Impact Assessment Study of Holistic Rural Development Programme (HRDP) Kamrup, Assam – P0280



Prepared For:



HDFC Bank Corporate Social Responsibility (CSR)

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List of Acronyms

APL	Above Poverty Line
ARC	Agricultural Resource Centre
BaLA	Building as Learning Aid
BPL	Below Poverty Line
CSR	Corporate Social Responsibility
CAPI	Computer Assisted Personal Interview
CDC	Cluster Development Committee
VDC	Village Development Committee
FGD	Focus group discussions
НН	Household
H&S	Health and Sanitation
HRDI	Holistic Rural Development Index
HRDP	Holistic Rural Development Programme
IDI	In-depth Interview
KII	Key Informant Interview
NGO	Non-Governmental Organizations
NRM	Natural Resource Management
РоЕ	Promotion of Education
PPP	Public Private Partnership
PSU	Public Sector Undertaking
SHG	Self-Help Groups
SMC	School Management Committees
SRI	System of Rice Intensification
ST & LE	Skill Training and Livelihood Enterprise

Executive Summary

The Holistic Rural Development Programme by HDFC Bank is a flagship Corporate Social Responsibility (CSR) initiative aimed at fostering comprehensive development in rural India. This program is strategically designed to address various socio-economic challenges faced by rural communities, focusing on uplifting their standard of living and enhancing overall well-being. This impact assessment report is for the project PO280 which was implemented by Citizen Foundation in the Kamrup district of Assam from 1st Apr 2019 to 31st Mar 2023. The program includes initiatives such as 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. The project was implemented in a total of 10 villages and data collection for this report was carried out in all the villages. 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 437 beneficiaries as respondents as against the planned sample of 400 for quantitative assessment and 12 Focused Group Discussions (FGD), 10 In-depth Interviews (IDIs) and 4 Key Informant Interviews (KIIs) conducted with beneficiaries as qualitative assessment.

Natural Resource Management

Establishment of Agricultural Resource Centre (ARC) and Tool Bank, formation and training of farmer's group, promotion of SRI model in agriculture, Farm field school, field-based demonstration of maize with the support of the project to strengthen farmers capacity are some of the key interventions. Approximately, **69.3** percent of the sample respondents availed benefits of the agricultural activities under NRM, and **94** percent of these respondents quoted an increase in their annual agricultural income. The mean net income from agriculture increased by **INR 10,912** over baseline. Interventions such as solar irrigation systems played a significant role in bringing out the desired positive impact, and approximately 10.2 percent of the sample respondents benefited from it.

Around **50.7** percent of the respondents quoted a decrease in the usage of chemical fertilizers in the years of project implementation, while **6.8** percent of the respondents use vermi-pit method of composting for natural fertilizers.

The solar streetlights installed under the project were effective, with 90.7 percent of beneficiaries confirming that these streetlights are operational and about 97 percent beneficiaries expressed a sense of safety for women and young children during evening.

Skill Training and Livelihood Enhancement

All the project villages are flood affected and the agricultural land gets submerged under water during the monsoons. This leads to loss of livelihoods to the farmers affecting their socio-economic status. To address this, various skill training and livelihood enhancement activities such as agricultural support, integrated farming, fishing boat and equipment distribution, animal husbandry, kitchen garden, floriculture, paper crockery unit, hulling machine installation, fodder making unit, market shade, digital learning centre, life skill training, handloom weaving and production centre for women,

hatchery unit etc. were implemented under the Project. Skill and entrepreneurship development training for self-employment was provided to 249 beneficiaries out of which 70.5 percent have been able to establish their enterprises. Execution and sustainability of all activities are managed and maintained by the Village Development Committee (VDC). The geography of the district sometimes creates a barrier to establish a business centre, in flood most of the area are submerged and the machineries and costly equipment are damaged.

The project has imparted training to 200 women from 100 self Help Groups (SHGs). Out of which 40 women started their own enterprises, such as weaving production centre. Over 600 women have developed individual businesses generating additional income. This has led to an increase in financial independence, self-confidence, and community respect for women members.

The Livestock Management Initiatives by Citizen Foundation under HDFC HRDP have been instrumental in empowering villagers with sustainable livelihood options through backyard poultry farming, goat rearing, and piggery. By providing training, resources, and market access, these initiatives have catalysed economic growth, enhanced food security, and strengthened community resilience in the region. Goat farming showed an income increase as **reported by 92.3 percent** of sample respondents, while poultry farming improved product quality and market access. However, health and mortality rates remained challenging for both sectors. Vaccination camps and livestock management training were widely used services. Average income from **livestock increased by 112.9 percent** reflecting the positive impact of the interventions.

Health and Sanitation

In Health and Sanitation, the implementing partner Citizen foundation undertook a number of beneficial activities such as campaign for maternal health and nutrition, Health camp, kitchen garden, PHC renovation with provision of solar power supply, Bicycle with vaccine glove box for health workers, Solar drinking water for community, installation of water purifier in the project villages under HRDP Parivartan project of HDFC.

Health indicators improved notably, with **65 percent reporting improving health status**, **3.2 percent reported reduction in communicable diseases.** 90.2 percent respondent have benefited from solar drinking water, 79.5 percent respondents said they save time due to enhanced access to water and 38.5 percent of respondents reported improvement of family health, 97.4 percent perceive a decrease in water borne disease, 69.2 percent mentioned about relief in stomach related pain. 63.3 percent respondent reported having access to sanitation facilities provided by the project.

The kitchen gardens reduced food expenditure for 100 percent of respondents, **provided additional income for 56.4 percen**t, and improved horticulture practices for 25.5 percent and improved nutrition for 60 percent of the sample beneficiaries. By addressing foundational health and sanitation issues, the initiative has created lasting positive impact on community health, economic productivity, and overall quality of life.

Promotion of Education

The HRDP Parivartan project has significantly enhanced education facilities in the project villages through various initiatives such as renovation and establishment of critical infrastructure in

educational institutions, as well as programs aimed at improving learning environment and community engagement.

Teachers reported that, the BALA Painting and enhancement of recreational facilities generated interest among the students. Approximately **62.5 percent indicated that the painting in the school made it easier for students to learn letters, numbers and general knowledge in a creative manner.** Around **87.5 percent reported that water purifier for drinking water has mitigated the drinking water problems in School.** Approximately 47.6 percent perceive a decrease in health issues observed with provision of solar drinking water.

Around 76 percent of the sample respondents observed better student attendance, 72 percent perceive an improvement in concept retention, and all of them feel that learning is more interesting due to digital classes/ smart classrooms. Approximately 58.3 percent feel that school renovation has improved the school ambience and 4.2 percent observed a reduction in dropout rates.

Overall, HDFC's interventions significantly upgraded educational infrastructure, enhanced student engagement and learning outcomes.

Response to Disaster

The project area is highly vulnerable to Flood as it is situated in a low-lying wet land prone to water logging. The project has been instrumental in providing comprehensive disaster response and relief during the flood crisis. The initiatives under this project focused on immediate relief, rehabilitation, and awareness activities to support affected communities. These activities under the HRDP Parivartan project were designed to provide swift and effective relief to flood-affected communities, ensuring their safety, health, and well-being. The project's holistic approach not only addressed immediate needs but also incorporated long-term solutions such as High raised building (Community Flood Shelter) to enhance community resilience against future disasters. These structures are maintained and manged by the Village Development Committee (VDC).

Overall, the HRDP Parivartan project's disaster response initiatives demonstrated a strong commitment to supporting and rehabilitating flood-affected communities through a combination of infrastructure support, essential services, and awareness activities.

Income Indicators	Before	After	Change (%)
Increase in net income from agriculture (mean value) (INR)	17572	28484	62
Average Productivity of Paddy (Kg/Acre)	1336.42	1543.39	15.5
Average Productivity of Mustard (Kg/Acre)	407.89	463.52	13.6
Average Productivity of Flower (Kg/Acre)	524.99	846.04	61.1
Average Monthly Income from Livestock (INR)	2454.5	5227.3	112.9

Table 1: Summary of Key Income Indicators

The above table indicates there is an increase in net income from agriculture and the income from livestock management have shown a significant increase over the project duration.

HRDI Indicators

The table displays the Holistic Rural Development Index (HRDI) for four thematic areas of intervention within the project. Overall, the HRDI has increased by 57.15 percent compared to the

baseline. A substantial impact is seen in the PoE category, with a 150 percent increase in the HRDI score over the baseline. This can largely be attributed to installation of LED interactive touch panels to support modern teaching methods and provision of clean drinking water facilities in the schools.

Domain	N	RM	ST8	&LE	H8	&S	PoE	2	Tota	ıl
HRDI	Base	Endlin	Baseli	Endlin	Baselin	Endlin	Baselin	Endl	Baselin	Endl
Score	line	е	ne	е	е	e	е	ine	е	ine
	0.06	0.08	0.07	0.14	0.19	0.19	0.10	0.25	0.42	0.66
Percent	33.33	percent	100 p	ercent	No ch	lange	150 per	cent	57.15 pe	ercent
Change										

Table 2: Summary of HRDI Scores

1 Introduction

India's rural areas are home to approximately 65 percent of the country's population, with agriculture being the primary occupation. Despite significant progress in various sectors, rural India faces several socio-economic challenges, including poverty, inadequate infrastructure, limited access to healthcare and education, and unemployment. Assam has a large rural population, with over 85 percent of its people living in villages. The state is ethnically diverse, with various communities and tribes contributing to its cultural mosaic. Agriculture is the primary occupation, with tea, rice, jute, soyabean, mustard and fruits being the major crops. However, the agricultural sector is characterized by low productivity and dependence on traditional farming methods. Annual floods and riverbank erosion cause significant damage to agricultural lands and infrastructure. Strengthening the rural economy is crucial for India's overall economic development. In response, HDFC Bank's Corporate Social Responsibility (CSR) initiative 'Parivartan' supports various programmes aimed at providing holistic rural development to enhance the growth and prosperity of the rural population.

1.1 About HRDP

The Parivartan Project, under HDFC Bank's Holistic Rural Development Program (HRDP), represents a comprehensive and sustainable approach to rural development. The Parivartan Project is implemented through a collaborative approach involving local communities, non-governmental organizations (NGOs), and government bodies. This ensures that the interventions are context-specific and address the unique needs of each community. By addressing various socio-economic challenges through targeted interventions, the project aims to transform rural communities and improve their quality of life. Interventions are primarily undertaken 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)

Through continuous efforts and community participation, Parivartan strives to create a lasting impact and drive meaningful change in rural India. Its holistic approach caters to their various needs by addressing the 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 to evaluate the effectiveness, sustainability, and socio-economic benefits of the Parivartan Project under HDFC Bank's Holistic Rural Development Program (HRDP). It seeks to understand how the project has influenced various aspects of rural life and to identify areas for improvement. 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 learned and good practices
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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

1.3 Conceptual Framework Adopted

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



1.4 About the Project Area

Kamrup a district centrally located in the state of Assam in North-East India, is estimated to be one of the highest populous districts in the state. It's located in the very heartland of Assam; it falls directly at the center of the entire northeast of India. The proposed villages are situated in remote areas from district headquarters. All the villages are flood affected and socio-economic status is very poor. Most of the people in each village are dependent mainly on Agriculture and allied sectors. There is no industry, tea estate, oil, coal and other business activities around 50 Km of each village. Realizing a need of a comprehensive initiative was taken in Ten villages of Two adjacent blocks i.e Hazo and Rangia of Kamrup district, Assam state. The project villages are as follows;

Sl. No.	Name of Blocks	Name of GPs	Name of the Villages
1			No. 1 Bagta
2		100 No SahidSatyanath	No. 2 Bagta
3	Haio		No. 3 Bagta
4	inajo		No. 4 Bagta
5			Hainady
6			Dihina
7			Gorpot
8	Rangia	Baranghati	Baranga Hati
9		Durunghuti	Sadei kuchi
10			Souramuri

Table 3: List of project villages

Its primary objective was to facilitate the sustainable development of marginalised rural communities by enhancing the capabilities of individuals and institutions. The impact assessment study was undertaken in May and June 2024.

1.5 About the Implementing Partner

Citizens Foundation is a national level organization working in development sector, was established in the year 1997 and got legal status in 2002 with the aim of making people self-reliant through cross sectoral development interventions in areas like Health, Livelihood Promotion, Natural Resource Management and others. As having experience of working in 10 different states of India named Jharkhand, Bihar, Chhattisgarh, Uttarakhand, Meghalaya, Sikkim, Manipur, Assam, Nagaland and Orissa covering more than one million populations through different programs applying people's participatory approach.

Citizens Foundation believes that self-reliance is a sustainable way to empower of the poor and marginalized and its vision and mission is based on strong principles adapted to the rural setting, community ownership and grassroots entrepreneurship. The model encompasses different modes like Public Private Partnership (PPP) with the Developmental Partners, which include the Government of India, different State Governments, UN Agencies, Bilateral and Multilateral

Agencies, Public Sector Undertakings (PSU's), Corporate Houses, National & International Trusts, Foundations and Educational Institutions.

Citizen Foundation is implementing the Holistic Rural Development Program (HRDP) in villages situated at Hajo and Rangia Block of Kamrup district of Assam from 2019 to 2023 with the support of HDFC Bank CSR Parivartan. The project thematic area covers all aspects of Natural Resource Management, Skill Training and Livelihood Enhancement, Health and Sanitation and Education to ensure the positive growth and development among the community members.

2 Research Design and Methodology

The impact assessment used a mixed method that includes both qualitative and quantitative methods to assess the impact of the project interventions. The impact assessment process was carried out in a consultative manner, engaging with key stakeholders involved in the project design and implementation such as HDFC Bank and Citizen Foundation.

2.1 Criteria for Assessment

For each thematic area, project activities accomplished by Citizen Foundation were identified from their project documents, reports and MIS that they submitted to HDFC Bank. The impact of those activities was assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness¹
- Sustainability

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

- a) Aligned with the state's plans and priorities for rural development.
- b) Relevant to the local needs of the most vulnerable groups.
- c) Convergence 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 project, the team established the values of outcome indicators for all four thematic interventions. The findings were assessed against these values through the identification of qualitative evidence and analysis of project outcomes (in light of variables identified in consultation with HDFC Bank). The team tried to understand whether and how the project impacted the lives of community members in the project areas. The findings from primary quantitative data were substantiated by the information gathered from discussions with the communities and beneficiaries, teachers, students, entrepreneurs, and local village-level institutions. The impact assessment was done after completion of the project period.

For the criteria of **sustainability**, the team studied the primary data to understand if the project has worked on strengthening the community's capacity, positioned appropriate institutional mechanisms to ensure sustainability, and if any of the activities or strategies adopted have been or could be replicated. By adhering to these sustainability criteria, rural development projects can ensure that they not only achieve their immediate objectives but also provide lasting benefits to the communities they serve. Sustainable development is about creating resilient systems that can adapt and thrive over time, making continuous improvements based on participatory and inclusive approaches.

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

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey that was conducted by the survey team consisting of six enumerators and one supervisor, with backstopping by one field coordinator. The primary quantitative data was collected using the Computer Assisted Personal Interview (CAPI) tool, and a mobile application was developed to collect data. The qualitative research included in-depth interviews (IDIs), Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) with project beneficiaries and secondary stakeholders such as the team members of Citizen Foundation, the HDFC Bank programme team, local leaders from the project area, etc. IDIs were conducted with the specific individuals who were recipients of the project. The qualitative research was conducted by the research coordinator.

Figure 2: An FGD in progress



Figure 3: Sampling Design diagram



Secondary data sources included Programme Log Frame (Logical Framework Analysis), project completion reports, year wise target vs achievements, programme implementation timelines,

beneficiary details, closure reports related to projects, communication, and documentation products, and other relevant reports and literature related to the project.

The outcome mapping and result chain development were undertaken in consultation with the implementing partner, HDFC team. Standardized key outcomes and indicators were identified for each thematic area (NRM, ST&LE, H&S, and PoE). Based on the standardized list of outcomes and outputs, the questionnaire was developed.

2.3 Sample Size and Distribution

From the ten villages of Kamrup district where the programme was implemented, beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from Citizen Foundation. 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. The inclusion of beneficiaries in all thematic areas were ensured. The target sample size across ten villages was 400, out of which 437 sample respondents were reached. The thematic area-wise sample covered was as follows;

Block Name	NRM	ST&LE	H&S	РоЕ	Total
Најо	263	241	24	85	613
Rangia	97	75	0	69	241
Total	360	316	24	154	854

Table 4: Sample distribution across thematic areas (N=437)

Qualitative data collection activities were carried out as a part of the study. These included interviews with various stakeholders such as teachers, students, farmers, livestock owners, beneficiaries of drinking water initiatives, agricultural farmers, weavers' group, hatchery group members, doctors and health workers, flood shelter committee, village communities etc. Additionally, FGDs were organised with different groups, including farmers, Women Enterprise Group (WEGs), Fishing farmer's group, and the general population. KIIs were also conducted with key figures like Women federation members, market shed group, those associated with the beneficiaries, along with a staff member from the project implementer.





collected for analysis reveals a gender distribution with males comprising 57.7 percent and females 42.3 percent of the total respondents. In terms of age demographics, the majority of respondents, totaling 92 percent, fall within the 26-65 years bracket. Young adults aged 18-25 years constitute a smaller yet notable portion at 5.3 percent, while individuals above 65 years of

age represent 2.75 percent of the sample. This distribution provides a clear snapshot of the demographic makeup of the sample, highlighting a predominance of middle-aged adults and a balanced gender representation, which are essential factors for any further detailed analysis or interpretation of the data.

The majority of respondents, accounting for 49 percent, reported living in Katcha houses,

characterized by temporary or makeshift structures. Semi-pucca houses, which typically combine temporary and permanent materials, represent 23.5 percent of the surveyed population. Pucca houses, known for their permanent and durable construction, make up 27.5 percent of the housing types reported.

The survey data highlights significant insights into drinking water access patterns across Hajo



and Rangia blocks. A substantial majority, comprising 96.1 percent, rely on tube wells or bore wells for their drinking water needs, indicating widespread use of groundwater sources. Conversely, only a small fraction, 1.4 percent, access public or stand posts supplied by the government, underscoring potential gaps in public water infrastructure provision. Additionally, 1.6 percent of respondents utilize solar water pumps, reflecting a nascent adoption of sustainable water technologies in the region. Geographically, 69.85 percent of respondents are from Hajo block, while 30.2 percent are from Rangia block, indicating a higher concentration of survey participants in Hajo.

2.4 Training of Enumerators

A gender balanced survey team consisting of six local enumerators and one supervisor were recruited with the 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.



Image 1: Training of field team held at Hotel President, Assam

Image 2: Mock practice by field team in No. 1 Bagda village, Hajo



3 Review of Project Planning and Implementation

The planning and implementation of the project involve five stages: selection of the project area viz., district, block, village etc., selection of thematic areas and interventions; approval of budget; project implementation; and monitoring and evaluation. A review of each of these stages is explained below.



3.1 Selection of Project Area

Kamrup is an administrative district in the Indian state of Assam. The present Kamrup district with it headquarter at Amingaon has proved to be an exemplary and model civil district. It came into being on 31st day of March 2003 with great promises with alacritous drive to go ahead. The area the district covers is about 2740 sq. km. The population of the district, as per the census report of 2011 is also stated to be 1,517,542 with the literacy rate of 75.55 percent. Kamrup district has 1027 villages, administered under twelve revenue circles.

Figure 6: Area covered under the study



Density of population is 489 person per square km. Sex ratio is 949 females per 1000 males. Average literacy rate is 75.55 percent, male literacy rate is 81.30 percent and that of female is 69.47 percent. According to 2011 census, Out of the total population, 90.62 percent population of Kamrup district lives in rural areas of villages. Total population living in rural areas is 1,375,148 out of which 706,140 are male and 669,008 are female. Sex ratio in rural areas is 947 females per 1000 males. In rural areas of Kamrup district, literacy rate is 74.21 percent, male literacy rate is 80.10 percent and female literacy rate is 67.96 percent. Kamrup district has 12 Revenue Circles and 14 CD Blocks which comprises 1068 village including 31 uninhabited villages as per 2011 census.

According to 2011 census, Rangia CD block has a total area of 186.98 square kilometers. Total population of this block is 132,000 out of which 68,583 are male and 63,417 are female.

According to 2011 census, total area of Hajo CD block is 251.17 square kilometers, total population is 193,980 out of which 99,920 are male and 94,060 are female.

The district falls under Brahmaputra river basin. The district has large reservoir of water resources with the river Brahmaputra and its tributaries of Puthimari, Bornoi, Nona, Kulsi, Pagladiya and Kalajal. The rivers also act as reservoir for fisheries. The district has a total of five registered river fisheries along with 20 registered beel fisheries.

The district experiences heavy annual rainfall in the range of 1500 mm to 2600 mm. As the soil in the Eastern Himalayan region is highly susceptible to erosion, top soils of the hills gets washed away and are deposited in lower reaches. Due to rolling nature of the plain especially towards western part of Guwahati sub-division, some pockets are prone to gully erosion. The natural depressions and low-lying areas are still un-claimed causing water stagnation in most of the eastern part of the valley mainly in Chandrapur block.

Construction of farm ponds for storage of excess rainfall and using the same for providing critical irrigation during dry spells with user charges have significant opportunities for creating minor irrigation potential in the district. The district approximately shares six percent of the usable ground water resources in the State of which 18 percent is usable for drinking water purpose.

3.2 Selection of Thematic Areas and Interventions

The Parivartan project under HRDP focusses on four thematic area such as NRM, ST&LE, H&S, PoE. By enhancing NRM activity it contributes improvement of agricultural productivity, irrigated land and organic farming. by focussing on health and education to improve overall quality of life, reduced health care disparity and empower community through education and by fostering skill development and livelihood, enhance income generation capability and promote economic residence among community members. Overall, this project integrates these thematic areas to achieve sustainable development Goals. Empower communities and create long term positive impact in a socio-economic status of the region it serves. During the project period, flood in the year 2021 and Covid-19 which was non-planned activity during the project period but taken up during the implementation of the project as its unavoidable.

Activity Category	Activities	Output
		Indicators
Irrigation Management	Installation of solar based pump for irrigation	Income from
Farm Management	Preparing organic manure, Crop diversification,	agriculture
	Backyard kitchen, renovation of pond, SRI model,	Farm productivity
	agricultural tool bank, grain storage, Oil seed	increases
	cultivation,	
Clean Energy	Installation of solar street lights, solar lamps for	Clean energy
	students, solar roof top photovoltaic systems, solar	
	irrigation, solar based drinking water supply system.	
	ST&LE	
Agriculture Training	Agricultural Resource Centre, Thresher house, Tool	Access to
and Support	Bank, Vermi compost pit, farm field school,	Agriculture
		Training and
		Services

Table 5: Activities under four thematic areas

Women Empowerment	Women Enterprise Group formed, trained, Promotion of small and micro enterprises	Skill and Entrepreneurship Development	
Skill Training	Training and awareness programme, exposure of VDC and weaver group and hatchery fishing farmers,	Development	
Livestock Management	Livestock Management		
	H&S		
Drinking Water Management	Community overhead tank with solar pump	Clean drinking water	
Kitchen Garden	Nutritious food		
	РоЕ		
Educational Institutions Development	Installation of smart class room, BaLA painting, School library development, furniture, Teaching Learning Materials, Renovation of schools and AWCs	Infrastructure in Educational Institutions	
	Disaster Management		
Infrastructures in Disaster Management	Construction of high raised platform, community flood shelter, solar street lights, toilet facilities for men and women, space for cattle,	Infrastructure in community stay during flood	

Each category has been further broken down into sub-categories and activities, along with the focus beneficiary types (refer Annexure A).

3.3 Project Implementation

Project Parivartan is an initiative under HDFC Bank's Holistic Rural Development Program (HRDP) aimed at fostering sustainable socio-economic development in rural areas. Below are the key implementation objectives of Project Parivartan:

Increase household incomes by diversifying livelihood opportunities through improved agricultural practices, micro-enterprises, and vocational training. Facilitate better access to markets to ensure fair pricing and profitability for rural produce and products. Introduce and train farmers in advanced agricultural practices and sustainable farming methods. Encourage crop diversification to increase resilience against market and climatic fluctuations.

Under H&S, increase access to medical services through health camps, and improved healthcare infrastructure focusing on nutrition, maternal health, and preventive care.

Under ST&LE, the programme led emphasis on creating entrepreneurship opportunity among the beneficiary individually and groups, activities included installation hulling machine, fodder unit, Handloom weaving centre, fish farming and hatchery unit etc.

Under PoE, renovation work was carried out at Anganwadi's and primary schools. Building as Learning Aid (BaLA) paintings were undertaken to assist in the learning of the students. Build and upgrade school infrastructure to provide a conducive learning environment. Provide educational learning materials, and digital literacy programs to support students.

The implementing partner positioned a dedicated team of professional that was responsible for project implementation. They also inducted community level functionaries for mobilising communities and helping them in implementing project activities. For this, the partner agency formed a Cluster Development Committee (CDC) at apex level for selecting and finalising the beneficiaries for different activities for individual and group levels after due consultation with the Village Development Committee.

3.4 Monitoring and Evaluation

The monitoring and evaluation (M&E) process of Project Parivartan under HDFC Bank's Holistic Rural Development Program (HRDP) is a comprehensive approach designed to ensure that the project's objectives are met effectively and sustainably. This process begins with the establishment of a robust monitoring framework that outlines key performance indicators (KPIs) aligned with the project's goals across various sectors, such as agriculture, healthcare, education, and infrastructure. Regular data collection is conducted through field visits, surveys, and community feedback mechanisms to track progress against these KPIs.

In addition, the program implementation team of Citizen Foundation and HDFC Bank visit 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 periodically contacts the relevant implementing partner to ask specific questions about the project implementation. Impact evaluations are conducted at defined intervals, typically mid-term and post-completion, to assess the long-term effects and sustainability of the interventions. These evaluations utilize both quantitative and qualitative methods to measure changes in socio-economic conditions, health, education, and overall quality of life. Feedback from these evaluations is crucial for making necessary adjustments to the project strategy and implementation methods.

To maintain transparency and accountability, periodic progress reports are prepared and shared with stakeholders, including local communities, government bodies, and partner organizations. These reports highlight achievements, challenges, and areas needing improvement, ensuring that all parties remain informed and engaged. Additionally, participatory monitoring practices involve community members in the data collection and review process, fostering a sense of ownership and responsibility for the project's outcomes.

Every week, planning and review meeting at grassroot level organised for smooth running of the project. Three Cluster Development Committee (CDC) formed in ten villages to smoothly monitor the project progress. Many projects selected and decided by the beneficiary as well as committee for ancestral running business for increase their profit sharing. Every activity whether it is individual or group enterprise there is an agreement between the citizen Foundation (partner agency) and the beneficiary/ group due concurrence of HDFC.

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 information that provides a summary of the activities implemented, outputs delivered, and outcomes achieved. In addition, the HDFC Bank hired Intellecap as an external agency to conduct an impact assessment of the project after one year of completion. This is an independent assessment that was evaluated using four criteria: relevance and convergence, impact and effectiveness, sustainability, and replicability. This is backed up by the creation of a Holistic Rural Development Index (HRDI) based on selected outcome indicators. The impact of each activity has also been calculated and classified as high, medium, or low impact. The **Annexure C** goes into greater detail on these.

In summary, the M&E process of Project Parivartan is designed to be iterative and adaptive, ensuring continuous improvement and sustainability. It emphasizes transparency, community involvement, and capacity building, enabling the project to achieve its goals and create lasting impacts on rural development.

4 Study Findings

This chapter explores findings from the four thematic areas. First, it examines Natural Resource Management, including irrigation, agricultural income, crop diversification, and clean energy. Next, it assesses Skills, Training, and Livelihood Enhancement, focusing on agricultural training, economic empowerment, and entrepreneurship. The Health & Sanitation section covers drinking water management, and kitchen garden. The Education section reviews infrastructural developments like BaLA in schools. The final chapter addresses disaster management, including flood infrastructure and COVID-19 support. Each section includes impact observations and case studies.

4.1 Demographic profile

This section provides a detailed socio-economic profile of respondents from ten villages in Kamrup district, Assam. The study reveals that agriculture and non-agricultural businesses are the primary sources of livelihood in the area. Specifically, 80.8 percent of respondents are engaged in non-agricultural businesses, underscoring the diversification of economic activities. Agriculture remains significant, with 69.3 percent of respondents involved in farming, reflecting the rural agrarian nature of the region. Additionally, a substantial portion, 62 percent of respondents, work as wage laborers, highlighting the reliance on manual labour for income generation. Livestock management is also prevalent, with 61.3 percent of respondents involved in this activity, indicating the integrated nature of agriculture and animal husbandry in their livelihood strategies. This socio-economic profile offers insights into the diverse economic activities and livelihood strategies within the study area, crucial for understanding community dynamics and development priorities.



Figure 7: Distribution of sample based on their occupation (N=437)

This section presents a breakdown of the educational profile of respondents from the sample in Kamrup district, Assam. The data shows a diverse range of educational attainment levels among the respondents. A significant portion, 31.8 percent, have completed their education up to the 9th

or 10th standard, reflecting a moderate level of secondary education. Additionally, 15.8 percent have completed upper primary education (6th to 8th standard), while 18.1 percent have primary education (up to 5th standard). Higher educational attainment levels, such as graduates and post-graduates, represent a smaller percentage, with less than 1 percent being post-graduates and 1.8 percent graduates. A notable portion, 8.2 percent, of the respondents are illiterate, indicating ongoing challenges in educational access and attainment. This educational profile provides valuable insights into the educational background of the community, highlighting both achievements and areas needing improvement in educational outcomes and opportunities.





A significant portion of the population belongs to Scheduled Castes (SCs), with 70.7 percent identifying as such. This highlights the project's focus on marginalized and historically disadvantaged communities. Additionally, 20.6 percent of the respondents are from the general category, indicating some diversity within the participant group.

Regarding economic status, a substantial majority of 88.1 percent of respondents hold Below Poverty Line (BPL) cards. This indicates that most participants are from economically weaker sections, underscoring the project's aim to uplift the poorest in rural areas. Furthermore, 11.7 percent of the respondents possess Antyodaya Anna Yojana (AAY) cards, which are provided to the "poorest of the poor" households. This emphasizes the extreme poverty of a significant segment of the beneficiaries.

Less than one percent of the respondents do not have any ration cards, reflecting the high level of coverage and outreach of public distribution system (PDS) benefits among the surveyed

population. This small percentage without ration cards suggests either recent economic improvements or gaps in reaching the last mile beneficiaries.



Figure 9: Caste and income categorisation sample (N=437)

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.

Activity Category	Activities
Irrigation Management	Installation of solar water pump for irrigation
	Agricultural Resource Centre (ARC)
	Pond renovation
	Farm Model
	Horticulture
	Formation of farmers group
Farm Management	Vermi compost
	Oil seed
Clean Energy	Solar lights (street)
	Solar Lamp for students
	Photovoltaic panel
Agriculture Training and	SRI model
Services	Exposure visit
Skill and	Women Enterprise Group (WEG)
Entrepreneurship	Weaver group
Development	Fishing Boats
	Tailoring institution
Livestock Management	Goatery
	Piggery
	Fish farming
	Poultry
	Lat fish farming
	Ell Fish farming
	Bee Keeping
	FISH Hatchery
	Di uni anu net jai Papar crockery unit
Health	Health camp
iicaiui	PHC renovation
	Sub-centre renovation
	Vaccination through hicycle and globes
Kitchen Garden Devt	Training given and seed sunnort

Table 6: Quantum of activities under each activity category of four thematic areas

Activity Category	Activities
Drinking Water Mgt.	Community overhead drinking water system with solar pump
Educational Institutions Development	Installation of smart class room BaLA painting Digital learning Centre Renovation of Schools Renovation of Anganwadi Centres Safe drinking water

(Source: Project MIS from Implementing Agency)

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

4.2 Natural Resource Management

The NRM interventions aimed to enhance crop productivity, increase farmers' agricultural income, improve access to farm management infrastructure and irrigation mechanisms, and promote the adoption of clean energy solutions. Strategies such as sustainable agricultural practices, and irrigation improvements positively impacted soil fertility, water management, and overall economic well-being. By implementing efficient farm management infrastructure and irrigation mechanisms, tool banks, farm field schools, the project contributed to optimized resource use and increased crop yields. Additionally, efforts to raise awareness and adoption of clean energy solutions such as solar pumps for irrigation further aligned with sustainable agriculture practices, enhancing the overall resilience of the study area.

4.2.1 Income from Agriculture

The implemented initiatives have yielded a favorable influence on the farmers' income generation capabilities. Before the intervention, the average input cost was INR 6,637.30, with a median value of INR 4,500. After the intervention, it increased to INR 7,262.70 and INR 5,000, respectively. Similarly, the average gross income before the intervention was INR 24,209.00, with a median value of INR 16,000.00, whereas post-intervention, these figures increased to INR 35,746.30and INR 30,000.00, respectively. Net income also saw an upward trend, with the **average rising from INR 17,572 before the intervention to INR 28,484 after**, and the median value rising from INR 10,000 to INR 15,000.

The interventions under Project Parivartan have resulted in increased input costs due to better farming practices, which in turn have led to substantial increases in gross and net incomes for farmers. This positive impact underscores the success of the project in boosting the economic well-being of rural farmers.



Figure 10: Income from agriculture (N=303)

The alteration in farmers' income-generation capacity is attributed to several factors. Foremost among these is the accessibility of irrigation water and establishment of agricultural resource center and tool bank. Essential elements like training, organic manure promotion, orchards and diversification of crops have significantly elevated their income and livelihood prospects.



Figure 11: Interventions that contributed to increase in agriculture income (N=303)

The project interventions had diverse impacts on increasing agricultural profits. Notably, providing seeds was the most effective, with 39 percent of respondents reporting profit increase. Training on the System of Rice Intensification (SRI) model also had a significant impact, with 30.5

percent of respondents noting improvements in their profits. Floriculture followed closely, benefiting 25.4 percent of the participants. The provision of agriculture equipment helped 22 percent of respondents enhances their profits. Solar irrigation and the agriculture tool bank both had a moderate impact, each reported by 10.2 percent of respondents. Other interventions, including horticulture, crop diversification, and the use of fertilizers, had a lower impact on profit increases, with fewer respondents noting significant improvements.



Figure 12:Produtivity per acre (crop-wise)

The principal crops cultivated in the study area include paddy, mustard, maize, and flowers. With the expansion of irrigated land and training programs, farmers have increasingly adopted flower cultivation as a second crop. Quantitative analysis showed significant improvement in productivity per acre of these crops post-intervention. For paddy, the mean productivity increased from 1336.42 kg to 1543.39 kg per acre, and the median rose from 1200 kg to 1500 kg per acre. Mustard's mean productivity increased from 407.89 kg to 463.52 kg per acre, with the median rising from 450 kg to 480.94 kg per acre. Maize saw a substantial increase in mean productivity from 181.82 kg to 454.55 kg per acre. For flowers, the mean productivity surged from 524.99 kg to 846.04 kg per acre, and the median increased from 447.76 kg to 709.28 kg per acre. These findings suggest that the interventions positively impacted crop productivity, leading to significant improvements in agricultural output.

Figure 13: NRM structure for irrigation (pond renovation)



4.2.2 Use of Clean Energy Solutions

In consultation with village development committees, 100 solar street lights have been installed across ten villages, strategically placing them in areas with common public infrastructure and high foot traffic. This initiative aimed to provide access to clean energy solutions and enhance safety and mobility for villagers, especially at night. Additionally, 200 solar home lights were distributed in the same ten villages, particularly targeting students. This effort aimed to address the issue of evening power cuts, ensuring that students without electricity provision could continue their studies uninterrupted.

After the intervention, **76.9 percent of households reported accessing the clean energy solution significantly enhanced their quality of life. The introduction of solar street lights has had a notable positive impact, with 90.7 percent of the installed lights currently functional** and providing continuous illumination throughout the night. This operational efficiency is crucial for meeting the safety and mobility needs of the villagers. Although the villagers assumed responsibility for maintaining the solar street lights, they faced challenges in procuring spare parts and accessing technicians, which has created some obstacles in ensuring consistent maintenance.



Figure 14: Benefits of Solar Street Lights (N-305)

The study yielded overwhelmingly positive feedback regarding the advantages of solar street lights. Specifically, 97.9 percent of respondents noted feeling safe from nocturnal wildlife, such as snakes, while 98.8 percent emphasized enhanced safety for women. Additionally, 99.1 percent expressed newfound freedom of movement at night, which had previously been constrained by insufficient lighting, thereby nurturing social and economic opportunities for villagers. Despite these successes, there remains room for improvement, particularly in ensuring the ongoing functionality of all installed lights. Moving forward, prioritizing maintenance and promptly addressing operational issues are essential steps to sustain the positive impact on the communities.



Figure 15: A solar light installed in the project village

4.2.3 Impact Observations



Figure 16: Level of Impact - NRM

Under the NRM program, access to farm management and adoption of clean energy has shown a medium impact. Significant progress has been made with the land and crop productivity which have had a high impact. However, land under irrigation and crop diversification has shown a low impact due to many farmers still practicing traditional rain-fed agriculture. Further limited investment in irrigation infrastructure and lack of necessary knowledge and skills of farmer to implement irrigation techniques effectively or to manage diversified crops affect the crop diversification. Increasing climate variability and unpredictable weather patterns create additional challenges for irrigated agriculture and crop diversification.

Despite this, qualitative studies reveal that the availability of water has enabled farmers to harvest two to three crops per year, highlighting an important benefit of the program. This increased cropping frequency suggests potential long-term improvements in productivity and farm incomes, even if immediate quantitative gains are modest.

4.3 Skill Training and Livelihood Enhancement

The project interventions focused on uplifting women and farming communities. This included leveraging advanced technology and resources in activities such as bio-flock fish farming, crop demonstrations, and visits to demonstration plots. By equipping individuals with relevant skills and knowledge, these initiatives aim to enhance productivity in agriculture and create sustainable livelihoods within these communities.

4.3.1 Access to Agriculture Training and Services

Interventions include vermicompost production, pond renovation, crop diversification, and training farmers in the System of Rice Intensification (SRI) model. Additionally, an agricultural resource centre has been established to provide seeds and other necessary resources. For

instance, selected farmers in ten villages engaged in cattle ownership and vegetable cultivation were equipped with vermicompost pits and training on organic manure production. This initiative empowered farmers to produce high-quality manure, leading to enhanced crop yields and reduced reliance on chemical fertilizers.

A comparative study was conducted to assess crop production using organic manure versus chemical fertilizers, revealing similar yields. However, the long-term impact on soil health and sustainability favours organic practices, as chemical fertilizers can lead to soil degradation over time. Furthermore, the HRDP has implemented farm field schools and model plots to demonstrate crop diversity and enhance farming practices. Additionally, the establishment of a thresher house facilitates the safe storage of grains during inclement weather and efficient paddy harvesting. These initiatives collectively aim to improve agricultural productivity, sustainability, and resilience in the communities served by the program.





The data illustrates varied responses among respondents regarding the adoption of agricultural practices before and after interventions. Before the interventions, a majority of respondents were already engaged in applying organic manure (66.1 percent) and timely use of fertilizers and insecticides (72.9 percent). After intervention it becomes 74.6 percent and 66.1 percent respectively. However, adoption rates for conservation agriculture practices slightly decreased from 50.8 percent to 45.8 percent shows both conservation agriculture and crop diversification require specific knowledge and skills which may not be adequately disseminated to farmers suggesting a mixed response to interventions targeting this area. Conversely, there were no reported changes in adoption rates for constructing vermicompost pits, setting up green nets, participating in farm field schools, and exposure visits. This suggests a potential gap in promoting these practices effectively or addressing barriers to adoption. Notably, the percentage of respondents reporting no practice or not remembering decreased to zero after interventions, indicating improved awareness and retention of the implemented practices. Overall, while certain agricultural practices showed significant improvement post-intervention, others remained

stagnant. This highlights the importance of tailored approaches to effectively promote and implement sustainable agricultural practices within the community, addressing specific barriers and enhancing engagement where necessary.



Figure 18: Perceived improvements due to adoption of agricultural practices (N=76)

The adoption of agricultural practices has yielded perceived improvements across various aspects of farming, according to respondent feedback. The most notable benefit reported was an increase in productivity (62.7 percent), acknowledged by a significant percentage of respondents, indicating that implemented practices have effectively boosted farm output. Moreover, a substantial proportion reported an increase in income (86.4 percent), highlighting a direct link between agricultural practice adoption and economic gains. Reductions in input costs (25.4 percent) and improvements in soil health (13.6 percent) were also recognized, underscoring the multifaceted benefits of sustainable farming techniques. However, challenges remain evident in pest management, with a relatively low percentage of respondents reporting improvements in this area (27.1 percent). This suggests ongoing challenges or limitations in effective pest control strategies within the implemented practices. Additionally, while ease of farming was noted as an improvement by some respondents (30.5 percent), indicating potential benefits in labor efficiency, this aspect did not see as high a recognition as productivity and income gains. Overall, while the data reflects positive outcomes in terms of increased productivity, income generation, and sustainability through agricultural practice adoption, it also highlights the need to address challenges such as pest management to optimize the overall impact on farming communities.

4.3.2 Access to Skill and Entrepreneurship Development

Under HDFC Bank's HRDP, significant efforts have been made to empower women through bank linkages and enterprise management initiatives. As part of this program, various groups were formed, including those focused on weaving, piggery, goat rearing, floriculture, hattery, and paper crockery. Members of these groups received extensive training and support to develop and manage their enterprises. Several ventures emerged as examples of entrepreneurial courage, such as fodder units, hulling machine units, paper crockery units, weaving centers, fishery hatching units, goat rearing, piggery, and bio-floc units for fisheries. HDFC Bank played a pivotal role by providing essential machinery, training, and ongoing guidance to ensure the success of these ventures. These activities have not only empowered women but also diversified their income streams significantly. The introduction of the bio-floc unit, which represents a novel concept in the area, received specialized training and support to enhance its effectiveness. Overall, these initiatives under HRDP have not only promoted economic independence among women but also fostered innovation and sustainable livelihood practices within the community.



Figure 19: Proportion of HHs supported in Enterprise Development (N=295)

Under the HRDP in Kamrup district, the Citizen Foundation has implemented several initiatives to support community enterprises, including establishing market sheds, providing training in modern technologies, offering financial support, and constructing infrastructure tailored to local demand. The foundation also facilitated the formation of entrepreneurial groups, supported the opening of bank accounts, and promoted sustainability practices within businesses.

The initiative has demonstrated significant benefits, with 66.1 percent of respondents indicating improved knowledge regarding production techniques. Moreover, 56.6 percent of respondents reported receiving training in business management, highlighting the program's positive influence on entrepreneurial skills and knowledge within the community.

However, the data also identified areas where impact has been minimal. Only 4.1 percent of respondents reported having bank linkages, indicating limited access to financial resources critical for business growth. Similarly, 3.4 percent noted receiving initial capital investment, while 3.1 percent mentioned the establishment of enterprise groups, suggesting room for improvement in fostering collaborative business efforts. Furthermore, less than 1 percent reported receiving areas needing additional attention to enhance market reach and sustainability.

In conclusion, while the HRDP initiatives have successfully enhanced production knowledge and business management skills, there is a clear need to strengthen efforts in securing financial support, fostering collaborative enterprises, and expanding market opportunities to maximize economic empowerment and sustainability in the Kamrup district community.





Under the HRDP in Kamrup district, the Citizen Foundation has conducted a series of skill development trainings aimed at fostering individual and community-level livelihood activities. The initiative has yielded significant benefits, with 87.4 percent of respondents indicating that the training enhanced their skills for self-employment. Moreover, 70.5 percent of respondents reported increased confidence in establishing their own enterprises, underscoring the program's impact on entrepreneurial spirit within the community.

However, the data also revealed minimal impact on job placement, with only 2.5 percent of respondents citing increased awareness of job opportunities and less than 1 percent reporting improved confidence in job applications. This suggests a need for further efforts to bridge the gap between skill development and traditional employment opportunities.

Overall, the skill development initiatives under HRDP have proven effective in equipping individuals with the capabilities needed for self-employment and entrepreneurship. Moving forward, focusing on enhancing job placement strategies and bolstering confidence in seeking traditional employment could further maximize the program's impact on economic empowerment in Kamrup district.

4.3.3 Improved Capacity to Generate Income Through Livestock Management:

A comprehensive range of initiatives aimed at improving livestock management were diligently implemented across the project villages by the Citizen Foundation. These interventions, viewed from a researcher's perspective, yielded significant outcomes. The Citizen Foundation trained a total of 268



villagers and facilitated the establishment of fish hatchery units, goat farming, and piggery units to ensure the sustainability of these enterprises. Each beneficiary received financial support for raw materials such as bricks, cement, cement sheets, iron doors, and netting for building shelters and farms. Additionally, they received animals like pigs and goats from the foundation.

The objective was to establish farms in each village from which other villagers could purchase livestock at reasonable prices, enabling farmers to make a profit. Furthermore, the Citizen Foundation trained approximately 157 beneficiaries in goat rearing as a supplementary income source. To establish goat farming as a viable secondary income stream, the organization provided comprehensive training in fodder, health, and shelter management. As a result of these efforts, it was observed that after four years, on average, each beneficiary possessed more than one goat or fish tank for reproduction or sale.

Additionally, the establishment of a feed mill by the organization supported the community by providing animal feed at marginal rates, ensuring its availability locally. These initiatives collectively enhanced livestock management practices and contributed to the economic empowerment of the villagers.





The primary benefits gained from livestock management activities in Kamrup district vary between fish, pig, and goat farming, as evidenced by the respondents' feedback. Goat farming has

emerged as particularly lucrative, **with 92.3 percent of respondents reporting a substantial increase in income.** Additionally, 69.2 percent of respondents noted a commendable increase in production, indicating higher yields in goat farming. Fish farming has also proven beneficial, with 84.1 percent of respondents reporting increased income through livestock activities. Moreover, **71.2 percent of respondents noted an increase in household savings**, and 39.4 percent reported an increase in production. These figures suggest that fish farming contributes significantly to financial stability and savings for the households involved. **In pig farming, 40 percent of respondents noted an increase in household savings**. However, 20 percent of respondents identified a lack of market information as a significant challenge in pig farming. This indicates a need for better market access and information to maximize the benefits of pig farming.

Despite these positive outcomes, challenges persist across all three types of farming. Less than 10 percent of respondents reported improvements in livestock health and product quality, highlighting ongoing issues with livestock health and mortality rates. Furthermore, only one percent of sampled goat farmers reported improved access to market information and livestock management experts, indicating limited support in these areas. Additionally, there is no insurance coverage for these livestock management activities, which poses a risk to the farmers' investments.

Overall, while goat, fish, and pig farming have significantly improved income and production for many farmers, there are critical areas that require attention, including livestock health, market information access, and insurance coverage, to ensure the sustainability and further growth of these enterprises.



Figure 22: Type of project services received for different livestock (Goat N=157, Pig N=13, Fish N=204)

The survey data highlights a significant disparity in the types of project services received for goat, pig, and fish livestock. 84.6 percent of the respondents received goats from the project intervention followed by household vaccination services at 7.7 percent. Additionally, livestock

management training is highly sought after, with 60 percent of respondents participating, indicating a strong interest in improving husbandry practices and maximizing productivity. Animal shelter support is also nearly universally utilized, underscoring its crucial role in maintaining animal health and well-being. However, services such as insemination camps and fodder development support show minimal to no uptake, pointing to potential areas for improvement or resource reallocation.

In contrast, pig owners predominantly rely on household vaccination services, with 20 percent of respondents indicating their usage. Livestock management training, did not take off among pig owners indicating a gap in the area. The reasons for this are pig owners may not be aware of the availability or importance of livestock training programs or pig owners might not see the direct benefits of attending training sessions. They might prioritize immediate economic needs or believe they already possess sufficient knowledge through traditional practices. The uptake of other services, such as livestock health services and awareness generation campaigns, is also notably lower.

These findings emphasize the need for tailoring project services to the specific needs and preferences of each livestock sector. For goat farming, there is a clear demand for vaccination and management training, while pig farming requires more focus on increasing the availability and uptake of training and health services. Addressing these gaps through targeted interventions will enhance overall livestock welfare and productivity, ensuring that the support provided aligns more closely with the needs of the farmers.



Figure 23: Average monthly income from livestock in INR

The research highlights a substantial rise in the average income derived from livestock before and after a specified timeframe. The data reveals an increase from INR 2454.50 to INR 5227.30, indicating a noteworthy 112.5 percent improvement. This growth implies a beneficial outcome restricting from interventions or alterations implemented within the livestock sector. These interventions could encompass enhanced management

strategies, improved breeding techniques, or better access to markets.



Figure 24: Benefits gained through project support for enterprise development (N=295)

The survey data reveals that the project has had a significant positive impact on the income and economic stability of the respondents. A substantial **90.2 percent of respondents reported an increase in income due to the project, indicating its effectiveness in enhancing financial outcomes for participants. Furthermore, 73.6 percent of respondents mentioned that they now have regular income generation, underscoring the project's role in providing steady financial support.**

In addition to income increases, 69.2 percent of respondents indicated a rise in their savings, reflecting improved financial management and security. Moreover, 22.4 percent of respondents noted that they have gained an additional source of income for their households, highlighting the project's success in diversifying income streams and reducing financial vulnerability.

Business skill development was reported by 28.8 percent of respondents, suggesting that the project has also played a crucial role in enhancing entrepreneurial skills and knowledge. Furthermore, 20.7 percent of respondents stated that they have expanded their businesses, demonstrating the project's contribution to business growth and development.

In conclusion, the project has substantially improved income levels, financial stability, and business capabilities among respondents, with significant increases in regular income, savings, and business development being key outcomes. These results underscore the project's effectiveness in fostering economic empowerment and resilience within the community.

The implementation of the Parivartan project has led to significant improvement in the financial outcomes of the enterprise activities. Before the project's initiation, the average monthly income from enterprises was at INR 4663.5. However, upon completion of the project, this average monthly income rose significantly to INR 7414.5.

This substantial increase in income highlights the project's effectiveness in enhancing the profitability and sustainability of livestock enterprises. The Parivartan project has evidently played a crucial role in empowering participants by providing the necessary resources, training, and support to optimize their livestock management practices. Consequently, this has led to a marked improvement in their economic stability and overall quality of life.

4.3.4 Impact Observation



Figure 25: Level of Impact – ST & LE

The data highlights positive trends in several key areas, particularly in the adoption of improved farming practices and scientific management of livestock. Farmers have increasingly accessed agricultural training and services, leading to significant advancements in their skills and practices. This enhanced access has not only improved employable skill development but also fostered entrepreneurship within the community.

The adoption of scientific management practices in livestock farming has contributed to better productivity and sustainability. Training programs have equipped farmers with the knowledge and skills needed to implement modern techniques, resulting in more efficient and profitable farming operations.

Overall, these trends indicate that the initiatives aimed at enhancing agricultural practices and livestock management have successfully empowered farmers. The focus on skill development and entrepreneurship has provided farmers with the tools necessary to improve their livelihoods and contribute to the local economy.

4.3.5 Case Study: From Threads to Triumph-The Empowered Women of Weaver Group

A village named Bagta 1of Hazo Block of Kamrup district in Assam, is traditionally known for its handloom weaving. A group of women from Self-Help Groups (SHGs) embarked on a transformative journey to establish their livelihood. The Citizen Foundation supported them under Parivartan project. This case study highlights their journey towards entrepreneurship and economic empowerment through weaving.

The village has a rich history of weaving, with many households engaged in the craft for generations. However, weaving was largely for personal use and not as a significant source of income. Upon learning about the initiatives by The Citizen Foundation under HDFC's HRDP, around 200 women from 100 SHGs expressed interest in formalizing their weaving skills into



a sustainable livelihood. Under the leadership of a women SHG member named Laxmi Medhi the women are involved in mobilising the community for active participation.

The initiatives taken by the Citizen Foundation were formation of a cluster committee of 10-12 women to help them carry forward their interest in weaving. Citizen Foundation provided them training about the advanced weaving techniques. They also gave them modern weaving machines to earn their livelihood. They needed a place to work and Citizen Foundation also helped in solving this problem as they renovated the village community hall and transformed it into a dedicated weaving centre named 'Laxmi Hata Tanta' and was well equipped with necessary infrastructure for production.

The women primarily weave items such as Gamuchha (traditional towels), Handkerchiefs, Mekhla Chaddar (traditional Assamese attire), Bags, and Staules. They established an outlet offering their products at prices 20 percent lower than market rates, ensuring competitive pricing and steady demand. Products were showcased at exhibitions in states like Tripura and Rajasthan, expanding their customer base and market reach. Around 50 to 60 numbers of women working regularly in the weaving centre and earning individually Rs. 3,000 to Rs. 5,000 per month, their income spikes by 40-50 percent during festival seasons. Weaving has become a reliable source of income, contributing significantly to their household finances. The group also faces some challenges because of natural calamities as the village is prone to floods, which severely affected the weaving center during the 2022 floods. The group aims to develop the center into a comprehensive weaving training facility, nurturing future generations of weavers and expanding their product range. Efforts are underway to address flood-related challenges, possibly relocating equipment or implementing flood-resilient infrastructure.

The journey of this weaver group exemplifies how grassroots initiatives can empower communities economically. By leveraging traditional skills and modern resources, these women have not only secured their livelihoods but also preserved cultural heritage and contributed to local economic growth.

4.3.6 Case Study: "Rising Tides- Empowering Scheduled Caste Communities through Fish Hatchery Innovation"

In the serene village of Dihina, nestled within the Hajo block of Kamrup district, Assam, a transformational journey began with the humble ambition of enhancing livelihoods through fish hatchery entrepreneurship.

Led by Nitul Sundar Das, a 26year-old with a passion for fish breeding, a group of young villagers came together to form the Mashya Dipjyoti Min Palan Samitee in 2021. Hailing from a scheduled caste community, they aimed to leverage their local expertise in fishery to create a sustainable business model.

Their aspirations gained momentum when HDFC's Parivartan project extended a helping hand. Recognizing the potential of the community, HDFC provided critical support in the form of infrastructure and technical training. This included a substantial water tank and a



borewell, significantly enhancing their operational capabilities.

Equipped with modern infrastructure and newfound skills from HDFC's training, the samity ventured into fish hatchery with zeal. They cultivated popular local fish species such as Rohu, Mirica, Lalta, Silica, and Kamalcurk in their newly established unit. Operating for 6-7 months annually, the hatchery unit became a focal point of their economic activities.

The impact was profound. The income generated from the hatchery unit saw a tenfold increase during operational months, compared to their previous earnings. This financial boost was evenly distributed among all members, fostering a sense of collective prosperity within the community.

Beyond economic gains, the venture catalyzed additional business opportunities. Surplus fish not only met local demand but also reached neighbouring villages, stimulating economic growth beyond village boundaries. This ripple effect underscored the broader impact of their initiative on local economic resilience and entrepreneurship. The success of Mashya Dipjyoti Min Palan Samiti's fish hatchery unit serves as a testament to the power of collaborative efforts in sustainable development. By combining traditional knowledge with modern support from corporate social responsibility initiatives like HDFC's Parivartan project, marginalized communities can achieve economic empowerment and resilience. The Mashya Dipjyoti Min Palan Samiti's fish hatchery unit exemplifies how strategic support from corporate social responsibility initiatives, such as HDFC's Parivartan project, can empower marginalized communities economically. By combining local knowledge with modern infrastructure and training, this initiative not only enhances livelihoods but also fosters community resilience and entrepreneurship.

4.3.7 Case Study: "Catching Success-Empowering a Female Farmer through Catfish Farming"

Nirala Das, a resilient woman residing with her family comprising two sons and a daughter—in a quiet village, faced a significant setback when her pig farming venture suffered due to disease outbreaks. Determined to turn her fortunes Nirala decided around. to transition her livelihood to catfish farming, leveraging her family's background in fishery.



Previously she was engaged in pig farming, Nirala encountered adversity when disease struck her livestock, causing a downturn in her family's income. This setback prompted Nirala to explore alternative livelihood options, leading her to reconsider her family's expertise in fishery. Recognizing the profitability and market demand for catfish, Nirala saw an opportunity to reinvent her livelihood. With a resolve strengthened by past experience, she embarked on a journey into catfish farming.

Nirala's aspirations received a crucial boost through HDFC's HRDP Project, which provided targeted support and resources: Nirala received assistance to construct a dedicated fish tank on her premises, essential for catfish farming. Benefiting from comprehensive training in catfish farming techniques and receiving essential supplies like fingerlings and fish feed from the Citizen Foundation, Nirala was equipped with the necessary tools to succeed in her new endeavour. Nirala's transition proved fruitful, yielding tangible economic and personal gains:

She now earns Rs. 16,000 every two months from selling catfish, marking a substantial increase in household income. This financial upturn enabled Nirala to enhance her family's standard of living, evident in her ongoing construction of a new home.

Beyond economic gains, Nirala's journey exemplifies broader social and economic empowerment Catfish farming not only boosted Nirala's income but also elevated her socio-economic status within the community, garnering respect and admiration. The training and capacity-building initiatives under HDFC's HRDP Parivartan project played a pivotal role in equipping Nirala with the skills and knowledge necessary to effectively manage her catfish farming enterprise.

Nirala Das's transition from pig farming to thriving catfish farming stands as a testament to



the transformative impact of targeted support and training initiatives on rural women's empowerment and economic stability. By leveraging her existing skills in fishery and benefiting from HDFC's support, Nirala not only rebounded from setbacks but flourished in her new venture. This case study underscores the critical importance of empowering female farmers through skill development and access to resources, ultimately fostering improved livelihoods and holistic community development. Nirala's success story serves as inspiration for others, demonstrating the potential for resilience and prosperity in rural communities through strategic interventions and supportive partnerships.

4.3.8 Case Study: "From Paper to Prosperity-Empowering Youth at Bhai Bhai Crockery Unit"

In the heart of a small village, nestled within the serene landscapes of Assam, seven young adults found themselves at a crossroads of unemployment and ambition. Aged between 25 to 30 years, these youths shared a common dream—to break free from joblessness and forge their



path as entrepreneurs. This dream materialized with the support of HDFC's HRDP project and the guiding hand of the Citizen Foundation. united under the banner of Bhai Bhai Crockery, the group embarked on a transformative journey. They received comprehensive training in the manufacturing of paper crockery, mastering machine operations, entrepreneurship development, and overall skill enhancement. Three members took charge of the unit's operations, armed with newfound knowledge and determination.

Armed with zeal and skills, Bhai Bhai Crockery began manufacturing paper plates and bowls sourced from raw materials procured from Guwahati Market. Their products quickly found favor among locals, especially during festivals, marriages, and various functions catered by local services. Despite initial success, the unit faced challenges in scaling production due to limited space in their small building. The impact on their lives was profound. The paper crockery unit provided a stable income stream, significantly enhancing their economic independence and improving their families' standard of living. Each member found pride in contributing to their household income and supporting their loved ones. However, challenges persisted. Despite strong

local demand, the unit struggled with limited marketing strategies, hindering their ability to realize full profit potential. They envisioned earning up to Rs. 1,00,000 annually with effective marketing - a goal that seemed within reach with the right strategies in place. Responding to market demands, the unit



expanded its product range beyond plates and bowls, adding glasses, cups, and smaller plates to their offerings. To fulfill orders comprehensively, they sourced these additional items from the market, showcasing their adaptability and commitment to meeting customer expectations. Looking ahead, Bhai Bhai Crockery recognizes the critical importance of enhancing their marketing efforts. They aim to establish robust marketing mechanisms to tap into higher revenue streams and sustain their growth trajectory. With continued support and infrastructure development under HDFC's HRDP project, they are poised to expand their operations and contribute further to local economic development. Bhai Bhai Crockery exemplifies the transformative impact of targeted support and training initiatives on unemployed youth, empowering them to become successful entrepreneurs. Their journey underscores the potential of grassroots entrepreneurship in uplifting communities and fostering economic stability. As they navigate challenges and seize growth opportunities, the unit stands as a beacon of hope, illustrating how dedication, skill development, and strategic support can pave the way for sustainable and impactful change in rural India.

4.4 Health and Sanitation

The project focused on improving the well-being of community members with awareness generation activities and sanitation infrastructure. A proportion of 11 percent households received hygiene related awareness sessions. Waste water soak pits were availed by 2.8 percent of the sample, whereas mobile van awareness campaign benefitted a proportion of 33 percent of the households. The project also took initiatives for access to safe drinking water by providing solar water pump with water taps to collect water from the pump house. The project organized vermi-compost training and enabled households to access a nutritious diet via kitchen gardens. This motivated other households that were not involved directly in the project to adopt organic farming methods.

4.4.1 Health Infrastructure and services

The health initiatives under the project have led to significant improvements in the health and well-being of beneficiaries, as evidenced by the data. A notable 65.1 percent of beneficiaries reported an improved health status of household members following participation in awareness sessions on hygiene practices. Additionally, 56.3 percent of respondents noted improvements in dietary habits, while 46 percent observed enhancements in physical activity. Furthermore, 35.7 percent of respondents experienced easier access to health services for women post-awareness sessions. These health initiatives have been instrumental in reducing the spread of diseases within the community. The awareness sessions focused on hygiene practices, disease prevention, and health awareness, prompting communities to take proactive measures to monitor and prevent disease transmission. The health camps, in particular, played a crucial role in making healthcare services more accessible to women in the village community. These camps provided a

platform for enhancing awareness about common communicable diseases and daily hygiene practices.

Discussions with various women community members corroborated these findings, highlighting the positive impact of the health camps on their ability to access healthcare and improve their overall health knowledge. The emphasis on disease prevention and awareness generation through these initiatives has not only improved individual health outcomes but also contributed to a healthier, more informed community.

The health initiatives have successfully promoted better health practices, improved dietary habits, increased physical activity, and enhanced access to healthcare services, particularly for women. These efforts have collectively contributed to a decrease in disease transmission and an overall improvement in community health.



Figure 26: Perceived health benefits of improved Health Awareness (N=126)

4.4.2 Sanitation infrastructure and services

The project incorporated the disposal of household wastewater and organized waste management awareness campaigns to promote proper treatment and disposal of waste. These initiatives led to several key learnings and behavioral changes among the community. One of the most significant learnings reported by respondents was the adoption of toilet usage over open defecation. This shift represents a crucial improvement in sanitation practices, contributing to better health and hygiene in the community. Additionally, respondents highlighted the importance of handwashing with soap after using toilets. This practice is essential in preventing the spread of diseases and improving overall public health.

The awareness campaigns conducted by HDFC effectively educated the community on proper waste management and hygiene practices, resulting in significant behavioral changes among respondents. A substantial 69.4 percent of respondents reported using toilets regularly, indicating improved sanitation practices. Moreover, 83.3 percent of respondents reported adopting regular handwashing practices, contributing to enhanced personal hygiene and reduced disease transmission. The campaign also achieved a high awareness rate of 75 percent among respondents regarding behavioral changes promoted by HDFC, underscoring the community's receptiveness to sustainable practices. These efforts have collectively fostered a healthier

environment, promoted sustainable waste management solutions, and contributed to improved public health outcomes within the community





4.4.3 Availability of drinking water

Before the intervention by HDFC and the Citizen Foundation in Hajo and Rangia block, families relied on hand pumps and wells for drinking water, with many households facing significant distances of at least 100 meters. This situation disproportionately affected women, who spent 1 to 2 hours daily fetching water, leading to work delays and exhaustion. Following the installation of solar drinking water units in 10 project villages, supported by VDC for maintenance, the community experienced a transformative improvement in their quality of life. Freed from the burden of water collection, families could now dedicate more time to childcare, household tasks, and agricultural activities, enhancing overall productivity and well-being. This initiative not only eased daily hardships but also provided moments of respite and improved living conditions across the communities involved.





The assessment of households benefiting from HDFC Bank's support for drinking water sources and methods reveals significant improvements in health indicators. The majority of respondents reported notable positive changes, with 97.4 percent experiencing a decrease in instances of waterborne diseases such as diarrhoea, cholera, and typhoid. This substantial reduction highlights the critical role of access to safe drinking water in preventing these diseases. Additionally, 69.2 percent of respondents reported relief from stomach-related problems, further underscoring the health benefits of improved water quality. Furthermore, 30.8 percent of respondents reported a decrease in visits to doctors, suggesting an overall improvement in health that reduced the need for medical consultations.

However, the assessment also indicated lower rates of improvement in other health areas. Only 7.7 percent of respondents reported an increase in appetite, and 5.1 percent experienced increased energy levels and reduced fatigue. A smaller, yet significant, 7.7 percent of respondents noted relief from teeth-related issues, indicating the broader health benefits of safe drinking water.

These findings underscore the substantial positive impact of HDFC Bank's interventions on the health outcomes of households by providing access to safe drinking water. The significant decrease in waterborne diseases and related health issues reflects the effectiveness of these initiatives in enhancing public health. However, the varying rates of improvement in other health areas suggest that continued efforts and perhaps additional health interventions may be necessary to address the broader spectrum of health benefits fully.



Figure 29: Drinking water availability helps the women in households (N=41)

The study on the impact of improved drinking water availability on households reveals several key benefits, as reported by the respondents. Notably, 79.5 percent of respondents highlighted that the availability of drinking water saved time that was previously spent fetching water. This significant time-saving aspect is crucial, especially for women, who often bear the primary responsibility for water collection in many households. Additionally, 64.1 percent of respondents reported a reduction in the

effort required for water collection, further alleviating the physical and logistical burdens associated with this task. A notable 17.9 percent of respondents mentioned a decrease in physical strain and fatigue related to water collection, emphasizing the physical relief provided by improved water accessibility. However, only 38.5 percent of respondents cited an improvement in the overall health of their families. This indicates that while health benefits are recognized, they are not as immediately pronounced as the logistical and physical advantages.

These findings underscore the significant positive effects of enhanced water accessibility. The primary benefits include time-saving and reduced physical burden, particularly for women. These improvements can lead to better well-being and quality of life for households, allowing them to allocate their time and energy to other productive activities and reduce the physical toll associated with water collection. While the direct health improvements might not be as evident, the overall enhancement in daily life and reduced physical strain represent substantial gains for the community.

4.4.4 Kitchen Garden

Citizen Foundation and HDFC Bank collaborated to support 250 farmers with small plots of land by providing them with nutrition plant seeds, net & drums, organic manure and essential training. Farmers learned advanced planting techniques such as line sowing and spacing to maximize crop yields. The project promoted organic farming practices, emphasizing the use of vermiculture systems over chemical fertilizers to benefit both the environment and reduce farming costs. Farmers were empowered to sell surplus produce for additional income, leading to improved economic stability. Moreover, training sessions on sustainable farming practices, including crop rotation and natural pest control, were conducted to enhance productivity and reduce dependency on costly inputs. This initiative not only improved farmers' health through organic practices but also ensured nutritious food for their families, fostering pride and sustainability in their agricultural practices.



Figure 30: Support received from HDFC (N=55)

The survey responses from beneficiaries reveal that a significant majority, 98.2 percent, received seeds for their kitchen gardens, showcasing the extensive distribution of this vital resource. Additionally, 25.5 percent of respondents received nets and drums, further supporting their gardening efforts. Training on the utilization of seeds in

kitchen gardens was provided to 10.9 percent of beneficiaries, equipping them with essential knowledge for effective cultivation. However, only 1.8 percent reported using fertilizers and pesticides, indicating a potential gap in the comprehensive support needed for optimal garden maintenance.

These findings underscore the crucial role of providing not just seeds and basic equipment but also targeted training and practical demonstrations to maximize the success of kitchen gardens. Emphasizing hands-on demonstrations and extending education on the use of fertilizers and pesticides could significantly enhance the gardening outcomes for beneficiaries.



Figure 31: Perceived benefits of HRDP supported kitchen gardens (N=250)

The responses from beneficiaries highlight several perceived benefits of kitchen or nutrition gardens. Remarkably, 100 percent of respondents noted a reduction in food expenditure, indicating that growing their own fruits and vegetables significantly cuts down on grocery costs. Additionally, 56.4 percent of respondents reported earning extra income by selling surplus produce, showcasing the gardens' potential as a source of financial gain.

Moreover, 25.5 percent of respondents acknowledged the development of horticulture, suggesting that the gardens are fostering gardening practices and knowledge within the community. However, only 9.1 percent recognized soil fertility enhancement as a benefit, indicating that awareness of this advantage remains relatively low among respondents.

Similarly, 60 percent of respondents reported improved nutrition, highlighting that while a substantial number of beneficiaries appreciate the nutritional benefits of homegrown produce, there is still room to increase awareness and understanding of this aspect.

Overall, these findings underscore the multifaceted advantages of kitchen or nutrition gardens, including economic savings, additional income, horticultural development, and potential improvements in soil fertility and nutrition. By continuing to promote these benefits and increasing awareness, the full potential of kitchen gardens can be realized, leading to greater community well-being and sustainability.

4.4.5 Impact Observation



Figure 32: Level of Impact - H&S

The development of kitchen gardens has a moderate impact on observation because it contributes to food security and nutritional improvement at a local level. However, the overhead of managing drinking water, especially in rural areas, where access to clean water is often a challenge, remains high. Implementing solar-powered pumps can significantly alleviate this issue by providing a sustainable and reliable source of drinking water. Access to safe drinking water was made easy with the project. This was attested by the proportion of 79.5 percent respondents who reported physical strain on women reduced with the easier access to drinking water.

4.5 Promotion of Education

The HRDP of HDFC has made significant strides in improving educational facilities through various interventions. A key focus was the installation of class projectors as part of the smart classroom initiative, enhancing the teaching and learning experience with modern technology. The program also addressed critical infrastructure needs by repairing school buildings, constructing boundary walls, and upgrading washrooms to provide a safer and more hygienic environment for students. Additionally, the project ensured access to purified drinking water, contributing to the overall health and well-being of the students. The provision of teaching and learning materials further supported the educational process, equipping students with the necessary resources to succeed. To promote physical education and holistic development, sports equipment was supplied to schools, encouraging students to engage in physical activities and improve their fitness.

4.5.1 Infrastructure in Educational Institutions

The infrastructure of educational institutions is pivotal in shaping the quality of education students receive. Recognizing this, HDFC Bank's HRDP undertook transformative measures such

as the renovation of smart and digital classrooms. These initiatives revolutionized the learning environment by integrating digital resources, making learning interactive and engaging for students. Renovations extended beyond digital upgrades to encompass essential improvements like painting works, which enhanced the aesthetics of school buildings. This not only beautified the surroundings but also contributed to a positive atmosphere conducive to learning. Establishing libraries further enriched the educational landscape by providing students access to diverse books and resources, fostering a culture of reading and knowledge acquisition. Educational wall paintings and messages (BaLA) played a crucial role in making learning more dynamic and stimulating, aiding in better information retention and nurturing creativity among students.

To convert traditional classrooms into smart classrooms, Citizen Foundation implemented a comprehensive approach. This included whitewashing classrooms, installing LED interactive touch panels to support modern teaching methods, improving seating arrangements with new benches, and incorporating branding elements to promote the initiative effectively.



Figure 33: Infrastructural support provided by the project (N=57)

The HDFC Bank's HRDP initiative has made a significant impact on schools across various crucial areas, as indicated by feedback from beneficiaries. A standout contribution has been the installation of drinking water posts with water purifiers, which garnered an impressive 87.5 percent response rate. This initiative has greatly improved access to clean drinking water within schools, contributing to the health and well-being of students. Equally impactful has been the implementation of Building as Learning Aid (BaLA) and educational wall paintings, receiving a 62.5 percent response rate. This initiative focuses on transforming school environments into dynamic learning spaces through visually engaging aids and educational messages. By enhancing the visual appeal of classrooms and corridors, BaLA not only stimulates student interest but also enhances retention of information and nurtures creativity among learners. Another notable support area has been the construction or renovation of smart/digital classrooms, acknowledged by 20.8 percent of respondents. These initiatives have modernized traditional teaching methods by integrating digital resources, thereby fostering a more interactive and engaging learning environment for students. Additionally, the establishment of libraries with adequate furniture and shelves was recognized by another 20.8 percent of respondents. This underscores the importance of promoting a reading culture and ensuring students have access to a wide range of educational materials, which are essential for their academic growth and development.

It has significantly enhanced educational infrastructure and resources in schools, aiming to provide students with a conducive and enriching learning environment. These efforts demonstrate a commitment to improving educational outcomes and fostering holistic development among students through innovative and supportive interventions.



Figure 34: Improvements in school activities noticed in last 3-4 years (N=24)

The infrastructure developments initiated by HDFC Bank's project have significantly benefited students, as indicated by the respondents' feedback. A notable improvement was observed in student attendance, with 54.2 percent of respondents reporting better attendance rates. This suggests that the enhanced learning environment and engaging educational tools have made school more appealing to students. Additionally, concept retention saw a substantial increase, with 62.5 percent of respondents noting improvements. This indicates that interactive methods, such as smart classes and educational wall paintings, have effectively helped students retain information better. Other positive changes, though less widespread, include an 8.3 percent increase in enrolment rates and improved exam performance or grades, reflecting the long-term impact of a better learning environment on academic success. Furthermore, 20.8 percent of respondents reported improved attention spans among students, suggesting that the new engaging learning tools help maintain students' focus. However, a decrease in dropout rates was observed by only 4.2 percent of respondents, indicating that while there has been some improvement, this remains an area for further attention.

4.5.2 Impact Observation



Figure 35: Level of Impact – PoE

The project showcased significant results in augmenting the quality of learning at schools. Developing smart classrooms with screen projectors played a key role in this improvement, making learning more engaging and interactive for students. Additionally, there was a high emphasis on motivating students to attend school regularly, which contributed to better attendance rates. However, while these initiatives have shown positive outcomes, there is still a need to focus on developing quality teaching using teaching-learning materials. This area represents a crucial scope for further development to ensure that the benefits of enhanced infrastructure and technology are fully realized in the classroom.

4.5.3 Case Study: "From Ordinary to Outstanding: The Transformation of Ramakrushna L.P.S to Number 1"

The school named Ramakrushna L.P.S of village Bagta of Kamrup district Assam previously faced challenges such as limited infrastructure, lack of safety measures, and low enrolment due to parental concerns. However, with support from HDFC's HRDP project and the Citizen Foundation, significant improvements were made, leading to a remarkable transformation. The school initially had only 2 classrooms and 16 students. It lacked basic amenities and safety measures, situated on a roadside without a boundary. The Teachers Narayan Malaker always try to make the school unique and he needs support from Citizen foundation. Under HDFC's HRDP project, the Citizen Foundation intervened by providing comprehensive upgrades equipped with projectors and teaching aids to enhance learning experiences. Desks, benches, tables, chairs, and teachinglearning materials were provided. Renovation of the school building, BALA (Building as Learning Aid) painting, toilet renovation, installation of hand wash stations, and construction of an iron fencing boundary for safety. Enrolment surged to more than 36 students following the improvements. The school was awarded as the No. 1 school at the cluster level by the government. Being the only school in the cluster with smart class facilities, it attracted parents who were impressed by the educational enhancements. Many parents actively sought admission for their children due to the perceived quality of education and facilities.

The school has become a model institution in the region, demonstrating effective integration of Anganwadi Centres (AWC) and school activities, resulting in positive academic outcomes. Students are delighted with the provision of playing instruments and various activities during school hours, fostering a conducive learning environment. Sustainable maintenance and operational support from stakeholders, including the community and government authorities, are crucial for the school's long-term success.



Future plans may include expanding infrastructure further to accommodate more students and introducing additional educational programs to sustain growth and excellence.

The transformation of this school exemplifies how targeted investments in education infrastructure and facilities can lead to significant improvements in enrolment, educational outcomes, and community engagement. By addressing foundational challenges and enhancing learning environments, HDFC's HRDP project has not only uplifted the school but also positioned it as a beacon of educational excellence in its cluster.

This case study underscores the critical role of public-private partnerships in enhancing educational access and quality, ultimately contributing to holistic community development and fostering a brighter future for students in rural areas.

4.6 Response to Disaster

Floods constitute a recurring and significant challenge for the residents of Kamrup district, Assam. Due to its low-lying geographical position, the villages of Hajo and Rangia Block experiences severe flooding almost every year, causing substantial damage to both property and livelihoods of the community members. Recognizing this vulnerability, the Citizen Foundation, under the HRDP of HDFC Parivartan project constructed a community flood shelter in a village. The flood shelter was constructed to mitigate the effects of annual flooding. It includes separate toilet facilities for men and women, solar lighting, a raised platform for a tube well ensuring access to safe drinking water, and space designated for cattle. The community, through consultations with



the Village Development Committee (VDC), identified these features as crucial for reducing floodrelated damages and ensuring safety during emergencies.

The flood shelter has served multiple purposes beyond its primary role during floods. It doubles as a distribution centre for relief and rehabilitation efforts during disasters, effectively managed by the government. Additionally, during non-flood periods, it functions as a community and health centre, meeting venue of various social needs of the villagers.

Feedback from the community indicates that approximately 80 percent of the villagers utilize the shelter during floods, with many bringing their livestock, a critical asset for their livelihoods. The shelter has been widely regarded as indispensable, although some concerns have been raised regarding its capacity and facilities. Specifically, the lack of separate arrangements for women within the single hall setup has been noted as an issue affecting comfort and privacy during stays. The current setup of the community flood shelter poses challenges for pregnant women, lactating mothers, and children, as there are no separate rooms available for their specific needs. This lack of privacy and designated space not only inconveniences the individuals directly affected but also impacts the broader community by creating discomfort and potential disruptions.

The flood shelter stands as a vital infrastructure providing essential services during floods and serving as a hub for community activities throughout the year. While it has significantly improved disaster preparedness and response, ongoing attention to maintenance and community feedback will be crucial for optimizing its impact and ensuring it meets the evolving needs of the villagers in Kamrup district.

4.7 Holistic Rural Development Index (HRDI)

There are multiple dimensions involved in achieving the goals of HRDP that includes agricultural production, generation of new jobs, enhancement of health, improved education etc., 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 vary across projects and geographies, it was not possible to assign 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 the blending of the 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 on the variations in the interventions made in each project, the HRDI is customised 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 P0280 implemented in Kamrup district, Assam are given in the following table.

Domain	N	RM	S	Skill		H&S		ED]	ſotal
HRDI	Base	End	Base	End	Base	End	Base	End	Base	End
Score	line	line	line	line	line	line	line	line	line	line
	0.06	0.08	0.07	0.14	0.19	0.19	0.10	0.25	0.42	0.66
Percent	33	3.33	ן 100	percent	S	ame	150	percent	57.15	5 percent
Change	pei	rcent								

Table 7: HRDI Calculation for P0280

The table displays the Holistic Rural Development Index (HRDI) for four thematic areas of intervention within the project. Overall, the HRDI has increased by 57.15 percent compared to the baseline. Particularly noteworthy is the substantial impact seen in the PoE category, with a scoring of 150 percent increase over the baseline.

5 Analysis of Assessment Criteria

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

- Relevance and Convergence
- Impact and Effectiveness²
- Sustainability

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

5.1 Relevance and Convergence

Assam, situated in Northeast India, is a region renowned for its diverse cultural tapestry, vibrant communities, and rich natural resources. With a population of approximately 35 million, Assam is characterized by a blend of indigenous ethnic groups, migrants from other parts of India, and various tribal communities. The state has made significant strides in literacy, with an overall literacy rate of about 73.2 percent, reflecting ongoing efforts to improve education access and quality across urban and rural areas. However, Assam faces various health challenges, influenced by its geographical diversity and socio-economic conditions. The state's healthcare infrastructure continues to expand to cater to the diverse health needs of its population, tackling issues ranging from communicable diseases like malaria and dengue to emerging concerns in maternal and child health.

Under the HRDP of HDFC Parivartan project aims to uplift the quality of life for rural resident through various initiative focusing on agriculture, livelihood, skill training, education and health and sanitation. Enhancing agricultural practices though modern techniques, irrigation and training of farmers in sustainable farming practices to increase productivity and income. Creating offering specialised training programme in various traditional trades and skills such as weaving, fish farming, creating opportunity for rural resident to increase their income sources. Taking support to increase health care service by organising various awareness programmes about hygiene and sanitation practice helps in reducing the incident of preventable diseases and improving health outcomes.

5.2 Sustainability

The sustainability of the HDFC's HRDP, implemented in collaboration with Citizen Foundation in Hajo and Rangia block, is evident through the active participation and commitment of the local villagers. The initiative has garnered appreciation from the community, who have pledged to maintain the solar lights installed in their villages. For the solar pump used for lift irrigation, farmers' group were formed to oversee its operation. The agricultural resource centre and tool bank are manged and maintained by VDC. This tool is also used for their own purpose as wells as in business. The collecting fund is meant for the village development work and maintenance of equipment.

The VDCs have taken ownership of various agricultural and enterprise activities introduced by the project. Mostly the enterprise activities implemented as group activities.

² While from an evaluation perspective impact and effectiveness are two different aspects, in the report, these are used interchangeably.

In terms of drinking water management, VDC also took responsibility to oversee the operation of the solar drinking water. The VDC collects money from the user family to repair and maintenance when necessary for the water system, ensuring its long-term viability.

For smooth business activity, the market shade allotted to 36 Nos of shopkeepers and formed a group or market committee. The group collected Rs. 10 from each shopkeeper to monthly tax to the government.

Overall, the HDFC's HRDP, supported by Citizen Foundation, has empowered the local communities in Hajo and Rangia block to take control of their development initiatives. Through training, community engagement, and the establishment of self-sustaining model, the project has created a lasting impact, ensuring that the benefits continue to support the villagers long after the project's conclusion. (see Annexure E).

6 Recommendations

To further improve the outcomes of HRDP in Kamrup district of Assam, the following recommendations are made for the HDFC Bank's Parivartan and HRDP team and the implementing partner:

Recommendations to Sustain Project Initiatives:

- In Livestock management in the project village, so many small ruminants like goat and specially pig die in rainy season by flu. It needs to be educated livestock owners and workers on disease prevention, proper handling techniques, and best management practices. This empowers them to effectively manage their livestock for better outcomes.
- The enterprises are still in their infancy and require further assistance and guidance in market linkage. In the case of the weaver group and fish hatchery and also in paper crockery have not yet developed a thorough understanding of business and the market, which has led to significant struggles. They need additional rigorous training, support, and exposure to overcome these challenges.
- Most of the fishing communities in Hajo and Rangia spend six months earning from fishing in adjacent wetlands Garjana Talab and the other six months as wage labour. It needs to encourage diversification by exploring additional income sources during the fishing off-season. This could include activities like poultry farming, vegetable gardening, or small-scale livestock rearing or Provide training and skill development opportunities such as carpentry, masonry, or handicrafts that can enhance their employability during the non-fishing months.
- Invest in capacity-building efforts for project beneficiaries, including training programs and skill development workshops. By equipping individuals with the necessary knowledge and skills, they can effectively manage project initiatives and adapt to changing circumstances, thereby enhancing the sustainability of the project in the long run.

Recommendations to Build Project Efficiency

- To ensure the success of the intervention, each village must develop a local cadre of trained individuals to serve as village resource coordinators. These coordinators will be the primary point of contact for all intervention-related matters and will be accountable to the villagers. They will provide information on farm advisory services, disease management, vaccination schedules, deworming schedules, and other emergencies.
- Integrate technology solutions like project management software or mobile applications to automate tasks, improve communication, and track progress more efficiently at the beneficiary level.
- Perform comprehensive reviews and need assessments to identify potential challenges and opportunities within the current project methodologies. Implement suitable interventions based on the findings to enhance the effectiveness and precision of the outcomes.

Recommendations to Strengthen Project Design

- Involve key stakeholders, including beneficiaries and community members, in the project design process to ensure their needs and perspectives are considered and incorporated into the plans.
- Systematising the project monitoring and backstopping process and synchronising engagement of HDFC program staff and the implementing partner.

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 percent;

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

S_e= margin of error, set at 5 percent;

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 ten project 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 ten villages acted as the sampling frame for the project. This list was obtained from the implementing partner – Citizen 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 project, the selection of more than one beneficiary from a single household was probable.

Stage 2- Sampling for villages:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. A total of ten 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 36: 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 8: Example of HRDI Calculation

Thematic Area	Indicators	Formula
NRM	Proportion of farmers with net income above median	$(1/4) \ge (1/3) = 0.083$

	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	$(1/4) \ge (1/3) = 0.083$
	Percentage of farmers reporting access to irrigation	$(1/4) \ge (1/3) = 0.083$
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	$(1/4) \ge (1/2) = 0.125$
H&S	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	(1/4) x (1/3) = 0.083
	Percentage of households reporting increase availability of drinking water facility	(1/4) x (1/3) = 0.083
	Percentage of households with access to improved toilet facility	(1/4) x(1/3) = 0.083
РоЕ	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 Karauli has been detailed below.

Domain	Indicators	Baseline	HRDI	End line	HRDI	percent Change
NRM	Proportion of farmers with net income above median	0.16	0.06	0.18	0.08	33 percent
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.06		012		
	Percentage of farmers reporting access to irrigation	0.02		0.02		
ST&LE	E Percentage of HH reporting 0.15 0.07 income above median from	0.27	0.14	100 percent		
	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self employment	0.13		0.29		
H&S	Percentage of households reporting increase availability of drinking water facility	0.33	0.19	0.33	0.19	No change
	Percentage of households with access to improved toilet facility	0.33		0.33		
	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	0.08		0.08		
ΡοΕ	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.35	0.10	1.00	0.25	150 percent
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0.07		0.50		
Total			0.42		0.66	57.15 percent

Table 9: HRDI Calculation for Kamrup

C Overview of Impact Calculation

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

Outputs	Output Indicators		Output Avg	Impact Level
NA. Increased in	ncome from agriculture			
	Proportion of farmers reporting increased productivity of three main crops above median	81.4 percent		
Land/ crop productivity	Proportion of farmers reporting increased income from crops that were supported under HRDP.	88.3 percent	74.4 percent	High
	Proportion of farmers who are the above median range	53.7 percent		
Access to the	Proportion of beneficiaries satisfied with the quality of available services (in Agriculture equipment provided)	83.3 percent		
management	Proportion of farmers who use both, chemical and natural fertilizers	46.3 percent	45.23 percent	Medium
lillasti ucture	The proportion of farmers reporting a decrease in the use of chemical fertilizers	6.1 percent		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops with the project support.	3 percent		Low
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	3.4 percent	3.2 percent	
I and and an	Increased area under irrigation	31.3 percent		
irrigation	Proportion of farmers who received support for irrigation	9 percent	20.15 percent	Low
Increased use o	f clean energy solutions			
Adoption of	Proportion of HHs using clean energy infrastructure (Base=all)	76.9 percent		
clean energy infrastructure	Proportion of households fully satisfied from using clean energy infrastructure (Base=clean energy beneficiaries)	43.6 Percent	60.25 percent	Medium
Improved acces	s to agricultural training and services			
Access to Agriculture	Proportion of farmers who reported project training services are useful	52.5 percent		
training and services	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	54.2 percent	53.35 percent	Medium
Adoption of improved	Proportion of farmers who continue to practise conservation agricultural practices	45.8 percent	58 percent	Medium

Table 10: Impact Calculation

Outputs	Output Indicators		Output Avg	Impact Level
farming practices	Proportion of beneficiaries reporting an increase in productivity due to better farm management	81 percent		
	Proportion of farmers reporting increased income	94 percent		
Enhanced capao	city for regular income generation			
	Proportion of House hold accessed skill development training	68 percent		
Enhanced	Percentage of beneficiary who report improved income through skill development	98.2 percent	85.8 nercent	
skill development	Percentage of households who getting skill training & reporting increase in income from enterprise/self-employment	- 86.8 percent		High
	Proportion of Beneficiary reporting increase in income enterprise development	90.2 percent		
Improved capac	ity to generate income through livestock i	nanagement		
Adoption of	Proportion of beneficiaries who received support in livestock management services	61.3 percent		
scientific management of	Proportion of beneficiaries reporting	18.05		
	improved livestock health	percent	53.7percent	Medium
livestock	Percentage of HH reporting income above median from livestock	81.8 percent		
Improved healt	h infrastructure and services(Kitchen Gar	den)		
Establishment/	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	25.5 percent		
enhancement of health	Proportion of households who reported as an additional source of income	56.4 percent	47 75percent	Medium
infrastructure and services	Proportion of households who reported as improved nutrition	60 percent	iv. opercent	
	Proportion of households who are satisfied with the intervention	49.1 percent		
Improved sanita	ation infrastructure and services			
Establishment/ enhancement	Proportion of HHs with access to Household/community sanitation units (toilets/bathing enclosures)	63.3 percent	68.6 percent	Medium
infrastructure.	Proportion of beneficiaries reporting safety of women due to improved access	73.9 percent		
Awareness regarding health and	Improved awareness regarding cleanliness and sanitation practices (Using toilets instead of open defecation)	69.4 percent	83.3 percent	High
sanitation practices	Improved awareness regarding waste management	97.2 percent		

Outputs	Output Indicators		Output Avg	Impact Level
Adoption of	Proportion of improved health status of HH member	65.1 percent	_	Uigh
and sanitation practices	Increase in no of HHs adopting proper liquid waste management practices	95.5 percent	80.3 percent	nıgıı
Improved availa	ability and management of water			
Access to drinking water at household	The proportionate number of HHs reporting change in source of drinking water	95.1 percent		
and community levels improved	The proportion of households reporting improved well-being due to the availability of clean drinking water.	97.4 percent	96.25 percent	High
Improved capac	city of educational institutions to provide	services		
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	57 percent		Medium
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	46 percent	51.5 percent	
Improvements	Proportion of teachers regularly utilizing smart classrooms/libraries/science lab (Regularly= Everyday+ Most days)	75 percent		
in quality of teaching	Proportion of students who regularly use smart classrooms/science labs/ libraries for lessons ((Regularly= Everyday+ Most days)	100 percent	87.5 percent	High
Improved willingness to engage in school	Teachers reporting improvements in attendance due to improved infrastructure	54.2 percent	-	
	Proportion of teachers reporting improvements in learning outcomes due to infrastructural facilities at institutions (concept retention)	80 percent	73.3 percent	High
Change	Proportion of institutions reporting a decrease in dropout rates and increasing enrollment	85.5 percent		

Ig

Low

0 percent-40 percent

>40 percent - 70 percent

>70 percent- 100 percent 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 paddy above baseline median-is shown below.

Indicator	Proportion of farmers with average productivity of paddy above baseline median
p1 (proportion of first sample-endline)	26
n1 (sample size of p1)	67
p2 (proportion of second sample-	14
baseline)	
n2 (sample size of p2)	67
р	20
Calculation	0.4414
z statistic	1.225
	Statistically significant as it is less than our alpha value
	(0.05)
p-value for the z statistic	0.2182

Table 11: Z - Test conducted for P0280

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.

Support Provided	Structures Established	Technical Know-how	Usage	Maintenance
	NRM			
Irrigation Management	\checkmark	\checkmark	\checkmark	\checkmark
Farm Management	\checkmark	\checkmark	\checkmark	\checkmark
Clean Energy	\checkmark		\checkmark	\checkmark
Agriculture Training and Support	\checkmark	\checkmark	\checkmark	\checkmark
Entrepreneurship Development	\checkmark	\checkmark	\checkmark	\checkmark
Livestock Management	\checkmark	\checkmark	\checkmark	\checkmark
Health	\checkmark	\checkmark	\checkmark	\checkmark
Sanitation	\checkmark	\checkmark	\checkmark	\checkmark
Educational Institutions Development	\checkmark	\checkmark	\checkmark	\checkmark

Table 12: Theme wise sustainability matrix