

Impact Assessment Study Of Holistic Rural Development Programme (HRDP)

Madhya Pradesh



Prepared For:



HDFC Bank CSR

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Executive Summary

As part of HDFC Bank's CSR initiative, programs are supported to deliver holistic rural development. The assessed HRD program was in **two clusters: Ratlam and Badnawar, Madhya Pradesh**. The major focus areas were **Natural Resource Management (NRM), Skill Development and Livelihood Enhancement, Healthcare and Education**.

For the study impact assessment study conducted, both quantitative and qualitative methodologies were used. In this cluster, four intervention villages were selected for the study. All the intervention villages were selected as sample villages. Sample from each village was selected by using Probability Proportionate to Size (PPS) sampling method. **The list of beneficiaries was obtained from the implementing partner BAIF Development and research Centre**. Since beneficiary selection was undertaken independently for each program, the selection of more than one beneficiary from a single household was probable. The total sample size covered for the quantitative study was 413 households and for the qualitative, 10 focus group discussions and 10 In-depth interviews were conducted. **The impact assessment aims to evaluate the implementation and performance critically and objectively, 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 such as trenches, stone bunds, farm bunds, refilling of farm bunds etc., training on natural farming practices through exposure visits and linkage building workshops and finally, distribution of smokeless chullah and solar lights improvement of household facilities. Additionally, through the project, agri – horty – forestry model; wadi's have been established and after care, support was provided to established wadis. This has been helpful to increased cropping intensity in the region, increase perineal 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. 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. **Currently, 76% of the farmers use a mix of organic and chemical fertilizers**. None of them have practiced organic agriculture exclusively. This is also since they were unable to get the price for the organic vegetables, forcing them to go back to traditional crops and methods. HDFC interventions in irrigation have been key infrastructural activity in the region, **60% of the structures such as Gabions, Check dams etc are functional**. Rest was not properly maintained by the VDC resulting in the structures being not in use. **79% of solar streetlights are effective in the region**. The rest need proper maintenance and change of battery. The household biogas unit, though takes longer time to cook has been regularly used every day for 71% of biogas unit beneficiaries. There is a need to

strengthen the capabilities of VDC's in project villages and subsequent awareness around the maintenance of infrastructure built under project interventions. Interventions to grow Soyabean did not give good agricultural yield and therefore was not continued in project villages. Ensuring market linkages for crops like soyabean and chickpeas can benefit the farmers to diversify their crops and implement multi-cropping farming in the region. Market linkages continue to be a major challenge for new crops that are introduced through project interventions.

Health and Sanitation: Through HDFC interventions, two solar water lifting pumps were established in two project villages to provide access to drinking water in less privileged areas of the village along with one community water tank for safe drinking water access. Additionally, household toilets were constructed where partial fund was allocated through HDFC interventions and the other half was provided by the household. 2 health camps were also set up annually, to spread awareness regarding routine health checkups. Kitchen garden training and related interventions in households were also implemented to provide nutritious food to households.

The community is aware of the usage of kitchen gardens and has been trained in the same. The members also volunteer for the maintenance of kitchen gardens in the region. The health interventions that have taken place are health camps, which have helped in identifying issues related to anemia and other lifestyle problems, but people have not taken the referrals further for treatment. 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 disrupted due to the COVID-19 pandemic as the social gathering was completely avoided. **90% of the respondents claim the use of sanitation units is beneficial for women. 82% of the respondents also mark the better overall health of the household through the proper and adequate maintenance of toilets. Solar water lifting pumps are functional in the villages.** Awareness generation activities are necessary in the project intervention area for proper nutrition and checking for early signs of lifestyle diseases like thyroid, diabetes etc. **There is a need to focus on NCDs in project villages for better resources and information on the same.** Additionally, 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 region it becomes pertinent for more people in the districts to be supported by 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 were 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 309 samples were received and distributed 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 artificial insemination, pregnancy diagnosis, vaccination and deworming of small and large ruminants, infertility cum general health care, cattle insurance through

convergence and green fodder production etc. SHGs group were formed in Multhan village consisting of 115 members. After group formation nutritional/kitchen garden seeds support were given to sustain nutritional value in their households. This was conducted through the formation and maintenance of Village Development Committees (VDC's) that are active in all the project villages.

HDFC interventions in **Skill and Livelihood enhancement** have had a sustained impact. More than **53% of farmers are currently adopting the services and practices accessed through the project under farm management.** These are namely use 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. **73% of the respondents have benefitted from improved capacity to increase productivity through interventions. 40% of the SHG's are currently functional in the region. 83% of the functional SHG have regular meetings. 30% of the livestock beneficiaries note the increase in savings through HDFC bank interventions.** The convergence between village Panchayat and partner NGO forms the backbone of project implementation in regions. Many panchayat members don't support project activities unless commission is given. Thus, there is a need to envision a **mutual-gains model in the region where mutual participation can lead to better implementation of projects.** Additionally, there is a **need for more trainings and activities for agriculture** in the region as people through qualitative interviews revealed that due to lack of information, many continue to disengage from the workshops and continue with traditional farming methods due to lack of confidence in trainings. Under the leadership of village development committees (VDC's), there is a need to engage self-help groups and other groups set under other programs to develop Village Poverty Reduction Plans (VPRP) and seek convergence. There is a need to strengthen the role of VDC's in the village.

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 purifier were also established in school premises. Additionally, routine workshops were conducted to make school an enriching space to learn life skills. Books for reading during school hours were also provided in schools in project intervention. 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. 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 RO filter. 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. Besides this, training of

school management committees on the importance of effective community participation would entail a sense of responsibility and obligation on the parents towards a better future for their children.

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.

Table 1: Summary of key income indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	1,00,000	1,10,000	10%
Average Productivity of 3 major crops (Qtl./Acre)	17.80	18.60	5%

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	0.09	0.10	0.03	0.08	0.01	0.02	0.06	0.11	0.05	0.08
% Change	11%		167%		100%		83%		60%	

Figure 1: Overview of project impact

	Health and Sanitation	Skill Training and Livelihood Enhancement	Natural Resource Management	Promotion of Education
Overview of Activities	Improved health infrastructure services Adoption of kitchen garden	Promotion of SHG enterprise Promotion of small enterprise Agriculture training and support	Soil prevention activities, Irrigation management, promotion of clean energy	Provision of RO Filters in school. Distribution of sports kits
Areas of Improvement	Routine check ups for lifestyle diseases and nutrition of anemic women	Handholding support for small enterprises outside SHG's	Need for more check dams in the village for prevention of soil erosion due to flooding.	RO filter functional only in 50% of project schools
Challenges	Lack of consultations upon referral	Distress migration of laborer due to lack of construction after project	Construction of gully plugs, stone bunds etc. washed away due to flooding in the region	Sports equipment damaged in schools due to wear and tear
Recommendations	Awareness generation activities for lifestyle diseases. Need for drinking water interventions	Strengthening the role of VDC for sustained support for new enterprises	Implementation of soil prevention structure in all agricultural land. Supply of climate resilient seeds	community members to be sensitized and involved in the maintenance process through 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 skilling, providing basic infrastructural development, and establishing a better eco system thereby promoting better living conditions.

In the assessed HRD program in 2 clusters of Ratlam and Badnawar, Madhya Pradesh, the implementation partner was the BAIF Development Research Foundation. The major focus areas for intervention were Natural Resource Management (NRM), Skill Development and Livelihood Enhancement, Healthcare and Sanitation, and Promotion of Education.

1.2. Partner Organization- BAIF Development Research Foundation

BAIF was established on 24 August 1967 by Padmashree Late Dr. Manibhai Desai. BAIF's Mission is to create opportunities of gainful self-employment for the rural families, especially disadvantaged sections, ensuring sustainable livelihood, enriched environment, improved quality of life and good human values. This is being achieved through development research, effective use of local resources, extension of appropriate technologies and upgradation of skills and capabilities with community participation.

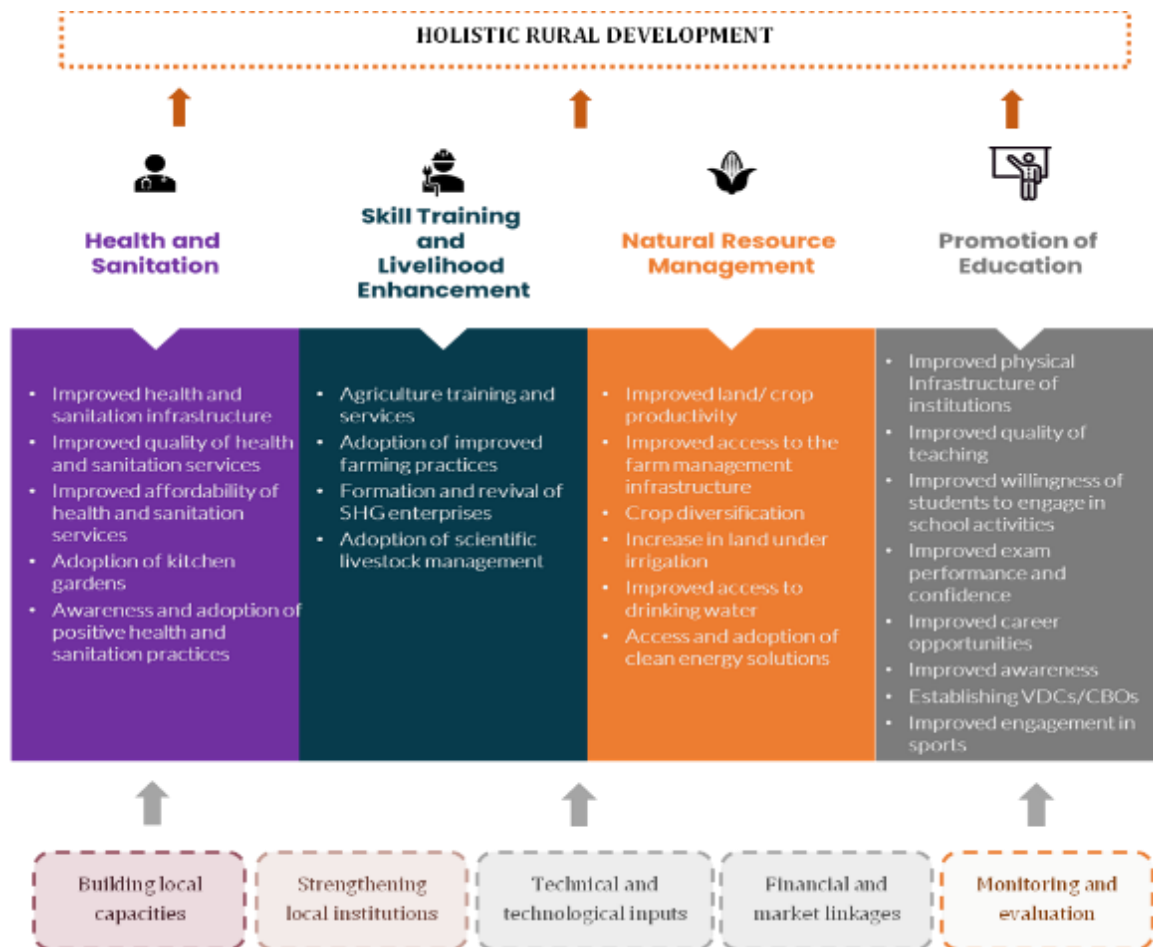
The organization has developed several successful models to provide gainful employment to rural poor and ensure optimum utilization of resources. BAIF outreaches over 5.41 million families inhabiting in 1,72,533 villages across 17 states in India through its multidisciplinary programs to promote livestock development, Natural Resource Management, Tree based farming, climate resilient agriculture and improve rural poor's quality of life, enhance access to clean energy, water, sanitation and health 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 which would inform HDFC Bank in taking

operational and strategic decisions while planning and funding partner organizations for such programs. 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 4 villages of Ratlam and Badnawar tehsil in Dhar districts of Madhya Pradesh from the year 2016 to 2021 with a goal to ensure sustainable development of marginalized rural communities through capacity building of individuals and institutions.

Figure 3: Areas covered under the study

2. Research Methodology

The assessment used both qualitative and quantitative methods. For each cluster and thematic area, activities completed were identified. The impact generated by these activities was assessed using the criterion of **Relevance and Convergence, Effectiveness and Impact, Sustainability and Replicability**. The evaluation process was carried out in a consultative manner involving interactions with both HDFC bank and BAIF 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 local needs of the most vulnerable groups. The study has observed if there has been a convergence/ made use of the existing resources of the government, whether different stakeholders involved have worked together to achieve the outcome of the program.

To assess the impact and effectiveness¹ of the program, the findings seek to establish the values of outcome indicators of all the thematic interventions. These findings are assessed against the outcome indicators finalized during the outcome harvesting stage. Further, through qualitative evidence, the evaluation tries to understand whether and how the program impacted the lives of the community members in the program areas. This was done through analysis of program outcomes in light of certain variables identified in consultation with HDFC Bank. The findings from primary quantitative data have been substantiated by the information gathered from discussing with the communities/beneficiaries, teachers, students, entrepreneurs, and local institutions at the village level. Through primary data, the study has tried to understand if the program has worked on strengthening the community's capacity to ensure sustainability, and whether 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 HDFC's CSR Policy, Program log-frame (Logical Framework Analysis), Rapid Rural Appraisal Reports, Program implementation timelines, Communication, and Documentation Products, 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 focused group discussions with program beneficiaries, the partner NGO, and HDFC program team. The outcome mapping and result chain development was undertaken in consultation with the HDFC team. The exercise resulted in identification of standardized key outcomes and indicators related to each of the program thematic areas. Based on the standardized list of outcomes and outputs, the questionnaire for the state was developed.

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

The sample size covered during the field is as follows:

Since, Multhan village (Badnawar district) had majority of the project interventions and has close to 1500 households as opposed to the three villages in Ratlam District (50-80 households), the sampling and data collection was done to manage the 400 sample according to proportionate households in villages.

Table 3: Quantitative Sample Covered

District	Total Households	NRM	Skill Training and Livelihood Enhancement	Health and Sanitation	Promotion of Education
Ratlam	150	60	60	30	10
Badnawar	250	140	90	20	20
Total	413	205	155	53	37
Planned	400	200	150	50	30

Table 4: Qualitative sample size covered

District	FGDs			IDIs	
	VDC	SHG	Farmers	Teachers	Key Informant
Ratlam	2	-	3	3	2
Badnawar	2	2	1	2	3
Total	4	3	3	5	5
Planned	4	2	4	5	5

Teams of local enumerators, with requisite education and experience, were hired for data collection. 2 days training at Ratlam, Madhya Pradesh were provided to enumerators and supervisors by the NRM team.

Image 1: Training of field team held at Madhya Pradesh

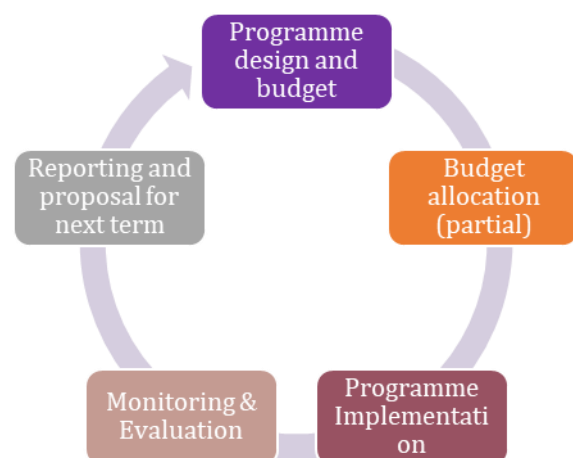


3. Programme Review

3.1. Programme Design and Implementation

The program interventions are decided on an annual basis, with an annual budget allocation based on the proposal by BAIF to HDFC Bank. In Madhya Pradesh, a larger focus on improving natural resource management, 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 more than 70% households, comprising of marginal, small, and medium farmers. The region of interventions comprises of farmers with 1-2 and 2-4 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 incomes irrespective of higher land holdings. In addition, the land holding is not divided as per individual farmers, but at under the family name. Once divided individually they comprise of majority of small farmers. The cluster villages are well connected to the public transport system, electricity and has basic education infrastructure. Yet these villages lack sanitation and health infrastructure. Only Multhan (Badnawar) has a PHC at the village level. Banking is accessed by majority of households and with access to banks at the block/district level in their vicinity.

Mono cropping is dominant in the region, majority of farmers only cultivate Soybean during Kharif season, and gram is cultivated during Rabi season with farmers that have basic irrigation availability. Crop diversification and high value cultivation of fruits, flowers, vegetables, and spices is limited, and farming provides limited income generation opportunities. Farmers also produce two leguminous crops in the continues cycles without retaining soils nutrients and taking required measures to improve productivity. HDFC interventions helped in establishing Wadi model and introducing chickpea cultivation to increase revenue in the region. There are also limited irrigation sources: Less than 5% of land is irrigated and farmers are majorly dependent on paddy cultivation during Kharif season. Farmers are completely unaware regarding efficient Integrated Nutrient Management and

Image 2: Wadis developed under HRDP in Madhya Pradesh



Integrated Pest Management practice, leading to widespread use of chemical fertilizers and pesticides. Farmers do practice vermicomposting or use of organic fertilizers. Cow dung manuring is also limited, and majority of families use urea, DAP and other chemical fertilizers are being widely used by farmers affecting soil health, reduces water retention capacity and continuously increases input cost. Limited number of farmers have accessed any type of soil testing services. However, delayed recommendations and results were experienced by most of the families. Major crop yields are also low, when compared to region and to achieve the expected yield farmers are not aware of improved farming practices, as well as do not have access to appropriate technologies. Farmers in the region also lack any kind of access to social security nets and majorly are dependent

on agricultural income as their primary source of livelihoods. The region has witnessed continuous losses due to untimely rainfall, reduced number of days of annual rainfall and erratic rainfall thus impacting agriculture production regularly.

Target villages are in arid-semi arid regions and have limited availability of water. Water storage structures are also limited in the villages and majority of households primarily depend on rain fed agriculture or are exploiting the limited resource of ground water. Penetration of any form of micro irrigation technologies is very poor and less than, 0.5% of household use drip/sprinklers. In the given context of target villages increasing the penetration of micro irrigation technologies is essential to ensure optimum utilization of available water resources.

HDFC interventions in the region focusses on building capacities of rural poor and facilitates sustainable development at family/household, village and community level with strong community institution ensuring project sustainability. This was achieved through interventions for resilient and sustainable agriculture, natural resource management, livestock development and renewable energy. 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 across Ratlam and Badnavar districts. 33% of the population is illiterate while only 14% has studied till 5th standard. 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 assessment².

Gender	
Male	67%
Female	33%
Age	
18-25 Years	18%
26-35 Years	26%
36-45 Years	22%
45-55 Years	19%
More than 55 Years	16%
Educational Status	
Illiterate	33%
Literate but no formal education	5%
Up to 5th std	14%
6th to 8th std	17%
9th to 10th std	17%
11th to 12th std	8%
Graduate	5%
Post graduate	1%
Social category	
Scheduled Caste (SC)	10%
Scheduled Tribe (ST)	60%
Other Backward Classes (OBC)	22%
General	8%
Poverty status	
BPL	68%
APL	25%
Do not have a ration card	6%
Income sources	
Cultivation	78%
Livestock	3%
Salaried employment	3%
Non-agricultural income	8%
Wage labor	52%

² The total number of respondents for the survey were 41, across 4 project villages

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 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 established wadis. This has been helpful to increased cropping intensity in the region, increase perineal green cover and establish a sustainable livelihoods model. 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
Farm Management	Distribution of tools
Clean Energy	Solar Home lights, Solar streetlights, biomass chullah
Plantation	Wadi Cropping

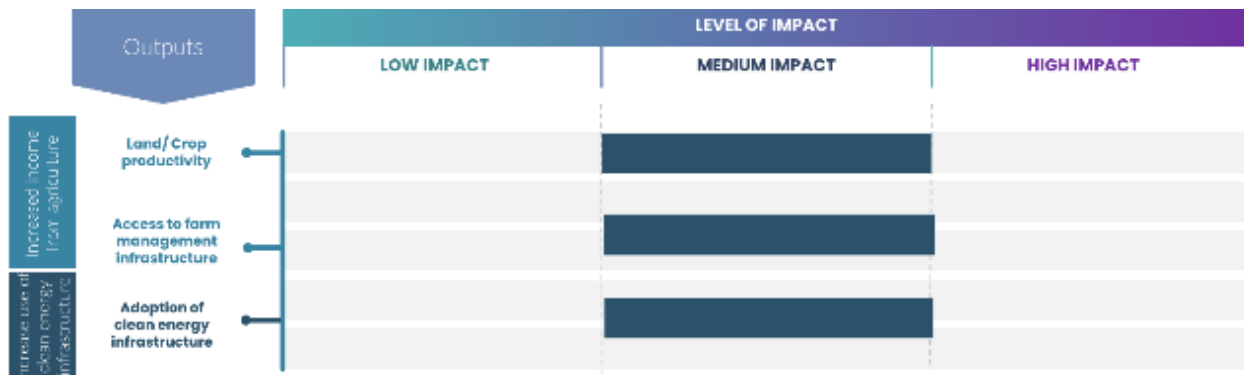
4.2.1. Effectiveness and Impact

Through HDFC bank project interventions, wadi plantation was implemented with farmers. Farmers were also provided Lemon and Guava plants with continuous onsite support and training to ensure systematic plantation. NPK (Powder form) was distributed to all wadi farmers. Convergence of micro irrigation system under PMSKY was also implemented with wadi farmers through which drip irrigation system were installed in their wadi plot.

Custom hiring center was established in Itawakalan village with agri equipment’s such as spray pump, garlic-grading machine, garlic grading machine and rotavator. This aids the farmers to hire equipment’s at nominal price and thereby reduce input cost of farming. 19-gully plug structure were constructed by farmers in three project villages to check soil erosion in monsoon season. Farmers avail the impact of gully plugging during monsoon in terms of undulated land level through reduction in soil erosion. Two check dams have been constructed in Multhan and Itawakala village that enables harvesting rainwater amounting to approximately 7,68,0000 liters. 13 farm ponds were constructed as a source of irrigation in critical stages (Protective irrigation) through rainwater harvesting, to increase the ground water availability, and enhance the cropping intensity and productivity.

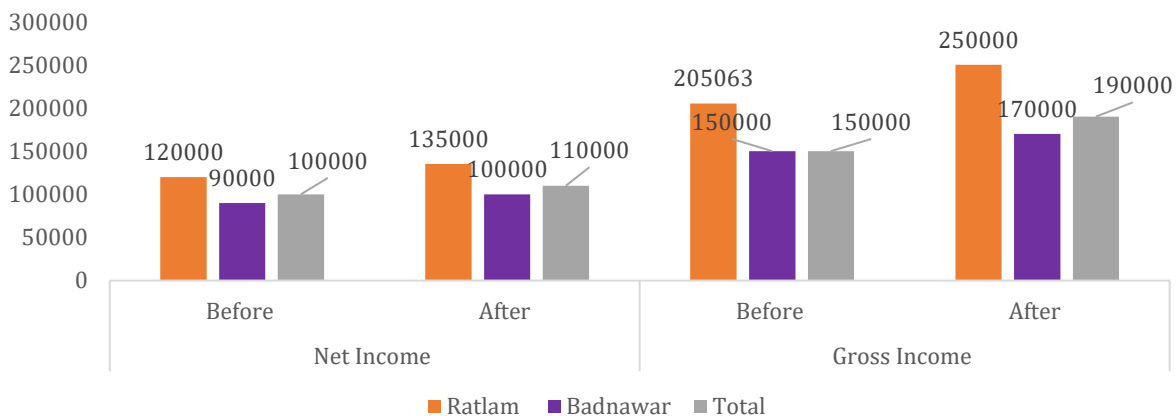
200 poor households were also supported for solar home light system. This intervention helps individual’s household to minimize their electricity bills up to 50% and 24hr light facility. 22 solar streetlights were also established through project interventions in the village specifically targeting poor households, to increase their access to key walkways in the region.

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



Income from agriculture: Through the activities undertaken for land area treatment, barren lands have been converted into agricultural lands. Farmers have taken up farming on additional patches of land that were otherwise left uncultivated due to unavailability of water. Further, through irrigation management, and availability of water there has been 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 dependency on rain fed irrigation has also reduced for the farmers. The farmers of the region have majorly given up the flood method of irrigation and through technical and financial support undertaken through irrigation management which have proven to be much more effective. 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)



The income has increased from annual net income being Rs.1,00,000, to Rs. 1,10,000 in current year, marking a 10% increase in comparison to the income before the interventions. Since the agricultural area is majorly dependent on rain, 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. 88% of the respondents have been fully satisfied with the farm pond construction interventions. Additionally, custom hiring center in one project village has aided small farmers to rent equipment's, thereby reducing input cost.

The agricultural practices of farmers involved the use of chemical inputs which is an added expense to the input cost of farming, forcing farmers in situations of debt. Through climate resilient agriculture practices, HRDP interventions motivated farmers to shift to organic modes of farming and were trained and 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. These two key factors contributed to an increase in income in the area.

Figure 7: HRDP interventions that contributed to increase in income

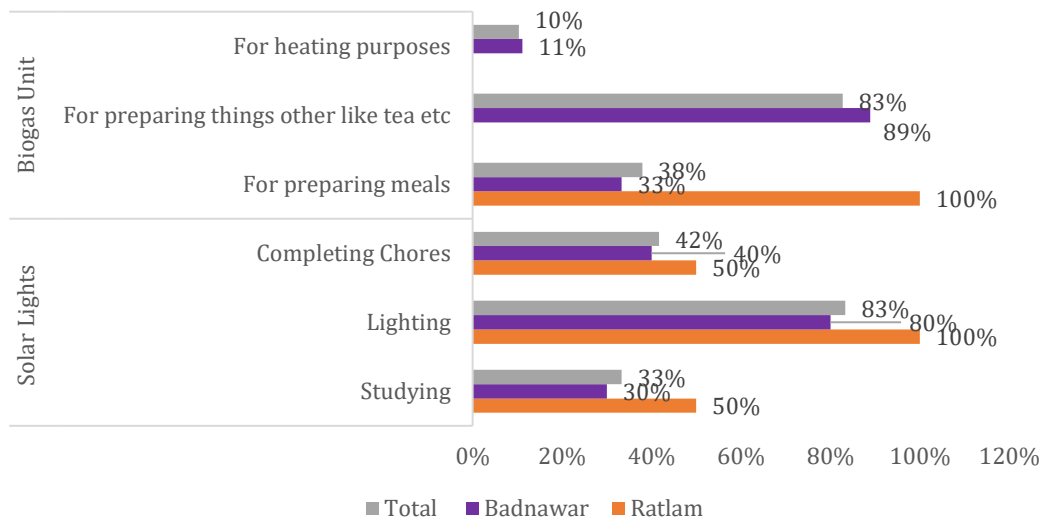
Perceived Benefits					
Intervention	Wheat	Soyabean	Garlic	Onion	Other Vegetables
HDFC Interventions in irrigation	56%	38%	52%	37%	49%
Interventions in organic farming	7%	7%	8%	15%	2%
Increased area under cultivation	6%	3%	8%	30%	5%

Through the project, agri – horti – forestry model has been established. Wadi farming was given handholding support through which farmers started to grow guava and lemon in patches of their land. HDFC interventions also helped in supplying essential nutrients, plantlets for gap filling, essential pesticides, and insecticides. 44% of the respondents have been fully satisfied wadi cropping interventions. This has been helpful to increase cropping intensity in the region, increase perineal green cover and establish a sustainable livelihoods model.

Through the project implementation, interventions for irrigation happened during the time of 2 years, post the construction lack of proper maintenance have rendered stone bunds and gully plugs ineffective 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. Additionally, organic vegetable cropping did not give good market rates to the farmers due to which they stopped diversifying crops.

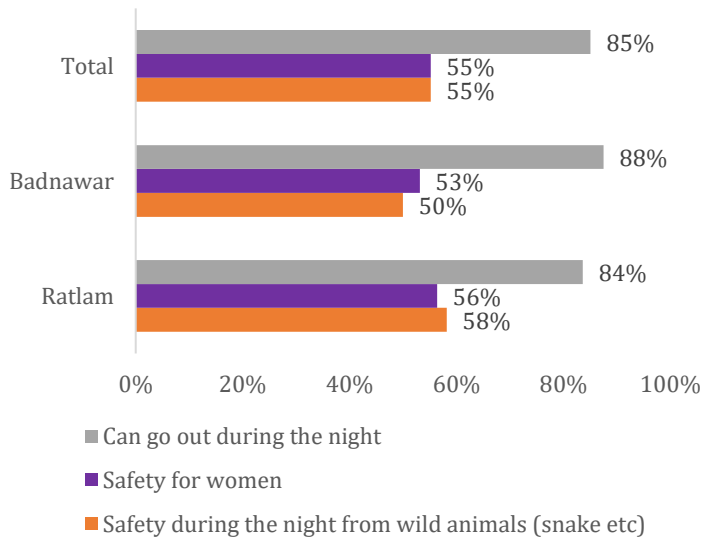
Use of clean energy solutions: 200 households in project villages were distributed solar lights and 10-12 biogas chullah for their households. The solar lights have greatly benefitted families which sustained light in the night for children to study in the evening. Biomass chullah has helped reduce the cost of cooking and smoke related hazards that occur due to regular chullahs.

Figure 8: Uses of clean energy solutions



n for solar lights= 17,
n for biogas unit=35

Figure 9: Perceived benefits solar streetlights



To ensure the village is properly accessible to everyone at night, 22 solar streetlights were installed through HDFC bank interventions. These solar lights have greatly benefitted the people as women and children are able to move more freely at night. The light also helps look out for wild animals in the area. The solar lights are set up on key roads of the village, making the main alleyways light up at night. The streetlights are intentionally established to the poorer regions of the village helping in community development.

n= 87

Most of the solar streetlights in the area are functional but 1/5th of streetlights is not functional. There is a need for battery change and regular maintenance of the streetlights through VDC's 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.

Wadi Cropping in Itawakhurd Village

Toofan Singh, a farmer used to grow wheat and other grains in a single cropping system which was difficult to sustain an income as his responsibilities in the household grew. Two of his daughters were to be married and his youngest son needed to keep going to school. HDFC bank interventions helped him to establish wadis in his house and farmland, which was never taught to him before. The tank system and drip irrigation ecosystem were given to him as part of the intervention and through wadi cropping of apple, guava and lemon was, Toofan Singh now has an additional monthly income of Rs. 35,000 and this his third year of getting wadi cropping yield. His eldest daughter is also now married with a son. According to him the additional income helped in arranging for the additional expenses his family had to take on.



Image 3: Wadi Cropping interventions in Itawakhurd village

4.3. 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 were 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 309 samples were received and distributed 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 artificial insemination, pregnancy diagnosis, vaccination and deworming of small and large ruminants, infertility cum general health care, cattle insurance through convergence and green fodder production etc. SHGs group were formed in Multhan village consisting of 115 members. After group formation nutritional/kitchen garden seeds support were given to sustain nutritional value in their households. This was conducted through the formation and maintenance of Village Development Committees (VDC's) that are active in all the project villages.

Table 6: Activities under skill training and livelihood enhancement in Madhya Pradesh

Activity Category	Activities
Agriculture Training and Support	Exposure visits, farmer training, establishment of PROM unit and soil sampling
SHG-Based Women Empowerment	Formation of SHG's, Skill training, Loan giving, Bookkeeping
Livestock Management	Breed improvement through artificial insemination, pregnancy diagnosis, vaccination and deworming of small and large ruminants, infertility cum general health care, cattle insurance

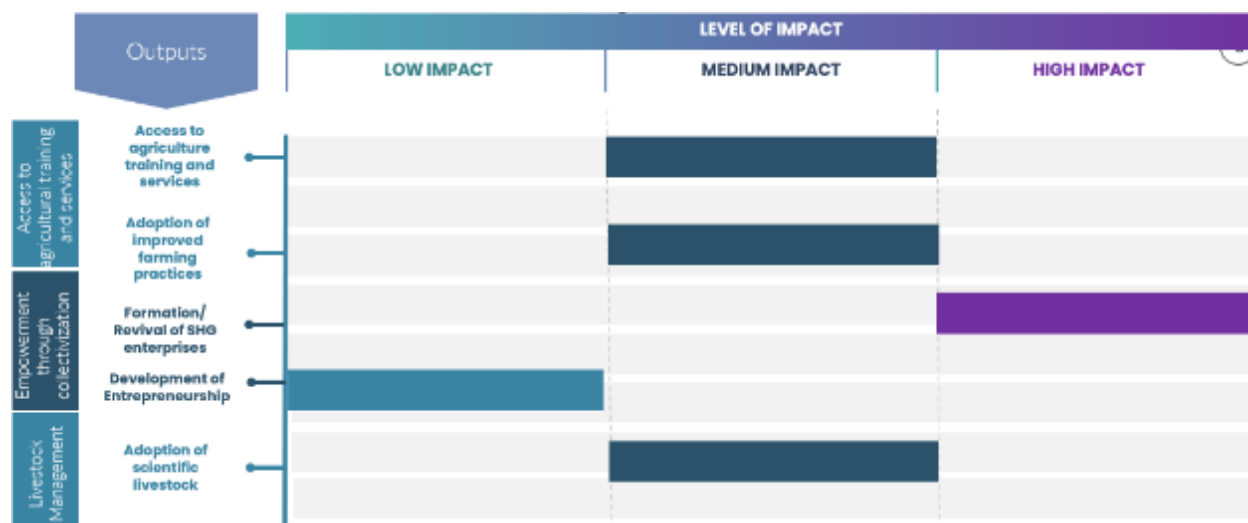
4.3.1. Effectiveness and Impact

Farmer's day/Environment Day were organized in Multhan cluster for cross learning and experience sharing. 200 farmers participated annually in open discussions and share their problems and experience of farming. Farmers trainings organized in Multhan and Itawakalan village on different subject like organic farming, Crop Specific Package of Practices (POP), Wadi plantation and after care, Mass Plantation, Organic Farming etc. helped in capacity building of farmers. 425 farmers attended the workshop and continue replicate the knowledge in their farm.

Village Development Committees (VDC's) were strengthened in all project villages and mutual decision making of needy participants selection, establishment of PROM Enterprises, Goat rearing group formation, NRM Site selection, Solar water lifting pump NOC and Custom Hiring equipment needs identification and its bylaws formulation were implemented through the routine discussions with the village members. Women SHG's were formed where training on bookkeeping and local skill development was conducted. The interventions also helped in setting up SHG enterprises where 50% of the fund was provided and the rest was contributed by community.

In breed improvement, artificial insemination with elite bulls of exotic, indigenous breed, genetic characters to increase in milk production. The livestock development center has been established in Itawakalan and multhan villages. AI doorstep services were given to 192 animals benefitting 154 new farmers.

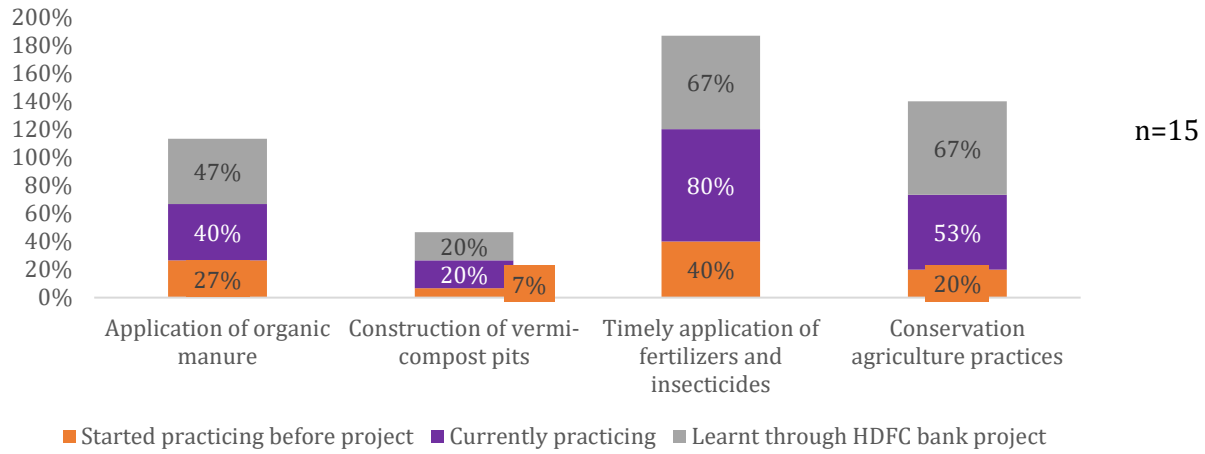
Figure 10: An overview of project effectiveness and impact and skill training and livelihood enhancement



Agriculture training and services: PROM Enterprise through FPO were built in Multhan village. Phosphate Rich Organic Manure, PROM is a slow-release organic product of phosphate and has already been recognized as a good replacement/equivalent for chemical Phosphate fertilizers by the Ministry of Chemicals and Fertilizer. The enterprise buys cow dung from entire Multhan village and creates organic manure that is sold to farmers in Multhan at a subsidized rate. The effort aims at creating decentralized enterprises for production and marketing of the derived value-added organic inputs, focusing on rural entrepreneurship and easy availability of affordable, quality organic inputs. Farmers were organized in farmer producer groups and their capacities will be developed to run the decentralized enterprise. Regular handholding support was provided to FPOs, and technical guidance was provided to ensure that the FPO is established and runs effectively.

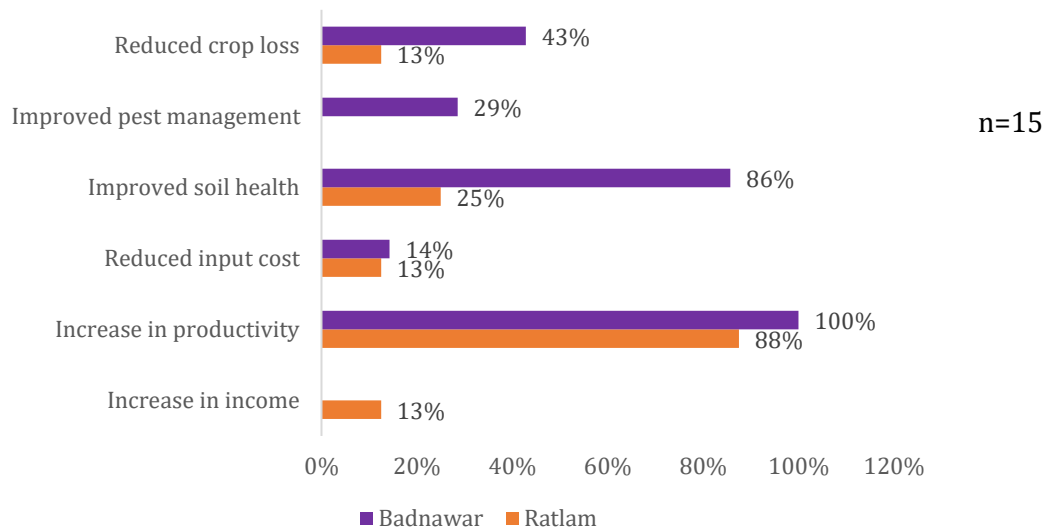
This organic manure is now sold and used commonly in Multhan village. Through the HDFC bank interventions, farmers have been trained in the application of organic manure. Additionally, trainings on timely application of fertilizers and pesticides through organic fertilizers have been taken up by farmers. These practices have helped in better crop yield and has been popular in the region.

Figure 11: Agriculture practices learned through HDFC trainings and currently practicing.



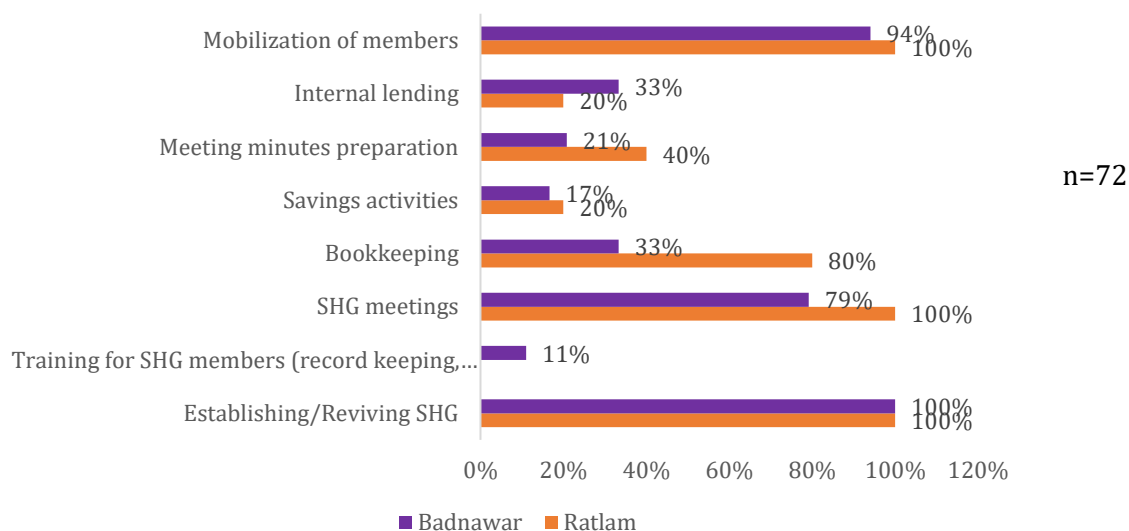
HDFC interventions have benefitted the farmers in increasing land productivity thereby resulting in increased income. Agricultural soil that usually became unsuitable for agriculture is now being replenished through organic manure thereby improving soil health. Together with soil treatment and organic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

Figure 12: 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 for the region. These have benefitted farmers in better group mobilization. Additionally, they were also taught about various government schemes and the importance of collectivization for better price for crops. These groups are partially active due lack of sustained activity but mobilize during monthly VDC meetings.

Figure 13: Support provided for SHG through HRDP



15 progressive SHGs women were selected from multhan villages who have sufficient number of livestock for dung (gobbar) and willing to make bio fertilizer (PROM) and gas from model. Exposure visit of members were done at Vansda PROM units for understanding of operational mechanism of PROM Enterprises and role and responsibility of member after FPO formation. This helped in increasing the collective income of the SHG enterprise in the region and aided the processes to generate income. There is a total of 14 SHG's that were formed through HDFC project interventions in the region. Routine meetings were organized by BAIF with SHG members for situation analysis of the area to map out small enterprises that can be implemented with trainings in the area. The findings of the study served as the basis for village level workshops that were held with members of self- help groups who were trained in bookkeeping, maintaining records, opening of bank account and management of credit and thrift activities. 100% of SHG women have been mobilized under HDFC interventions in the region.

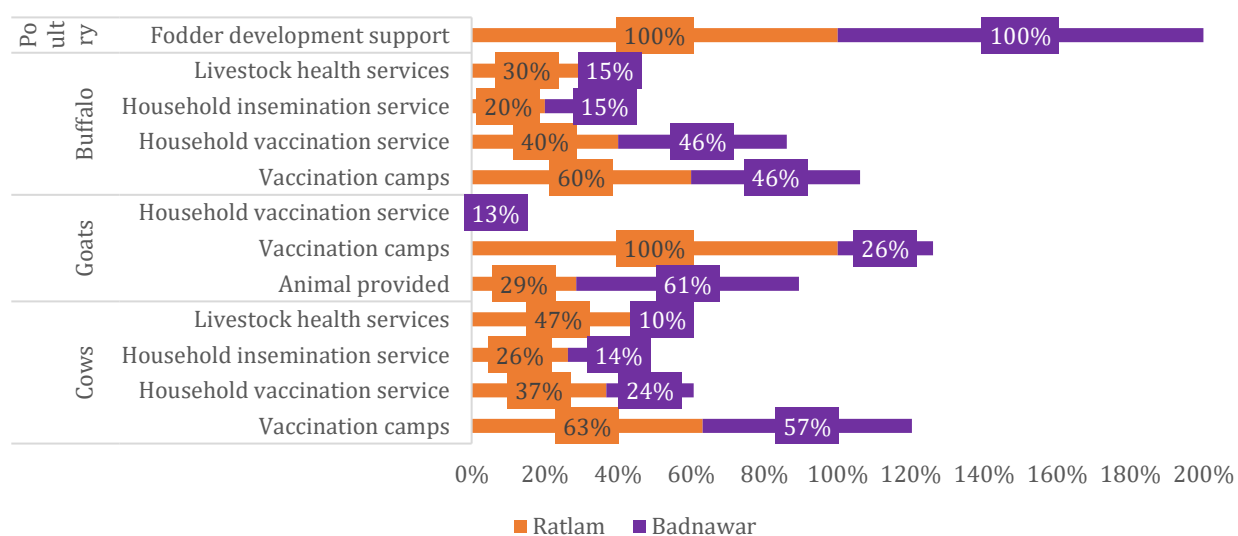
The SHG enterprise in the region are mainly limited to bookkeeping and managing the PROM unit. 40% of the SHG's are active in the region. Rest was unable to sustain due to personal reasons and lack of follow up processes after the project ended in the region. Qualitative data indicates the impact of Covid-19 on the SHG's as well since many were unable to participate in monthly meetings due to which the SHG's stopped functioning. 47% women note the decrease in interest for loan to be the primary benefit of SHG's.

Since the SHG interventions were primarily done with disadvantaged women in the region, there is a need to reestablish SHG's with proper skill training for various production activities. The women in the region were eager to take up training for cooking, stitching etc. as opposed to being agriculture labors in field. But lack of training is the key reason for SHG mobilization to be limited to small loans at nominal interest rates.

Livestock Management: Under livestock development program, interventions such as breed improvement through artificial insemination, pregnancy diagnosis, vaccination and deworming of small and large ruminants, infertility cum general health care, cattle insurance through convergence and green fodder production etc. were implemented in all project villages. In breed improvement, artificial insemination with elite bulls of exotic, indigenous breed, genetic characters were done to increase in milk production. The livestock development Centre has been established in Itawakalan villages. Additionally, doorstep AI services were provided to households for their buffalos.

Additionally, to prevent animals from various diseases and improve their health and productivity, comprehensive system of complete veterinary care was implemented through the project including deworming, vaccination, and feed supplement etc. Therefore, a Vaccination, deworming, infertility-veterinary care, and mineral mixture and calf starter services was implemented in all project villages. Deworming was done in 1646 large and small animals (cow and buffalo) and benefiting 325 households.

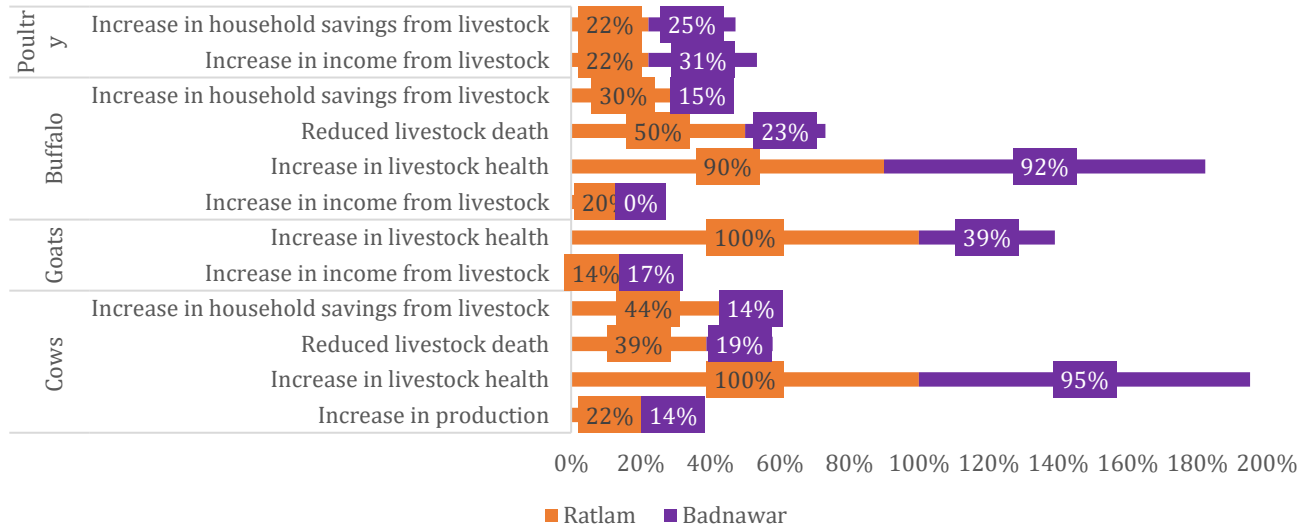
Figure 14: Livestock management services availed through HRDP



n=117

10 breeding buck of sirohi breed were given to landless goat rearing families for breed improvement. Since inception, 30 Sirohi bucks were supported to small and marginal farmers who have desi goat flock of 10 to 20 for breeding purpose. This initiative will help the landless farmers to develop sirohi breed from desi goat. 230 crossbred sirohi kids were born in field from services of 30-sirohi buck support. Two participants from Multhan cluster sold 4 sirohi kids and earn income of Rs.19,000/-. Promotion of fodder cultivation and improving the quality of available feed such as crop residues and by-products was also implemented through HDFC bank interventions. It aids the profitability of dairy husbandry. 56 farmers were supported to demonstrate fodder cultivation and introduce new fodder varieties in the region such as BAIF Napier, Suddan and Nutrifed.

Figure 15: Perceived primary benefits of livestock interventions



n=117

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 for dairy farming and livestock management.

4.4. Health and Sanitation

Through HDFC interventions, two solar water lifting pumps were established in two project villages to provide access to drinking water in less privileged areas of the village along with one community water tank for safe drinking water access. Additionally, household toilets were constructed where partial fund was allocated through HDFC interventions and the other half was provided by the household. 2 health camps were also set up annually, to spread awareness regarding routine health checkups. Kitchen garden training and related interventions in households were also implemented to provide nutritious food to households.

Table 7: activities under health and sanitation in Madhya Pradesh

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

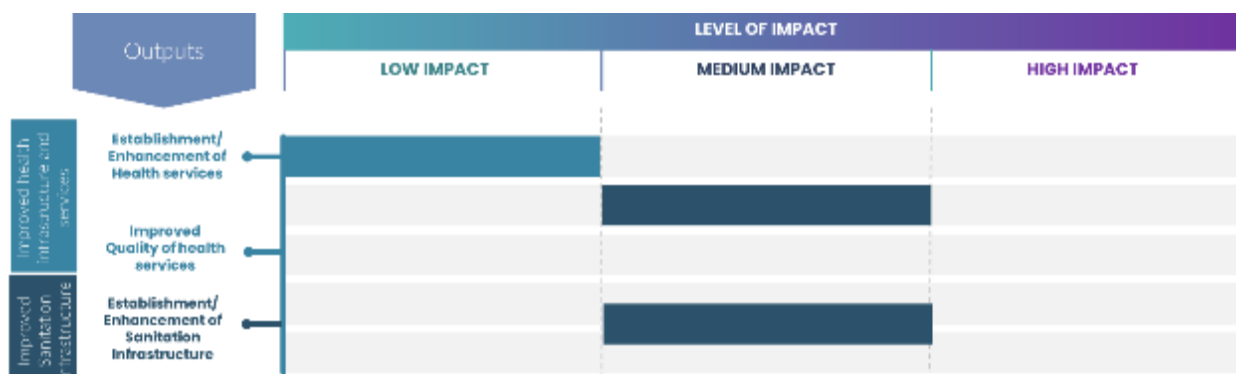
4.4.1. Effectiveness and Impact

Through HDFC project interventions, 150 households were supported with convergence of Swatch Bharat Mission for all four project villages. Under the project, support of materials like cement bags, door, tiles, basin, and WC Sheets were provided to households. SHGs members were supported with HYV seeds in a group for the preparation of nursery in their backyards. After nursery preparation plantation were done as per the needs and size of families to ensure the availability of green and fresh vegetable for eating.

Two solar water lifting pump was installed in Itawakhurd & Multhan village to ensure drinking water facilities for villagers and animals. Solar water lifting pump was installed at PHE hand pump after concern of VDC and NOC of gram panchayat. Through initiative of HRDP 340 families get clean water for domestic as well as drinking uses at nearby home.

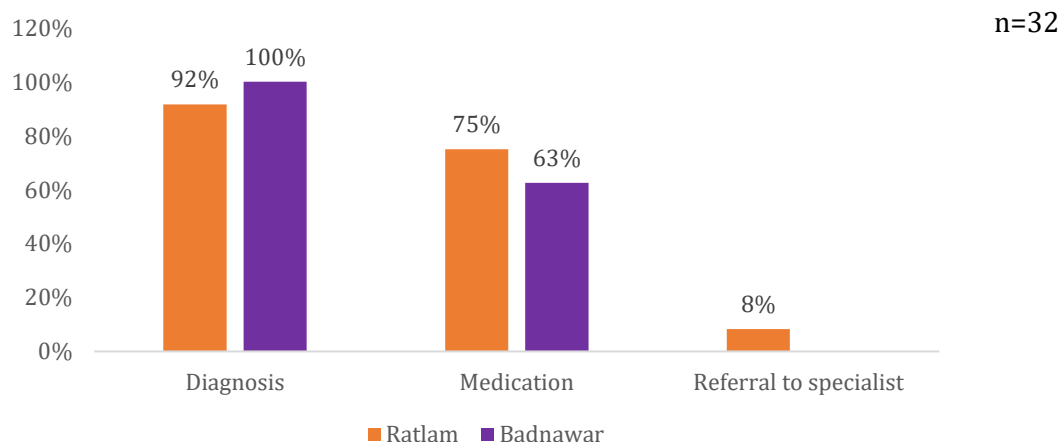
Four-community health camp were organized in Multhan and Itawakalan villages under the supervision of Blok Medical Officer (BMO). Under camp villagers avail the free treatment and medicinal facilities who suffered from various health problems due to lack of access of medicinal facilities. 451 villagers were treated and avail the medical facilities through routine check-up in camp.

Figure 16: An overview of project effectiveness and impact in Health and sanitation



Health infrastructure and services: Through HDFC bank interventions, health camps were organized in the region. The health camps were either general health camps for primary checkup or for anemic women in the villages, providing advice and suggestions for healthier diet and recommendation of supplements. Additionally, training was conducted for local youth of the regions for leading awareness campaigns throughout their villages for better health and sanitation practices. The health camps have proven to be beneficial to combat the spreading of diseases. It has also benefitted women to access the camps to address their specific issues. As shown in the table, the camps were organized under the intervention arena, but it does not translate to access to quality services.

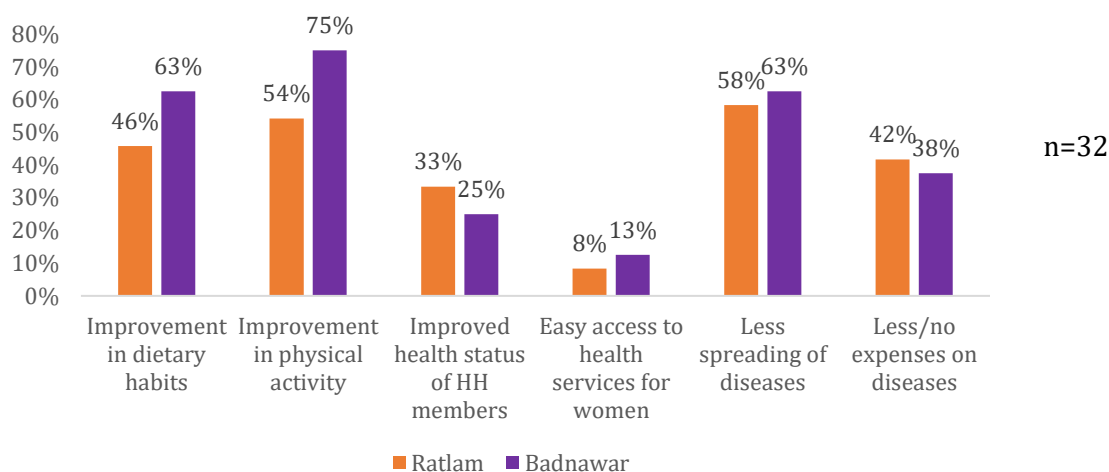
Figure 17: Services availed at HDFC supported camps/clinics



Many respondents did not go to the referred medical facility because of cost reasons. Another common reason for not going to the referred facilities was it being far away from the village. While local Public Health Centers are functional in the villages, it is the specific issues related to diabetes, cardiovascular problems and other internal issues that require medical care, unavailable to the public due to lack of specialized hospitals nearby. HDFC health camps in the region thus, have been beneficial for awareness generation but without adequate support from the government in terms of

better access to healthcare, the problem of accessing specialized healthcare remains an issue in the region.

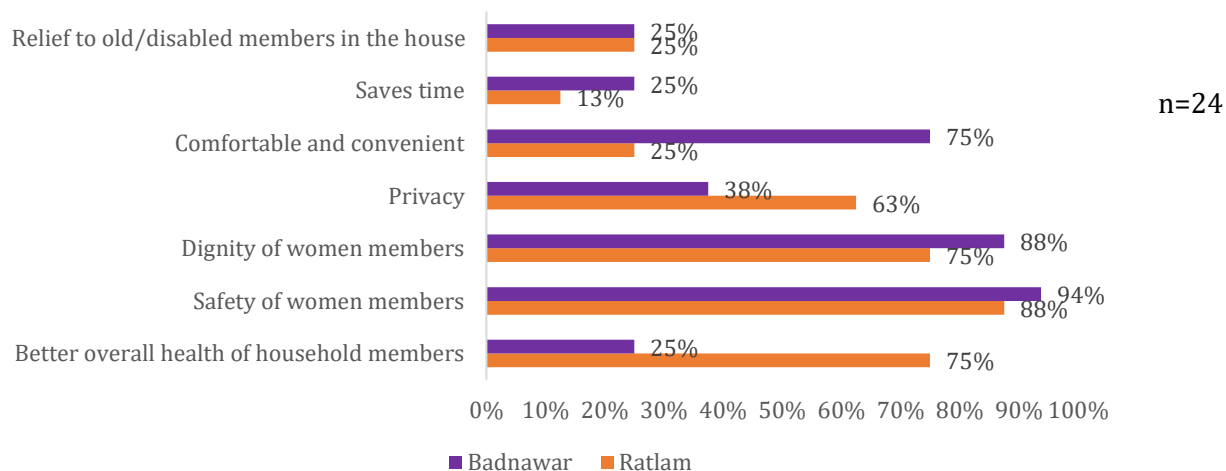
Figure 18: Perceived benefits of HDFC bank supported health camps/clinics



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. 90% of the respondents claim the use of sanitation units is beneficial for women. 82% of the respondents also mark the better overall health of the household through the proper and adequate maintenance of toilets.

Figure 19: 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 among individuals.

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 collaborated with the SHGs and 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 broccoli, cabbage, cauliflower, brinjal 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 “green diet” has been observed as leafy vegetables were often not bought due to their high price. There has been a weekly average saving of Rs 100 per household from the use of vegetables through Kitchen Gardens.

Women and Community health camps

Through HDFC project interventions, 305 adolescent girls and women were trained about basic awareness and precaution adaptation during menstrual period like uses of sanitary napkin and its disposal. After training menstrual kits were given for their uses and distributed through Anganwadi centers.

Additionally, ten community health camps were organized in Multhan and Itawakalan villages under the supervision of Blok Medical Officer (BMO). Under camp villagers avail the free treatment and medicinal facilities who suffered from various health problems due to lack of access of medicinal facilities. 451 villagers were treated and avail the medical facilities through routine check-up in camp.

4.5. 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 purifier were also established in school premises. Additionally, routine workshops were conducted to make school an enriching space to learn life skills. Books for reading during school hours were also provided in schools in project intervention. 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.

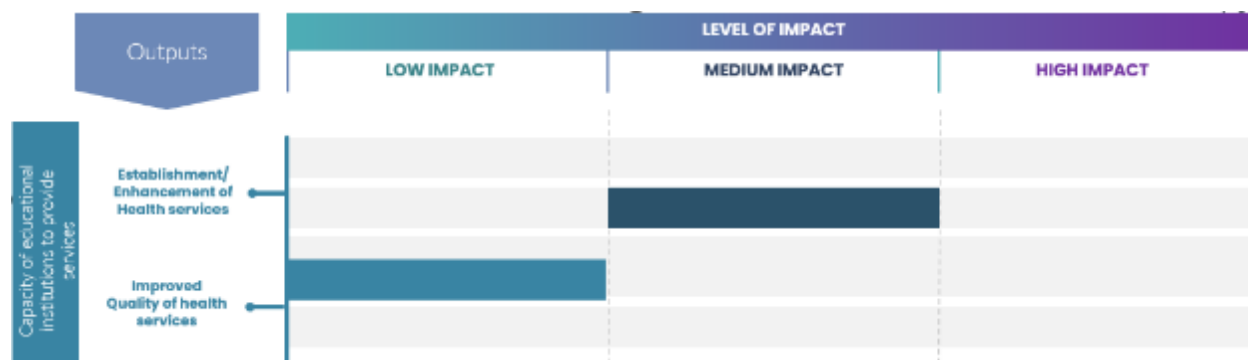
Table 8: Activities under education in Madhya Pradesh

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

4.5.1. Effectiveness and Impact

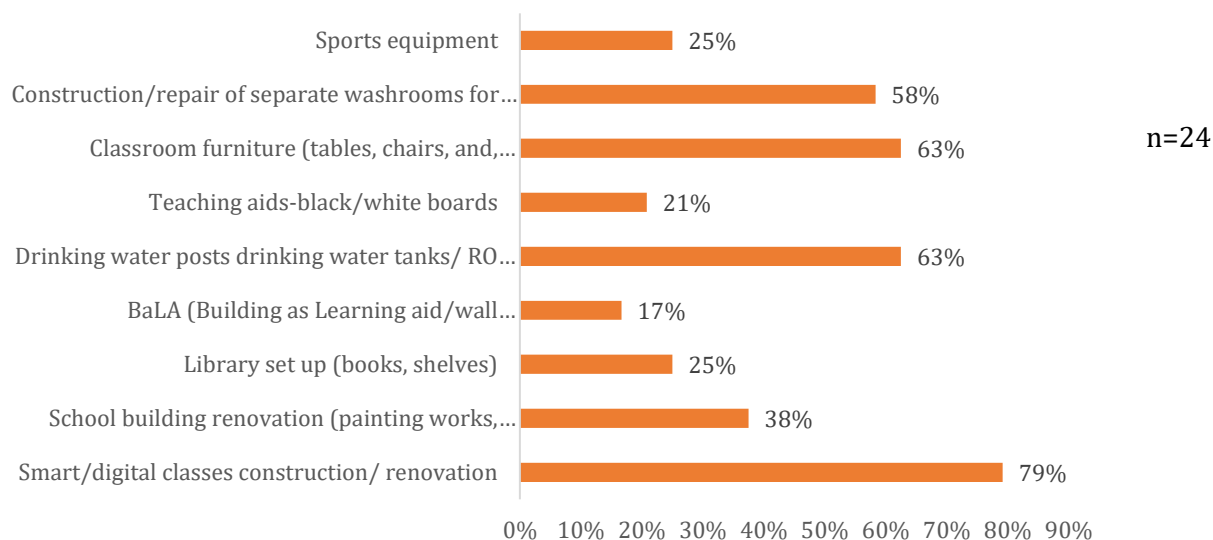
Through HDFC interventions, two water purifiers were installed in government middle and primary school of Itawakalan and Binjakhedi village to ensure drinking water facilities for students. Water purifiers were installed at PHE bore well after concern of VDC and NOC of District Education Officer. Through initiative of HRDP 420 students of two school and one anganwadi currently get safe water for drinking. Smart classrooms were set up and trainings were conducted for govt. schoolteachers at all 4 villages of the project. All teachers were provided with hands on training and live demonstrations on the possibilities of digital classrooms. The intervention village school toilets have been constructed. These school toilets were renovated according to the needs (e.g., Repair of tiles, roof, wall, providing urinals in toilets, Water tanks etc). 4 schools have been enabled with Library Furniture and initial books support. Multhan middle and senior school also received chairs and desks for classrooms as part of HDFC interventions.

Figure 20: 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 don't have to go home between classes. 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. A total of 17 sanitation units (toilets) consisting of separate girls' and boys' toilets with taps for hand washing were constructed in all the project villages. This has combated the spread of disease in schools and 64% students note the importance of school toilets to attend school regularly. 95% of students have better seating capacity due to HDFC bank interventions that provided seats and tables in classrooms. 76% students have access to clean water in schools due to HDFC interventions.

Figure 21: 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 it became easier to go to school because of the construction of school toilets. 54% of the students attend classes regularly, through HDFC bank interventions in schools. Through smart classrooms 50% students note that syllabus is now covered on time. 62% have liked going to school due to whitewashing of

rooms that has made stable classroom structures. All the following interventions have positively impacted the development of schools that give rise to better modes of learning and motivation for

Table 9: Perceived benefits of infrastructural services according teachers/ students

students.

Perceived benefits				
Intervention	Lessons are more interesting	Lessons are easier to understand	Syllabus covered faster	Lessons are easy to remember
Smart class	82%	94%	23%	41%
Library	17%	0%	50%	100%
Learning materials	50%	50%	100%	0%

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 SMC members on the RTE (right to education Act) as well as their roles and responsibilities towards school development.

School Interventions in Multhan Village

Through HDFC bank interventions in the region, middle and primary schools in Multhan village were enhanced to improve the quality of teaching in the region. Among many, the primary interventions were in the developing school library, paint and whitewashing of school structures, providing chairs and tables according to the class/ section (bigger chairs and tables for high school etc.), drinking water posts, construction/ renovation of separate toilets and the introduction of smart class in both the project schools. Mr. Gopal Kumar, the principal of Multhan high school notes the use of smart classroom and library to be especially beneficial to students as they are developing education through a new medium which is visual, and consequently are able to retain chapters better. The students are very happy and excited with the smart classroom and look forward to attending smart class everyday in the afternoon where they are made to watch films and chapter outlines/ revision for upcoming tests.

Image 4: Education interventions in Multhan village



4.6. 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. Currently, 76% of the farmers use a mix of organic and chemical fertilizers. None of them have practiced organic agriculture exclusively. This is also since they were unable to get the price for the organic vegetables, forcing them to go back to traditional crops and methods. HDFC interventions in irrigation have been key infrastructural activity in the region, 60% of the structures such as Gabions, Check dams etc are functional. Rest was not properly maintained by the VDC resulting in the structures being not in use. 79% of solar streetlights are effective in the region. The rest need proper maintenance and change of battery. The household biogas unit, though takes longer time to cook has been regularly used everyday for 71% of biogas unit beneficiaries.

Support provided	Structures established	Technical Know-how	Usage	Maintenance
NRM				
Irrigation Management	✓	✓	✓	✓
Farm Management	✓	✓	X	X
Clean Energy	✓	✓	✓	✓
Plantation	✓	✓	✓	✓

HDFC interventions in **Skill and Livelihood enhancement** have had a sustained impact. More than 53% of farmers are currently adopting the services and practices accessed through the project under farm management. These are namely use 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. 73% of the respondents have benefitted from improved capacity to increase productivity through interventions. 40% of the SHG's are currently functional in the region. 83% of the functional SHG have regular meetings. 30% of the livestock 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		✓	✓	X
SHG-Based Women Empowerment	✓	✓	✓	X
Livestock Management	✓	✓	✓	✓

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 members also volunteer for the maintenance of kitchen gardens in the region. The health interventions that have taken place are health camps, which have helped in identifying issues related to anemia and other lifestyle problems, but people have not taken the referrals further for treatment. 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 disrupted due to the COVID-19 pandemic as the social gathering was completely avoided. 90% of the respondents claim the use of sanitation units is beneficial for women. 82% of the respondents also mark the better overall health of the household through the proper and adequate maintenance of toilets. Solar water lifting pumps are functional in the villages.

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

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 even the installation of RO filter. 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. Besides this, training of school management committees on the importance of effective community participation would entail a sense of responsibility and obligation on the parents towards a better future for their children.

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

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	0.09	0.10	0.03	0.08	0.01	0.02	0.06	0.11	0.05	0.08
% Change	11%		167%		100%		83%		60%	

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 2 clusters Ratlam and Badnawar, Madhya Pradesh; the major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement and Healthcare & 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 in the has been helpful to farmers. Tool banks, interventions for High quality seeds and solar lights have all aided in the better overall lifestyle of people in the village.

The project activities within skill and livelihood enhancement also have opened economic opportunities not just for farmers, but for SHG women 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 sustained profit generation is yet to be achieved, the project was successful in initiating entrepreneurial activities in the community among women that have motivated more women to start their own income generation activities. The establishment of PROM unit has had a dual benefit of providing organic manure at less cost to farmers and SHG's enterprise to collect dung and sell to the PROM unit. The enterprise has been successful in Multhan village. Insemination camps and door to door IA have also 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 improving women's access to health services, 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 according to teachers. To ensure

interest in sport activities and movement around school, support was provided in terms of distributing sports kits to schools, which have been thoroughly used and enjoyed by school children. Smart classrooms in schools have benefitted students to take more interest and regularize their attendance in schools. Additionally, the repair of school toilets 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: There is a need to strengthen the capabilities of VDC's in project villages and subsequent awareness around the maintenance of infrastructure built under project interventions. Interventions to grow Soyabean did not give good agricultural yield and therefore was not continued in project villages. Ensuring market linkages for crops like soyabean and chickpeas can benefit the farmers to diversify their crops and implement multi-cropping farming in the region. Market linkages continue to be a major challenge for new crops that are introduced through project interventions.

Skill and Livelihood Enhancement: The convergence between village Panchayat and partner NGO forms the backbone of project implementation in regions. Many panchayat members don't support project activities unless commission is given. Thus, there is a need to envision a mutual-gains model in the region where mutual participation can lead to better implementation of projects. Additionally, there is a need for more trainings and activities for agriculture in the region as people through qualitative interviews revealed that due to lack of information, many continue to disengage from the workshops and continue with traditional farming methods due to lack of confidence in trainings. Under the leadership of village development committees (VDC's), there is a need to engage self-help groups and other groups set under other programs to develop Village Poverty Reduction Plans (VPRP) and seek convergence. There is a need to strengthen the role of VDC's in the village.

Health and Sanitation: Awareness generation activities are necessary in the project intervention area for proper nutrition and checking for early signs of lifestyle diseases like thyroid, diabetes etc. There is a need to focus on NCDs in project villages for better resources and information on the same. Additionally, 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 region it becomes pertinent for more people in the districts to be supported by drinking water interventions.

Education: 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	School Library	Library books and shelves distributed in 4 schools in two project villages	Students
2	Promotion of education	Educational Institutions Development	Infrastructure renovation	Renovation of government schools in all project villages including whitewashing and painting works	School
3	Promotion of education	Educational Institutions Development	Smart classes	6 Smart classes developed in project villages	Students
4	Promotion of education	Educational Institutions Development	Infrastructural support	Table, desks, chairs, black boards, cupboards distributed in project villages as per requirement	School
5	Promotion of education	Educational Institutions Development	Infrastructural support	RO Filter for drinking water set up in 4 project schools	Students
6	Promotion of education	Educational Institutions Development	Infrastructural support	School toilet construction in 8 out of 16 schools and toilets of the rest of govt. schools were renovated	Students
7	Promotion of education	Educational Institutions Development	Sports	Sports kits distributed in all project schools	Students
8	Health and sanitation	Drinking water management	Solar water lifting pump	Two solar water lifting pump was installed in Itawakhurd & Multhan village to ensure drinking water facilities for villagers and animals.	Community
9	Health and sanitation	Drinking water management	Community water tank	Community water tank established in one project village	Community
10	Health and sanitation	Sanitation	Construction of Household Toilets	Construction of Household Toilets in project villages	Community
11	Health and sanitation	Sanitation	Deepening of drainage	Deepening of drainage in one project village	Community
12	Health and sanitation	Kitchen Garden	Kitchen Garden	Training and distribution of High-Quality seeds	Community
13	Health and sanitation	Health	Health Camps	9 health camps established in project villages	Community
14	NRM	Clean Energy	Solar Home lights	200 households were distributed solar home lights	Community

15	NRM	Clean Energy	Solar Streetlights	22 streetlights were installed in project intervention villages	Community
16	NRM	Irrigation Management	Drip systems and Sprinklers	35 beneficiaries of Multhan village received drip systems and sprinklers	Farmers
17	NRM	Irrigation Management	Check Dam	1 check dam each was constructed in Itawakala and Multhan villages	Farmers
18	NRM	Irrigation Management	Gabion Structures	16 structures were formed in all project villages	Farmers
19	NRM	Irrigation Management	Stone Bunding	1 in Multhan village	Farmers
20	NRM	Water Management	Gully Plugs	10 structures in 3 project villages	Community
21	NRM	Water Management	Pond Construction	13 ponds constructed in all project villages	Community
22	NRM	Farm Management	Wadi Cropping	Wadi cropping in all project villages through lemon and guava seeds	Farmers
23	NRM	Farm Management	Tool Bank	Tool Bank comprising of Cultivator machine, reverse plough machine, land lder machine etc in Multhan village	Farmers
24	NRM	Green Cover	Plantation	Fruiting plants of Guava, Lemon and Apple Bare given to communities for the plantation	Community
25	Skill development and livelihood enhancement	Agricultural Training	Exposure visits and training	10 Farmer Training on Farm Techniques conducted in all project villages	Farmers
26	Skill development and livelihood enhancement	Enterprise	PROM enterprise	PROM Enterprise in Multhan village	Community
27	Skill development and livelihood enhancement	Collectivization	Formation of SHG's	115 member SHG's formed in project villages	Community
28	Skill development and livelihood enhancement	Collectivization	Formation of VDC's	Village Development committees in all project villages	Community
29	Skill development and livelihood enhancement	Livestock Management	Poultry	Poultry Development through distribution of 40 birds with government contribution	Community
30	Skill development and livelihood enhancement	Livestock Management	Fodder development	For all poultry beneficiaries in project villages	Community
31	Skill development	Livestock Management	Distribution of goats	30 goats distributed through partial investments	Community

	and livelihood enhancement				
32	Skill development and livelihood enhancement	Livestock Management	Awareness Generation	Awareness generation regarding best practices in all project villages	Community
33	Skill development and livelihood enhancement	Livestock Management	Artificial Insemination	Insemination camps and door to door insemination reaching out to 400 beneficiaries 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

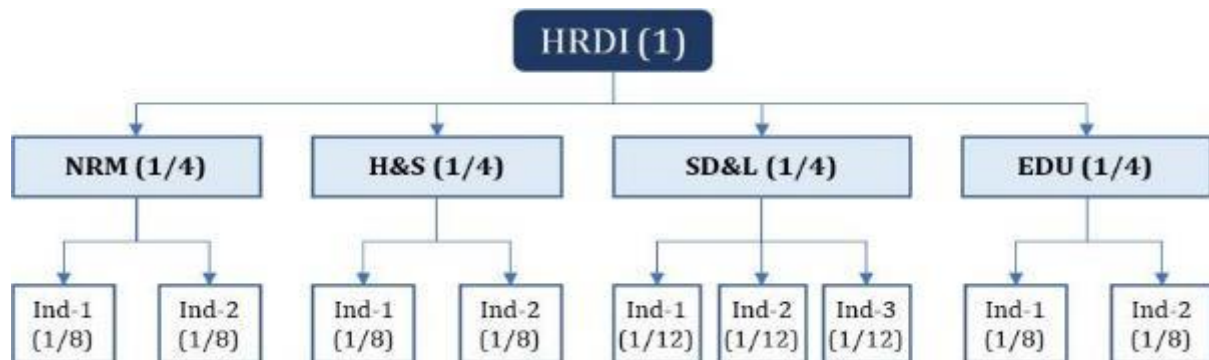
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between 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 weights³



³ NRM: Natural Resource Management | H&S: Health and Sanitation | SD&L: Skill Development and Livelihoods | EDU: Education

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
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 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	Weight	HRDI	Endline	Weight	HRDI
NRM	Average productivity of crops (3 major crops) grown (quintal per acre)	17.8	34%	0.09	18.6	34%	0.10
NRM	Percentage of farmers reporting access to irrigation	98.8	33%		100	33%	
NRM	Area under irrigation (Ha)	3	33%		3	33%	
H&S	Percentage of households with access to improved toilet facility	12	100%	0.01	23	100%	0.02
Skill	Percentage of SHG members participating in rural enterprises	0	50%	0.03	18	50%	0.08
Skill	Percentage of households with improved skills in agriculture	23.5	50%		43.25	50%	
ED	Percentage of students reported functional smart class before/after project	0	50%	0.06	33	50%	0.11
ED	Percentage of drinking water units functional before project intervention	75	50%		100	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	70%	48%	Medium
	Proportion of farmers reporting increased income from crops that were supported under HRDP.	94%		
	Average increase in income from crops that were supported under HRDP (% change)	10%		
	Average increase in productivity from crops that were supported under HRDP (% change)	21%		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	69%	60%	Medium
	The proportion of farmers reporting an increase in the use of natural fertilizers	24%		
	The proportion of farmers who received support for irrigation	88%		
Increased use of clean energy solutions				
Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	71%	69%	Medium
	Proportion of households reporting benefits from using clean energy infrastructure (Base=clean energy beneficiaries)	67%		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	33%	41%	Medium
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	50%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	53%	50%	Medium
	Proportion of beneficiaries reporting an increase in productivity due to better farm management	93%		
	Proportion of farmers reporting increased income	6%		
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 health infrastructure and services				
Establishment/enhancement of health infrastructure and services	Proportion of beneficiaries who gained access to health services	8%	20%	Low
	Proportion of beneficiaries reporting lifestyle changes due to improved access	31%		
Improved quality of health services	Increase in no. of beneficiaries reporting less spreading of diseases through services	59%	59%	Medium
Improved sanitation infrastructure and services				
Establishment/enhancement of sanitation infrastructure.	Proportion of beneficiaries who gained access to sanitation services	6%	33%	Low
	Proportion of beneficiaries reporting benefits due to improved access	60%		
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	50%	50%	Medium
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	50%		
Improvements in quality of teaching	Proportion of teachers regularly utilizing smart classrooms/libraries/smart class	33%	33%	Low

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