Impact Assessment Study of Holistic Rural Development Programme (HRDP) Dumka, Jharkhand – P0279

Prepared For:

HDFC BANK | PARIVARTAN
A step towards sustainable progress

HDFC Bank Corporate Social Responsibility (CSR)

Prepared By:

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Executive Summary

The study centres on measuring the impact of the Holistic Rural Development Programme (HRDP) of HDFC Bank that was implemented by PRADAN in the Dumka district of Jharkhand from 1st April 2019 to 31st March 2023. This study largely focused on understanding the overall process that the HDFC Bank and the implementing organisation undertook in carrying out the programme activities, the key milestones achieved, the impact created by these activities, and the challenges faced. The key focus areas of the intervention were Natural Resource Management (NRM), Skill Training & Livelihood Enhancement (ST&LE), Health and Sanitation (H&S) and Promotion of Education (PoE). The framework used for the impact assessment was an adaptive version of the DAC criteria - Relevance, Effectiveness, and Sustainability. A comprehensive methodology, comprising both qualitative and quantitative primary data collection, was used for the assessment, which was carried out in a participatory manner involving all the key stakeholders of the programme. The study included a sample size of 428 beneficiaries as respondents, as opposed to the planned sample of 400.

Natural Resource Management

The HRDP initiative by HDFC Bank and PRADAN has made significant strides in enhancing Natural Resource Management and overall community well-being in the Shikaripara block of Dumka district. Key interventions included the installation of 23 solar-based micro lift irrigation systems, the excavation of 17 low land broad wells, and the desilting, renovation, or construction of 130 farm ponds, doubling the irrigated area to 600 hectares and directly benefiting 640 farmers. This led to a substantial reduction in farming costs, with median input costs decreasing by 20 percent from INR 5000 to INR 4000, while gross income rose by 60 percent from a median of INR 10000 to INR 16000. Net income saw an improvement, with the median increasing by 220 percent from INR 3750 to INR 12000. Additionally, organic farming practices, such as vermicompost and the use of azolla, enhanced soil health and productivity. The project also included the installation of 120 solar street lights in 15 villages, enhancing night-time safety and mobility. As a result, 93 percent of households reported increased ability to go out at night, 86 percent felt safer from wild animals, and 84 percent highlighted increased safety for women. However, maintenance challenges were noted, with only 65 percent of the lights remaining functional. Furthermore, 500 smokeless chullah were distributed, with 97 percent of respondents reporting reduced firewood consumption, 77 percent noting decreased smoke-related health hazards, and 60 percent acknowledging reduced cooking costs.

These diverse interventions have collectively improved agricultural productivity, reduced costs, and enhanced community safety and health, demonstrating the HRDP initiative's effectiveness in driving sustainable rural development and significantly boosting farmers' livelihoods and overall quality of life in the project villages.

Skill Training and Livelihood Enhancement

Under the HRDP, HDFC Bank has significantly enhanced agricultural training and services, benefiting numerous farmers. Training on organic manure and advanced farming techniques empowered 450 farmers to produce high-quality manure, boosting crop yields and reducing chemical fertilizer dependency. Additionally, 1,000 women farmers received training on high-value crops and sustainable practices. Agriculture Production Clusters (APCs) and farmer producer groups improved

market access and collective bargaining for 400-500 farmers each. A novel marigold cultivation initiative saw six farmers achieve high yields and income, with 30 more trained subsequently. Significant shifts towards sustainable practices were noted, including a rise in organic manure usage from 11 percent to 78 percent and vermi-compost pit construction from 11 percent to 44 percent. However, conservation agriculture practices decreased from 56 percent to 17 percent. The interventions resulted in 78 percent of respondents reporting increased income, 50 percent noting higher productivity, and 33 percent observing improved soil health. Village Organisations (VOs) played a pivotal role in community activities, such as establishing oil processing and bamboo production units, though some initiatives like the sal leaf plate unit faced challenges. Training improved financial management awareness among 75 percent of VO members, although only 25 percent felt their business management skills were enhanced. Livestock management initiatives, targeting vulnerable families, established two goat breeder farms benefiting 1,500 women and provided 220 farmers with goat sheds, significantly reducing disease and improving productivity. Backyard poultry farming initiatives saw the construction of 250-night shelters and extensive training, reducing chicken mortality and boosting income. Livestock management improvements led to a 67 percent increase in average income from INR 600 to INR 1000. Overall, the HRDP interventions have fostered sustainable farming practices, increased income and productivity, and improved livestock management, though some areas require further development and support.

Health and Sanitation

Before PRADAN's intervention, most families in Shikaripara block lacked access to safe drinking water, burdening women with the task of fetching water from distant hand pumps. With HDFC's support, PRADAN installed 10 solar-powered drinking water units, significantly improving the quality of life by reducing water collection time and physical strain, and enhancing overall well-being. This initiative led to a 61 percent decrease in waterborne diseases, increased energy levels, and better health outcomes. Additionally, the availability of clean water saved women time and effort, allowing them to engage in other productive activities and improving their family's health. However, only 8 percent of households in Dumka had access to water on their premises, and poor hygiene practices were prevalent. PRADAN and HDFC addressed these issues through hygiene training, the construction of soak pits, support in the construction of bathrooms, significantly improving sanitation, and reducing disease prevalence. The support for sanitation facilities led to substantial improvements in health, safety, dignity, privacy, and convenience for the community. Furthermore, PRADAN and HDFC addressed malnutrition by promoting kitchen gardens, providing seeds, and imparting training to 450 beneficiaries. This initiative reduced food expenses for 97 percent of respondents, improved nutrition for 80 percent, and fostered sustainable agricultural practices, enhancing soil fertility and providing an additional income source for 24 percent of beneficiaries. The holistic approach improved the nutritional intake of families and fostered economic and environmental benefits, significantly enhancing the overall well-being of the villages. Despite these positive outcomes, challenges remain in further improving hygiene practices and scaling sustainable farming techniques. Overall, the interventions by PRADAN and HDFC Bank significantly improved access to clean water, sanitation, and nutrition, enhancing health, productivity, and quality of life in the community.

Promotion of Education

The HDFC Bank's HRDP initiative has brought about significant transformation in educational institutions and anganwadi centres through extensive infrastructure upgrades. This includes the establishment and renovation of smart/digital classrooms, enhancements to covered roofs, floors, and sanitation facilities, and the introduction of solar-based drinking water systems, etc., greatly improved the learning environment and promoted better health among students. Essential educational equipment like CPUs, projectors, and dual speakers was provided, complemented by ongoing maintenance support. The initiative also catered to community needs by setting up community learning and cultural centres in villages, offering extracurricular activities, and providing essential skills development after school hours. During the COVID-19 pandemic, the initiative ensured safe school reopening by distributing protective gear such as masks, sanitisers, and gloves, which were acknowledged by 75 percent of teachers. Stakeholder feedback reflects widespread appreciation for the infrastructure improvements, with reports of increased school attendance, 50 percent noting improved concept retention, 45 percent reporting higher enrollment rates, and a 40 percent reduction in dropout rates. Students have benefited from more engaging classes, timely lesson delivery, enhanced study materials, and improved sanitation facilities, collectively contributing to a more positive educational experience. Overall, the HDFC Bank's initiative has not only enhanced educational infrastructure but also strengthened community support, fostering a conducive environment for learning and development across various educational levels and community settings.

Table 1: Summary of Key Income Indicators

Income Indicators (based on median)	Before	After	percent Change
Increase in net income from agriculture (mean value) (INR)	5395	13165	144.0%
Average Productivity of Paddy (Kg/Acre)	641	673	5.0%
Average Productivity of Maize (Kg/Acre)	513	600	16.9%
Average Productivity of Mustard (Kg/Acre)	427	321	-25.0%
Average Monthly Income From Livestock (INR)	600	1000	66.7%

The income indicators demonstrate substantial improvements following the project implementation. Livestock management has experienced a strong 67 percent increase in average monthly income, underscoring enhanced productivity and management practices. Productivity in paddy and maize has also seen notable gains of 5 percent and 17 percent, respectively, suggesting advancements in agricultural techniques, potentially including improved irrigation and seed varieties. In contrast, mustard productivity has declined by 25 percent, primarily due to reduced land allocation as farmers prioritize cash crops such as vegetables. This strategic shift has adversely impacted mustard production. Overall, these changes underscore the project's positive influence on income generation and agricultural productivity, although their impacts vary across different crops and sectors.

HRDI Indicators

The table presents the Holistic Rural Development Index (HRDI) for four key thematic areas of intervention within the project. Overall, the HRDI has surged by an impressive 170 percent compared to the baseline. Natural Resource Management exhibited a 63 percent improvement, while skill development soared by 300 percent, and the Promotion of Education recorded an extraordinary 380

percent increase. However, it's important to consider that the initial base values were very low, making these substantial percentage increases more expected. Health and Sanitation also saw significant progress, with a 163 percent rise. These figures underscore notable enhancements across all areas, reflecting the effectiveness of the interventions in these domains.

Table 2: Summary of HRDI Scores

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	0.08	0.13	0.01	0.04	0.08	0.21	0.05	0.24	0.23	0.62
percent Change	63%		300%		163%		380%		170%	

1 Introduction

India has made significant advancements in rural development, with 65 percent of its population residing in rural areas as of 2021 and 47 percent depending on agriculture for livelihood (PIB Delhi, 2023). Agriculture and related sectors contribute 18.3 percent to the nation's GDP (Ministry of Agriculture and Farmers Welfare, 2023), and the rural ecosystem has seen an average annual growth of 10 percent over the last five years. Despite this progress, challenges such as inadequate irrigation, poor soil health, disguised unemployment, limited skill development opportunities, unreliable healthcare access, low literacy rates, and increasing environmental degradation persist. Urban development has outpaced rural progress over the past two decades, leading to rural-urban migration. 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

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

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

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

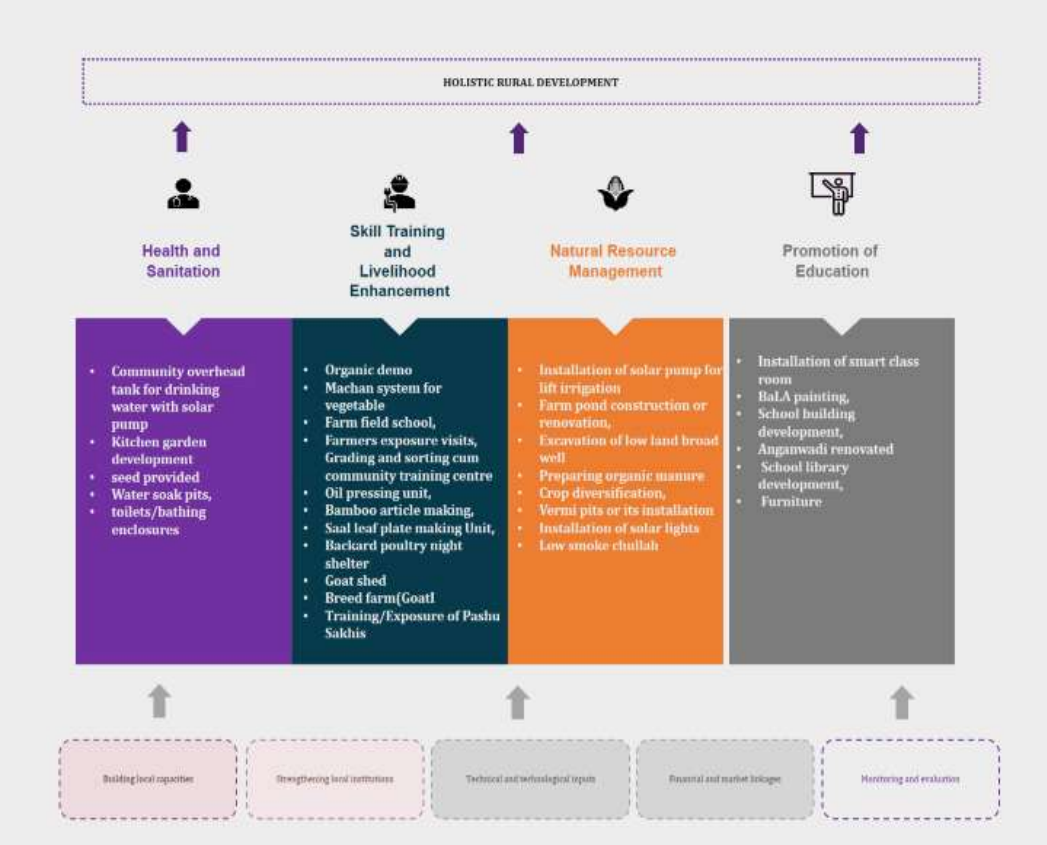
- Determine reasons for certain outcomes or lack thereof
- Derive lessons learned and good practices
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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.

Figure 1: Conceptual framework



1.4 About the Project Area

This assessment offers an extensive and impartial report conducted by a third-party entity, evaluating HDFC Bank's Human Resource Development Program (HRDP) implemented as part of the Parivartan initiative in a disadvantaged region of the Dumka district of Jharkhand. The program, executed by PRADAN, the implementing partner in this district, spanned from 1st April 2019 to 31st March 2023 and encompassed interventions in fifteen villages. Its primary objective was to facilitate the sustainable development of marginalised rural communities by enhancing the capabilities of individuals and institutions. The assessment study took place from 14th May 2024, to 24th May, 2024.

1.5 About the Implementing Partner

PRADAN (Professional Assistance for Development Action) is a prominent NGO founded in 1983, dedicated to empowering marginalised communities in India's poorest regions, with a strong focus on women. Operating in seven states—Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Madhya Pradesh, and Rajasthan—PRADAN has made significant strides in rural development. By partnering with over 700,000 families across 37 districts and 7,900+ villages, PRADAN builds self-sustaining communities through social, economic, and political empowerment. The organisation emphasizes the importance of deploying highly skilled professionals to tackle endemic poverty and has successfully impacted around three million people. Collaborating with government and other civil society organizations, PRADAN continually validates its approach, systematically engaging with poor communities to foster large-scale transformation and improve well-being.

PRADAN is implementing the Holistic Rural Development Program (HRDP) in villages situated at Shikaripara Block of Dumka district of Jharkhand from 1st April 2019 to 31st March 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 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 PRADAN.

2.1 Criteria for Assessment

For each thematic area, project activities accomplished by PRADAN 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 Effectiveness[1]
- Sustainability

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

a) Aligned with the state's plans and priorities for rural development.
b) Relevant to the local needs of the most vulnerable groups.
c) 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.

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.

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey that was conducted by the survey team consisting of five enumerators and one supervisor, with backstopping by one field coordinator. The primary quantitative data was collected using the Computer Assisted Personal Interview (CAPI) method, 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 PRADAN, the HDFC Bank programme team, local leaders from the project area, etc.

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

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

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

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

2.3 Sample Size and Distribution

From the fifteen villages of Shikaripara where the programme was implemented, beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from PRADAN. 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 was ensured. The target sample size across fifteen villages was 400, out of which 428 sample respondents were reached. The thematic area-wise sample covered was as follows (see **Error! Reference source not found.**).

Table 3: Sample distribution across thematic areas (N=428)

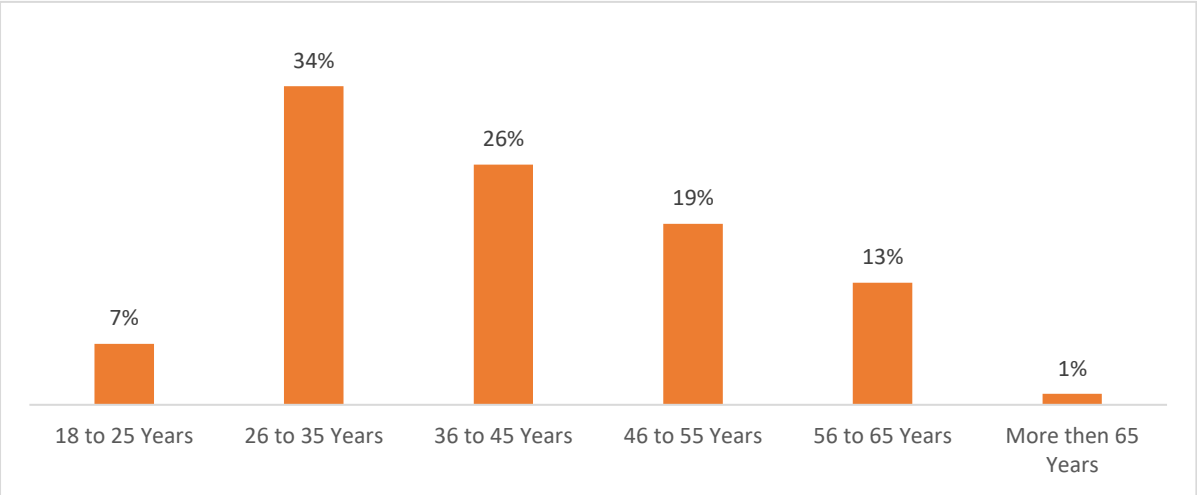
Village Name	NRM	ST&LE	H&S	PoE
Chukapani	36	16	20	4
Darbarppur	35	15	18	2
Dhanbad	47	16	33	4
Durgapur	54	13	28	1
Gandrakpur	47	17	17	3
Indrabani	46	15	27	1
Jhurko	46	13	22	1
Kendpahari	40	23	18	7

Murayam	23	15	10	3
Sirwadih	27	9	11	2
Total	401	152	204	28

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, vegetable farmers, marigold farmers, poly house farmers and breed farm owners. Additionally, FGDs were organised with different groups, including farmers, oil extraction unit, village development committee (VDC), vegetable producers' groups, and the general population. KIIs were also conducted with key figures like sarpanch, those associated with the beneficiaries, and a staff member from the project implementer.

The sample consisted solely of females since all the activities were conducted with female beneficiaries. Similarly, youth (18-55 years) represented the majority of the sample (86 percent) distributed in different age groups. The remaining 14 percent of the respondents were over 55 years of age.

Figure 3: Age group wise distribution of sample (N=428)



2.4 Training of Enumerators

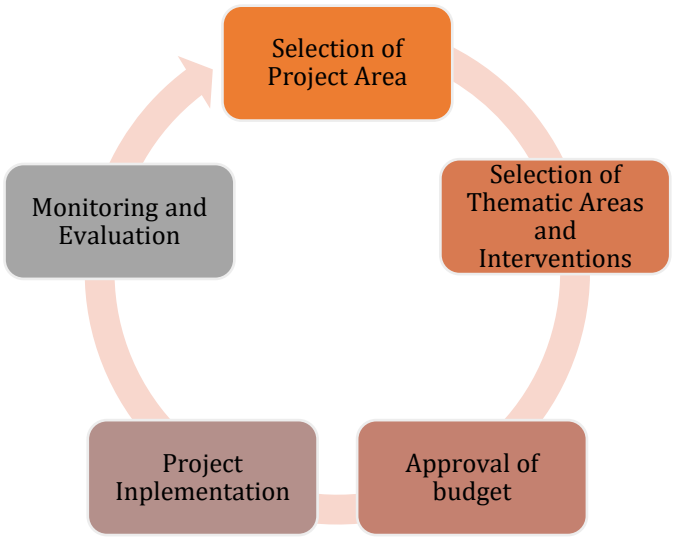
A gender balanced survey team consisting of five local enumerators and one supervisor was recruited with the requisite education and experience for data collection. Two days of training were provided to enumerators and supervisors by the field coordinator and the research coordinator. During the training, 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 Dumka, Jharkhand

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.

Figure 4: Planning and Implementation Process



3.1 Selection of Project Area

Figure 5: Area covered under the study

India, one of the fastest-growing economies with a 6.6 percent growth rate in 2017, ironically has the largest concentration of the global poor, with over 40 percent of the world's population living on $1.90 a day. The multi-dimensional poverty index by the Oxford Poverty and Human Development Initiative shows that eight Indian states are poorer than 26 of Africa's poorest nations. Central and eastern states, including Jharkhand, have the highest poverty and hunger levels. These states have a high percentage of tribal and Dalit communities, which are extremely poor and vulnerable. Studies show that poverty rates among these communities are more than twice those of the general population. Many children, especially girls, are malnourished, and women are often anaemic and undernourished due to poor diets. Dumka, in northeastern Jharkhand, has a predominantly rural population of over 1.3 million, with 44 percent being Scheduled Tribes and 6 percent being Scheduled Castes. Shikaripara is one of the poorest among the 10 blocks in Dumka

District, located approximately 27 kilometers from the district headquarters. According to the 2011 Census of India, it has a total population of over 130,000, all residing in rural areas. This includes 5,035 Scheduled Castes and 79,522 Scheduled Tribes, along with about 656 Particularly Vulnerable Tribal Groups (PVTGs) households. Other Backward Classes (OBCs) and other castes make up around 35% of the block's population.

Over 80 percent of Dumka's population relies on agriculture, with average landholdings of 1.58 hectares, mostly owned by marginal farmers. Agriculture, mainly paddy, is monsoon-dependent and faces erratic rainfall, leading to poor yields and low incomes. The average paddy yield is 2.03 MT per hectare, with an income of less than INR 20,000 per hectare. Many farmers lack farming skills, resources, and capital, leading to low productivity. This creates a cycle of low confidence, poor farming, and low investment. Erratic rainfall, a lack of irrigation, and poor market access worsen the situation, making farming unviable. Agriculture provides food security for only 6-8 months, and alternate livelihood opportunities are limited. Many people migrate for work, earning less than INR 40,000 annually, with over 50 percent living in severe poverty.

3.2 Selection of Thematic Areas and Interventions

In response to the challenges faced in the project area, PRADAN proposed interventions funded by HDFC Bank CSR under the HRDP program. The focus was on improving water and farm management, along with promoting clean energy through Natural Resources Management. Additionally, the project aimed to provide agricultural training, skill development, livestock management, and support for entrepreneurship under ST&LE. Educational institution development and support, as well as health awareness and sanitation practices, were prioritised under PoE and H&S themes, respectively.

The specific activities for each village were determined through thorough consultations with the Village Development Committees (VDCs), established at the onset of the project. Activities under each of the four thematic areas are as follows: (see **Error! Reference source not found.**4).

Table 4: Activities under four thematic areas

Activity Category	Activities	Output Indicators
NRM		
Irrigation Management	Farm pond construction or renovation, installation of drip, solar based micro lift irrigation system, excavation of low land broad well,	Income from agriculture
Farm Management	Vermi pits or its installation, *machan* system, agriculture equipment provided	Farm productivity increase
Clean Energy	Installation of solar lights, low smoke *chullah*	Clean energy
ST&LE		
Agriculture Training and Support	Application of organic manure, Farm Field School, farmers exposure visits, grading and sorting cum community training centre, floriculture,	Access to agriculture training and services
Entrepreneurship Development	Oil pressing unit, bamboo article making, sal leaf plate making unit	Skill and entrepreneurship development
Livestock Management	Goat farming, backyard poultry night shelter, Breed farm(goat), livestock management training, training/exposure of *Pashu Sakhis*	Livestock management
H&S		

Drinking Water Management	Community overhead tank with solar pump	Clean drinking water
Sanitation	Water soak pits, toilets/bathing enclosures	Improving sanitation
Kitchen Garden	Kitchen garden development, seed provided	Nutritious food
PoE		
Educational Institutions Development	Installation of smart class room, BaLA painting, school building development, Anganwadi renovated	Infrastructure in educational institutions

Each category has been further broken down into sub-categories and activities, along with the focus beneficiary types (refer Annexure **Error! Reference source not found.**).

3.3 Project Implementation

The project aims to stimulate growth in the agricultural sector through investments in natural resource management while improving the quality of life in project villages by investing in basic amenities. This initiative will empower women, giving them a greater voice in their families and communities. Families will benefit from enhanced self-esteem, improved livelihood capabilities, increased income, and a better quality of life through access to basic amenities.

The major objectives of the project include:

- Ensuring women and their families have sufficient, nutritious food year-round.
- Enhancing income for women and their families to meet their basic needs.
- Increasing knowledge among women and their families about age- and gender-specific nutritional requirements.
- Improving awareness of women and child health care.
- Strengthening understanding of gender inequalities and discrimination.
- Facilitating access to basic amenities for women and their families.
- Educating women on accessing mainstream support services and entitlements such as PDS, ICDS, health services, and wage-earning opportunities.
- Improving the quality of life for 2,300 families in these villages through the provision of basic services.
- Demonstrating a model of Corporate-CSO-Government partnership, showcasing how corporate philanthropy can ensure convergence, leading to the holistic development of villages and empowered communities, with the process facilitated by PRADAN.

PRADAN and HDFC Bank installed 120 solar street lights across all 15 villages, enhancing safety and security during the night and improving access to community services. The use of renewable energy lowered maintenance costs for the community, making it more sustainable. Moreover, solar-powered irrigation units and drinking facilities were set up, easing access to basic necessities for daily activities. The promotion of organic and natural farming practices was emphasised, including activities like vermicomposting and kitchen gardening. PRADAN provided resources such as vermicompost pits and seeds, enabling families to produce nutritious food at home while reducing fertiliser costs. They also distributed 500 low-smoke chullahs, which are highly effective for cooking food and significantly reduce health issues.

HDFC Bank periodically contacts the relevant implementing partner to ask specific questions about project information.

3.4 Monitoring and Evaluation

The HRDP has a standard monitoring and evaluation approach that was adopted by the implementing partners. These include reporting on project implementation progress periodically to the HDFC Bank. In addition, the program implementation team of PRADAN and HDFC Bank visits the project villages at regular intervals to review the project work sites, participate in 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. The project data is primarily managed by the implementing partner in spreadsheets that include details of the village wise activities implemented, beneficiaries mapped against each of the project activities, expenditures, etc. In addition, the implementing partner submits an annual progress report on the project activities to HDFC Bank along with the plan for the next year. This document serves as a major source of information that provides a summary of the activities implemented, outputs delivered, and outcomes achieved. In addition, 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 done 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. Annexure C goes into greater detail on these.

4 Study Findings

The project village, managed by PRADAN, boasts a diversified array of income sources. It is evident that wage labour is the most significant source of income, contributing 88 percent, indicating a heavy reliance on this form of employment. Agriculture also plays a crucial role, contributing 63 percent, and livestock follows with 31 percent, showing the importance of these sectors in the income structure. Pensions contribute 27 percent, suggesting that a significant portion of the population relies on retirement benefits. Remittances account for 7 percent, which, while not as substantial, still represents an important income stream for some households. Salaried employment and non-agricultural income (such as business and rent income) each contribute 5 percent, indicating limited diversification in income sources beyond traditional sectors and wage labour. This data highlights the reliance on wage labour and agricultural activities, with relatively lesser contributions from pensions, remittances, and non-agricultural income sources.

Figure 6: Distribution of sample based on their occupation (N=428)

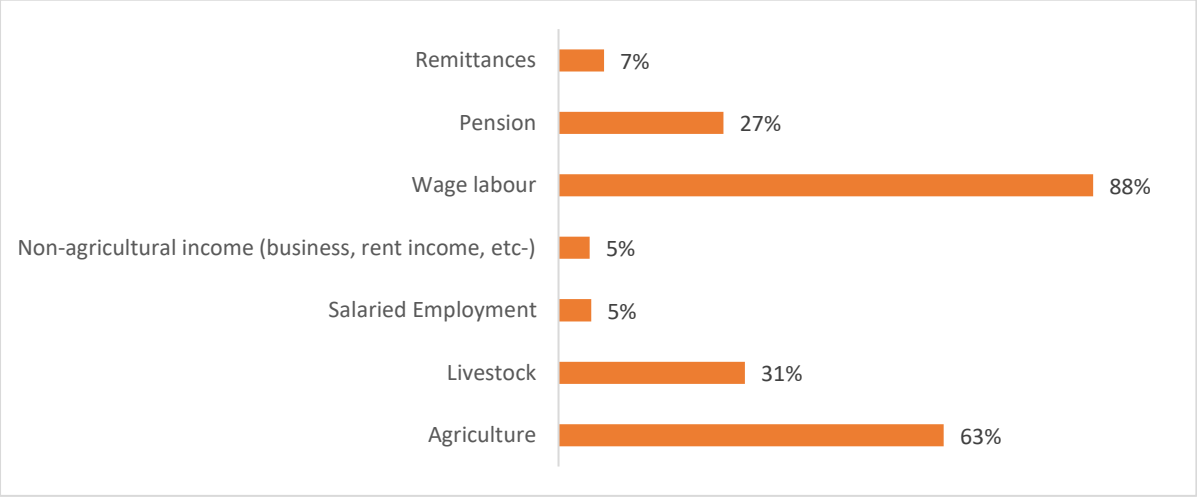


Figure 7: Educational qualification wise distribution of sample (N=428)

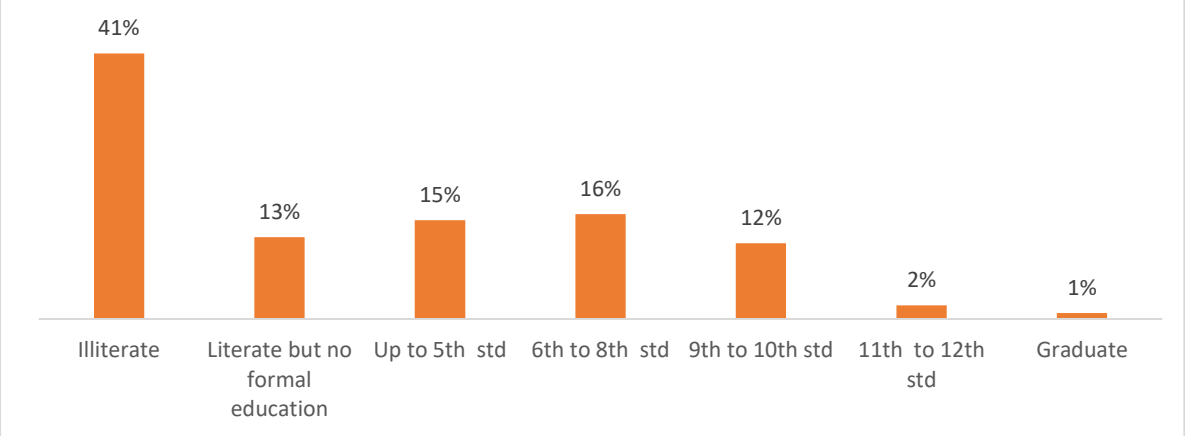
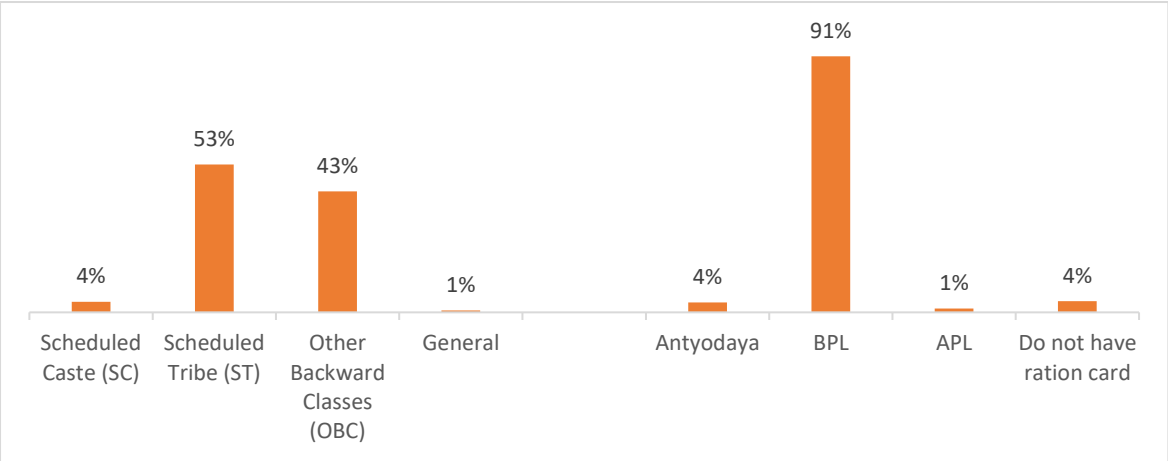


Figure 8: Caste and income categorisation sample (N=428)



In terms of social composition, Scheduled Tribes (ST) make up the majority at 53 percent, followed by Other Backward Classes (OBC) at 43 percent, Scheduled Castes (SC) at 4 percent, and the General Category at 1 percent. This indicates a predominantly marginalised community composition. Economically, the overwhelming majority of households, 91 percent, fall below the poverty line (BPL), indicating significant economic challenges. Antyodaya households, representing the poorest of the poor, constitute 4 percent, while households above poverty line (APL) make up a mere 1 percent, reflecting minimal economic advancement within the community. Additionally, 4 percent of households do not possess a ration card, which could hinder their access to subsidised food and essential commodities. This demographic and economic breakdown underscores the need for targeted development interventions to uplift the socio-economic status of the village, focusing on improving livelihoods, enhancing social welfare, and ensuring access to basic amenities for the marginalised and impoverished sections of the community.

While the above analysis represents the nature and status of the sample, the following table represents the summary and quantum of activities carried out under each intervention category of the four thematic areas (see **Error! Reference source not found.**).

Table 5: Quantum of activities under each activity category of four thematic areas

Activity Category	Activities
Irrigation Management	Farm pond construction or renovation Installation of drip Solar based micro lift irrigation system Excavation of low land broad well
Farm Management	Vermi pits or its installation Azola *Machan* system Agriculture equipment provided
Clean Energy	Installation of solar lights Low smoke *chullah*
Agriculture Training and Services	Application of organic manure Farm Field School Farmers Exposure Visits Grading and sorting cum training centre Floriculture

Skill and Entrepreneurship Development	Oil pressing unit Bamboo article making Sal leaf plate making unit
Livestock Management	Goat farming Backyard poultry night shelter Breed farm(goat) Livestock management training Training/Exposure of Pashu Sakhis
Drinking Water Management	Community overhead tank with solar pump
Sanitation	Water soak pits Toilets/bathing enclosures
Kitchen Garden	Kitchen garden development, seed provided
Educational Institutions Development	Installation of smart class room BaLA painting and school building development Anganwadi renovated

(Source: Project MIS from Implementing Agency)

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

4.1 Natural Resource Management

In Shikaripara block of Dumka district, agriculture was the primary income source for villagers, who were primarily dependent on rainfed crops and monsoon-based irrigation. However, the lack of adequate irrigation infrastructure severely affected farmers' socio-economic conditions, as they could not afford essential water-supply resources like pumps and pipes. Addressing this critical challenge, the PRADAN team implemented significant irrigation improvements. They installed 23 solar-based micro lift irrigation systems, excavated 17 lowland broad wells, and either desilted, renovated, or constructed 130 farm ponds. These initiatives effectively doubled the irrigated area to 600 hectares, directly benefiting 640 farmers. As a result, farmers could cultivate a greater variety and quantity of crops, substantially increasing their income. The development of irrigation infrastructure has had a profound impact on the farmers' livelihoods. With improved water availability, farmers can now engage in year-round vegetable cultivation, ensuring a steady income stream. This transformation not only boosted crop productivity but also enhanced the durability and functionality of existing irrigation wells through desiltation and parapet renovation. Consequently, farmers could irrigate more agricultural land efficiently, leading to increased crop yields and, ultimately, higher incomes. The year-round availability of water has enabled farmers to diversify their crops and reduce their dependency on monsoon rains. This has resulted in a more resilient agricultural practice, capable of withstanding climatic uncertainties and ensuring food security. The initiative demonstrates the critical role of irrigation infrastructure in rural development, highlighting how targeted interventions can drive substantial improvements in farmers' livelihoods and overall community well-being.

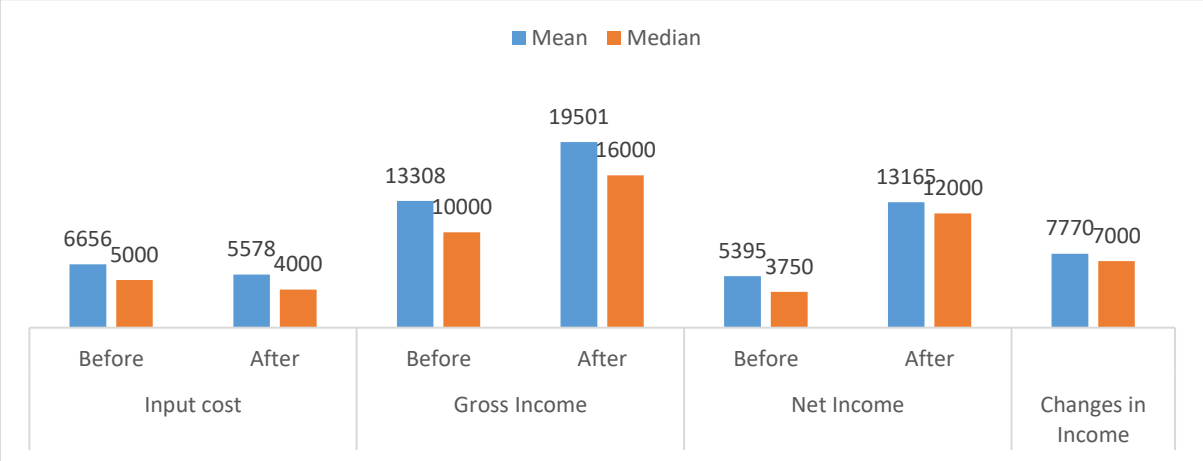
4.1.1 Income from Agriculture

The implemented initiatives have yielded a favorable influence on the farmers' income generation capabilities. Analysing the data reveals the financial impact of PRADAN's irrigation interventions on farmers in Shikaripara block, Dumka district. Before the intervention, the mean input cost for farming was INR 6656, with a median of INR 5000. After the intervention, these costs decreased to a mean of INR 5578 and a median of INR 4000, representing a 16.2 percent reduction in mean input costs and a 20 percent reduction in median input costs. This reduction

in costs indicates more efficient farming practices due to improved irrigation. Gross income saw a significant increase, with the mean rising from INR 13308 to INR 19501 (a 46.6 percent increase) and the median from INR 10000 to INR 16000 (a 60 percent increase). This substantial rise in gross income reflects the positive impact of enhanced irrigation, allowing farmers to cultivate more crops and achieve higher yields.

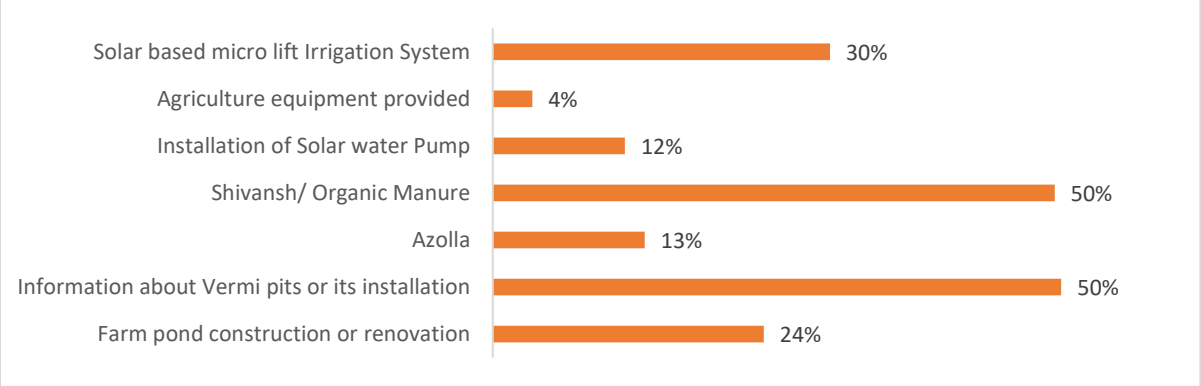
Net income improvements were even more pronounced. The mean net income increased from INR 5395 to INR 13165, a remarkable 144 percent increase, while the median net income rose from INR 3750 to INR 12000, an increase of 220 percent. These figures highlight the drastic enhancement in farmers' profitability and financial stability. The overall change in income, averaging INR 7770 and with a median of INR 7000, underscores the significant economic benefits derived from the irrigation projects. The interventions not only reduced farming costs but also greatly enhanced gross and net incomes, substantially boosting the livelihoods of the farmers in the region.

Figure 9: Income from agriculture (N=180)



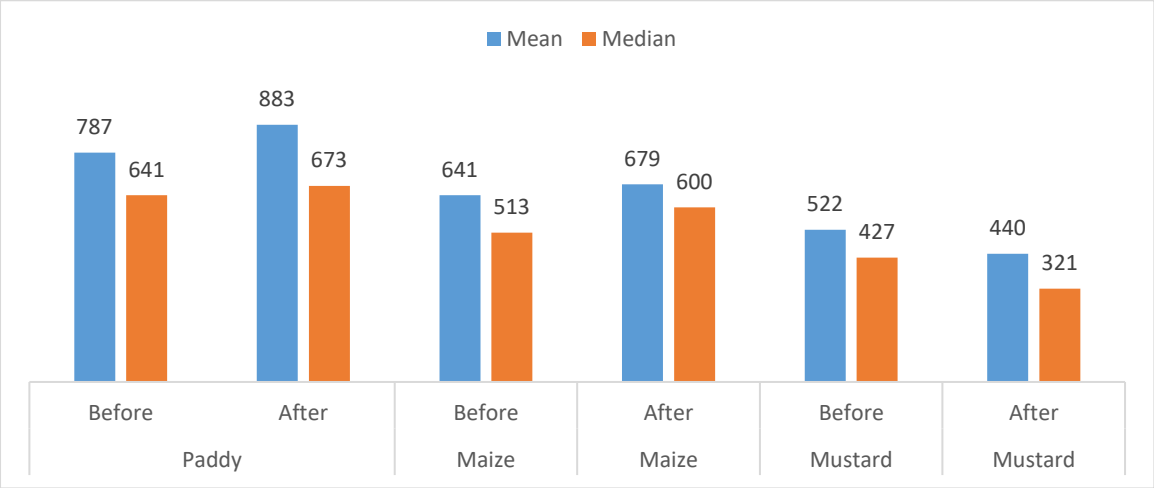
The alteration in farmers' income-generation capacity is attributed to several factors. Foremost among these is the accessibility of irrigation water. Essential elements like training, organic manure promotion, solar-based micro irrigation, farm pond construction, renovation, distillation, etc., installation of solar water pumps and diversification of crops have significantly elevated their income and livelihood prospects.

Figure 10: HRDP contribution that contributed to the increase in agriculture income (N=171)



The data showcases the various interventions by HDFC Bank that have contributed to increased agricultural profits for farmers. Notably, information about vermi pits and Shivansh/organic manure each benefited 50 percent of the farmers, underscoring the importance of organic farming practices. The installation of solar-based micro lift irrigation systems aided 30 percent of farmers, highlighting a significant shift towards sustainable irrigation. Farm pond construction or renovation supported 24 percent of the farmers, enhancing water storage capabilities. The use of azolla, was adopted by 13 percent of the farmers, contributing to improved soil health. Solar water pumps were installed for 12 percent of the farmers, further supporting renewable energy use in agriculture. Additionally, 4 percent of the farmers received agricultural equipment, indicating efforts to modernize farming techniques. These diverse interventions collectively facilitated substantial improvements in agricultural productivity and profitability, reflecting the project's success in enhancing the economic well-being of the farming community.

Figure 11: Productivity per acre (crop-wise)



The principal crops cultivated in the study area include paddy, maize and mustard. The paddy productivity increased, with the mean rising from 787 to 883 kg and the median from 641 to 673 kg, indicating improved yields per acre. Similarly, maize productivity saw an enhancement, with the mean increasing from 641 to 679 kg and the median from 513 to 600 kg, reflecting better crop performance. Conversely, mustard productivity declined, with the mean dropping from 522 to 440 kg/acre and the median from 427 to 321 kg/acre. This decrease in mustard productivity can be attributed to two primary reasons: 50 percent of respondents cited bad weather, while the other 50 percent mentioned a decreased area under cultivation. Despite the positive trends in paddy and maize productivity, the challenges faced by mustard underscore the need for targeted interventions to address weather-related risks and optimise land use for better crop yields.

The increase in farmers' income in the project area can be attributed to several key factors influenced by HDFC Bank's interventions. Primarily, HDFC's initiatives in irrigation had the most substantial impact, benefiting 59 percent of the farmers by ensuring reliable water supply and improving crop yields. Organic farming interventions also played a significant role, with 54 percent of farmers benefiting from enhanced soil health and reduced input costs. Furthermore, the provision of improved seeds and tools impacted 25 percent of the farmers, contributing to higher productivity. External factors also influenced income growth; 43 percent of farmers benefited from favourable market prices, while 38 percent experienced income boosts due to

increased cultivation areas. Additionally, 32 percent of farmers reported positive impacts from favourable weather conditions. Collectively, these interventions and external factors significantly enhanced agricultural productivity and profitability, leading to increased incomes for the farming community.

Furthermore, a 2-sample z-test conducted on paddy productivity yielded compelling results, with a p-value of 0.6444 against a z-statistic of 10.30 at a 95 percent confidence level, confirming the significant influence of these interventions. Detailed calculations can be referenced in Annexure (D), highlighting the efficacy of these strategies in augmenting agricultural income and productivity for farmers.

Figure 12: NRM structure run by clean energy (Solar Lift Irrigation)

4.1.2 Use of Clean Energy Solutions

In consultation with the village development committees, the implementing partner installed a total of 120 solar street lights in the fifteen villages and gave 500 smokeless chullah to 500 families. The installations of solar street lights were strategically placed in areas with common public infrastructure and high foot traffic. The aim was to provide access to clean energy solutions and enhance safety and mobility for villagers, especially during the night.

After the intervention, 85 percent of households reported accessing the clean energy solution provided by HDFC Bank, while the rest lacked access. The introduction of solar street lights notably enhanced their situation, positively affecting the lives of many villagers. Currently, 65 percent of the installed solar street lights are functional, providing continuous illumination throughout the night. This operational efficiency is essential for addressing the safety and mobility requirements of villagers. While villagers assumed responsibility for maintenance, challenges arose due to obstacles in procuring spare parts and accessing technicians.

Figure 13: Benefits of Solar Street Lights (N-236)

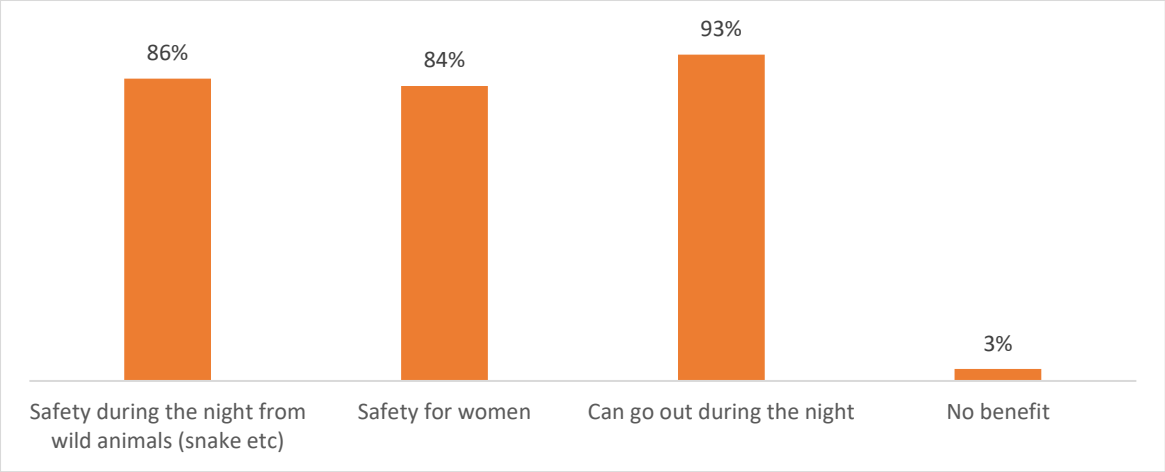
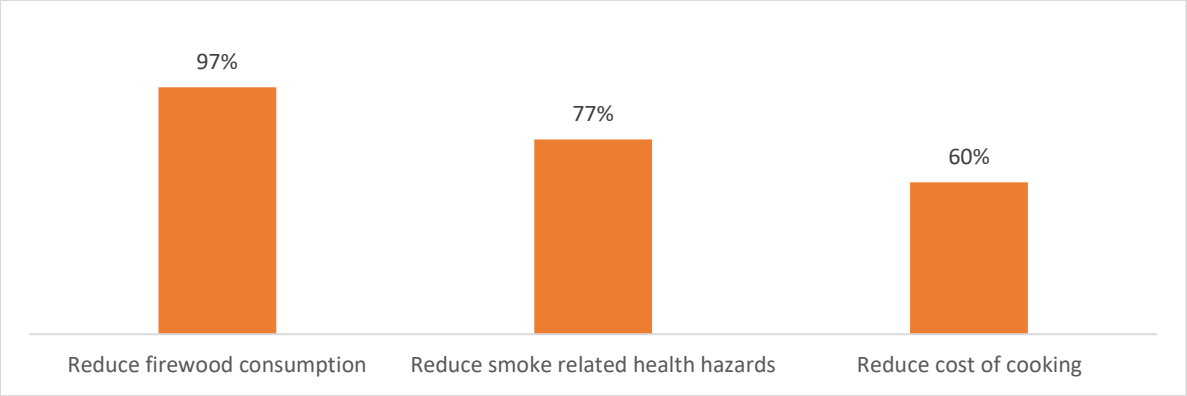


Figure 14: A solar light installed in the project village

The introduction of solar street lights has brought significant benefits to households, as highlighted by the respondents. A notable 93 percent reported that the lights enabled them to go out during the night, indicating enhanced mobility and social activities after dark. Safety improvements were a major benefit, with 86 percent of respondents feeling protected from wild animals, such as snakes, reducing night time hazards. Additionally, 84 percent highlighted increased safety for women, suggesting that the street lights have made the environment more secure and accessible for female residents. Despite these substantial advantages, a small fraction of 3 percent reported no benefit from the installation of solar street lights. Overall, the installation of solar street lighting has greatly enhanced night time safety and freedom of movement, contributing to an improved quality of life for the majority of the community.

The study on the usage and benefits of low smoke chullah reveals several key insights. In terms of frequency, 15 percent of respondents use the low smoke chullah almost every day, 65 percent use it once every two to three days, 14 percent use it once a week, and 5 percent use it once every two weeks. This indicates that the low smoke chullah is a regular part of the cooking routine for most households. Regarding its purposes, 36 percent of users utilise the chullah exclusively for preparing meals, while a significant 77 percent use it for other purposes such as making tea, and 28 percent use it for heating. The widespread usage for multiple purposes highlights its versatility and importance in daily life.

Figure 15: Perceived benefits of low smoke chullah



The perceived benefits of using low smoke chullahs are notably positive. A substantial 97 percent of respondents noted a reduction in firewood consumption, indicating increased efficiency and cost savings. Additionally, 77 percent reported a decrease in smoke-related health hazards, reflecting improved indoor air quality and health benefits. Furthermore, 60 percent of respondents acknowledged a reduction in the cost of cooking, emphasising the economic advantages of using low smoke chullahs. Overall, the data demonstrates that the low smoke chullah is not only widely used but also significantly beneficial in terms of efficiency, health, and cost savings.

4.1.3 Impact Observations

Figure 16: Level of Impact - NRM

4.1.4 Case Study

Transformation of Agriculture and Livelihoods in Murayam Village

Murayam village, located in Shikaripara block, faced significant agricultural challenges before the implementation of the Solar Lift Irrigation (SLI) system. With only 2 acres of cultivable land mainly dedicated to seasonal paddy cultivation, the 15 households struggled with food insecurity and limited income, leading to migration in search of labor opportunities.

Following the installation of the SLI system, the agricultural landscape of Murayam underwent a transformation. The SLI expanded the cultivable area by an additional 5 acres, bringing the total to 7 acres. This included 2 acres of lowland and 3 acres of previously barren highland, now used for diversified crops such as vegetables (chilli, cauliflower, cabbage, brinjal, and okra) and staples like mustard and potato. The introduction of SLI not only increased agricultural productivity but also significantly boosted household incomes. Previously earning around INR 40,000 annually from paddy alone, Sunil and Sushil, among others, now generate over INR 1 lakh annually through diversified farming. This income increment of INR 60,000 has enabled them to envision a sustainable future within their village rather than seeking employment elsewhere.

The conversion of 3 acres of barren land into cultivable fields highlights the sustainability of the SLI initiative. Farmers in Murayam now plan their agricultural activities throughout the year, ensuring continuous cultivation to meet their nutritional needs. This has not only improved food security within the community but also enhanced their resilience against seasonal variations and economic uncertainties.

4.2 Skill Training and Livelihood Enhancement

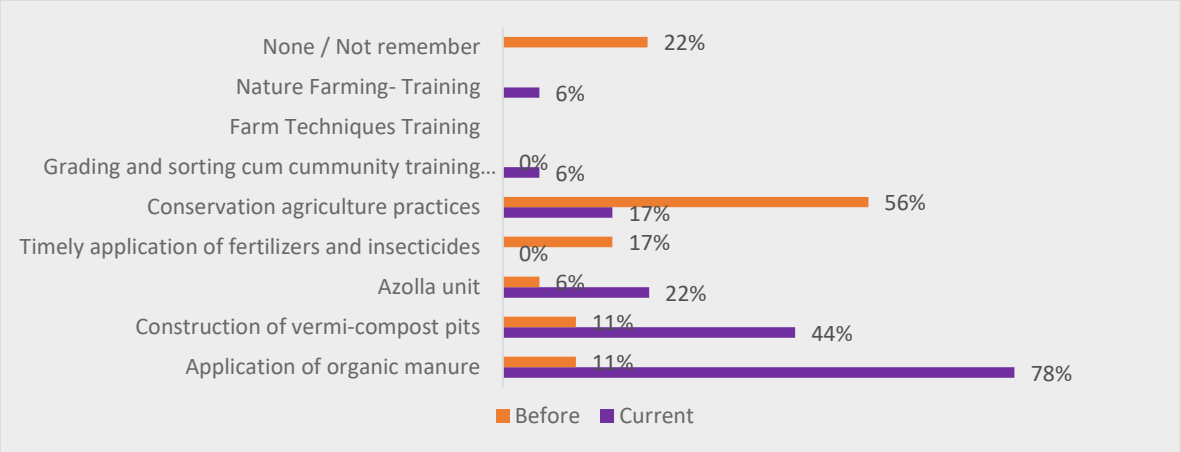
4.2.1 Access to Agriculture Training and Services

Under the HRDP, HDFC Bank has initiated various efforts to enhance access to agricultural training and services. A total of 450 farmers received training on organic manure, learning about quality ingredients, ideal temperature conditions, and safety precautions. This empowered them to produce high-quality manure, leading to improved crop yields and reduced reliance on chemical fertilisers. Additionally, farmers could sell surplus manure to fellow farmers, boosting their income. As part of the training program, 20 farm exposure visits were organised. Village-level trainers provided step-down training for 1,000 women farmers, building their capacity on high-value crops using improved techniques such as selecting suitable crop varieties, crop rotation, diversification, cost-benefit analysis, and integrated pest management. Progressive farmers were also trained in demonstration models like net/polyhouse, drip, mulching, trellis, multi-layer farming, rain shelters, azolla beds, vermicompost, and glyricidia. Agriculture Production Clusters (APCs) were created to form ecosystems around marginal farm households,

enabling access to bank services, markets, and knowledge institutions. These clusters, comprising 400-500 farmers, improved market responses through collective bargaining, sorting, storage, and sales. Furthermore, 100 farmers were equipped with *machan* farming, receiving the necessary equipment and seed support for crops like lauki, taroi, french beans, and bitter gourd. This initiative facilitated access to nutritious food and enabled farmers to generate income by selling their harvest.

In a first-time intervention in the Shikaripara block, six farmers from Gandhrakpur and Gamra villages collaboratively cultivated marigolds on 4 acres of land. Initially, they transplanted 70,000 seedlings in a row system. Their dedication led to an initial harvest of 1 quintal in just 30 days. They sold marigolds throughout the festive seasons of Durga Puja, Diwali, and Chhath Pooja, when the flowers were in high demand. Nearby markets in Deoghar, Basukinath, and Dumka preferred the locally grown, fresher flowers over those from West Bengal, which required a day for transport. This local advantage boosted demand. Farmers found marigold cultivation relatively easy, needing minimal irrigation, and experiencing negligible disease attacks. They also noted that marigolds could be used as a trap crop near vegetable cultivation to reduce pest attacks and eliminate the need for pesticides. Following this success, 30 more farmers were trained and supported in the project, yielding positive results. Overall, the farmers expressed satisfaction with their production and income.

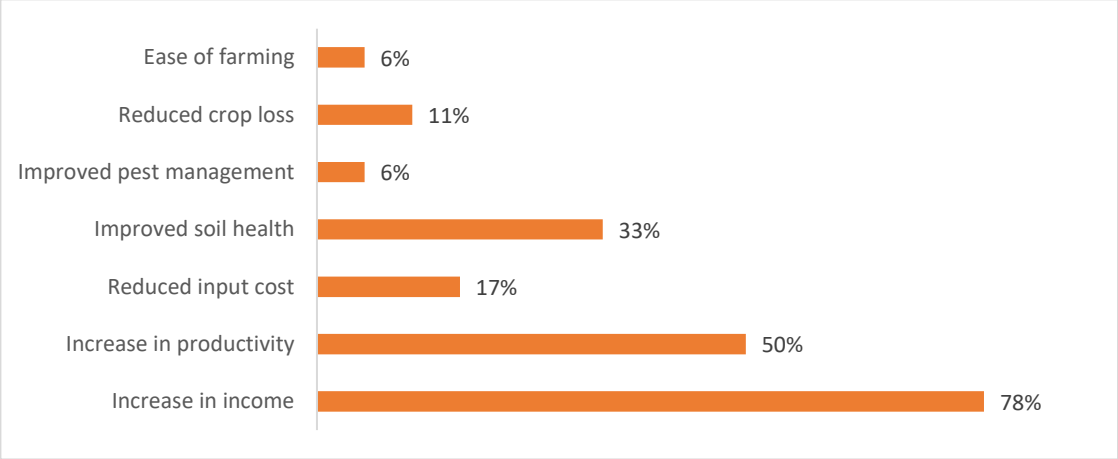
Figure 17: Respondents practising different activities before and after the interventions (N=18)



The data highlights significant changes in agricultural practices before and after interventions. The application of organic manure has seen a remarkable increase with a rise of percentage respondents using it from 11 percent (pre-project) to 78 percent (post-project), indicating a shift towards more sustainable farming methods. The construction of vermi-compost pits also rose significantly, from 11 percent respondents reporting it (pre-project) to 44 percent respondents (now), showing an increased adoption of organic waste management practices. Similarly, according to respondents,reporting the utilisation of azolla units increased from 6 percent before the project to 22 percent after the project, indicating enhanced awareness and adoption of biofertilizers.Conversely, there has been a decline in the timely application of fertilisers and insecticides, with respondents reporting a decrease from 17 percent before the project to 0 percent after the project, suggesting a potential shift from chemical inputs to organic methods. Additionally, the adoption of conservation agriculture practices reported a decreased from 56 percent pre-project to 17 percent post-project, possibly reflecting a re-evaluation of priorities or allocation of resources. Emerging initiatives, such as grading and sorting at community training

centres, have seen an adoption rate of 6 percent, demonstrating efforts to improve post-harvest practices. Furthermore, 6 percent of farmers reported receiving training in nature farming, a new approach introduced to the community. Despite these advancements, 22 percent of respondents either did not recall or did not adopt any of the new practices, highlighting the ongoing need for continuous education and support. Overall, the data suggests a positive trend towards sustainable and organic farming practices, though some areas still require attention and improvement.

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



The data reveals the perceived benefits from agricultural interventions, highlighting significant improvements in various aspects of farming. A substantial 78 percent of respondents reported an increase in income, indicating that the interventions have positively impacted farmers' financial well-being. Half of the respondents noted an increase in productivity, showcasing enhanced crop yields and overall farm output. Reduced input costs were observed by 17 percent of the farmers, reflecting cost savings from decreased reliance on expensive chemical fertilisers and pesticides. Improved soil health was cited by 33 percent of respondents, indicating that sustainable practices such as the use of organic manure and vermi-compost have enriched the soil's quality and fertility. Improved pest management was acknowledged by 6 percent of the farmers, suggesting that organic and integrated pest management techniques have been somewhat effective. Reduced crop loss was reported by 11 percent, highlighting the benefits of better farming practices and timely interventions in safeguarding crops.

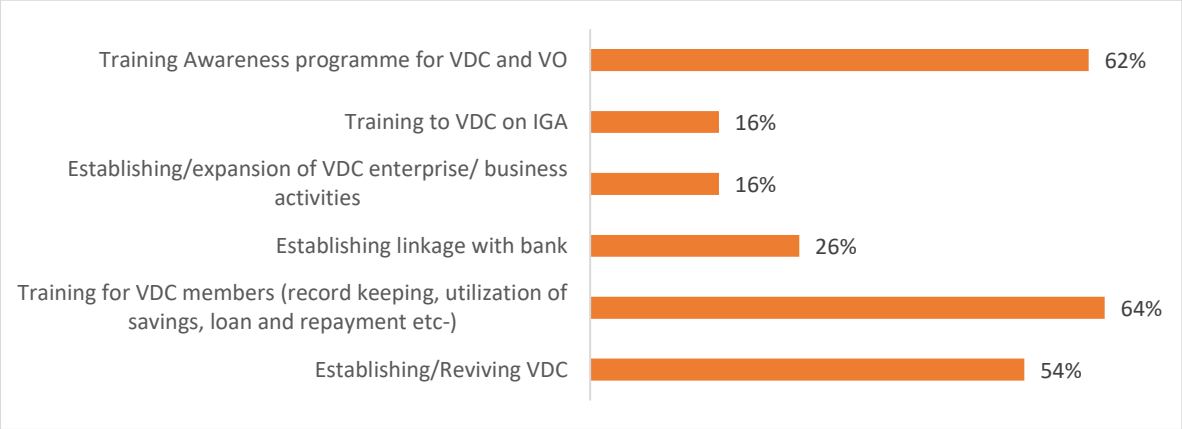
Additionally, 6 percent of respondents experienced ease of farming, indicating that new techniques and tools have made farming operations more manageable and efficient. Overall, these interventions have brought about multiple benefits, enhancing income, productivity, soil health, and cost efficiency, though there is still room for improvement in pest management and further reducing crop loss.

4.2.2 Access to Skill and Entrepreneurship Development

In each village, a Village Organisation (VO) is formed by selecting members from the Self-Help Groups (SHGs) operating within the village, typically consisting of 10-12 SHGs. Four members from each SHG are elected to form the VO, or Village Development Committee. Before initiating any activity in the village, the respective VO is consulted, and only upon their approval does the work commence. For community-level activities, the VO receives training and necessary support. This structure facilitated the establishment of two oil processing units, a bamboo article production unit, and two sal leaf plate manufacturing units in several project villages. The VO

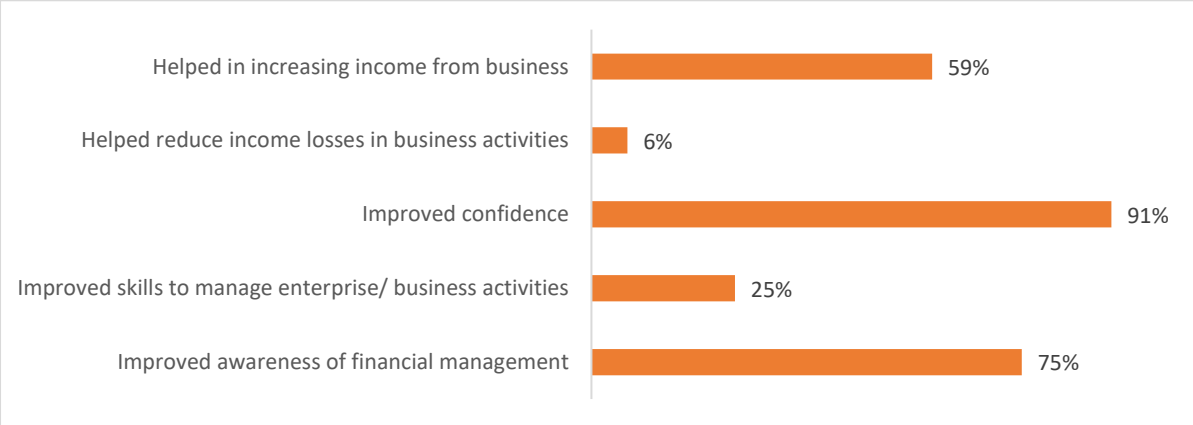
made decisions regarding operations, including hiring two local individuals to manage the units, and implemented a sharing model where the VO received a portion of the proceeds. This revenue was used for machine maintenance and to build a corpus fund from the mustard oil processing unit. This model was successfully replicated in the sal leaf plate unit. However, it did not perform well due to poor site selection, highlighting the importance of careful planning in such initiatives.

Figure 19: Project support received since inception (N=50)



Since the inception of the project, VO has received support in various critical areas. Training for VDC members, covering aspects like record-keeping, savings utilization, and loan management, has been the most emphasised area, with 64 percent of respondents highlighting this support. Training awareness programs for both VDC/ VO members have also been a major focus, as per 62 percent respondents. Establishing or reviving VDCs has garnered significant attention, with 54 percent indicating support in this area. Establishing linkages with banks has been less prioritised but still notable, with 26 percent of respondents mentioning this support. The establishment or expansion of VDC enterprises and business activities, along with training for VDCs on Income Generating Activities (IGA), has received relatively lower emphasis, each mentioned by 16 percent of respondents. This summary underscores the project's primary focus on capacity building and organizational development while suggesting that further attention could be beneficial for enterprise expansion and financial connectivity to enhance the overall sustainability and impact of VDC initiatives.

Figure 20 : Perceived benefits from the skill and entreprnurship development



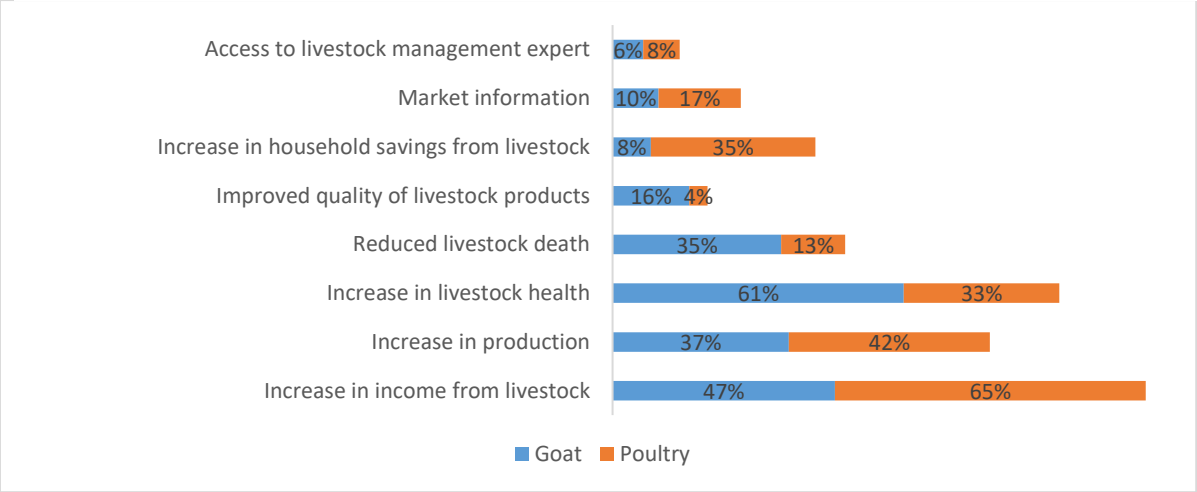
The training and support provided to village organisations have yielded several perceived benefits, as reported by respondents. A substantial 91 percent of respondents indicated that their confidence improved significantly due to the training. Additionally, 75 percent reported improved awareness of financial management, highlighting the effectiveness of the training in enhancing financial literacy. Furthermore, 59 percent noted that the support helped them increase their income from business activities, demonstrating tangible economic benefits. However, only 25 percent felt that their skills in managing enterprise and business activities improved, suggesting a potential area for further development. A mere 6 percent reported that the support helped reduce income losses in their business activities, indicating that while the training bolstered confidence and financial awareness, it might not have sufficiently addressed risk mitigation and loss prevention. Overall, the training programs have been successful in building confidence and financial knowledge, but there is room for improvement in enhancing business management skills and strategies to minimize income losses.

4.2.3 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, resulting in significant outcomes from a researcher's perspective. Targeting vulnerable families such as widows, single women, and the landless identified through the SECC survey, two goat breeder farms were established, benefiting 1,500 women farmers. These efforts notably impacted malnutrition among goat kids and mother goats. Additionally, 220 farmers were provided with goat sheds, which proved crucial in maintaining goat health and preventing disease, thereby increasing the availability of goat meat and milk for severely malnourished children and boosting overall family income.. Women engaged in goat rearing were identified and supported in constructing these sheds, further promoting livestock health and productivity.

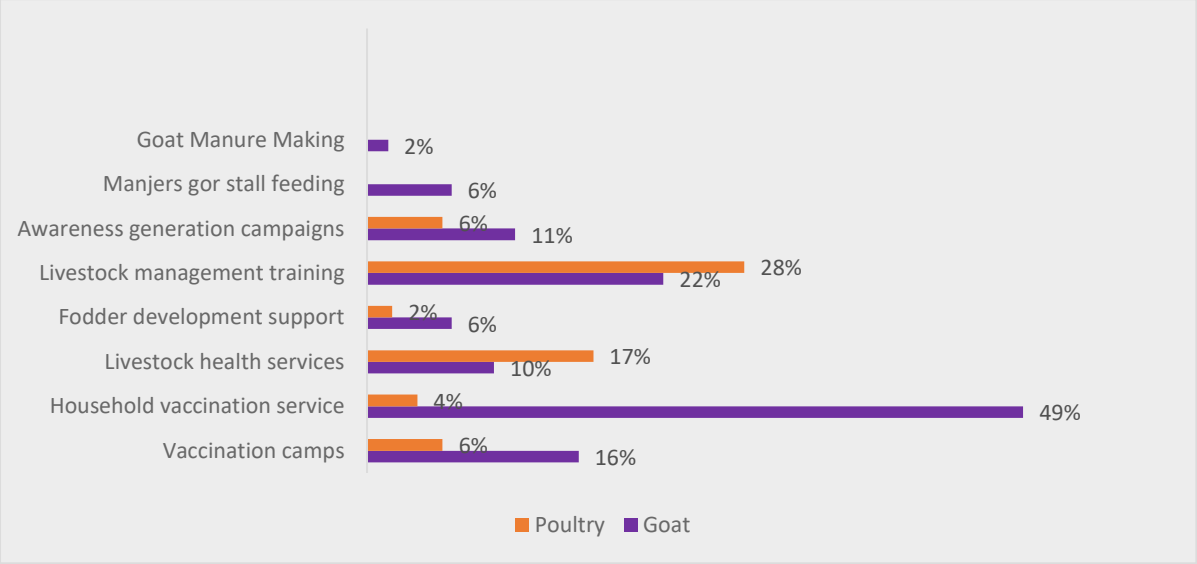
In parallel, backyard poultry farming initiatives involved training villagers to domesticate birds for egg and meat production, serving as a supplementary source of income. Over four years, PRADAN trained 250 villagers and facilitated the establishment of 250-night shelters to ensure the sustainability of this enterprise. Each beneficiary received raw materials, including bricks, cement, cement sheets, iron doors, and netting, to construct the shelters and farms. The initiative identified women engaged in backyard poultry and supported them in building the necessary infrastructure, which significantly reduced the mortality rate of chickens. Moreover, 90 livestock training sessions were conducted, and eight Pashu Sakhi’s were appointed to guide and attend to the health of the livestock. These collective efforts contributed to healthier livestock, increased productivity, and improved economic outcomes for the villagers.

Figure 21: Perceived benefits of livestock management (Goat N=62, Poultry N=52)



The primary benefits gained from livestock management activities vary between goat and poultry farming, as evidenced by the responses of the respondents. In terms of income generation from livestock, 47 percent of respondents identified goats as beneficial, compared to 65 percent for poultry. Similarly, 37 percent cited an increase in production as a benefit for goats, whereas 42 percent noted this for poultry. When it comes to livestock health, a significant 61 percent favoured goats, while only 33 percent favoured poultry. Reduced livestock mortality was also more appreciated in goats at 35 percent, compared to poultry at 13 percent. Improved quality of livestock products was acknowledged by 16 percent for goats and a lower 4 percent for poultry. Conversely, household savings attributed to livestock were seen more prominently with poultry at 35 percent versus a mere 8 percent for goats. Market information was valued at 10 percent for goats and 17 percent for poultry. Access to livestock management experts was noted by 6 percent for goats and 8 percent for poultry. Overall, the findings highlight varying perceived benefits between goat and poultry farming, emphasising income, production, health, and savings as key factors influencing respondents' preferences and perceptions.

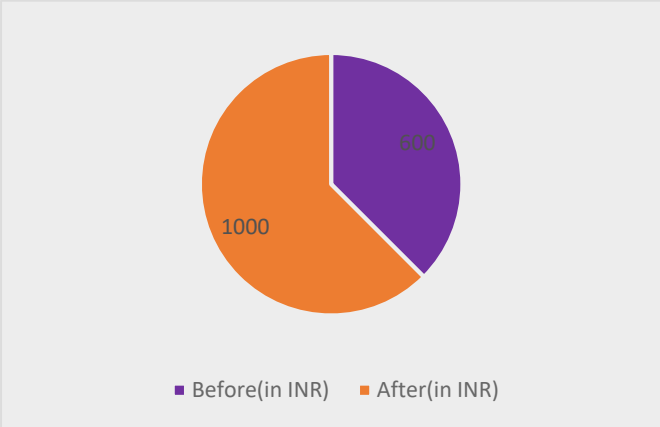
Figure 22: Type of project services received for different livestock (Poultry N=53, Goat N=63)



The project provided a variety of services to support goat and poultry livestock management, as reported by respondents. For goats, 16 percent of respondents participated in vaccination camps, and 49 percent received household vaccination services. Household insemination services were utilised by 5 percent, while 10 percent accessed general livestock health services. A notable 52 percent benefited from animal shelter support, and 6 percent received fodder development assistance. Livestock management training was attended by 22 percent, and 11 percent took part in awareness generation campaigns. Additionally, 6 percent received support for manger stall feeding, and 2 percent engaged in goat manure making.

Regarding poultry, 6 percent of respondents attended vaccination camps, and 4 percent received household vaccination services. Livestock health services were utilised by 17 percent of poultry farmers. The most significant assistance was provided for animal shelters, with 81 percent of respondents reporting receiving support. However, only 2 percent reported receiving support for fodder development. Livestock management training was attended by 28 percent, and 6 percent participated in awareness campaigns. These findings underscore the project's strong focus on supporting animal shelters for poultry and providing household vaccination services for goats. In contrast, other services such as goat insemination and poultry fodder development were less emphasised. This comprehensive strategy aims to enhance animal health, improve management practices, and ultimately boost livestock productivity and farmer livelihoods.

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 600 to INR 1000, indicating a noteworthy 67 percent improvement. This surge implies a beneficial outcome stemming from interventions or alterations implemented within the livestock sector. These interventions could encompass enhanced management strategies, improved breeding techniques, or better access to markets.

4.2.4 Impact Observation

Figure 24: Level of Impact – ST & LE

4.2.5 Case Study

Transforming Livelihoods: Menuka Tudu's Journey to Agricultural Success

Menuka Tudu, a resident of Kendpahari village in Shikaripara block, supports her six-member family on a modest 6 Bigha landholding, with only 1 Bigha suitable for cultivation. Before the intervention of the HDFC Bank project in their village, Menuka's family struggled to earn just INR 25,000 annually from agriculture and another INR 15,000 from livestock, posing significant challenges to sustaining their household of six. Upon becoming a beneficiary of the project, Menuka enthusiastically participated in training sessions that covered nursery preparation, transplantation techniques, weeding strategies, and pest control—novel experiences for farmers in Kendpahari. Inspired by the success stories of others in vegetable cultivation, Menuka made a decisive move to cultivate chillies, meticulously planning her crop calendar and dedicating 0.3 acres to this endeavor. She sourced seeds and necessary inputs through the Agri Entrepreneur associated with the Agriculture Production Cluster (APC), diligently overseeing her crop's progress to ensure adherence to operational protocols. Her diligence paid off handsomely, yielding approximately INR 80,000 in income during the first season and over INR 1 lakh in the subsequent season solely from chilli sales.

Reflecting on her journey, Menuka remarked, "Previously, preparing fields and managing crops demanded considerable energy and labor. Now, equipped with modern tools, I can efficiently mark and sow crops, weed without strain, and safeguard plants from pests independently." Nonetheless, her primary hurdle remains securing reliable water access, despite the village hosting a solar lift irrigation system located far from her land. Undeterred by this challenge, Menuka displayed courage by investing her savings and securing a loan from her Self-Help Group to install a bore well and pump costing INR 1.25 lakh. Looking ahead, she plans to expand her cultivation area to more than an acre in the upcoming season, aiming to generate an income exceeding INR 2 lakh. She also explores leasing options with neighboring farmers to expand her crop area and enhance earnings, buoyed by the success and profitability of her vegetable cultivation enterprise.

Menuka's journey epitomises resilience and entrepreneurial spirit, transforming her family's economic prospects and inspiring fellow villagers to embrace innovative agricultural practices for sustainable livelihoods. Her initiative not only underscores the transformative impact of targeted interventions but also highlights the pivotal role of empowerment through access to knowledge, resources, and community support in rural development initiatives.

4.2.6 Case Study

Empowering Rural Livelihoods through Polyhouse Farming in Chukapani Village

Minati Kol, a member of the impoverished tribal community in Chukapani village, relied solely on agriculture to support her family of four on their 1.5-acre land, with only 20 decimal lands irrigated. Before the HDFC Project, her annual income of INR 35,000 from agriculture, INR 20,000 from livestock, and INR 5,000 from daily wages barely sustained them amidst poverty and agricultural challenges. With the initiation of the HDFC Project in her area,

Minati received crucial support in the form of a polyhouse, a milestone that transformed her fortunes. Investing her savings of INR 12,000 into the polyhouse for growing vegetable seedlings like chillies, brinjal, and tomatoes, Minati started selling these seedlings to fellow farmers across the village, marking the beginning of her success story. Gradually expanding her venture, she diversified into growing vegetables like cauliflower, cabbage, kaddu, bhindi, jhinga, and beans during different seasons, alongside cash crops like broccoli and capsicum. This strategic crop planning not only boosted her income but also enabled her to earn an additional INR 80,000+ per cultivation season.

With this extra income, Minati accomplished remarkable milestones, such as enrolling her children in a private school and purchasing essential assets like a scooter for herself and a bike for her husband through instalments. Her enterprise has not only significantly improved her family's financial stability but also inspired local youths interested in agriculture as a viable and lucrative livelihood option. Minati Kol's journey exemplifies how targeted support and innovative farming practices can uplift rural livelihoods, providing a sustainable pathway out of poverty and igniting economic empowerment within the community.

4.3 Health and Sanitation

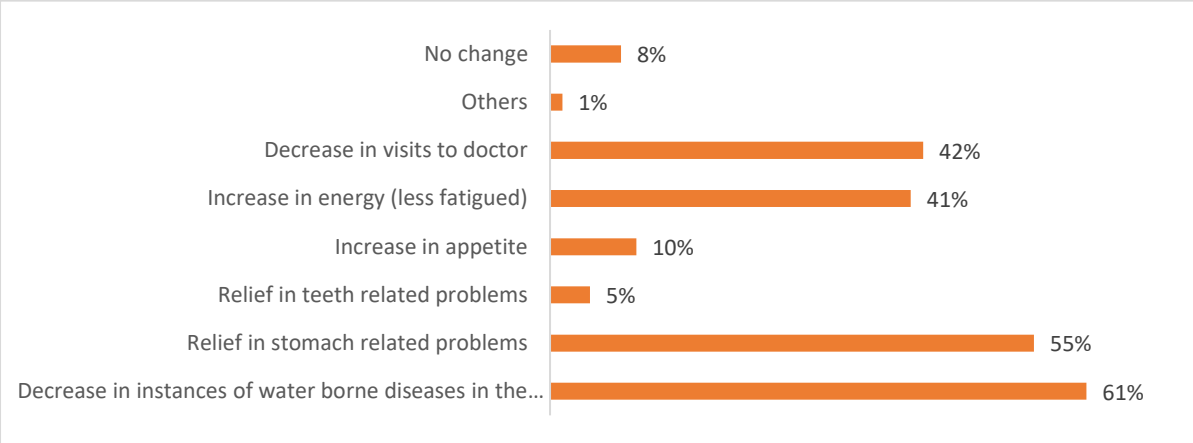
4.3.1 Availability of drinking water

Before the PRADAN intervention, most families in Shikaripara block lacked access to safe drinking water, relying on hand pumps and a few wells for their needs. The average distance to these hand pumps was 100 to 150 meters, significantly burdening the female members of the community who had to spend 1 to 2 hours daily fetching water. This task led to delays in other work and caused exhaustion. Each village in Shikaripara block consists of 5 to 6 hamlets, with these being over one kilometre apart from one another. During the summers, many families were forced to rely on the few functional hand pumps, often crowded, and sometimes had to fetch water from distant rivers, exposing them to waterborne diseases. With support from HDFC, the PRADAN team assessed the situation and installed 10 solar-powered drinking water units across 10 project villages. Each solar-based water system, costing around INR 3,50,000, has a capacity of 4000 liters

and serves about 40 to 50 households in each hamlet. These systems provide water for daily use, drinking, and kitchen purposes. To manage and maintain these systems, a committee named "*Jal Upbhokta Samiti*" was formed. Families using the water contribute INR 10 per month as a water usage charge, creating a corpus for incidental maintenance of the water system. The Jalminar tanks are also cleaned monthly.

As a result of these efforts, the community experienced a significant improvement in their quality of life. They were freed from the daily burden of water collection, allowing them to devote more time to their children, household chores, and agricultural activities. The initiative not only alleviated the physical strain but also provided them with moments of rest, enhancing their overall well-being and productivity.

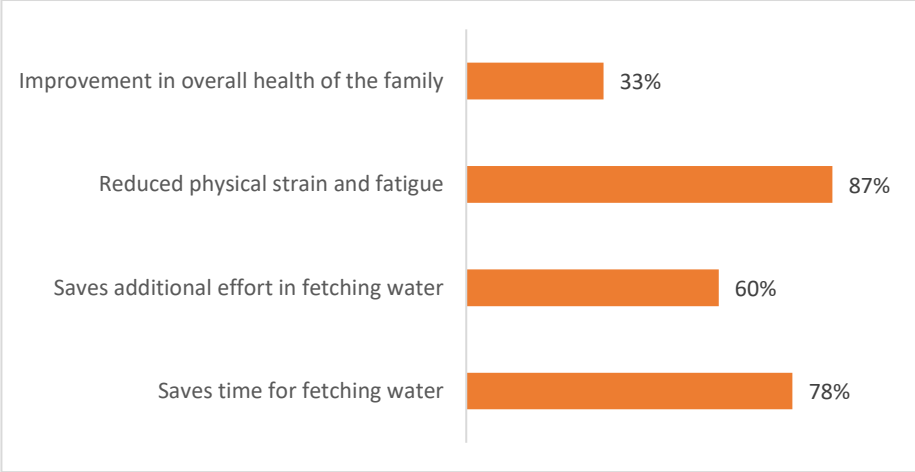
Figure 25: Perceived health benefits of improved drinking water sources (N=285)



The availability of clean water has led to several perceived health benefits for families, as reflected in respondents' responses. A significant 61 percent reported a decrease in instances of waterborne diseases such as diarrhoea, cholera, and typhoid, indicating a major improvement in overall health. This reduction in diseases likely contributes to the 55 percent of respondents who experienced relief from stomach-related problems. Additionally, a smaller portion, 5 percent, noted relief from teeth-related issues, suggesting that clean water positively impacts oral health as well. Improved health from clean water has also translated into enhanced well-being and daily functioning. Ten percent of respondents observed an increase in appetite, while 41 percent reported an increase in energy levels, feeling less fatigued. This boost in energy is crucial for enhancing productivity and overall quality of life. Another significant benefit is the decrease in visits to the doctor, reported by 42 percent of respondents, which indicates not only better health but also potential cost savings on medical expenses.

However, a small fraction of the population (8 percent) reported no change in their condition, and 1 percent cited other unspecified benefits. Overall, the availability of clean water has led to substantial health improvements, reduced medical issues, and enhanced energy and appetite, thereby positively affecting the lives of families. These benefits underscore the critical importance of access to clean water for maintaining and improving public health.

Figure 26: Drinking water availability helps women in households (N=285)



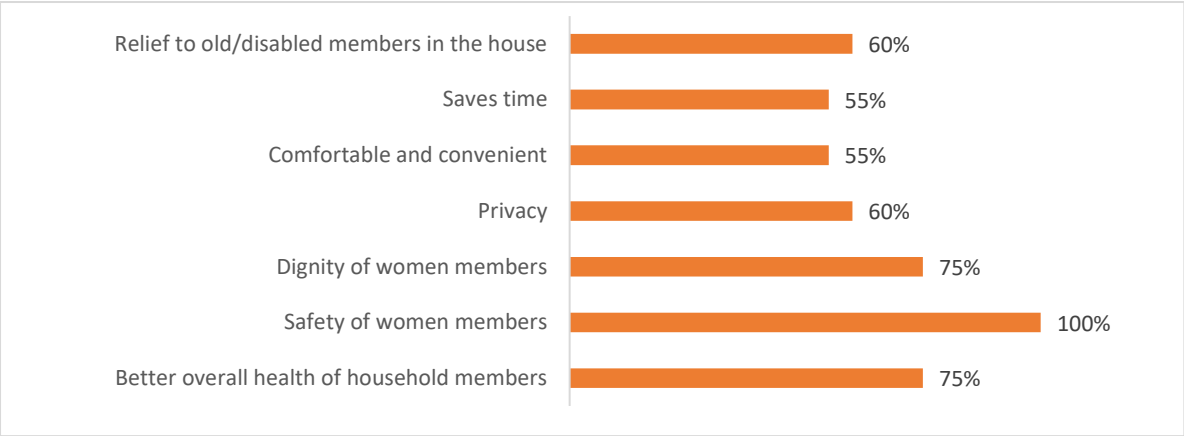
The availability of drinking water has significantly benefited women in households, as indicated by respondents' responses. A substantial 78 percent reported that it saves time spent fetching water, allowing women to allocate their time to other productive activities. Additionally, 60 percent of respondents noted that it saves additional effort required for fetching water, further reducing the workload on women. The most pronounced benefit is the reduction in physical strain and fatigue, with 87 percent highlighting this improvement. This indicates that the availability of drinking water has alleviated the physical burden on women, enhancing their well-being. Furthermore, 33 percent of respondents observed an improvement in the overall health of the family. This suggests that access to safe drinking water not only benefits women by reducing physical exertion but also contributes positively to the health of the entire household. Overall, the availability of drinking water has led to significant time savings, reduced physical strain, and improved health outcomes, greatly enhancing the quality of life for women and their families.

4.3.2 Sanitation

According to the 2011 census data and fact sheets, only 8 percent of households in Dumka had access to water on their premises. Awareness and practice of handwashing were notably low in the area. Over 85 percent of the population habitually practiced open defecation, based on a sample survey of 15 villages. This practice contributed to widespread health issues such as endemic diarrhoea, intestinal helminthiases, giardiasis, schistosomiasis, and trachoma. To address these issues, several training programs were organised to educate village on hygiene practices. These programs covered topics such as safe disposal of wastewater, proper hand washing techniques, and the use of toilets. Additionally, awareness about government provisions in this sector was addressed.

During the COVID-19 pandemic, the need for hygiene awareness became even more critical. Sixty-six soak pits were constructed near community hand pumps in the project villages to manage wastewater effectively. A support of INR 6500 was provided to 100 households that desired to combine this amount with the Swachh Bharat Mission (SBM) program launched by the Government of India. By merging these funds with SBM, beneficiaries were able to construct toilets with attached bathrooms, significantly improving sanitary conditions. The increased focus on hygiene during the pandemic underscored the importance of these initiatives, leading to better health outcomes and a reduction in waterborne and hygiene-related diseases in the community.

Figure 27: Perceived benefits of sanitation support received from HDFC Bank (N=20)



The perceived benefits of the sanitation support provided by HDFC and PRADAN have significantly impacted households, as indicated by respondents' responses. A notable 75 percent reported better overall health among household members, reflecting the crucial role of improved sanitation in reducing disease and enhancing well-being. The safety of women was universally acknowledged, with 100 percent highlighting this benefit, underlining the critical importance of secure sanitation facilities in protecting women. Additionally, 75 percent of respondents emphasised the dignity of women, showcasing how sanitation facilities contribute to their self-respect and social standing. Privacy was also a significant benefit, cited by 60 percent of respondents, indicating that proper sanitation facilities provide a much-needed private space for personal needs. Comfort and convenience were acknowledged by 55 percent, highlighting how these facilities make daily life easier. The same percentage, 55 percent, noted that the facilities save time, reducing the need for lengthy trips to distant open defecation sites.

Furthermore, 60 percent of respondents mentioned relief for old or disabled members of the household, emphasising the inclusive benefits of sanitation facilities. Overall, the support from HDFC and PRADAN has led to substantial improvements in health, safety, dignity, privacy, comfort, time management, and accessibility for vulnerable household members, profoundly enhancing the quality of life for the entire community.

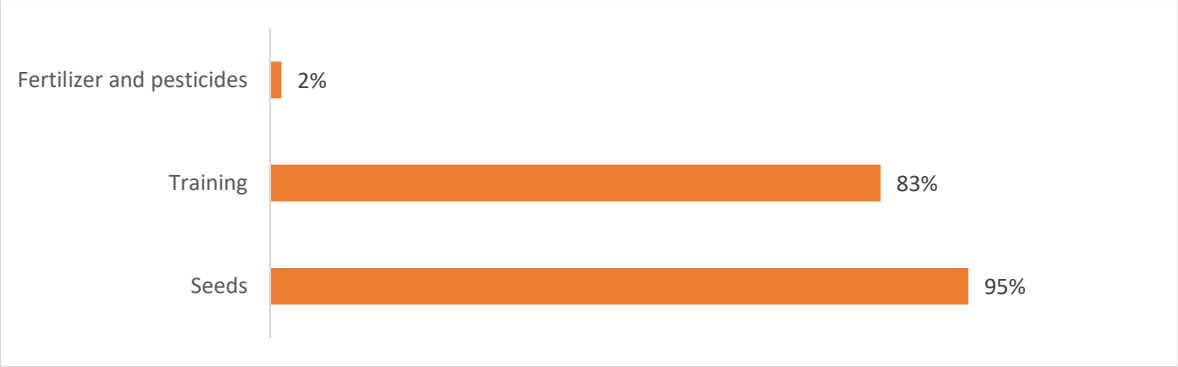
4.3.3 Kitchen Garden

In the region, children's deaths are largely attributed to acute respiratory diseases (26.4 percent), diarrhea (14.3 percent), typhoid, and other malnutrition-related illnesses such as pneumonia. Malnutrition is prevalent, with 30 percent of children born weighing less than 2.5 kg. The Infant Mortality Rate stands at 44, while the Under-5 Mortality Rate is 57. Additionally, 42.5 percent of children under five are underweight, 57.9 percent are stunted, 11.9 percent are wasted, and a staggering 97.9 percent are anemic. (Data Source: Annual Health Survey, Jharkhand, 2011-2012).

To address these critical health issues, PRADAN and HDFC Bank initiated several training programs under the HRDP project, focusing on health and nutrition. These trainings included sessions on hand-washing and the importance of a tricolor food platter. The content emphasised calculating family nutrition requirements, understanding the nutritional value of locally available foods, and demonstrating how to prepare nutritious meals. Key practices taught included cooking with iron utensils, washing vegetables before cutting, using proper storage for drinking water, and incorporating tricolor food into daily diets.

To support these nutritional goals, PRADAN and HDFC Bank promoted the development of kitchen gardens in households. They provided seeds for green leafy vegetables to 450 beneficiaries and offered training on proper planting techniques. This initiative encouraged organic farming, teaching farmers to use vermiculture instead of chemical fertilisers, benefiting both health and the environment. Additionally, surplus produce was sold for extra income. Farmers adopted sustainable practices such as crop rotation and natural pest control, leading to reduced reliance on expensive inputs and increased yields. This holistic approach not only improved the nutritional intake of families but also fostered economic and environmental benefits, enhancing the overall well-being of those villages.

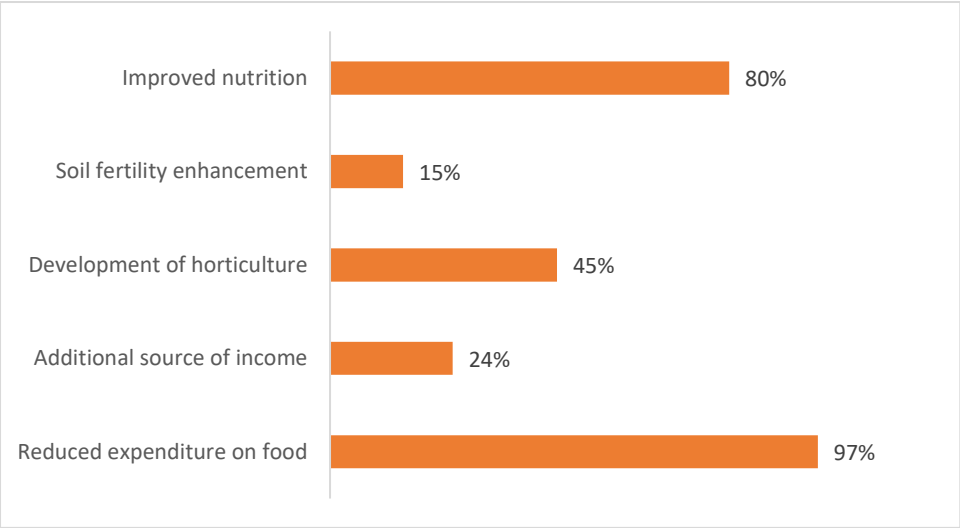
Figure 28: Support received from HDFC (N=192)



Respondents have received significant project support for developing kitchen gardens, primarily in the form of seeds and training. An overwhelming 95 percent of respondents reported receiving seeds, highlighting the emphasis on providing the essential starting materials for growing vegetables and other crops. Additionally, 83 percent of respondents mentioned receiving training, which underscores the importance of educating beneficiaries on effective gardening practices. This training likely included instruction on planting techniques, maintenance, and organic farming methods, ensuring that participants could make the most of the seeds provided and cultivate successful kitchen gardens. However, only a small fraction, 2 percent, reported receiving fertilisers and pesticides. This suggests a minimal reliance on chemical inputs, possibly due to a focus on organic and sustainable farming practices promoted during the training sessions. The low percentage for fertiliser and pesticide support aligns with the project's emphasis on environmentally friendly practices, such as using vermiculture systems instead of chemical fertilisers.

Overall, the support provided for kitchen gardens has been predominantly focused on equipping beneficiaries with seeds and the necessary knowledge to grow their own food sustainably. This approach not only enhances food security and nutrition but also promotes self-sufficiency and environmentally responsible farming practices within the community.

Figure 29: Perceived benefits of HRDP supported kitchen gardens (N= 192)



Beneficiaries of the nutrition gardens have identified several critical perceived benefits, with the most significant being a reduction in food expenditure, noted by 97 percent of respondents. This substantial decrease in food costs underscores the financial relief provided by growing their own vegetables and other crops, allowing households to allocate their savings to other essential needs. Improved nutrition is another major benefit, highlighted by 80 percent of respondents. The ability to consume fresh, home-grown produce has directly contributed to better dietary intake and overall health, addressing malnutrition and related health issues prevalent in the region. Additionally, 45 percent of respondents reported the development of horticulture as a key benefit. This indicates a growing interest and expertise in cultivating a variety of fruits, vegetables, and herbs, which not only enhances the diversity of their diets but also fosters sustainable agricultural practices. Although less frequently mentioned, soil fertility enhancement was recognised by 15 percent of respondents, pointing to the long-term environmental benefits of maintaining kitchen gardens. The organic farming practices promoted through the project likely contribute to this improvement in soil quality.

Furthermore, 24 percent of beneficiaries noted that kitchen gardens provided an additional source of income, reflecting the economic potential of selling surplus produce. Overall, the critical perceived benefits of kitchen gardens are the significant reduction in food expenses, improved nutrition, and the development of horticulture skills, all of which contribute to the well-being and sustainability of the community.

4.3.4 Impact Observation

Figure 30: Level of Impact - H&S

4.3.5 Case study

Ensuring Safe Drinking Water: The Transformation of Chukapani Village

In the rural areas of Shikaripara block, the increasing population, deforestation, and growing demands have heavily strained the environment, particularly affecting water resources. Groundwater, the primary source of drinking water for these communities, has become increasingly difficult to access, especially during peak summers.

Many village hand pumps became non-functional, forcing residents to depend on contaminated wells, rivers, and springs, leading to outbreaks of waterborne diseases like diarrhea, guinea worm, typhoid, and cholera. Chukapani village exemplifies this crisis. The scattered Tolas in Chukapani, with distances of at least 1 km between them, further exacerbated the issue. Residents vividly recall the horrific experiences during the COVID-19 lockdown when they faced severe water shortages. With hand pumps out of order and lockdown restrictions preventing movement, villagers had to walk 1.5 km to the nearest Tola at midnight to fetch water. Their plight during this period was truly heart-wrenching.

In response to this dire situation, HDFC Bank's Parivartan program installed a solar-based drinking water system in Chukapani village, costing INR 3,50,000. This system, with a capacity of 4000 liters, now serves approximately 60 households, providing a reliable source of clean and safe drinking water. The installation has been a lifesaver for the families, offering consistent access to clean water for daily use, drinking, and kitchen purposes. To maintain the system, each family contributes INRs 10 per month, creating a fund for incidental maintenance. Additionally, the Jalminar tank is cleaned monthly, ensuring the system's longevity and hygiene. Villagers express immense gratitude for the clean water, which has significantly reduced the incidence of waterborne diseases. Women, in particular, are relieved, as they no longer need to travel long distances to fetch water. The community's appreciation for the scheme is evident, as the solar-based water system has brought transformative positive changes to their lives. They are thankful to HDFC Bank and PRADAN for implementing this vital scheme, which has not only improved their health and quality of life but also ensured a sustainable water supply for the future.

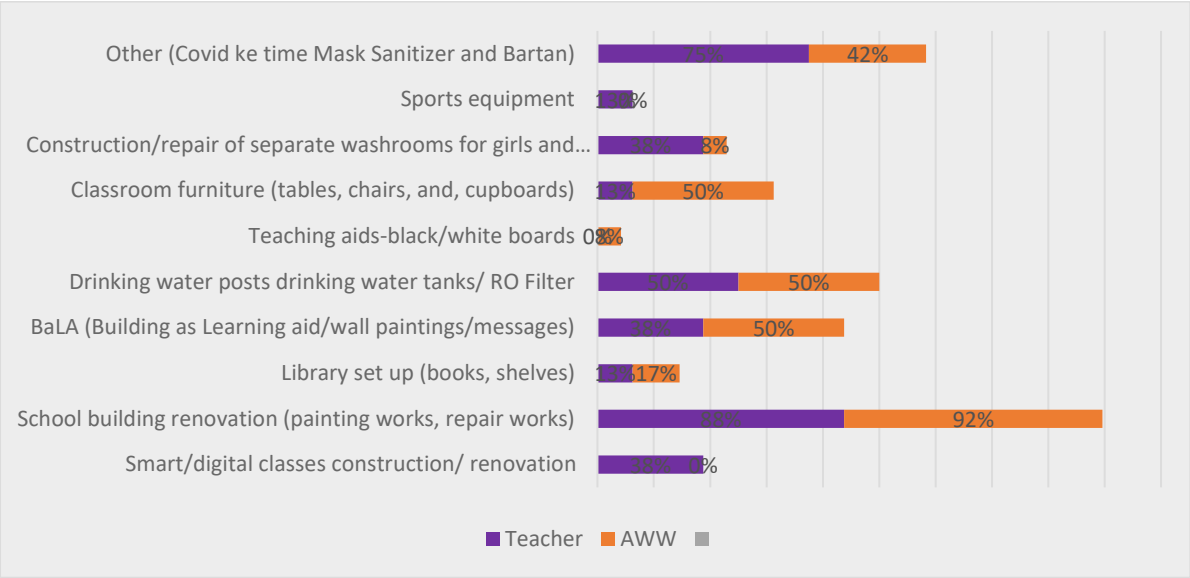
4.4 Promotion of Education

4.4.1 Infrastructure in Educational Institutions

The infrastructure of educational institutions has played a crucial role in shaping the quality of education delivered to students. To address this, the construction and renovation of smart/digital classrooms revolutionised the way students learned by providing access to digital resources, making learning more interactive and engaging. Renovating school infrastructure provided a conducive environment for learning and helped retain students, particularly girls. This renovation included upgrading roofs, floors, toilets, kitchens, and classrooms, and installing solar-based drinking water systems to promote good health. Essential equipment such as CPUs, projectors, dual speakers for classrooms, UPS systems, metallic cabinets for storing computer hardware, and e-content were provided, along with an annual maintenance fee for a three-year period. Additionally, 8,000 worksheets were distributed to students, who were very excited to complete the work tasks. In response to the COVID-19 pandemic, protective gear such as sanitisers, hand wash, masks, and gloves were supplied to ensure a safe reopening of schools in the first quarter of FY 2020-21. Three Community Learning Cum Cultural Centres (CLCCs) were established in three villages to enhance student learning. School students actively participated in these centres, which were run by Education Change Volunteers (ECVs) to help children learn, acquire skills, and engage in extracurricular activities after school hours. The primary aims of providing all this support included facilitating easy learning through smart classrooms, reducing absenteeism, improving children's skills, enhancing audio-visual learning, and supporting students from KG to 12th grade. As a result, around 500 children gained access to digital classroom learning, leading to a reduction in dropouts and alleviating the workload on both teachers and students.

Furthermore, six Anganwadi centres were identified in six different villages for support. The assistance included repairing existing roofs, wall painting, fixing doors and windows, and improving toilets and fencing. Play and learning items were also provided. This initiative aimed to give children a safe and conducive learning space, support Anganwadi workers in offering better facilities to community women and children, and ensure children could learn basic knowledge effectively.

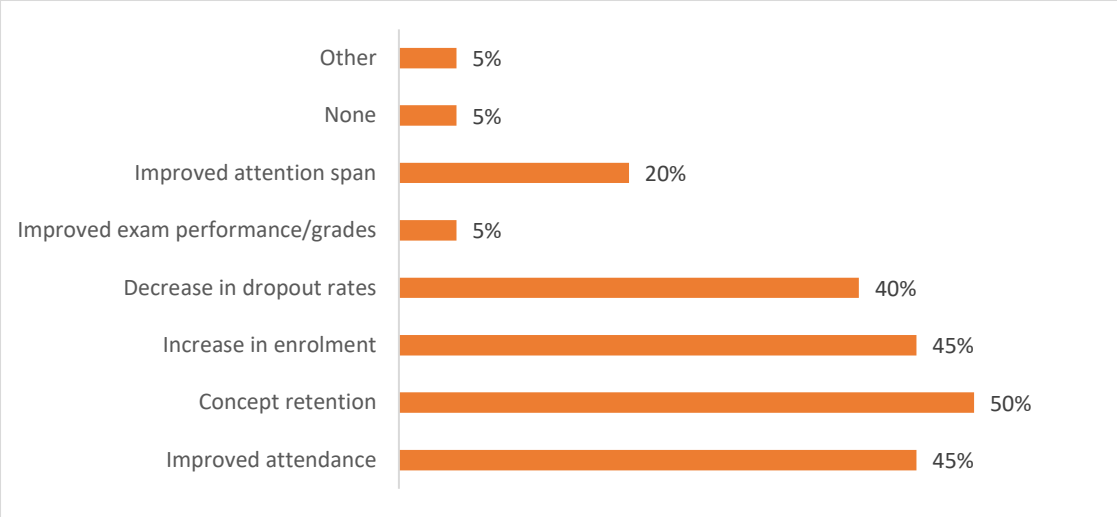
Figure 31: Infrastructural support provided by the project (Teacher N=8, Anganwadi N-12)



The HRDP initiative by HDFC Bank provided substantial support to schools, with varying responses from teachers and Anganwadi workers (AWWs). Among teachers, 88 percent noted school building renovations, including painting and repair works, while 92 percent of AWWs reported similar improvements. Smart/digital classroom construction or renovation was highlighted by 38 percent of teachers but not by AWWs. BaLA (Building as Learning Aid) activities, such as wall paintings and educational messages, were mentioned by 38 percent of teachers and 50 percent of AWWs. Both groups equally appreciated the installation of drinking water facilities, with 50 percent acknowledging new drinking water tanks or RO filters. Library setups, including books and shelves, were noted by 13 percent of teachers and 17 percent of AWWs. Classroom furniture, like tables, chairs, and cupboards, was reported by 13 percent of teachers and 50 percent of AWWs.

The construction or repair of separate washrooms for girls and boys was mentioned by 38 percent of teachers and 8 percent of AWWs. Teaching aids such as blackboards or whiteboards were recognised by 8 percent of AWWs, but not by teachers. Sports equipment was provided, as noted by 13 percent of teachers but none of the AWW. Lastly, during the COVID-19 pandemic, masks, sanitisers, and utensils were distributed, as acknowledged by 75 percent of teachers and 42 percent of AWWs. Overall, the initiative significantly enhanced educational infrastructure and hygiene, contributing to a better learning environment.

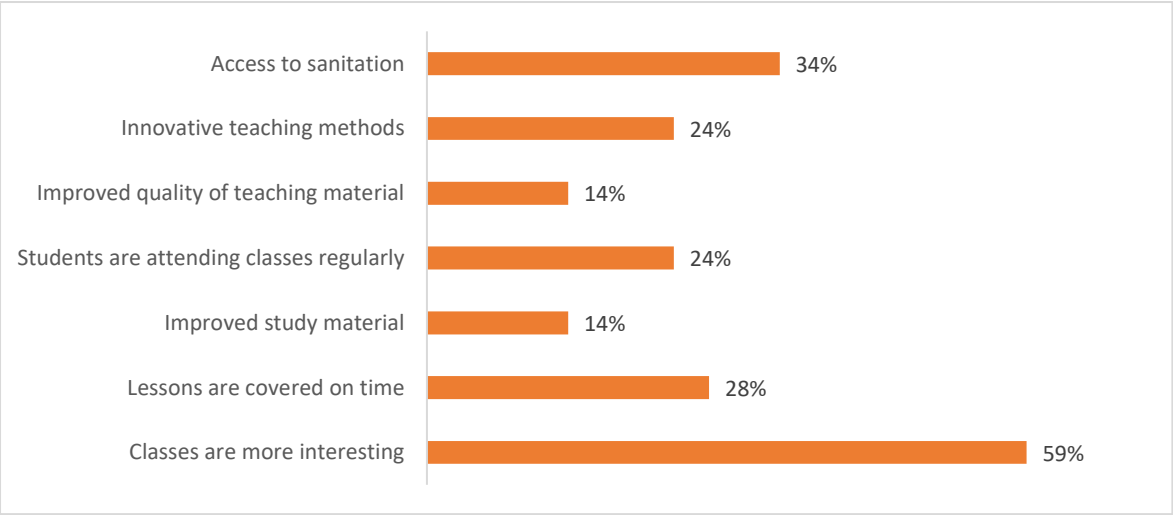
Figure 32: Perceived benefits from improvements in school and anganwadi activities (N=20)



The infrastructure developments introduced by the project have led to several positive changes among students, as reported by respondents. Improved attendance was observed by 45 percent of the respondents, indicating that the enhanced learning environment and facilities have made schools more appealing and accessible to students. Concept retention was highlighted by 50 percent of the respondents, suggesting that interactive and modernised classrooms have facilitated better understanding and retention of educational material. An increase in enrolment was noted by 45 percent of the respondents, reflecting a growing interest in education within the community, possibly due to the improved infrastructure and learning conditions. Additionally, 40 percent reported a decrease in dropout rates, which points to the project's success in retaining students and preventing them from leaving school prematurely. Improved exam performance and grades were observed by 5 percent of the respondents, indicating a modest yet positive impact on academic achievement.

Furthermore, 20 percent of the respondents noted an improvement in students' attention spans, suggesting that the engaging and interactive nature of the new learning tools has helped students focus better during lessons. Only 5 percent reported no changes, while another 5 percent mentioned other unspecified improvements. Overall, the project infrastructure developments have significantly enhanced the educational experience, leading to better attendance, higher enrolment, reduced dropout rates, improved concept retention, and increased attention spans among students.

Figure 33: Perceived benefits received as per students (N=29)



From the perspective of students, the infrastructure improvements have brought several notable benefits. Fifty-nine percent of students found classes more interesting, indicating that the new facilities and teaching methods have made learning more engaging. Twenty-eight percent reported that lessons are now covered on time, reflecting increased efficiency in teaching. Fourteen percent noted improved study material, enhancing their learning resources. Additionally, twenty-four percent mentioned that students are attending classes more regularly, showing improved school attendance. The quality of teaching material has also improved, as noted by fourteen percent of students. Twenty-four percent highlighted the use of innovative teaching methods, which likely contributed to the increased interest in classes. Access to sanitation was another significant benefit, with thirty-four percent of students appreciating the improved hygiene facilities. Overall, these enhancements have made learning more engaging and efficient, improved the quality and accessibility of study materials, and ensured better sanitation, contributing to a more positive educational experience for students.

4.4.2 Impact Observation

Figure 34: Level of Impact - PoE

4.5 Holistic Rural Development Index (HRDI)

There are multiple dimensions involved in achieving the goals of HRDP that include 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 in 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 the 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 align to the goal of the HRDP program. The detailed methodology and indicators are explained in detail (see Annexure B).

The HRDI calculation for project P0279 implemented in Dumka is given in the following table.

Table 6: HRDI Calculation for P0279

Domain	NRM		Skill		H&S		ED		Total	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.08	**0.13**	**0.01**	**0.04**	**0.08**	**0.21**	**0.05**	**0.24**	**0.23**	**0.62**

Percent Change	63 percent	300 percent	163 percent	380 percent	170 percent

The HRDI score indicates substantial improvements across various areas. Natural Resource Management saw a 63 percent change, while skill development experienced a 300 percent change, and Promotion of Education) showed an impressive 380 percent change. Despite these significant percentage changes, it is important to note that their base values were very low, making the percentage increase normal. Health and Sanitation (H&S) improved by 163 percent. Overall, the HRDI score reflects a 170 percent change. These figures suggest notable enhancements across all areas, highlighting the effectiveness of interventions in these domains.

5 Analysis of Assessment Criteria

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

- Relevance and Convergence
- Impact and Effectiveness[2]
- Sustainability

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

5.1 Relevance and Convergence

The HRDP initiative by HDFC Bank and PRADAN has been transformative across multiple dimensions of rural development in the Shikaripara block of Dumka district. Through targeted interventions in natural resource management, agriculture, water and sanitation, and education, the initiative has significantly improved community well-being and economic prospects. In NRM, the installation of solar-based micro lift irrigation systems, excavation of wells, and construction of farm ponds doubled irrigated areas, reducing farming costs and substantially increasing incomes for over 640 farmers. Concurrently, agricultural training and support programs empowered farmers with sustainable practices, leading to increased yields, income diversification, and improved soil health. These efforts were complemented by initiatives addressing water scarcity and hygiene, with the installation of solar-powered drinking water units and hygiene infrastructure significantly enhancing health outcomes and quality of life, particularly for women and families. Moreover, the project's impact on education has been profound, with upgraded infrastructure in schools and Anganwadi centres facilitating safer and more conducive learning environments, crucial during the pandemic. The provision of modern classrooms, sanitation facilities, and educational equipment has not only boosted educational outcomes but also fostered community cohesion and support. Feedback from stakeholders underscores the project's success, with notable improvements in school attendance, concept retention, enrollment rates, and dropout reduction. This holistic approach, encompassing NRM, agriculture, water and sanitation, and education, has not only enhanced livelihoods but also strengthened community resilience and sustainability. However, ongoing challenges in maintaining infrastructure and scaling sustainable practices highlight the need for continued support and innovation. Overall, the HRDP initiative exemplifies effective collaboration between HDFC Bank and PRADAN in addressing multifaceted rural development challenges, laying a foundation for long-term prosperity and well-being in the Shikaripara block. By integrating economic, social, and environmental considerations, this initiative serves as a model for inclusive and sustainable rural development, demonstrating the profound impact of strategic partnerships in fostering thriving communities.

As the implementing partner, PRADAN recognised substantial opportunities for synergy in Natural Resource Management initiatives. Collaboratively engaging with MGNREGA and local panchayats allowed them to optimize funding and broaden the scope of their initiatives. In various villages, they successfully introduced drip irrigation systems to bolster agricultural productivity.

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

Furthermore, with support from MGNREGA and panchayats, they implemented structured water harvesting projects in upland areas, enhancing water management efficiency. These strategic partnerships not only harnessed financial resources effectively but also ensured that the NRM interventions were cohesive and sustainable. By enhancing water management practices and bolstering agricultural resilience, these efforts directly benefited local communities. This coordinated approach underscored PRADAN's commitment to achieving meaningful impacts in rural development, emphasizing the crucial role of collaboration and strategic alignment in driving positive change.

5.2 Sustainability

The sustainability of the NRM structures for irrigation under the HRDP project is ensured through active community ownership and participation. The community has contributed physically, mentally, financially, and spiritually to the implementation of these schemes. They have formed a 'Jal Samiti' to foster ownership and enhance sustainability. This committee has received training to manage and maintain the installed systems effectively, leading to remarkable improvements in farmers' lives.

For the sustainability of the Jalminar, a committee named "Jal Upbhokta Samiti" has been established. This committee comprises members who use the water tank and conducts monthly meetings, collecting INR 10 per family per month. The funds collected are used for maintenance and other necessary works related to the Jalminar system, with any balance deposited in a savings account. To reduce livestock mortality and morbidity, a Cold Chain Unit was established to keep vaccines safe for extended periods. Pashu Sakhis distribute vaccines in ice boxes and administer them at INR 10 per dose, facilitating income generation for Pashu Sakhis through vaccination and medication services to livestock-owningfamilies. This system also supports an entrepreneur, contributing to her family's income and enhancing livestock farmers' earnings in HRDP villages. Overall, the respective Village Organizations ensure the sustainability of other community activities by overseeing their projects. (See Annexure E).

6 Recommendations

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

Recommendations to Sustain Project Initiatives

- 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.
- The grading and sorting centre is currently not achieving its intended objectives. It is crucial to provide proper support and knowledge transfer to the farmers, ensuring they can effectively utilize the infrastructure and maintain its sustainability.
- The enterprises are still in their infancy and require further assistance and guidance to ensure their long-term viability. In the case of the sal leaf unit, starting from the installation to operation unit, the women 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.
- 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

- The project can achieve greater efficiency through collaborations with expert organisations specializing in education and health.
- 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.
- The project should establish connections with local and state administration from the beginning. The project team and leadership must consistently update government officials at all levels, emphasising project interventions, successes, and any challenges encountered.

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 nine villages acted as the sampling frame for the project. This list was obtained from the implementing partner – PRADAN. 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 nine villages were covered under the survey.

A.3 Qualitative Sample Size Calculation

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

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

B HRDI Methodology

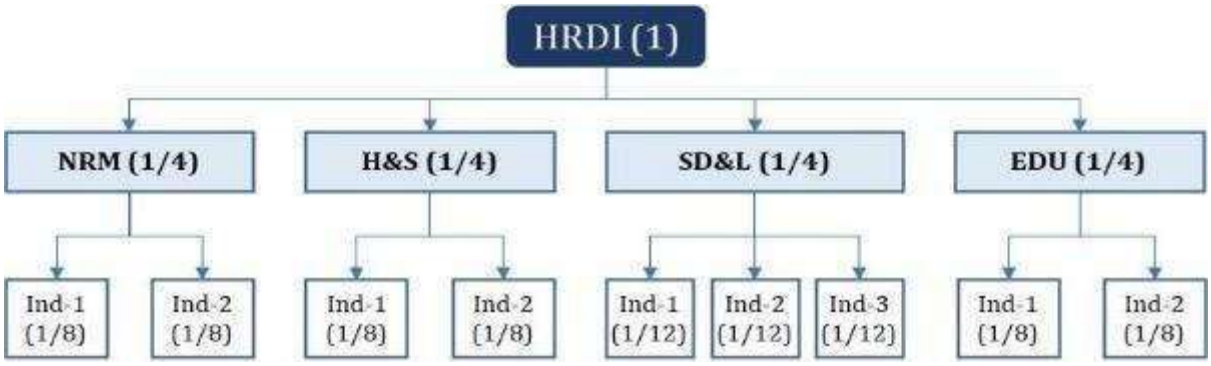
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between 0 and 1. Indicators such as productivity and income which were measured on a continuous scale were converted to discrete variables by setting a cut-off. The 50th percentile of these indicators at baseline was chosen as the cut-off point. Thus, a change in the indicator could be captured by recording the proportion of beneficiaries above the cut-off at two distinct points in time.

B.1 Indicator Weights

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

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

Figure 35: 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 7: Example of HRDI Calculation

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

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

Once all the indicators were standardised and weighted, a sum of these weighted indicators was utilised 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 standardised and weighted, a sum of these weighted indicators are utilised 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 end line i.e., the proportion of beneficiaries above the baseline cut-off for each indicator.

Step 5: Multiplied each proportion of the indicators with the set indicator weights.

Step 6: 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 Dumka has been detailed below (see **Error! Reference source not found.**9).

Table 8: HRDI Calculation for Dumka

Domain	Indicators	Baseline	HRDI	End line	HRDI	percent Change
NRM	Proportion of farmers with net income above median	0.16	0.08	0.26	0.13	63 percent
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.08		0.10		

Domain	Indicators	Baseline	HRDI	End line	HRDI	percent Change
	Percentage of farmers reporting access to irrigation	0.10		0.16		
ST&LE	Percentage of HH reporting income above median from livestock	0.06	0.01	0.16	0.04	300 percent
	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self employment	0.00		0.00		
H&S	Percentage of households reporting increase availability of drinking water facility	0.16	0.08	0.32	0.21	163 percent
	Percentage of households with access to improved toilet facility	0.13		0.32		
	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden	0.03		0.19		
PoE	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.22	0.05	0.24	0.13	380 percent
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0.00		0.50		
Total			**0.26**		**0.55**	**170 percent**

C Overview of Impact Calculation

Impact of the programme was calculated based on the averages of quantitative output indicators as demonstrated below (see **Error! Reference source not found.**0).

Table 9: Impact Calculation

Outputs	Output Indicators		Output Avg	Impact Level
NA. Increased income from agriculture				
Land/ crop productivity	Proportion of farmers reporting increased productivity of three main crops above median	30 percent	68 percent	
	Proportion of farmers reporting increased income from crops that were supported under HRDP.	94 percent		
	Proportion of farmers who are the above median range	79 percent		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	99 percent	84 percent	High
	Proportion of farmers who use both, chemical and natural fertilisers	73 percent		
	The proportion of farmers reporting a decrease in the use of chemical fertilisers	82 percent		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops with the project support.	93 percent	89 pecent	High
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	84 percent		
Land under irrigation	Increased area under irrigation	12 percent	14 percent	low
	Pproportion of farmers who received support for irrigation	16 pecent		
Increased use of clean energy solutions				
Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	69 percent	77percent	High
	Proportion of households fully satisfied from using clean energy infrastructure (Base=clean energy beneficiaries)	85 Percent		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	100 percent	81 percent	HIgh
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	61 percent		
Adoption of improved farming practices	Proportion of farmers who continue to practise conservation agricultural practices	22 percent	50 percent	

	Proportion of beneficiaries reporting an increase in productivity due to better farm management	50 percent		
	Proportion of farmers reporting increased income	78 percent		
Enhanced capacity for regular income generation				
Enhanced employable skill development	Percentage of women who accessed skill development training	48 percent	54 percent	Medium
	Percentage of women who report improved income through skill development	59 percent		
	Proportionate increase in average income from enterprise	-		
	Percentage of women who report increased savings through skill development	-		
Improved capacity to generate income through livestock management				
Adoption of scientific management of livestock	Proportion of beneficiaries who received support in livestock management services	55 percent	51 percent	Medium
	Proportion of beneficiaries reporting an increase in income from livestock management	56 percent		
	Proportion of beneficiaries reporting improved livestock health	47 percent		
	Percentage of HH reporting income above median from livestock	47 percent		
Improved health infrastructure and services(Kitchen Garden)				
Establishment/ enhancement of health infrastructure and services	Proportion of households who reported Reduced expenditure on food	97 percent	73percent	High
	Proportion of households who reported as an additional source of income	24 percent		
	Proportion of households who reported as improved nutrition	80 percent		
	Proportion of households who are satisfied with the intervention	92 percent		
Improved sanitation infrastructure and services				
Establishment/ enhancement of sanitation infrastructure.	Proportion of beneficiaries who gained access to sanitation services	5 percent	67 percent	Medium
	Proportion of HHs with access to Household/community sanitation units (toilets/bathing enclosures)	95 percent		
	Proportion of beneficiaries reporting safety of women due to improved access	100 percent		
Awareness regarding health and sanitation	Improved awareness regarding cleanliness and sanitation practices			

practices	(Using toilets instead of open defecation)			
	Improved awareness regarding waste management			
Adoption of positive health and sanitation practices	Increase in no. of HHs adopting proper solid waste management practices			
	Increase in no of HHs adopting proper liquid waste management practices			
Improved availability and management of water				
Access to drinking water at household and community levels improved	The proportionate number of HHs reporting change in source of drinking water	98 percent	66 percent	Medium
	The proportion of households reporting improved well-being due to the availability of clean drinking water.	33 percent		
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	85 percent	85 percent	High
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	-		
Improvements in quality of teaching	Proportion of teachers regularly utilizing smart classrooms/libraries/science lab (Regularly= Everyday+ Most days)	100 percent	50 percent	Medium
	Proportion of students who regularly use smart classrooms/science labs/ libraries for lessons ((Regularly= Everyday+ Most days)	76 percent		
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	45 percent	68 percent	Medium
	Proportion of teachers reporting improvements in learning outcomes due to infrastructural facilities at institutions (concept retention)	50 percent		
	Proportion of institutions reporting a decrease in dropout rates and increasing enrollment	85 percent		

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

D Two Sample Proportions Z Test

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

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

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

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

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

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

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

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

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

Assumptions:

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

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

Table 10: Z - Test conducted for P0279

Indicator	Proportion of farmers with average productivity of paddy above baseline median
p1 (proportion of first sample-endline)	142
n1 (sample size of p1)	180
p2 (proportion of second sample-baseline)	90
n2 (sample size of p2)	180
p	0.644444444
Calculation	0.050457441
z statistic	10.30571485
	Statistically significant as it is less than our alpha value (0.05)
p-value for the z statistic	0.00001

E Theme-wise Sustainability Matrix

The programme support provided demonstrated the capability to continue even after the programme ended. The programme's support to sustain improved outcomes are enumerated below (see **Error! Reference source not found.**).

Table 11: Theme wise sustainability matrix

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

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