Impact Assessment Study under Holistic Rural Development Programme (HRDP) Chhattisgarh – P0321

Prepared For:

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Executive Summary

The HDFC Bank supported CARE India Foundation in implementing the Holistic Rural Development Program (HRDP) in 20 villages across Patan block of Durg district, Chhattisgarh, between 2021 and 2023. After the completion of the project, Intellecap, conducted an impact assessment of this project.

The impact assessment methodology was developed in order to evaluate the performance and effectiveness of the project's interventions and activities, socioeconomic changes among the beneficiary households, income, and promotion of community-based institutions for project sustainability. To evaluate the project's results and impact, a mixed-methods approach was adopted integrating qualitative and quantitative data collection and analysis. Retrospective recall was used to record the pre- and post-project outcomes, providing insights into how the project indicators changed over baseline. The samples for the study were chosen using stratified random sampling and the PPS (Probability Proportional to Size) method. The assessment covered 12 villages, 408 household interviews, 10 In-Depth Interviews (IDIs), 3 Key Informant Interviews (KIIs), and 5 Focus Group Discussions (FGDs). This comprehensive research design enabled a thorough evaluation of the project's impact, learning, and recommendations for future interventions. This report presents the outcomes of a comprehensive project focused on Natural Resource Management (NRM), skill training, livelihood enhancement, health and sanitation, and education promotion in Patan block.

Natural Resource Management (NRM)

In natural resource management, the project implemented various activities such as farm pond construction, solar lift irrigation systems, micro-irrigation systems, information about vermipits or their installation, soil testing, land treatment, organic farming training, distributing seeds, and other such interventions. The **project positively impacted the median net income, with nearly a 100 percent increase (from INR 71,000 to INR 1,41,500**). **Paddy productivity increased by 23 percent** on average, and **wheat productivity increased by 22 percent.** Organic farming has been well adopted by the farmers in this region, which has been one of the factors in increased income. Clean energy interventions, like solar water pumps and solar streetlights, reached very few beneficiaries, but have been helpful.

Health and Sanitation (H&S)

Under health and sanitation, the project focused on providing kitchen garden training. Even though it has reached very few beneficiaries in the villages, it has had a noticeable impact on them. The kitchen garden project, with **seed provision (100% sampled households)** and **training (80% sampled households**), contributed to food security, with **all of the produce utilised for self-consumption**. Major vegetables grown include cabbage, brinjal, tomato, bittergourd, spinach, fenugreek, chilli, radish, coriander, among others. More than **87% of respondents noted reduced expenditure on vegetables**, **saving up to INR 150 per week** on average.

Skill Training and Livelihood Enhancement (ST&LE)

Construction of vermi-compost pits, training for SHG members along with support for income generation activities such as tailoring centre, egg incubator, goat rearing units, backyard poultry, chick rearing unit, milk collection and value addition centre, guinea pig rearing, duck rearing unit,

and provision of livestock were the key interventions supported under skill training and livelihood enhancement. HDFC supported the establishment of SHGs with an emphasis on capacity building and training of its members, thereby assisting the SHGs in their continued operation and effectiveness. Members of SHGs have reported a number of advantages, such as a **rise in self-confidence (93%),** a dedicated practice of **personal savings (87%), income generation (80%),** and the **availability of low-interest loans (40%).** These results have a major impact on women's empowerment. Many SHGs have also been supported in the setting up of enterprises. Although few remain, they have been generating enough income to notice a change in their lifestyles. There has been **an increase of Rs. 11,000 in their annual income** (based on the median). Custom Hiring Centre has been successful in this region, providing tractors and other agriculture equipment on an hourly basis. More such initiatives would be appreciated by farmers. Very few beneficiaries were reached through HDFC's livestock management interventions. The most prominent interventions include the provision of goats, and poultry. While poultry has been successful, the goatery did not make it through the first year. This was due to the poor adaptability of the Black Bengal and Sirohi breeds to the region.

Promotion of Education (PoE)

Interventions such as smart classes, drinking water filters, setting up a library, a science lab, the provision of sports kits, a green room, and BaLA paintings and health equipment for AWCs, have all been successfully implemented in schools in Patan Block. During the interaction with the students, **they mentioned that they frequently used these facilities**, and they linked the availability of clean drinking water to fewer health problems and improved attendances and participation rates.

Table 1: Summary of Key Impact Indicators

Indicators (based on median)	Before	After	% Change
Increase in average productivity (of three major crops) (quintal/acre)	9.2	11.4	24%
Increase in median net annual income from agriculture	INR 71,000	INR 1,41,500	99%
Monthly income from SHG business activity	INR 450	INR 833	85%
Monthly income from job/skill (income from enterprises)	INR 500	INR 833	66%

HRDI Indicators

The impact of the project was assessed on the Holistic Rural Development Index (HRDI), which is a weighted index that gives an index value for each focus area and for the entire project.

The thematic-wise indicators were assigned weights to arrive at the composite **HRDI score of 0.59, indicating a notable positive change of 136 percent toward the desired impact from the baseline score of 0.25.**

The high percentage change in ST&LE can be attributed to the increase in proportion of people earning income from enterprises above median value. Similarly, under H&S, there is a multifold increase in proportion of people having access to drinking water supply.

Findings showed an improvement in all focus areas as well as the project, as shown below:

Table 2: Summary of HRDI Scores

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Baseline	Endline	Baseline	Endline
	0.08	**0.13**	**0.02**	**0.12**	**0.02**	**0.10**	**0.13**	**0.25**	**0.25**	**0.59**
%Change	**62.5%**		**500%**		**400%**		**92.3%**		**136%**	

Recommendations

Recommendations that can sustain the project initiatives:

- To increase adaption and sustainability of farming practices, the implementing partner may ensure that farmers adhere to the agricultural techniques that have been taught and support follow-up visits with farmers. Experts in agriculture should preferably arrange these visits (ideally from KVK).
- The success of NRM activities is demonstrated by the notable increases in agricultural yield and median net income. It is advised that interventions be focused on growing and promoting these practices to improve rural livelihoods even more.
- Custom Hiring Centres have been beneficial. However, only one of them has been set up. More such centres would have been beneficial to more farmers.
- While enterprises have been set up by several SHGs, only a few of them remain operational, and very few members of the SHG take part in them. Identifying the reason behind the lack of participation can help create better opportunities for the SHGs.
- As CARE India is inactive in the region, creating market linkages for farmers growing black rice and other crops, and providing more training in FPOs, could have been more beneficial in the long run.

Recommendations that can improve the design of the HRDP:

- It is recommended to extend the project's duration from three to five years to aid in better programme implementation, maintenance and impact.

1 Introduction

Over the years, India has made enormous strides in rural development. While 65% of the country's population lives in rural areas (as of 2021), nearly half, or 47%, is still dependent on agriculture for a living (PIB Delhi, 2023). The rural ecosystem has grown by around 10% per year over the last five years, but it is still plagued by numerous issues, such as a lack of irrigation, deteriorating soil health, disguised unemployment, fewer skill development opportunities, unreliable healthcare availability, low literacy rates, and increasing environmental degradation, among others. To address these diverse yet interconnected developmental challenges, the HDFC Bank, through its Corporate Social Responsibility (CSR) initiative 'Parivartan,' supports several projects that provide holistic rural development to help the rural population grow and prosper.

1.1 About HRDP

The goal of these initiatives is to promote sustainable socioeconomic and ecological development in order to guarantee the development of prosperous and content communities. The program's all-encompassing approach meets the needs of the communities by providing essential inputs on matters like fostering economic independence through opportunities for skill development and livelihoods, delivering fundamental infrastructural development, and creating a better ecosystem that fosters better living conditions. It intends to bring about a socioeconomic transformation in the lives of the rural community by concentrating on the development of human capital, the management of natural resources, and infrastructure in poor and backward villages.

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 and 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 study is to add value by showcasing successful initiatives and recommending possible ways to address existing challenges.

The study seeks to:

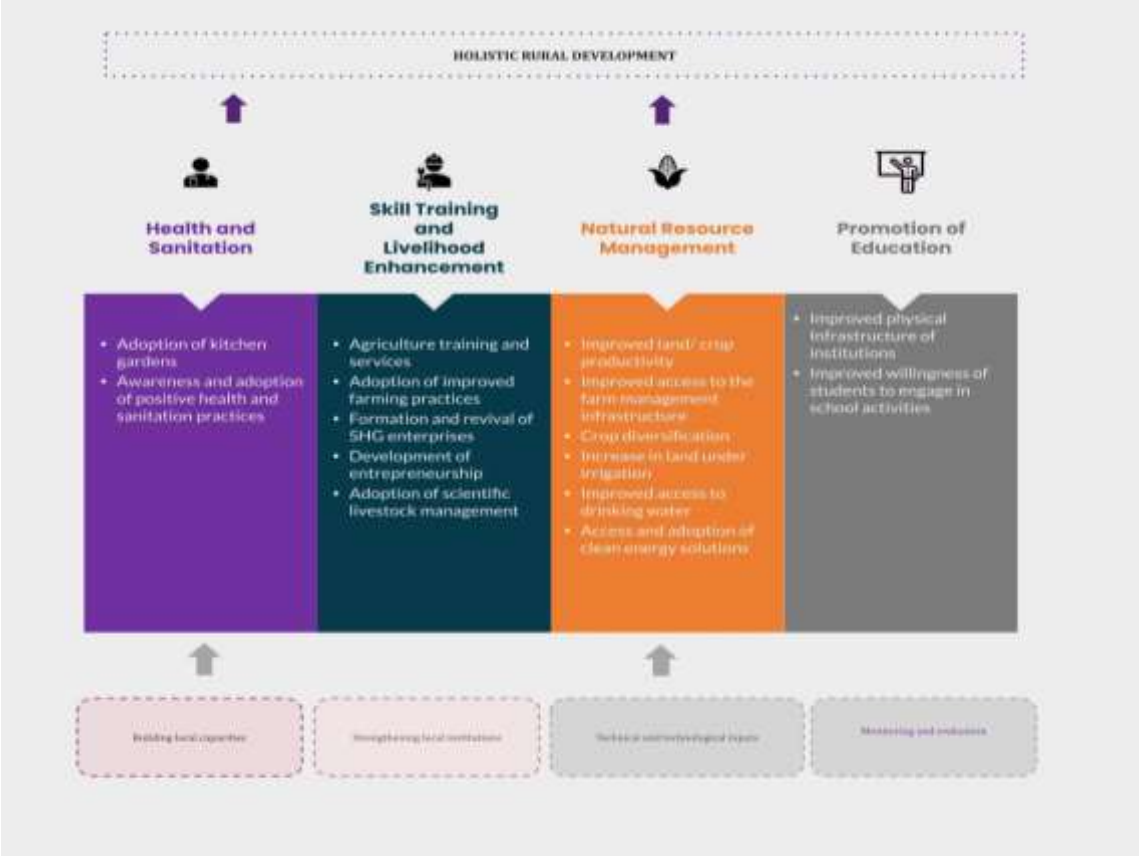
- Critically and objectively evaluate implementation and performance
- Determine reasons for certain outcomes or lack thereof
- Derive lessons learnt and good practices
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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

1.3 Conceptual Framework Adopted

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

Figure 1: Conceptual Framework of Implementation



1.4 About the Project Area

Chhattisgarh is a landlocked state in central India. Despite being a rapidly developing state, pervasive poverty persists within its boundaries. The state's economic reliance is predominantly placed on the sectors of mining, agriculture, energy production, and manufacturing.

Approximately 50% of its terrain is designated as farmland, with the central lowland gaining recognition for its prolific rice production. Moreover, the state contributes significantly to the national supply of tendu leaves, particularly those used in the production of bidis. Unfortunately, this economic progress has not translated into widespread prosperity, as approximately 40% of the state's population continues to grapple with poverty. The present study was undertaken in the Patan block of Durg District of Chhattisgarh, encompassing a total of 20 villages. Forests cover a substantial portion of the state, with around 41% of its total geographical area dedicated to this natural resource. Each district within the state faces the challenge of a significant proportion of its population living in extreme poverty, exceeding one-fifth of the inhabitants in every district. These areas are also agriculture-dependent, so interventions are based on the necessity of the community, after consulting with the village council. Along with clean energy, the HRDP promoted the management of farms and water resources as part of natural resource management. Under "Skill Training and Livelihood Enhancement," "Promotion of Education," "Health and Sanitation," and "Healthcare and Hygiene," the project also focused on agriculture training and support, self-help group (SHG)/women development, skill training, livestock management, and entrepreneurship development.) (See Figure 2)

Figure 2: Areas covered under the study (map depicting areas covered under the study)

1.5 Partner Organisation – CARE India Solutions for Sustainable Development

CARE India, part of the CARE International Confederation, has been working in India for over 70 years now. The main focus of the not-for-profit organization includes alleviating poverty and social injustice. This is executed through well planned and comprehensive projects in the sectors of health, education, livelihoods, and disaster preparedness and response. The overarching goal of the organization is the empowerment of women and girls from poor and marginalized communities, supporting them in improving their lives and livelihoods.

In their vision statement, CARE India seeks for a world of hope, tolerance, and social justice, where poverty has been overcome and people live in dignity and security. In 2019-20 alone, the organization reached out to more than 50 million people directly through 53 projects across 29 states.

However, CARE India is currently inactive in the region after the completion of the project. Although the Community Resource Persons (CRPs) were highly supportive during the study, some

MIS data, such as the NRM structures (details on dams, farms ponds, and other water structures built) and education infrastructure (conditions of smart classes, monitors, wall paintings, etc.), were not available with them. They are not included in the report.

2 Research Design and Methodology

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

2.1 Criteria for Assessment

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

- Relevance and Convergence
- Impact and Effectiveness
- Sustainability

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

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

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

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

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey as well as In-Depth Interviews (IDIs), Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) with project beneficiaries, and the CARE India team. 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 standardized list of outcomes and outputs, the questionnaire was developed. The details of the qualitative and quantitative data collection events are given in the next section.

Secondary data sources included HDFC's CSR Policy, programme log frame (logical framework analysis), quarterly progress reports, project implementation timelines, communication, and documentation products, and other relevant reports/literature related to the project.

2.3 Sample Size and Distribution

From the 20 villages in the Patan block where the project was implemented, all the villages were selected for the study. The beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from CARE India. Since beneficiary selection was undertaken independently for each thematic area, the selection of more than one beneficiary from a single household was probable. In addition to this, 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 eight villages was 400, however, 408 sample respondents were reached. The thematic area-wise sample covered was as follows (see Table 3, Table 4).

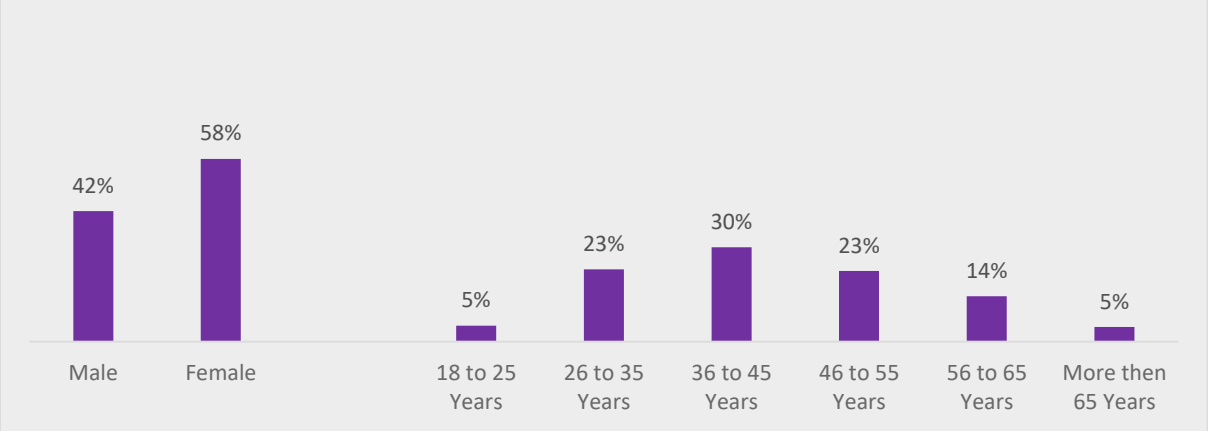
Table 3: Quantitative Sample Covered

Village Name	Total Households	NRM	Skill Training and Livelihood Enhancement	Health and Sanitation	Promotion of Education	Financial Literacy
Darbar Mokhli	29	18	25	6	3	6
Gujra	44	30	31	10	22	10
Teligundra	34	32	32	16	8	5
Devata	39	15	38	4	1	0
Arasnara	16	12	15	1	1	6
Kurmigundra	30	17	28	0	12	4
Belodi	47	35	41	3	4	19
Gabdi	43	27	40	7	4	4
Karela	50	42	47	17	8	17
Dighari	24	15	23	3	1	13
Anusar	36	31	33	5	4	10
Kharra	16	8	16	4	0	0
Total	408	368	369	261	68	94

Table 4: Qualitative Sample Size Covered

District	FGDs: 5		IDIs and KIIS: 13			
	VDC	*Community*	*Headmaster/School teacher*	*Village Head*	*Micro enterprise*	*Implementing Partner*
Gujra		3		1		
Darbar Mokhli					2	
Kurmigudra			1	1	1	
Gabdi					2	
Belodi		1		1	1	
Devata			1		2	
Total	**0**	**4**	**1**	**3**	**8**	**0**
Planned	0	4	1	3	8	0

Figure 3: Gender-wise and age-wise distribution of the sample (n=408)



Durg district has a sex ratio of 988 to 1000 (2011 India Census). This is reflected in the number of beneficiaries in this area, as the proportion of **women reached is higher (58%) as compared to men (42%). The youth population (18-45 years)** constituted more than half of the beneficiaries **(58%), with the least number of beneficiaries belonging to the youngest age group of 18 to 25 years old.** The older age group **(45 to more than 65 years of age) constituted about 42 percent** of the respondents.

The quantitative and qualitative sampling methodologies have been explained in detail (see page 40).

2.4 Training of Enumerators

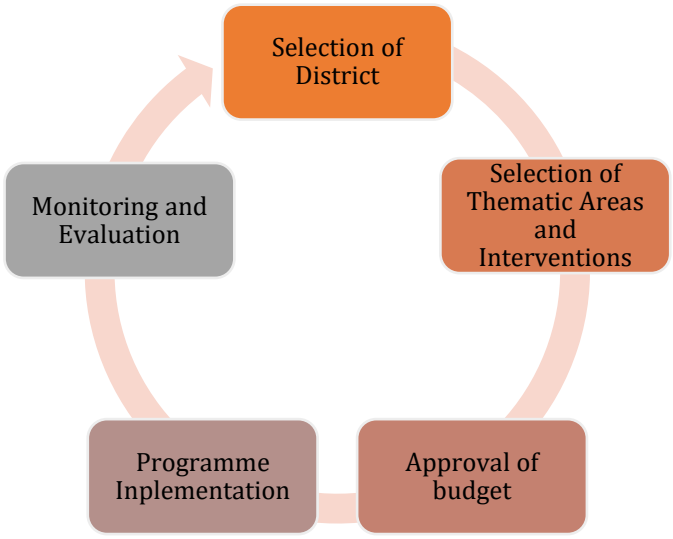
A team of local enumerators with the requisite education and experience was hired for data collection. Two days of training in Raipur were provided to enumerators and supervisors by the Intellecap team.

Figure 4 Training of Enumerators

3 Review of Project Planning and Implementation

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

Figure 5: Planning and Implementation Process



3.1 Selection of Project Area

The state of Chhattisgarh is one of the poorest in the country, with about 40% of them living below the poverty line[1]. Qualitative discussions with beneficiaries revealed that CARE India was the first ever NGO to work in these regions. The project areas were selected in consultation with HDFC. Even though this area is slightly industrially developed, with the establishment of the Bhilai Steel Plant nearby providing employment opportunities, difficult situations for the population involved in agriculture still persist. Based on the primary analysis, some of the issues that this region faced were lack of infrastructure and market linkage support for farmers, lack of mechanization for small farmers, lack of irrigation facilities for rabi crops, lack of improved inputs for agriculture, and lack of infrastructural needs in schools, among other things.

The project by HDFC Bank and CARE India aimed to address these issues through a holistic and integrated approach. The project focuses on empowering communities in five sectors: livelihoods, agriculture and natural resource management, health and sanitation, education, and financial literacy. The selected panchayats in backward villages of Patan block in Durg District were strategically chosen for the project based on their socio-economic criteria and proximity to operations. Through this integrated development approach, the project seeks to uplift the communities and bridge the basic development gap in the region, aiming for sustainable growth and improvement in human development indicators.

1 World Bank Document on Chhattisgarh

3.2 Selection of Thematic Areas and Interventions

Considering the above challenges in the area, HRDP interventions focused on promoting water and farm management in addition to clean energy. The project also focused on agricultural training and support, skill training, livestock management, and entrepreneurship development under ST&LE; educational institution development and education support under PoE; and health awareness and sanitation practices under H&S. The activities specific to each village under the project were decided after in-depth consultation with the respective Village Development Committees (VDCs), which were constituted during the beginning of the project implementation. Activities under each of the four thematic areas are as follows (see Table 5).

Table 5: Activities under Four Thematic Areas in Patan, Durg

Activity Category	Activities	Output Indicators
NRM		
Irrigation Management	Farm pond construction or renovation, micro-irrigation systems, solar-based lift irrigation systems,	Income from agriculture
Water management-agriculture	-	
Farm Management	Information about vermi pits or its installation, soil testing, land treatment, horticulture/wadis, physical fencing of farm lands for crop protection, setup of multipurpose nursery	
Clean Energy	Solar drinking water supply, solar streetlights	Clean energy
ST&LE		
Agriculture Training and Support	Setting up/Strengthening of FPO, Farm field school, exposure visit, Custom Hiring Centre	Access to Agriculture Training and Services
SHG-Based Women Empowerment	-	Skill and Entrepreneurship Development
Entrepreneurship Development	Skill development training in job-oriented programs, Support for enterprise development, tailoring centre, egg incubator, goat rearing units, backyard poultry, chick rearing unit, milk collection and value addition centre, guinea pig rearing, duck rearing unit	
Livestock management	-	Livestock Management
H&S		
Health	-	Health Infrastructure and Services
Sanitation	Household/ community sanitation units (toilets/bathing enclosures)	Sanitation Infrastructure and Services
Kitchen Garden	Seeds, training, demonstrations	Kitchen Garden
PoE		
Educational Institutions Development	Science lab construction/ renovation, library set up (books, shelves etc, drinking water posts/ drinking water tanks/ RO filter, sports equipment, supply of health equipment to AWC's, support to renovation, painting of AWCs, support to evening classes/*mohalla* class, green room setup for school girls	Infrastructure in Educational Institutions

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

3.3 Project Implementation

The interventions comprised a combination of providing direct materials and services, such as seeds and sprinklers, as farm inputs and implements, along with raising awareness about new agricultural techniques. The program's interventions are chosen on an annual basis, and a budget is allocated each year based on a request made to HDFC Bank by CARE India. The field team has had extensive conversations with the village committees to study the issues and limitations in the communities based on our interactions with the partner team. Activities and interventions were developed and put together based on their needs.

The HRDP started with the hiring of personnel and Community Resource Persons (CRPs) and the delivery of capacity-building trainings on a variety of topics, including the HRDP's goals, roles, and responsibilities. To determine the most pressing problems and requirements of the communities, the project held Gram Sabha meetings and Participatory Rural Appraisals (PRA) in the eight villages. The identified needs were used to create plans and budgets that complemented HRDP's objectives.

The guidance and support that CARE India staff provided to all parties was essential in enabling the timely implementation of activities. They efficiently generated reports, made frequent site inspections, received input, and tracked progress.

3.4 Monitoring and Evaluation

The implementing partners used a standard monitoring and evaluation approach for the HRDP. These include reporting on project execution status to the HDFC Bank on a regular basis. Furthermore, the HDFC Bank's programme implementation staff visited the project communities at regular intervals to review the project work sites, participated in training programmes and awareness workshops, and connected with project recipients.

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

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

4 Study Findings

This section provides the analysis of the profile of the respondents covered in twelve villages of Patan block of Durg district in Chhattisgarh.

Figure 6: Income Sources of the Respondents (n=408)

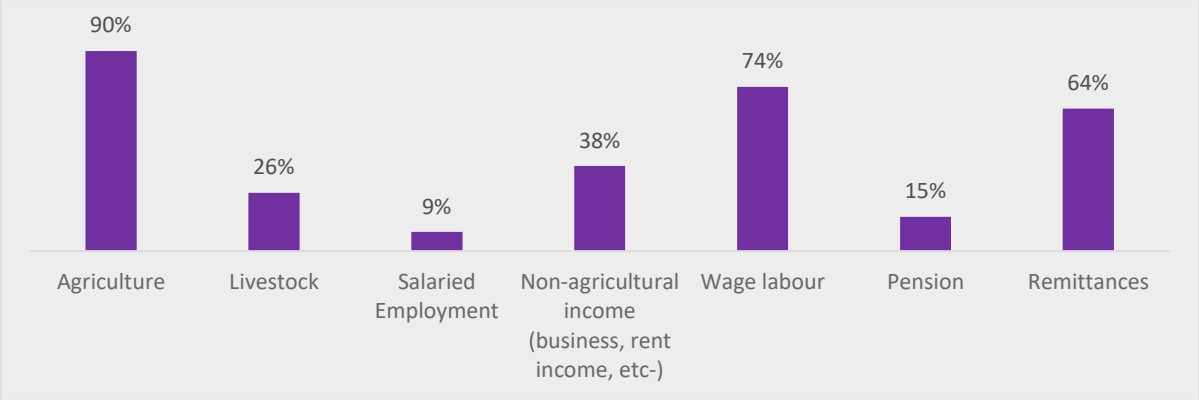


Figure 8: Education status of the respondents (n=408)

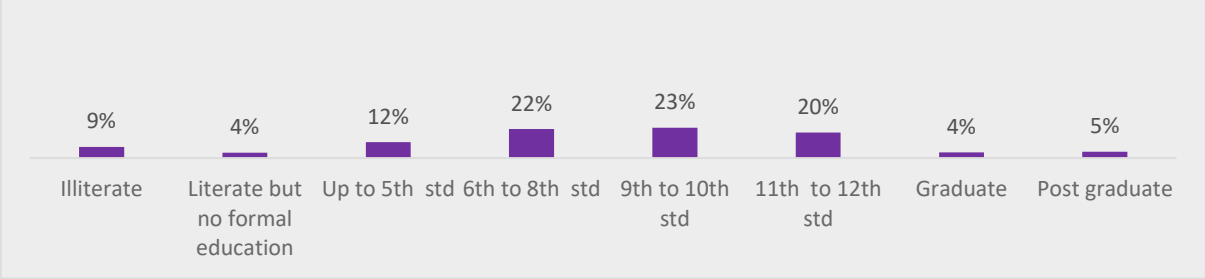
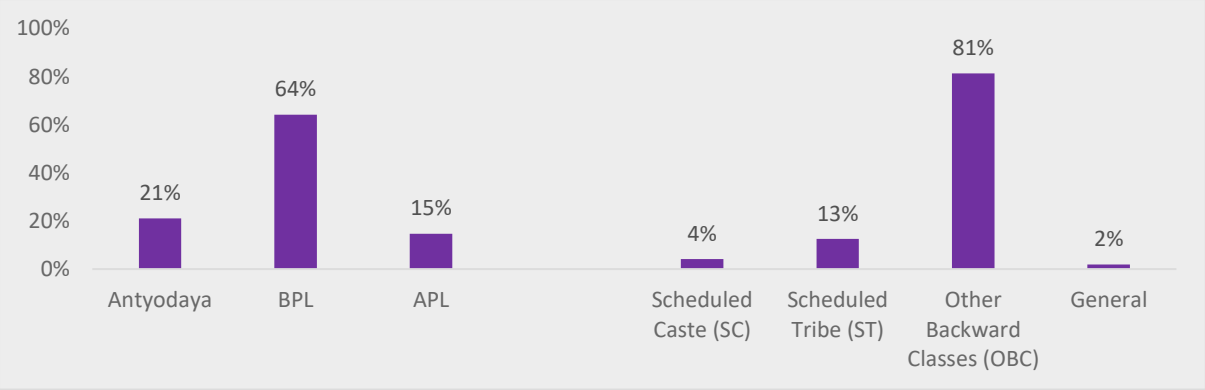


Figure 7: Socio-economic Status of the Household (n=408)



The income received by the majority of the participants is derived from agriculture, accounting for 90 percent, while 74 percent of the participants are engaged in wage labour. Additionally, 26 percent of the respondents reported income from livestock. Remittances/Pension is a source of income for about 64 percent of the respondents. The effective literacy rate in Durg is 82.8 percent (2011 India Census). Only 9 percent of the respondents were illiterate, and only around 4 percent were literate but with no formal education, highlighting the high literacy rate in the region. It is noteworthy, however, that 4 percent of the respondents had graduation degrees, and 5 percent of them had post-graduation degrees.

In Patan, **64 percent of the respondents hold BPL cards, while 21 percent hold Antyodaya cards.** The block also has a **majority of the respondents belonging to other backward classes (81%),** and 13 percent belonging to Scheduled Tribe category.

The following table provides a summary of the quantum of activities carried out under each activity category of the four thematic areas (see Table 6).

Table 6: Summary of Quantum of Beneficiaries Reached Under Each Activity Category of Four Thematic Areas

Activity Category	Activities	No. (as provided by the Implementing Agency (IA)) of beneficiaries
NRM		
Irrigation Management	Farm pond construction or renovation Micro-irrigation systems Solar-based lift irrigation systems	72 32 10
Water management-agriculture	-	
Farm Management	Information about vermi pits or its installation Soil testing Land treatment Horticulture/wadis Physical fencing of farm lands for crop protection Setup of multipurpose nursery	60 600 40 100 20000 (sq feet) 24
Clean Energy	Solar drinking water supply Solar street lights	6 Not available
ST&LE		ST&LE
Agriculture Training and Support	Setting up/Strengthening of FPO Farm field school exposure visit Custom Hiring Centre	80 240 12 8
SHG-Based Women Empowerment	-	
Entrepreneurship Development	Skill development training in job-oriented programs Support for enterprise development Tailoring centre Egg incubator Goat rearing units Backyard poultry Chick rearing unit Milk collection and value addition centre Guinea pig rearing Duck rearing unit	20 Not available Not Available Not Available 25 80 4 1 6 150
Livestock management	-	
H&S		H&S
Health	-	Not applicable
Sanitation	Household/ community sanitation units (toilets/bathing enclosures)	8
Kitchen Garden	Seeds Training Demonstrations	2100 2100 2100
PoE		PoE

Educational Institutions Development	Science lab construction/ renovation, Library set up (books, shelves etc,) Drinking water posts/ drinking water tanks/ RO Filter Sports equipment Supply of health equipment to AWC's Support to renovation, painting of AWCs Support to evening classes/*mohalla* class Green room setup for school girls	9 20 14 20 20 35 40 6 10

The following section highlights the key findings from the field survey conducted to assess the impact of the project after its completion.

4.1 Natural Resource Management

Under NRM, water conservation and farmer support for better yield were prioritised. Specifically, trainings on improved farming techniques, water interventions, and distribution of seeds have resulted in better productivity and increased income from agriculture. This was important in the area, as the availability of good-quality seeds was a constraint. The number of beneficiaries is mentioned in the above table (Table 6).

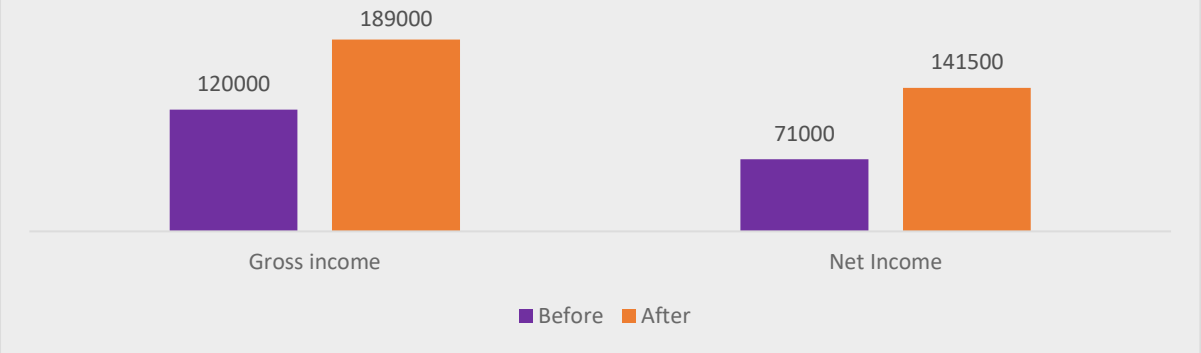
The objective of NRM interventions was to improve land/ crop productivity and ultimately increase farmers' agricultural income through increased access to farm management infrastructure and irrigation mechanisms. The aim was to increase the adoption of clean energy solutions. The sections below focus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

4.1.1 Income from Agriculture

Under the agriculture interventions, two broad categories of implementation were employed: irrigation, and farm management. The irrigation interventions included farm pond construction, solar lift irrigation systems, and micro-irrigation systems. The farm management interventions included information about vermipits or their installation, soil testing, land treatment, organic farming training, horticulture/wadis, physical fencing of farm lands for crop protection, and the setup of a multipurpose nursery.

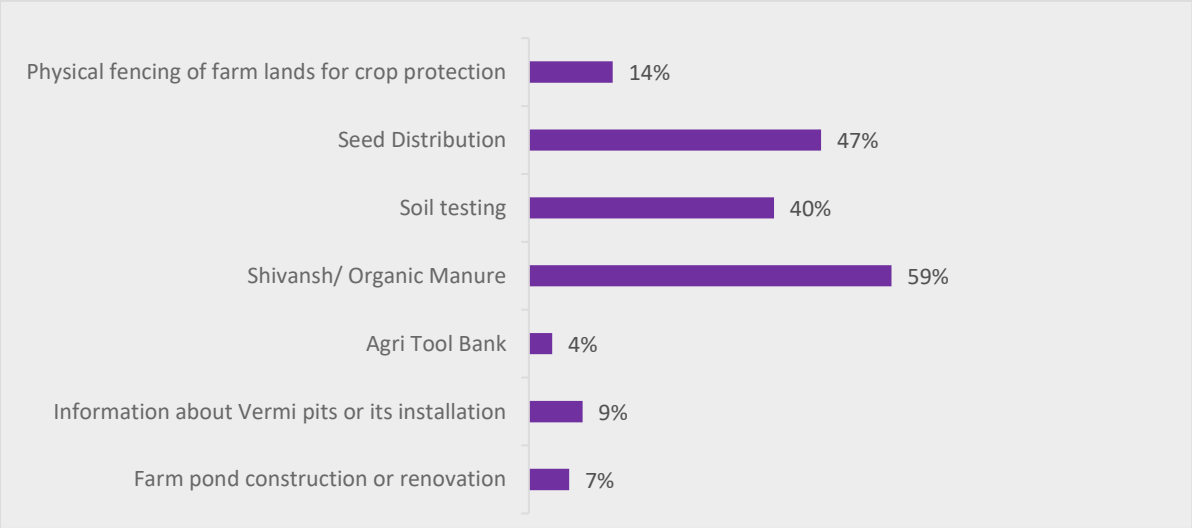
Approximately **48% of survey respondents reported benefiting from agricultural activities**. **Organic farming (60%), seed distribution (46%),** and **soil testing (40%)** were among the most applied interventions. Around 99% of the sample respondents indicated a **rise in net income within the project areas**. The **average gross income rose by 58%** across the twelve villages, while the **average net income nearly doubled (99%)**. Some villages saw larger income increases than others. For example, the **average net income in Kurmigudra rose by 106%**, while **Gabdi saw a 30% increase**. Upon conducting a z-test, it was found that the increase in income is **statistically significant at a 95% confidence level.**

Figure 9: Increase in Median Agricultural Income (n=197)



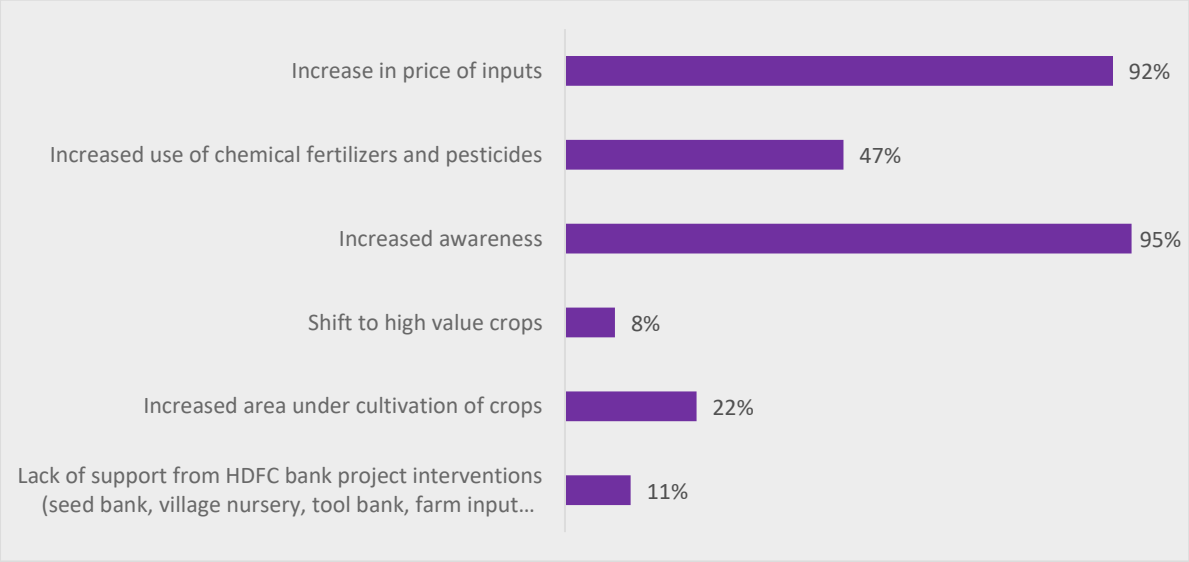
Following graph shows the interventions that have contributed to the increase in income:

Figure 10: Interventions that have Contributed to Increased Income (n=184)



About **96 percent of the respondents stated that the price of input costs has increased**. In spite of this, observing an increase in income is commendable. The major reasons for the increased input costs, as reported by the respondents, are as follows:

Figure 11: Reasons for Increased Input Cost (n=190)



The increased income can also be attributed to increased area under irrigation. **The median irrigated land prior to the intervention was 3.48 acres, but following project implementation, it has increased to 4 acres. However, this hasn't been reflected in all the villages.** In some villages, dams were not easily accessible by some farmers, as they did not own motors or pump sets.

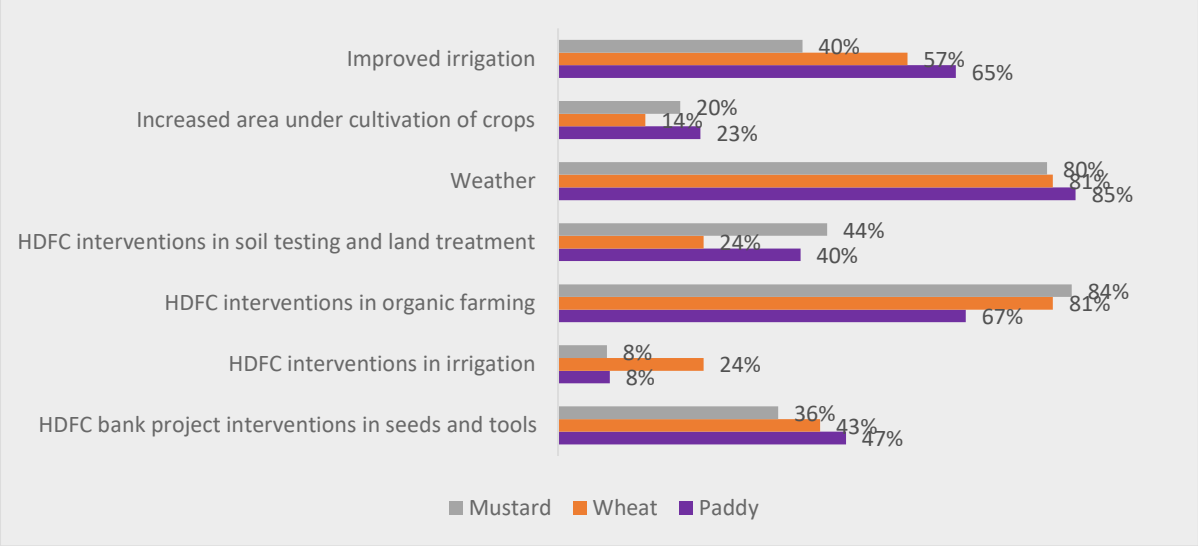
Chhattisgarh is known as the "rice bowl" of India. Approximately **97 percent of respondents indicated that paddy production has increased**. Farmers were introduced to a new variety of rice called "black-rice", which is a sugar-free variety. During qualitative discussions, it was revealed that while it was moderately successful in terms of yield, the farmers were unable to sell it anywhere. CARE India, through the HDFC intervention, had plans to organize an FPO to sell this variety of rice. However, even though the FPO was formed, it remained dormant and ultimately was dissolved due to the inactivity of the farmers, and rice remained unsold. They have now reverted to their regular variety. Few farmers also cultivate wheat (14%) and mustard (19%). **All of them reported increased wheat production, while 96 percent of the farmers growing mustard reported an increase in production**. The **median productivity of paddy rose by 23 percent**, while **wheat productivity increased by 22 percent, and mustard productivity by 45 percent**. The state average productivity for rice in Chhattisgarh is 1300 kilograms per acre[2]. The **average rice productivity in twelve out of twenty project villages is higher than the state average by 46 percent**. **The average wheat productivity in the project villages is 150 percent higher than the state average of 483 kilograms per acre[3].**

Figure 12: Comparison of Average productivity of Paddy, Wheat, and Mustard in project villages (in kg/acre) (n=196, 28, 38)

This increase in productivity can be attributed to various factors, including HDFC interventions in organic farming, interventions in irrigation that supported farmers in accessing irrigation, seeds and tools, and others, as shown in Figure 13. Many of these interventions directly led to the availability of water during the drier seasons of the year, due to which farmers were able to grow more than one (monsoon dependent) crop on their land.

[2] Chhattisgarh's paddy acreage falls nearly 8% in 2023 kharif season
[3] CEIC Data: Agricultural Yield: Foodgrains: Wheat: Chhattisgarh

Figure 13: Factors leading to increase in paddy and wheat production (n=182, 85)

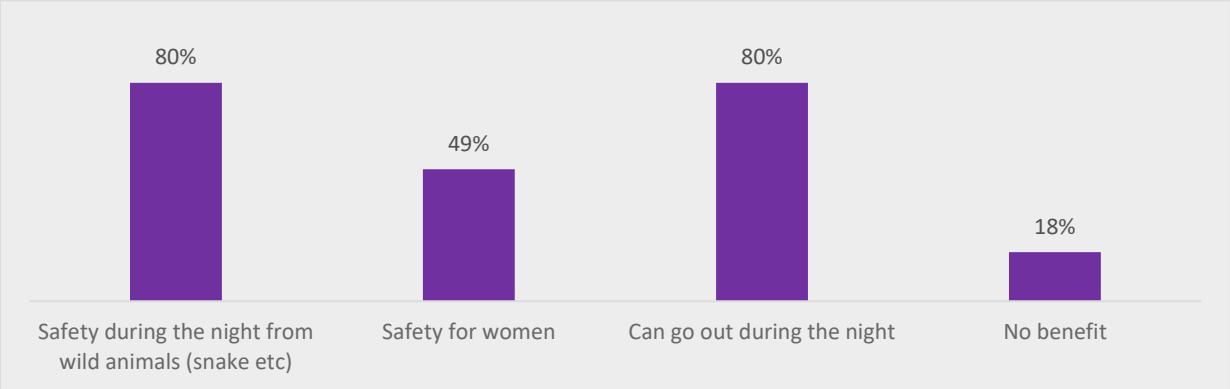


4.1.2 Use of Clean Energy Solutions

The main interventions that were implemented under clean energy were the installation of solar streetlights, and solar water pumps, which has been covered in this **Error! Reference source not found.** section. The solar streetlights are especially helpful during the winter season, when darkness envelops the region as early as late afternoon.

During interaction with the community, it was found that several lights were not in working condition. As they were not trained in fixing it, it was expensive for the residents to get the lights repaired. Hence, it remains dark in some parts of the villages.

Figure 14: Perceived Benefits of Solar Streetlights



4.1.3 Impact Observation

Land and crop productivity, and increased adoption of crop diversification show a high impact on the beneficiaries. Land under irrigation shows low impact as it was limited to only farmers who participated in the project; it had the potential to reach more farmers. Adoption of clean energy and access to farm management infrastructure has seen a medium impact. The specifics of the impact calculation can be seen in Table 11.

Figure 15: Overview of Project Effectiveness and Impact of Interventions-NRM

4.2 Skill Training and Livelihood Enhancement

Under ST&LE, activities included women's empowerment and training farmers in diverse agricultural practices. Workshops and training sessions have covered a range of farming techniques, such as the application of organic manure, the construction of vermicompost pits, the timely use of fertilizers and insecticides, and the adoption of conservation agriculture practices. These initiatives have been well-received by local farmers, addressing a significant need given the predominant occupation of many households in agriculture. Moreover, through the support of women-led Self-Help Groups (SHGs), women have received training and opportunities to generate income, enabling them to financially contribute to their families. Participants in this project have expressed satisfaction with their newfound ability to support themselves and their households. Additionally, interventions in livestock management have constituted a significant aspect of the program.

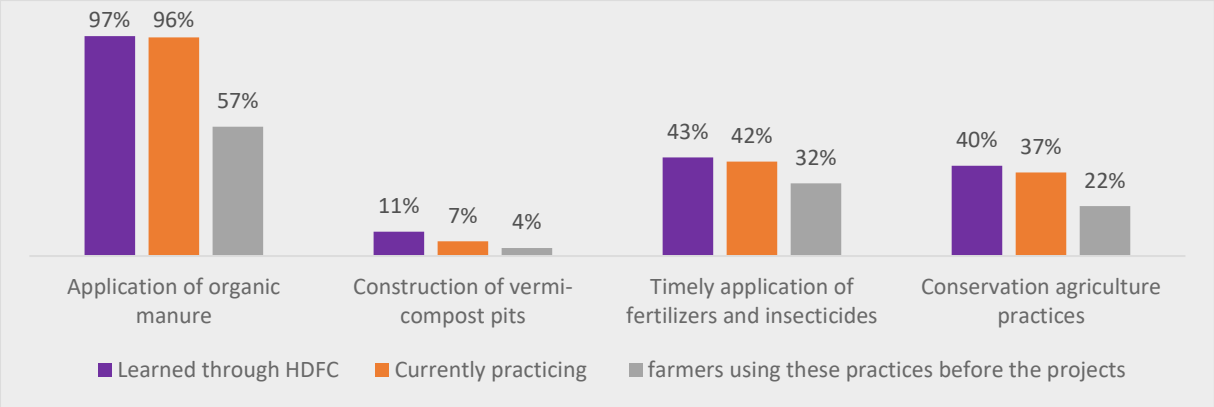
4.2.1 Agriculture Training and Services

The project carried out a number of initiatives to support sustainable agriculture. Setting up and strengthening FPOs, custom hiring centre, farm field school, exposure visits, and the creation of vermi-pits improved soil quality and promoted crop growth. Optimal crop protection and nutrition were ensured by the timely application of fertilisers and insecticides. These interventions enhanced agricultural sustainability and productivity, enhancing the livelihoods of the community and the environment. The respondents state that the trainings have been very useful.

The community's adoption of sustainable agricultural practises has greatly benefited from HDFC trainings. Most of the **farmers reported agriculture trainings as the source of awareness** of certain practices, such as **application of organic manure (88%), vermi-composting (100%), timely application of fertilizers and pesticides (99%), and conservation agriculture practices (97%).** The farmers were able to learn these through farmer field schools and exposure visits conducted by CARE India under the HRDP.

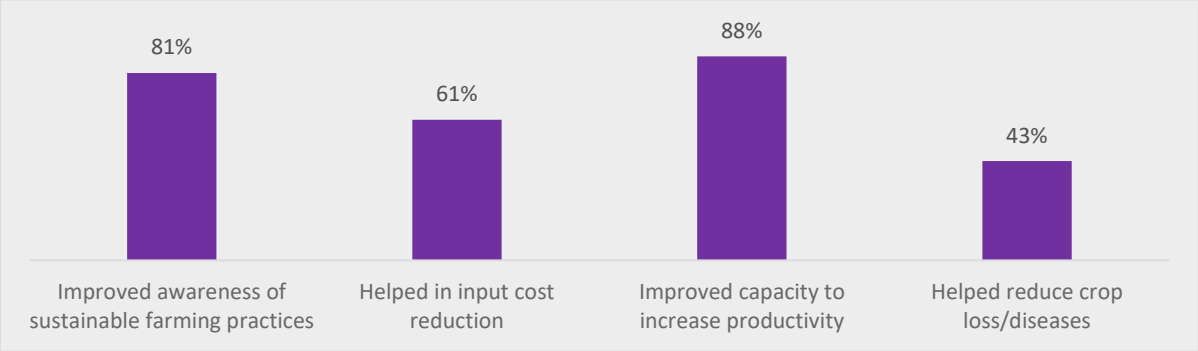
Several farmers are still utilising these practices even after the completion of the programme, as seen in Figure 16. This reflects the sustainability of the implemented interventions.

Figure 16: Agriculture Practices Learned through HDFC Trainings and Currently Practicing (n=168)



More than **98 percent of the respondents have stated that the trainings have been very useful.** They have been useful in different aspects, as depicted in Figure 17.

Figure 17: Proportion of Beneficiaries Reporting How the Trainings were Useful (n=168)

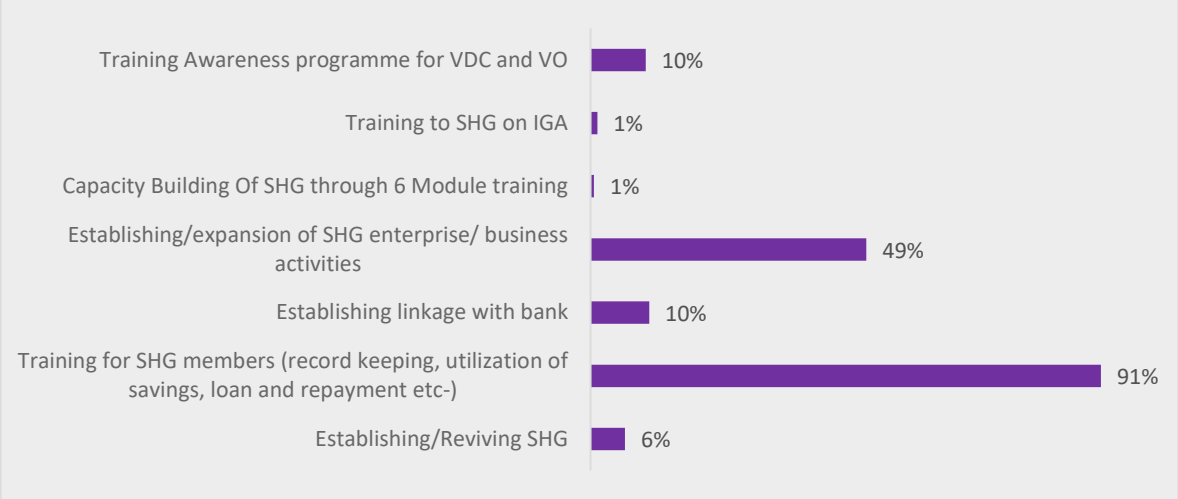


More than **94 percent of the respondents have reported an increase in income**, **which is corroborated in Section 4.1.1**., and more than **84 percent of them have stated increased productivity in their crops.** In addition to this, **improved soil health (34%), reduced crop loss (39%), reduced crop loss (37%),** and **improved pest management (20%) are also some of the benefits observed** by the respondents.

4.2.2 Economic Empowerment through Collectivization

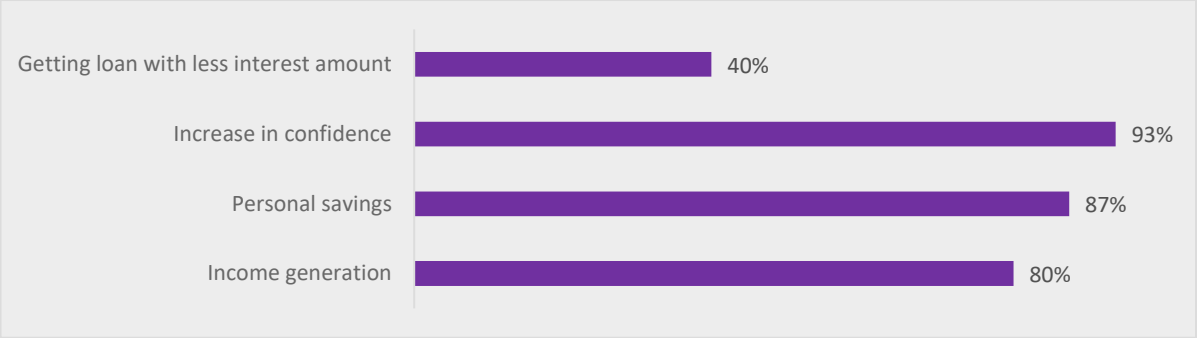
Approximately **40 percent of the respondents have received support for SHG development** through HDFC. As several SHGs were already operating in the region, more focus was given to providing training to the SHG members and capacity building, among other interventions.

Figure 18: Support provided to SHGs through HDFC interventions (n=162)



The majority of members within their respective Self-Help Groups (SHGs) have indicated that their group remains active. They **engage in various activities**, including **meetings (93%), savings (77%), bookkeeping (61%), meeting minutes (55%), attendance records (40%), internal lending (16%),** and similar undertakings. SHG members have also articulated numerous benefits of their membership, as illustrated in Figure 19.

Figure 19: Benefits of being an SHG member (n=162)



This contributes significantly to the enhancement of the lives and financial autonomy of women. In interactions with such women, their keen interest and eagerness to perpetuate their enterprises and activities through acquiring diverse skills and experimenting with new approaches are admirable. To facilitate this progress, HDFC has delivered training on various aspects of SHGs, **encompassing SHG management (84%), bookkeeping (60%), lending and savings management (38%), and enterprise and business activities (58%).**

Numerous SHG members underwent **training in diverse enterprises and business activities** aligned with their interests. These included **tailoring, fishing, masala units, backyard poultry, custom hiring centres, among others.** Upon interaction with the small enterprise owners, it was found that while the enterprises were set up with all the group members, many SHGs now only function with one member taking care of them. However, respondents have affirmed that these training sessions have proven beneficial to them, as shown in Figure 20.

Figure 20: Benefits of training sessions (n=148)

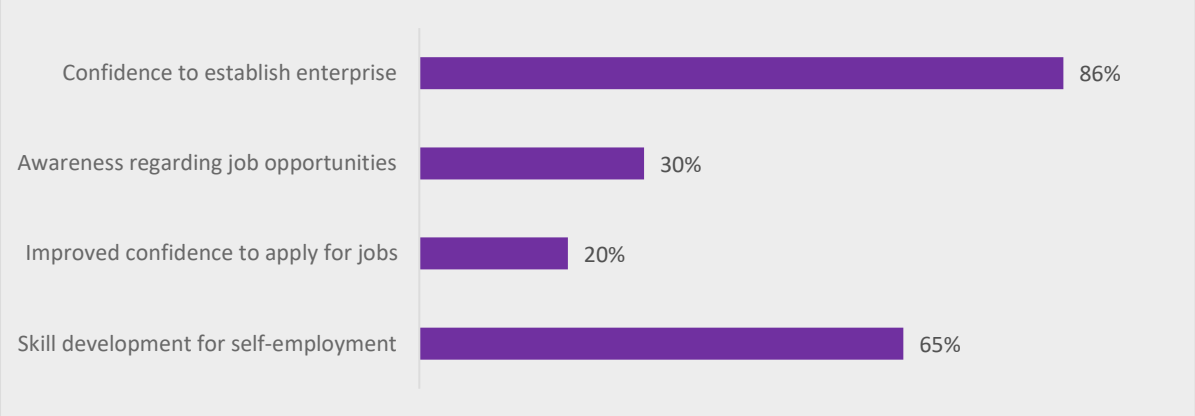
In general, HDFC and CARE India have contributed favourably to the empowerment of women, which has led to SHG members actively seeking out additional employment in order to improve their lives.

4.2.3 Skill and Entrepreneurship Development

Training for skill and entrepreneurship development has predominantly been carried out through Self-Help Groups (SHGs). Business activities are collectively undertaken by SHGs rather than individuals. Consequently, the number of responses aligns with the count of SHGs engaged in income-generating activities (IGA).

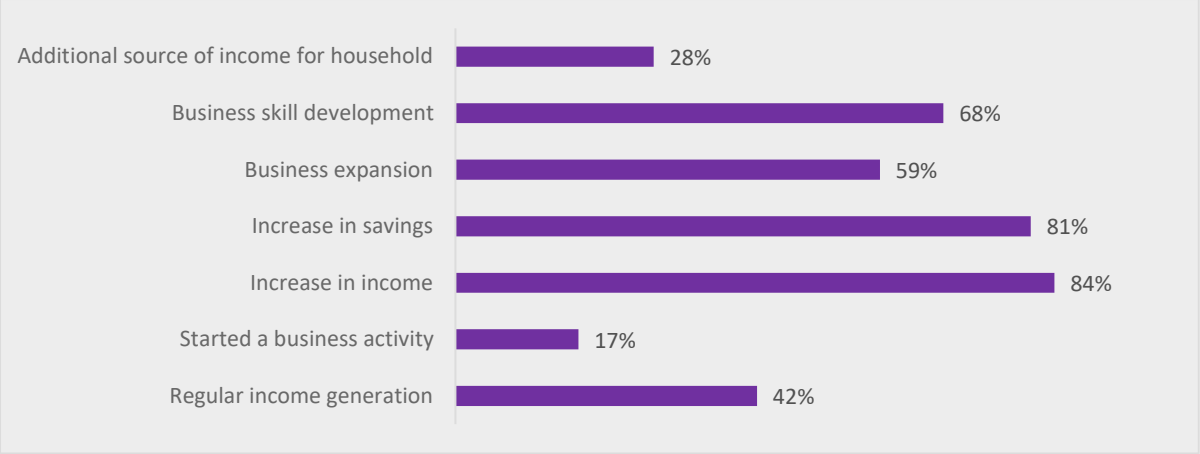
Training has been imparted in various IGAs, as detailed in Section 4.2.2. These encompass fisheries, tailoring, goat farming, poultry, masala unit, custom hiring centre, and others. **Most participants (89%) have received support for the development of their enterprises**. Close to **97 percent** of the respondents who received skill training have **reported that they currently utilize and apply the skills gained in these trainings.** Setting up the enterprises has had a tremendous impact on the respondents' livelihoods. Around **84 percent of the respondents** have stated that their **income has increased, with a median increase of Rs. 11,000 annually.** Some of the other benefits are presented in Figure 21.

Figure 21: Key Benefits of Skill Training (n=196)



Respondents also saw a myriad of different benefits from setting up enterprises, and they ranged from business expansion to increased income and savings, among other things. They have been further shown in Figure 24.

Figure 22: Key Benefits of Project Support in Setting up an Enterprise (n=180)



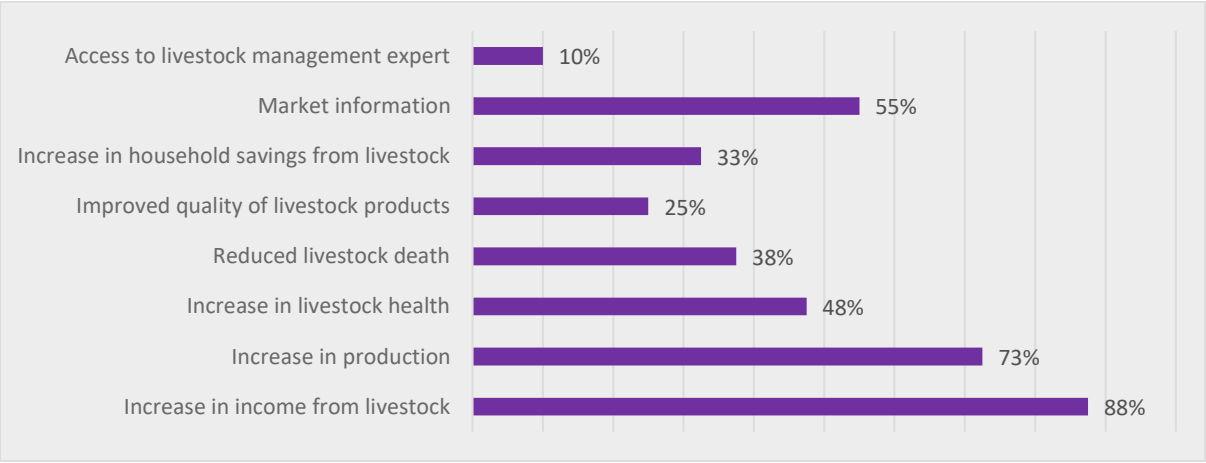
4.2.4 Livestock Management and Training

Chhattisgarh is a state rich in livestock. CARE India and HDFC recognized the need to support beneficiaries in the management of livestock. Under livestock management, provision of animals (goats, poultry), vaccination camps, and livestock management training have been the interventions that were conducted.

It was discovered through beneficiary interactions that the impact of livestock interventions is small. Eleven goats were given to the recipients; two of them passed away before they could reach them, and the remaining nine continued to pass away one by one. This is when the goats' breed comes into play. The recipients received Sirohi and Black Bengal goats; however, despite their vaccinations, the goats were unable to withstand the harsh climate in the area. The recipients stated that they would have flourished and endured these circumstances if they had been given indigenous breeds.

However, poultry has had a moderate impact on the beneficiaries. Some of the primary benefits are shown in Figure 23.

Figure 23: Benefits of Poultry (n=40)



4.2.5 Impact Observation

Interventions in entrepreneurship and agriculture training services, and in the development of entrepreneurship have seen high impact. This can be backed by the increase in income from both agriculture training and enterprises. The adoption of scientific approaches for livestock

management has had a medium impact on the beneficiaries as they were implemented on a much smaller scale. The specifics of the impact calculation can be seen in Table 11.

Figure 24: Overview of Project Effectiveness and Impact of Interventions-ST&LE

4.2.6 Case Study

Empowering Rural Agriculture: The Success of Mukesh Kumar Varma's Custom Hiring Centre

In Kurmigudra, Mr. Mukesh Kumar Varma identified a critical need among local farmers: access to affordable agricultural equipment. Recognizing this opportunity, he and his SHG, with the support and encouragement from HDFC and CARE India, established a Custom Hiring Centre (CHC).

The CHC now has a decent inventory of agricultural equipment, including five tractors available for hourly rental and various other farm-related equipment such as ploughs and others. This diverse range of equipment allows local farmers to access necessary tools without the burden of individual ownership and maintenance costs.

During peak agricultural seasons, it earns approximately ₹20,000 per month, while in off-season periods, the income is around ₹15,000 per month. This steady income stream not only supports the CHC members but also allows for reinvestment in equipment maintenance and potential expansion.

The CHC has become an integral part of the local agricultural ecosystem, with approximately 20 farmers regularly utilizing the equipment rental services. This consistent customer base indicates the CHC's reliability and the value it provides to the community. The service allows small-scale farmers to access modern agricultural technology, potentially increasing their productivity and profitability.

By providing affordable access to essential farming equipment, the CHC is contributing to the modernization and efficiency of local agriculture while creating a sustainable business model that benefits both its members and the wider farming community.

The Rural Poultry Revolution: Mr. Mahesh Dankar's Hatchery Success Story

In Darbar Mokhli, Mr. Mahesh Dankar has become a shining example of how targeted support and appropriate technology can transform traditional livelihoods.

Mr. Dankar, who had been involved in poultry farming since the late 1990s, received a 400-egg capacity hatchery about 1.5 years ago. When presented with various options for business expansion, he chose the hatchery, recognizing its potential to enhance his existing operations. This decision was rooted in his extensive experience in the field, making him an ideal candidate for the upgrade.

This was provided to the SHG that Mr. Dankar was part of; however, he has not become the sole owner of the hatchery. The acquisition of the hatchery was made possible through a financing model that combined personal investment with institutional support. Mr. Dankar, through the SHG, contributed 20% of the cost, while HDFC Bank provided the remaining 80%. This arrangement made the technology accessible to him without imposing an overwhelming financial burden. The only significant ongoing expense is a monthly electricity bill of approximately 200 rupees, which is manageable within the operation's budget.

The impact of the hatchery on Mr. Dankar's business has been remarkable. Prior to its installation, he typically maintained between 10 to 20 chicks at any given time. Now, he consistently has 60 to 70 chicks, representing a three- to seven-fold increase in his stock. Moreover, he is able to hatch more than 30 chicks per month, significantly boosting his production capacity.

One of the most impressive aspects of Mr. Dankar's operation is the 100% success rate in chick hatching. This perfect hatch rate speaks to both the quality of the equipment and Mr. Dankar's skill in managing the hatchery. Each hatching cycle takes approximately 20-21 days, allowing for multiple cycles per year and a steady supply of chicks.

Mr. Dankar has found a ready market for his increased production among local farmers. By focusing on nearby customers, he has minimized transportation costs and built strong, lasting relationships within his community. He sells each chick for 20 rupees.

Threads of Change: Devata's Women-Led Tailoring Enterprise

In Devata, a group of determined women have established a thriving tailoring training center as an SHG enterprise. Led by Mrs. Sarla and Ms. Aruva Nirmal, this initiative has become a catalyst for women's empowerment and skill development in the community.

The center began with support from HDFC and CARE India, which provided two sewing machines. Since then, it has trained up to 15 women, fostering a collaborative environment where trainees share machines and skills. Their product range is diverse, with a focus on items like petticoats that can be sold to local shops.

The enterprise has built a customer base across Patan Block, generating up to Rs. 10,000 during peak seasons. This success demonstrates the quality of their work and the demand for their products. However, the center faces challenges, primarily in establishing strong market linkages. Despite this, their commitment to training as many women as possible reflects a broader vision of community empowerment.

This tailoring center stands as a powerful example of how skill development and collective action can lead to economic independence for rural women. With improved market connections, the potential for growth and impact is significant, making this SHG enterprise a model for similar initiatives in the region.

4.3 Health and Sanitation

Few interventions have been supported under Health and Sanitation, while the primary focus has been on NRM and ST&LE. Under H&S, support to develop kitchen gardens was provided.

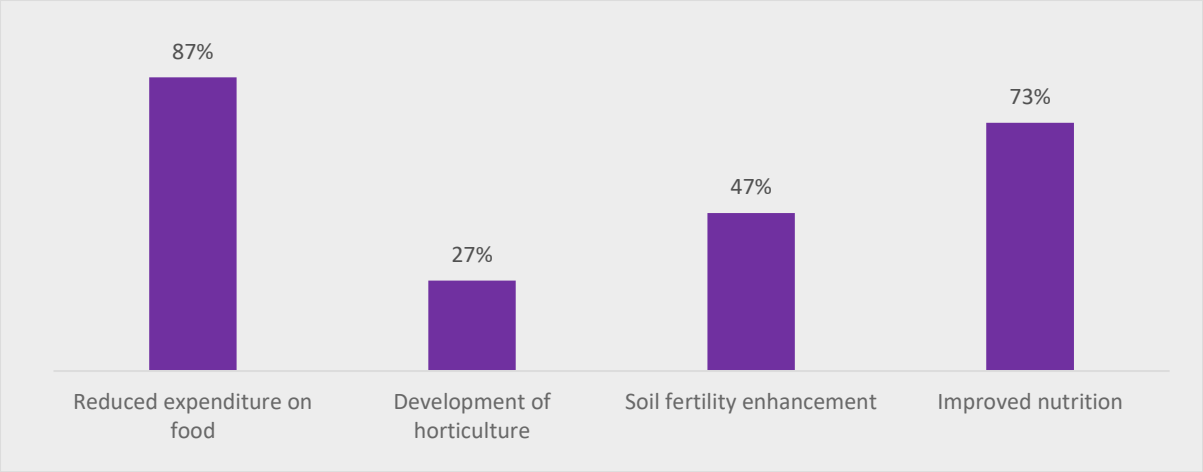
4.3.1 Kitchen Gardens

Under the kitchen garden**, beneficiaries were supported with seeds (100%), and training (80%)** to improve their gardening abilities**.** The distribution of seeds is a crucial support, as it helped the beneficiaries begin their kitchen gardens. As the focus of the project was primarily on NRM and ST&LE, fewer beneficiaries were reached, and these initiatives support community improvement in food security, healthy eating practises, and self-sufficiency.

The respondents have mostly received seeds for growing brinjal, tomato, bottle gourd, lady's finger, coriander, fenugreek, spinach, and similar leafy vegetables, along with others. The **self-consumption of their produce by all the households** results in the direct delivery of wholesome, fresh food to households.

More than **87 percent of the respondents claimed that the amount spent on fruits and vegetables has decreased noticeably, saving an average of Rs. 150 per week.**

Figure 25: Perceived Benefits of Kitchen Gardens



4.3.2 Impact Observation

A high impact has been seen when it comes to interventions in the adoption of kitchen gardens. It is lower in drinking water interventions. Even though the scale of interventions was not as high as compared to ST&LE or NRM, they still helped the beneficiaries. The specifics of the impact calculation can be seen in Table 11.

Figure 26: Overview of Project Effectiveness and Impact of Interventions-H&S

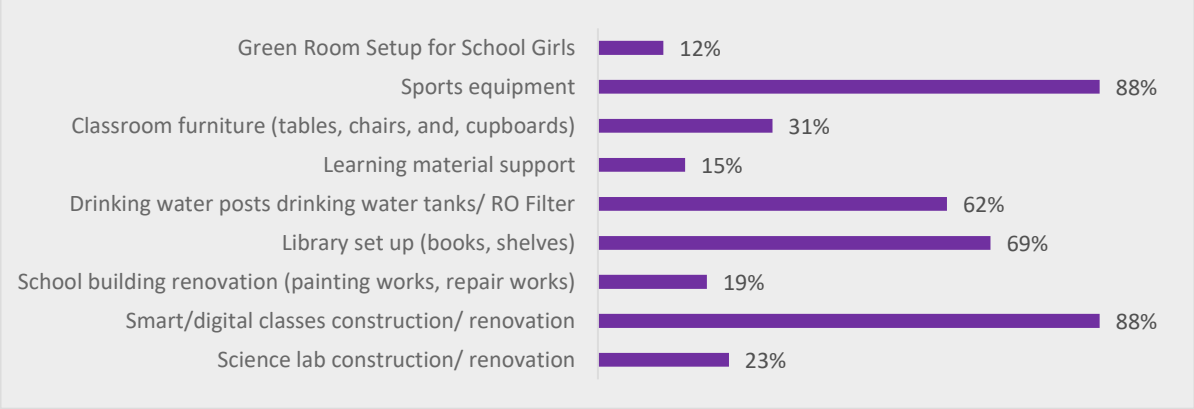
4.4 Promotion of Education

In the area of education, schools in Patan block's project villages have received the following through CARE India and HDFC: smart classes, science lab construction, library set up, RO filters, sports equipment, supply of health equipment to AWCs, BaLA paintings in AWCs, and green room set up for girls.

4.4.1 Infrastructure in Educational Institutions

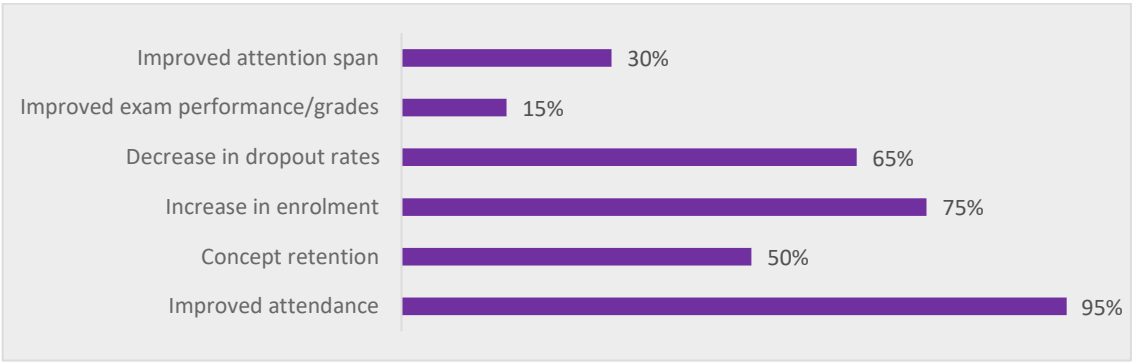
Smart classes, science lab construction, library set-up, RO filters, sports equipment, supply of health equipment to AWCs, BaLA paintings in AWCs, and green room set-up for girls were some of the interventions conducted in the schools in the project villages. The scale of these is further elaborated in Figure 27.

Figure 27: Interventions in Schools as Reported by Student Beneficiaries (n=26)



The students have reported that they use all these facilities frequently (every day or most days). Installation of drinking water posts has been beneficial in providing them with clean drinking water, which has helped them all stay in school for longer, and have faced fewer health issues. Many of these interventions have been helpful to them, and the students have noticed improvements in their activities in school. These include classes being more interesting (96%), students attending school regularly (81%), having better access to toilets (58%), and lessons being covered on time (85%). This is further corroborated by the responses given by teachers to the perceived benefits of these infrastructural changes (Figure 28).

Figure 28: Perceived Benefits of Infrastructural Changes (n=20)



4.4.2 Impact Observation

Figure 29: Overview of Project Effectiveness and Impact of Interventions-PoE

Although the interventions in education were fewer, they had a high impact. With time, the scale of intervention could have been increased, thus having a much wider impact on the school students and their learning. The specifics of the impact calculation can be seen in Table 11.

In order to reach the greatest number of people possible, CARE India and HDFC Bank have worked tirelessly across all sectors in this area. Due to the short duration of the project, however, it was unable to realise its full potential. The project could have gone on for a few more years, which might have had a more beneficial effect.

4.5. Holistic Rural Development Index

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

HDFC Bank adopted the Holistic Rural Development Index (HRDI) for evaluation of HRDP as it aims to achieve holistic rural development through a multitude of interventions that would lead to overall improvements across related dimensions. Therefore, the project introduced significant variability in interventions across districts. As such, it was not possible to ascribe a single impact indicator that might be able to accurately capture the overall performance of HRDP.

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

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

Table 7: List of Indicators Used to Calculate HRDI

NRM	Proportion of farmers with net income above median
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)
	Percentage of farmers reporting access to irrigation
H&S	Percentage of households reporting increase in use of fruits/vegetables from the nutrition garden
	Percentage of households reporting increase availability of drinking water facility
	Percentage of households with access to improved toilet facility
Skill	Percentage of SHG members reporting income above median from rural enterprises
	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self-employment
	Percentage of households reporting income above median from livestock
Education	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)

Based on our study, the HRDI for Patan, Durg has been calculated.

Table 8: HRDI for P0321

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Baseline	Endline	Baseline	Endline
	0.08	**0.13**	**0.02**	**0.12**	**0.02**	**0.10**	**0.13**	**0.25**	**0.25**	**0.59**
%Change	**62.5%**		**500%**		**400%**		**92.3%**		**136%**	

A remarkable positive change can be seen. The theme-wise indicators were assigned varied weights to arrive at the composite HRDI score of 0.59, indicating a notable positive change toward the desired impact from the baseline score of 0.25. There is a 62.5 percent positive change in NRM, but ST&LE has shown a positive increase of 500 percent, and H&S increased by 400 percent, which could be attributed to the low baseline score and the extensive work done. The indicators used for the calculation of the HRDI score were not present at baseline. The low baseline score could also be because this could perhaps be the first instance of training received by the people in the area. PoE has shown an increase of 92 percent over the baseline.

5 Analysis of Assessment Criteria

As outlined earlier in 2.1, for each thematic area, activities completed by CARE India were identified and assessed using the following criteria:

- Relevance and Convergence
- Impact and Effectiveness[4]
- Sustainability

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

5.1 Relevance and Convergence

Despite being a rapidly developing region, Chhattisgarh required an accelerated pace of development due to persistent challenges, notwithstanding various government schemes and provisions in place. These challenges encompass issues such as poverty, deficient infrastructure, and disparities in education. The project initiated by HDFC Bank and CARE India aims to address these issues through a holistic and integrated approach. The project focuses on empowering communities in various sectors, including livelihoods, agriculture and natural resource management, health and sanitation, and education. The selected panchayats in Patan Block of Durg were chosen based on their socio-economic criteria. The goal of this integrated development approach is to uplift communities, bridge the basic development gap in the region, and achieve sustainable growth and improvement in human development indicators.

CARE India has been instrumental in helping farmers and beneficiaries access support through the project. However, convergence with government schemes was not found.

5.2 Sustainability

Positive outcomes in terms of increased output and income have come from the agricultural interventions. Close to 50 percent of the project's beneficiary farmers are currently using the practices and services for farm management. The project's inputs are still being used by the beneficiaries.

Farmers believe that continued adoption of sustainable farming solutions will result in notable improvements in productivity, especially when it comes to organic farming. With 94 percent of the respondents reporting increased use of natural fertilisers, the use of chemical fertilisers have also decreased. This can ensure good soil health in the long run. Seed distribution has proven to be one of the most important interventions, which has resulted in several farmers availing of the HYV seeds and witnessing the increased production. The availability of water for irrigation has encouraged them to undertake more than one crop a year.

The setting up of a Custom Hiring Centre where farmers could hire agricultural tools and equipment on an hourly basis has proven to be successful. as it is still running during cropping seasons. However, there is only one such centre (found in Kurmigudra) among all the project villages. The trainings provided through the HRDP for SHGs will support them in running the SHG for a long time. SHGs that have benefited from the project by starting their own enterprises have

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

been sustained by very few people from the SHG due to various reasons. Even though adequate support has been provided by the implementing partner in this regard, more handholding was requested. More focus on skill development for self-employment could have been undertaken so that they could be more independent.

CARE India recognises the need for such programmes to be conducted in the region and has continued to work in this region with HDFC and other partners.

6 Conclusion

6.1 Summary of Findings

The report highlights the findings of a project focused on natural resource management, skill training and livelihood enhancement, health and sanitation, and the promotion of education in Patan Block, Durg.

In NRM, the activities implemented included farm pond construction, solar lift irrigation systems, micro-irrigation systems, information about vermipits or their installation, soil testing, land treatment, organic farming training, installing drip and sprinkler systems, lift irrigation systems, promoting solar pumps, building check dams and gabion structures, solar streetlights, and solar drinking water supply. The implementation of irrigation systems and farm management techniques has resulted in **increased crop productivity, particularly for rice (23% increase), wheat (22% increase), and mustard (45% increase).** Notably, **the median net income across the twelve villages nearly doubled, with a 99 percent increase, from Rs. 71,000 to Rs. 1,41,500.** Post-intervention in the project villages, **paddy productivity increased from 1150 kg/acre to 1900 kg/acre, observing a 23 percent increase.** The adoption of sustainable agricultural practices, introduced through various training programs, has been widespread and effective, **with 88% of farmers applying organic manure** and **100% practicing vermi-composting**.

The project's focus on community development, particularly through SHGs, has been instrumental in empowering local residents, especially women. Approximately **40% of respondents received support for SHG development**. These groups have remained active, with **93% holding regular meetings and 77% engaging in savings activities**. The skill development and entrepreneurship training provided to SHG members have resulted in the establishment of small businesses, with **89% of participants receiving support for enterprise development**. This has contributed to increased incomes, with **84% of respondents reporting a median annual increase of Rs. 11,000**.

While the project has seen considerable success, some challenges persist. The livestock interventions, particularly with goats, faced difficulties due to breed incompatibility with local conditions. However, poultry initiatives showed moderate success. The kitchen garden program has been effective in improving household nutrition, with **87% of respondents reporting a noticeable decrease in expenses on fruits and vegetables, saving an average of Rs. 150 per week.**

Interventions in education, including the establishment of smart classes, science labs, and improved facilities, have enhanced the learning environment and student engagement in schools. These improvements have led to **increased attendance (81% reporting)** and more **interesting classes (96% reporting),** as stated by the students.

While some areas require further attention and refinement, the overall impact of the HDFC project appears to be significantly positive. With **97% of respondents indicating an increase in paddy production and 94% reporting an overall increase in income,** the project has contributed to enhanced food security, improved livelihoods, and increased self-sufficiency among the beneficiaries.

The HRDI score of **0.59 indicates a positive change of 136 percent toward the desired impact from the baseline score of 0.25.**

6.2 Recommendations

CARE India and HDFC Bank have worked tirelessly with the community to be able to provide them with the necessary facilities to help lead their lives with dignity. However, to bridge the gaps in implementation and address the challenges, some recommendations are discussed below.

Recommendations that can sustain the project initiatives:

- To increase adaption and sustainability of farming practices, the implementing partner may ensure that farmers adhere to the agricultural techniques that have been taught and support follow-up visits with farmers. Experts in agriculture should preferably arrange these visits (ideally from KVK).
- The success of NRM activities is demonstrated by the notable increases in agricultural yield and median net income. It is advised that interventions be focused on growing and promoting these practices to improve rural livelihoods even more.
- Custom Hiring Centre has been beneficial. However, only one of them has been setup. More such centres would have been beneficial to more farmers.
- While enterprises have been set up by several SHGs, only a few of them remain, and very few members of the SHG take part in them. Identifying the reason behind the lack of participation can help create better opportunities for the SHGs.
- As CARE India is inactive in the region, creating market linkages for farmers growing black rice and other crops, and providing more training in FPOs could have been more beneficial in the long run. It is recommended, that as a practice, all the assets created during the project duration such as water harvesting structures, ponds etc, should be handed over to the community level institutions such as VDCs, PRIs to ensure their sustainability in longer run.

Recommendations that can improve the design of the HRDP:

- Extending the project's duration from three to five years can aid in better programme implementation and maintenance.

Annexures

A Sampling Methodology

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

A.1 Quantitative Sample Size Calculation

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

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

Where,

N= sample size

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

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

S_e= margin of error, set at 5%;

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

Thus, the estimated maximum sample size is 400.

A.2 Quantitative Sampling Methodology

Quantitative Sampling Methodology

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

Stage 1 – Selection of beneficiaries:

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

Stage 2- Sampling for villages:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. 5 villages with the lowest sample size were merged with other villages to make a total of 9 villages to be covered under the survey.

Stage 3- Sampling for activities:

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

A.3 Qualitative Sample Size Calculation

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

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

B HRDI Methodology

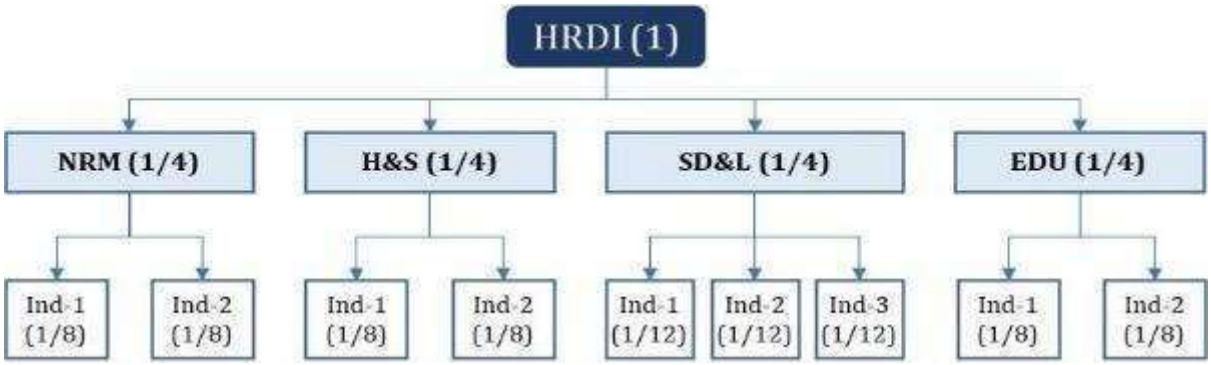
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between 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 30: Domain and Indicator Weights



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

Table 9: Example of HRDI Calculation

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

	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	(1/4) x (1/2) = 0.125

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

B.2 Analysis Plan

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

B.3 Method to Calculate HRDI

Step 1: All the indicators were cleaned and adjusted for outliers. Only those beneficiaries were considered for the analysis where data on outcome indicators was available for both pre- and post-intervention.

Step 2: A cut-off value was calculated by taking the 50th percentile for each indicator before HRDP (baseline). For instance, consider the indicator, Average Annual Income of Farmers. It was considered at baseline, then all the farmers were sorted across the seven blocks/villages in ascending order based on their income. The 50th percentile i.e., the median value of the income was taken. This median or 50th percentile was taken as the cut-off (baseline cut-off to be precise).

Step 3: Calculated the proportion of beneficiaries above the set cut-off value at the baseline for each indicator.

Step 4: Calculated the same at the endline i.e., the proportion of beneficiaries above the baseline cut-off for each indicator.

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

Step 6: Summed up all the indicators (i.e., weighted sum) to calculate the HRDI value at baseline and endline.

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

The calculation for Patan block of Durg, Chhattisgarh has been detailed below (see Table 10).

Table 10: HRDI Calculation for Chhattisgarh

Domain	Indicators	Baseline score	Baseline HRDI	End line score	Endline HRDI	% Change
NRM	Proportion of farmers with net income above median	0.16	0.08	0.25	0.13	62.5
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.07		0.13		
	Percentage of farmers reporting access to irrigation	0.11		0.13		
H&S	Percentage of households reporting increase in use of	0.02	0.02	0.07	0.10	400

Domain	Indicators	Baseline score	Baseline HRDI	End line score	Endline HRDI	% Change
	fruits/vegetables from the nutrition garden					
	Percentage of households reporting increase availability of drinking water facility	0.06		0.33		
	Percentage of households with access to improved toilet facility	0.00		0.00		
ST&LE	Percentage of SHG members reporting income above median from rural enterprises	0.03	0.02	0.23	0.12	500
	Percentage of households who getting skill training & reporting increase in income from job/enterprise/self employment	0.04		0.18		
	Percentage of HH reporting income above median from livestock	0.02		0.06		
PoE	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.50	0.13	0.50	0.25	92.3
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0.00		0.49		
Total			**0.25**		**0.59**	**136**

C Overview of Impact Calculation

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

Table 11: Impact calculation

Outputs	Output Indicators		Output Avg.	Impact Level
NA. Increased income from agriculture				
N. A1Land/ crop productivity	NA1. (a) Proportion of farmers reporting an increase in production of crops that were supported under HRDP	96%	80%	High
	NA1. (b) Proportion of farmers reporting increased input efficiency after the intervention	96%		
	NA1. (c) Proportion of farmers reporting increased income from crops that were supported under HRDP.	99%		
	N.A1.i(d) Average increase in income from crops that were supported under HRDP (% change)	83%		
	N.A1.I (e) Average increase in productivity from crops that were supported under HRDP (% change)	25%		
	N.A1.i(f) Average decrease in input cost (% change)	NA		
N.A2. Access to the farm management infrastructure	N.A2(a) Proportion of beneficiaries satisfied with the quality of available services (in farm management)	98%	63%	Medium
	NA2. (b) Proportion of farmers reporting project interventions in seeds, tools, and irrigation leading to an increase in production	52%		
	NA2. (c) Proportion of farmers reporting project interventions leading to increase in income (average of top 4-5 crops)	47%		
	NA2. (e) Proportion of farmers currently practicing organic farming/conservation agriculture/other sustainable practices	59%		
	N.A2.(f) The proportion of farmers reporting an increase in the use of natural fertilizers?	94%		
NA.3 Increased adoption of crop diversification	NA3. (a) Proportion of farmers diversifying their crops with project support.	82%	91%	High

	NA3. (b) Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	100%		
NA.5 Land under irrigation	NA (4). (b). The proportion of farmers who received support for irrigation	4%	4%	Low
NC. Increased use of clean energy solutions				
NC1.Adoption of clean energy infrastructure	NC1 (a) Proportion of HHs using clean energy infrastructure (Base=all)	34%	48%	Medium
	NC1. (b)Proportion of households reporting benefits from using clean energy infrastructure (Base=clean energy beneficiaries)	61%		
SA. Improved access to agricultural training and services				
S.A.1 Access to Agriculture training and services	SA.i(a) Proportion of farmers who reported project training services are useful	100%	91%	High
	SA.i(b) Proportion of farmers who demonstrate awareness regarding sustainable farming practices	81%		
S.A.2.Adoption of improved farming practices	SA.ii(a) Proportion of farmers who adopt scientific agricultural practices	67%	82%	High
	SA.ii(b) Proportion of beneficiaries reporting an increase in productivity due to better farm management	85%		
	SA.iii(c) Proportion of farmers reporting increased income	94%		
SB. Economic empowerment through collectivization (Only for SHG members)				
SB.1 Formation/ revival of SHG-based Enterprises	SB.i(a) Proportion of members who received support with establishing/reviving SHGs	6%	51%	Medium
	SB.i(b) Proportion of members who received support with establishing/reviving SHG enterprises	49%		
	SB.i(b) Proportion of members whose SHGs are currently functioning	97%		
SB.2 Development of entrepreneurship	SB.ii(a) Proportion of SHG members who received training	91%	93%	High
	SB.ii(b) Proportion of SHG members undertaking entrepreneurial activities	NA		
	SB.ii(d)Proportion of SHGs with increased savings	98%		
	SB.ii(e) Proportion of SHG members reporting improved income	89%		
SC. Enhanced capacity for regular income generation				
SC.1 Enhanced employable skill development	SC.1(a) Percentage of youth who accessed skill development training	NA	NA	NA
	SC.1(b) Percentage of youth who report improved income through skill development	NA		

SC.2 Access to self-employment and entrepreneurial opportunities	SC.2(a) Proportion of beneficiaries who established/ expanded entrepreneurial activities	89%	86%	High
	SC.2(b) Proportion of beneficiaries reporting improved capacity to undertake entrepreneurial activities	86%		
	SC.2(c) Proportion of beneficiary HHs reporting an increase in income	84%		
SD. Improved capacity to generate income through livestock management				
SD.1 Adoption of scientific management of livestock	SD.I (a) Proportion of beneficiaries who received support in livestock management services	19%	51%	Medium
	SD.i(b) Proportion of beneficiaries reporting an increase in income from livestock management	85%		
	SD.i(c)Proportion of beneficiaries reporting improved livestock health	49%		
	SD.i(d) Proportionate increase in average income from livestock	NA		
HA. Improved health infrastructure and services				
HA.1 Establishment/ enhancement of health infrastructure and services	HA.i(a) Proportion of beneficiaries who gained access to health services	NA	NA	NA
	HA. i(b) Proportion of beneficiaries reporting lifestyle changes due to improved access	NA		
	HA.i(c) Proportion of beneficiaries who consulted medical references from camps	NA		
H.B. Improved sanitation infrastructure and services				
HB.1 Establishment/ enhancement of sanitation infrastructure.	H.B.i(a) Proportion of beneficiaries who gained access to sanitation services	NA	NA	NA
	HB.i(b) Increase in no of HHs with access to sanitation infrastructure/ facilities	NA		
	HB.i(c) Proportion of beneficiaries reporting benefits due to improved access	NA		
H.C. Development of Kitchen gardens				
HC.1 Increased adoption of kitchen gardens	HC.i(a) Proportion of HHs reporting income gains from kitchen gardens	93%	95%	High
	HC. i (b) No of HHs received seeds/training in the kitchen garden	100%		
	HC.i(c) No of HHs with improved vegetable/fruit consumption due to kitchen gardens	93%		
HD Improved awareness and health-seeking behaviour				

HD.1 Awareness regarding health and sanitation practices	HD.i (a) Improved dietary practices/ reduced tobacco consumption/ improved physical exercise	NA	NA	NA
HD.2 Adoption of positive health and sanitation practices	HD.ii(b) Increase in no. of HHs adopting proper solid waste management practices	NA		
	HD.ii(c) Increase in no of HHs adopting proper liquid waste management practices	NA	NA	NA
HE. Improved availability and management of water				
HE.1. Access to drinking water at household and community levels improved	HE.1. (b)The proportion of households reporting improved well-being due to the availability of clean drinking water.	64%	64%	Medium
Outcome EA. Improved capacity of educational institutions to provide services				
EA.1 Access to improved physical infrastructure	EA.i(a) Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	43%		
EA.2 Improvements in quality of teaching	EA.ii(a) Proportion of teachers regularly utilizing smart classrooms/libraries/smart class	100%	72%	Medium
Outcome EB. Improved learning outcomes				
EB.1 Improved exam performance and subject confidence among students	EB.i(a) Proportion of students who gained access to coaching classes	NA		
	EB.i(b) Proportion of students who report improvements in access to reference material	94%		
	EB.i(c) Proportion of students reporting an increase in confidence in various subjects (lessons are easy to understand, more interesting, etc.)	98%		
	EB.i(d) Proportion of students who received scholarships	NA		
	EB.i(e) Proportion of teachers reporting improvements in learning outcomes due to infrastructural facilities at institutions (concept retention, attention span, and exam performance)	53%	82%	High

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

D Two Sample Proportions Z Test

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

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

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

where:

p1 is the proportion in the first sample

p2 is the proportion in the second sample

p is the pooled proportion, calculated as (p1n1 + p2n2)/(n1 + n2)

n1 is the sample size of the first sample

n2 is the sample size of the second sample

The z-statistic is then compared to the standard normal distribution to determine the p-value of the test. A p-value less than alpha (typically 0.05) indicates that the null hypothesis can be rejected, and there is evidence to suggest that the two proportions are different.

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

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

The two samples are independent.

The two populations are normally distributed.

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

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

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

Assumptions:

Independence: The two samples must be independent of each other.

Normality: The two populations must be normally distributed, or the sample sizes must be large enough (n1p1n2*p2 > 10).

Binomial distribution: The population does not need to follow a binomial distribution, but the test is more powerful if it does.

The z-test conducted for one indicator- **Proportion of farmers with income from agriculture above baseline median.**

Table 12: Z-test Conducted for P0293

Indicator	Proportion of farmers with income from agriculture above baseline median
p1 (proportion of first sample-endline)	76
n1 (sample size of p1)	198
p2 (proportion of second sample-baseline)	49
n2 (sample size of p2)	198
p	0.315656566
Calculation	0.046711829
z statistic	5.780120541
	Statistically significant at 95% confidence level (or p<0.05)
P-value for the z statistic (calculated here: https://www.socscistatistics.com/pvalues/normaldistribution.aspx)	<0.00001

E Sustainability Theme-wise Matrix

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

Support provided	Structures established	Technical Know-how	Usage	Maintenance
NRM				
Water Management- Irrigation	✓		✓	✓
Farm Management	✓	✓	✓	✓
Clean Energy	✓	X	✓	X
Skill Training and Livelihood Enhancement				
Agriculture Training and Support	✓	✓	✓	✓
Livestock Management	✓	✓	✓	X
SHG Development	✓	✓	✓	✓
Skill Development		✓		X
Health and Sanitation				
Health Camps/clinics				
Kitchen Garden	✓	✓	X	X
Promotion of Education				
Educational Institution Development		✓	✓	✓