) \times D_{eff}}{Se^2}$$

Where,

N = sample size

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

$Z_{1-\alpha/2}$ = standard score corresponding to the confidence interval, set at 95% (1.96 for the two-tailed test);

Se = 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

10 programme villages with the highest number of beneficiaries were selected for the study. The stages of sampling are explained as follows:

Stage 1 – Selection of beneficiaries:

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

Stage 2- Sampling for villages:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. 5 villages with the lowest sample size were merged with other villages to make a total of 10 villages to be covered under the survey.

Stage 3- Sampling for activities:

The total sample of 400 was then distributed amongst various themes depending on the significance of activities done.

6.1.2 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.

6.2 Sustainability Thematic wise matrix

The project support provided demonstrated the capability to continue even after the program ended. The project's support to sustain improved outcomes are demonstrated below:

Support provided	Structures established	Technical Know-how	Usage	Maintenance
NRM				
Water Management-Irrigation	✓		✓	X
Farm Management	✓		✓	
Clean Energy	✓		✓	
Skill Training and Livelihood Enhancement				
Agriculture Training and Support		✓	✓	X
SHG-Based Women Empowerment				
Livestock Management		X		
Health and Sanitation				
Health		✓		
Sanitation	✓		✓	
Water Management - Drinking	✓	✓	✓	✓
Education				
Educational Institutions Development	✓		✓	

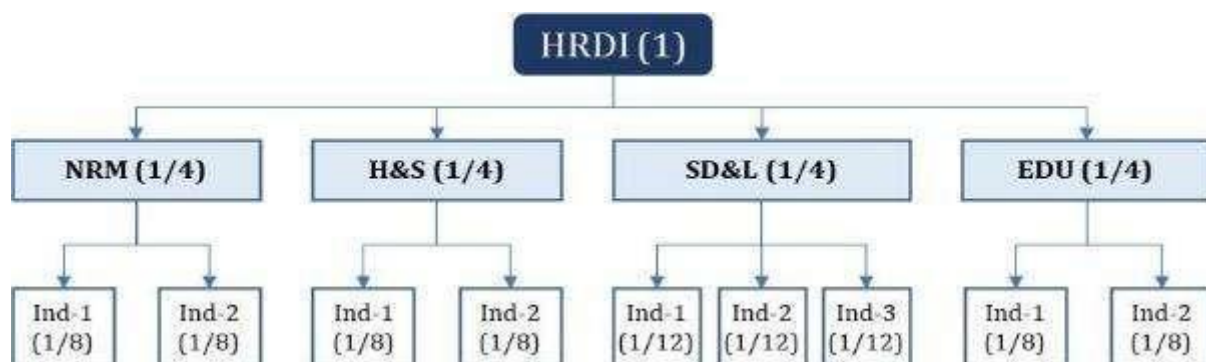
6.3 HRDI Methodology

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, in similar lines to the HRDI calculation. Attribution of equal weights to all the domains was done in order to create a standard HRDI for each cluster.

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.



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	The proportion of farmers with net income above median	$(1/4) \times (1/2) = 0.125$
	Percentage of farmers reporting access to irrigation	$(1/4) \times (1/2) = 0.125$
Health and Sanitation	Percentage of households with access to improved drinking water facility	$(1/4) \times (1/3) = 0.083$
	Percentage of households with access to improved toilet facility	$(1/4) \times$

		(1/3) = 0.083
	Percentage of households with individual bathing unit	(1/4) x (1/3) = 0.083
	Percentage of SHG members reporting their groups having savings	(1/4) x (1/2) = 0.125
Livelihoods and Skill development	Percentage of households with improved skills in Agriculture	(1/4) x (1/2) = 0.125
	Percentage of students reporting increased access to functional learning infrastructure (library, smart class, BALA etc.)	(1/4) x (1/2) = 0.125
Education	Percentage of students reporting increased access to functional school physical infrastructure (handwash station, separate washrooms, etc.)	(1/4) x (1/2) = 0.125

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

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

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.

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
NRM	Proportion of farmers with Net income above average	0.48	0.12	0.75	0.19	56%
H&S	Percentage of households with access to improved drinking water facility	0.24	0.06	0.29	0.07	17%
Skill	Percentage of SHG members participating in rural enterprises	0.04	0.04	0.05	0.08	100%
	Percentage of households with improved skills in Agriculture (SRI, organic manure, timely application of fertilizers and pesticides)	0.11		0.27		
ED	Percentage of reported functional science lab	0.1	0.07	0.15	0.08	14%
	Percentage of teachers reportes BaLA painting available at their school	0.17		0.18		
	Total		0.29		0.42	45%

6.4 Overview of Impact Calculation

Table 144 Overview of Project Impact in NRM

Goal: Effective utilization of local resources and adequate access to water for various purposes				
Outputs	Output Indicators		Output average	Impact level

Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting increase in production of crops that were supported under HRDP	66.9%	40.75%	Medium
	Proportion of farmers reporting increased income from crops that were supported under HRDP	89.6%		
	Average increase in productivity from crops that were supported under HRDP(% change)	36.5%		
	Average decrease in input cost(% change)	-30%		
Access to farm management infrastructure	Proportion of beneficiaries satisfied with quality of available services	46.1%	72.33%	High
	Proportion of farmers reporting seed/grains access leading to increase in income	89.6%		
	Proportion of farmers reporting an increase in the use of natural fertilizers	81.3%		
Increased adoption of crop diversification	Proportion of farmers diversified their crops	70.0%	60%	Medium
	Proportion of farmers who adopted horticulture	50.0%		
Land under irrigation	Increased area under irrigation	6%	32%	Low
	Proportion of farmers who received support for irrigation	58.8%		
Increased use of clean energy solutions				
Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	88.4%	94.20%	High
	Proportion of households reporting benefits from using clean energy infrastructure (Base=beneficiaries)	100.0%		

Table 155 Overview of Project Impact in Skill Training and Livelihood Enhancement

Goal: More Income for the HHs through Diverse income sources locally to farmers, youth and women				
Outputs	Output Indicators		Output Average	Impact Level
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who accessed project training services	100%	77%	High

	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	53.6%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	53.9%	69%	Medium
	Proportion of beneficiaries reporting increase in productivity due to better farm management	78.1%		
	Proportion of farmers reporting increased income	75.0%		
Enhanced capacity for regular income generation				
Enhanced employable skill development	Percentage of youth who accessed skill development training	12.1%	31.05%	Low
	Percentage of youth who report improved employability	50%		
Access to self-employment and entrepreneurial opportunities	Proportion of beneficiaries who established/expanded entrepreneurial activities	38.1%	57.93%	Medium
	Proportion of beneficiaries reporting improved capacity to undertake entrepreneurial activities	50%		
	Proportion of beneficiary HHs reporting increase in income	85.7%		

Table 166 Overview of Project Impact in Health & Sanitation

Goal: Healthy lives and good hygiene practices				
Output	Output Indicator		Output Average	Impact level
Improved health infrastructure and services				
Establishment/ enhancement of health infrastructure and services	Proportion of beneficiaries who gained access to health services	57.7%	57.85%	Medium
	Proportion of beneficiaries reporting lifestyle changes due to improved access	58%		
Development of Kitchen Gardens				
Increased adoption of kitchen gardens	Proportion of HHs reporting income gains from kitchen gardens	60.7%	73.40%	High
	No of HHs received seeds/training in kitchen garden	59.2%		
	No of HHs with improved vegetable/fruit consumption due to kitchen gardens	93.9%		
	Proportion of HHs reporting improved nutrition	79.8%		
Improved availability and management of water				
Access to drinking water at household and community level improved	Proportion of households reporting decreased instances of water borne diseases	84.6%	91.95%	High
	Proportion of households reporting reduced time for fetching water	99.3%		

Table 177 Overview of Impact in Education

Goal: Active participation and effective learning of children in quality education centres				
Outputs	Output Indicators		Output Average	Impact level
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students who report gaining access to functioning smart class rooms, BaLA, science labs, libraries, sports equipment	48.9%	57.80%	Medium
	Proportion of schools who gained access to clean and functioning	66.7%		

	sanitation units/drinking water posts at education institutions			
Improvements in quality of teaching	Proportion of teachers regularly utilizing smart class and science labs	60%	60%	Medium
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	17.6%	17.63%	Low
	Proportion of teachers reporting increase in enrolment post infrastructure development	23.5%		
	Proportion of teachers reporting decrease in drop-out rates post infrastructure development	11.8%		
