

Impact Assessment Study Of Holistic Rural Development Programme (HRDP)

Madhya Pradesh



Prepared For:



HDFC Bank CSR

Prepared By:



NR Management Consultants India Pvt Ltd.

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Executive Summary

As part of HDFC Bank's CSR initiative, development interventions were supported to deliver holistic rural development in **Shahdol, Madhya Pradesh**. The focus areas under the program were **Natural Resource Management (NRM), Skill Development and Livelihood Enhancement, Healthcare and Education**.

For impact assessment of the program, both quantitative and qualitative methodologies were used.

In Shahdol district, 10 intervention villages were selected under the study as sample villages. Sample households from each village were selected by using Probability Proportionate to Size (PPS) sampling method. **The list of beneficiaries was obtained from the implementing partner Action for Social Advancement (ASA)**. Since beneficiary selection was undertaken independently for each program, the total sample size covered for the quantitative study was 405 households and for the qualitative, 9 focus group discussions and 12 in-depth interviews were conducted. **The impact assessment aims to critically and objectively evaluate the implementation of the program and performance in achieving the desired results, to add value by showcasing successful initiatives, to recommend possible ways to add value by showcasing successful initiatives, to determine the reasons why certain results were achieved or not, to draw lessons, and to derive good practices and lessons learned.**

NRM: HDFC Bank interventions in project villages focused on two key aspects: improvement in agricultural produce through soil and water conservation initiatives, training on natural farming practices through exposure visits and linkage building workshops and finally, distribution of smokeless chullahs (stove) and solar lights improvement of household facilities. Additionally, through the project, agri-horti-forestry model; 200 farmers were supported with establishment of wadis. This has led to increased cropping intensity in the region, increased perinneeal green cover and establish a sustainable livelihoods model. Solar streetlights were also installed in all project villages.

The HDFC Bank project interventions resulted in a shift to sustainable agriculture at a limited scale for self-consumption and selling purpose. The shift at a large scale towards organic farming and away from the harmful practices of conventional agriculture, such as the rampant use of pesticides and synthetic fertilizers was observed. Even though chemical fertilizers are still commonly used, 19% of the farmers have switched to natural fertilizers in a three-year period, whereas earlier it was 17%. Some of them have practiced organic agriculture exclusively. This is also because they had quality produce with increase in income for the organic vegetables and crops. HDFC Bank interventions in water management and irrigation have been key infrastructural activities in the region; **43% of the structures such as stop dams, farm bunding, drip installation, sprinkler irrigation, lift irrigation, etc. are functional. 66% of solar streetlights are effective in the region.** The rest need proper maintenance and a change of battery. The household biogas unit takes less time to cook and has been regularly used every day by 66% of biogas unit beneficiaries. There is a need to **strengthen the capabilities of Water User Groups (WUGs), Farmer Producer Organisations (FPOs), and Farmer Groups (FGs) subsequent awareness around the maintenance of infrastructure built under project interventions.** Interventions to have goat farming did not give expected result; however, there are beneficiaries who were benefitted. Ensuring market linkages for crops benefit farmers to diversify their crops and implement multi-

cropping farming in the region. Market linkage was built by the partner organization through FPOs and convergence with NRLM.

Health and Sanitation: Through HDFC interventions, 205 dug wells were established in the project villages to provide access to drinking water in less privileged areas of the village, along with a community water tank for safe drinking water access. Additionally, household toilets were constructed, where major funds were allocated through HDFC Bank interventions and a small portion was provided by the household. Though health camps did not make a huge difference, not being the primary skill of the partner organization, they were organized to spread awareness regarding routine health checkups. Kitchen garden training and related interventions in households were also implemented to ensure households had nutritious food along with additional source of income.

The community is aware of the usage of kitchen gardens and has been trained in the same. During the COVID-19 pandemic, the partner organisation worked in project villages, providing safety kits and spreading awareness. **80% of the respondents claim the use of sanitation units is beneficial for women. 85% of the respondents also mark the better overall health of the household through the proper and adequate maintenance of toilets. Dug wells are functional in the villages.** As drinking water is a crucial requirement in the region, more people in the districts need to be supported through drinking water interventions.

Skill Training and Livelihood Enhancement: Skill and livelihood-based activities were conducted in the form of agricultural training, skill, and enterprise development, and livestock management. A technical visit by NRM thematic experts and micro irrigation technology experts was made in the target villages to identify suitable technologies and water management interventions. 309 soil samples were collected and sent to specialized labs for soil testing. Reports for 15 samples were received and distributed to farmers with an appropriate advisory on soil quality and required fertilizer inputs. Under the livestock development program, services were provided in livestock management, such as breed improvement, general health care, and insurance through convergence. The project was actively engaged with 151 existing/revived SHGs.

HDFC Bank's interventions in **Skill and Livelihood enhancement** have had a sustained impact. **39% of farmers are currently adopting the services and practices accessed through the project under farm management.** There is the adoption of organic manure and fertilizers, and agriculture conservation practices. Continued adoption of sustainable farming solutions has also resulted in notable improvements in productivity and reduction of input costs. **14% of the respondents have benefitted from improved capacity to increase productivity through interventions. 94% of the SHG's are currently functional in the region. 96% of the functional SHGs have regular meetings. 56% of the goat owners note the increase in savings through HDFC Bank interventions.** The convergence between the village panchayat and the partner NGO forms the backbone of project implementation in the area. There is a need to envision a **mutual-gains model in the region where mutual participation can lead to better implementation of projects.**

Promotion of Education: Under the HDFC Bank program, improving the quality of education in government schools is a key objective. The needs of the educational institutions in the area were centered on school capacity, amenities and utilities, drop-out rates, age-grade distortion, student performance, and student attendance. The project intervention aimed at infrastructural development in government schools that can have a lasting impact on children and their education.

For the same, wall repair, development of smart classrooms and repair/ construction of school toilets were all taken up as part of the intervention. **80% of the schools in the selected sample were supported with learning aids/ educational wall paintings/ messages (BaLa).** Drinking water purifiers were also established in school premises. **Out of the sample, 100% of the students can now spend more time at school, and 73% have fewer health issues.** Anganwadi rooms in primary schools were also repaired with BaLA wall paintings. This is reflected by an increase in the attendance of students in these schools during the current academic session. The interventions have performed well in most aspects of the program, which has resulted in creating a conducive environment by achieving improved sanitation facilities such as the creation of separate washrooms, use of smart classrooms for better delivery of courses, upgraded infrastructure and even the installation of drinking water system. All these have had direct positive results and have encouraged higher attendance and enrollment. Post-follow-up intervention can ensure the sustainability of the program in the future.

While sustained interventions in education have been carried out in project villages leading to better infrastructure, there is a need to focus on children’s learning outcomes and their measurability in the learning and retaining aspects through such interventions.

Table 1: Summary of key income indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	30000	50000	67%

HRDI Indicators

Table 2: Summary of HRDI scores

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Total	
	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Baseline	Endline
HRDI Score	0.21	0.24	0.05	0.06	0.03	0.07	0.06	0.08	0.34	0.46
% Change	14%		20%		133%		33%		35%	

Figure 1: Overview of project impact

	Natural Resource Management	Skill Training and Livelihood Enhancement	Health and Sanitation	Promotion of Education
Overview of Activities	Soil prevention activities, irrigation management, promotion of clean energy	Formation and revival of SHGs, building small businesses, Agriculture training and support, Livestock Intervention	Improvement of Kitchen Garden Construction of toilets and bathrooms	Infrastructural support, building separate toilets for girls and boys, drinking water support
Areas of improvement	More stop dams in villages that could not receive the specific support, irrigation support in steep land, providing agricultural resources to more households like seeds, connecting with FPO, Specific focus on small land holders	Handholding support for the opening of small businesses outside SHGs, Ensure continuity of SHGs, Resource care for better precautionary measures for goatary	More households to be associated for kitchen garden Construction of more toilets Creating source of drinking water	Support towards better education and learning support
Challenges	To provide constant support due to absence of adequate human resource for villages in interior location to receive support.	Convergence of SHGs and NRLM through Ajeevika for non-members, Many deaths of introduced goat and existing goats causing loss of existing resources	Many households could not be made part of the intervention, open defecation, unclean drinking water	Trainings and workshops with teachers and parents, inactive SMCs
Recommendations	Villages be selected in consultation with partner organization based on their capacity and interest of the both the granter and grantee. More seed production by farmers Active and handholding support to existing groups for strategy building	Strengthening of SHGs to support non-members, Provide resources for precautionary measures for goatary.	To cover more households for kitchen garden and construction of toilets, regular cleaning of drinking water resource and creation of more sources	Sensitization of teachers and parents, resources for learning for students, active functioning of SMCs

1. Introduction

1.1. Background of the Study

As part of the HDFC Bank's CSR initiative, programs are supported to deliver holistic rural development. Within Parivartan, the "Holistic Rural Development Program" (HRDP) is the flagship CSR program, under which non-governmental organizations across the country are supported to deliver development interventions. The vision of these programs is 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 skill development, ensuring basic infrastructural development, and establishing a better ecosystem thereby promoting better living conditions.

In the assessed HRD program in 30 villages of district Shahdol, Madhya Pradesh, the implementation partner of HDFC Bank was the Action for Social Advancement (ASA). The major focus areas for intervention were Natural Resource Management (NRM), Skill Training and Livelihood Enhancement, Healthcare and Sanitation, and Promotion of Education.

1.2. Partner Organization- Action for Social Advancement

Action for Social Advancement (ASA), has been working in the States of Madhya Pradesh, Bihar, Chhattisgarh, and Jharkhand in over 2200 villages for farm-based livelihoods promotion. ASA was established in 1996 by a group of development professionals with an objective of developing livelihood security of the rural poor, facilitated by an intensive participatory process of natural resources development at the community level and local institutional development. Particular emphasis is placed upon the poor and women. The target group comprises small and marginal farmers, about 80% of which are also from the tribal, scheduled caste, and marginalized sections of the society.

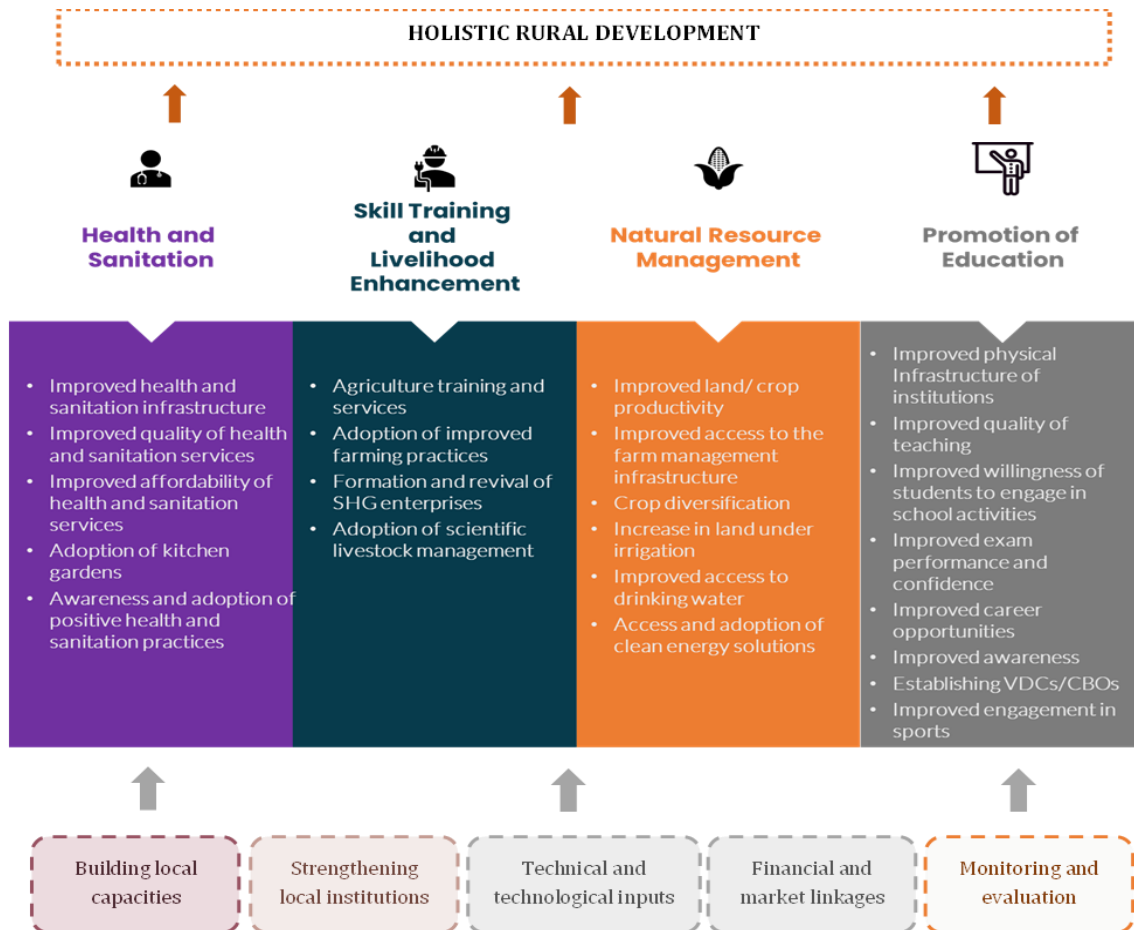
Over the years, ASA has worked relentlessly towards improving promotion of farm-based livelihoods of small and marginal farmers for land and water resources development, promotion of sustainable agriculture and creation of market access for the farmers for produce, inputs and services.

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 program 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 to inform HDFC Bank

in taking operational and strategic decisions while planning and funding partner organizations for such programs in future. The evaluation was also an opportunity to learn about the relevance of the programs implemented and the effectiveness of such programs. The conceptual framework employed and the area covered under the study are depicted below.

Figure 2 Conceptual framework of implementation



In this scenario, holistic interventions were planned and executed in 30 villages of Shahdol districts of Madhya Pradesh from the year 2018 to



2021 with a goal to ensure sustainable development of marginalized rural communities through capacity building of individuals and institutions.

2. Research Methodology

The assessment used both qualitative and quantitative methods. For each village and thematic area, activities completed were identified. The impact generated by these activities were 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 beneficiaries and ASA 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 was relevant to the needs of the marginalized groups. Also, to observe convergence or utilizing existing public resources, whether other possible stakeholders were involved 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. The 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 made an impact to the lives of the community members in the program areas. Analysis of program outcomes was done in light of the 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 data, the study has tried to understand if the program has worked on strengthening the community's capacity to ensure sustainability, and whether if any of the activities or strategies adopted has been/could be replicated.

2.1. Design and Methodology

A review of various program documents including quarterly and impact reports, program implementation timelines, and other relevant reports/literature related to the program was utilized for secondary review.

The primary research included quantitative household survey as well as in-depth interviews and focus group discussions with program beneficiaries and the partner NGO. The questionnaire was prepared based on secondary available data, discussion between the evaluation team and taking reference from the conversation with NGO partner.

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

2.2. Sample Size and Distribution

Since, Shahdol district has 30 villages with project coverage, the sampling and data collection was done to manage the 400 sample according to proportionate households in villages.

Table 3: Quantitative Sample Covered

Villages	Total Households
Bamura	43
Madwa	35
Jugwari	39
Jhagrha	42
Pachdi	40
Kelmaniya	48
Nargi	41
Patkhai	41
Bhamrha	39
Bandhwa bada	37
Total	405
	400

Table 4: Qualitative sample size covered

Shahdol	FGDs	IDIs
Total	9	12
Planned	11	12

Teams of enumerators, with requisite education and experience, were hired for quantitative data collection. 2 days training at Shahdol, Madhya Pradesh were provided to enumerators by NRMC team.

Image 1: Training of field team held at Madhya Pradesh

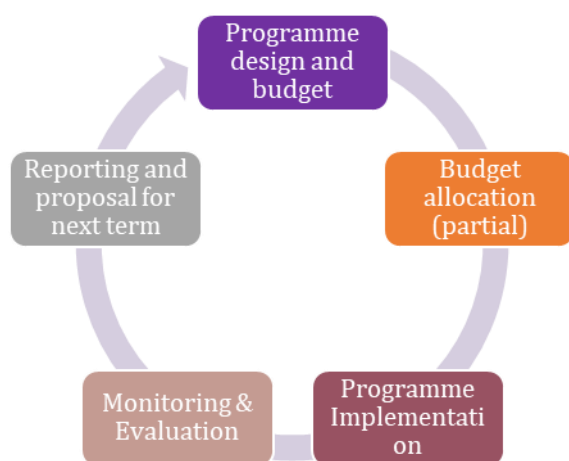


3. Program Review

3.1. Program Design and Implementation

The program interventions are decided on an annual basis, with an annual budget allocation based on the proposal by ASA to HDFC Bank. In Madhya Pradesh, a larger focus on improving natural resource management, irrigation, sanitation, health, and other awareness-generating activities was present.

Figure 4 Project planning and implementation process



Monitoring of the intervention by HDFC Bank is frequently undertaken and resources from different levels are deployed to monitor the activities frequently, however, such monitoring visits focus on the output aspects such as infrastructure and access while the usage and community-level challenges are usually not considered.

3.2. Program Relevance

The project interventions directly benefitted households, comprising of marginal, small, and medium farmers. The region of interventions comprises of farmers with 1-4 and less than one hectares of land. The few farmers in the land holding range of above 4 hectares, with large share of non-productive, unirrigated land mostly non cultivable in nature, were also unable to gain adequate incomes irrespective of higher land holdings. All villages with beneficiaries were not well connected with the public transport system and do not have electricity at all hours. These villages lacked proper sanitation and water resources for the purpose of drinking and irrigation. The school infrastructure was poor that prevents holistic development of children and formal education. Banking was accessible to majority of households and the presence of Self-Help Groups helped in financial inclusion.

Monocropping was dominant in the region, and majority of farmers cultivated paddy during kharif season. Gram or wheat was grown during rabi season by farmers who had basic irrigation availability. Crop diversification and high value cultivation of fruits, flowers, vegetables, and spices was limited, and farming provided limited income generation opportunities and food for self-consumption. Very few farmers could produce one-two leguminous crops in continuous cycles without retaining soils nutrients and taking required measures to improve productivity. HDFC interventions helped in establishing irrigation systems with or without electricity, appropriate use

Image 2: Wadis developed under HRDP in Madhya Pradesh



of sun light as natural resource, introducing wadi model and introducing crop rotation in chickpea cultivation to increase revenue in the region. Farmers were earlier not fully aware regarding maintaining efficient Integrated Nutrient Management and Integrated Pest Management practice, leading to widespread use of chemical fertilizers and pesticides. Farmers also did not practice vermicomposting or use of organic fertilizers. Majority of families used urea,

DAP and other chemical fertilizers affecting soil health, reduces water retention capacity and continuously increases input cost. Limited farmers had accessed any type of soil testing services.

Major crop yields are also low, when compared to region and to achieve the expected yield farmers were not aware of improved farming practices, as well as did not have access to appropriate technologies and resources. Farmers in the region especially women did not have complete and easy access to social security nets and majorly were dependent on agricultural income as their primary source of livelihoods. The region witnesses insufficient agriculture production.

Project district and villages have majority tribal and vulnerable tribal population. Water storage structures are also limited in the villages and majority of households primarily depend on rainfed agriculture. Penetration of any form of micro irrigation technologies is very poor and very few households can afford using drip/sprinklers. In the given context of project villages, increasing the penetration of micro irrigation technologies was essential as it would ensure optimum utilization of available water resources.

HDFC Bank's interventions in the region focusses on channelizing natural resources, building capacities of rural and tribal poor and facilitates sustainable development at family/household, village and community level with strong community institution ensuring sustainability and active support system. This was achieved through interventions for resilient and sustainable agriculture, natural resource management, livestock development, livelihood support, revival and formation of self-help groups and renewable energy resources. Interventions for better community practices for women and children were also implemented along with interventions in village schools.

4. Study Findings

4.1. Demographic profile

The project villages are spread mostly in one part of the Shahdol district. 67% of the population is literate but this has not increased since 2001². The table below indicates that the main activity in the region is cultivation and wage labor. This section provides the demographic profile of the respondents covered in the sampled program villages under the assessment³.

Gender	
Male	34%
Female	66%
Age	
18-25 Years	4%
26-35 Years	36%
36-45 Years	32%
45-55 Years	14%
More than 55 Years	8%
Educational Status	
Illiterate	23%
Literate but no formal education	18%
Up to 5th std	12%
6th to 8th std	18%
9th to 10th std	17%
11th to 12th std	9%
Graduate	2%
Post graduate	1%
Diploma	0
Other	0
Social category	
Scheduled Caste (SC)	10%
Scheduled Tribe (ST)	61%
Other Backward Classes (OBC)	24%
General	9%
Ration Card	
Antyodaya	4%
BPL	64%
APL	22%
Other	0
Do not have a ration card	9%
Income sources	
Cultivation	89%
Livestock	27%
Salaried employment	5%
Non-agricultural income	19%
Wage labor	68%

² Census 2001 and 2011

³ The total number of respondents for the survey were 405 across sample villages

Pension	14%
Remittances	1%
Other	1%

4.2. Natural Resource Management

HDFC Bank interventions in project villages focused on two key aspects: Improvement in agricultural produce through soil and water conservation initiatives such as trenches, stone bunds, farm bunds, refilling of farm bunds etc., training on natural farming practices through exposure visits and linkage building workshops, availing relevant resources and finally, distribution of smokeless chullah and solar lights improvement of household facilities. Additionally, through the project, agri-horti-forestry model - wadi's have been established and after care, support was provided to the established wadis. This has been helpful to increase cropping intensity in the region, increase groundwater level and establish a livelihoods model moving towards sustainability. Solar streetlights were also installed in all project villages.

Table 5: Activities under NRM in Madhya Pradesh

Activity Category	Activities
Irrigation Management	Stone Bunds, Contour trenches, Gully Plugs, Drip systems and Sprinklers, Check Dam, Gabion Structures, Pond Construction, solar pump
Farm Management	Distribution of tools, preparing organic manure
Clean Energy	Solar Home lights, Solar streetlights, biomass chullah
Plantation	Wadi Cropping

4.3. Effectiveness and Impact

Through HDFC Bank project interventions, wadi plantation was implemented with farmers. Farmers were also provided mango and lemon plants with continuous onsite support and training to ensure systematic plantation. Drip irrigation system was implemented with wadi farmers. This generated an additional form of economic support for the farmers and small landowners. Training and information dissemination focused on optimum fruit ripening and different pre- and post-harvest interventions to be taken up according to the particular fruit type to ensure well ripened quality fruits reach the market.

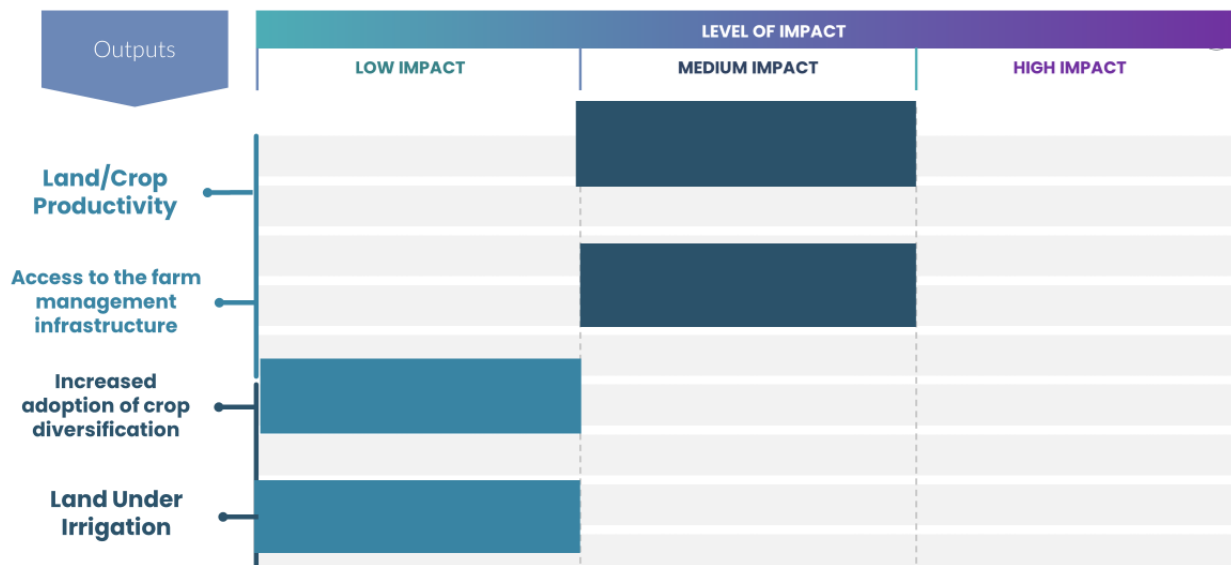
Birsinghpur Farmers Production Company Limited was established prior to the project in 2016 to develop market linkage for the farmers' produce saving time and resources to sell it in bulk quantity. FPO provides support to producers who are into seed production; the farmers are involved in producing their own seeds which are later being purchased from the farmers.

There are stop dams that support more than one village and hectares of land for the agricultural purpose. They have been a huge support towards increasing groundwater level through recharge that also supports water availability and usage. There are Water User Groups formed in villages to take care of water resources, their maintenance and regular operation. The group meets regularly for updates and collects feasible user charges to support repairs and day to day functioning of the

group. Farmers avail maximum impact of stop dams during monsoon through soil erosion prevention and maintenance of water tables.

152 sample beneficiaries were also supported for solar home light system. This intervention helps individual's household towards improved quality of lighting, cost effectiveness, improved study hours and supports other household chores. 47 beneficiaries reported that solar streetlights installed near their house specifically increased their access to key walkways in the region during the night.

Figure 5 : An overview of project effectiveness and impact in NRM



Income from agriculture: There has been 67% of increase in the income from agriculture through various interventions especially water/irrigation management and organic farming that reduces input cost for moderate agricultural land owners. Further, crop rotation has become a huge success among the farmers. Farmers have taken up seed production that gives them an additional income apart from kitchen garden development for sustenance and selling purpose. Water retention and farming techniques to prevent animal trespassing have helped ensure safety of the crop. Further, through water and irrigation management and creation of sources of water like dug well there has been an increase in the availability of water marking an increase in the net income and gross income of the farmers. Qualitative interviews in the region also reported an increase in agricultural yield of crops. The farmers of the region through technical and financial support received have made a great progress preventing migration, acknowledging women's major role in agriculture, and through saving of economic resources. This has resulted in an increase in income as seen in the figure below:

Figure 6 Increase in annual agricultural income in Rs. (Based on median)



Before (n)=72, After (n)=121

The income has increased from annual net income being Rs. 30,000, to Rs. 50,000 in current year, marking a 67% increase in comparison to the income before the interventions. Since the agricultural area is majorly dependent on rain, the water and irrigation management interventions have benefitted the community in the increase of income as risks due to climate uncertainties have a major impact on livelihood security of the households. However, 96% of the respondents have been fully satisfied with the farm pond construction interventions, there was very positive response to organic farming, irrigation resources and benefits that came with these interventions further reducing the input cost.

The agricultural practices of farmers involved the use of chemical inputs that is an added expense to the input cost of farming, forcing farmers into situations of debt. Through climate resilient agriculture practices, HRDP interventions motivated farmers to shift to organic modes of farming and were trained to practice organic farming through preparation and use of organic inputs. These inputs are made of locally available resources at minimum cost and hence do not have any cost factor associated with them. Following key factors contributed to an increase in income in the area.

Table 6 HRDP interventions that contributed to increase in income

Interventions	Beneficiaries with increased income due to intervention
HDFC interventions in seeds and tools	44.7%
HDFC interventions in irrigation	74.7%
HDFC interventions in organic farming	50%
HDFC interventions in soil testing and land treatment	4.7%
HDFC interventions in farming techniques (e.g. SRI, creeper farming)	6%
HDFC interventions in agricultural installations (e.g. green nets, farm bunding)	3.3%

HDFC interventions in crop insurance	4%
Other HDFC interventions	2.7%
Weather conditions	56%
Market Prices	71.3%
Increased area under cultivation of crops	24.7%
Better production due to reasons other than HDFC Bank project interventions	4.7%
Support from other projects/institutions	4.7%
Total	100%

Through the project, agri-horti-forestry model has been established. Wadi farming was given handholding support through which farmers started to grow mango and lemon in unused area of their land. Beneficiaries were provided with water wheel to carry water from its source to agricultural land, wadi or kitchen garden. HDFC Bank interventions also helped in supplying essential nutrients, essential pesticides, and insecticides. 68% of the respondents have been fully satisfied with wadi cropping interventions. This has been helpful to increase cropping intensity in the region, increase perennial green cover and establish a sustainable livelihoods model.

Through the project implementation, interventions for irrigation during the project period (3 years), post the construction lack of proper maintenance has rendered farm pond, farm bund, stop dam, drip installation, sprinkler, lift irrigation, solar water pump, dug wells insufficient to meet the scale of irrigation presently. Through qualitative data collection, it was noticed that the respondents seek more interventions of the same sort to aid farming in the region. Diversification of crops has worked well for the farmers. The land where many tribal families live are facing challenges for irrigation purpose to grow paddy that require still water.

Use of clean energy solutions: 152 households in project villages were distributed solar lights and 116 with biogas chullahs. The solar lights have greatly benefitted families, which sustained light in the night for children to study in the evening, women to do household chores, charging phone battery etc. Biomass chullah has helped reduce the cost of cooking, smoke related hazards, easy mobility, taste remains same to the traditional chullah and reduces time in cooking that occur due to regular chullahs.

To ensure the village is properly accessible to everyone at night, as per the quantitative data 35 households out of 47 interviewed have solar streetlight around their house installed with the support of HDFC Bank interventions. These solar lights have greatly benefitted the people as women and children are able to move more freely at night. The solar lights are set up on key roads of the village, making the main alleyways light up at night. The streetlights are installed considering the regions of the village helping in community development. In many villages beneficiaries informed that either the street lights require repairs after being installed before 3 years and some do not remain lighted all night.

Figure 7 Uses of clean energy solutions

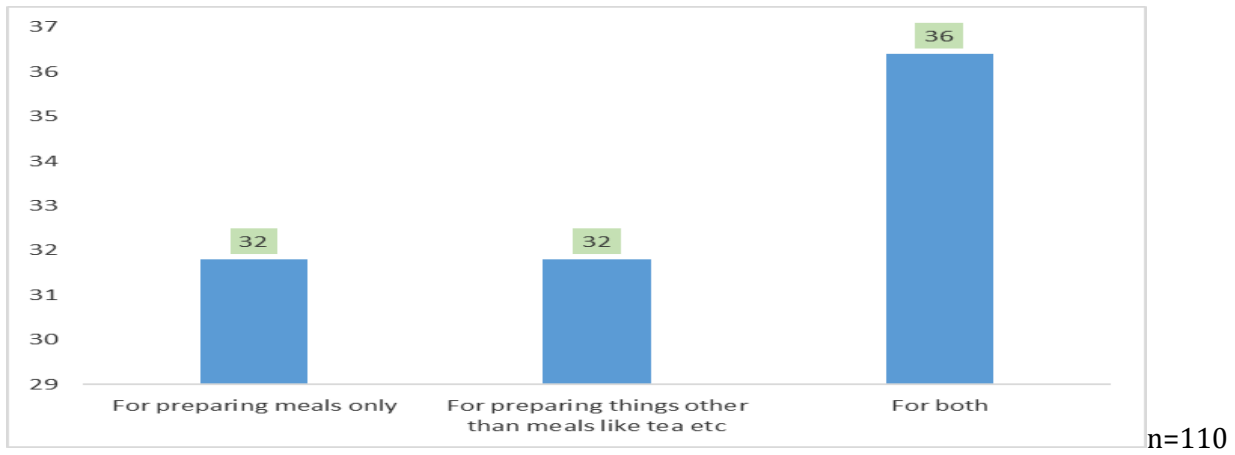
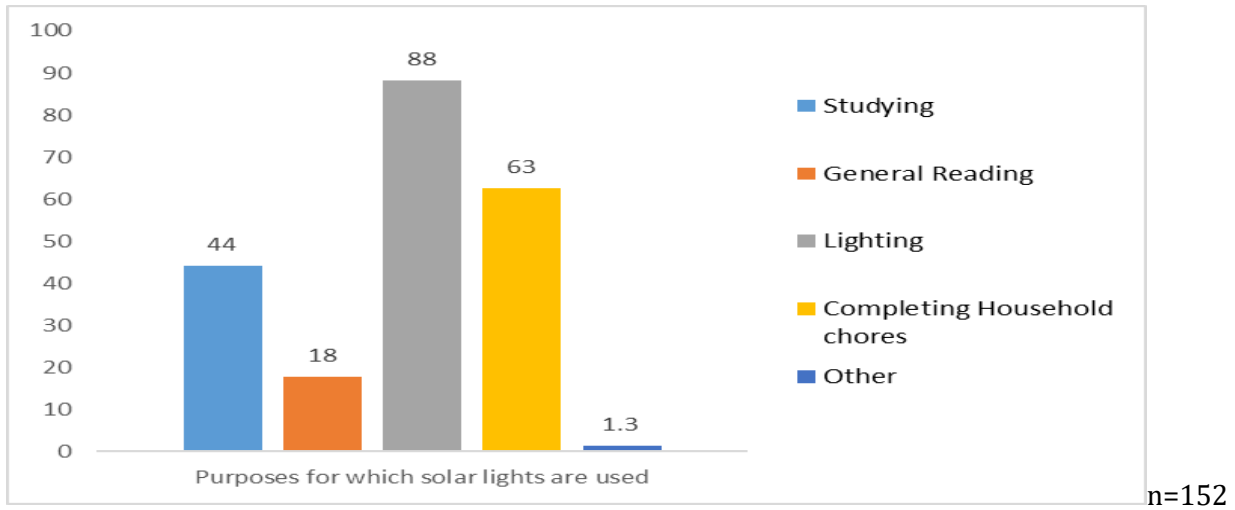
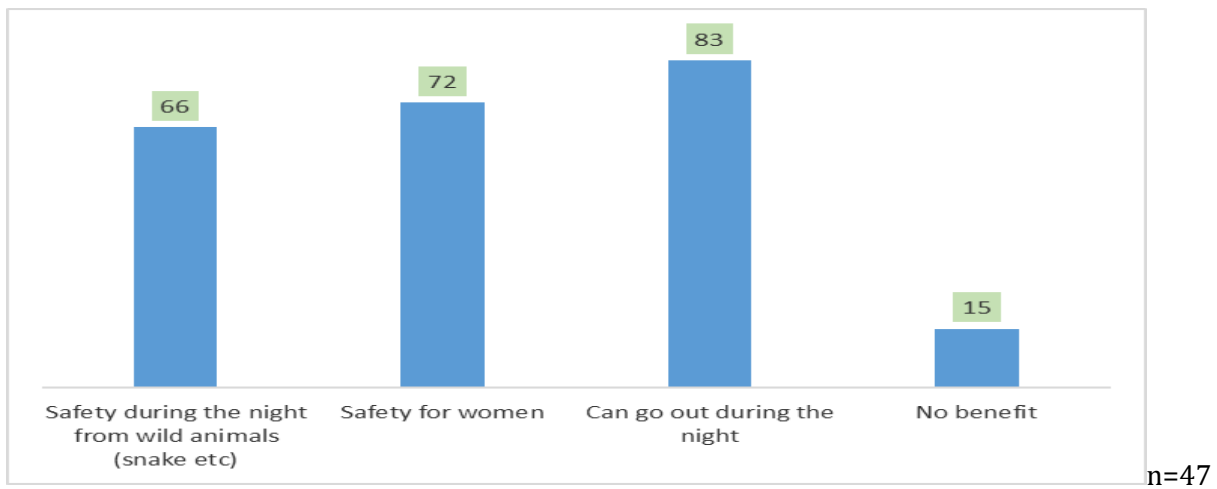


Figure 8 Perceived benefits of solar streetlights



66% of the solar streetlights in the area are functional and 34% are not functional. There is a need for battery change and regular maintenance of the streetlights through Village Development

Committees (VDCs) that can help ensure sustainable usage of the lights. The solar light distributed in the area while benefited the people, only works for a short duration but is still cost effective and helps in reducing electricity cost.

4.3.1. Case Study

Women experiencing change in Bamura Village

Puja Mahta stood next to the solar street light installed in her village with three more women sharing how with street lights complete lane lightens up and women do step outside after dark. She is living in Bamura for many years. The street light did not need any repair since its installation. They also received solar lamp for their household, apart from seeds of wheat, arhar and seeds for kitchen garden.

She was very happy to share how arhar production is so high and use of organic manure has been the biggest reason for that. She and other women from her village prepare organic manure. She showed us two pits that will be filled and two heaps which will be ready soon. She shared how chemical fertilizers like urea and DAP were increasing the input costs. She will be selling her produce to the FPO soon after cleaning it. Chana production was also very good, she mentioned. She shared about other forms of manure they have learnt to prepare. She very happily shared how women know so much now after ASA and HDFC Bank's initiative.

4.4. Skill Training and Livelihood Enhancement

Skill and livelihood-based activities were conducted in the form of agricultural training, skill, and enterprise development, and livestock management. A technical visit by NRM thematic experts and micro irrigation technology experts from the partner organization at the target villages helped to identify suitable technologies and water management interventions. Soil samples were collected and sent to specialized labs for testing. This was followed by identification of quality seed and its distribution to farmers with appropriate advisory on soil quality and required fertilizer inputs. Under livestock development program, services were provided in livestock management such as breed improvement through providing high quality male bucks to produce good breed goats that can bring in good economic returns. The livestock were supported with veterinary camps for general health care, insurance through convergence etc. SHGs group were formed and revived and formed in the targeted villages. Nutritional/kitchen garden seeds support were given to sustain nutritional value in the project beneficiary households and sell the remaining part adding to the family income.

Table 7: Activities under skill training and livelihood enhancement in Madhya Pradesh

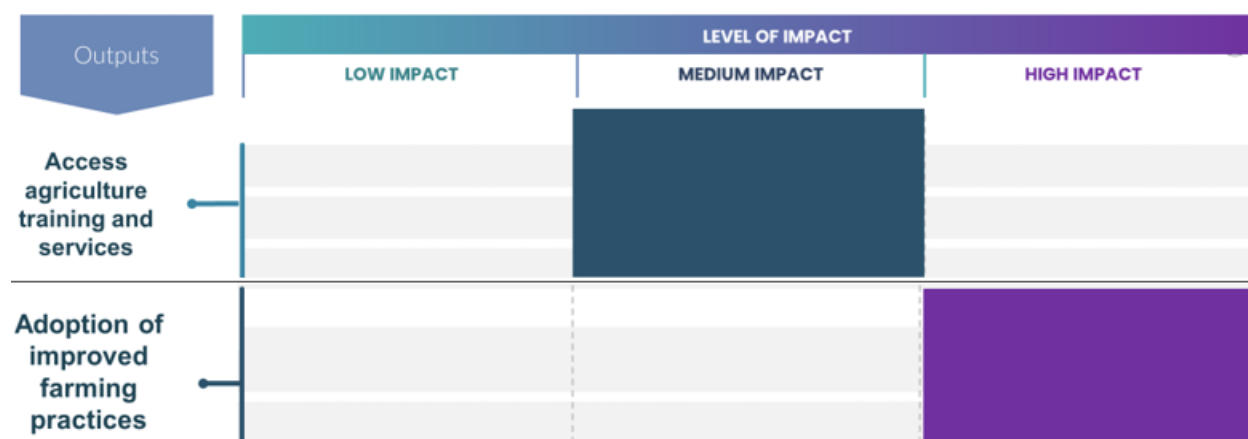
Activity Category	Activities
Agriculture Training and Support	Exposure visits, farmer training and soil sampling
SHG-Based Women Empowerment	Formation and revival of SHG's, skill training, loan giving, bookkeeping
Livestock Management	Breed improvement and support for goat rearing, veterinary camps, animal insurance via convergence

4.4.1. Effectiveness and Impact

Farmer especially women were trained in seed production, irrigation methods, goat rearing etc. Though a small number of farmers from the sample size received agricultural trainings and support, there is always assurance of dissemination of the information. Some of the beneficiaries are also master trainers under National Rural Livelihood Mission (NRLM). Maximum number of farmers received training on farm techniques that has clearly been beneficial to them in terms of production and profit. Farmers' Groups are formed to build community support towards sustainability and sharing of positive experience.

Various informal groups were formed and strengthened in all project villages such as on Goat Rearing Group, Water User Group, Lift Irrigation Group, Farmers Group etc. and formal Farmers Production Organisations and Self Help Groups. Women SHG's were formed where training on bookkeeping and local skill development was conducted. Many new businesses were established such as grocery shops, mushroom cultivation, goat rearing etc. The interventions also helped in setting up SHG enterprises linking them with National Rural Livelihood Mission to receive better and sustainable support.

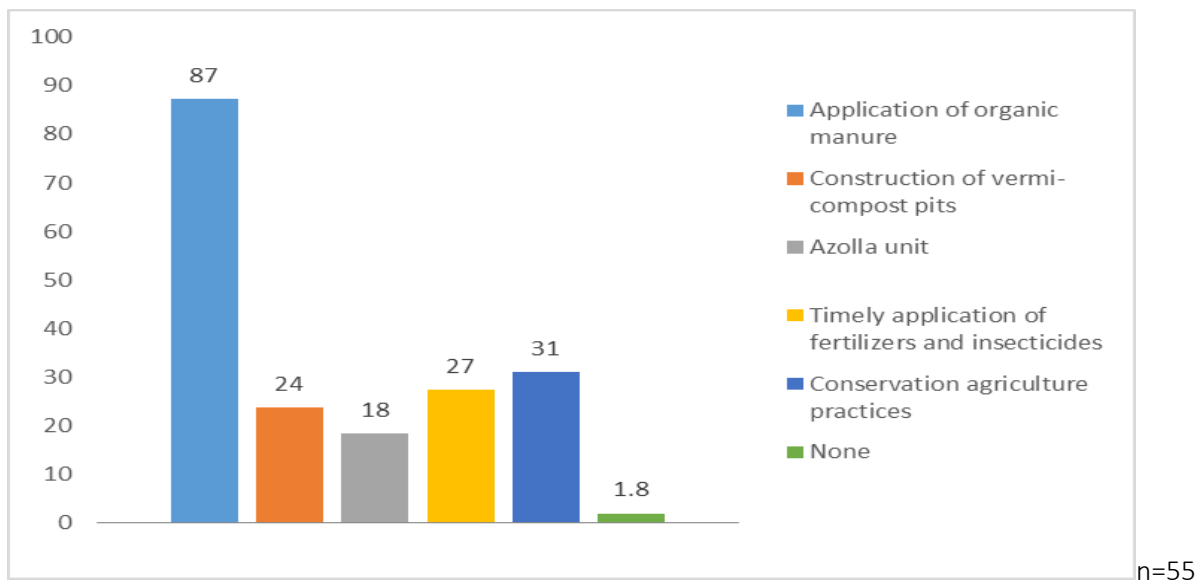
Figure 9 An overview of project effectiveness and impact and skill training and livelihood enhancement



Agriculture training and services: The FPO formed in 2016 was made an active part of the initiative to provide formal training to its shareholder farmers based in 30 target villages. There is a constant effort to ensure active effort to maintain soil components without exhausting them using crop rotation as a method. However, farmers did have an awareness of it but additional information and basic support builds comfort and confidence to go forward. As mentioned, FPO purchases quality breeder seeds from farmers and does the sorting and grading of the seeds as well as the agricultural produce to support farmers. FPO has conducted trainings and other workshops via partner organization to keep them equipped and scale their work. The effort aims at creating decentralized system for production and marketing of the derived value-added organic inputs, focusing on rural entrepreneurship and easy availability of affordable, quality organic inputs. Farmers are organized in farmer producer groups and their capacities are being developed to run the decentralized private system. Regular handholding support was provided to FPOs, and technical guidance was provided to ensure that the FPO is established and runs effectively.

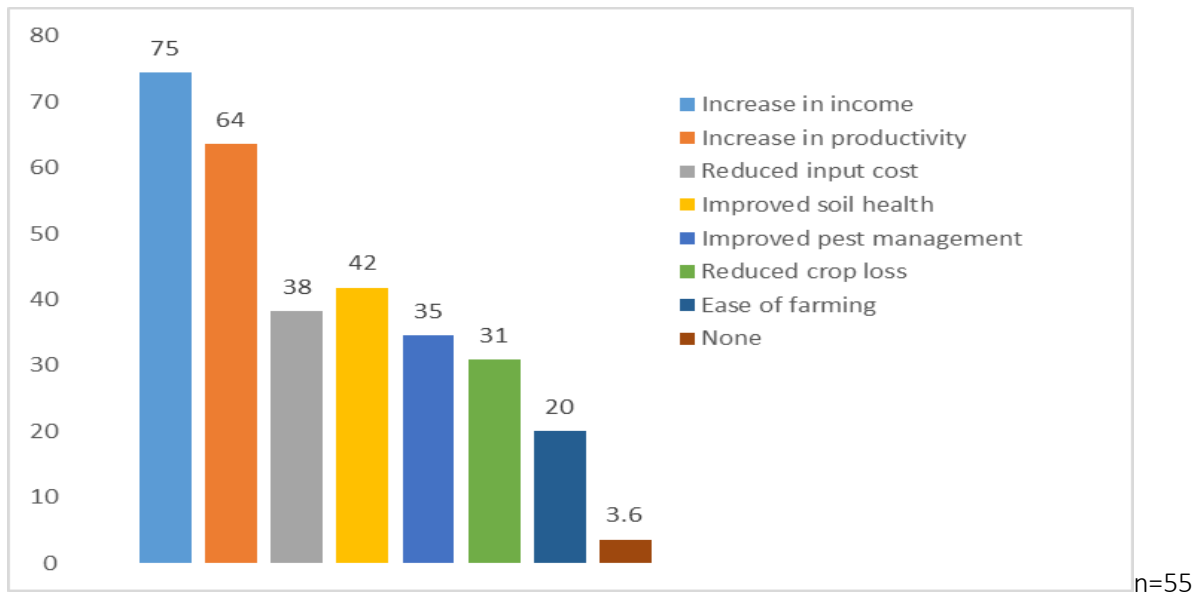
The organic manure is prepared and used regularly by the farmers where many farmers will officially get acknowledged as organic farmers in no time by frequently preparing and using it. Through the HDFC Bank interventions, farmers have been trained in the timely application of organic manure and pesticides. These practices have helped in improving the crop yield and has been popular in the region.

Figure 10 Agriculture practices learned through HDFC trainings and currently practicing.



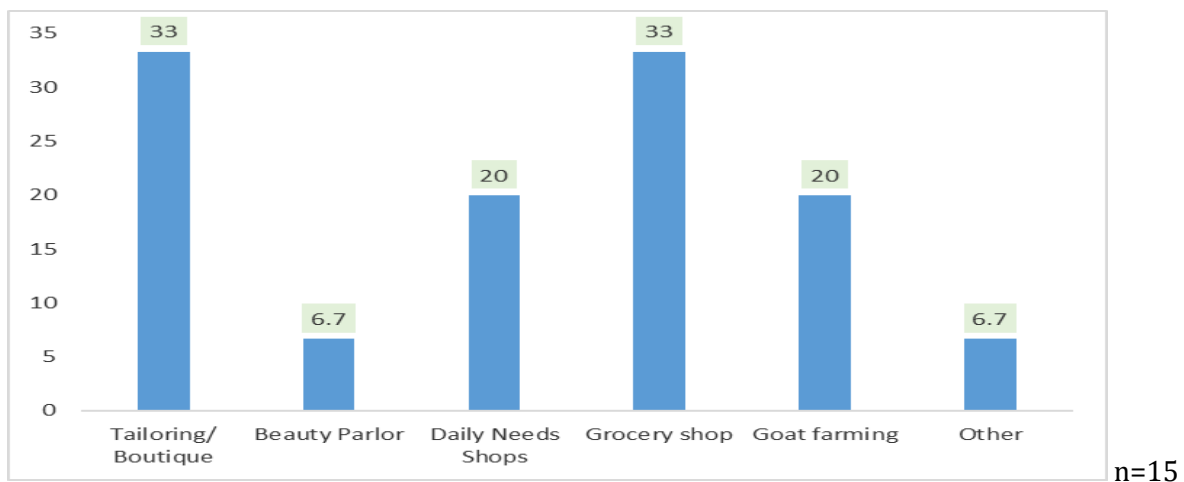
HDFC interventions have benefitted the farmers in increasing land productivity thereby resulting in increased income. Agricultural soil that usually became unsuitable for agriculture is now being replenished through organic manure thereby improving soil health. Together with soil treatment and organic manure, the region has benefitted through agriculture trainings and support for better crop yield.

Figure 11 Perceived improvements due to adoption of agricultural practices



Economic Empowerment through collectivization: Farmer groups were formed in the region mainly to aid the process of implementing farmer trainings and improved results for the region. These have benefitted farmers in better group mobilization. The initiation of farmer groups engagement with the villages was strategically done by existing collectives/ groups like SHGs. This turned into a tool for convergence and constant support at the later stage and the role of women also came out very clearly and effectively for them to be vocal and have decision making powers.

Figure 12: Support provided to SHGs



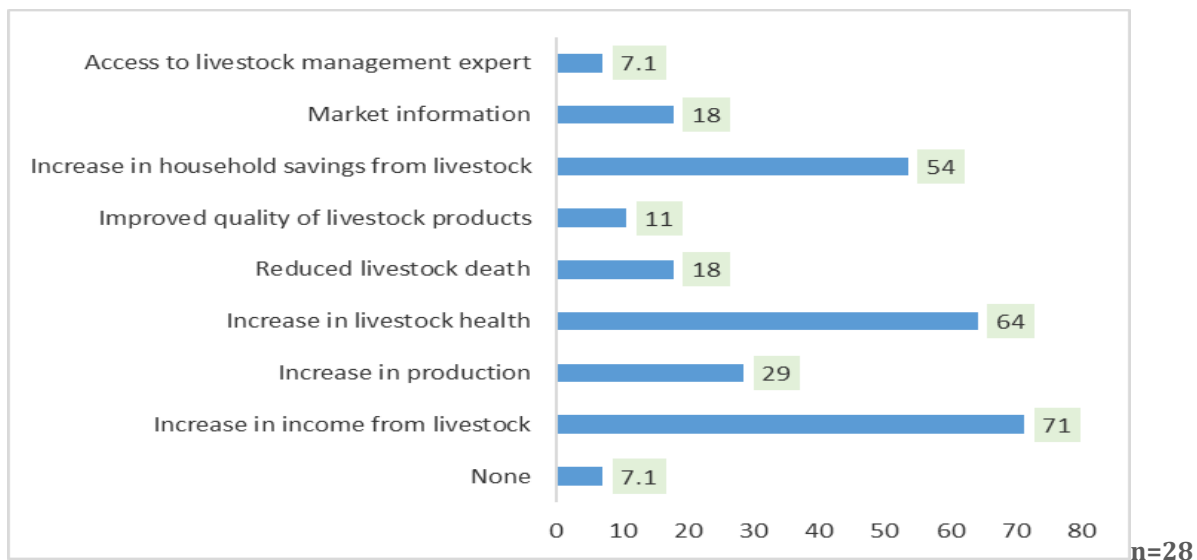
There are 151 households benefitted by HDFC Bank’s engagement with SHGs. The major engagement was for the establishment and reviving of the SHGs. There are 94% active SHGs (of 151 total). Women being part of SHGs came out very actively and supported their families by taking low

interest loan from the group. All women actively part of the SHGs are very well aware of its functioning. They ensure meetings happen regularly and support each other empathetically. Grocery shops, mushroom cultivation and goat rearing were the most successful initiatives supported by HDFC Bank that led to increase in family income. With regular savings in the group, there remains an increase in the collective income of the SHG aiding the processes to generate income. Members of self-help groups are trained in bookkeeping, maintaining records, opening of bank account and management of credit and thrift activities.

Livestock Management: Under livestock development program, interventions such as breed improvement in goat, general health care, insurance through convergence etc. were implemented in all project villages. In breed improvement, crossing of an exotic, indigenous breed with improved breed led to enhancement of the genetic characters of the offspring and the cross-bred goats sold at a much higher price than a regular goat. Breeding buck of sirohi breed were given to goat rearing families for breed improvement. This initiative helped the landless farmers to develop sirohi breed from desi goat.

Additionally, to prevent animals from various diseases and to improve their health and productivity, veterinary camps were organized. The trainings were also provided to increase production and reduce risk of their death. Though a lot of effort was made by the partner organization, there were not enough resources with beneficiaries to maintain safety of the new male goat, existing goats and lambs. The survival rate was low.

Figure 13 Primary benefit gained from these activities for goat rearing



On an average, interventions in livestock management resulted in an additional income of Rs 2000. For small and marginal farmers, this additional source of income proved to be exceedingly beneficial to take up more investments.

4.5. Health and Sanitation

Through HDFC Bank interventions dug wells were established in project villages to provide access to drinking water in less privileged areas of the village along with community water tank for safe drinking water access. Additionally, water wheel is also provided in many households to conveniently carry water from its source to destination. Household toilets were constructed where maximum fund was allocated through HDFC interventions and a small portion was provided by the household. Kitchen garden training and related interventions in households were also implemented to provide nutritious food to households.

Table 8: Activities under health and sanitation in Madhya Pradesh

Activity Category	Activities
Sanitation	Construction of household sanitation units
Drinking Water Management	Solar water lifting pump
Kitchen Garden	Formation of kitchen garden, training

4.5.1. Effectiveness and Impact

Through HDFC project interventions, 151 households were benefitted out of the sample. The households with no sanitation units or those requiring maintenance were supported by HDFC Bank via partner organization. They are all under use and reduced the number of people going out for defecation to a great extent. Women particularly have found it more liberating since they don't have to go far from their house, it keeps them safe and cleanliness is maintained. There are two soak pits that collect the waste and does decomposition. The beneficiaries are well aware of the structure of the units to understand the need for its cleaning and maintenance as and when required. The partner organization also built bathrooms along with the sanitation unit to ensure privacy of the women.

Dug wells and hand pumps were provided at the community level for many households to use them. Their maintenance was also done throughout the period of the project. There are 128 households that receive support for clean drinking water. Water wheel was a major success providing easy access to water and carrying facility

Sanitation infrastructure and services: Through the construction of toilets in disadvantaged households, much relief has been provided to women and the elderly in terms of access to safe defecation facilities. Households with toilets are also benefitting the larger community as these are often accessed by members of neighboring households. Project interventions for sanitation practices have been successful in the region.

The intervention for sanitation units has been key in giving dignity to women members of the household. Unsafe and open defecation facilities had led to women getting routine infections through the process. This is also a marker for better overall health of the household through the proper and adequate maintenance of toilets.

Figure 14 An overview of project effectiveness and impact in Health and Sanitation

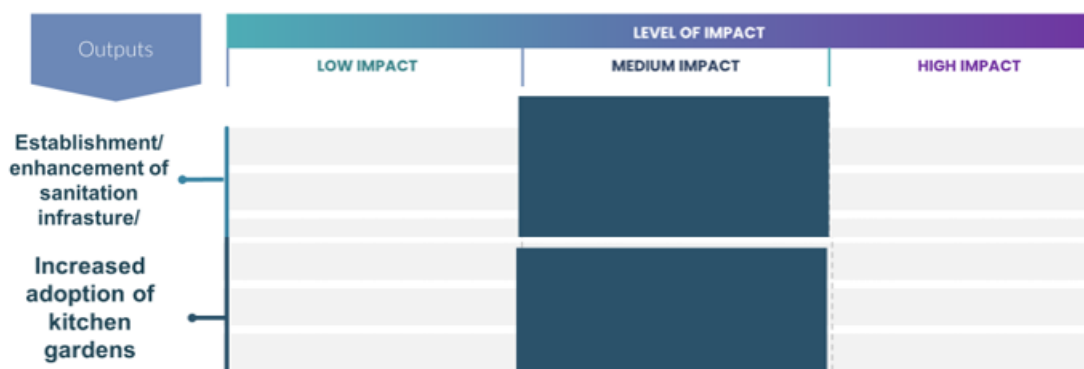
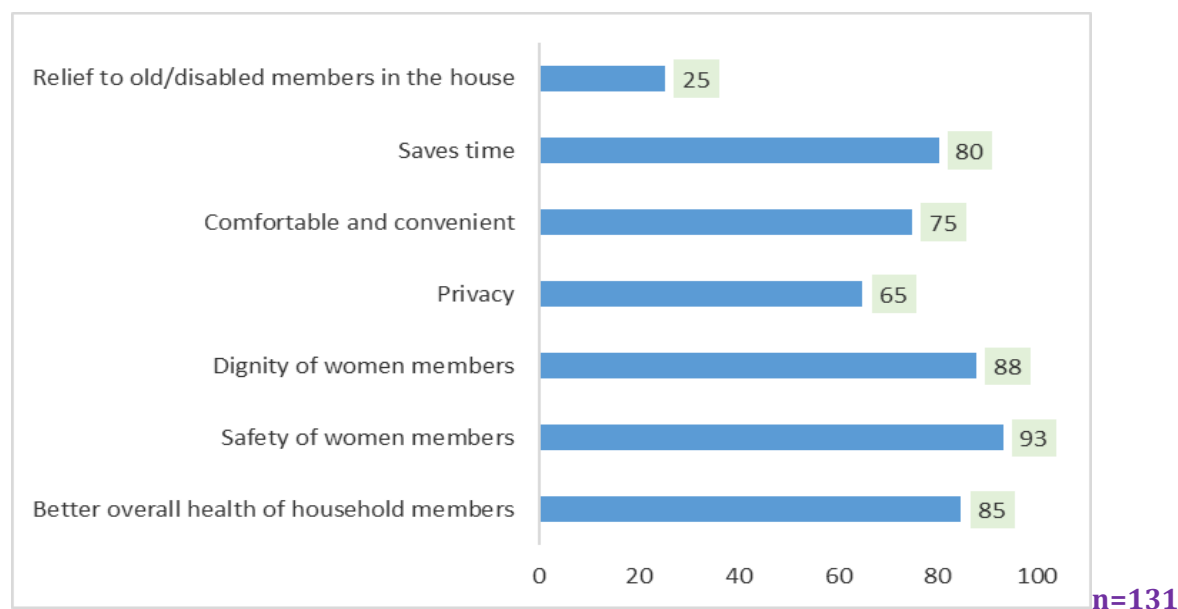


Figure 15: Perceived benefits of HH sanitation units



Though the sanitation component provided cost support for constructing the sanitation units for toilet-less households, the much-needed support for providing information, education, and communication (IEC) to attain an open defecation status at the village level was lacking. In the absence of this, it was difficult to trigger behavioral changes across villages instead of few beneficiaries.

Kitchen Garden: To provide a sustainable and healthy quality of life to households, HDFC Bank interventions aimed at developing kitchen gardens in households. This was done by providing materials for construction, distributing organic, good-quality seeds to households and training for better farming practices.

HDFC Bank via partner organization trained the members to use their respective backyard spaces to grow vegetables. The training included the plantation techniques that covered the method of sowing, the time of sowing and best practices related to irrigation, and the effective use of bio-

fertilizers and bio-pesticides. Vegetables such as tomato, brinjal, potato, bottle gourd etc. have been produced seasonally in household kitchen gardens. The women in the villages have taken up the primary responsibility for the maintenance of the same.

Through qualitative interviews, women note an increase in nutrients and a more nutritious diet has been observed as vegetables were often not bought due to their high price or brought in small quantities.

4.5.2. Case Study

Presence of Sanitation Units preventing open defecation

There are 12 toilets and bathrooms constructed in the Bandwa Bada village for 12 households that did not have toilets and many families would go out for open defecation early morning and at different times. Women would be the first one to go by waking up much early, doing house chores and then working on the farm land, feeding livestock, doing some work related to SHGs or running their small shop.

It was very bothersome for them with the additional family responsibilities; there was still no relief in a basic requirement of toilet that saves their time, they remain care free. One woman having one daughter and two sons informed that her daughter refused to come back home to her maternal home due to the absence of toilet but now she has come back to her family.

4.6. Promotion of Education

Under the HDFC Bank program, the purpose of improving the quality of education in government schools is a key objective. The needs of the educational institutions in the area were centered on school capacity, amenities and utilities, drop-out rates, age-grade distortion, student performance and student attendance. The project intervention aimed at infrastructural development in government schools that can have a lasting impact on children and their education. For the same, wall repair, development of smart classrooms and repair/ construction of school toilets were all taken up as part of the intervention. Drinking water was also made accessible in school premises. In the final stages of the project, Anganwadi rooms in primary schools were also repaired with BaLA wall paintings. This is reflected by an increase in the attendance of students in these schools during the current academic session.

Table 9: Activities under education in Madhya Pradesh

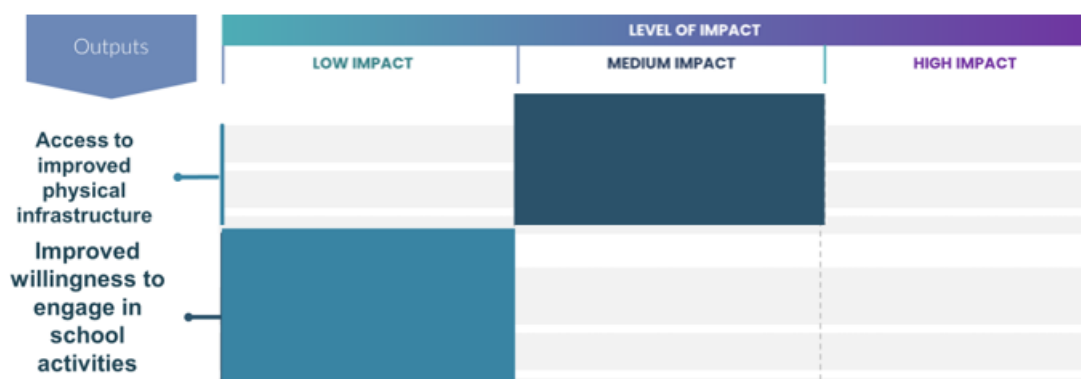
Activity Category	Activities
Educational Institutions Development	Construction of Smart Classrooms, Bala Paintings in Schools, Construction of School Toilets, Drinking water posts, Chairs

Education Support	Library construction
Sports	Distribution of sports kits

4.6.1. Effectiveness and Impact

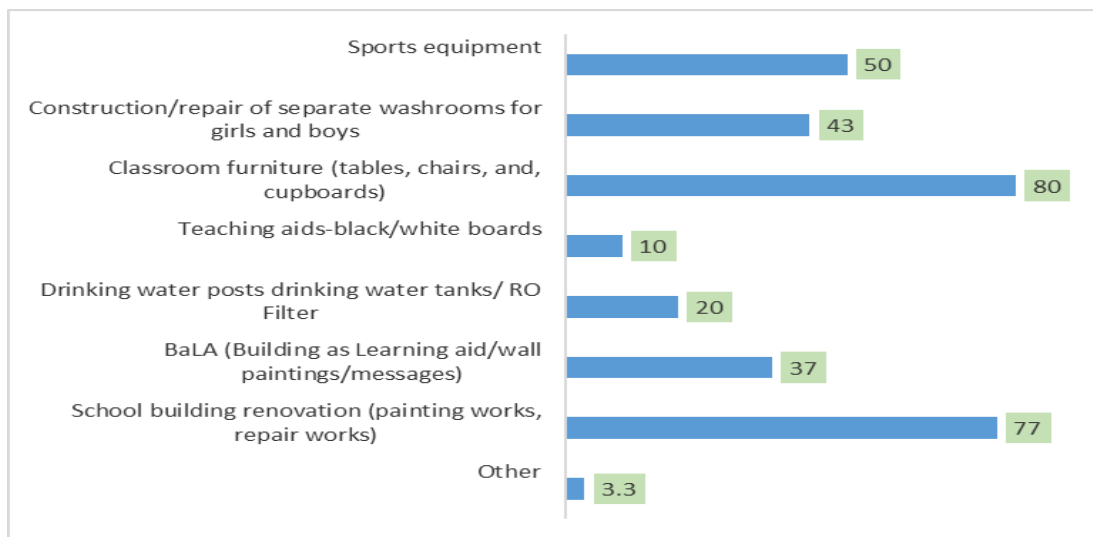
Through HDFC interventions, 26 schools among the sample were provided with drinking water posts, or tanks or water purifiers in government middle and primary school of 30 villages of Shahdol district to ensure drinking water facilities for students. Through initiative of HRDP, not many schools were benefitted with the development support but the quality of support and continuous engagement was a strong effort. Smart classrooms were set up and trainings were conducted for govt. schoolteachers. The intervention village schools have separate toilets for girls and boys. These school toilets were renovated according to the needs (e.g., repair of tiles, roof, wall, providing urinals in toilets, water tanks etc.).

Figure 16 An overview of project effectiveness and impact in Education



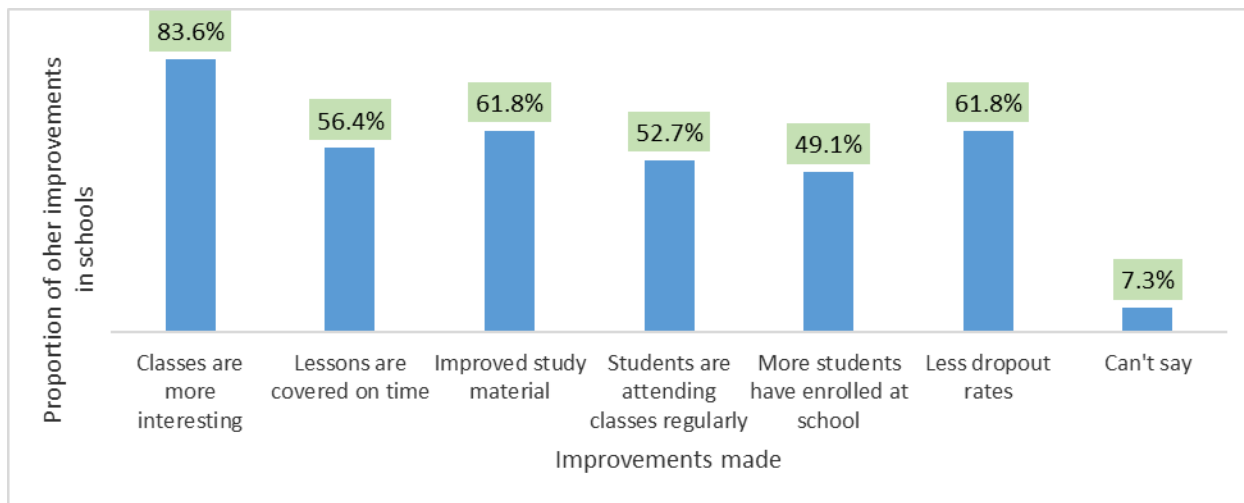
Educational Institutions: It is necessary for children to have good, well-maintained bathrooms in schools so that they do not have to go home between classes or they don't have to drop out from school especially sensitive tribal groups with very little literacy among them. For the same, HDFC interventions repaired school toilets that are safe and hygienic for children. Additionally, the whitewashing of school walls and BaLa paintings in Anganwadi rooms and other school walls have improved the children's interest in going and playing around the school campus. 13 out of sample village, toilets consisting separate for girls and boys with taps for hand washing were constructed in all the project villages where 11 are under good condition. This has combated the spread of disease in schools

Figure 17 Facilities/support provided to schools through the HRDP/ initiative by the HDFC bank



Upon asking the beneficiary students about the interventions, many students stated that school walls are painted, there is a better seating arrangement, there are more black and white boards and better equipment for extracurricular activities and it became easier to go to school because of the construction of school toilets. The attendance in the schools of the students has improved, through HDFC Bank interventions in schools. Many now like going to school due to whitewashing of rooms that has made stable classroom structures. All the following interventions have positively affected the development of schools that give rise to better modes of learning and motivation for students.

Figure 18 Other improvements in schools



While education infrastructure in the form of school toilets, classrooms, and equipment are crucial elements of the learning environment and is known to improve student outcomes, facilitate better instruction and reduce dropout rates. A strategic and holistic approach is needed focusing on social-emotional learning, student's academic progress and one which is data-driven and centered on

measuring student’s learning outcomes and overall quality of education. While the project was successful in creating a conducive learning environment in the schools, more needs to be done to engage with the community. The project needs to create greater awareness among the School Management Committee (SMC) members on the RTE (Right to Education Act) as well as their roles and responsibilities towards school development.

4.6.2. Case Study

School Interventions – Discussion with School Teacher

Through HDFC Bank interventions in the region, primary schools in most of the project villages intervention were taken up to maintain structure of the school and Anganwadi by creating BaLa drawings, doing maintenance work, providing chairs and desks for students to be comfortable in school. Another very important initiative was taken to build separate toilets for girls and boys that eventually will and continue to have an impact of decreasing dropout rate.

There has been occasions when students will rush home to bring water since no drinking water was available in school premises. Summers are extremely hot during the day and for students to reach school and not have a structure, which they want to cherish does impact the quality of engagement they want to pursue.

Sustainability

The HDFC Bank project interventions focused on **Natural Resource Management** resulted in a shift to sustainable agriculture at a limited scale for self-consumption. The shift at a large scale towards organic farming and away from the harmful practices of conventional agriculture such as the rampant use of pesticides and synthetic fertilizers will take place only when appropriate market linkages for the produce are developed. There is an 89% increase in the use of natural fertilizer in the last season of project in comparison to before the project was implemented. They are also using natural fertilizers for wadi and kitchen garden reducing cost and low input cost using biodegradable waste. HDFC interventions in irrigation have been key infrastructural activity in the region. All of them are working and are maintained by Water User Groups now working with local government system. Not many solar streetlights are effective in the region and do not work past midnight. The rest need proper maintenance and change of battery. The household biogas unit are a huge success among the beneficiaries and most of them are under regular use.

Support provided	Structures established	Technical Know-how	Usage	Maintenance
<i>NRM</i>				
Irrigation Management	✓	✓	✓	✓
Farm Management	✓	✓	✓	✓
Clean Energy	✓	✓	✓	✓
Plantation	✓	✓	✓	✓

HDFC interventions in **Skill and Livelihood enhancement** have had a sustained impact. Farmers have adopted the services and practices accessed through the project under farm management and many other farmers not part of the project are willing to be benefited after seeing the impact. These are namely use of organic manure and fertilizers, and conservation agriculture practices. Continued adoption of sustainable farming solutions has also resulted in notable improvements in productivity and reduction of input costs. Respondents have benefitted from improved capacity to increase productivity through interventions. Established and revived SHG's are functional in the region and have regular meetings. Goat rearing beneficiaries note the increase in savings through HDFC bank interventions.

Support provided	Structures established	Technical Know-how	Usage	Maintenance
Skill and Livelihood Enhancement				
Agriculture Training and Support	✓	✓	✓	✓
SHG-Based Women Empowerment	✓	✓	✓	X
Livestock Management	✓	✓	✓	X

In terms of sustainability under the thematic area **Health and Sanitation**, the community is aware of the usage of kitchen gardens and has been trained in the same. The farmers group support in sharing learning for the maintenance of kitchen gardens in the region. The health interventions that have taken place are health camps. Options for convergence with government schemes should be looked at in close consultations with the community and respective sarpanch of the village. While the program focused on creating awareness of the need for frequent health checks and timely diagnosis of disease, the intervention was mostly focused on COVID-19 pandemic. Beneficiaries claim the use of sanitation units is beneficial for women. There is betterment in the overall health of the household through the proper and adequate maintenance of toilets.

Support provided	Structures established	Technical Know-how	Usage	Maintenance
Health and Sanitation				
Health	X	X	✓	X
Sanitation	✓	✓	✓	✓
Drinking Water Management	✓	✓	✓	✓
Kitchen Garden	✓	✓	✓	✓

The interventions in the thematic area **Promotion of Education** have performed well in most aspects of the program, which has resulted in creating a conducive environment by achieving improved sanitation facilities such as the creation of separate washrooms, use of smart classrooms for better delivery of courses, upgraded infrastructure and availing drinking water source. All these have had direct positive results and have encouraged higher attendance and enrollment. However, sustainability of material services is difficult to take forward without financial resources.

Support provided	Structures established	Technical Know-how	Usage	Maintenance
Promotion of Education				
Educational Institutions Development	✓	✓	✓	X
Education Support	✓	✓	✓	✓
Awareness Generation	✓	X	X	X

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 program 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 Madhya Pradesh

Basis our calculation, the HRDI for the studied cluster is presented in the table below, since the program did not have an available baseline, the baseline was captured through recall during the study.

Table 10 Holistic Rural Development Index for Madhya Pradesh

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Total	
	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Baseline	Endline
HRDI Score	0.21	0.24	0.05	0.06	0.03	0.07	0.06	0.08	0.34	0.46
% Change	14%		20%		133%		33%		35%	

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.

The detailed HRDI methodology and indicators are available in the annexure

5. Conclusion

5.1. Summary of Findings

The HRDP project is aimed to support the lives of communities by adopting a holistic approach to development. This involved 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. The development of human capital, natural resources, and infrastructure in poor and backward villages was expected to bring about their socio-economic transformation. In the assessed HRD programs in 30 villages of Shahdol District, Madhya Pradesh, the major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement and Healthcare and Sanitation Hygiene and Promotion of Education.

The project can be deemed effective in creating noticeable changes in the income generation capacity of farmers through improved productivity, reduced input cost, and capacity building of farmers to adopt sustainable and innovative agricultural practices. HDFC Bank interventions to prevent soil erosion and provide better irrigation has been helpful to farmers. Tool banks, interventions for high quality seeds and solar lights have all aided in the better overall life and livelihoods of people in the village.

The project activities within skill and livelihood enhancement also have opened economic opportunities not just for farmers, also for members of SHGs who were the primary support in the community. These beneficiary categories, who otherwise have limited access to economic opportunities benefitted from the project by gaining the skills, technical support, and physical capital to undertake and expand entrepreneurial activities during the project period. While profit has started, its sustainable generation is yet to be achieved; it was successful in initiating entrepreneurial activities in the community among women that have motivated more women to start their own income generation activities. It has had a dual benefit of providing organic manure at less cost to farmers and SHG groups. Artificial insemination has benefitted the community for increasing their revenue from livestock.

The health interventions aimed at facilitating access to health services have been effective in terms of household health status, and dietary practices. The adoption of kitchen gardens has not only contributed to improved dietary diversity but also serves to save expenditure on vegetables. Through the construction of toilets in disadvantaged households, much relief has been provided to women and the elderly in terms of access to safe defecation facilities. Households with toilets are also benefitting the larger community as these are often accessed by members of neighboring households. Project intervention for sanitation practices has been successful in the region.

The project has also contributed toward improving and enhancing the infrastructural environment at schools. To facilitate the same, project interventions to supply clean drinking water in schools have aided in making the school environment comfortable for students. Additionally, the repair and construction of separate toilets for girls and boys in school is safe and hygienic for children to use

during school hours. Additionally, the whitewashing of school walls and BaLa paintings in Anganwadi rooms and other school walls have improved the children's interest in going and playing around the school campus. To bridge the gaps in implementation and address the challenges, some of the recommendations are discussed in the following section.

5.2. Recommendations

Based on the observations and analysis of primary and secondary data in the field, the study recommends strategies for the program to meet the desired outcomes better. These are:

Natural Resource Management:

1. There is a need to strengthen the capabilities of Water Usage Groups, Farmer Groups and other groups to reflect on community practices, existing challenges and required resources to play a more active role for enhanced economic support and financial stability of family income.
2. Interventions with a few households towards accessing technical and inaccessible resources depicts a larger view where the initiative can be scaled up to the level of facilitating convergence with the existing government schemes to ensure easy access to resources.
3. With FPOs, there is an assurance of market linkages for crops in all seasons. Especially with increase in production and increase in beneficiaries, more assistance could be used. FPOs as a private entity receives more shareholders and the same number of households accessing better price for their produce as per its quality saving them from discrimination and more importantly increasing role of women into financial decisions while selling it via door to door service
4. The process of diversifying crops and implement multi-cropping farming is never less than a challenge. With the support of farmers, partner organization was able to introduce the concept and non-beneficiary population in the region is more confident to adapt to new technology. An equal amount of support requires to be continued until community can lead it on its own.

Skill and Livelihood Enhancement:

1. The convergence between village Panchayat and partner organization forms the backbone of project implementation in regions. Many panchayat members do not support all project activities. Thus, there is a need to envision a mutual-gains model in the region where mutual participation can lead to better implementation of projects.
2. There is need to identify existing skills and upscale them for to be more beneficial with the change in time, technology and resources especially in relation to SHGs and their effectiveness achieved as part of the project.
3. Goatary is seen to be a good source of livelihood and it worked really well for many households but many of them lost them too after investing money and time by adjusting to the patterns of breed goat. Even after all the awareness and information it was not possible to prevent the

deaths of goat introduced and existing goats causing loss of resource. There is more need for management resources after a goat is introduced for goatary to support the beneficiary to prevent loss of expenditure.

Health and Sanitation:

1. Awareness generation activities towards healthcare are necessary in the project intervention area for proper nutrition and other diseases which require care being incurable like thyroid, diabetes etc. There is still scope for organizing such awareness measures.
2. There is a need to focus on NCDs in project villages for better resources and information on the same.
3. With better convergence with government programs, the project intervention in health awareness behavior will be much more beneficial. As drinking water is, a crucial requirement in the district becomes pertinent for more people in the districts to be supported by drinking water interventions.
4. Construction of toilets has been a much needed intervention. This intervention can be further continued to provide support to many other households even for the repairs of non-functional toilets initially constructed by other entities.

Education:

1. While sustained interventions in education have been carried out in project villages leading to better infrastructure, there is a need to focus on children's learning outcomes and their measurability in the learning and retaining aspect through such interventions.

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 renovation	Renovation of government schools in all project villages including whitewashing and painting works	School
2.	Promotion of education	Educational Institutions Development	Smart classes	Smart classes developed in project villages	Students
3.	Promotion of education	Educational Institutions Development	Infrastructure support	Table, desks, chairs, black boards, cupboards distributed in project villages as per requirement	School
4.	Promotion of education	Educational Institutions Development	Infrastructure support	Drinking water set up	Students
5.	Promotion of education	Educational Institutions Development	Infrastructure support	School toilet construction separate for boys and girls	Students
6.	Health and sanitation	Drinking water management	Solar water lifting pump	Water tanks to ensure drinking water facilities for villagers and animals.	Community
7.	Health and sanitation	Drinking water management	Community water tank	Community water tank established in one project village	Community
8.	Health and sanitation	Sanitation	Construction of Household Toilets	Construction of Household Toilets in project villages	Community
9.	Health and sanitation	Sanitation	Deepening of drainage	Deepening of drainage in one project village	Community
10.	Health and sanitation	Kitchen Garden	Kitchen Garden	Training and distribution of High-Quality seeds	Community
11.	Health and sanitation	Health	Health Camps	Health camps established in project villages	Community
12.	NRM	Clean Energy	Solar Home lights	Households were distributed solar home lights	Community
13.	NRM	Clean Energy	Solar Streetlights	Streetlights were installed in project intervention villages	Community
14.	NRM	Irrigation Management	Drip systems and Sprinklers	Village received drip systems and sprinklers	Farmers
15.	NRM	Irrigation Management	Stop Dam	Stop dams each was constructed in villages	Farmers

16	NRM	Water Management	Pond Construction	Ponds constructed in all project villages	Community
17	NRM	Farm Management	Wadi Cropping	Wadi cropping in all project villages through lemon and guava seeds	Farmers
18	NRM	Farm Management	Tool Bank	Equipment for agricultural purposes to farmers village	Farmers
19	NRM	Green Cover	Plantation	Fruiting plants of Mango, Lemon given to communities for the plantation	Community
20	Skill development and livelihood enhancement	Agricultural Training	Exposure visits and training	Farmer Training on Farm Techniques conducted in all project villages	Farmers
21	Skill development and livelihood enhancement	Collectivization	Formation of SHG's	SHG's formed and revived in project villages	Community
22	Skill development and livelihood enhancement	Collectivization	Formation of response groups	Farmer Groups, Water Usage Groups formed in all project villages	Community
23	Skill development and livelihood enhancement	Livestock Management	Distribution of goats	Goats distributed through partial investments	Community
24	Skill development and livelihood enhancement	Livestock Management	Awareness Generation	Awareness generation regarding best practices in all project villages	Community

6.2. Sampling Methodology

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

6.2.1. Quantitative Sample Size Calculation

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

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

Where,

N = sample size

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

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

S_e = margin of error, set at 5%;
 D_{eff} = factor for design effect, set at 1 (no design effect)

Thus, the estimated maximum sample size is 400.

Quantitative Sampling Methodology

Stage 1 – Selection of villages

All 4 villages were sampled for the survey. The cluster sampling method was adopted for the sample selection for the quantitative survey.

Stage 2 – Selection of beneficiaries:

The list of beneficiaries while available for the study helped in sampling the field in terms of villages where interventions took place. After the sampling plan per village per thematic area, the beneficiaries were obtained through the process of random sampling where the enumerators went on the field to ask people about the benefits availed through project interventions. The beneficiaries obtained through this method acted as the sampling frame for that program. Since one household might avail more than one benefit from the holistic program, there is a possibility of more than one beneficiary from a single household or a household having more than one intervention area benefit.

6.2.2. Qualitative Sample Size Calculation

Qualitative tools of In-depth Interview (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, 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. HRDI Methodology

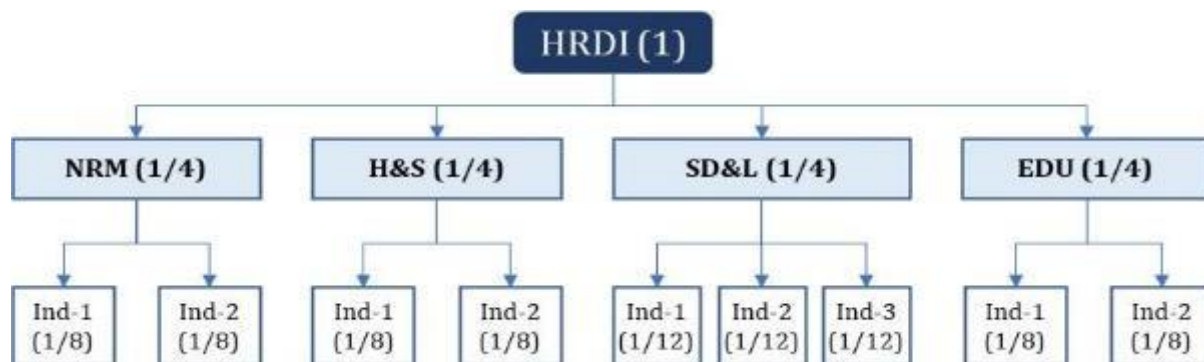
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between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

Domain and indicator weights⁴



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		
<i>Natural Resource Management</i>	Average productivity of crops (3 major crops) grown (quintal per acre)	$(1/4) \times (1/3) = 0.083$
	Percentage of farmers reporting access to irrigation	$(1/4) \times (1/3) = 0.083$
	Area under irrigation (Ha)	$(1/4) \times (1/3) = 0.083$
<i>Health and Sanitation</i>	Percentage of households with access to improved toilet facility	$(1/4) \times 1 = 0.25$
<i>Livelihoods and Skill development</i>	Percentage of SHG members participating in rural enterprises	$(1/4) \times (1/2) = 0.125$
	Percentage of households with improved skills in agriculture	$(1/4) \times (1/2) = 0.125$
<i>Education</i>	Percentage of students reported functional smart class before/after project	$(1/4) \times (1/2) = 0.125$
	Percentage of drinking water units functional before project intervention	$(1/4) \times (1/2) = 0.125$

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

⁴ NRM: Natural Resource Management | H&S: Health and Sanitation | SD&L: Skill Development and Livelihoods | EDU: Education

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 ten 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	Weight	HRDI	Endline	Weight	HRDI
NRM	Proportion of households with irrigated land	83	100%	0.21	97.5	100%	0.24
H&S	Percentage of households with access to improved drinking water facility	11	100%	0.03	26	100%	0.07
Skill	Percentage of SHG members participating in rural enterprises	12	50%	0.05	20	50%	0.06
Skill	Percentage of households with improved skills in Agriculture	27.3	50%		31.20	50%	

ED	Percentage of teachers reported classroom furniture (chairs and desks) at the school	0	50%	0.06	29.40	50%	0.08
ED	Percentage of teachers reported BaLA painting available at their school	45	50%		26.70	50%	

6.4. Overview of Impact Methodology

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

Outputs	Output Indicators		Output Avg	Impact Level
Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting an increase in production of crops that were supported under HRDP	91%	44%	Medium
	Proportion of farmers reporting increased income from crops that were supported under HRDP.	89%		
	Average increase in income from crops that were supported under HRDP (% change)	51%		
	Average increase in productivity from crops that were supported under HRDP (% change)	46%		
	Average decrease in input cost(% change)	-56		
Access to the farm management infrastructure	The proportion of farmers reporting an increase in the use of natural fertilizers	89%	83%	Medium
	Proportion of farmers reporting an increase in the use of natural fertilizers?	78%		
Increased adoption of crop diversification	Proportion of farmers diversified their crops with project support?	7.6%	5.6%	
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	4%		
Land under irrigation	Increased area under irrigation	25%	23%	
	The proportion of farmers who received support for irrigation	20%		
Increased use of clean energy solutions				

Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	58%	68%	Medium
	Proportion of households reporting benefits from using clean energy infrastructure (Base=clean energy beneficiaries)	78%		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	86%	62%	Medium
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	38%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	31%	73%	High
	Proportion of beneficiaries reporting an increase in productivity due to better farm management	91%		
	Proportion of farmers reporting increased income	96%		
Economic empowerment through collectivization (Only for SHG members)				
Formation/ revival of SHG-based Enterprises	Proportion of members who received support with establishing/reviving SHGs	100%	75%	High
	Proportion of members whose SHGs are currently functioning	40%		
Development of entrepreneurship	Proportion of SHG members who received training	11%	15%	Low
	Proportion of SHGs with increased savings	1%		
	Proportion of SHG members reporting improved income	33%		
Improved capacity to generate income through livestock management				
Adoption of scientific management of livestock	Proportion of beneficiaries who received support in livestock management services	21%	32%	Low
	Proportion of beneficiaries reporting an increase in income from livestock management	14%		
	Proportion of beneficiaries reporting improved livestock health	61%		
Improved sanitation infrastructure and services				
Establishment/ enhancement of sanitation infrastructure.	Proportion of beneficiaries who gained access to sanitation services	46%	47%	Medium
	Proportion of beneficiaries reporting benefits due to	64%		

	improved access			
	Proportion of beneficiaries reporting benefits due to improve	30%		
Development of Kitchen gardens				
Increased adoption of kitchen gardens	Proportion of HHs reporting income gains from kitchen gardens	54%	62%	Medium
	No of HHs received seeds/training in kitchen garden	64%		
	No of HHs with improved vegetable/fruit consumption due to kitchen gardens	85%		
	Proportion of HHs reporting improved nutrition	46%		
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to Bala/learning aid/furniture/clean and functioning sanitation units/drinking water posts	46%	46%	Medium
Improvements in quality of teaching	Teachers reporting improvements in attendance due to improved infrastructure	38%	35%	Low
	Proportion of teachers reporting increase in enrolment post infrastructure development	33%		
	Proportion of teachers reporting decrease in drop-out rates post infrastructure development	33%		

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