Impact Assessment Study under Holistic Rural Development Programme (HRDP) Rajasthan – P0308

Prepared For:

HDFC BANK | PARIVARTAN
A step towards sustainable progress

HDFC Bank Corporate Social Responsibility (CSR)

Prepared By:

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An Intellecap Subsidiary

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Executive Summary

The study centres on measuring the impact of the Holistic Rural Development Program (HRDP) of HDFC Bank that was **implemented by BAIF Development Research Foundation (henceforth BAIF) in Dausa district of Rajasthan**. It largely focused on understanding the overall process that the HDFC Bank and the implementing organisation undertook in carrying out the program activities, the key milestones achieved, the impact created by these activities, and the challenges faced. The **key focus areas of the intervention were Natural Resource Management, Skill Training & Livelihood Enhancement, Health & Hygiene and Education.** The framework used for the impact assessment was an adaptive version of the Development Assistance Committee (DAC) criterion - Relevance, Effectiveness, and Sustainability. **A comprehensive methodology, comprising both primary and secondary data collection was used for the assessment** which was carried out in a participatory manner involving all the key stakeholders of the program. The study included a **sample size of 404** project beneficiary households as respondents as against the planned sample of 400.

NRM

Increasing agriculture productivity and farmers' income were one of the major objectives of the program as they are small and marginal farmers with limited access to modern agricultural engineering and technology and unreliable irrigation measures. Thus, as a result of the support in seeds and farm inputs, a **35% increase in the net median income** of farmers was observed. The reasons accredited for the increase were mainly the **program's intervention in irrigation (34%), support in seeds and tools (17%)**. Further people reported 4% each for organic farming and soil testing and land treatment, followed by farming techniques (3%) as reasons behind income increase. However, **majority of the respondents mentioned market prices (96%) and 4% stated increased area under cultivation of crops as other reasons for an income increase** since the inception of the program.

30% of the sample beneficiary households reported an increase in production of wheat, 53% for bajra, 37% for groundnut and 49% for fennel. The farmers attribute this increase to the improved irrigation facilities and assured water supply provided by the project interventions. 21% of the sample beneficiary households went ahead with crop diversification and adopted horticulture utilising the project interventions. Among the respondents who saw a decrease in production, 72% cited poor weather as the primary reason. Of the respondents, 83% are fully satisfied with the intervention on construction of check dams. Among the respondents, **21% of households adopted horticulture** and diversified their crops after the intervention through the HDFC project. Under clean energy, the solar street lights installed in the program villages have benefited 53% of the community.

Skill Training and Livelihood Enhancement

From the surveyed households, 10% have benefitted from the intervention on agricultural training and support. From the households who benefitted, all households have received support in terms of agricultural training practices. Among them, **37% of households have reported that they learned application of organic manure, timely application of fertilisers and insecticides (93%)**, azolla unit (10%) and conservation agriculture practices (68%). 12% of households reported that they have attended sessions on nature farming-training, 46% on farm techniques training and **68% households participated in the exposure visits.** After adopting

the new techniques, 83% of the farmers reported an increase in income. The median income increases after adopting these practices is INR 15,000 per household.

Through the HDFC interventions, **28% of the respondents have benefitted from interventions in livestock management**. Out of these, an increase in milk production was reported for cow (32%) and buffalo (28%). An increase in income was reported for cow (28%) and buffalo (37%). For goat, 66% reported improvement in health of the animals which means increased weight leading to higher sale price. The **average monthly income from livestock has increased more than twice from INR 700 to INR 1700** for the beneficiaries.

Health and Sanitation

The program had a component to create health awareness among the people; 34% of the respondents reported that they have received health services. Out of these beneficiaries, **99% have availed health service in the form of health camps/sessions** and 2% have attended a hygiene related health session. In the health camp, respondents stated that they availed services in the form of diagnosis (84%), medication (72%) and referral to specialists (4%). Among the beneficiaries, 66% reported easy access to health services to women as the prime benefit from the health camps, 64% stated improvement in physical activity, 47% stated improvement in health status of household members and 43% reported improvement in dietary habits. 31% of beneficiaries each stated ease in access to quality health services and reduced expense on diseases, 20% reported the perceived benefit to be less spread of diseases and 26% reduced consumption of additive substances. **The project support was given for toilet repairs (78%), and 11% each for community waste water soak pits and awareness campaigns**. The **use of individual toilets increased from 11% to 44%, and community toilets from 33% to 56% due to the intervention.** The main intervention for drinking water were installation and repair of community taps (64%) and community water tanks (36%).

Promotion of Education

The program heavily focused on equipping schools with infrastructure facilities. **Digital class creation has been a crucial activity.** 100% of respondents (parents) noted that after the LED screens were set up, students are more likely to go to school. **68% of parents reported that classes are more interesting and easier to learn for their children**. The response of students also show that they use the digital classes regularly. The students reported the **use of digital classes every day (43%),** most days (33%) and sometimes (24%). 100% of students noted they liked learning using smart class. Of the teachers interviewed, 50% stated that they use digital class on most days and 25% stated that they use it every day.

Following is the summary of key income indicators as reported by the beneficiaries.

Table 1 Summary of Key Income Indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	74,000	1,00,000	35%

The above table indicates there is an increase of average net income from agriculture which could be attributed to HDFC project intervention in providing hybrid seeds, mulching sheets, fertilizers and assured irrigation from check dam construction and drip irrigation, which decreased the out-of-pocket expenditure incurred for agriculture inputs. On the other hand, there is slight decrease in average productivity of the major crops. This could be because the average landholding in the

study area is 1.2 acre, which means majority have marginal land holdings in which it is difficult to increase productivity.

HRDI Indicators

Table 2 Summary of HRDI Scores

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Overall HRDI Score	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.08	**0.09**	**0.12**	**0.16**	**0.1**	**0.21**	**0.02**	**0.1**	**0.32**	**0.56**
% change	**12.5%**		**33.3%**		**110%**		**400%**		**75%**	

1 Introduction

Despite the significant progress Indian society has made in its development, poverty remains a persistent issue, especially in rural areas where a substantial number of people rely on agriculture without access to stable irrigation. Moreover, disguised unemployment, lack of non-agrarian employment opportunities, limited skill development, inadequate healthcare practices, illiteracy, and environmental degradation are ongoing challenges. To address these issues, HDFC Bank has taken a step through its Corporate Social Responsibility (CSR) initiative by supporting programs for holistic rural development, aiming to uplift the rural population and promote their growth and prosperity. Through its CSR initiative and the HRDP program, HDFC Bank seeks to play a significant role in bridging the urban-rural divide, fostering inclusive growth, and creating a brighter future for rural India. By empowering individuals, supporting sustainable practices, and strengthening community bonds, the bank strives to make a positive and lasting impact on the lives of millions of rural Indians.

1.1 About HRDP

Under the aegis of *Parivartan*, the Holistic Rural Development Programme (HRDP) is HDFC Bank's flagship CSR programme in which non-governmental organisations (NGOs) across the country are supported to undertake development interventions in four thematic areas:

a) Natural Resource Management (NRM)
b) Skill Training & Livelihood Enhancement (ST&LE)
c) Health and Sanitation (H&S)
d) Promotion of Education (PoE)

The World Bank defines rural development as the improvement in the social and economic environment of the rural population. The fundamental aims of rural development include planning, creating, and using the resources such as land, water, and manpower to promote equal opportunity for the population reliant on them. Given this context, HRDP strives to enhance the lives of people in rural communities by primarily bringing about sustainable socio-economic transformation and ecological development. Its holistic approach caters to their various needs by addressing development of human capital, effective management of natural resources, economic independence through skilling and livelihood opportunities, basic infrastructure development, and enhancement of living conditions.

1.2 Objectives of the Impact Assessment

The impact assessment aims at understanding:

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

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

It seeks to:

- Critically and objectively evaluate implementation and performance

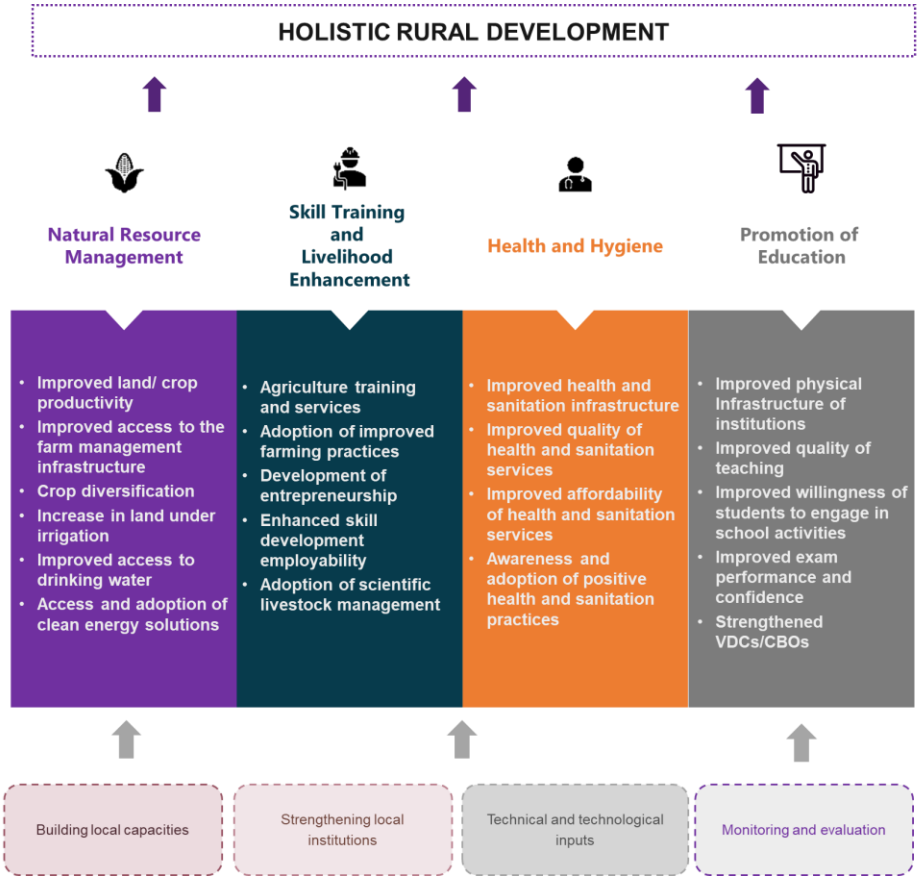
- Determine reasons for certain outcomes or lack thereof
- Derive lessons learnt and good practices
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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

1.3 Conceptual Framework Adopted

The conceptual framework and the areas covered under the assessment are depicted below (Figure 1). The aim is to build local capacities and strengthen local institutions, while giving technical inputs and conducting evaluation across the four thematic areas. The objectives under NRM, ST&LE, H&S and PoE are enumerated in the figure below.

Figure 1 Conceptual Framework



1.4 About the Project Area

The assessment provides an independent, third-party, detailed assessment report of HDFC Bank's HRDP intervention (under *Parivartan*) carried out in Dausa district, Rajasthan by BAIF, the implementing partner in this district. The project was undertaken during October 2019 till March 2022 and the interventions covered twelve villages in one block. The villages were selected for implementation because of their remote location near the border thereby making it difficult for any government scheme to reach. The assessment study was carried out from 4 July 2023 to 14 July 2023.

1.5 About the Implementing Partner

In the assessed HRDP project, BAIF was the implementing partner in Lalsot block of district Dausa in the state of Rajasthan. The project covered a total of 12 villages in this block. The major focus areas for the intervention were Natural Resource Management (NRM), Promotion of Education, and Healthcare & Hygiene. However, the extent of the work in each village was undertaken based on the need and varied from village to village.

BAIF was founded in 1967 by Dr. Manibhai with the ambitious vision of creating a self-reliant and sustainable rural economy by generating employment opportunities through agro-based enterprises. Their journey began with livestock development model that aimed to enhance cattle breeds in India. Over time, BAIF successfully developed various multidisciplinary models to foster rural development and provide economic growth opportunities for the most underprivileged.

BAIF's vision is to build a self-reliant rural society that enjoys food security, access to safe drinking water, good health, gender equity, low child mortality, high literacy rates, strong moral values, and a clean environment. Their mission is to create opportunities for gainful self-employment for rural families, especially the disadvantaged sections, by ensuring sustainable livelihoods, an enriched environment, improved quality of life, and the promotion of good human values. They achieve this through development research, using local resources effectively, introducing appropriate technologies, and enhancing skills and capabilities with community participation. Committed to sustainable rural development, BAIF created pivotal models to support integrated tribal development, optimize natural resource utilisation, improve access to clean energy, and empower communities socially. They strongly emphasise scientific and action research, and their successful initiatives have been scaled up through long-term partnerships with both governmental and non-governmental organizations.

BAIF collaborates with HDFC Bank to implement Holistic Rural Development Projects across multiple locations. **This report analyses the Holistic Rural Development Project (HRDP) initiated in 12 villages in Lalsot block of district Dausa in the state of Rajasthan with the support of HDFC Bank Ltd**. These projects aim to catalyse productivity enhancement and positive behaviour change at the community level, leading to increased income, improved quality of life, and diversified livelihood sources. The ultimate impact they envision is the establishment of a replicable model for holistic and sustainable livelihood development, achieved through improved technology and active community participation.

2 Research Methodology

The assessment used both, qualitative and quantitative methods. The process was carried out in a consultative manner involving interactions at key junctures with, both, HDFC Bank and BAIF.

2.1 Criteria for Assessment

For each thematic area, activities completed by the BAIF were identified. The impact of these activities was assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness[1]
- Sustainability

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

a) Aligned with the State's plans and priorities for rural development.
b) Relevant to the local needs of the most vulnerable groups.
c) Convergent with (and making use) of the Government's existing resources.
d) Enabling different stakeholders to work together to achieve the intended outcomes of the project.

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

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

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey as well as in-depth interviews (IDIs), Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) with project beneficiaries, BAIF, and the HDFC Bank project team. IDIs were conducted with the principal and teachers of Digo school, various farm beneficiaries, *pasusakhi*, and floriculturist. FGDs were conducted with farmers group, water user associations, village development committees, and women's group. KIIs were conducted of the ex-sarpanch, field staff of the implementing partner, and two farmers who successfully adopted hitech farming. The outcome mapping and result chain development was undertaken in consultation with the HDFC Bank team. Standardized key outcomes and indicators were identified for each thematic area (NRM, ST&LE, H&S and PoE). Based on the standardized list of outcomes and outputs, the questionnaire was developed.

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

Image 1 FGD at village Kutkya

Secondary data sources included HDFC's CSR Policy, Programme Log Frame (Logical Framework Analysis), Rapid Rural Appraisal Reports, Project implementation timelines, Communication, and Documentation products, and other relevant reports/literature related to the project.

2.3 Sample Size and Distribution

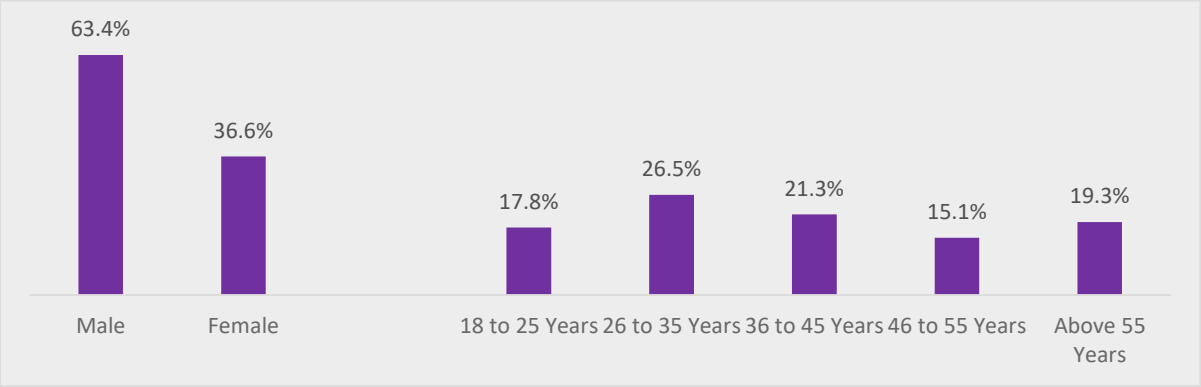
In the twelve villages of Dausa, where the project was implemented, beneficiaries were selected using purposive random sampling from a list obtained from BAIF of beneficiaries. Since beneficiary selection was undertaken independently for each thematic area, the selection of more than one beneficiary from a single household was probable. Also, there were instances where a single beneficiary received multiple benefits and support across the four thematic areas. Inclusion of beneficiaries for all thematic areas was ensured. The target sample size across nine villages was 400, out of which 404 sample respondents were reached. The thematic areas wise sample covered is as follows (Table 3).

Table 3 Quantitative Sample Covered[2]

Village	Total Households	Natural Resource Management	Skill Training and Livelihood enhancement
Bheroowas	31	23	8
Binori	25	22	3
Dhaun	19	9	10
Digo	47	47	
Diwachli Kalan	11	4	7
Ghata	10	10	
Gol	43	41	2
Hameerpura	17	3	14
Khariwara	27	22	5
Khatoombar	80	66	14
Kutkya	32	25	7
Toda Thekla	83	69	14
Total	425	341	84

[2] Note that the sampling does not include distinct beneficiaries for Health and Sanitation, and Promotion of Education, as these categories were not treated as separate beneficiaries; instead, they were encompassed within the NRM and Skill beneficiary groups, as indicated by data obtained from the NGO.

Figure 2: Gender and Age group-wise Distribution of the Sample



The total sample includes 63% male and 37% female attributing to the gender distribution of the sample. Gender distribution of the sample was ensured to the maximum to include women; however, it is slightly skewed to represent men respondents. In the sample villages, 63% of the respondents were male and 37% were female. The highest number of respondents, 26% belonged to the age category of 26-35 years. This was followed by 21% of the respondents belonging to 36-45 years, while only 18% belonged to 18-25 years.

The quantitative and qualitative sampling methodology has been explained in detail (see Annexure A).

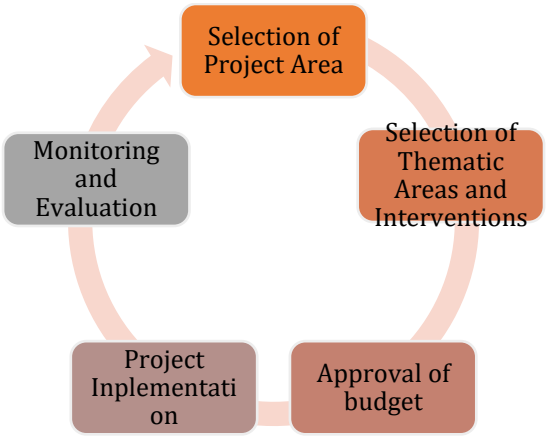
2.4 Training of Enumerators

A gender balanced survey team consisting of 6 local enumerators and 1 supervisor recruited with requisite education and experience, for data collection. Two days of training were provided to enumerators and supervisors by the field coordinator and the research coordinator. During the training the survey team was explained about the project, data collection tools, how to use CAPI, data collection protocols, data quality control etc. The training included both classroom teaching and mock practice of the survey tool.

3 Review of Project Planning and Implementation

The planning and implementation of the project involves five stages: selection of the geographical area viz. district, block, villages etc., selection of thematic areas and interventions, approval of budget, project implementation, and monitoring and evaluation. These stages are further explained below.

Figure 3 Project Planning and Implementation Process



3.1 Selection of Project Area

The study area belongs to the Lalsot block of Dausa district in the state of Rajasthan. Situated in the northern part of the state, Lalsot is characterised by its predominantly rural landscape, with agriculture being the primary occupation of the local community. The block is known for cultivating crops such as wheat, bajra, groundnut, and fennel. The average landholding in the area is relatively small, with many farmers having marginal plots, which poses challenges in increasing productivity. Prior to the project intervention, the region faced issues related to water scarcity and limited access to modern agricultural practices and resources. The HDFC project aimed to address these challenges and improve the livelihoods of the farming community by providing interventions in various sectors, including agriculture, livestock, education, health, sanitation, and drinking water. Through its comprehensive approach, the project sought to foster sustainable development, enhance agricultural productivity, and improve the overall well-being of the residents in the Lalsot block.

3.2 Selection of Thematic Areas and Interventions

Considering the above challenges in the area, HRDP interventions focused on promoting water and farm management in addition to clean energy. The project also focused on agricultural training and support, and livestock management under ST&LE; educational institution development and education support under PoE; health awareness and sanitation practices under H&S.

The activities specific to each village under the project were decided after in-depth consultation with the respective Village Development Committees (VDCs), which were constituted during the beginning of the project implementation. Activities under each of the four thematic areas are as follows:

Table 4 Activities under Four Thematic Areas in Dausa

Activity Category	Activities	Output Indicators
NRM		
Clean Energy	Street Solar Lights Installation, Solar Water Pump Distribution	Clean Energy Sources Installed
Farm Management	Hitech Farming, Wadi, Hybrid Fennel Cultivation, Creeper Farming, BNH10 Fodder Farming, Floriculture	Income from Agriculture
Irrigation Management	Anicut Construction, Gabion Construction, Drip Irrigation	
Water Management - Drinking	Repair of Community Drinking Sources	
ST&LE		
Livestock Management	Goat distribution, livestock development centre, water manger, artificial insemination	Livestock Management
Agriculture Training and Support	Sustainable agricultural practices, agriculture techniques	Access to Agriculture Training and Services
H&S		
Health	Health Camps, Health Sessions	Health Infrastructure and Services
Sanitation	Community washrooms, Soak pits, Awareness Generation	Sanitation Infrastructure and Services
Drinking Water	Handpump Repairs, Community Water Tanks Installation	Drinking Water Infrastructure and Services
PoE		
Education support	Digital class, science lab	Material support in Educational Institution
Educational Institutions Development	School building renovation, Separate washrooms, BaLA painting	Infrastructure in Educational Institution

3.3 Project Implementation

The HDFC project implemented various interventions in **Natural Resource Management** to enhance agricultural productivity and sustainable practices in the study area. These interventions included the provision of hybrid seeds, mulching sheets, fertilisers, and assured irrigation through the construction of check dams and drip irrigation systems. In farm management, hi-tech farming, wadi cultivation, creeper farming and hybrid fennel cultivation were promoted. Anicut construction, solar water pump distribution and drip irrigation were promoted as part of water management, and solar street lights were installed as part of clean energy promotion.

Under **Skill Training and Livelihood Enhancement,** the interventions included organising sessions on organic manure application, educating farmers on the timely and effective use of fertilisers and insecticides, and promoting conservation agriculture practices. One significant intervention was the distribution of goats to select women beneficiaries, providing them with a means of financial assistance. The project also established livestock development centers equipped with artificial insemination facilities and veterinary support to ensure the health and well-being of the livestock.

In terms of **Healthcare and Hygiene**, the project focused on creating health awareness through health camps and sessions. In the area of sanitation, the project supported toilet repairs and

community waste water soak pits, enhancing the safety and privacy of women members. Additionally, the interventions in drinking water included the installation and repair of community taps and water tanks, making access to clean water easier and reducing water wastage.

A range of interventions in **Promotion of Education** were undertaken to improve access to quality education and enhance learning outcomes for the community. The project focused on equipping schools with necessary infrastructure facilities, including school building renovations and the construction of digital classrooms. Moreover, initiatives like BaLA paintings and interventions in drinking water facilities in schools further contributed to creating a conducive learning environment.

Image 2 Goatry Distribution to widowed women was an important intervention in Dausa

3.4 Monitoring and Evaluation

The implementing partners used a standard monitoring and evaluation approach for the HRDP. These include reporting on project execution status to the HDFC Bank on a regular basis. Furthermore, the HRFC bank's programme implementation staff visits the project villages on a monthly basis to inspect the project work sites, participate in training programmes, awareness camps, and interact with project beneficiaries.

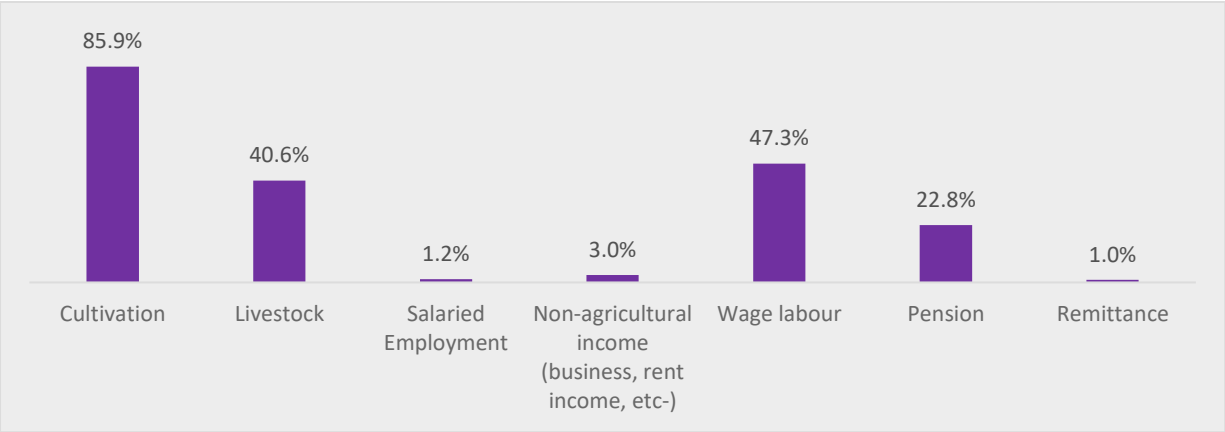
HDFC Bank has specific requests for project information from the implementing partner. The implementing partner manages the project data mostly in spreadsheets, which include information of the village-level activities conducted, beneficiaries mapped against each of the project activities, expenditures, and so on. In addition, the implementing partner submits to HDFC Bank a yearly progress report on project activities, as well as a strategy for the following year. This document is the primary source of information, providing an overview of the actions carried out, outputs produced, and outcomes attained.

The impact of BAIF activities was evaluated using four criteria: relevance and convergence, impact and effectiveness, sustainability, and replicability. This is backed up by the creation of a Holistic Rural Development Index (Table 6) based on selected indicators. The impact (Table 11, Table 12, Table 13, Table 14) for each activity has also been calculated and classified as high, medium, or low impact. The annexure goes into greater detail on these.

4 Study Findings

This section provides the analysis of the profile of the respondents covered in Dausa, Rajasthan. All respondents have more than one source of income. Over 86% or the highest number of respondents have cultivation as their major source of income, followed by 47% reporting income from wage labour. Among the respondents, 41% have said livestock as their major income source. 3% of respondents receive major source of income from non-agricultural activities such as business or income from rent, 1% each reported salaried employment and remittances, while 23% of respondents attributed their major income source to pension.

Figure 4: Income Sources of the Households



The educational status of the respondents shows that 37% or the highest number of respondents are illiterate and do not know how to read and write. From the sample, 12% have received education between 6th to 8th std, 13% till 9th to 10th std, 10% and 8% up to std 5th and 11th to 12th std respectively. 7% of the respondents have reported they are literate but have not received any formal education. In higher education, 12% of respondents are graduates and 1% post graduates. The social category of the interviewees is a mix of Schedule Castes (SC), Schedule Tribes (ST), Other Backward Classes (OBC) and general category. The majority of the respondents, 51% belong to OBC, 19% are SC, 21% belong to ST category and 9% to general category. Only 1% of the respondents do not hold any ration card. Among the ration card holders, 50% have APL cards, 47% have BPL cards and 2% have Antyodaya cards.

Figure 6: Education status of the respondent

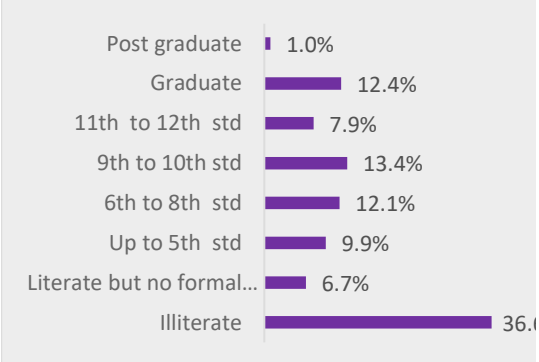
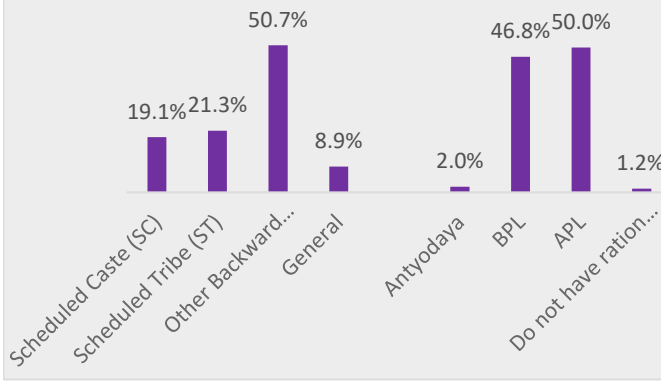


Figure 5: Caste and Income categories



The following table provides a summary of the quantum of activities carried out under each activity category of the four thematic areas (see Table 5).

Table 5 Quantum of Activities under each Activity Category of Four Thematic Areas

Activity Category	Activities	Nos. (as provided by IA)
NRM		
Irrigation Management	Anicut Construction Drip Irrigation	5 30
Water Management	Water Conservation through Gabion Construction/Repair	800
Farm Management	Hitech Farming - Mulching Creeper Farming BNH10 Fodder Farming Floriculture	8 20 25 5
Clean Energy	Solar Lights (Street) Solar Water Pump	80 6
ST&LE		
Agriculture Training and Services	Exposure Visits Marketing Awareness Horticulture Natural Farming	6 120 40 25
Livestock Management	Goat distribution Animal Health Camp Livestock Development Centre Water Manger	10 10 2 6
H&S		
Health	Health Camps Hygiene related Awareness Sessions	6 6
Sanitation	Community washrooms Awareness Generation	3 4
Drinking Water	Handpump Repairs Community Water Tanks Installation	25 3
PoE		
Education Support	Digital class science lab	4 4
Educational Institutions Development	School building renovation Separate washrooms BaLA painting	4 4 4

Given the above outcomes and as per the calculation methodology in Annexure B, HRDI for Dausa has been calculated (see Table 6).

Table 6 HRDI for Dausa

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Overall HRDI Score	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.08	**0.09**	**0.12**	**0.16**	**0.1**	**0.21**	**0.02**	**0.1**	**0.32**	**0.56**

Since the program did not have an available baseline, the baseline was captured through the recall method. The indicators were selected and assigned weights based on their relative contribution

to the final expected outcome across all domain-wise interventions. Further, the thematic-wise indicators were assigned weights to arrive at the composite **HRDI score of 0.56** indicating a **notable positive change toward the desired impact from the baseline score of 0.32.**

The following sub-sections provide details on the findings in each of the four thematic areas.

4.1 Natural Resource Management

NRM is one of the most important pillars of HRDP. In the context of the increased dependence on agriculture in Dausa, water conservation and recharge got particular attention; five anicuts or check dams were constructed to improve groundwater recharge, and over 800 gabions were repaired and maintained to reduce soil erosion. Support was made available to farmers for irrigation techniques and farm management practices. 30 drip irrigation units were installed on the fields of farmers and six solar water pumps were distributed. Over 80 solar street lights were installed, where previously there was no source of street lighting.

The objective of NRM interventions was to improve land/ crop productivity and ultimately increase farmers' agricultural income through increased access to farm management infrastructure and irrigation mechanisms. The aim was also to increase the adoption of clean energy solutions. The sections below focus on the impact created with regard to these objectives.

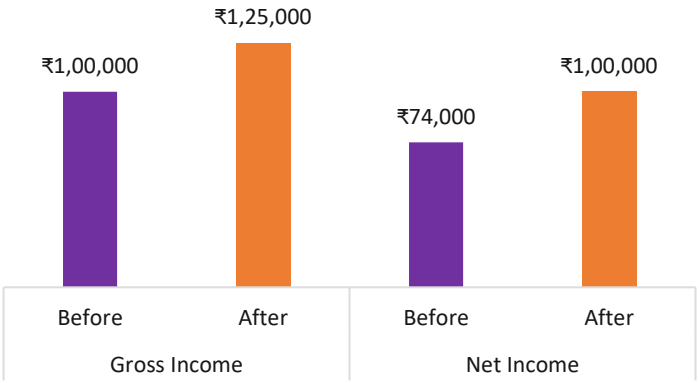
Through the HDFC initiative, 40% of the total sample beneficiaries benefited from the agricultural interventions. Under NRM, by providing assistance in the form of seeds and agricultural inputs, there was a notable 35% rise in the median net income of farmers. Among them, the primary drivers behind this improvement were the program's involvement in irrigation enhancements (34%) and provision of seeds and tools (17%). Additionally, respondents indicated 4% each for the impact of organic farming, soil testing and land treatment, followed by farming techniques (3%). The majority of those surveyed attributed the increase in income (96%) to market prices, with a smaller proportion (4%) mentioning expanded crop cultivation, which was made possible by HDFC's support, including access to high-quality seeds and an assured water supply.

Among respondents, 30% of households noted an increase in wheat production, 53% reported an increase in bajra, 37% reported an increase in groundnut, and 49% noted an increase in fennel production. Farmers primarily attributed this increased production to improved irrigation facilities and a reliable water supply. A substantial 83% of respondents expressed full satisfaction with the construction of check dams, a pivotal intervention. Moreover, 21% of households embraced horticulture and diversified crops following the intervention facilitated by the HDFC project. The installation of solar street lights in program villages has brought benefits to 53% of the community.

4.1.1 Income from agriculture

In the survey sample, **benefits from agricultural activities were availed of by about 40% of the total respondents**. The interventions include farm pond construction or renovation of check dam or anicut construction, gabion structures to stop soil erosion, cultivation of fodder variety BNH10, input support through the provision of mulching sheets and other agriculture equipment, promotion of creeper farming, soil testing, and installation of drip and sprinkler irrigation systems.

Figure 7 Increase in Agricultural Income (INR)



Note: Net and Gross Income in INR (based on median)

Figure 5 compares the **median gross income and median net income before and after the project intervention**. We can see that gross income increased by 25% and net income increased by 35%. In this period, the median input cost has also risen by 33%. As the rise in input costs is greater than the rise in gross income, the net income should have ideally declined. But here there is an increase in net income, which could be attributed to HDFC project intervention in providing hybrid seeds, mulching sheets, fertilizers and assured irrigation from check dam construction and drip irrigation, which decreased the out-of-pocket expenditure incurred for agriculture inputs. Parbhu Meena, a 60-year-old farmer from village Khatoombar who cultivates 3.6 ha of land, opines that after the check dam construction in his village, the water level in his field has come up which has in turn reduced the electricity cost incurred for irrigating his field.

Transforming Farming Fortunes: A Success Story of Damodar Prasad Meena, a Fennel Farmer from Village Khatoombar

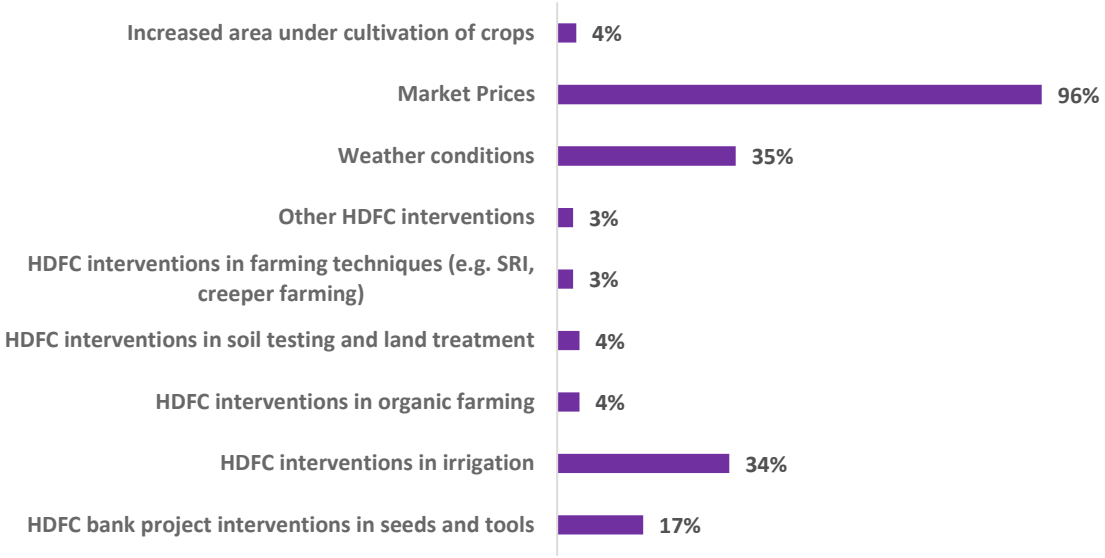
Damodar Prasad Meena, 28 years old, is a fennel farmer in the village Khatoombar. In this household, there are 10 members, including his three brothers. Together, they cultivate 10 bigha of land. Before the HDFC project, he used to sow local varieties or *desi* fennel seeds. In 1 bigha, with 3 kg of *desi* variety seeds, he used to get a yield of 8 quintals of fennel. Through the HDFC project, he received a hybrid variety of fennel seeds, along with an improved water facility from anicut construction in his village. He says the fennel flowers of the hybrid variety are larger in size, and he has benefitted from a better yield. Now, he sows 1 kg of hybrid fennel seeds in 1 bigha and cultivates a yield of around 12-15 quintals.

He also received fertilizer from the project. Earlier, he used to add 3 bags of chemical fertilizer but now he adds hardly 1 bag. Since receiving the first hybrid seeds from the project, he has cultivated the crop for three seasons, consistently getting better yields. Earlier, water issues were there and he could irrigate the field 3 times in a season. With anicut construction, the water level has risen and he irrigates the field 5 times. Earlier in one season, he received INR 50,000 from the sale of *desi* fennel. Now he receives INR 1,20,000 per season from hybrid fennel, which amounts to a 2.4-fold increase in income. He remarks that in future he would like to get hybrid variety seeds for other crops as well just like fennel which would increase his income further.

In terms of total households reporting a change in income, about 98% of the households reported an increase in income and 93% of the households reported an increase in profit after the project interventions. The reasons accredited (fig 6) for the increase were mainly the **project's intervention in irrigation (34%), support in seeds and tools (17%)**. Further people reported 4% each for organic farming and soil testing and land treatment, followed by farming techniques (3%). However, **majority of the respondents mentioned market prices (96%) and 4% stated**

increased area under cultivation of crops as other reasons for an income increase since the inception of the project. Those who reported a decrease in income attributed it to poor weather conditions and a lack of pest management.

Figure 8 Reasons for Increase in Agriculture Income



While income has increased, **input cost has also increased for 100%** of the respondents, the primary reason being increase in the price of inputs reported by 97% of respondents.

The major crops in the area are wheat, bajra, groundnut, and fennel, where each household grows more than one crop. Respondents have reported a decreased median productivity for wheat from (13%) and fennel (14%). This could be because the **average landholding in the study area is 1.2 acre, which means majority have marginal land holdings** in which it is difficult to increase productivity. As a result of this, the **average irrigated land has increased only from 1 acre to 1.2 acre**. The median productivity for bajra has increased by 7%, and for groundnut no change has been reported.

Image 3: Hybrid Fennel Seeds

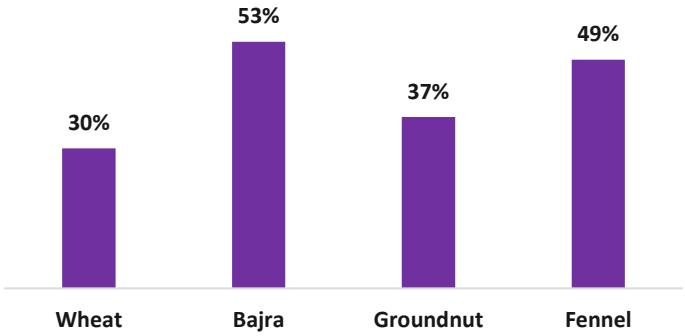
Transforming Agriculture: Drip Irrigation's Impact on Yield, Labor, and Sustainability for Mahadev Saini

Mahadev Saini's family received drip irrigation from HDFC project for 4 bigha land. He comments, "the drip irrigation has been a beneficial system for us. Earlier, we used to do flood irrigation, and had to stand there till water fills up and finishes watering the whole land. Now if one time we fill the overhead tank, it automatically irrigates the entire land and it requires less water also. Due to drip, moisture is always maintained in the soil.
As the moisture remains in the land through drip irrigation along with mulching sheet, there is less growth of weeds and diseases in the crops. This has reduced the cost of cultivation to the farmer. In Saini's farm, earlier for 1 bigha land, they had to employ 10 -15 people paying INR 400 - 500 each for weeding. This labour cost of INR 10,000 has been saved. They were also given pesticides which could be dissolved in the water tank. So, along with the water, pesticide also reaches the field. Thus, the cost of labour for spraying pesticides was also saved.

From the respondents, **30% of households have reported an increase in production of wheat, 53% for bajra, 37% for groundnut and 49% for fennel**. The main reason for increase in production is attributed by the farmers to improved irrigation facilities and assured water and those who reported a decrease in production, reported poor weather as the primary reason.

Image 4 Check Dam

Figure 9 Percentage of households reported an increase in production



The HRDP interventions that led to increase in production are intervention in input supplies such as seeds and tools, irrigation facilities, and soil testing and land treatment.

Table 7 HRDP Interventions that led to increase in agriculture production

Crops → / Project Interventions ↓	Wheat	Bajra	Groundnut	Fennel
HDFC Bank project interventions in seeds and tools	23%	10%	4%	31%

HDFC interventions in irrigation	35%	37%	29%	51%
HDFC interventions in organic farming	13%	4%	0%	11%
HDFC interventions in soil testing and land treatment	2%	0%	8%	3%
HDFC interventions in farming techniques (e.g. SRI, creeper farming)	4%	0%	0%	0%
Other HDFC interventions	0%	4%	0%	3%
Weather	54%	81%	92%	63%
Increased area under cultivation of crops	19%	15%	8%	14%
Improved irrigation	56%	65%	75%	63%
Support from other projects/institutions	0%	1%	0%	0%

From the respondents, 83% are fully satisfied with the intervention on construction of check dams while 17% reported somewhat satisfaction. During the FGDs conducted with women, they stated that as the water fills in the check dam, they face difficulties in reaching the grazing land while taking their livestock to feed. Now, they had to resort to a longer route to reach the grazing fields in the hills. Some women also stated that as the water spread area of anicut is open, they are afraid if their children might fall into it and drown by accident. But, overall, there was positive response to the construction of anicut as it increased the water level below their fields.

From the respondents who received drip irrigation, 12% continue to use it and 67% of them are fully satisfied with it. From those who received mulching sheets, 33% are fully satisfied with it. 77% of the respondents state that they did not face any challenges such as inadequate information or lack of follow up support while availing these services. However, 23% stated procedural delays during the time of adoption of these services.

4.1.2 Adoption of horticulture and crop diversification

Among the respondents, **21% of households adopted horticulture** and diversified their crops after the intervention through HDFC project. The most grown tree was lemon; 59% of the respondents started growing lemon, of which 15% reported that their trees have started bearing fruits. This was followed by 32% of respondents growing guava and 12% thai apple. However, 91% stated that they receive no benefits at present from these trees, as most trees have not started bearing fruits currently. Presently the cost and labour involved in horticulture is more for the farmers than the benefits. The qualitative observation shows that most farmers maintain the *wadi* or their orchard well in expectation of future perceived profits once the trees start bearing fruits.

Figure 10 Percentage of Farmers who started Horticulture

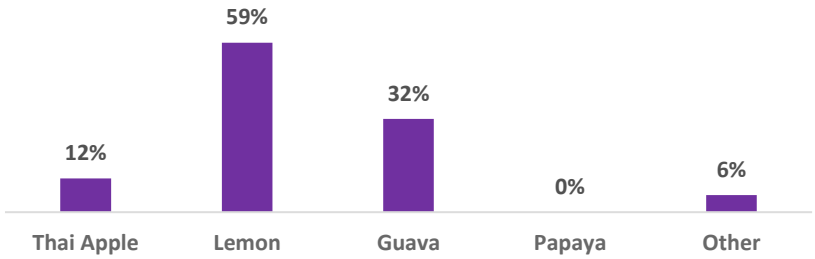


Figure 11 Benefits of Horticulture

Other than horticulture, 18% of the respondents stated that they have diversified their crop production after the HDFC project interventions. Among them those who started growing new crops, the highest adoption was for fennel (43%), followed by chilli (11%). Both these crops were promoted by the HDFC project by provision of hybrid seeds and organic fertilisers. This was followed by vegetables (7%), groundnut (4%) and other crops (18%) which included haldi, maize, sesame, BNH10 fodder, rose flower and beans. The diversification of these crops could be attributed to assured irrigation facilities provided by the project. Among these BNH10 fodder was promoted particularly due to the tall grass variety which improved milk production.

Figure 12 Percentage of Farmers who did Crop Diversification

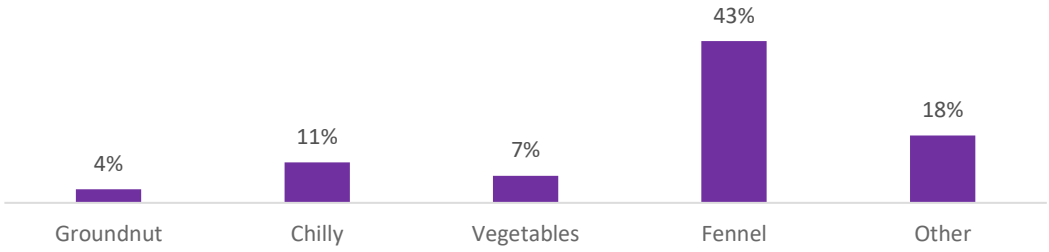
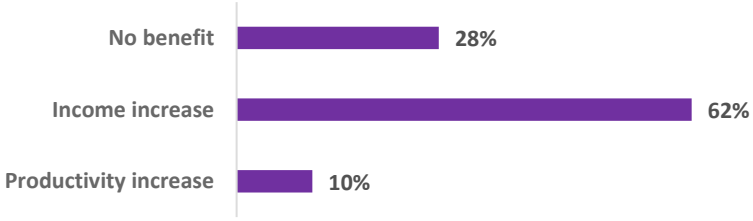


Figure 13 Benefits from Crop Diversification



Blooming Success: Mamta's Journey as a Thriving Rose Farmer in Village Khatoomabar

Mamta is a rose farmer from village Khatoomabar. She started rose cultivation in January 2021. She was one of the two people who started rose planting in the village. Mamta says, “But only my garden is surviving now as I took good care of it.” The saplings flowered within a year and she received fertilizer suitable to the saplings from the project, which she applies in regular intervals. This increases the growth of saplings and helps with more flowering. Mamata says, “I started with 1,100 saplings in 0.5 bigha. I got to know from NGO BAIF that we can get rose saplings as part of their floriculture initiative”.

Rose is cultivated in the village for the first time and she did not have prior knowledge on how to grow it at a big scale. A trainer had come to her field to impart the knowledge of rose cultivation. She explains, “I was taught I should plant the sapling at a distance of 3 ft between each plant. First, I should dig the hole, then fill it with manure and then plant the sapling and give adequate water.” She started selling the flowers after 6 months from planting at the big market in Lalsot. Before that when a small quantity of rose was ready to be plucked, she sold it locally. For a small quantity, her first sale of rose fetched her INR 50. She remarks, “As the rose also began to grow well, I started receiving better money from it”. She sells every alternative day a small quantity and earns INR 300-500 from it. During festival season like Deepavali, Navaratri or during marriage season in April, she sells in large quantity and earns an average of INR 3000 a day. When there are no festivals or special occasions, then the earning is less.

On enquiring why she cultivates rose, she says “At first when we planted, we were told that we will get good money. Even though rose was getting cultivated for the first time here, I was not scared to try it as our land is good and fertile.” It is also advantageous to the farmer that once the sapling is planted, it survives for a minimum 7 years without incurring any additional expense. The only maintenance it requires is cutting the branches every January, with a specific scissor which was also provided through the project. Also, ploughing around the sapling needed to be done every 6 months. Last year, the household received around INR 1 lakh as profits from selling the rose, thus making her rose garden a huge success.

The benefits of crop diversification as perceived by farmers are increased income (62%) and productivity increase (10%).

4.1.3 Use of clean energy solutions

Through the HDFC project, interventions such as solar street lights (53%) and solar water pump (4%) were given as part of promotion of clean energy. The solar water pump for irrigation was given to those households in particular whose lands were far and they did not benefit from the check dam construction. The qualitative data shows that the solar street lights were the most beneficial. 95% of respondents stated that the solar street light installed was near their homes and among them, 71% stated that they were operational. There was no street light before this intervention in the villages. Earlier they had to use torch lights. The respondents stated that now it is better at night as there is no obstacle in moving around and there is no fear of snakes. The women stated that they can identify other people who are coming and can fill water at any time of night.

Figure 14 Benefits of Solar Street Light

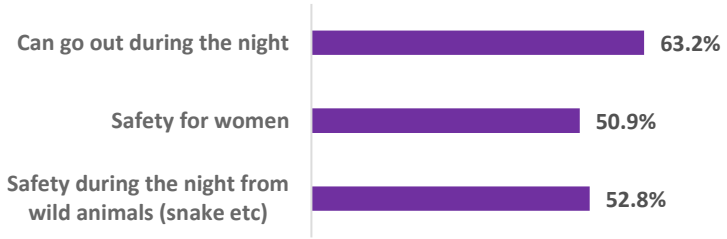
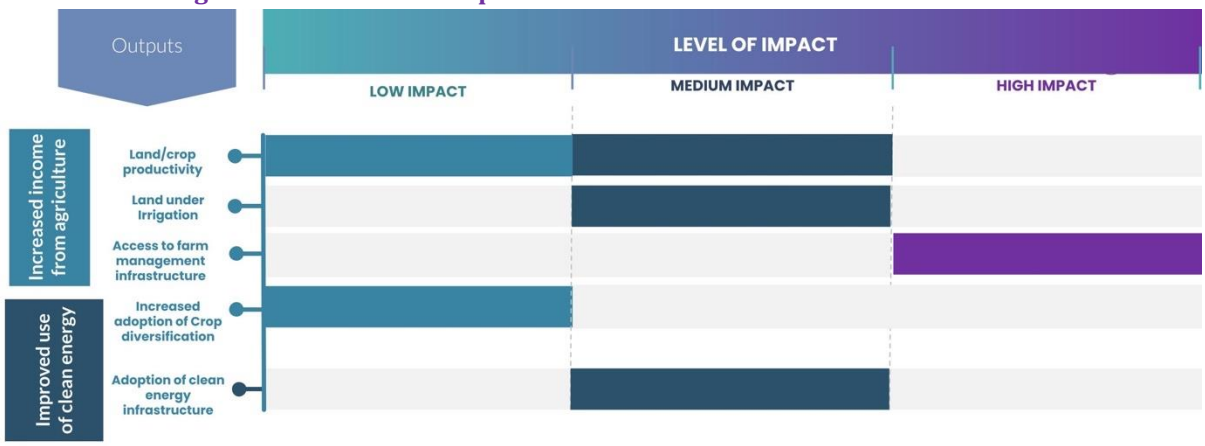


Image 5 Solar Street Light

4.1.4 Impact Observation

Figure 15 Overview of Impact and Effectiveness of Interventions - NRM



Under NRM, major work was done with respect to seeds and input provision, with 162 households having direct impact of it. The 5 anicuts or check dams that were constructed increased the groundwater levels in agricultural fields and resulted in a wider impact in the community.

4.2 Skill Training and Livelihood Enhancement

In Skill Training and Livelihood Enhancement, among the households surveyed, 10% have gained from the agricultural training and support initiative. In this group, all households received assistance in terms of agricultural training practices. Through HDFC's involvement, 37% of households learned practices like organic manure application, timely use of fertilizers and insecticides (93%), azolla units (10%), and conservation agriculture methods (68%). Nature farming sessions were attended by 12% of households, while 46% participated in farm technique training, and exposure visits were undertaken by 68% of households. After adopting these techniques, 83% of farmers reported income growth, with a median increase of INR 15,000 per household.

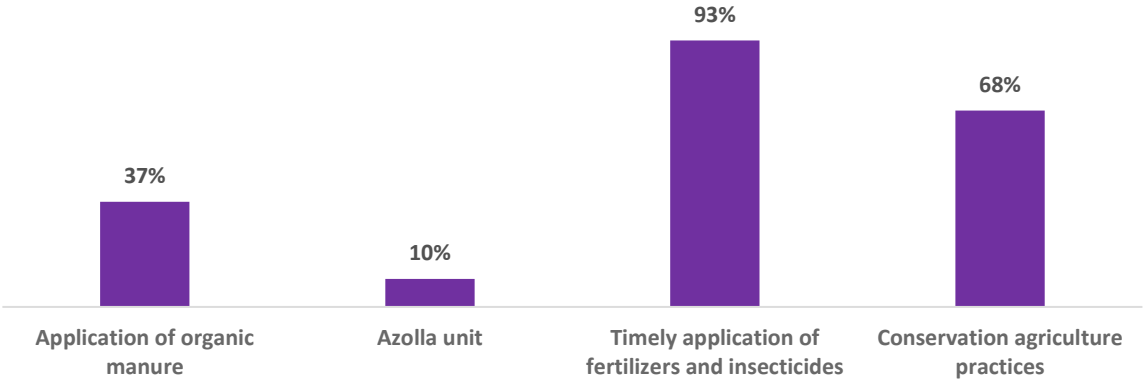
Regarding HDFC's contributions, 28% of respondents have benefited from livestock management interventions. Higher milk production was observed for cows (32%) and buffaloes (28%), correlating with increased income. Similarly, income growth was reported for cows (28%) and buffaloes (37%). Among goat owners, 66% observed improved animal health, resulting in higher weight and increased revenue upon sale. The monthly average income from livestock more than doubled, rising from INR 700 to INR 1700 for beneficiaries.

4.2.1 Agricultural Training and Support

Under skill training and livelihood enhancement, the project was successful in imparting new sustainable agricultural practices and techniques and livestock management through goat distribution, livestock development centre, water manger, and artificial insemination. The figure below is a pictorial representation of the project's impact on skill training and livelihood enhancement.

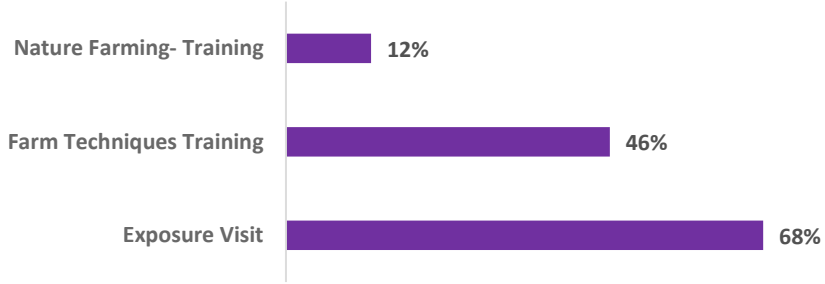
From the surveyed households, 10% has benefitted from the intervention on agricultural training and support. Among them, all households have received support in terms of agricultural training practices through HDFC interventions.

Figure 16 Percentage of farmers who learned new sustainable agriculture practices



Among the beneficiaries of agricultural training and support, 37% of households have reported that they learned application of organic manure, timely application of fertilizers and insecticides (93%), azolla unit (10%) and conservation agriculture practices (68%).

Figure 17 Percentage of farmers who received agriculture training on new techniques

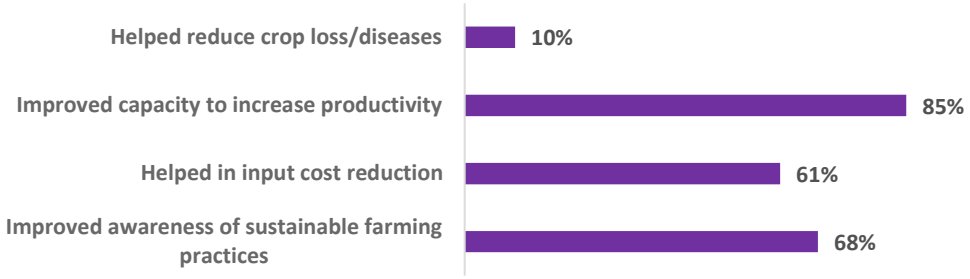


Further, 12% of households reported that they have attended sessions on nature farming-training, 46% on farm techniques training, and the exposure visit was participated by 68% households.

From Saplings to Success: Krishna Gujjar's Lemon Cultivation Journey

Krishna Gujjar (20 years) has **12 bigha** of land. In 1 bigha he does wadi cultivation where he grows lemon trees. He planted **40 saplings of lemon during 2020-21**. Few saplings have died, but rest have survived well. Even though it will take more years for the saplings to grow and for him to see profits, Krishna says that, "I can see good benefit from this in future". He had grown lemon before, but those trees had to be cut as they were coming in middle of other agriculture crops. Now he has systematically planted lemon trees exclusively in 1 bigha and hopes to gain good profits from these. Till the trees start giving fruit, he also cultivates crops like wheat or jowar as an **intercrop**. He also received training twice in his field and got follow up support as well. He **estimates he will receive around INR 50,000 from these saplings once they bear fruit**.

Figure 18 Perceived benefits of learning agriculture practices



The perceived benefits of these programs are improved capacity to increase productivity as reported by 85% of attendees. 68% of attendees reported that it improved awareness of sustainable farming practices, 61% of beneficiaries reported that the trainings helped reduced input costs and 10% said it helped reduce crop loss/disease. The farmers who were interviewed stated that crop disease continued to be a major problem for them especially bacterial diseases.

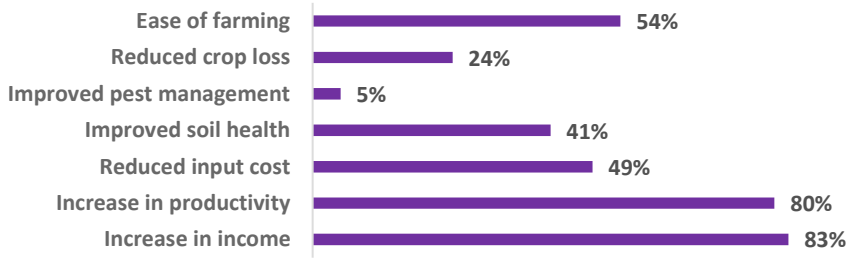
Empowering Creeper Farmers: Transforming Agriculture and Income Generation in Toda Tekla Village

Laxmi Narayan Saini, 50 years is a **creeper farmer** from the village Toda Tekla. He received seeds of lauki, kheera, palak, etc., in 2019 from the project. He has 4 bigha of land and has 6 members in his household. Other than creeper crops, he also grows fennel, wheat, bajra and til. He used to grow the creeper crops before the project also but on ground. Therefore, many vegetables used to go bad as they touched the ground and get eaten by rodents or infested by insects/pests.

Now he grows the same crops above the land in a creeper stand. Due to wind from all four sides and not touching the ground, these vegetables do not go bad. **He also received training in his field and had regular** follow **up support every week**. The **seeds given though the project were also of an improved variety and it has increased the quality and weight of the vegetables produced**.

As they are growing on the stand, other crops can be grown on the ground, thus gaining double yield from the same land, He says this has **increased his income by 1.5 times**. The one challenge he faces is a bacterial disease or "*lat ki bimari*" which impacts the crops and reduces the yield.

Figure 19 Improvements in farming after adopting the agriculture techniques



From figure 18 we can see that, after adopting these techniques, **83% of farmers who benefitted from agricultural training and support reported increase in income**. The median income increases after adopting these practices has been INR 15,000 per household.

Transforming Farming Fortunes: Shiv Narayan Meena's Journey to Hi-Tech Agricultural Success

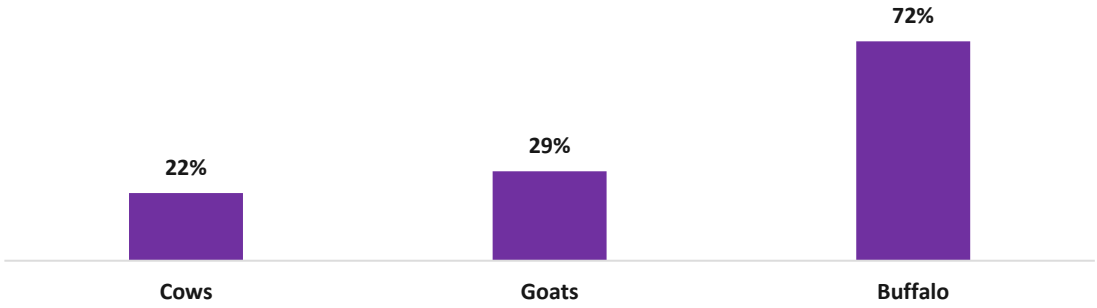
Shiv Narayan Meena has 2.5 bigha and there are 5 members in his household. He has been farming since last 12 years. He grows tomato, mirchi, kheera, lauki, pumpkin, wheat, fennel, moongphali, bajra and fodder. He got to know about the project through NGO BAIF and when they told him about **hitech farming**, he knew that it would be beneficial to him.

Under hitech farm, he grows tomato and mirchi. In 1 bigha, he grew tomato of hybrid variety. For one bigha he used 4 packets of 10gm. He did not maintain adequate distance. **In hitech cultivation he is using 3x3 space (rows and plants) and applying 2 packets of seeds to grow tomato**. He started with 3 packets in 1 bigha. **He sold 25 quintals from it for INR 50,000, which is 5 times more earning than before**. Before hitech, he used to get 10-12 quintal as the yield used to suffer due to the plant touching the ground. He has also received drip irrigation and mulching sheet under the project.

4.2.2 Livestock Management

Through the HDFC interventions, 28% of the respondents have benefitted from interventions in livestock management. The main intervention was promoted in the form of goat distribution to select women beneficiaries who are widowed and required financial assistance. Another form of intervention was by establishing livestock development centres locally where artificial insemination facility was provided, apart from vaccinations and other treatment support from veterinary doctors.

Figure 20 Proportion of households who received support from HDFC for different livestock



Among the respondents, 72% received support for buffalo, 29% for goats and 22% for cows.

Empowering Communities Through Pashusakhi: Lalitha's Journey of Goat Care and Knowledge Sharing

Lalitha from village Khatoombar has been volunteering as Pashusakhi for 2 years. She says she got to know about this role when the NGO BAIF came asking for a female volunteer in neighbouring village and expressed her interest to volunteer. “First, I underwent training, where a female trainer was present. There were also women from other villages there. We were taught the best practices to care for goats including stall feeding, keeping them hydrated, not to place them in wet surroundings, and giving basic injections and medications,” she says.

In the village, when three women received goats from HDFC project, she took meetings with them. “I imparted the training received and taught the goat beneficiaries how to take good care of goats, to feed them well, to make it drink water with salt, etc.,” says Lalitha. When they sold the goat, earlier they used to sell without weighing. They were taught to sell after weighing and to demand appropriate money.

Lalitha remarks, “I also give the goats injections and medicines, whenever the need arises. I enjoy doing this work and receive more respect in the village. People treat me well and I get support from my husband to engage in this.” She has also trained other women in villages with goat beneficiaries to work as Pashusakhi.

Table 8 Project support provided by HDFC for different livestock

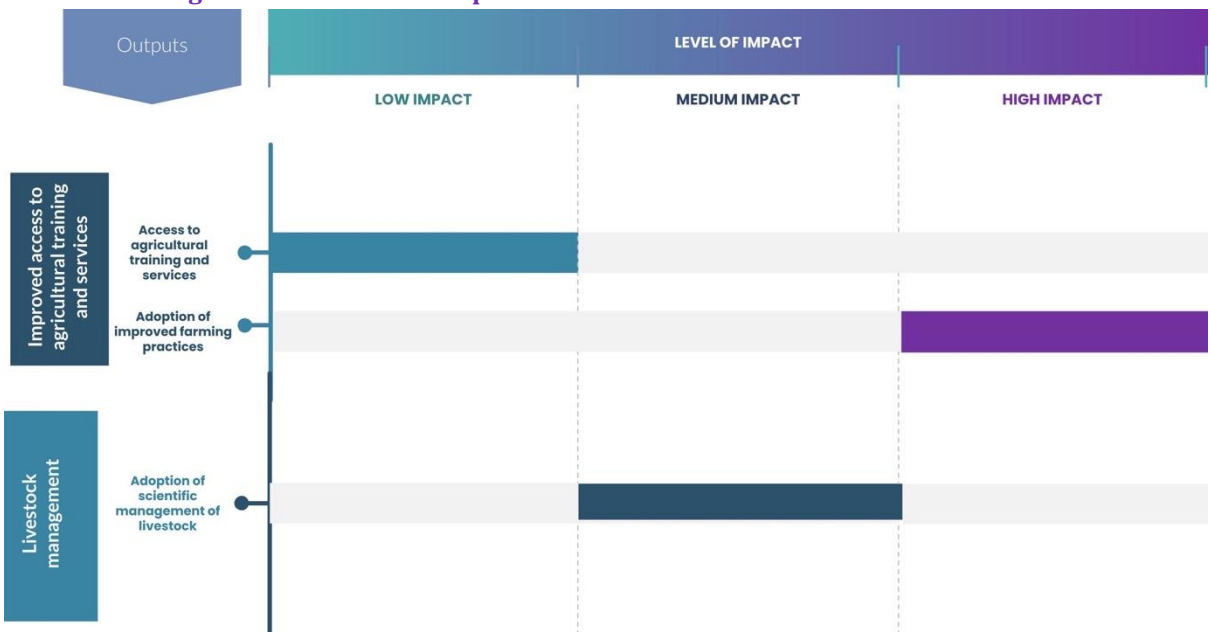
Project Activities	Cow	Goat	Buffalo
Animal provided	0%	52%	0%
Vaccination camps	36%	45%	28%
Household vaccination service	60%	45%	63%
Insemination camps	28%	21%	51%
Household insemination service	20%	33%	15%
Livestock health services	28%	15%	38%
Water structure to provide drinking water to animals on road sides	24%	6%	21%
Fodder development support	8%	0%	2%
Breed Improvement	44%	33%	49%
Livestock management training	4%	0%	0%
Awareness generation campaigns	0%	3%	0%

The major benefits received were in terms of **reduced livestock death**. The respondents noted in the qualitative study that after artificial insemination, the cattle born was healthy and was of a quality breed that it had better chances of survival. An increase in milk production was reported for cow (32%) and buffalo (28%). An increase in income was reported for cow (28%) and buffalo (37%). For goat, 66% reported improved health of the animals which means increased weight giving more money upon sale. The **average monthly income from livestock has increased over twice from INR 700 to INR 1700** for the livestock beneficiaries.

Image 6: Water Manger for livestock to drink water in Khatoombar

4.2.3 Impact Observation

Figure 21 Overview of Impact and Effectiveness of Interventions - ST&LE



Under ST&LE, high impact is in adoption of improved farming practices in terms of nature farming and conservation agricultural practices. 40 horticulture wadis were set up, and 6 elaborate exposure visits were conducted for the beneficiary farmers.

4.3 Health and Sanitation

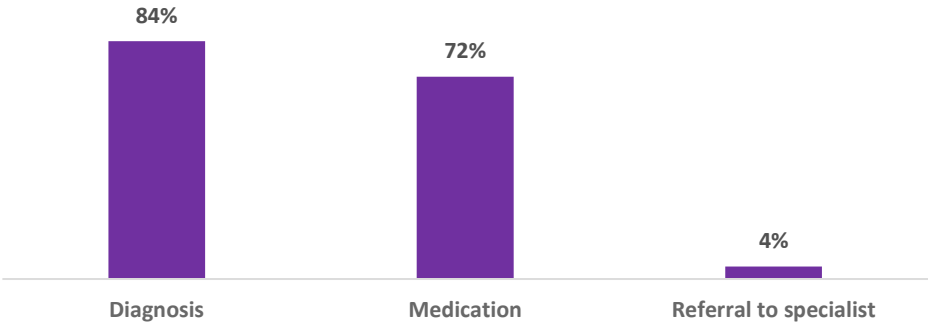
The program included a health awareness element under Health and Sanitation, with 34% of respondents noting they received health services. Among these beneficiaries, 99% participated in health camps/sessions, while 2% attended hygiene-related health sessions. Within the health camps, respondents mentioned utilizing services like diagnosis (84%), medication (72%), and specialist referrals (4%). Among beneficiaries, 66% attributed easy women's health access to health camps, 64% reported enhanced physical activity, 47% noted improved household member health, and 43% cited better dietary habits. Additionally, 31% each highlighted improved access to quality health services and reduced disease-related expenses, while 20% acknowledged the benefits of disease prevention and 26% mentioned decreased consumption of harmful substances.

Project support extended to toilet repairs (78%), community wastewater soak pits (11%), and awareness campaigns (11%). Through the intervention, individual toilet use rose from 11% to 44%, and community toilet usage increased from 33% to 56%. Main drinking water interventions encompassed the installation and repair of community taps (64%) and community water tanks (36%).

4.3.1 Health infrastructure and services

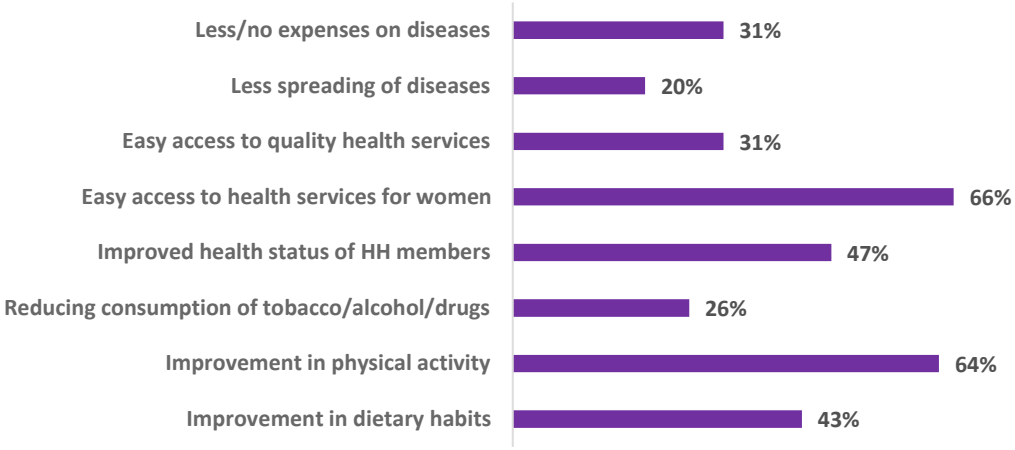
The program had a component to create health awareness among the people, where 34% of the respondents have received health services. Among them, 99% have availed health service in the form of health camps/sessions and 2% have attended a hygiene related health session. In the health camp, respondents stated that they availed services in the form of diagnosis (84%), medication (72%) and referral to specialist (4%).

Figure 22 Health Interventions supported by HDFC



Among the beneficiaries, 66% reported easy access to health services to women as the prime benefit from the health camps, 64% stated improvement in physical activity, 47% stated improvement in health status of household member, and 43% reported improvement in dietary habits. 31% each stated ease in access to quality health services and reduced expense on diseases, 20% reported the perceived benefit to be less spread of diseases and 26% reduced consumption of additive substances.

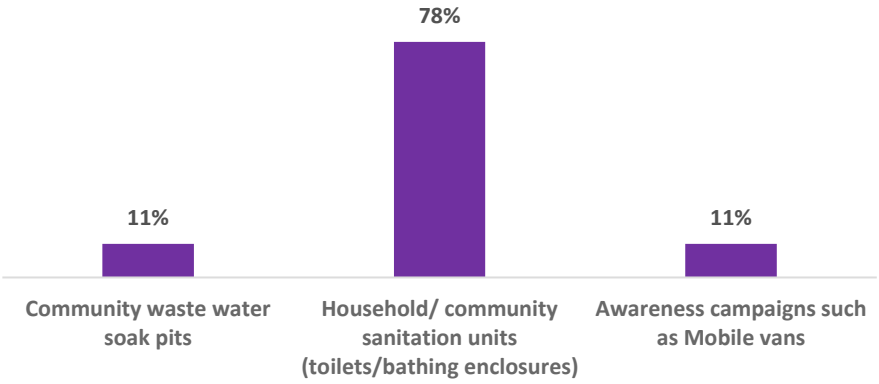
Figure 23 Benefits of Health Interventions



4.3.2 Sanitation infrastructure and services

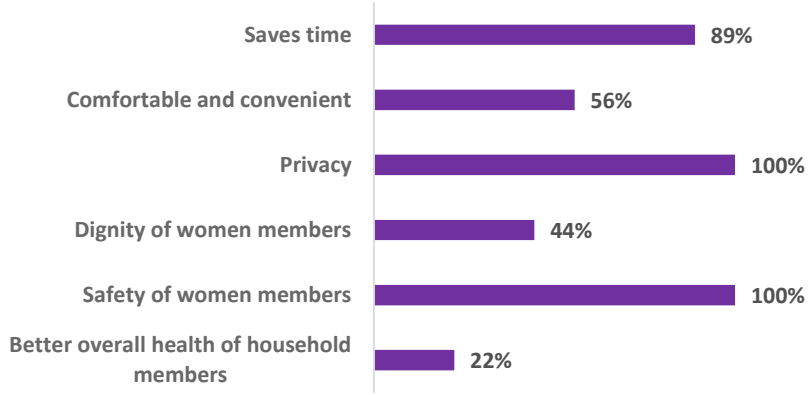
From the sample study, only 2% of the respondents are reported to have been benefitted from sanitation services. Among them, the project support was given for toilet repairs (78%), and 11% each for community wastewater soak pits and awareness campaigns.

Figure 24 Percentage of households who benefitted from different interventions under sanitation



The use of individual toilets increased from 11% to 44%, and community toilets from 33% to 56%.

Figure 25 Benefits of Sanitation



The primary benefit of sanitation services has been - safety of women members (100%) and improvement in privacy (100%).

4.3.3 Drinking Water Interventions

Among the respondents, 6% of the households have received benefits from drinking water interventions. The main intervention were installation and repair of community taps (64%) and community water tanks (36%). In this, the main repair work done was for drinking water **handpump repair.** The handpumps previously installed by the government required maintenance. Therefore, as part of the HDFC project, the handle, water outlet and platform around the handpump were repaired. Hence, the source of drinking water did not change, but the ease of access to the water source was bettered and water wastage reduced. The intervention especially helped women as they are primarily responsible to fetch water in the households. People reported the intervention saved time (79%) and additional effort (63%) for fetching water.

Figure 26 Benefits of Drinking Water Interventions

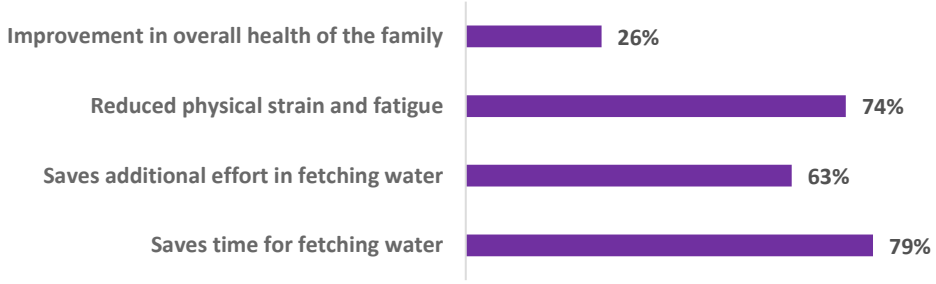
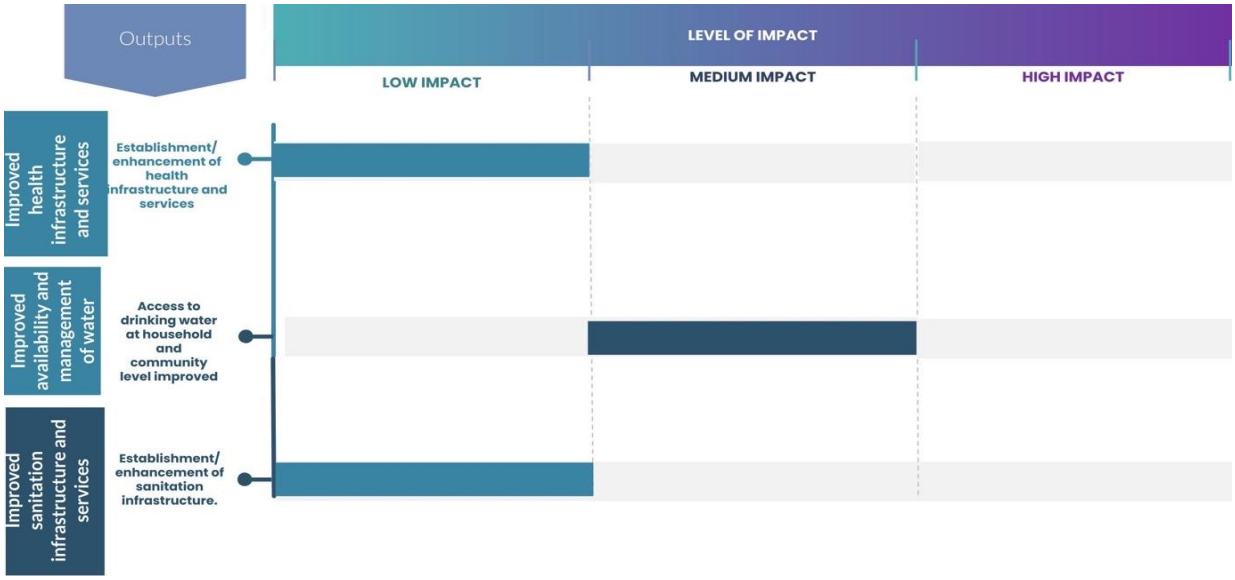


Image 7 Handpump Repaired in Village Bherowas

Image 8: Drinking Water Tank Installed in village Khatoombar

4.3.4 Impact Observation



Under the health interventions, medium impact was found to be in access to drinking water where repair of community handpumps were undertaken. 25 handpump repairs and 3 community water tanks were installed under the project.

4.4 Promotion of Education

Under Promotion of Education, the program focused on enhancing school facilities, particularly through the establishment of digital classes. The integration of LED screens significantly impacted attendance, as reported by 100% of surveyed parents. Among them, 68% noted that classes became more engaging and easier to grasp for their children. Students' feedback echoed this sentiment, with 43% using digital classes daily, 33% on most days, and 24% occasionally. Notably, 100% of students expressed a preference for learning via smart classes. From the teacher's perspective, 50% stated using digital classes on most days, while 25% utilised them daily.

4.4.1 Educational Institutions

A combination of multiple activities targeted towards improving enrolment, attendance, and learning outcomes were undertaken in the project area. The project heavily focused on equipping schools with infrastructure facilities. 9% of the respondents have reported that their child has benefitted through the interventions in school. Among them, 69% were benefitted by school building renovation, 61% by digital class construction, and 25% each were benefitted by BaLA paintings and drinking water interventions in schools.

From these interventions, digital class construction has been a crucial activity. 100% of respondents noted that after the LED screens were set up, students are more likely to go to school. 68% of parents reported that classes are more interesting and easier to learn for their children.

Empowering Education: Transforming a Village School through Innovation and Engagement
The GUPS Byai Mata ka Bhag school, Digo, is till 8th with a total strength of 148 students, and has received benefits from the project in 2020-21. The students from 4 to 5 hamlet villages up to 3 km far come here. Lalu Ram, teacher in the school remarks that "When BAIF came to us and expressed their willingness to work with our school, we were happy to receive their support and the works they have

undertaken in our school has been done successfully." The BaLA painting and white washing of school walls, repair of washrooms by putting tiles, repair of water tank is done very well.

The main intervention in the school has been the installation of digital classroom through a LED screen. The LED screens have encouraged the students to learn more and increase their discipline to sit in the classroom. It is quite difficult to discipline students and retain their interest in teaching. Now even if class teacher does not turn up, they themselves start the pre-uploaded syllabus module and learn from it. From 6th, 7th and 8th students are trained to open and load their lessons by themselves.

In this village, television is not that popular. People in the village say, "*school mein humko tv dikhate he*" and that encouraged students to come to school. The teacher also mentions that it is easier to hold the students' attention. He says, "if we need to write something in between the lessons, the screen is also touch screen and can be used as board. So, it is very interactive for teachers and students".

The year after the interventions, the enrolment increased from 130 to 152. However, the school faces the challenge of frequent electricity cuts, which prevents them from using the digital classrooms to its potential. It takes longer for the modules to load once the power supply is cut, which adds to the challenge.

Image 9 Digital Classroom at Digo School

The response of students also show that they use the digital classes regularly. They reported the use of digital classes every day (43%), most days (33%) and sometimes (24%). 100% of students noted they liked learning using smart class.

From the teachers interviewed, 50% of teachers stated that they use digital class on most days and 25% stated that they use it every day.

Figure 27: Perceived Benefits of students using digital classes

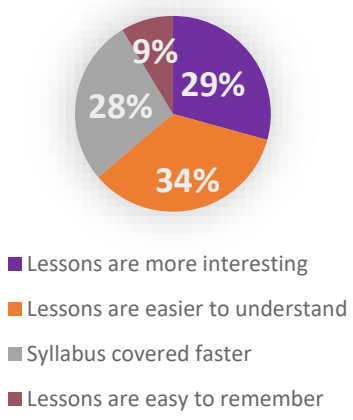


Figure 28 Perceived benefits by teachers using digital classes

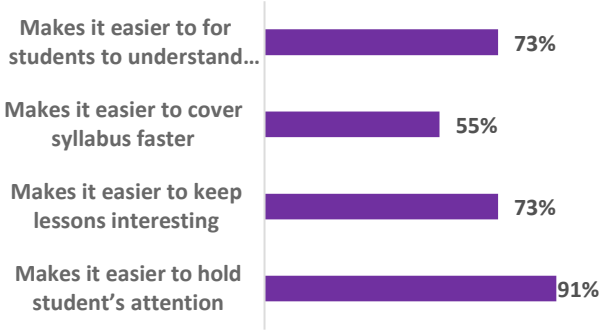


Figure 29 Percentage of teachers who reported different interventions under education in their school

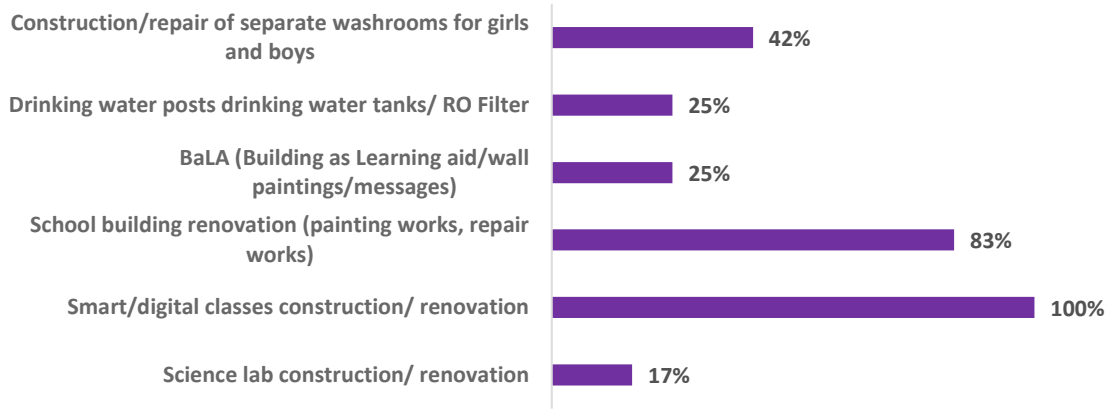
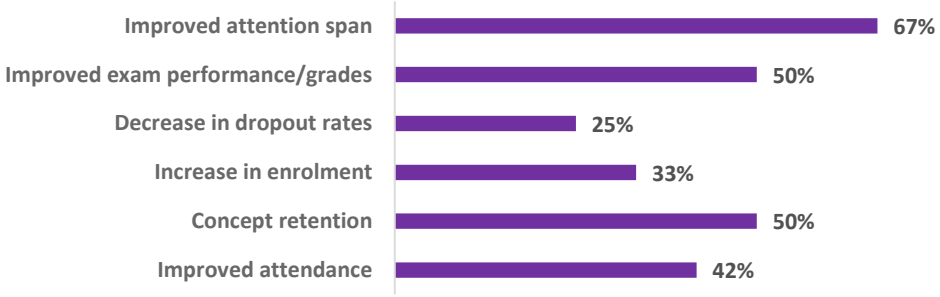


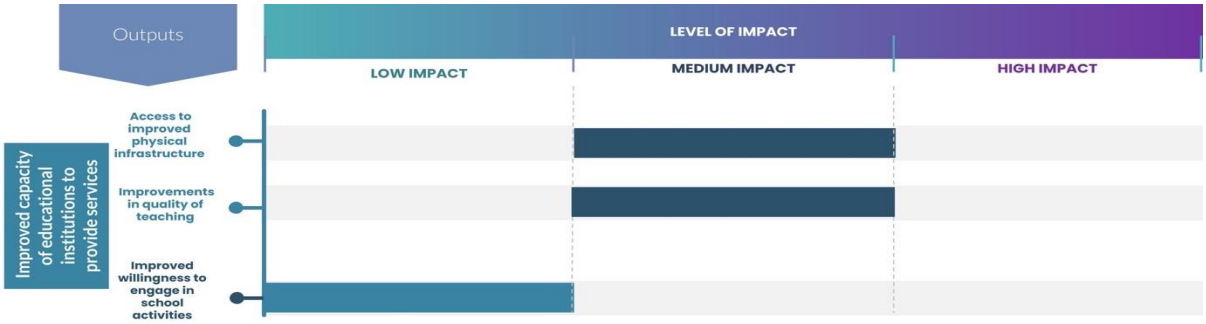
Figure 30 Benefits of different interventions under education in their school by teachers



However, the teachers mentioned that poor electricity connection and poor internet in the area makes it difficult for them to fully utilise the digital classes.

4.4.2 Impact Observation

Figure 31 Overview of Impact and Effectiveness of Interventions -PoE



Under Education, medium impact has taken place for access to improved physical infrastructure and improvements in quality of teachings. This is due to the activities in provision of smart classrooms and repair work of school buildings. A total of 4 model schools were developed under the HDFC project.

4.5 Holistic Rural Development Index (HRDI)

There are multiple dimensions involved in achieving the goals of rural development and the resulting blend raises agricultural production, generates new jobs, enhances health, increases communication, and provides better living infrastructure.

HDFC Bank adopted the Holistic Rural Development Index (HRDI) for evaluation of HRDP as it aims to achieve holistic rural development through a multitude of interventions that would lead

to overall improvements across related dimensions. Therefore, the project introduced significant variability in interventions across districts. As such, it was not possible to ascribe a single impact indicator that might be able to accurately capture the overall performance of HRDP.

Since there was no baseline data available for this assessment, the Recall Method was used in the household survey to assess the change that beneficiaries experienced before and after project implementation. For this purpose, the enumerators were trained to ask beneficiaries to recall the value of critical indicators at the start of the project.

The impact indicators with baseline and endline data were selected and were assigned weights based on their relative contribution to the final expected outcome across all theme-wise interventions. While most of the indicators were found to be relevant for the study, a few needed modifications in accordance with the project, the study design and the information collected. The detailed methodology and indicators are explained in detail (see Annexure B).

Table 9 HRDI for Dausa

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Overall HRDI Score	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.08	**0.09**	**0.12**	**0.16**	**0.1**	**0.21**	**0.02**	**0.1**	**0.32**	**0.56**
% change	**12.5%**		**33.3%**		**110%**		**400%**		**75%**	

Since the program did not have an available baseline, the baseline was captured through the recall method. The indicators were selected and assigned weights based on their relative contribution to the final expected outcome across all domain-wise interventions. Further, the thematic-wise indicators were assigned weights to arrive at the composite **HRDI score of 0.56** indicating a **notable positive change toward the desired impact from the baseline score of 0.32.**

5 Analysis of Assessment Criteria

As outlined earlier in 1.2, for each thematic area, activities completed by the BAIF were identified and assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness[3]
- Sustainability

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

5.1 Relevance and Convergence

Undertaking HDFC *Parivartan* in a state like Rajasthan holds significant relevance due to its unique socio-economic and geographical characteristics. Rajasthan, known for its vast arid landscapes and diverse cultural heritage, faces distinct developmental challenges that necessitate focused attention. With a substantial rural population heavily reliant on agriculture, there is an urgent need for sustainable interventions to enhance agricultural practices, water management, and livelihood opportunities. Additionally, Rajasthan's remote and underserved regions require improved healthcare, education, and infrastructural facilities to bridge existing disparities. Major work under *Parivartan* by provision of seeds and input support, contribute to upliftment in sectors crucial to the state's progress, fostering socio-economic growth, enhancing quality of life, and promoting inclusive development that resonates with the spirit and needs of Rajasthan's people.

The focus on NRM aligns with the state's agricultural challenges, facilitating increased productivity and income for farmers through modern techniques and efficient water management. Similarly, the emphasis on skill training directly addresses the need for diversified livelihoods in a predominantly agrarian economy, contributing to reduced unemployment rates and improved standards of living. The health interventions play a crucial role in a state with remote and underserved areas, ensuring access to quality healthcare services and raising overall health awareness. Furthermore, the educational initiatives, particularly the introduction of digital classes, not only foster better learning experiences but also contribute to bridging the educational gap in rural areas. Together, these multifaceted efforts align with the unique needs of Rajasthan, catalysing sustainable development, socio-economic progress, and an enhanced quality of life for its residents.

5.2 Sustainability

The interventions in agriculture have yielded results in terms of output increase and increase in income. **Most of the beneficiary farmers are currently adopting the services and practices accessed through the project under farm management**. The **provision of irrigation facilities has been giving a sustained impact on income and many more farmers have adopted new crops due to assured water** even after the completion of the project. The beneficiaries are still using the inputs provided through the project.

Although, the project has managed to engage over 21% of the farmers to take up horticulture, awareness regarding the time delay to attain benefits from the trees planted seems to be missing.

[3] While from an evaluation perspective impact and effectiveness are two different aspects, in the report, these are used interchangeably.

Hence, many reported they perceive no benefits from horticulture and put the sustainability of this activity into question.

The **adoption of clean energy solutions has been taken up in large numbers.** The street solar light and solar water pump has improved the daily lives of people. Even though the impact varied from one village to another, respondents have narrated positively regarding adoption of solar street lights. Despite this, it was observed in the field study that the **maintenance requirement of any technological solution was largely overlooked in this intervention**. Hence, once the solar light is dimmed or the panels require replacement, the local community has not been capacitated with the know-how on how to go about it and indicates a huge scope of improvement for this intervention.

Under skill development and livelihood enhancement, agricultural training support and livestock management were emphasized. **Farmers believe that continued adoption of sustainable farming solutions will result in notable improvements in productivity**. However, poor pest management was a reason for decline in crop production and reduced yield. Farmers were affected by bacterial infections on trees which led to crop loss. Farmers continue to fondly remember the exposure visit and the training sessions they had during project implementation. The livestock intervention has also increased income of farmers, especially women goatry beneficiaries. However, had the livestock development centre functioned, the intervention would have been even more successful.

The health awareness and health camps even though conducted as part of the project, have not been done in a continuous manner. Though people were benefitted from the health camps, this intervention was more of a one-time event and has not sustained. Another successful initiative in terms of sustainable impact has been the drinking water interventions. The **support provided to improve existing drinking water sources has resulted in the continued usage of the facilities in most villages**.

With regard to education, **assets like smart class, science lab, and others provided have been handed over to the schools**. The infrastructural development and digital support have certainly benefitted the students. However, the scale of these interventions has been less in the project area.

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

6 Recommendations

6.1 NRM

- Water Conservation: Implement rainwater harvesting and watershed management initiatives to conserve water resources and maintain water quality. Provide follow-up support to ensure proper implementation and maintenance.
- Efficient Irrigation: Promote water-efficient irrigation techniques like drip irrigation and provide training for proper usage and maintenance. Offer ongoing support to address any technical issues and ensure optimal water usage.
- Sustainable Land Use: Encourage sustainable land use practices such as crop rotation and agroforestry to protect soil fertility and prevent land degradation. Provide continuous guidance on sustainable farming techniques.
- Biodiversity Protection: Identify and protect ecologically sensitive areas, promote native crop varieties, and support the preservation of local flora and fauna. Conduct regular monitoring to assess the impact on biodiversity conservation.
- Integrated Pest Management: Advocate for the adoption of IPM strategies to minimize chemical pesticide usage and promote natural pest control methods. Offer ongoing training and technical assistance to farmers in pest management practices.
- Climate Change Adaptation: Integrate climate-resilient measures into natural resource management, including drought-resistant crop varieties and water storage solutions. Conduct periodic climate vulnerability assessments and adapt interventions accordingly.
- Community Involvement: Engage local communities in planning and decision-making, fostering a sense of ownership and responsibility for sustainable resource management. Ensure active community participation in the maintenance and utilization of solar street lights.
- Follow-Up Support for Solar Street Lights: Provide regular maintenance and support for solar street lights to ensure their continuous operation. Address any technical issues promptly to maximize the benefits and safety provided by the street lights.

6.2 Skill Training and Livelihood Enhancement

- Tailored Training Programs: Design and implement tailored training programs to cater to the specific needs and challenges faced by farmers in the region. Focus on improving skills in crop management, pest control, and livestock care, aligning with the prevalent agricultural practices.
- Hands-on Demonstrations: Incorporate hands-on demonstrations and field visits as part of the training to provide practical exposure and experiential learning opportunities for farmers. This can enhance their understanding and application of new techniques.
- Promote Organic Farming: Emphasize the adoption of organic farming practices through training programs. Educate farmers on the benefits of organic inputs and methods to reduce reliance on chemical fertilizers and pesticides, promoting sustainable agriculture.
- Diversification of Livestock: Encourage farmers to diversify their livestock portfolio by promoting the rearing of different livestock species suited to the local climate and market demands. Provide training on animal husbandry and healthcare practices specific to each species.

- Improved Breeding Practices: Introduce improved breeding practices for livestock through training and support. Promote artificial insemination and selective breeding to enhance the quality and productivity of the livestock.
- Skill Enhancement for Value Addition: Offer training on value addition and post-harvest processing techniques to enable farmers to process agricultural produce into marketable products. This can help increase income and reduce post-harvest losses.
- Market Linkages and Entrepreneurship: Facilitate market linkages for farmers to connect with buyers and processors. Provide training on entrepreneurship and marketing skills to empower farmers to negotiate better prices and market their produce effectively.

6.3 Health and Sanitation

- Health Awareness Campaigns: Conduct regular health awareness campaigns and sessions to educate the community about preventive healthcare practices, hygiene, and sanitation. Emphasize the importance of clean water, proper waste disposal, and personal hygiene to reduce the incidence of waterborne diseases and improve overall health.
- Regular Health Check-ups: Organize health camps and sessions for regular health check-ups, especially in remote areas with limited access to healthcare facilities. These camps can provide basic medical services, diagnosis, and referrals for specialized care when needed.
- Community-Led Sanitation Initiatives: Involve the community in sanitation initiatives and encourage them to take ownership of maintaining clean and hygienic surroundings. Promote the construction and repair of toilets, waste disposal units, and community waste water soak pits through community participation.
- Focus on Women's Health: Design specific health programs addressing women's health issues and needs. Provide access to reproductive health services, family planning, and maternal health care to improve the well-being of women in the community.
- Hygiene Training and Behaviour Change: Conduct behaviour change communication programs to promote positive hygiene practices. Offer training on proper handwashing techniques, safe food handling, and maintaining clean living spaces to prevent the spread of diseases.

6.4 Promotion of Education

- Teacher Training and Capacity Building**:** Provide regular training and capacity-building programs for teachers to enhance their pedagogical skills and knowledge. This will improve the quality of education and teaching methodologies in schools.
- Technology Integration**:** Expand the use of technology in education by providing more digital resources and smart classes. Ensure that teachers are equipped with the necessary skills to effectively use technology in the classroom.
- Focus on Student Engagement**:** Implement student-centric approaches to enhance student engagement and participation in the learning process. Encourage interactive and hands-on learning methods to make education more interesting and effective.
- Community Involvement in Education: Involve parents and the local community in educational initiatives. Conduct regular meetings and workshops to create awareness about the importance of education and encourage community support for the schools.

- Scholarships and Incentive Programs**:** Introduce scholarship programs and incentives for students to promote higher enrolment and attendance rates. Recognize and reward academic achievements to motivate students to excel in their studies.
- Provision of Invertors to Schools: Provide invertors or solar-powered backup systems to schools facing electricity issues. This will ensure uninterrupted power supply during electricity outages and enable the use of digital resources and smart classes, enhancing the learning experience for students and improving the overall efficiency of school operations.

The study focuses on assessing the impact of the Holistic Rural Development Programme (HRDP) by HDFC Bank, executed through BAIF in Rajasthan's Dausa district. It focuses on the program's process, milestones, impact, and challenges. Natural resource management (NRM), skill training and livelihood enhancement (ST&LE), health and sanitation (H&S), and education promotion (PoE) are the primary intervention areas. The assessment framework incorporates DAC criteria such as relevance, effectiveness, and sustainability. With a sample size of 404 beneficiaries, a comprehensive approach involving stakeholders and qualitative and quantitative data collection was used. In order to reach the greatest number of people possible, BAIF and HDFC Bank have worked tirelessly across all sectors in this area. The HDFC project's multifaceted approach, including hybrid seeds, irrigation support, and agricultural practices, has significantly boosted farming households' incomes. The project's success in crop diversification, clean energy, and education underscores its positive impact on the community's overall well-being.

Annexures

A Sampling Methodology

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

A.1 Quantitative Sample Size Calculation

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

N=Z1-α2×P 1-P ×Deff÷ Se2

Where,

N= sample size

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

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

S_e= *margin of error, set at 5%;*

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

Thus, the estimated maximum sample size is *400.*

A.2 Quantitative Sampling Methodology

Quantitative Sampling Methodology

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

Stage 1 – Selection of beneficiaries:

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

Stage 2- Sampling for villages:

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

Stage 3- Sampling for activities:

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

A.3 Qualitative Sample Size Calculation

Qualitative tools of In-depth Interviews (IDI) and Focus group discussions (FGD) were administered for obtaining information about the remaining themes as well as to enrich the household survey information with a deeper understanding.

Since there was no baseline available for this evaluation, the recall method was used in the household survey to assess the change that has happened over time. For this purpose, the respondents were asked to recall the value of critical indicators at the start of the program.

B HRDI Methodology

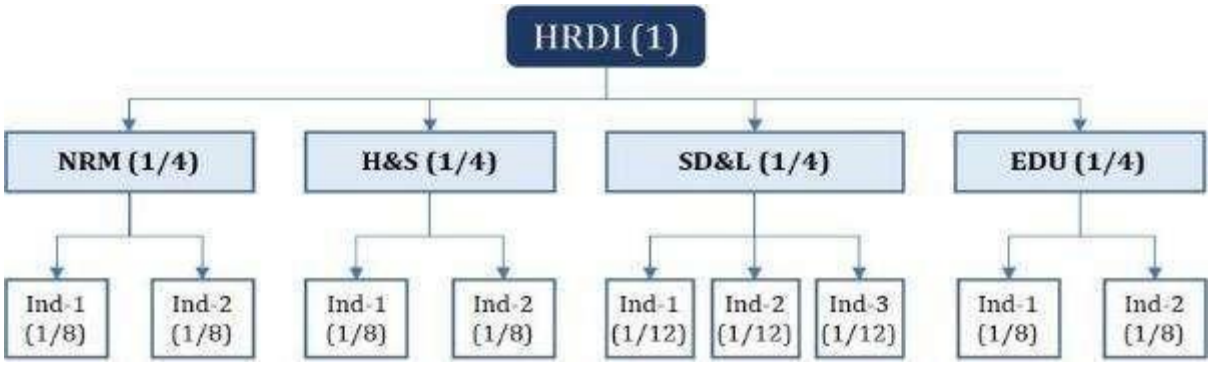
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between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

B.1 Indicator Weights

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

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

Figure 32 Domain and Indicator Weights[4]



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.

Figure 33 Example of HRDI calculation

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

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

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

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

B.2 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.

B.3 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.

Table 10 HRDI calculation

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
NRM	Proportion of farmers with net income above median	0.17	0.08	0.21	0.09	12.5%

	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.11		0.1		
	Percentage of farmers reporting access to irrigation	0.05		0.06		
H&S	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	0	0.1	0	0.21	110%
	Percentage of households reporting increase availability of drinking water	0.16		0.34		
	Percentage of households with access to improved toilet facility	0.22		0.5		
Skill	Percentage of SHG members reporting income above median from rural enterprises	0	0.12	0	0.16	33.3%
	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self-employment	0		0		
	Percentage of HH reporting income above median from livestock	0.49		0.64		
ED	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.08	0.02	0.13	0.1	400%
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0		0.29		
	Total		0.32		0.56	75%

C Overview of Impact Calculation

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

Table 11 Overview of Project Impact in NRM

Goal: Effective utilisation of local resources and adequate access to water for various purposes				
Outputs	**Output Indicators**		**Output average**	**Impact level**
Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting increase in production of crops that were supported under HRDP	42%	28%	Low
	Proportion of farmers reporting increased income from crops that were supported under HRDP	97.5%		
	Average increase in productivity from crops that were supported under HRDP (% change)	-4%		
	Average decrease in input cost (% change)	-25%		
Access to farm management infrastructure	Proportion of beneficiaries satisfied with quality of available services	69.1%	79.83%	High
	Proportion of farmers reporting seed/grains access leading to increase in income	100.0%		
	Proportion of farmers reporting an increase in the use of natural fertilisers	70.4%		
Increased adoption of crop diversification	Proportion of farmers diversified their crops	17.9%	19.45%	Low
	Proportion of farmers who adopted horticulture	21.0%		
Land under irrigation	Increased area under irrigation	0	40.1%	Medium
	Proportion of farmers who received support for irrigation	40.1%		
Increased use of clean energy solutions				
Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	52.5%	61.80%	Medium
	Proportion of households reporting benefits from using clean energy infrastructure (Base=beneficiaries)	71.1%		

Table 12 Overview of Project Impact in Skill Training and Livelihood Enhancement

Goal: More Income for the HHs through Diverse income sources locally to farmers, youth and women				
Outputs	**Output Indicators**		**Output Average**	**Impact Level**
Improved access to agricultural training and services				
Access to Agriculture	Proportion of farmers who accessed project training services	10.1%	28.20%	Low

training and services	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	46.3%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	52%	72%	High
	Proportion of beneficiaries reporting increase in productivity due to better farm management	80%		
	Proportion of farmers reporting increased income	83%		
Improved capacity to generate income through livestock management				
Adoption of scientific management of livestock	Proportion of beneficiaries who received support in livestock management services	28.0%	45%	Medium
	Proportion of beneficiaries reporting increase in income from livestock management (base= people who received support in livestock management)	32.8%		
	Proportion of beneficiaries reporting improved livestock health	74.3%		

Table 13 Overview of Project Impact in Health & Sanitation

Goal: Healthy lives and good hygiene practices				
Output	**Output Indicator**		**Output Average**	**Impact level**
Improved health infrastructure and services				
Establishment/ enhancement of health infrastructure and services	Proportion of beneficiaries who gained access to health services	33.9%	37.45%	Low
	Proportion of beneficiaries reporting lifestyle changes due to improved access	41%		
Improved sanitation infrastructure and services				
Establishment/ enhancement of sanitation infrastructure.	Proportion of beneficiaries who gained access to sanitation services	2.2%	34.73%	Low
	Increase in no of HHs with access to sanitation infrastructure/ facilities	33%		
	Proportion of beneficiaries reporting benefits due to improved access	69%		
Improved availability and management of water				
Access to drinking water at household and community level improved	Proportion of households reporting decreased instances of water borne diseases	10.5%	44.75%	Medium
	Proportion of households reporting reduced time for fetching water	79%		

Table 14 Overview of Impact in Education

Goal: Active participation and effective learning of children in quality education centres				
Outputs	**Output Indicators**		**Output Average**	**Impact level**
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students who report gaining access to functioning smart class rooms, BaLA, science labs, libraries, sports equipment	50.0%	41.65%	Medium
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	33.3%		
Improvements in quality of teaching	Proportion of teachers regularly utilising smart class and science labs	58%	58%	Medium
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	42%	33%	Low
	Proportion of teachers reporting increase in enrolment post infrastructure development	33%		
	Proportion of teachers reporting decrease in drop-out rates post infrastructure development	25%		

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

D Two Sample Proportions Z Test

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

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

z = (p1 - p2) / sqrt(p*(1-p)/(n1 + n2))
where:

p1 is the proportion in the first sample
p2 is the proportion in the second sample
p is the pooled proportion, calculated as (p1n1 + p2n2)/(n1 + n2)
n1 is the sample size of the first sample
n2 is the sample size of the second sample
The z-statistic is then compared to the standard normal distribution to determine the p-value of the test. A p-value less than alpha (typically 0.05) indicates that the null hypothesis can be rejected, and there is evidence to suggest that the two proportions are different.

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

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

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

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

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

Assumptions:

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

The z-test conducted for one indicator- Proportion of farmers with average productivity of bajra above baseline median-is shown below.

Table 15: Z-test Conducted for P0308

Indicator	Proportion of farmers with income from agriculture above baseline median
p1 (proportion of first sample-endline)	0.25
n1 (sample size of p1)	101
p2 (proportion of second sample-baseline)	0.2
n2 (sample size of p2)	81
p	0.00247253
Calculation	0.00740739
z statistic	0.06750011
	Statistically insignificant at 95% confidence level (or p>0.05)
P-value for the z statistic	.946184.

E Sustainability Thematic wise matrix

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

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