Impact Assessment Study of Holistic Rural Development Programme (HRDP) Narmada, Gujarat – P0273

Prepared For:

HDFC BANK | PARIVARTAN
A step towards sustainable progress

HDFC Bank Corporate Social Responsibility (CSR)

Prepared By:

NRMC
An Intellecap Subsidiary

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Executive Summary

The study centres on measuring the impact of the Holistic Rural Development Programme (HRDP) of HDFC Bank that was implemented by Aga Khan Rural Support Programme (India) in the Narmada district of Gujarat during April 2019 till March 2022. This study largely focused on understanding the overall process that the HDFC Bank and the implementing organisation undertook in carrying out the programme activities, the key milestones achieved, the impact created by these activities, and the challenges faced. The key focus areas of the intervention were Natural Resource Management (NRM), Skill Training & Livelihood Enhancement (ST&LE), Health and Sanitation (H&S) and Promotion of Education (PoE). The framework used for the impact assessment was an adaptive version of the DAC criteria - Relevance, Effectiveness, and Sustainability. A comprehensive methodology, comprising both qualitative and quantitative primary data collection, was used for the assessment which was carried out in a participatory manner involving all the key stakeholders of the programme. The study included a sample size of 408 beneficiaries as respondents as against the planned sample of 400.

NRM: The programme consisted of interventions under various activities such as trainings on non-pesticide management, distribution of seeds, imparting knowledge of various farm techniques, irrigation management, gabion construction and stone bunding. Since the focused region is prone to soil erosion due to heavy rainfall and undulating land, intervention in NRM is expected to ease the water-related issues for both household and agricultural purposes and increase the cultivable land for required households.

The interventions under NRM have resulted in **increase in gross income by 33% and net income increased by 42%.** The median input cost has also risen by 44%, resulting in a sustained change in gross and net income trends. In terms of total households reporting a change in income, about **89% of the households reported increase in income and 86% of the households reported an increase in profit after the project interventions**. The reasons accredited for the increase were mainly the programme's support in irrigation management (58%) and organic farming (14%). **70% of the farmers have reported that they engaged with horticulture with HDFC project support.** Mango wadis were developed through the project intervention as reported by the farmers (92%) and 41% of the mango trees have borne fruit.

Skill Training and Livelihood Enhancement: Under skill training and livelihood enhancement, the project was successful in skilling farmers in improved farming practices. Since the region mainly suffers from infertile land, use of organic manure has been beneficial to increase the crop cycle. **47% of the respondents have reported an increase in income. The median income increases after adopting these practices has been Rs. 10,000 per household.**

Additionally, through capital investments individual enterprises have seen growth in business in the region. The sample survey data shows that 11% of the respondents benefitted from entrepreneurship development. **The beneficiaries have reported a median increase of Rs. 30,000 annually. The respondents note that on an average 30% of the household income is generated through the enterprise.**

The two main interventions in livestock management have been the distribution of goats and chicks; and fodder development support. Majority of the beneficiaries note the increase in savings from livestock (42%) to be the main benefit of poultry interventions, **this is mainly due to the yearly cycle of selling hens (100) each year on a rotatory basis. The average savings range from Rs. 30,000-45,000 based on qualitative interviews.**

Health and Sanitation: The programme had a component to create health awareness to the people including health camps, through qualitative interviews, it was observed that the project also raised awareness about menstrual hygiene through workshops in the common office for women of all project villages. This has been beneficial but the scope for the same could be increased. Under sanitation, toilets were constructed/ repaired as part of project interventions. **76% of the respondents mention safety of women as the primary benefit of toilet construction. Since 43% of the respondents used to practice open defecation before the project, the construction of toilet has aided the people in providing them dignity and better overall health.** For improvement in nutrition, households were also given kitchen garden training and seeds. **Majority of the respondents were found using the produce from their garden for self-consumption (49%), and 18% of the respondents do both - sell and consume their kitchen garden produce. The ones involved in selling the produce reported a median monthly income of Rs. 1500.**

Promotion of Education: A combination of multiple activities targeted towards improving enrolment, attendance, and learning outcomes were undertaken in the programme area. The programme focused on equipping schools with infrastructure facilities. The intervention repaired school toilets that are safe and hygienic for children. **83% of households responded that school toilets have increased their child's regularity to school. Two schools were also supported with drinking water facilities that have helped in reducing health issues in schools (83%).**

The library set-up and the rotatory distribution of books are still active in schools. 73% of teachers note that students have received education materials like books, notebooks, and stationery for learning. 83% of students mention improved interest and confidence in going to school. 75% of students also mention that through HRDP interventions in education, the access to proper sanitation, quality of teaching and study materials has improved. 73% of the teachers note that the children's ability to retain concepts has improved which is through the study materials that have been distributed in schools.

Table 1: Summary of Key Income Indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	20,000	28,500	42%
Average Income from Skill (income from enterprises) (INR)	500	3,000	300%
Average Income from Livestock (INR)	457	692	51%
Average Productivity of 2 major crops (Qtl. /Acre)	12.77	15.73	23%

The above table indicates there is an increase of average net income from agriculture which is primarily due to programme's support in irrigation management and organic farming to increase the

productivity of the major crops during the endline year. Income from enterprises have exponentially grown along with a 50% income in average income from Livestock.

HRDI Indicators

Table 2: Summary of HRDI Scores

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	0.07	**0.10**	**0.09**	**0.16**	**0.14**	**0.21**	**0.15**	**0.15**	**0.45**	**0.61**
% Change	43%		78 %		50%		0%		35%	

1 Introduction

India has experienced massive strides in rural development over the years. While 65% of the country's population live in rural areas (as of 2021), 47% are still dependent on agriculture for their livelihood (PIB Delhi, 2023). The rural ecosystem grew by around 10% per annum during the last 5 years but it continues to be plagued by numerous problems, such as lack of irrigation, degrading soil health, disguised unemployment, fewer skill development avenues, undependable healthcare availability, low literacy rates, and increasing environmental degradation, etc. To mitigate these diverse yet inter-linked developmental challenges, the HDFC Bank, under its Corporate Social Responsibility (CSR) initiative '*Parivartan'*, supports numerous programmes that deliver holistic rural development to aid the growth and prosperity of the rural population.

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 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

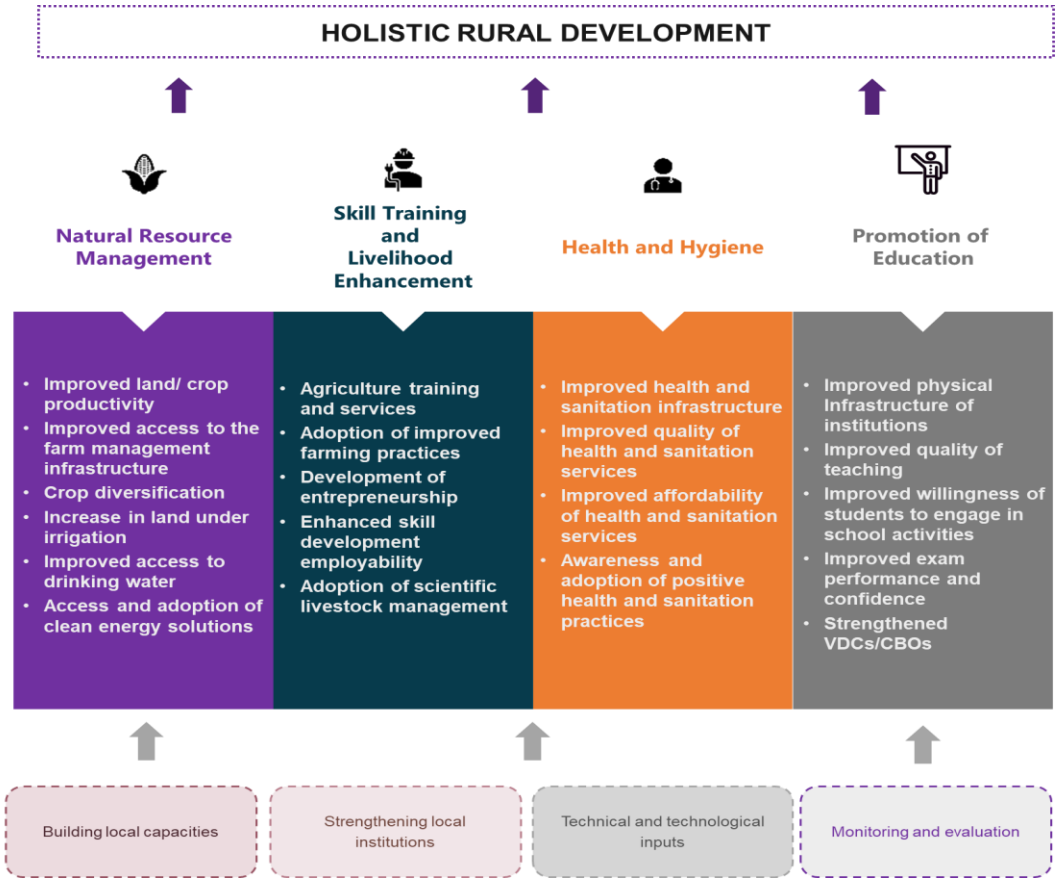
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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

1.3 Conceptual Framework Adopted

The conceptual framework and the areas covered under the assessment are depicted below (see 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 a backward district of Gujarat, Narmada, by Aga Khan Rural Support Programme (India), the implementing partner in this district. The programme was undertaken during April 2019 till March 2022 and the interventions covered 12 villages across the Nandod 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.

1.5 Implementing Partner in the District

The Aga Khan Rural Support Programme (India) works as a catalyst for the betterment of rural communities by providing direct support to local communities. AKRSP (India) is active in over 2400 villages of Gujarat, Madhya Pradesh, and Bihar. It has impacted lives of over 1.5 million people from marginalised sections of the society. In 2019, it started its partnership with HDFC Bank's CSR to implement integrated rural development practices, which are based on comprehensive sustainable development goals. The Holistic Rural Development Project (HRDP) was initiated in 12 villages across Nandod block in Narmada district of Gujarat with the support of HDFC Bank Ltd.

The backbone of AKRSP (I)'s work is the empowerment of rural communities, particularly the underprivileged and women through collectivisation as well as promotion of individual enterprises. Building self-reliant people's institutions for financial inclusion, livelihoods enhancement and improved rural governance is the heart of the organisation's approach.

2 Research Design and 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 Aga Khan Rural Support Programme (India).

2.1 Criteria for Assessment

For each thematic area, activities completed by the SM Sehgal Foundation 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 programme 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 programme.

To assess the **impact and effectiveness** of the programme, the team established the values of outcome indicators of all thematic interventions. The findings were assessed against the outcome indicators finalized during the outcome harvesting stage. Through qualitative evidence and analysis of programme outcomes (in light of variables identified in consultation with HDFC Bank), the team tried to understand whether and how the programme impacted the lives of community members in the programme 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 programme 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 Focused Group Discussions (FGDs) with programme beneficiaries, Aga Khan Rural Support Programme (India), and the HDFC Bank programme team. IDIs were conducted with the farmer beneficiaries, implementing partners, schoolteachers, and wadi beneficiaries. FGDs were conducted with farmers group, self-help groups and with the village development committees of the villages. KIIs were conducted with the community resource persons from villages; barber shop, beauty shop and grocery shop beneficiaries and village sarpanch. The outcome mapping and result chain development was undertaken in consultation with the HDFC Bank team. Standardized key outcomes and indicators were

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

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.

An FGD in Progress

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

2.3 Sample Size and Distribution

From the twelve villages of Narmada where the programme was implemented, beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from Aga Khan Rural Support Programme (India). 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 408 sample respondents were reached. The thematic areas wise sample covered was as follows (see **Error! Reference source not found.**).

Table 3: Population Sample Covered

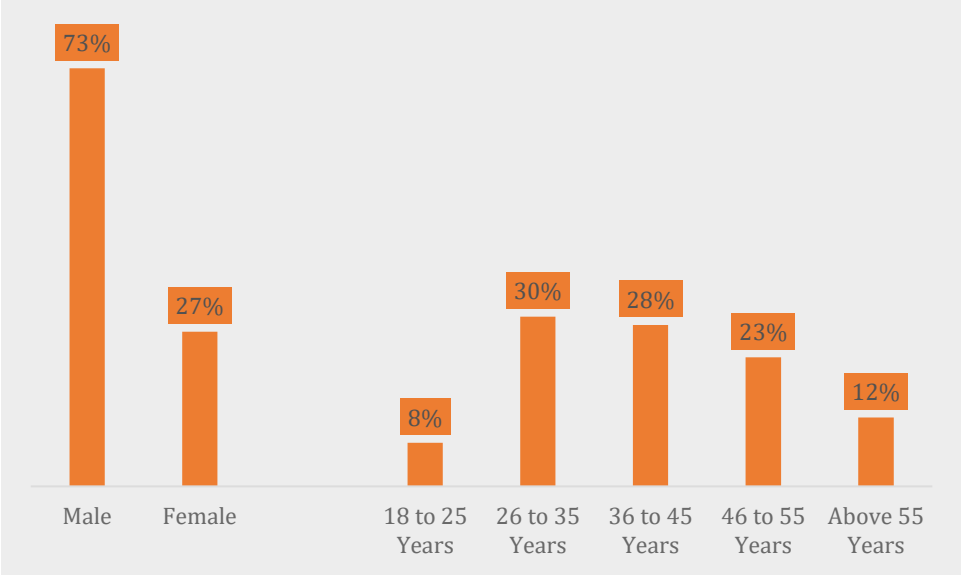
Village Name	NRM	ST&LE	H&S	PoE[2]
Dhochki	12	26	19	0
Dadhwada	7	12	14	8
Namalgadh	20	25	30	1
Aamli	18	16	16	1
Palsi	13	37	11	0
Gadit	19	31	14	6
Mota Limatwala	14	41	8	0
Boridra	6	26	6	1
Ghata	10	13	20	2
Mandan	5	29	21	6
Total	124	256	159	25

[2] The limited sample covered in few of the villages was due to the unavailability of respondents with respect to education. As the schools were closed in lieu of summer vacation, the teachers and students could not be surveyed.

Qualitative tools of in-depth interviews (IDI) and focus group discussions (FGD) were administered for obtaining information about the various themes as well as to enrich the household survey information with a deeper understanding. A total of 9 FGD's with Village Development Committee, Self Help Groups and farmer groups were conducted in the project area. 12 In Depth Interviews were conducted amongst school teachers, farmers, enterprise owners, community resource persons, sarpanch, implementing partners and beneficiaries.

Total sample includes 73% males and 27% females with the highest number of respondents, (30%) belonging to the age category of 26-35 years. This was followed by 28% of the respondents belonging to 36-45 years, while 22% belonged to 46-55 years.

Figure 2: Age Group wise distribution of Sample



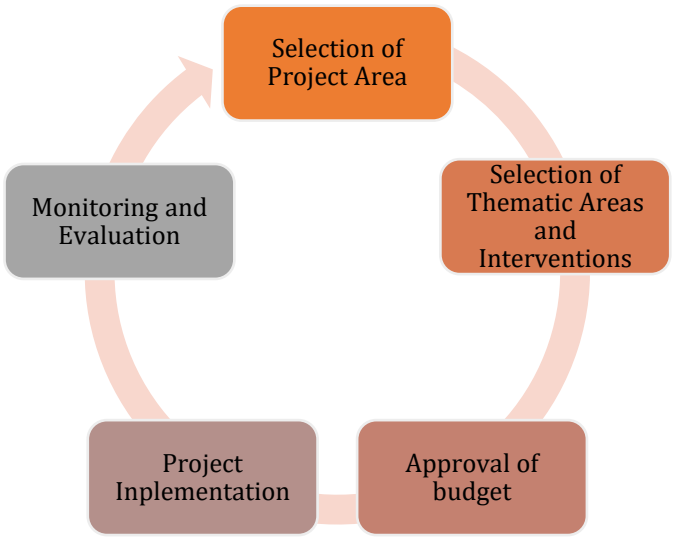
2.4 Training of Enumerators

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 Programme Planning and Implementation

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

Figure 2: Planning and Implementation Process



3.1 Selection of Project Area

The study area belongs to the Narmada region, one of the country's 250 most backward districts. It is one of the six districts in Gujarat currently receiving funds from the Backward Regions Grant Fund Programme (BRGF). 80% of the district comprises of Scheduled Tribe population, facing poverty and food insecurity due to depleted natural resource base.

The area's susceptibility to abject poverty is due to many reasons. Degraded hilly areas, a lack of critical irrigation, declining soil productivity, inadequate governance, reliance on money lenders and dealers, and women's drudgery are among the key factors for the difficult conditions in the region. The majority of farmland in the area is undulating in nature, resulting in severe soil erosion and low agricultural output. Surface water collection is not done efficiently, and many natural resource management structures, such as check dams, were broken and hence could not be used for irrigation by farmers.

Additionally, the project villages still practised open defecation up to over 80% in some villages. Most of the households are dependent on hand pumps for drinking water and large numbers of hand pumps go dry in summers. Sanitation and drinking water status in schools and anganwadis was also not available in majority of the project villages.

Overall, reduced agricultural productivity, increased poverty, and social and economic distress has been the key challenge in the project villages. Most households are dependent on agriculture, which provide inadequate income due to drought conditions and lack of irrigation.

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 programme also focused on agricultural training and support, skill training, livestock management, and entrepreneurship development 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 programme 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 (see Table).

Table 4: Activities under Four Thematic Areas in Narmada

Activity Category	Activities	Output Indicators
NRM		
Irrigation Management	Farm bunding, nala plugging, gabion construction, check dams, group motor irrigation and solar irrigation schemes	Income from agriculture
Farm Management	Organic farming methods, vegetable cultivation, soil testing, seed distribution, village nursery, wadi cropping, crop diversification	
ST&LE		
Agriculture Training and Services	Exposure visits, demonstration of new crops, training on organic farming and agricultural conservation practices	Access to Agriculture Training and Services
Skill and Entrepreneurship Development	Individual enterprise development for hair salon, beauty salon, grocery store, highway food stall etc. Strengthening of SHG through bookkeeping trainings	Skill and Entrepreneurship Development
Livestock Management	Distribution and training for goat rearing and poultry	Livestock Management
H&S		
Health	Health camps	Health Infrastructure and Services
Sanitation	Community wastewater soak pits, construction, and repair of household toilets	Sanitation Infrastructure and Services
Kitchen Garden	Kitchen garden promotion, training, distribution of seeds	Health Services
PoE		
Educational Institutions Development	Infrastructure: Construction of toilets, library, drinking water set up (in two project schools)	Infrastructure in Educational Institutions
Education Support	Remedial classes, distribution of TLM	Education Support

3.3 Project Implementation

The interventions for community empowerment and rural development are crucial for target villages. Under the HRDP intervention for Natural Resources Management, activities under irrigation management and farm management were promoted. In irrigation management, activities such as farm bunding, nala plugging, gabion construction and check dams were

constructed for relevant villages. Additionally, group irrigation schemes and solar based irrigation schemes were provided to enhance irrigation area in the villages. Under farm management, techniques for better crop production and increased income were implemented. There were trainings conducted on wadi cropping, organic compost production, non-pesticide management training, soil testing, seed bank, etc. Additionally, vegetable cultivation and fruit cultivation for crop diversity and income enhancement was also implemented in the project area.

To aid trained individuals in the villages who had skill but lacked investment for enterprise and to reduce distress migration in the region, in Skill Enhancement and Livelihood Development, need based micro enterprises were established in the project area. As livestock is a major source of income for agrarian households, goats and poultry was distributed based on village requirements. The project strengthened the role of the Village Development Committee in all project villages who then prepared lists of individuals who could be aided in such enterprises. To provide agriculture training and support, exposure visits of farmers were done along with demo plots and trainings on better farm techniques. Promotion of new women SHGs and revival of inactive SHGs in the villages including financial literacy trainings to SHGs and linking them to banks if required was also conducted as part of the project interventions.

The food insecurity was addressed under Healthcare and Hygiene mainly through promotion of kitchen garden. The seeds of everyday use vegetables were distributed, and training was given on how to grow a kitchen garden to ensure consumption of adequate nutrients. There were health sessions and camps conducted in the village for overall health awareness. To address the challenges of open defecation, toilets were constructed and repaired in the project villages including trainings on proper sanitation practices. Village hand pumps and soak pits were also repaired.

Through HRDP, Promotion of Education was undertaken, where the village schools were renovated with BaLA paintings, provided with a shelf library with 300+ books, construction of washrooms, and drinking water posts were established in some of the primary schools. Furthermore, the project also aimed to bridge the skill gaps among children by providing remedial classes in Gujarati and maths during the Covid-19 pandemic and distributing teacher learning materials in the project villages for children to experience new ways to understand concepts in class after being home for over a year during the pandemic.

3.4 Monitoring and Evaluation

The HRDP has a standard monitoring & evaluation approach that was adopted by the implementing partners. These includes reporting of project implementation progress in periodically to the HDFC Bank. In addition, the program implementation team of HRFC bank visits to the project villages at regular intervals to review the project work sites. participate in the training programs, awareness camps and interact with project beneficiaries.

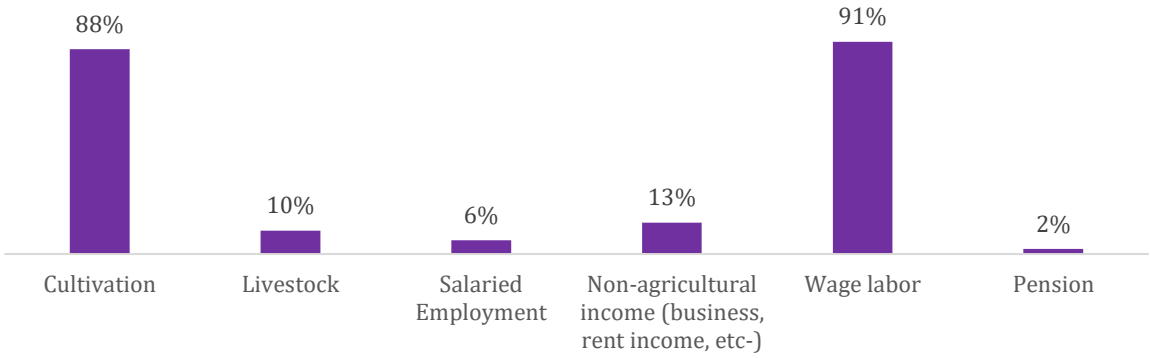
HDFC Bank has specific ask as regards to the project information concerned from the implementing partner. The project data are primarily managed by the implementing partner in spreadsheets that include details of the village wise activities implemented, beneficiaries mapped against each of the project activities, expenditures etc. In addition, the implementing partner submits an annual progress report on the project activities to HDFC Bank along with the plan for the next year. This document serves as the major source of the information that provides a summary of the activities implemented, outputs delivered and outcomes achieved.

In addition, the HDFC Bank hired NRMC as an external agency to conduct impact assessment of the project after one year of the completion of the project. This is an independent assessment that 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 based on selected outcome indicators. The impact Table of each activity has also been calculated and classified as high, medium, or low impact. The annexure goes into greater detail on these. (See Annexure B and C).

4 Study Findings

This section provides the analysis of the profile of the respondents covered in the ten villages of Narmada district in Gujarat. The population is mostly dependant on wage labour (91%) and cultivation (88%). 13% of the respondents have their small enterprise as an alternate source of income.

Figure 4: Distribution of Sample based on their occupation



The educational status of the respondents shows that 24% of the respondents are illiterate and do not know how to read and write, followed by 21% of the respondent's receiving education till 6th to 8th Standard. 7% of the respondents have reported they are literate but have not received any formal education. In higher education, 2% of the respondents are graduates. 96% of the sample are Scheduled tribes (ST) while the remaining 4% are Scheduled caste (SC). Respondents having Below Poverty Line (BPL) constitute more than half of the sample size (75%).

Figure 5: Education qualification wise distribution of sample

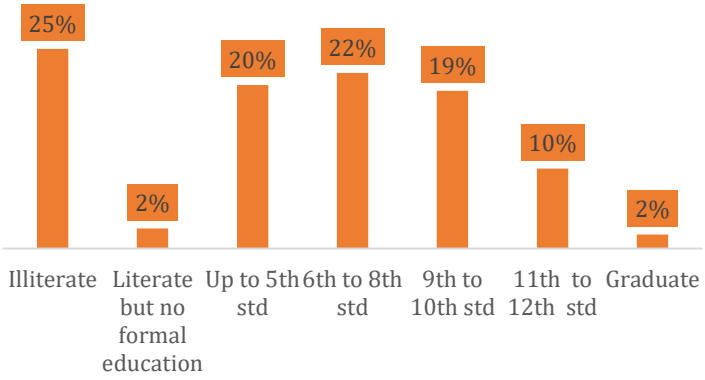
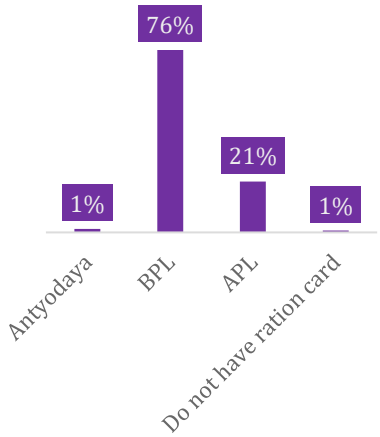


Figure 6: Type of ration card



While the above analysis represents the nature and status of the sample, the following table represents the summary and quantum of activities carried out under each intervention 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		
Farm Management	Organic Farming	100

	Vegetable Cultivation Soil Testing Seed Distribution Wadi Cropping Crop Diversification	30834 saplings 377 200 Info not provided by IA Info not provided by IA
Irrigation Management	Farm Bunding Nala Pugging Gabion Construction Check Dams Group motor irrigation Solar group irrigation	49 hectares covered 24 9 20 16 engines to 16 groups with (4-5 farmers each)
ST&LE		
Agriculture Training and Services	Exposure Visits Demonstration of new crops Farmer Training Natural/ Organic Farming Sessions Farmer Field school	Info not provided by IA 58 farmers with 700 saplings 335 41 471
Skill and Entrepreneurship Development	Individual Enterprise development for hair salon, beauty salon, grocery store, highway food stall etc. SHG strengthening through bookkeeping	54 business empowered 123
Livestock Management	Distribution and training for goat rearing Distribution and training for poultry	65 12
H&S		
Health	Health Camps	Annually in all village
Sanitation	Soak Pits Toilet Construction and repair	10 20
Kitchen Garden	Kitchen Garden promotion	400
PoE		
Educational Institutions Development	Drinking water set up BaLA Construction/Repair of Washrooms Library set up	2 Info not provided by IA Info not provided by IA Info not provided by IA
Education Support	Remedial Classes, distribution of TLM	

(Source: Project MIS from Implementing Agency)

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

4.1 Natural Resource Management

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

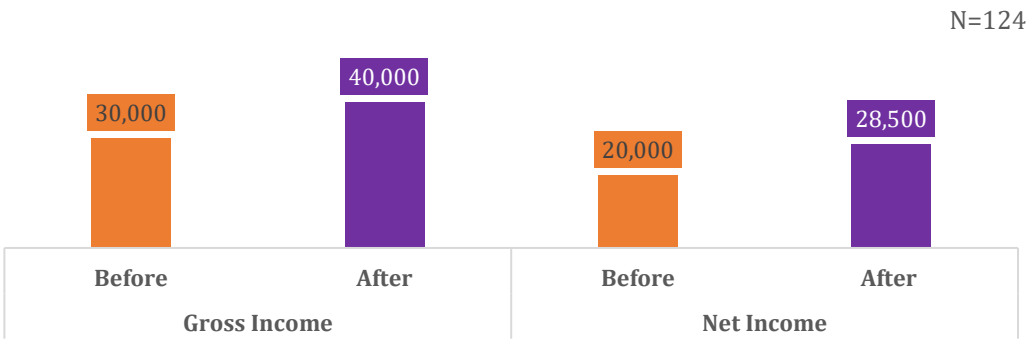
The programme consisted of interventions under various activities such as trainings on non-pesticide management, distribution of seeds, imparting knowledge of various farm techniques, irrigation management, gabion construction and stone bunding. Since the focused region is prone to soil erosion due to heavy rainfall and undulating land, intervention in NRM is expected to ease the water-related issues for both household and agricultural purposes and increase the cultivable land for required households.

4.1.1 Income from Agriculture

In the survey sample, the benefits from agricultural activities were availed by about 30% of the total respondents. The interventions where beneficiaries were provided with mobile diesel

engine and pipelines, construction of stone bunding/nala plugging structures, organic manure trainings, wadi cropping, training/demonstration of creeper farming and installation of solar water pumps have been the most availed and practised activities among all the agricultural activities conducted under the intervention.

Figure 7: Increase in Agriculture Income (Rs.)



The figure 7 compares the **median gross income and median net income before and after the project intervention. The gross income increased by 33% and net income increased by 42%.** The median input cost has also risen by 44%, resulting in a sustained change in gross and net income trends.

In terms of total households reporting a change in income, about 89% of the households reported increase in income and 86% of the households reported an increase in profit after the project interventions. The reasons accredited for the increase were mainly the programme's support in irrigation management (58%), organic farming (14%) and interventions in seeds and tools (8%), (Ref. Fig. 8). **However, the respondents also mentioned market prices (78%) and increased area under cultivation of crops (10%) as other reasons for an income increase since the inception of the programme.** This can be measured as an indirect benefit from the project intervention. Through qualitative field interviews and discussions in the region, it was observed that following vegetable cultivation and the use of better seeds, the nearby Rajpipla market showed a favourable response to the cultivation of such crops and were interested in the produce at higher prices. Additionally, through gabion structures and farm bunding in the land, area under irrigation increased for farmers who were previously unable to grow crops on the land due to soil erosion. This additional patch of land has helped in the increase of household income.

While income has increased, input cost has also increased for 92% of the respondents, the primary reason being increase in the price of inputs reported by 96% of respondents.

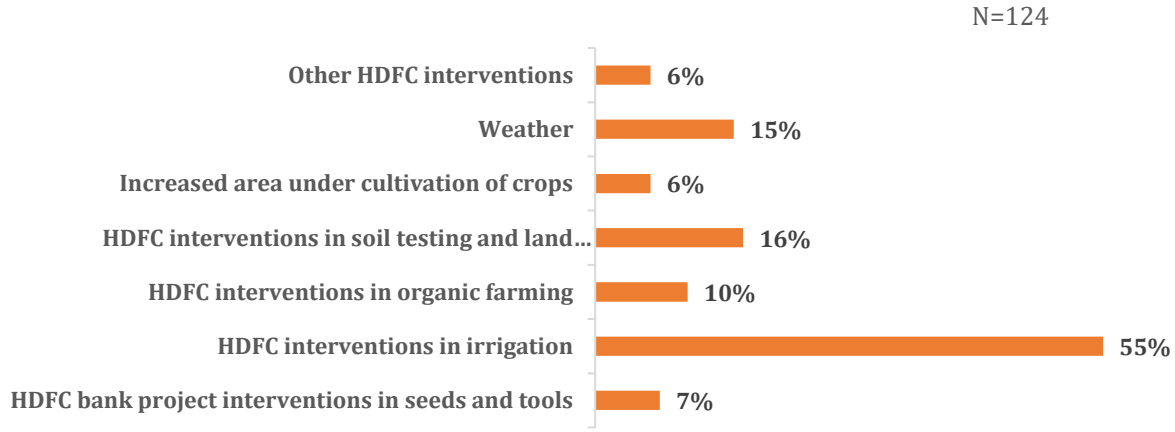
Respondents have reported an increase in the median productivity of the major crops grown in the area namely paddy and vegetables. Both crops were promoted through the project interventions. The reason for the increase in productivity could be attributed to two main interventions, irrigation management and training on organic farming. The interventions such as distribution of better yielding seeds, improvement in irrigation such as mobile engines and pipeline and soil management interventions through gabion structures, have increased yield from the same land.

Table 6: Increase in Agricultural Production After the HDFC Project

Crop Name	Median Production Before (kg/acre)	Median Production After (kg/acre)
Paddy	275	1100
Vegetables	400	1500

The reasons reported for the increase in production as per the farmers' own understanding can be seen in Figure 8.

Figure 8: Reasons for Increase in Agriculture Production



Apart from the above, the production decrease was also reported due to poor weather.

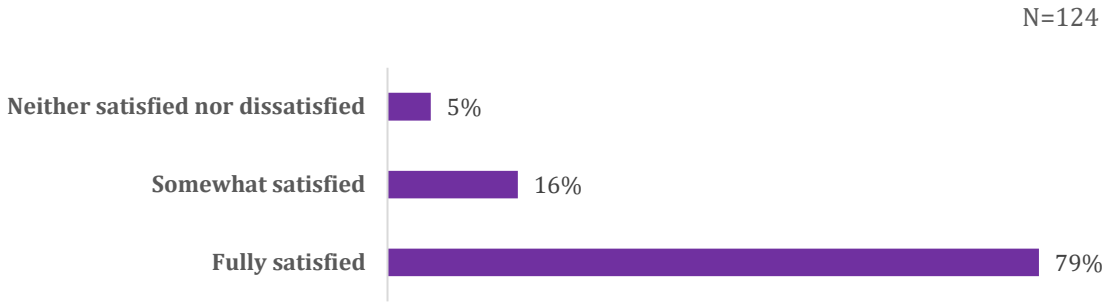
Table 7: HRDP Interventions that led to increase in agriculture production

Project Interventions (% respondents)	Paddy	Arhar (Pigeon pea)	Kapas (Cotton)	Vegetables
HDFC interventions in seeds and tools	0	11%	0	12%
HDFC interventions in irrigation	56%	52%	58%	53%
HDFC interventions in organic farming	19%	7%	6%	6%
HDFC interventions in soil testing and land treatment	31%	11%	11%	12%
HDFC interventions in farming techniques (e.g. SRI, creeper farming)	0	4%	0	0
HDFC interventions in agricultural installations (e.g. green nets, farm bunding)	6%	4%	7%	0
Other HDFC interventions	6%	4%	7%	6%

Weather	6%	15%	28%	12%
Increased area under cultivation of crops	0	11%	11%	0
Improved irrigation	69%	74%	75%	62%

Currently, 77% of households report using both natural and chemical fertilisers. During the last season of the project's intervention, 84% of respondents reported an increase in the use of natural fertilisers and 80% reported a decrease in the use of chemical fertilisers. This is mainly due to the promotion of Shivansh/organic manure during the project period. The sample survey notes that 98%, 9%, and 7% had received support in terms of training, financial aid and setting up of pits respectively. The increased use of natural fertilisers has led to the benefits such as improved production (78%), improved soil health (73%), improved quality of production (65%) among other benefits.

Figure 9: Satisfaction level of farmers on organic manure intervention



As shown in the fig 9, more than half of the farmers are fully satisfied with the information provided on organic manure.

4.1.2 Adoption of horticulture and crop diversification

From the sample survey, 63% of farmers have reported an increase in production and 89% have reported an increase in income. 56% of farmers reported that they grew vegetables after the project intervention. Similarly, 19%, and 12% of respondents reported that they started growing cotton and mango with the support of HDFC intervention.

70% of the farmers have reported that they engaged with horticulture with HDFC project support. Mango wadis were developed through the project intervention as reported by the farmers (92%) and 41% of the mango trees have borne fruit. Because the fruit takes at least 3 years to bear fruit, some of the wadis are currently at a preliminary stage. Additionally, farmers were also taught to develop "Mandals" or mixed vegetable cropping in a small farmland using creeper crops and floor grown crops. The farmers reported that they are beneficial for nutrient food at home (29). A few farmers also sell their vegetable produce in the nearby markets (12%). However, 66% of the respondents reported that they perceive no benefit from horticulture. It could be that the trees are taking time to bear fruits and presently the cost of horticulture is more for the farmers than benefits. Some marginalised households were also provided with floriculture interventions (rose) and currently sell their roses at the price of Rs. 100/kg.

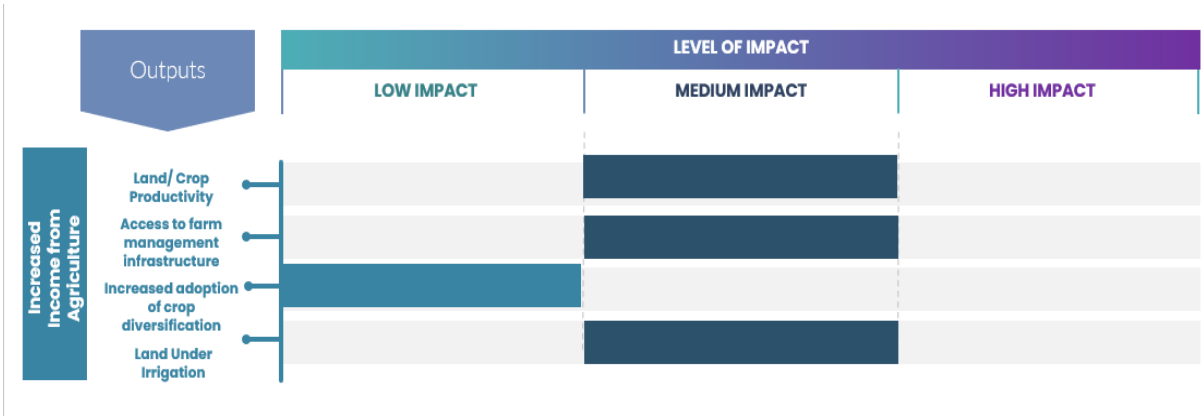
Gabion structure under NRM

Floriculture (Roses)

Vegetable farming beneficiary

4.1.3 Impact Observations

Figure 10: Overview of Impact and Effectiveness of Interventions -NRM



Under NRM, land productivity, access to farm management infrastructure and increase of land under irrigation have shown medium impact. Pertaining to the nature of land in the area and the farming methods employed, HRDP interventions have been beneficial to implement interventions in the region that have helped prevent soil erosion and provide support in growing sustained crops. Medium impact is thus, significant with respect to the interventions made. Crop diversification has been a challenge in the region pertaining mainly to market access for the selling of produce.

4.1.4 Case Study

Mobile Engine and Pipe Beneficiaries in Aamli Village

Raisingh Bhai is one member of a mobile engine irrigation group formed in Aamli village. In the early stages of project intervention, the Village Development Committee (VDC) was formed that took on the responsibility to find the right beneficiaries in the village for activities related to the HRDP project. Through the key resource person, Raisingh Bhai raised concerns with the Village Development Committee regarding his problem with rainfed irrigation and the uncertainty that it brought to his family.

The VDC created a group of such farmers with their agricultural plots nearby and through HDFC Bank was able to set up a mobile irrigation system with pipeline that served all the 8 members of the group. All the farmers pay nominal fee to use the pipe which is in turn used to pay the electricity bill of the system. The VDC overlooks the process to ensure all the members get adequate irrigation turns in the system.

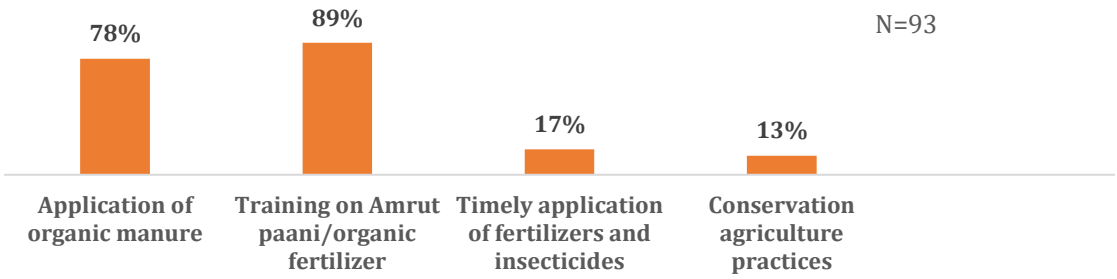
Raisingh Bhai mentions how he and his group members relied on rain for agriculture, managing to do only single cropping a year but post the irrigation system, they can sow seeds in advance and have now shifted to a double cropping system that has increased agricultural yield and in turn their income exponentially. The intervention through the VDC generates a sense of ownership with collective responsibility of common goods that the farmers mentioned they had not done before.

4.2 Skill Training and Livelihood Enhancement

4.2.1 Access to Agriculture Training and Services

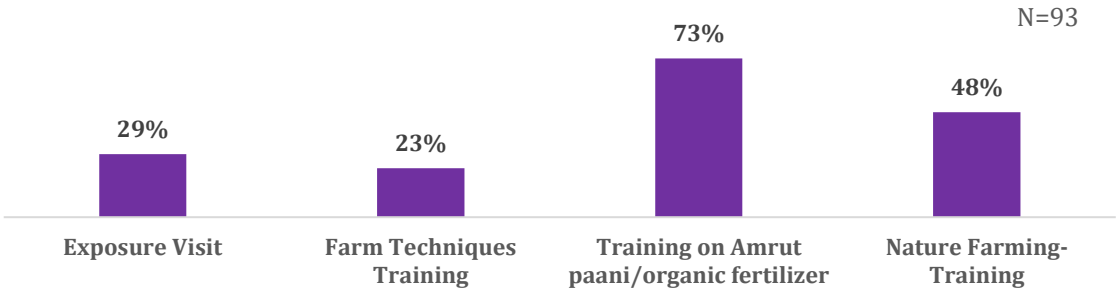
From the surveyed households, 23% people have benefitted from the intervention on agricultural training and support. From the households who benefitted, all households have received support in terms of agricultural training practices.

Figure 11: Percentage of farmers who learned new agriculture practices



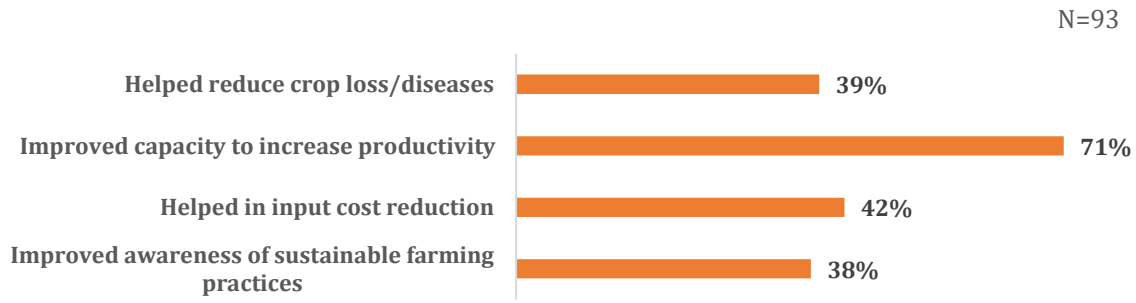
As per figure 11, through the HDFC intervention, 89% of households received training on making organic fertiliser, 78% of households have reported that they learned application of organic manure, 17% learnt timely application of fertilisers and insecticides and 13% conservation agriculture practices. 100% of the households learnt these practices through HDFC Bank interventions.

Figure 12: Percentage of farmers who received agriculture training on new techniques



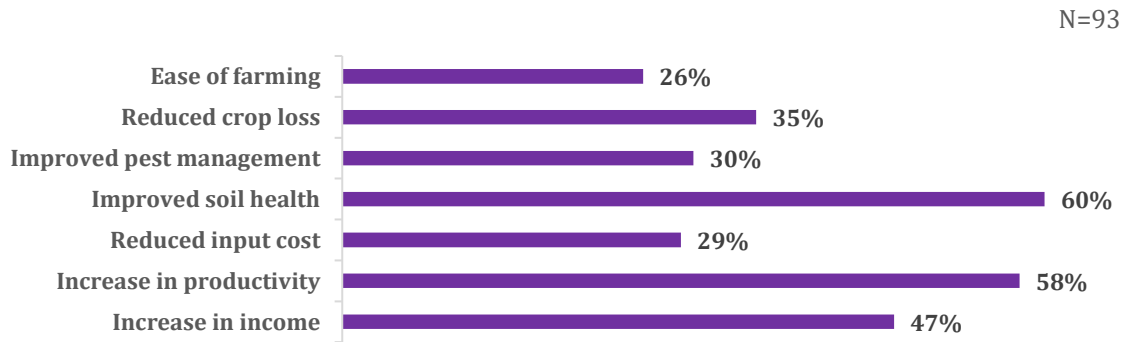
73% of households reported that they have attended sessions on Amrut paani/organic fertilisers, 48% received nature farming-training and 23% farm techniques training. 29% households participated in exposure visit.

Figure 13: Perceived benefits of learning agriculture practices



As per figure 13, the perceived benefits of these programs have been that it has improved the capacity to increase productivity as reported by 71% of attendees. 42% of beneficiaries reported that the trainings helped reduced input costs, 39% said it helped reduce crop loss/disease and 38% of attendees reported that it improved awareness of sustainable farming practices.

Figure 14: Improvements in farming after adopting the agriculture techniques



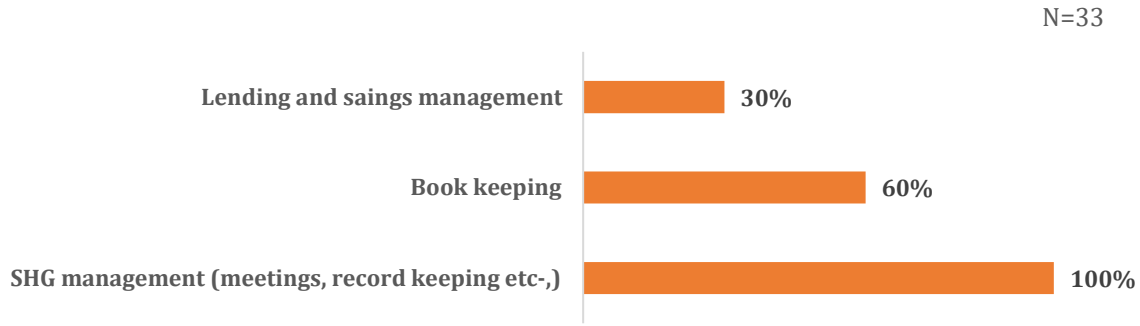
From figure 14 it is evident that, after adopting these techniques, 60% of farmers reported improvement in soil health followed by 58% increase in productivity. Since the region mainly suffers from infertile land, use of organic manure has been beneficial to increase the crop cycle.

47% of the respondents have reported an increase in income. The median income increases after adopting these practices has been Rs. 10,000 per household.

4.2.2 Economic Empowerment through Collectivisation

The project has not focussed much on SHG development, with just 8% of respondents reporting they have benefitted from SHG development. The qualitative study shows that the main support has been provided to existing SHGs by strengthening them through entrepreneurship opportunities. They have been made aware of entrepreneurship opportunities that they could take up and support provided based on consultations with them for the above-mentioned activities. Through the project, mobilisation of members and training on bookkeeping were the main support provided to previously established SHG's. Additionally, aid was provided to established SHG's to make the required bank linages for further enhancement of their activities. The main trainings received as reported by women SHG members are shown in Figure 15.

Figure 15: SHG trainings received as part of the project

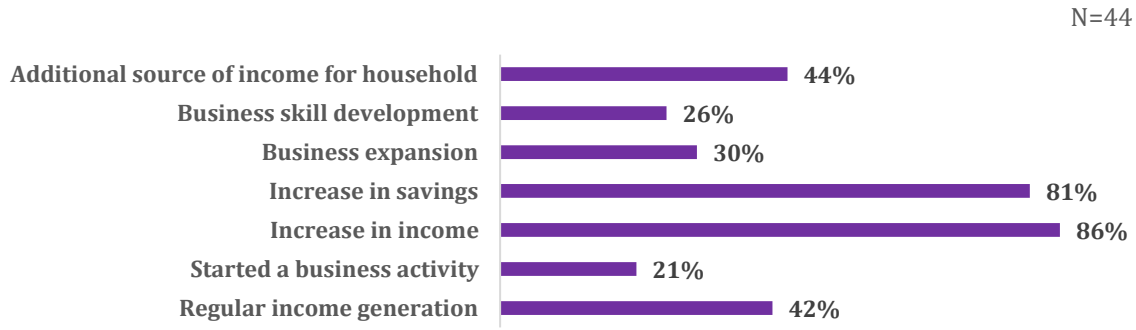


The women show considerable knowledge of the processes and the system that is required to maintain their SHG, they reported that it has aided them in building their confidence and the loan distributed through the SHG upon bank linkages have been beneficial in constructing houses, marriages and for internal household reasons. Additionally, the women collectively are seeking out trainings to further advance their SHG from being just for savings to a collective enterprise.

4.2.3 Access to Skill and Entrepreneurship Development

The sample survey data shows that 11% of the respondents benefitted from entrepreneurship development. Those reported being part of entrepreneurship development have set up enterprises in their respective villages including beauty parlour shops, grocery stores, barber shops, cycle/bike repair shops and food stalls on the highway. Additionally, equipment such as deep freezer, clothes etc. were distributed to businesses that required some investment in their enterprise. The beneficiaries were selected through the Village Development Committee. Most of the beneficiaries had previous training for their enterprise and used to go to the nearby town for income. Through HDFC bank interventions, qualitative interviews indicate that income is now being generated without leaving one's village. The beneficiaries invested Rs. 5000 of their own whilst the Bank invested Rs. 30,000 in the enterprise in kind payment through purchasing the equipment's needed. The beneficiaries have reported a median increase of Rs. 30,000 annually.

Figure 16: Benefits of Enterprise development

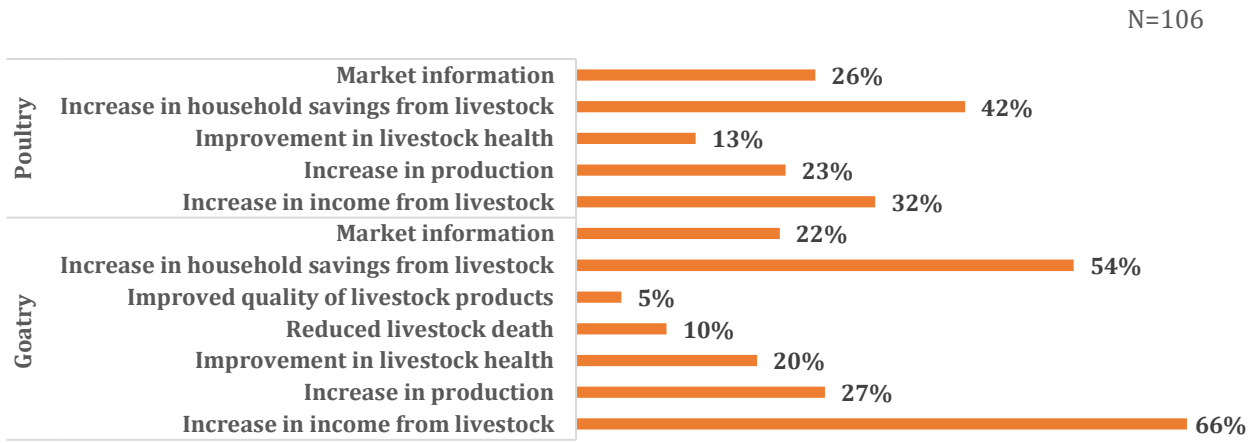


From Figure 16, we can see that there has been an increase in household income for 86% of the respondents. Other benefits include increase in savings (81%), additional source of income (44%) and regularity of income (42%). The respondents note that on an average 30% of the household income is generated through the enterprise.

4.2.4 Improved Capacity to Generate Income Through Livestock Management:

26% of the respondents have benefitted from interventions in livestock management. The two main interventions that the beneficiaries have received are distribution of goats (37%) and chicks (60%) and fodder development support. 5 female and 1 male goat were distributed to the goat rearing beneficiaries whilst 100 chicks were distributed to the poultry beneficiaries.

Figure 17: Benefits of Livestock Interventions



As seen in Figure 17, majority of the beneficiaries note the increase in savings from livestock (42%) to be the main benefit of poultry interventions, this is mainly due to the yearly cycle of selling hens (100) each year on a rotatory basis. The average savings range from Rs. 30,000-45,000 based on qualitative interviews. Increase in income through goat rearing (66%) is mainly generated through the selling cycle of goats after they have grown, between the price range of Rs. 6000-8000 based on qualitative interviews. On average, livestock interventions contribute to 10% of the income generated within households.

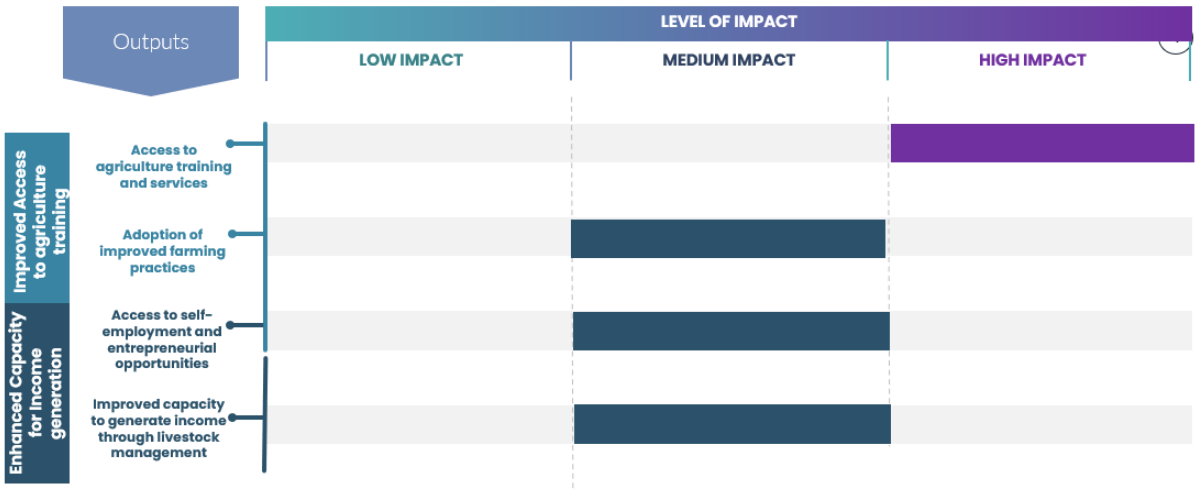
Grocery Shop Enterprise **Barber Shop Enterprise** **Manchurian Stall**



Goats Distributed through HRDP interventions

4.2.5 Impact Observations

Figure 18: Overview of Impact and Effectiveness of Interventions -ST&LE



Access to agricultural training and services was a primary focus area and has shown high impact under ST&LE. Exposure visit, field training and others were conducted at large scale reflected

through the high impact. Enterprise development and Livestock management have shown medium impact pertaining to the proportion of beneficiaries who received the specific impact and the continuation of the enterprises. Qualitative interviews indicate that many of the beneficiaries also sold their livestock to earn revenue that halted the enterprise in the region.

4.2.6 Case Study

Transforming Agriculture: Barber shop in Gadit Village

Rajubhai is the oldest brother of three with a single mother residing in Gadit village. While previously trained as a hairstylist, he did not have adequate capital to start his own shop and used to spend his time between the fields and nearby village barber shop to earn income in the family.
Rajubhai expressed his need for enterprise support to the Village Development Committee which in turn recommended his name to the NGO partners. He paid Rs. 5000 as part of his own investment and received equipment worth Rs. 30,000 including mirror, chairs, shelves and everyday need items for the shop.
Through the course of the intervention, Rajubhai has now taught both the younger brothers how to operate a hair salon and generates an annual income of Rs. 15,000 rupees. He is currently planning to open another shop in the nearby town Rajpipla that he will run along his two brothers.
Rajubhai also notes that the setting up of the shop near his house has helped him to be near home and provide necessary skills to his younger brothers as well who can take care of the shop when he goes to the field. He also mentions that he got married recently through the money he saved for the hair salon enterprise.

4.3 Health and Sanitation

4.3.1 Health Infrastructure and Services

The programme had a component to create health awareness for the people including health camps, that were attended by only 7% of the total sample. Of this percentage of beneficiaries, 80% have attended a hygiene related health session and 30% have availed health service in the form of health camps that were set up yearly throughout the project duration. 100% of the responses received diagnosis from the health camps and 12% received medication.

Though qualitative interviews it was observed that the project also raised awareness about mentrual hygiene through workshops in the common office for women of all project villages. They were taught about safe hygiene practices and were distributed sanitary kits. The women continue to practice the training and have expressed how they informed other women in the village about the use of sanitary napkins, their safe disposal etc.

Figure 19: Benefits of Health Camps

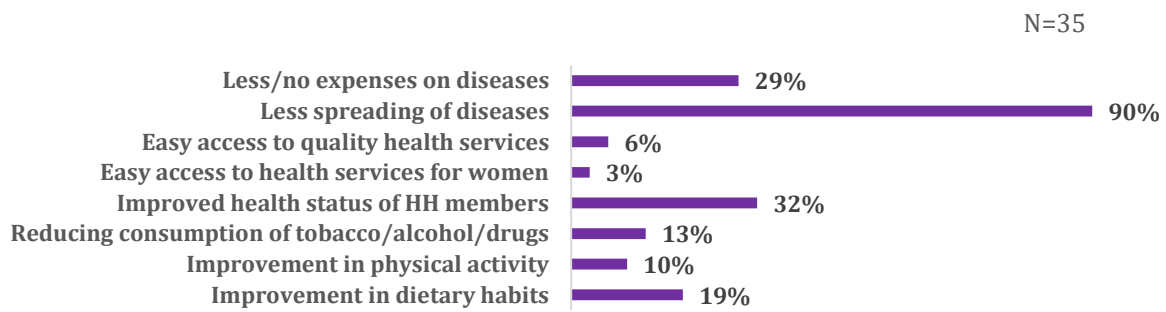
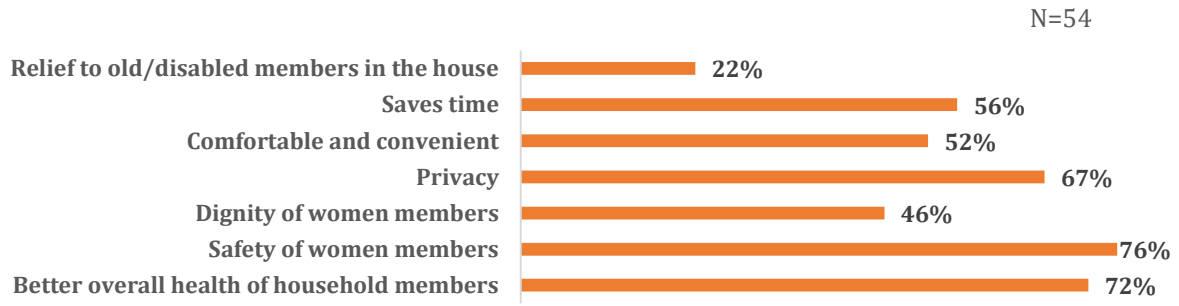


Figure 19 explains the perceived benefits of health camps according to the respondents. 90% of respondents surveyed stated less spreading of diseases as the prime benefit from the health camps, 32% reported improved health status of household, while 29% mentioned less expense on diseases as the benefit. However, only 6% mentioned access to quality health services and 3% mentioned easy access to services for women. This shows that benefits are limited to awareness generation and not access to healthcare, especially for women which shows scope for improvement.

4.3.2 Sanitation Infrastructure and Services

From the sample study, 13% of the respondents have reported to have been benefitted from sanitation services. These mainly include toilet construction/repair (98%). 30% of the respondents received partial payment for construction whereas 31% of respondents received tools for construction. Figure 20 shows the perceived benefits of the construction of household toilets in the villages.

Figure 20: Perceived benefits of household toilets



76% of the respondents mention safety of women as the primary benefit of toilet construction. Since 43% of the sample used to practice open defecation before the project, the construction of toilet has aided the people in providing them dignity and better overall health (72%). Through qualitative interviews it was noticed that after the construction of toilets (5-7 per project village), many families constructed their own toilets at an individual capacity following the practices promoted through HRDP. 78% of the respondents acknowledge the importance of toilet construction which they learnt through the HDFC awareness campaigns (75%).

4.3.3 Kitchen Garden

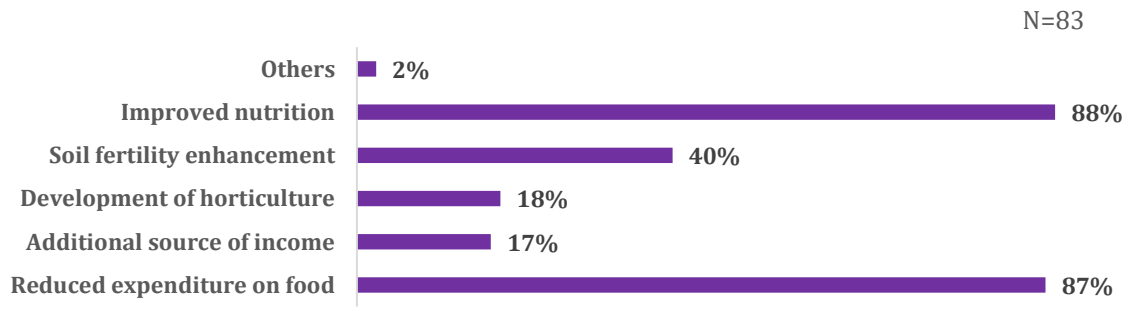
To improve the nutritional status of the community and tackle the problem of malnutrition, especially in ultra-poor households, the project supported the community with kitchen gardens. Out of the total sample, 20% received interventions in kitchen garden out of which 100% of the households' received seeds, 61% household received training on proper management and maintenance, and 33% received pesticides and fertilizers under the intervention. They received support for a variety of vegetables such as brinjal, tomato, beans, lady finger, bottle gourd etc.

Majority of the respondents were found using the produce from their gardens for self-consumption (49%), and 18% of the respondents do both, sell and consume their kitchen garden produce. The ones involved in selling the produce reported a median monthly income of Rs. 1500.

While 91% of the beneficiaries observed a decrease in the amount they spent on fruits/vegetables from the market, 89% of the beneficiaries observed an increase in the quantity of consumption of fruits/vegetables from the kitchen garden since the project started. The data shows that a median monthly amount of Rs. 350 is reported to have been saved by the households due to kitchen garden.

Moreover, the community is even aware of the benefits of having a kitchen garden as can be inferred from Figure 21.

Figure 21: Benefits of kitchen garden as reported by beneficiaries

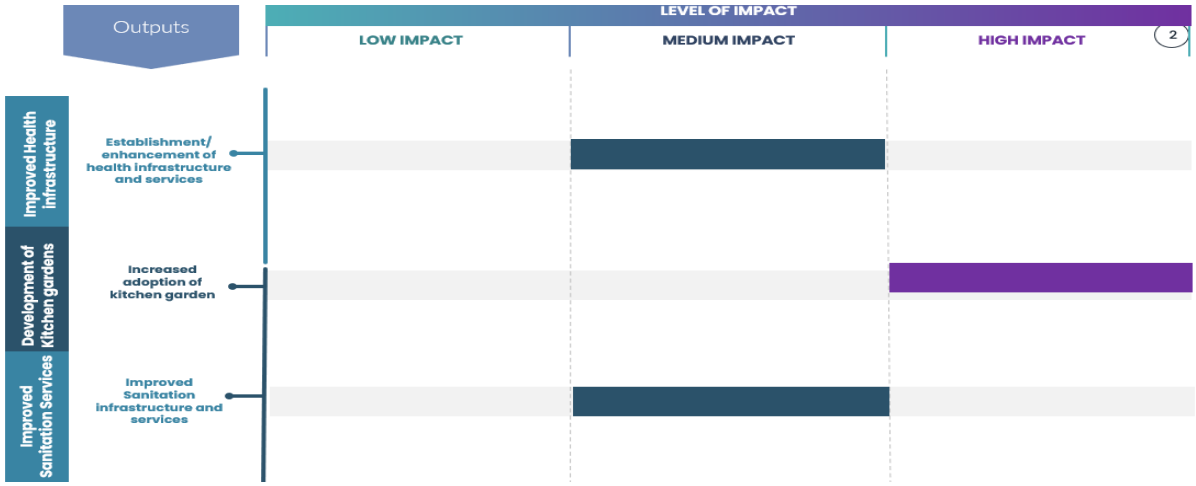


The chart shows that 88% of the respondents note the improved nutrition in the household and reduced expenditure on food (87%) to be the primary benefits of the kitchen garden intervention. Followed by 40% of the respondents noting soil fertility enhancement to be the benefit of the intervention. 89% of the respondents have said they are fully satisfied with the intervention.

Toilets constructed through HRDP interventions

4.3.4 Impact Observations

Figure 22: Overview of Impact and Effectiveness of Interventions -H&S



Under H&S, high impact was observed under development of kitchen garden, which was adopted seasonally by many households of the region. Significant impact was also observed in enhancement of health infrastructure through health camps and improved sanitation through toilet repairs.

4.4 Promotion of Education

4.4.1 Infrastructure in Educational Institutions

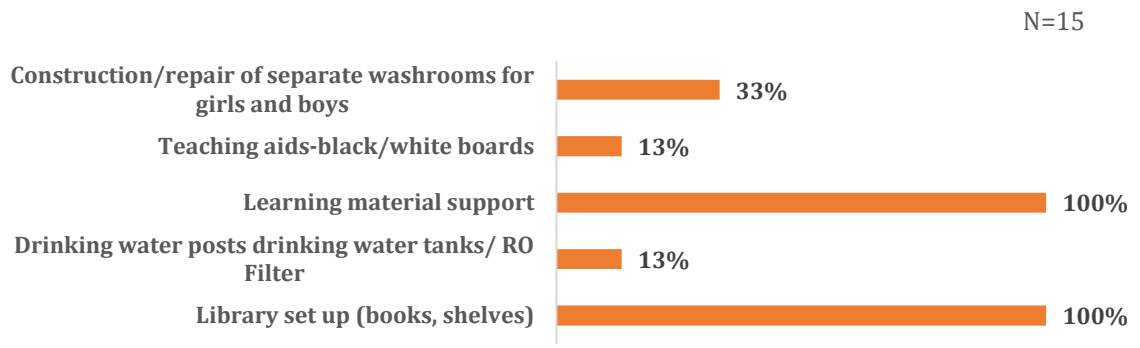
A combination of multiple activities targeted towards improving enrolment, attendance, and learning outcomes were undertaken in the program area. The program focused on equipping schools with infrastructure facilities. 6% of the respondents have reported that their child has benefitted through the interventions in school. Of this percentage, 64% were benefitted through the library set up, 48% each by drinking water posts and construction of separate toilets, and 24% through learning material support.

It is necessary for children to have good, well-maintained bathrooms in schools so that they don't have to go home between classes. For the same, HDFC interventions repaired school toilets that are safe and hygienic for children. 83% of households responded that school toilets have increased their regularity to school. Two schools were also supported with drinking water facilities that have helped in reducing health issues in schools (83%).

4.4.2 Education Support

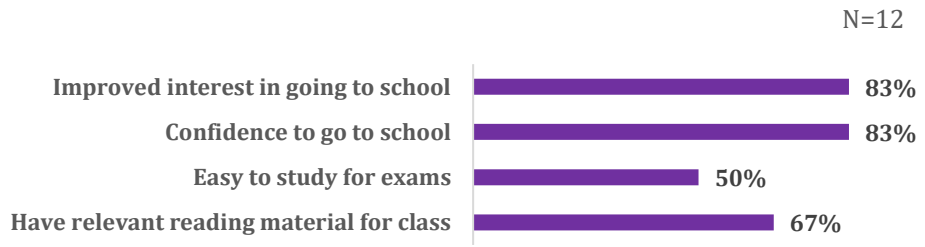
From the interventions under HRDP, library set up, distribution of learning material and remedial classes have been the primary interventions in schools with maximum amount of impact on the quality of education for the students.

Figure 23: Percentage of teachers who reported different interventions under education in their school



To engage young children in reading and writing, a library shelf along with 300+ books was given to each primary school in the project villages. This has greatly benefited young students as the difficulty level of the books that are mainly in Gujarati, matched the children's and make for varied types of readings. The library set-up and the rotatory distribution of books are still active in schools. 67% of the teachers interviewed have stated that they use the library every day. All teachers have noted that the library has made it easier for students to understand concepts.

Figure 24: Perceived benefits of learning materials according to students

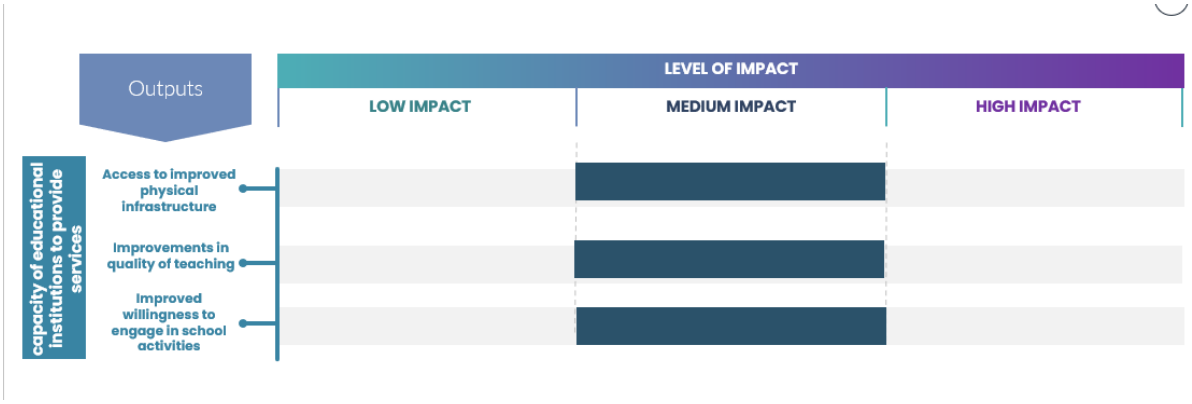


73% of teachers note that students have received education materials like books, notebooks, and stationery for learning. 83% of students mention improved interest and confidence in going to school. 75% of students also mention that through HRDP interventions in education, the access to proper sanitation, quality of teaching and study materials has improved. 73% of the teachers note that the children's ability to retain concepts has improved which is through the study materials that have been distributed in schools.

Library shelf and books **Toilet construction**

4.4.3 Impact Observations

Figure 25: Overview of Impact and Effectiveness of Interventions -PoE



Under PoE, medium impact can be noticed for the access to improved physical infrastructure, quality of teaching and children's willingness to engage in school activities. There is notable improved access to essential infrastructure, with 52% of teachers reporting gaining access to functional facilities, and 33% of students obtaining improved sanitation and drinking water access. Teaching quality saw a substantial boost, with 93% of teachers regularly utilizing teaching materials, indicating a high impact on the learning experience. The influence on student engagement was also notable, as evidenced by a 47% increase in teacher-reported attendance and a 40% rise in enrolment post-infrastructure development. Dropout rates indicate a 20% decrease reported, indicating opportunities for further improvement and the scope for more such interventions in the region.

4.4.4 Case Study

Remedial classes through HRDP

Nandod district is a very poor and marginalised area where displaced population struggles with undulated land. In these small villages, only government primary schools are set up. These schools have Gujarati board education; however, the students lack proper knowledge of maths and Gujarati language that has posed several difficulties for the teachers to pass young students of 1st to 5th Standard.

Remedial classes were set up through HDFC interventions. In 2019, these classes took place in the school itself in between 9-12 am for Gujarati and maths. They were taken up by local village youth who had some education and were employed through the NGO and HDFC programme. These volunteers or "Baal

Saathi" helped provide students with a non-intimidating environment to study with their peers and receive individual attention.

During the onslaught of the Covid-19 pandemic, the schools shut down and young students lacked basic comprehension and mathematics skill that is necessary for their primary knowledge development. They were unanimously promoted from 1st to 3rd grade without studying and this proved to be very challenging for the children in the village.

The Baal Saathi's travelled household to household and made small study groups of 4-5 children together and continued taking remedial classes throughout the pandemic using the learning materials distributed through project interventions. One of the schoolteacher claims that this has positively affected the student's comprehension and attention skills as they are now more comfortable with basic maths and reading. Without these remedial classes, it would have been very difficult for the children to comprehend classroom education after 1.5 years of not attending schools.

4.5 Holistic Rural Development Index (HRDI)

There are multiple dimensions involved in achieving the goals HRDP that includes agricultural production, generates new jobs, enhances health, increases communication, and provides better living infrastructure.

Based on the design of the HRDP program supported by HDFC Bank, a composite index has been developed called Holistic Rural Development Index (HRDI) that indicates the achievements of the HRDP interventions leading to overall improvements of the results indicators. As, the program interventions varies across projects and geographies, it was not possible to ascribe a single impact indicator that might be able to accurately capture the overall performance of HRDP. Thus, HRDI serves the purpose of quantifying the impact through blending of results of various indicators grouped into four thematic areas.

For calculation of HRDI, the values of the impact indicators at baseline and endline were selected and assigned weights based on their relative contribution to the final expected outcome across four themes. Depending upon the variations in the interventions made in each project, the HRDI customized to accommodate the most significant results that attributes to the goal of the HRDP program. The detailed methodology and indicators are explained in detail (see Annexure B).

The HRDI calculation for project P073 implemented in Narmada has been given in the following table.

Table 8: HRDI Calculation P0273

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	0.07	**0.10**	**0.09**	**0.16**	**0.14**	**0.21**	**0.15**	**0.15**	**0.45**	**0.61**
% Change	43%		78 %		50%		0%		35%	

While the overall HRDI has 35% increase over baseline, the impact observed to be high in Skill and Livelihood at 78%, 50% increase in Health and Sanitation and 43% for Natural Resource Management. Education has remained consistent pertaining to the limited focus on the domain.

5 Analysis of Assessment Criteria

As outlined earlier in 2.1, for each thematic area, activities completed by the Aga Khan Rural Support Programme 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 programme with respect to each of these criteria.

5.1 Relevance and Convergence

Narmada district in Gujarat grapples with a multitude of challenges related to both socioeconomic backwardness and natural resource management. Despite its rich cultural heritage and natural beauty, the district faces issues of poverty, limited access to quality education and healthcare, and inadequate infrastructure development. The predominantly tribal population in this region encounters difficulties in terms of economic opportunities, resulting in high unemployment and low-income levels. Moreover, Narmada district struggles with natural resource management problems, particularly water scarcity and soil erosion. The improper utilization of natural resources, coupled with unsustainable agricultural practices, has led to environmental degradation, affecting the livelihoods of local communities. Major work under HDFC *Parivartan* devised a comprehensive approach that combined efforts to improve socioeconomic conditions with sustainable natural resource management strategies tailored to the needs of the villages.

The evaluation observed that there was convergence or utilization with the existing schemes of the government. This implies that the programs were designed to work in harmony with the ongoing government schemes and initiatives. National schemes like MGNREGA and state specific initiatives of the agriculture department were made use of.

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 practising the services and practices accessed through the project under farm management. The structures built to prevent soil erosion have created additional fertile land for farmers and has continued even after the completion of the project. The beneficiaries are still using the inputs provided through the project. The mobile and solar irrigation systems have been maintained by farmer groups and are being actively used by the farmers. Organic compost training has largely been successful, and most farmers continue to practice it.

Farmers believe that continued adoption of sustainable farming solutions will result in notable improvements in productivity. Through the Village Development Committees, the farmers continue to attend agricultural trainings in nearby towns. However, many farmers continue practicing with natural fertilisers or even chemical fertilisers. But the key takeaway has been how organic farming has been adopted to a certain degree through the interventions. Although the project has managed to engage over 20% of the farmers to take up horticulture, awareness

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

regarding the time delay to attain benefits from the trees planted seems to be missing. Hence, many reported they perceive no benefits from horticulture and put the sustainability of this activity into question.

The skill development for self-employment has benefitted people in terms of undertaking individual enterprises. The active enterprises in the area were of motorcycle repair, barber shop, beauty parlour, flour processing, food stall etc. The continued functioning of these enterprises indicates the impact of the project. The main challenges for these enterprises are mainly due to personal reasons but the beneficiaries have actively discussed their ideas and plans to expand their business to another town and have trained members of their own family to develop an additional source of income for the household.

Another successful initiative in terms of sustainable impact have been the sanitation interventions. The support provided for toilet construction has resulted in the continued usage of the facilities in most villages. Other village members have followed suit and constructed their own household toilets. The people in project villages also show positive outlook towards proper waste management especially the problems that can be caused through open defecation.

The health awareness even though conducted as part of the project, were mainly done yearly. This has resulted in many beneficiaries forgetting what they learned during such sessions. Kitchen garden, to increase the nutrition status, have been adopted by many beneficiaries and many continue to do so. The seasonal change of summer is proving to be a challenge as many crops have died down due to lack of water and lack of space.

With regard to education, assets like the library, drinking water pipe and learning materials have been handed over to the schools. The drinking water intervention and construction of toilets have certainly benefitted the students. However, the scale of these interventions has been less in the project area. The most beneficial intervention for students has been the remedial classes that have aided students during the Covid-19 pandemic to develop regularity and basic skills and comprehension skills to be promoted to the next class.

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 significant on-ground results.

6 Recommendations

To further improve the outcomes of HRDP in Narmada district of Gujarat, the following recommendations are made for the HDFC Bank's *Parivartan* and HRDP teams and the implementing partner, under each thematic area:

6.1 Natural Resource Management

- There needs to be more investment in seed banks and other input provision which has been most crucial in increasing farmers' income
- A follow-up by agriculture experts is needed to ensure farmers are making use of the practices taught and assist them in their problems.
- Increase in the budget for installation of more motor and solar irrigation systems as irrigation continues to be a challenge in the area.
- For a committed push to organic agriculture, the concept can be seeded and promoted through the vehicle of farmer producer organizations for better effectiveness of the initiative.
- Promotion of post-harvest techniques for collection and storage will impact the shelf-life and quality of products.

6.2 Skill Training and Livelihood Enhancement

- Handholding support to enterprises so they have marketing tie-up, business plan development, linkages with government schemes, etc. is essential.
- More income-earning opportunities and business-related training for women and youth
- More advanced training on production practices and the use of machines/tools for farmers to keep pace with the demands of the market.
- Training programs for SHG's for group enterprises can be supported in the region.
- For long-term sustainability of the interventions, the project can incorporate training of youth in the villages on parapet services for better access to basic veterinary services as well as information on livestock management.

6.3 Health and Sanitation

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

6.4 Promotion of Education

- The scaling up of learning and digital support to schools is crucial.
- Assistance in infrastructure development like classroom construction as the student-classroom ratio is low, and the funds received by the government are insufficient for construction work.
- An asset maintenance fund/ committee needs to be established in the programme supported schools to ensure the necessary maintenance of support functions such as-

drinking water post and smart classes. Proactive convergence with ongoing schemes of the government will ensure efficient use of resources.

The study focuses on assessing the impact of the Holistic Rural Development Programme (HRDP) by HDFC Bank, executed through Aga Khan Rural Support Programme (India) in Gujarat's Narmada 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 408 beneficiaries, a comprehensive approach involving stakeholders and qualitative and quantitative data collection was used. The findings show that there are positive effects on income, water management, and soil management. Skill development increased output and income, particularly for individual enterprises. Health services were well-received, sanitation awareness increased, and educational interventions improved student engagement and attendance.

Annexures

A Sampling Methodology

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

A.1 Quantitative Sample Size Calculation

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

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

Where,

N= sample size

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

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

S_e= margin of error, set at 5%;

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

Thus, the estimated maximum sample size is *(enter number).*

A.2 Quantitative Sampling Methodology

All the nine programme villages were selected for the study. The stages of sampling are explained as follows:

Stage 1 – Selection of beneficiaries:

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

Stage 2- Sampling for villages:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. A total of nine villages were covered under the survey.

A.3 Qualitative Sample Size Calculation

Qualitative tools of In-depth Interviews (IDIs) and Focus Group Discussions (FGDs) were administered for obtaining information about the remaining themes as well as to enrich the household survey information with a deeper understanding.

Since there was no baseline available for this evaluation, recall method was used in the household survey to assess the change that has happened over time. For this purpose, the respondents were

asked to recall the value of critical indicators that they could recall from the time the programme started.

B HRDI Methodology

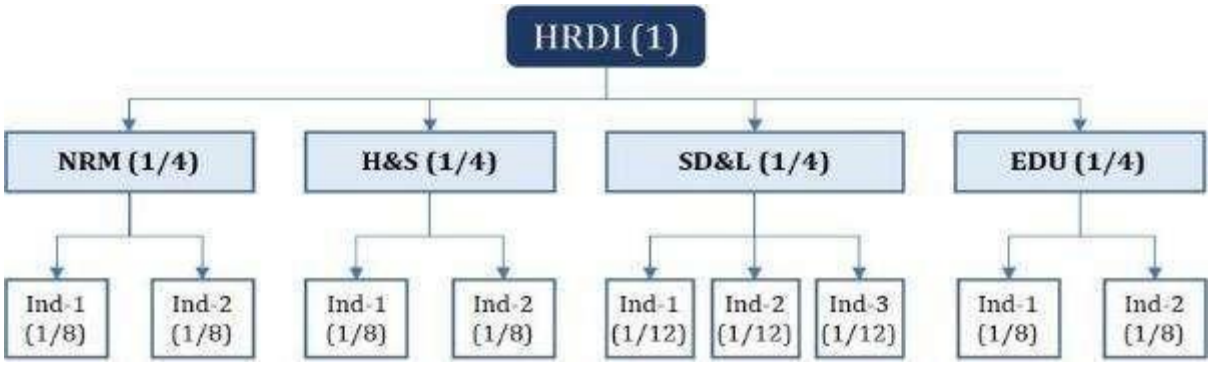
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between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

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

Figure 26: Domain and Indicator Weights



The example above is indicative. The domains as well as indicators were different across all programmes, and hence the weights were changed slightly for the purpose of the study, following the principle stated above.

Table 9: Example of HRDI Calculation

Thematic Area	Indicators	Formula
NRM	Proportion of farmers with net income above median	(1/4) x (1/3) = 0.083
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	(1/4) x (1/3) = 0.083
	Percentage of farmers reporting access to irrigation	(1/4) x (1/3) = 0.083
ST&LE	Percentage of households who are getting skill training & reporting increase in income from job/enterprise/self-employment	(1/4) x (1/2) = 0.125
	Percentage of HH reporting income above median from livestock	(1/4) x (1/2) = 0.125
H&S	Percentage of households reporting increase availability of drinking water facility	(1/4) x (1/2) = 0.125
	Percentage of households with access to improved toilet facility	(1/4) x (1/2) = 0.125

PoE	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	(1/4) x (1/2) = 0.125
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	(1/4) x (1/2) = 0.125

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

B.2 Analysis Plan

HRDI for each district was calculated at two points in time i.e., before and after HRDP and can be compared cross-sectionally to understand which indicators contributed to an increase or decrease in HRDI value. Since the value attribution of the indicators is in proportion, the HRDI value numerically ranges between 0 and 1. Once all the indicators are standardized and weighted, a sum of these weighted indicators are utilized to calculate the value of HRDI.

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. It was considered at baseline, then all the farmers were sorted across the seven blocks/villages 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 endline 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: Summed up all the indicators (i.e., weighted sum) to calculate the HRDI value at baseline and endline.

Step 7: Calculated the relative change in the HRDI value from baseline to endline.

The calculation for Narmada has been detailed below (see Table).

Table 10: HRDI Calculation for Narmada

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
NRM	Proportion of farmers with net income above median	0.15	0.07	0.23	0.10	43%
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.07		0.08		

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
	Percentage of farmers reporting access to irrigation	0.05		0.07		
ST&LE	Percentage of SHG members reporting income above median from rural enterprises	0.24	0.09	0.45	0.16	78%
	Percentage of HH reporting income above median from livestock	0.11		0.17		
H&S	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	0.29	0.09	0.34	0.16	50%
	Percentage of households with access to improved toilet facility	0.29		0.49		
PoE	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.08	0.15	0.12	0.15	0%
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0.50		0.50		
Total			**0.45**		**0.61**	**35%**

C Overview of Impact Calculation

Impact of the programme was calculated based on the averages of quantitative output indicators as demonstrated below (see Table).

Table 11: Impact Calculation

Outputs	Output Indicators		Output Avg	Impact Level
NA. Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting increase in production of crops that were supported under HRDP	63%	45%	Medium
	Proportion of farmers reporting increased income from crops that were supported under HRDP	89%		
	Average increase in productivity from crops that were supported under HRDP (% change)	22%		
	Average decrease in input cost (% change)	7%		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	86%	63%	Medium
	Proportion of farmers reporting training intervention for natural fertilizers	98%		
	The proportion of farmers reporting an increase in the use of natural fertilizers	7%		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops	18%	18%	Low
	Proportion of farmers who adopted horticulture	19%		
Land under irrigation	Proportion of farmers having irrigated land	30%	51%	Medium
	The proportion of farmers who received support for irrigation	72%		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who accessed project training services	100%	92%	High
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	85%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	67%	57%	Medium
	Proportion of beneficiaries reporting an increase in productivity due to better farm management	58%		
	Proportion of farmers reporting increased income	45%		
Enhanced capacity for regular income generation				

Access to self-employment and entrepreneurial opportunities	Proportion of beneficiaries who established/ expanded entrepreneurial activities through monetary investment through HRDP	84%	49%	Medium
	Proportion of beneficiaries reporting starting to undertake entrepreneurial activities	21%		
	Proportion of beneficiary HH reporting increase in income	42%		
Improved capacity to generate income through livestock management				
Improved capacity to generate income through livestock management	Proportion of beneficiaries who received support in livestock management services	26%	83%	Medium
	Proportion of beneficiaries reporting an increase in household savings from livestock management	49%		
	Proportion of beneficiaries reporting improved production	48%		
Improved health infrastructure and services				
Establishment/ enhancement of health infrastructure and services	Proportion of beneficiaries who gained access to health services	8%	49%	Medium
	Proportion of beneficiaries reporting less spreading of diseases due to access to camps	90%		
Improved sanitation infrastructure and services				
Establishment/ enhancement of sanitation infrastructure.	Proportion of beneficiaries who received materials for construction of toilet	31%	51%	Medium
	Proportion of beneficiaries reporting better overall health of household members	72%		
Development of kitchen gardens				
Increased adoption of kitchen gardens	Proportion of HHs reporting improved nutrition from kitchen gardens	88%	81%	High
	No of HHs received seeds/training in kitchen garden	61%		
	No of HHs with reduced expenditure	87%		
	Proportion of HHs reporting fully satisfied of the intervention	89%		
	The proportion of households reporting improved well-being due to the availability of clean drinking water.	31%		
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of teachers who report gaining access to functioning libraries, toilets, water posts	52%	42%	Medium
	Proportion of students who gained access to clean and functioning sanitation units/drinking water posts at education institutions	33%		

Improvements in quality of teaching	Proportion of teachers regularly utilizing teaching materials	93%	60%	Medium
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	47%	50%	Medium
	Proportion of teachers reporting an increase in enrolment post infrastructure development	40%		
	Proportion of institutions reporting a decrease in dropout rates	20%		

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 12: Z-tests Conducted for P0273

Indicator 1	Proportion of farmers with income from agriculture above baseline median
p1 (proportion of first sample-endline)	70

n1 (sample size of p1)	124
p2 (proportion of second sample-baseline)	46
n2 (sample size of p2)	124
p	0.467741935
Calculation	0.063367772
z statistic	3.787414
	Statistically significant at 95% confidence level (or p<0.05)
p-value for the z statistic	0.000075

Indicator 2	Percentage of HH reporting income above median from livestock
p1 (proportion of first sample-endline)	35
n1 (sample size of p1)	106
p2 (proportion of second sample-baseline)	23
n2 (sample size of p2)	106
p	0.273584906
Calculation	0.061235118
z statistic	1.95966
	Statistically significant at 95% confidence level (or p<0.05)
p-value for the z statistic	0.049

E Theme-wise Sustainability Matrix

The programme support provided demonstrated the capability to continue even after the programme ended. The programme's support to sustain improved outcomes are enumerated below (see Table).

Table 13: Theme-wise Sustainability Matrix

Support Provided	Structures Established	Technical Know-how	Usage	Maintenance
NRM				
Irrigation Management	✓		✓	
Farm Management	✓		✓	
ST&LE				
Agriculture Training and Support		✓	✓	
Entrepreneurship Development	✓	✓	✓	✓
Livestock Management	✓	✓	✓	
H&S				
Health		✓		
Sanitation	✓		✓	✓
Kitchen Garden	✓	✓	✓	✓
PoE				
Educational Institutions Development	✓	✓	✓	✓
Education Promotion		✓	✓	
Education Support	✓		✓	