

# Impact Assessment Study Of Holistic Rural Development Programme (HRDP)

## Assam



Prepared For:



HDFC Bank CSR

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## Executive Summary

As part of the HDFC bank's CSR initiative, programs are supported to deliver holistic rural development. Within Parivartan, the "Holistic Rural Development Program" (HRDP) is the flagship CSR program, under which non-governmental organizations across the country are supported to deliver development interventions. In Kamrup, FXB India Suraksha was the implementation partner of the assessed HRD program (3 villages). The major focus areas for intervention were Natural Resource Management (NRM), Skill Development and Livelihood Enhancement, Health and Sanitation, and Promotion of Education. The study employed both qualitative and quantitative methods for assessing the impact of the project. The primary objective of the study was to **present a scenario of successful project initiatives recommending possible ways to address challenges that exist. The impact assessment aims to evaluate the implementation and performance, determine the reasons why certain results occurred or not, draw lessons, and derive good practices and lessons learned critically and objectively**

**Natural Resource Management:** Community participation and management of natural resources is a subject that has observed paradigm shifts in practice over the years. The HRDP was aimed at resource user participation in resource management decisions who would reap benefits through the project. As an example, beneficiaries reported a 60% increase in average income from skill enterprises and a 51% increase in savings from enterprise development. By facilitating the various components of the project, farm management motivates the recipients to innovate the existing practices. For instance, user groups of livestock incubators expanded on their existing asset and multiplied them through the creation of new poultry/duckery farms.

**Skill Training and Livelihood Enhancement:** Social development of a community call for entrepreneurship development. This need is bridged by skill development facilities across all states of the nation. The HRD program attempted to cover cost-effective capacity building on skill training which included SRI, horticulture, organic farming, weaving promoting, and Eri silk spinning. 81% of the skill development beneficiaries reported an increase in income from the activities. 46% of the skill training recipient have started a business activity after the completion of training. For the women with SGHs, weaving promotion activity was a fraternity where they bonded over the shared joy of working together. The group not only made monetary gains but also got international recognition as their products were marketed outside of India. Although on a few occasions, interacting with the SHG members revealed that some of the groups have gone defunct due to a lack of raw material support. Without it, group functions could not be continued and eventually, members lost interest.

**Health and Sanitation:** Health hazards are common in Assam owing to the state's high propensity for natural disasters. Floods are a common occurrence in the terrain. Strengthening health and sanitation facilities contributes to substantial vulnerability reduction. Under this category, kitchen garden setup, vermicompost material support, and technical know-how of compost pits were imparted among the beneficiaries. The initiative presented adequate results with 83% of households reporting income gains from kitchen gardens with an approximate income of INR 1000 per month (median value). Fruits and vegetables like brinjal, coriander, papaya and banana have had an increase

in consumption after the installation of the kitchen garden setup. The most common benefit to be perceived from the intervention is the reduced expenditure on food (75% of responses) and an additional source of income to the existing livelihood basket (83% of responses). However, there is scope for making further progress in nutritional gain for the user group.

**Promotion of Education:** Better quality of education strengthens the capabilities of vulnerable groups to have an equal chance at fair income. Within the focus area of the Promotion of Education, the HRDP made interventions by improving the facilities of Anganwadi centres, adding on school infrastructure, classroom infrastructure, Smart Classroom installation, IEC campaigns, remedial classes, library materials and sports kits. 76% of teachers have said to be utilizing smart classrooms for an interactive learning experience. This has led to an evident increase in the attendance of students. At present, School Management Committees (SMC) have participation from the teaching faculties but the same cannot be said for guardians.

Table 1: Summary of key income indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	17250	23750	38%
Average Income from Skill (income from enterprises) (INR)	2500	4000	60%
Average Income from SHG (INR)	2000	4000	100%
Average Productivity of 3 major crops (Kg. /Acre)	600	713	19%

**HRDI Indicators:** To evaluate the impact of the interventions, the study has employed the existing Holistic Rural Development Index (HRDI) created by the program. The HRDI is arrived at by defining key outcome indicators for each of the domains and developing a composite index. The composite HRDI score indicated a **high impact at 0.67<sup>1</sup>** for Kamrup, Assam.

Table 2: Summary of HRDI scores

HRDI Score	Baseline	Endline	% Change
	0.44	0.67	52%

**Recommendations: Diversification of income sources can work as a safety net against instabilities in weather.** This could augment the effects of natural resource management and contribute to making the program sustainable in the long term. Establishing linkages with the State Rural Livelihood Mission could provide **reduced capital and an easy market for finished goods** of micro-enterprises. This could also solve the challenge of maintaining a steady supply chain of raw materials to the SHG micro-enterprises. For health and sanitation interventions, structures like kitchen gardens might be **accompanied by risk-addressing mechanisms** in case of crop failure.

<sup>1</sup> Overall HRDI scores for different clusters will range from 0 to 1, with

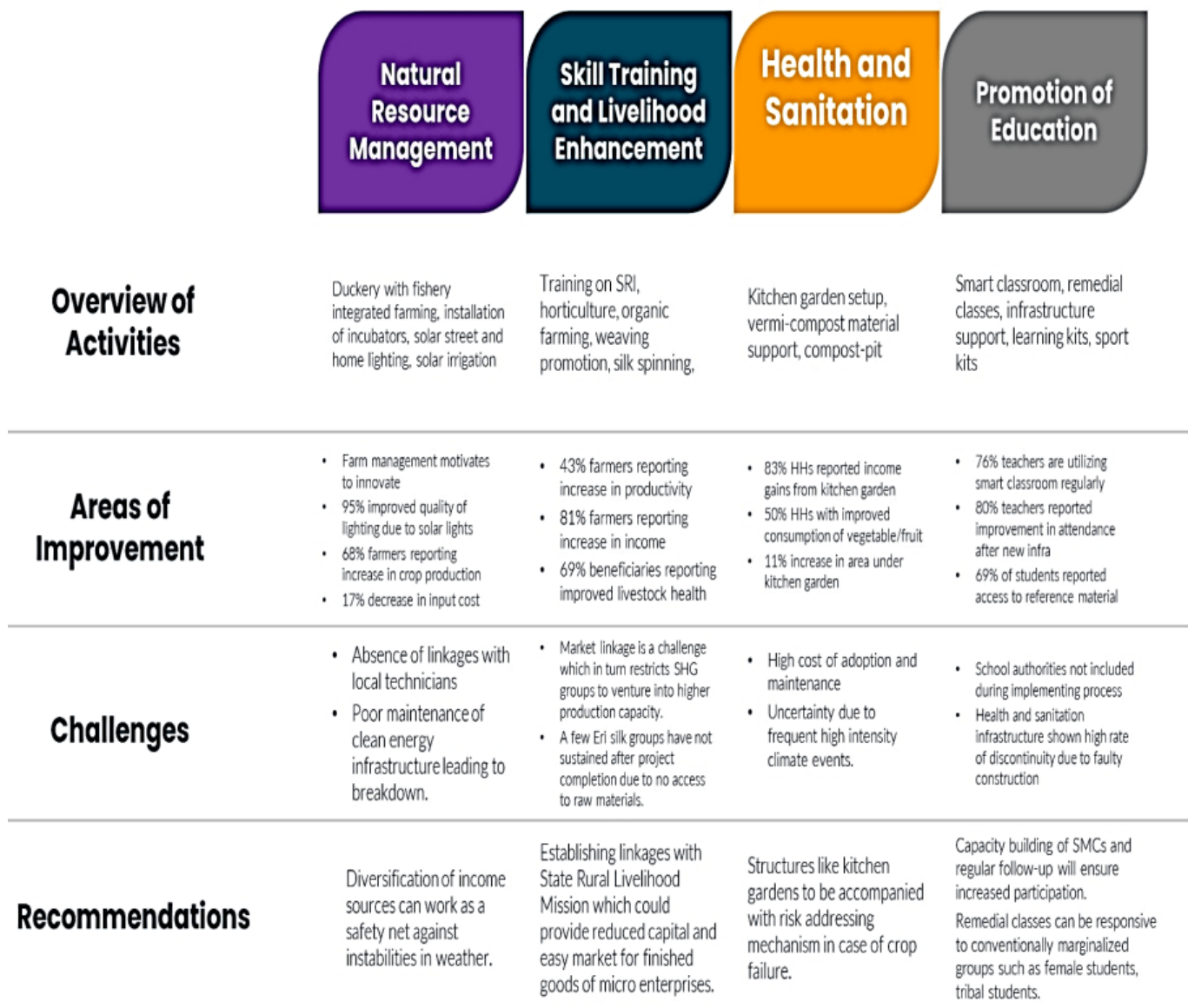
- 0 being Low/Poor and 1 being High/Best

- For instance: 0 to 0.33: Poor/Low; 0.34 to 0.66: Moderate/Medium; 0.67 to 1: High/Best (Good)



Kitchen garden setups do not require a large landholding, and by facilitating the exchange of technical know-how, the model is **an ideal example for replication at multiple interested households**. To promote quality education, capacity building of SMCs and regular **follow-up** will ensure increased participation. Remedial classes can be **beneficial to conventionally marginalized groups** such as female students, and tribal students.

**Figure 1: Overview of project impact**

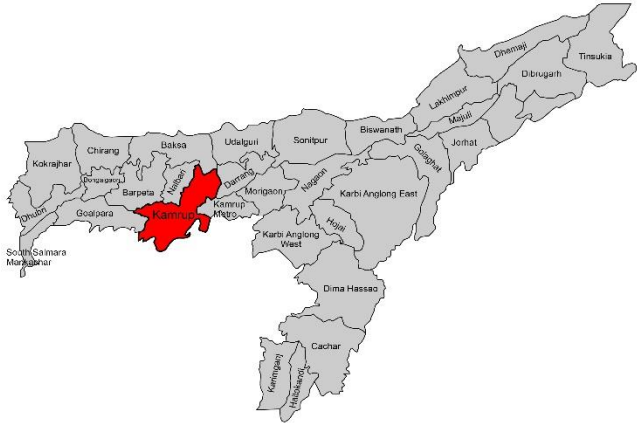




# 1. Introduction

## 1.1. Background of the Study

As part of the HDFC bank’s CSR initiative, programs are supported to deliver holistic rural development. Within Parivartan, the “Holistic Rural Development Program” (HRDP) is the flagship CSR program, under which non-governmental organizations across the country are supported to deliver development interventions. The vision of these programs is to create happy and prosperous communities in terms of socio-economic and ecological development which is sustainable. The holistic approach supports the lives of communities by providing necessary inputs on issues like



shaping economic independence through skilling, providing basic infrastructural development, and establishing a better ecosystem thereby promoting better living conditions.

In the assessed HRD program in 1 cluster of Kamrup, Assam, the implementation partner was FXB India Suraksha. The major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement, Promotion of Education, Healthcare & Sanitation.

Image 1: Area covered under the study

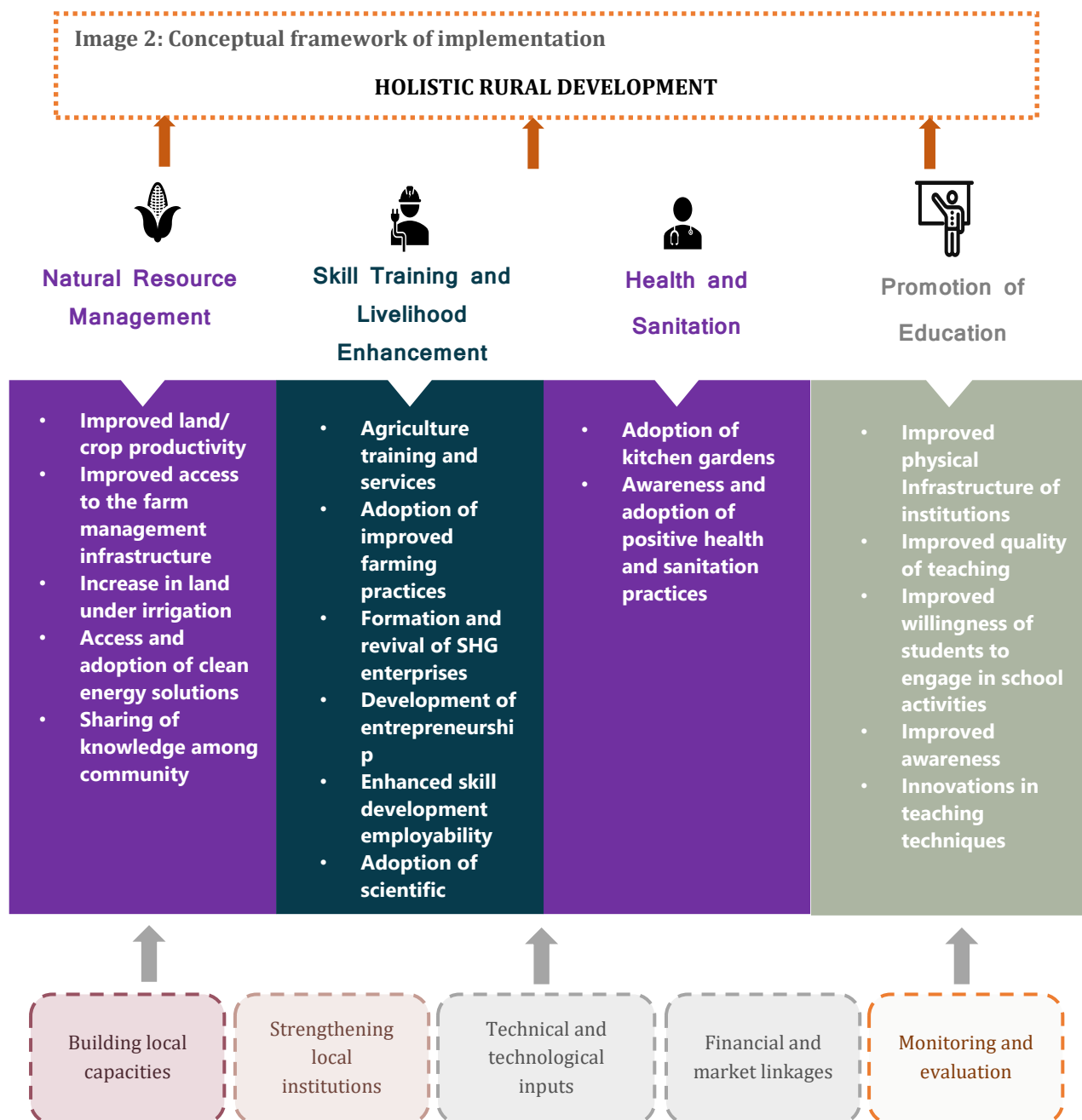
## 1.2. Partner Organization-FXB India Suraksha

FXB India Suraksha (FXBIS) is an Indian non-governmental, non-profit organization providing development assistance to marginalized children, women, and communities in rural and urban India. FXBIS is registered in 2007 as a section 8 company under the Companies Act, 2013 with the objective of assisting people to lead a life of dignity by creating a safe, healthy, and productive environment. FXBIS’ area of intervention expanded over the years from its original focus on working with families affected by HIV/AIDS to a community-based, multi-sectoral programme approach along its four domains, namely Access to Quality Education, Poverty and Livelihood, Improved Health Status, and Child Rights and Protection. Currently, FXBIS works in different pockets across 14 States and UTs across India.

Implementation of the HRD Program by FXBIS initiated in 2017 in three villages of Panitema, Panikhaity and Maniari in the Kamrup (rural) district of the state. The villages were selected on parameters of social and economic backwardness in terms of livelihood opportunity, unemployment of youth, infrastructural development, access to quality education and the health status of the village population. The project was designed on key thematic aspects of Livelihood Promotion, Education, Health, Protection & Safety, and village infrastructure development. The project period was between 2017 to 2021.

### 1.3. Purpose and objectives of the study

The impact assessment aims at understanding the overall process undertaken by HDFC bank and partner organizations in implementing the program activities, key milestones achieved, the impact created by these activities, challenges faced, and the way such challenges were handled. The guiding philosophy behind this study is to add value by showcasing successful initiatives and recommending possible ways to address challenges that exist. The study is expected to provide evidence-based findings which would inform HDFC Bank in taking operational and strategic decisions while planning and funding partner organizations for such programs. The evaluation was also an opportunity to learn about the relevance of the programs implemented and the effectiveness of such programs. The conceptual framework employed, and the area covered under the study are depicted below.



## 2. Research Methodology

The assessment used both qualitative and quantitative methods. For each cluster and thematic area, activities completed were identified. The impact generated by these activities was assessed using the criterion of **Relevance and Convergence, Effectiveness and Impact, and Sustainability and Replicability**. The evaluation process was carried out in a consultative manner involving interactions with both HDFC bank and FXBIS team at key junctures.

Under the criteria of relevance and convergence, the evaluation sought to answer whether the design of the program interventions is aligned with the state's plans and priorities for rural development. In addition, the evaluation examined whether the design and implementation of the program were relevant to the local needs of the most vulnerable groups. The study has observed if there has been a convergence/ made use of the existing resources of the government and whether different stakeholders involved have worked together to achieve the outcome of the program.

To assess the impact and effectiveness<sup>2</sup> of the program, the findings seek to establish the values of outcome indicators of all the thematic interventions. These findings are assessed against the outcome indicators finalized during the outcome harvesting stage. Further, through qualitative evidence, the evaluation tries to understand whether and how the program impacted the lives of the community members in the program areas. This was done through analysis of program outcomes in light of certain variables identified in consultation with HDFC Bank. The findings from primary quantitative data have been substantiated by the information gathered from discussing with the communities/beneficiaries, teachers, students, entrepreneurs, and local institutions at the village level. Through primary data, the study has tried to understand if the program has worked on strengthening the community's capacity to ensure sustainability, and whether any of the activities or strategies adopted have been or could be replicated.

### 2.1. Design and Methodology

A review of various program documents including HDFC's CSR Policy, Program log frame (Logical Framework Analysis), Rapid Rural Appraisal Reports, Program implementation timelines, Communication, and Documentation Products, and other relevant reports/literature related to the program was utilized for a secondary review.

The primary research included a quantitative household survey as well as in-depth interviews and focused group discussions with program beneficiaries, the partner NGO, and the HDFC Bank program team. The outcome mapping and result chain development were undertaken in consultation with the HDFC team. The exercise resulted in the identification of standardized key outcomes and indicators related to each of the program thematic areas. Based on the standardized list of outcomes and outputs, the questionnaire for the state was developed.

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

## 2.2. Sample Size and Distribution

The sample size covered during the field is as follows. These figures depict mutually inclusive beneficiaries who have received benefits from farm management, livestock management and clean energy under NRM.

Table 3: Quantitative Sample Covered

Kamrup, Assam	Total Households	NRM	Skill Training and Livelihood Enhancement	Health and Sanitation	Promotion of Education	Financial Literacy and Inclusion
<b>Actual</b>	391	473	345	12	50	210
<b>Planned</b>	400	100	100	100	50	50

Table 4: Qualitative sample size covered

Kamrup	FGDs				IDIs and KIIs				Remedial Class Volunteer	Panchayat Member	Livestock Management Beneficiaries
	SHG	Student	Community	Farmer Club	School Headmaster	Village Head	Anganwadi Worker (AWW)	Implementing Partner			
Total	4	1	2	3	1	1	1	2	3	1	1
Planned	3	2	2	3	1	1	2	2	2	1	1

Since there was no baseline available for this evaluation, the recall method was used in the household survey to assess the change that has happened over time. For this purpose, the respondents were asked to recall the value of critical indicators at the start of the program. Teams of local enumerators, with requisite education and experience, were hired for data collection. Two days of training at Kamrup, Assam were provided to enumerators and supervisors by the NRM team.

Images 3 & 4: Training of field team held at Kamrup, Assam



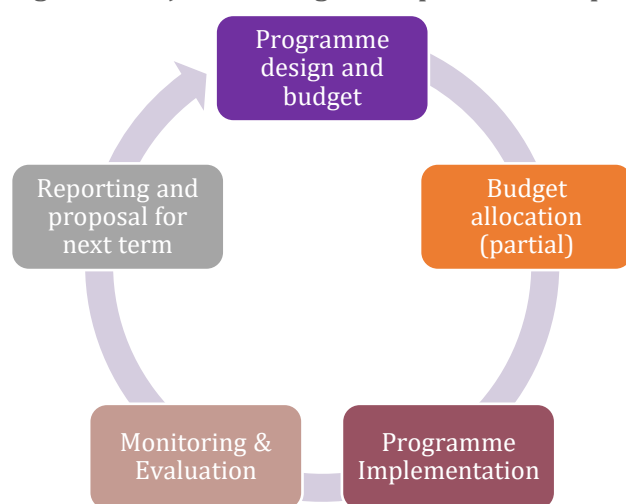
## 3. Program Review

### 3.1. Program Design and Implementation

The holistic development project was designed for three villages in the district of Kamrup, Assam. The villages, Maniari, Panikhaity and Panitema were considered as a cluster, located within 20 to 30kms from the state capital, Guwahati City. The annual budget allocation for the project was based on the proposal by FXBIS to HDFC Bank. The partner organisation employed a preliminary rapid rural appraisal (RRA) in the designated villages to gauge the needs and requirements of the areas.

Findings from the RRA were utilized in preparing an annual work plan wherein the project activities were proposed. The interventions were designed to bridge the gap between the productivity of existing resources through better linkages with Central and State Government schemes. The beneficiaries were selected only after the project concept was thoroughly clarified to them.

Figure 2: Project Planning and implementation process



Observations gathered during field visits suggested that the allocated budget was primarily utilized for infrastructure, material support and skill training. There is scope for a higher focus on change in practice and perspective when it comes to beneficiaries engaging in innovative livelihood-generating activities.

Monitoring of the intervention by HDFC Bank is quite frequent and resources from different levels are deployed to monitor the activities frequently. These monitoring visits could be

strengthened further if they gathered information on the overall change in the quality of life of the community instead of only emphasizing the status of structural interventions.

### 3.2. Program Relevance

The district of Kamrup is situated between 25.46 and 26.49 North Latitude and between 90.48 and 91.50 East Longitude. It is bounded by Udalguri and Baksa districts in the north, Meghalaya in the south, Darrang and Kamrup Metropolitan in the east and Goalpara and Nalbari districts in the west. The total geographical area of Kamrup is approximately 2740 sq. km. The district has 1027 villages, administered under twelve revenue circles. As per the census data of 2011, the population of the district is estimated to be 1,517,542 with a literacy rate of 75%<sup>3</sup>.

#### Challenges of the Landscape

Assam has been repeatedly documented as an underdeveloped state in comparison to its

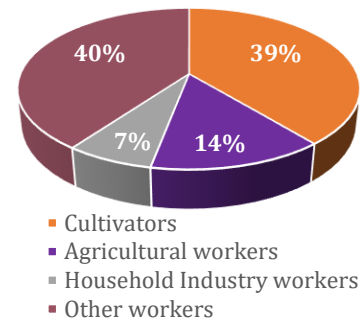
<sup>3</sup> Website: Government of Assam, Kamrup district



neighbouring states. High-intensity climate events have been a critical source of impediment to the development of the state. Flooding of Brahmaputra and Barak valleys cause loss of lives, long-term agricultural and livestock loss, damages to infrastructure, and disruption of communication channels among others. Farmers are skeptical in using high-end inputs on their lands for the fear of losing them to floods.

Certain challenges like unemployment, low land holding, fragmentation of agricultural land, poor mechanization, less agricultural credit, few skills in livestock management and indebtedness keep Assam's agricultural sector backwards than the national average. Industrial growth too has been very poor within the region. Lack of infrastructure and technological advancement, and shortage of demand in local marketing channels has not helped as well. With rising transport costs, Assam has not been able to compete outside the region. The contribution of the manufacturing sector to the Gross State Domestic Product is estimated at around 8% during 2010-11. The distribution of workforces in the Kamrup district as per the Census 2001 data shows that of the total rural population 32% are workers while 68% are non-workers. The absence of subsidiary earning opportunities in the villages is pushing the labour to nearby urban centres for wage employment.

**Figure 3: Kamrup workforce**



**Image 5 & 6: Weaving centre built under HRDP in Maniari, Kamrup**



In the context of development deficits discussed in the previous paragraphs, the HDFC project focused directly on these aspects. The project components on strengthening livelihood options and making them resilient through knowledge and skill training will prove sustainable in the long term. As a strategy for the development of the state, social development, infrastructure, and good governance must be combined for a

quality result. The HRD Program design employs all the above-mentioned sectors in the planning. It engages institutional mechanisms for farm management practices that translate into income generation. Apart from that, significant stress is laid on skill-building initiatives that are easy to replicate at locations other than the project areas. Important sector such as handicrafts gets a boost from the project through multiple weaving promotion activity and Eri silk processing activity. These activities have a high potential for linkages with a global market. In addition to this, sustainable efforts have been designed to improve educational institutions by renovating school buildings, constructing hand-washing stations and sanitation infrastructure, and equipping classrooms with advanced learning tools.

## 4. Study Findings

### 4.1. Demographic profile

This section provides the demographic profile of the respondents covered in the sampled program villages under the assessment. 77% of the respondents were from Kamalpur block while 23% of the remaining respondents were from Rampur block. A significant portion of females (94%) from the total respondents reported to be the head of the household. Nearly the entire group (98%) said a tube well or a borewell to be their main source of drinking water.

Figure 5: Livelihood Profile Highlight (n=391)

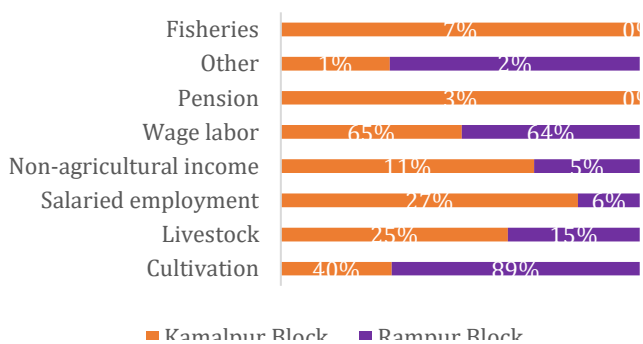


Figure 9: Age of Respondents (n=391)

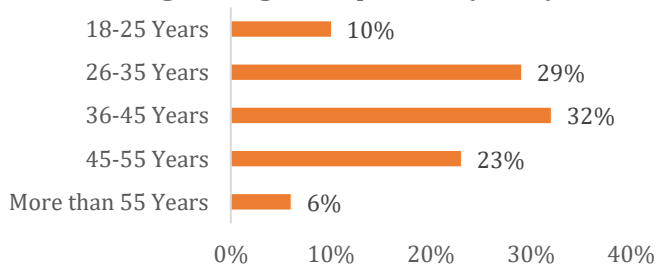


Figure 7: Poverty status (n=391)

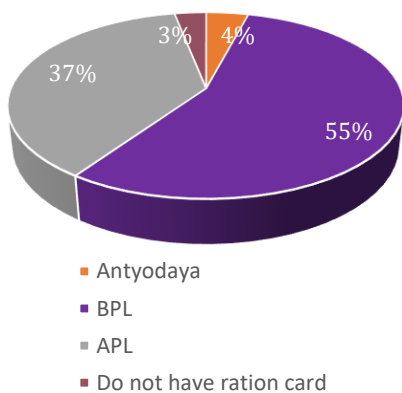


Figure 4: Educational Status (n= 391)

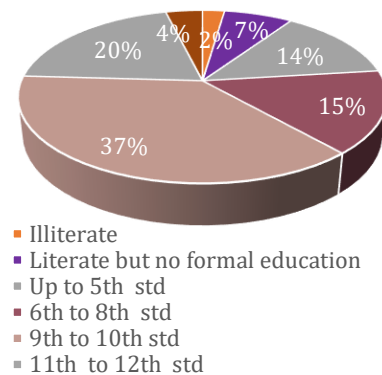


Figure 8: Gender of Respondents (n=391)

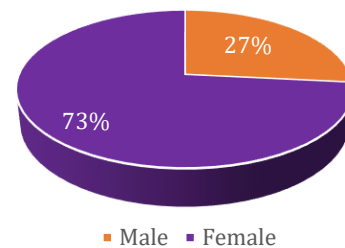
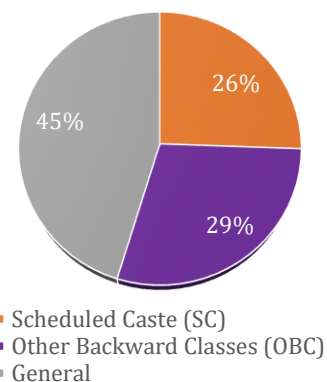


Figure 6: Social category (n=391)





## 4.2. Natural Resource Management

Natural Resource Management is the main pillar of HRDP. The interventions in this pillar vary as per geography and the community need. In Kamrup district, 89 beneficiaries have received agricultural and livestock-related benefits. For clean energy, 384 households have responded to be associated with clean energy initiatives. The beneficiaries under NRM categories (farm management, and clean energy) are mutually inclusive. NRM include the following characteristics:

- A commitment to involving community members and local institutions in the management and conservation of natural resources;
- An interest in devolving power and authority from central and/or state government to more local institutions and people;
- A desire to link and reconcile the objectives of socioeconomic development and environmental conservation and protection;
- A belief in the desirability of including traditional values and ecological knowledge in modern resource management (Kellert et al, 2000<sup>4</sup>).

The table below provides the state-wise list of interventions covered under NRM.

Table 5: Activities under NRM in Kamrup, Assam

Activity Category	Activities
Farm Management	Duckery with fishery-integrated farming, installation of incubators, technological intervention for poultry management
Clean Energy	Solar streetlights, solar home lights, solar irrigation promotion activity

### 4.2.1. Effectiveness and Impact

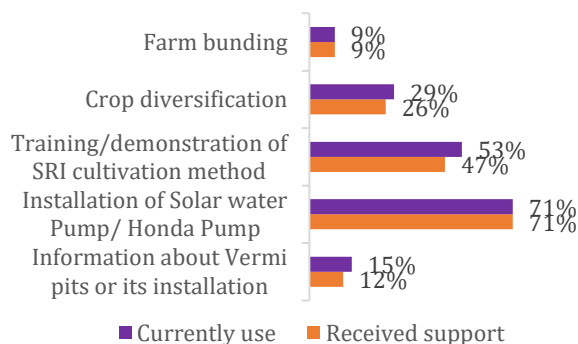
This section provides an overview of the effectiveness of the project activities and their contributions to the outcomes defined in consultation with HDFC Bank. As indicated in **Error! Reference source not found.10** below, the impact level attained under each category is calculated based on the average of output indicators under each activity category.

Figure 10: An overview of project effectiveness and impact in Natural Resource Management



<sup>4</sup> Kellert, S. R., Mehta, J. N., Ebbin, S. A., & Lichtenfeld, L. L. (2000). Community natural resource management: promise, rhetoric, and reality. *Society & Natural Resources*, 13(8), 705-715.

**Figure 11: HRDP interventions that contributed to increase in income (n=23)**

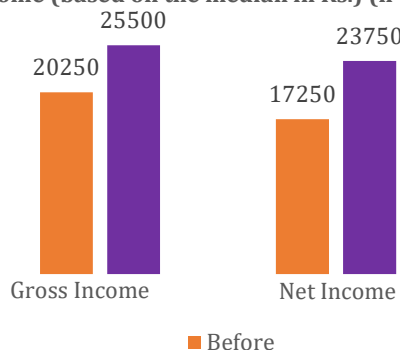


Clean energy solutions witnessed a **successful scenario with a high rate of impact** amongst the beneficiary group. Solar streetlights not only benefitted the project beneficiaries but the community as the responders reported to have felt a sense of security and free movement even after sundown. Solar home lights have aided households to carry out chores without interruption, but the greater benefit was felt by the student community who used the light for extended hours of studies.

**Income from agriculture:**

Under farm management, duckery with fishery integrated farming, installation of incubators, vermi-pits installation and SRI are some of the major activities in the project location. Household ponds in the region were also renovated to be utilized for fish farming. Crop diversification, solar water pump installation, and farm bunding were implemented as well.

**Figure 13: Increase in seasonal Agricultural Income (based on the median in Rs.) (n=34)**



**income**<sup>5</sup> largely owing to a reduction in input expenditure

<sup>5</sup> Based on the Pearson Correlation test, correlation between gross income and increase in net income is significant at 95% confidence interval.

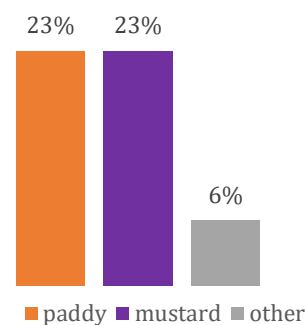
The farmer-beneficiaries of NRM portray a **moderate increase in production capacity, on-farm management, and income generation from agricultural practices** as a response to project initiatives. Results depict limited progress in strengthening crop diversification which could be due to inadequate local resources available as well as apprehension to make a shift at this point.

**Image 7: Solar streetlight at Panitema village, Kamrup**



Farmer beneficiaries responded to have observed an increase in income after the project intervention, as indicated in Figure 12. There is a **38% increase in the annual average net**

**Figure 12: Crop-wise increase in avg. production (in Kg) (n=34)**



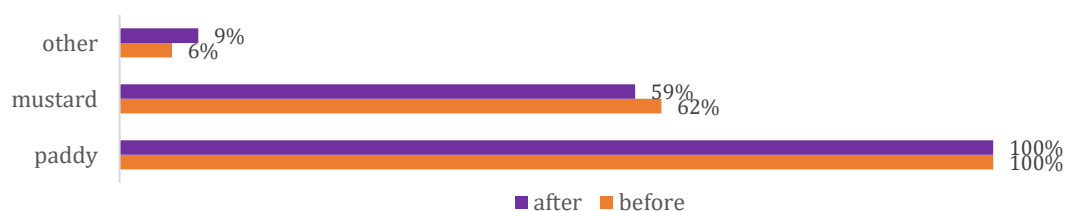
(17% decrease from INR 3000 to INR 2500)<sup>6</sup> as well as interventions in organic farming. While there is no significant increase in total area under production, on average, **68% of farmers believe that their production has increased for major crops namely paddy, mustard, and others** (See Figure 12). The average **productivity of these crops increased from 600 kg to 713 kg per acre (19% increase<sup>7</sup>)** in the project period.

Figure 14: HRDP interventions and their contribution in increased production of the following crops<sup>8</sup>

Intervention \ Crops	Paddy	Mustard	Other
Interventions in seeds and tools	72%	64%	0%
Interventions in irrigation	55%	64%	0%
Interventions in organic farming	72%	79%	100%
Interventions in soil testing and land treatment	7%	14%	0%
Interventions in farming techniques (e.g., SRI, creeper farming)	28%	43%	0%
Interventions in agricultural installations (e.g., green nets, farm bunding)	3%	14%	0%
Other	10%	0%	0%

32% of farmers reported that they only used natural fertilizer in the last season while **67% reported that their use of organic fertilizer has increased since the project's inception**. With 13% and 97% of farmers using vermicompost pits and compost pits respectively, there has been an 87% decrease in the usage of chemical fertilizer. Integrating organic farming practices has not only decreased the use of chemical fertilizers and pesticides but has aided in efficient usage of water (47% decreased need for water) and improved soil health (20% improved soil health). **70% of beneficiaries for all farm management activities reported that they are satisfied with the project activities** undertaken. When asked about challenges faced for the adoption or utilization of

Figure 15: Types of crops grown by crop diversification beneficiaries before and after HRDP intervention (n=34)



<sup>6</sup> Based on the Pearson Correlation test, correlation between change in net income and change in input cost is statistically significant at 95% confidence interval.

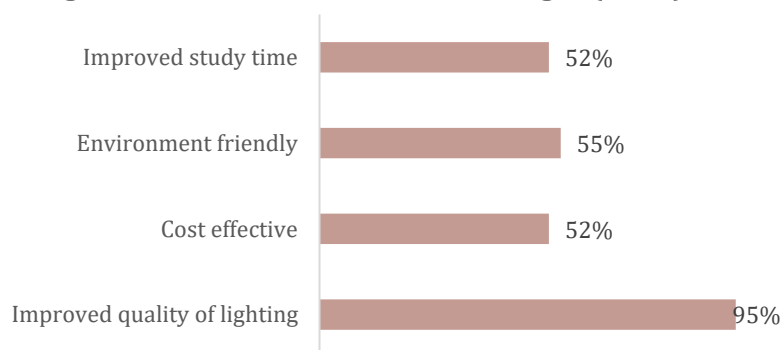
<sup>7</sup> The increase in productivity reported is statistically significant at 95% confidence interval.

<sup>8</sup> Base is the number of farmers cultivating each crop

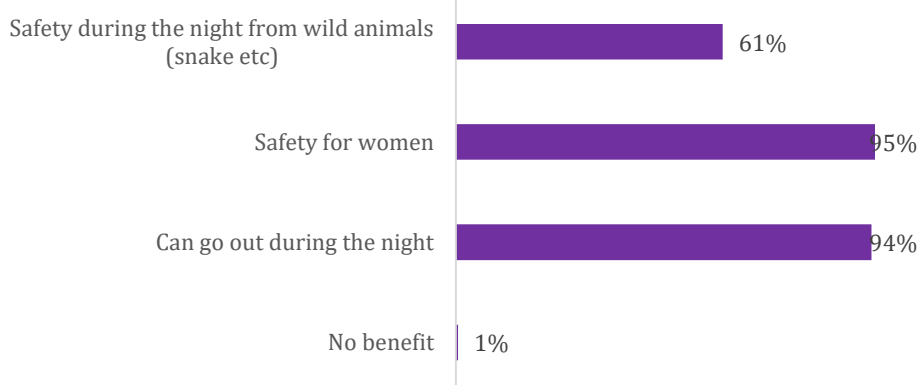
farm management services, the absence of linkages with local extension agents, and the cost of maintenance were reported.

**Clean energy solutions:** 98% of the total beneficiaries reported accessing clean energy solutions, which included solar home lights, solar streetlights, solar irrigation promotion and biomass chullah. Only **12% of respondents said to have been using solar home lighting before the intervention which has changed to 29% post-intervention.**

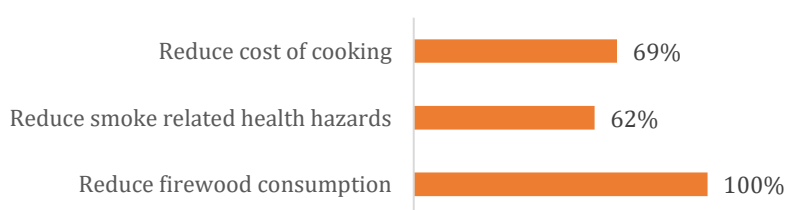
**Figure 16: Perceived benefits of solar home lights (n=113)**



**Figure 17: Perceived benefits of solar street lights (n=376)**



**Figure 18: Perceived benefits of smokeless chullah (n=13)**



While better lighting is the most reported, improved study time, sustainability and cost-effectiveness were also reported by solar home light beneficiaries as the major benefits as indicated in **Error! Reference source not found.6.**

Regarding solar streetlights, **80% of solar streetlight beneficiaries (210 respondents out of 262) reported that the solar lights are currently operational** indicating the sustained effectiveness of the intervention. 95% of beneficiaries of solar streetlights reported improved safety due for women due to the installation of solar streetlights as indicated in **Error! Reference source not found.7.**

In the case of solar lights for households, more than half of beneficiaries (54%) flagged that the lights working for a short time were a challenge for them. **About 47% of the recipients are fully satisfied with the solar home lights.**



#### 4.2.2. Case Study



#### *Case Study: “Integrated farming- from practice to profit”*

Smt. Ratima Nath is a lifelong resident of village Maniari of Kamrup district, Assam. She is a beneficiary of the HRDP, under the NRM category (farm management) wherein she has received material support which created opportunities for integrated farming system for her. The HRDP sought to address the following key challenges through the intervention:

- Vulnerability caused due to frequent flooding of the area leading to decrease in productivity;
- Gap in traditional knowledge and technical know-how;
- Lack of long-term sustainable development which focuses on local resources.

Through the HRDP, Smt. Nath has received 25 ducks, material support to create duckery shed, material support for pond re-excavation, netted boundary for the pond and fish fingerlings for the pond. From not having her own source of income prior to this, now she is an earning member of the family. Through the project, not only has it provided additional livelihood to the household’s existing income basket but has also led to promising trends of financial savings. After receiving 25 ducks, Smt. Nath decided to expand her duckery and invested in getting 30 more ducks to the existing raft. She is quick to mention that she has roughly earned around INR 600 from the sale of duck eggs and INR 400 from the sale of ducks. Although this is a seasonal income that lasts between two to three months, she has been able to save INR 400 per month due to the sales. The duckery has also ensured an addition of a nutritious diet in the form of duck eggs. On asking about veterinary facilities that are available in the area, she replied that the sub-centre is nearby and the veterinarian is available for service on most accounts.

Apart from the duck rearing, Smt. Nath was also supported with fish fingerlings which is being currently used for subsistence. She notes that the expenditure on fish feed has decreased due to the duck waste that directly drops into the water and acts as the feed. This integrated system is also accompanied by an overhead structure of fruit and vegetable creepers. While it was not part of the direct intervention, it was suggested to her by the FXBIS team.

*“I have definitely benefitted from the project, especially with the ducks. I was quite bogged down at first when I lost a few ducks to diseases and an intense flood. But I was driven to continue rearing the ducks and fishes on the face of every challenge. This project has strengthened me to make an earning of my own and hence have a better quality of life. The skill trainings that I received for farm maintenance and management will be a permanent asset to me”,* signs off Smt. Nath.

### 4.3. Skill Training and Livelihood Enhancement

Skill training and livelihood enhancement intersect at the point of raising the economy and empowering disadvantaged communities. Often, many job markets do not meet their full potential albeit having opportunities due to a lack of skilled workers. For the HRDP, multiple activities have been carried out for the community of women, farmers, and youth. Both technology and resources were harnessed for the project through initiatives of weaving promotion, and silk extraction among others.

Table 6: Activities under skill training and livelihood enhancement in Kamrup, Assam

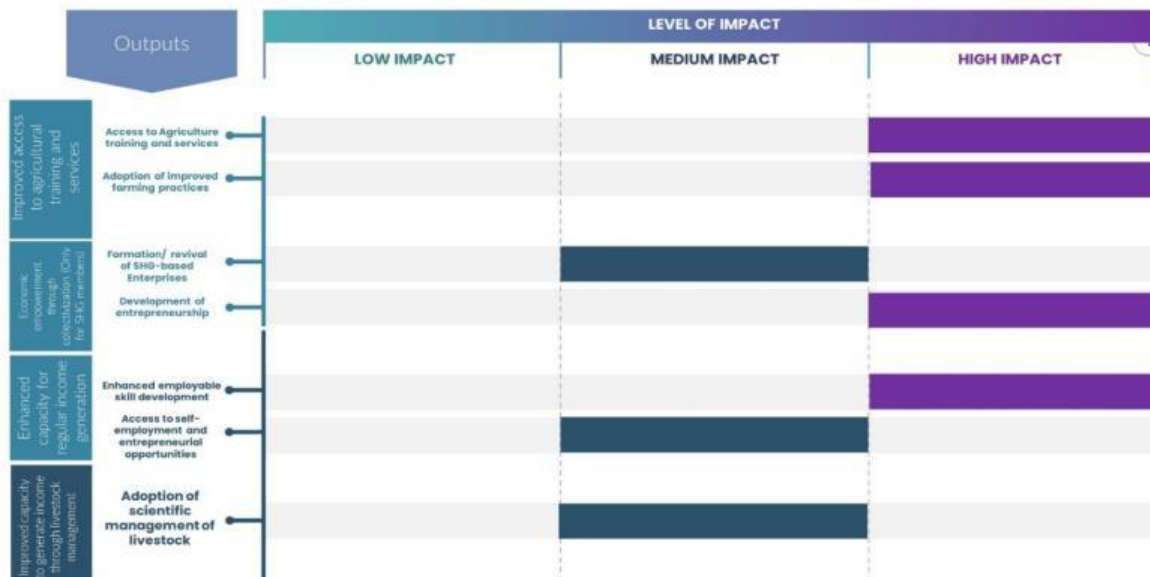
Activity Category	Activities
Agriculture Training and Support	Training on SRI, horticulture, exposure visits, demo plots
Skill Training	Training on weaving (drawboy & doobby), jacquard machine, Eri silk spinning
Entrepreneurship Development	Youth resource (learning) center, Farmers Club, Agriculture resource centers, Eri silk extraction, Weaving promotion activity, machinery support

#### 4.3.1. Effectiveness and Impact

The project was highly successful in facilitating access to agriculture and entrepreneurial training services. 88% of the members have SHGs that are still functional. A high percentage of youth have gained employable skills (98%) and access to self-employment and entrepreneurial opportunities (50%). The effectiveness of the capacity-building activities was heightened when accompanied by physical capital support.

A common challenge that is often faced, true in this case as well, is the discontinuity of SHGs/enterprises once the grant money is exhausted. In such cases, having volunteers who are identified by community businesses can be an initial option when the markets are still local.

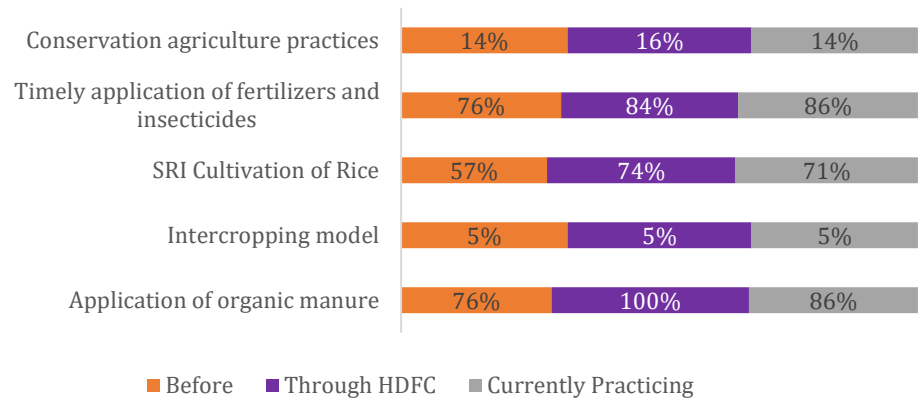
Figure 19: An overview of project effectiveness and impact in Skill Training and Livelihood Enhancement



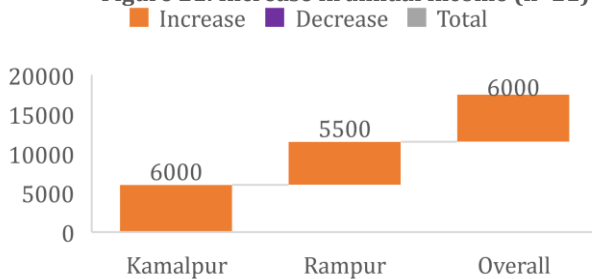
**Agriculture training and services:** The application of organic manure has emerged as one of the most successful models upon implementation. Inputs such as fertilizers and insecticides, and conservation

agriculture are the major areas of training the community opted for through the project. In terms of continued practice, organic manure and planning the application of fertilizers and insecticides have seen a favourable continuity.

**Figure 20: Agriculture practices learned and adopted through HDFC Bank training (n=21)**

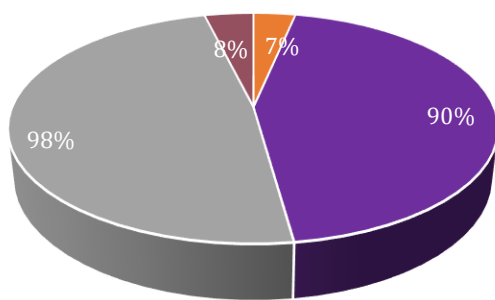


**Figure 21: Increase in annual income (n=21)**



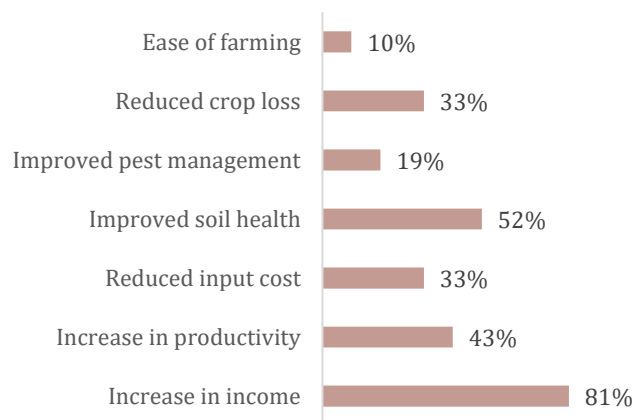
It has been observed that the **project training was incorporated into practice by the farmer-beneficiaries who have reported an annual increase of INR 6000 in income.** In addition to this, half of them have experienced an improvement in soil health. **33% of the beneficiaries believe that the input cost has been reduced after adopting agricultural practices.** Out of the

training sessions that the farmers attended, exposure visits were especially useful and availed by 16% of the beneficiaries. Under this, farmers were taken to Krishi Vigyan Kendra (KVK) which is a scientific extension institute that works on agricultural technologies under various farming systems.



- Establishing/Reviving SHG
- Establishing/expansion of business activities
- Training for SHG member
- Bank/MFI linkages

**Figure 22: Support provided for SHGs through HRDP (n=90)**

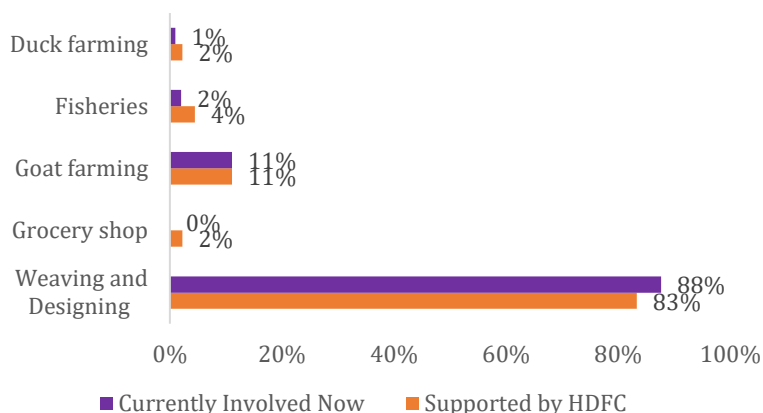


**Figure 23: Perceived improvements due to adoption of agricultural practices (n=21)**



**Economic Empowerment through collectivization:** SHGs as a membership-based group not only provide a platform for social opportunities but are also symbolic of financial independence. Within the HRDP, the project provided support in SHG management, lending and savings management, enterprise management, and bookkeeping. The project also supported mobilizing members, record keeping and organizing meetings. A major **97% of the project recipients noted that income generation was one of the biggest takeaways from the HRDP**. That apart, it was also encouraging to observe that 93% of the respondents said to have gained the confidence to run the group, carry out negotiations, and plan to scale up the enterprise.

**Figure 24: Project-supported SHG enterprise activities active post-intervention (n=90)**



As depicted in Figure 18, goat farming, fisheries and duck farming have remained the same or decreased. Weaving and designing activity has indicated an increase of 5% and grocery shops had gone defunct. Qualitative meetings with groups such as the weaving/designing SHG (which got training in operating the jacquard

machine) threw light on how the groups wanted to expand their weaving system, learn more about the craft and produce more designs. With the newfound expertise on jacquard machines, productivity has increased with efficient usage of time. Some of the persistent challenges that came up were, the gap in communication between SHGs and market players leads to uncertainty in setting production targets and price points. This creates a feeling of uncertainty amongst the group members and the motivation to work is hampered.

The training for SHG skill development were extensive in nature that lasted for almost six months in totality. **67% of the beneficiaries found these training useful and employable. Through these training, 84% of the recipients gathered awareness of financial management, and 35% of the participants said to have gained knowledge of reducing losses in business activities**

**Skill and Entrepreneurship Development:** Two third (60%) of the survey respondents reported receiving

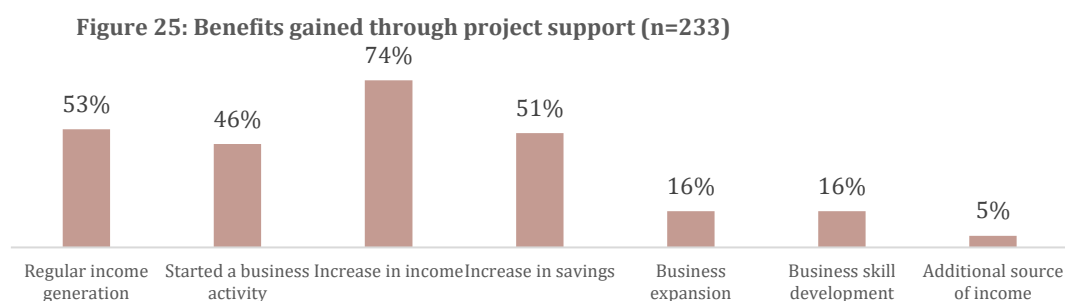
**Image 8: Members of Panitema Weaving Society**



skill and entrepreneurship development support through the project. The support received was mostly in the areas of enterprise development. Under skill training, silk weaving (78%), training for business (6%), and masonry training (5%) were the major activities to be conducted.

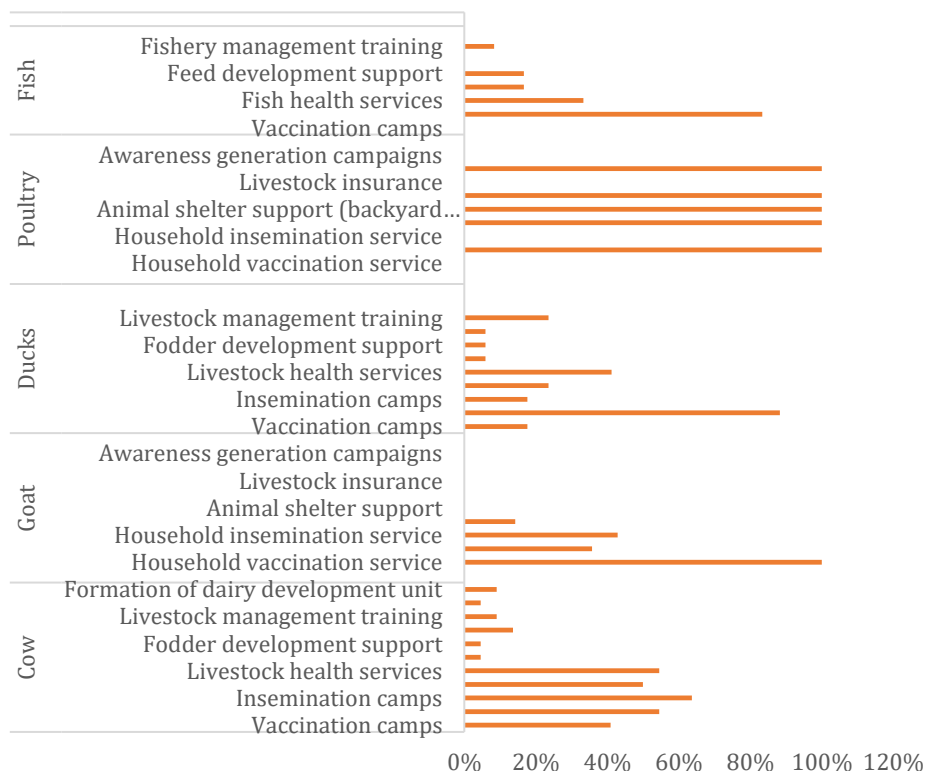
Among those who received training, 96% reported that they were able to apply the skills gained through the training presenting evidence of the high level of effectiveness of the intervention. About nine-tenth (91%) of the beneficiaries of training services believed the skills they gained have led to an increase in their income. An increase of INR 17000 (based on the median) in annual income was reported as a result of the skills gained through the project.

In the case of enterprise owners, an increase of 60% was recorded in income from INR 2500 to INR 4000 (based on the median) while more than 53% believe that the enterprise has led to consistent income generation since the project launch.



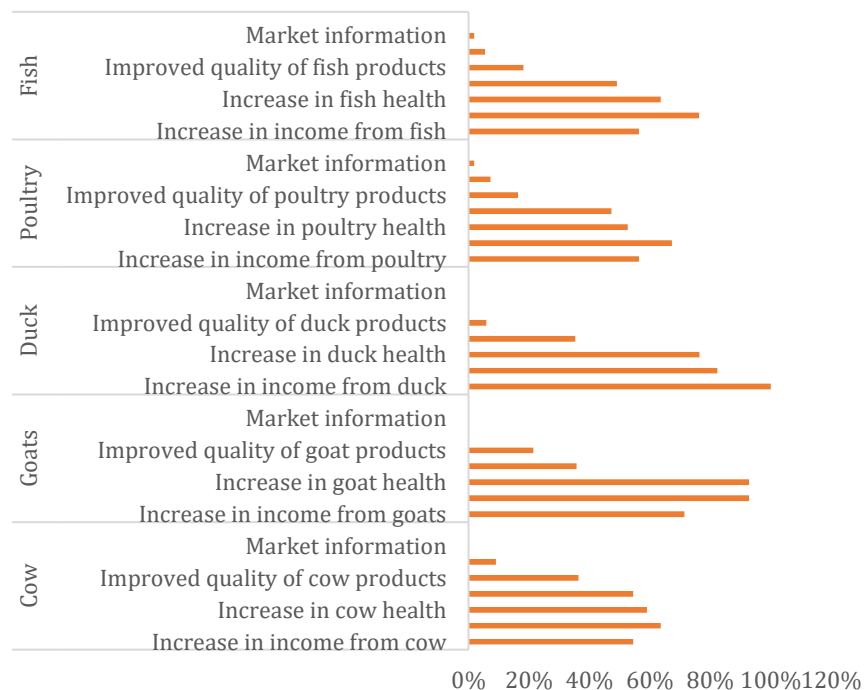
User groups who were supported with physical capital such as the jacquard machine, and the Eri silk spinning machine reported a steady income gain. Most of these recipients said that having their own spending capacity was something not experienced before. Adding on, the multiple benefits gained through project support have been indicated in above Figure 25. Having skilled and technical personnel within the community is not only an individual achievement but an asset to the community. Skill training and enterprise development interventions in the villages of Kamrup are proof of this. It can be said that sustaining an

**Figure 26: Livestock management services availed through HRDP (n=55)**



enterprise requires concerted efforts and takes time to gain a foothold, but data gathered from the study locations have indicated a genuine interest in carrying forward the business without any further handholding.

Figure 27: Perceived primary benefits of livestock interventions (n=55)



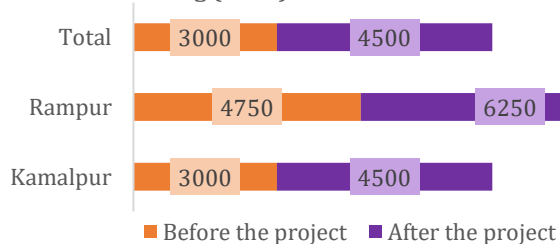
**Livestock Management:**

Benefits from livestock management were accessed by 14% of the beneficiaries (55 out of 391 respondents). With respect to current livestock owner, responding households owned cows followed by 31%, 29% and 4% rearing ducks, goats, and poultry respectively. The livestock owners are involved in small-scale livestock farming as the average number of livestock owned is between 3-25, with an exception of fisheries that reflected a

high number (500, based on the median). Through the HRDP, a major proportion of the support was provided to livestock groups of cows (40%), ducks (31%), fisheries (29%) and goats (25%). Among the livestock management services availed from the project, insemination camps (for cattle) and household-level vaccination services/medical services were availed in the highest proportions.

**More than 50% of the beneficiaries** across all the livestock categories have observed an increase in income from the asset. An increase in livestock health was detected at an average of 69%. Although an increase in income has been reported, household savings have not recorded a noteworthy shift.

Figure 28: Change in average monthly income due to improved livestock rearing (n=55)



Based on the recorded data, **the monthly income from livestock management has increased by 50% (Rs.3000 to Rs.4500 based on the median<sup>9</sup>) since the project's inception<sup>10</sup>**. Livestock diversity helps in coping with climate change and increases resilience to hazards including floods. Albeit the HRDP has

<sup>9</sup>Based on the Pearson Correlation test, the proportion of current personal income from livestock and change in income from livestock were correlated at 95% confidence interval.

<sup>10</sup> Based on the Pearson correlation test, the correlation between increase in income from livestock and average monthly income from livestock rearing supported by the project is significant at 95% confidence interval.

been able to strengthen the overall practice and management of livestock, augmenting knowledge on the latest marketing channels and household savings can be strengthened further.

#### 4.3.2. Case Study



##### *Case Study: Creating Fraternities through ARCs*

The Panitema Agricultural resource center (ARC) is an actively running farmers' group since its inception four years ago. This is a seventeen-member group which comes under the ambit of HRDP skill training and livelihood enhancement focus area. HRDP aimed at providing solutions to these challenges faced by the farming community:

- Uncertainty of source of irrigation
- Equipment shortage that ensures easy access to irrigation and farming needs
- Mechanization of agricultural practices

The Panitema ARC underwent capacity building wherein SRI training and organic farming skills were imparted among others. The group members were also entrusted with solar irrigation pump which addressed the water supply related challenges. The training on SRI that the ARC received enabled them to increase their overall agricultural output. The center was renovated as a part of the project and was also equipped with assets such as seating arrangements, electrical arrangements as well as provision for computer and internet connection. Because of the computer and internet, these group members accessed the web to get knowledge and information about modern farming techniques employed by neighboring states. They also planned for other farmers to learn from this. The group tried cultivating potatoes from the good practices they came across on the internet.

The group members convene monthly meetings where they make collective decisions on responsibilities that they share and sometimes undertake conflict resolution that arises from the community. At present, they maintain the resource center with the nominal amount that is earned from renting the solar pump to the community members who has a requirement. The ARC is of the opinion that, *“the overall experience of being associated with the project has helped them in adopting advanced skills. The gamut of interventions has improved social conditions of the village. The solar streetlights, for instance have been impactful in ensuring a sense of safety among the villagers. The irrigation pumps too, have supported many farmers in dismissing uncertainty of water supply.”*

## 4.4. Health and Sanitation

Under sanitation, primary emphasis was laid on elevating the health of women at the household level by initiating a series of kitchen garden setups. The project imparted training on vermi-compost and compost-pits which was utilized by the households to save on input costs. Such activities of organic farming were adopted by many households which were not directly under the ambit of the project but were keen on experimenting after witnessing their peers reap benefits from the activities.

Table 7: Activities under health and sanitation in Kamrup, Assam

Activity Category	Activities
Kitchen Garden	Vermicompost, compost pit, kitchen garden setup

### 4.4.1. Effectiveness and Impact

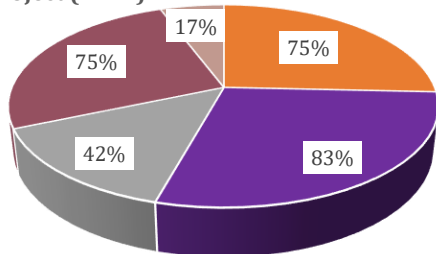
Figure 29: An overview of project effectiveness and impact on Health and sanitation



**Kitchen Garden:** Project effectiveness and impact in Health and Sanitation section stands at 45% on average. The HRDP supported beneficiaries by providing initial raw materials such as seeds, and inputs like organic fertilizers and pesticides. The households were also trained in the know-how of maintaining a kitchen garden.

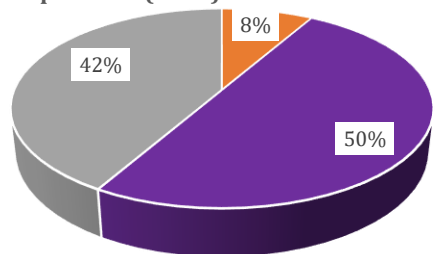
A high proportion of households, **83%**, reported having income gains from kitchen gardens. **17% of responses pointed to improvements in dietary diversity and eating habits.** The usage of

Figure 31: Perceived benefits under the project (n=12)



- Reduced expenditure on food
- Additional source of income
- Development of horticulture
- Soil fertility enhancement
- Improved nutrition

Figure 30: Use of kitchen garden products (n=12)



- Self-consumption
- Selling
- Both

organic fertilizers has effectively enhanced soil quality. Eventually, with time, a better quality of soil will warrant higher productivity.



#### 4.4.2. Case Study



#### *Case Study: The Garden is Greener on this Side*

Madan Nath from Maniari village, Kamrup district has been a project beneficiary for the HRDP kitchen garden program. Under the project, he was supported with skill training on maintaining a kitchen garden and was also provided with raw materials that included seeds, greenhouse net, and organic manure (vermicompost).

The training that he received for growing a sustainable kitchen garden model was in fact facilitated by the Agricultural Resource Center (ARC) at the village, which is part of a separate initiative within HRDP. Additionally, Mr. Nath was also taught about the cropping calendar by the ARC which strengthened him to plan his cropping pattern while considering weather trends and local resource availability.

After joining the project, he started growing bananas, okra, spinach, radish, and bottle gourd among others. Being supported with vermicompost has decreased his expenditures on fertilizers. He is happy to be growing a variety of nutritious food which is organic and saleable in the local market too. He shares that for the most amount of the time, this kitchen garden is tended by his wife who shares an equal interest in maintaining the garden.

## 4.5. Promotion of Education

Under the HRD program, the promotion of education included renovation of school buildings across the district, building sanitation infrastructure in schools, and adding classroom assets such as seating arrangement, and smart classroom installation. Studying science and taking up sports was encouraged among the students—schools were provided with science and sports kits.

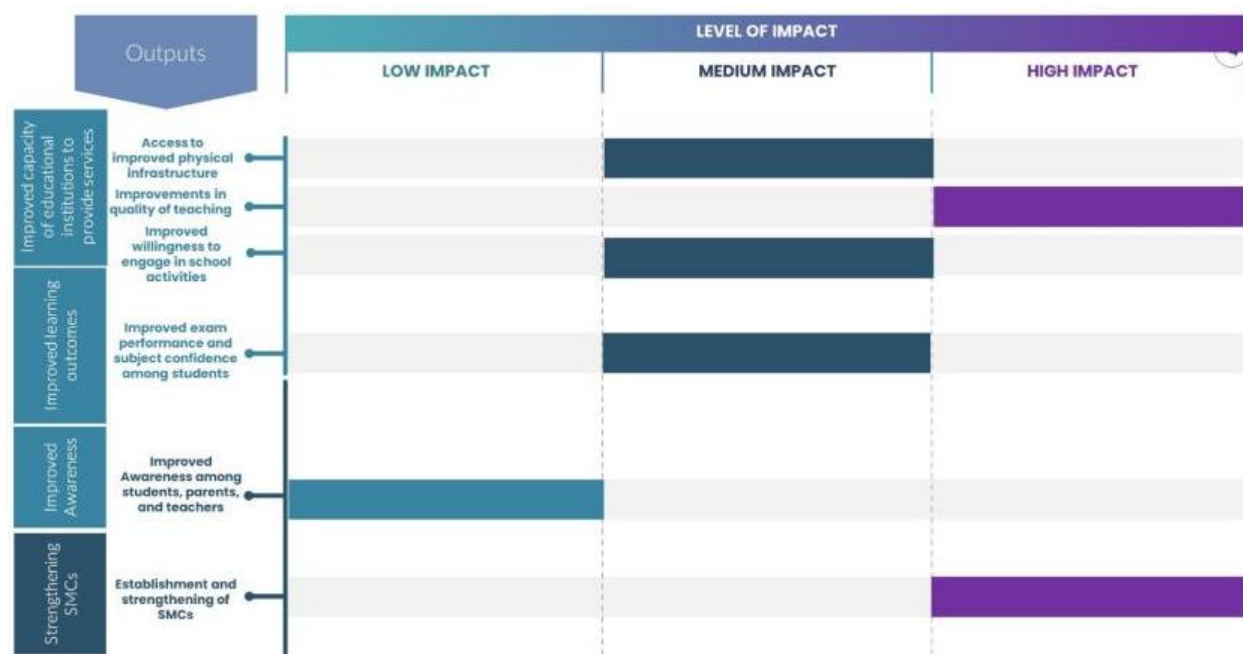
Table 8: Activities under education in Kamrup, Assam

Activity Category	Activities
Educational Institutions Development	Improving facilities of Anganwadi centres, school infrastructure, and classroom infrastructure
Education Support	Smart Classroom installation, IEC Campaigns, remedial classes, library materials
Awareness Generation	Celebration of important days
Sports	Sport kits

### 4.5.1. Effectiveness and Impact

The project showcased promising results in augmenting the quality of learning at school. Alongside the infrastructural development that the project invested in, equal emphasis was laid on improving the quality of teaching which saw a high overall impact. In addition to this, the project supported reviving the SMCs for a better connectedness between school authorities and household members of students.

Figure 32: An overview of project effectiveness and impact on Education





**Educational Institutions Development:** For institutional development, the project focused on painting the exterior of the school building, setting up smart classes, drinking water posts, and separate washrooms for male and female students in addition to classroom furniture and sports kits. Along with improving the quality of infrastructural facilities the project also focused on capacity building of teachers and community members to enhance the learning environment.

**Figure 33: Benefits of using science lab (n=50)**



- Students have improved hygiene practices
- Improved health of students
- Increase in attendance of students
- Increase in time spent in school

**Figure 34: Benefits of using smart classroom (n=50)**



- Lessons are more interesting
- Lessons are easier to understand
- Syllabus covered faster
- Lessons are easy to remember

**Figure 35: Benefits of using library (n=50)**



- Student's learning capacity improved
- Improved grades
- Improved attendance
- Improved reading habits

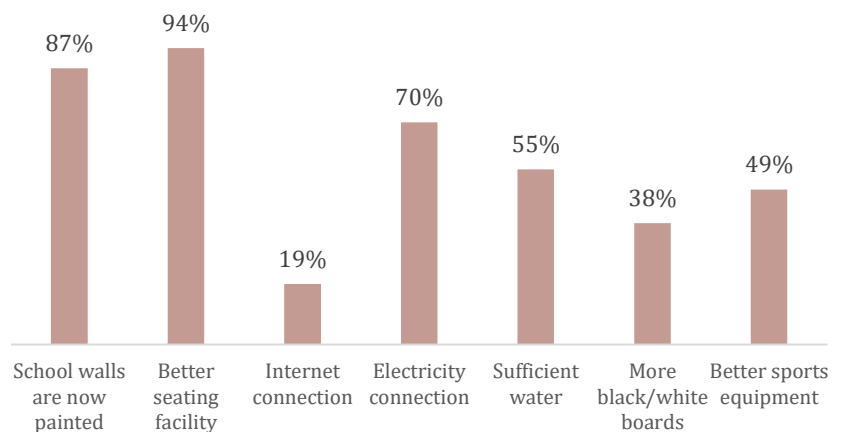
**Figure 36: Benefits of using learning materials (n=50)**



- Have relevant reading material for class
- Easy to study for exams
- Confidence to go to school
- Improved interest in going to school

As indicated in the above figures, the response is overwhelming when it comes to benefitting from the physical infrastructure. An innovative learning environment has led to **60% of the syllabus being completed duly on time. The learning materials not only made it easier for 77% of the students to focus on exams but also increased their overall confidence and interest in going to school.**

**Figure 37: Project improving school facilities (n=50)**

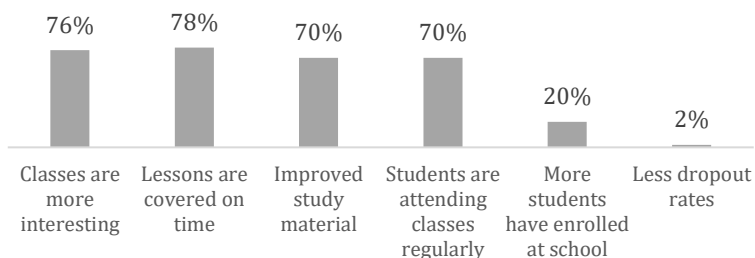


### School Management Committees:

School Management Committees were supported by the project in all schools that were covered under the quantitative survey. 89% of the teaching community respondents reported being members of the SMCs at their respective schools. The

**SMC members were supported by the HRDP by conducting capacity building of the members (42%) as well as mobilizing them (74%).** All the teaching community respondents believe that the SMCs facilitate the active participation of community members in school activities in addition to improving the coordination of activities conducted at school.

Figure 38: Project improving school activities (n=50)



### 4.5.2. Case Study



#### *Case Study: Smart Classroom for Innovative Learning*

The school headmaster of Panikhaity LP School has been appointed since 2016. He has consistently worked towards arranging the needful amenities required for the school. When the HRDP made entry points at the village and in the school, the program set the goal to improve upon the school infrastructure and quality of education. The educational institute was supported with painting the exterior of school building, providing electronic whiteboard, desk and chair sets for the classrooms, library items and sports equipment.

According to the school headmaster, the electronic whiteboard had a vital impact on the students who showed and increased interest in attending the classes. Along with this, the students have responded quite positively to the remedial classes that were held at the school. Although the COVID-19 lockdown hampered this good practice, the school headmaster is keen on resuming these classes. *“The remedial classes held during the lockdown was a highly impactful idea which supported many students who were in immediate need of it.”*

While the headmaster mentioned about the positive impacts of the project interventions, he also discussed about the shortfalls of initiatives such as the handwashing station and washrooms for the students. He felt that the lockdown situations and haste in completing the infrastructures might have resulted to this.

## 4.6. Sustainability

A project intervention gathers momentum when the community responds to the development projects through organic participation. An additional aspect of a project success is indicated by the incentives that the community is receiving because of the initiative. In this happening, the program demonstrates the capability to sustain itself even after the funding and implementing agency has made an exit.

At Kamrup, Assam a careful blending of local, and modern interventions was designed which continues to function after the project ended. Out of the four focus areas, natural resource management fared well and has active systems in place. For instance, integrated farming beneficiaries have started getting income from the assets that were provided. Solar irrigation pumps have brought gradual changes in the way farming activities were planned. The ARC which is entrusted with the responsibilities of irrigation management have been putting consistent efforts into sustaining the centre. Solar street and home lighting have proven beneficial for the community and students respectively. Having said that, some of these clean energy options have gone defunct due to the lack of proper maintenance of the infrastructure. During events of flooding in the community, the solar streetlights lost their functionality at a few project locations, and they could not be revived again.

**63% of the total beneficiaries of agriculture training and support opined to have improved awareness of sustainable farming practices.** Additionally, **58% of them reported having a reduction in input cost.** Similarly, 90% of respondents have improved their borrowing and repayment habits after the project. Over a maintenance issue, one group at Panikhaity village who were involved in Eri silk cultivation stopped the group work and meetings because of the gradual decrease in a number of active members. The project's support to sustain improved outcomes is demonstrated below:

Table 9: Sustainability matrix theme wise

Support provided	Structures established	Technical Know-how	Usage	Maintenance
<b><i>NRM</i></b>				
Farm Management	✓	✓	✓	✓
Irrigation Management		✓	✓	✓
Clean Energy	✓		✓	
<b>Skill Training and Livelihood Enhancement</b>				
Agriculture Training and Support	✓	✓	✓	✓
SHG-Based Women Empowerment	✓	✓	✓	
Skill Training	✓	✓	✓	
Livestock Management	✓	✓	✓	
Entrepreneurship Development	✓	✓		
<b>Health and Sanitation</b>				
Kitchen Garden	✓	✓	✓	✓
<b>Education</b>				
Educational Institutions Development	✓	✓	✓	
Education support	✓	✓	✓	

#### 4.7. Holistic Rural Development Index (HRDI)

HDFC Bank in its document explaining HRDI stated that since HRDP aimed to achieve holistic rural development through a multitude of interventions that would lead to overall improvements across related dimensions and therefore the program introduced significant variability in the interventions. Therefore, it was not possible to ascribe a single impact indicator that might be able to accurately, capture the overall performance of HRDP. Since the index aimed to create comparability across the various clusters, similar indicators were used for the calculation of HRDI in Assam. Based on our calculation, the HRDI for the studied clusters is presented in the table below.

Table 10: Holistic Rural Development Index for Kamrup, Assam

Domain	HRDI Score	
NRM	Baseline	0.15
	Endline	0.17
	% Change	13%
Skill and Livelihood	Baseline	0.14
	Endline	0.22
	% Change	57%
Health and Sanitation	Baseline	0.13
	Endline	0.25
	% Change	92%
Education	Baseline	0.03
	Endline	0.04
	% Change	33%
Overall HRDI	Baseline	0.44
	Endline	0.67
	% Change	52%

Since the program did not have an available baseline, the baseline was captured through the recall method. The indicators were selected and assigned weights based on their relative contribution to the final expected outcome across all domain-wise interventions. While most of the indicators were found to be relevant for the study in Assam, some needed modifications in accordance with the program and in alignment with the information collected. The detailed methodology can be accessed in Annexure 6.3.

Further, the thematic-wise indicators were assigned weights to arrive at the composite HRDI score of **0.67** indicating a notable positive change toward the desired impact from the baseline score of **0.44**.

## 5. Conclusion

### 5.1. Summary of Findings

In recent years, natural resource management has emerged as means of environmental conservation through community mobilisation. Various aspects of NRM include social and community forestry, cooperative or co-management, participatory multipurpose community projects, communal area management for indigenous resources, and others (Western and Wright, 1994<sup>11</sup>). The rationale behind executing NRM is to strike a balance between social and conservation goals. Equity, empowerment, knowledge and awareness and sustainable source utilization were the few vital approaches to undertaking this assessment. In the assessed HRD program at Kamrup, it can be said that the economic and social objectives have been met with an overall HRDI change of 52%. Given are some of the brief attributes that interventions could achieve:

- **Equity-** the distribution and allocation of socioeconomic benefits and resources covered a varied group of beneficiaries whose source of livelihoods ranged from cultivation, livestock management, and fisheries management to wage labourer. While NRM beneficiaries were of the highest proportion in the sample size, skill training and livelihood management followed second. Health interventions remained comparatively restricted with a small number responding to receiving kitchen garden benefits.
- **Empowerment-** imparting new knowledge through skill development among SHG groups bore encouraging results in terms of 85% of the beneficiaries reporting an increase in savings and a significantly high 97% of beneficiaries noticing improvement in income. 46% of the skill development beneficiaries are now strengthened to undertake entrepreneurial activities. Activities like Eri silk spinning and operating a jacquard machine for weaving got promising feedback. The ARCs have been shown to be participating in decision-making with areas sharing control of infrastructure provided within the HRD program.
- **Knowledge and awareness-** school children and teachers were emboldened by the various improvements in physical infrastructures such as electronic whiteboards, classroom assets, library and sports kits among others. Incorporation of these initiatives into daily school activities is reported at 78%. This apart, 70% of education respondents have experienced improved exam performance and increased subject confidence among students.

### 5.2. Recommendations

State data of Kamrup suggests that when it comes to a comparison of the district with other districts of Assam, it fares well in terms of longevity of life, rate of literacy and standard of health among

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<sup>11</sup> Western, D., & Wright, R. M. Shirley Strum, eds. 1994. Natural connections: Perspectives in community-based conservation.

others. Through the HRDP that was designed and implemented in the three villages of Kamrup, notable changes have been depicted through the data results. In order to continue with the positive developments in the area, here are some of the recommendations that the program highlights:

### **Natural Resource Management**

Adequate institutional reforms and technological advancements in farm management can yield desired results. For the agricultural sector to be remunerative, diversification of income sources can contribute to income generation and simultaneously work as a safety net against instabilities in weather. Further enhancing irrigation activities has a scope of additional income as well. Activities like horticulture and floriculture present the potential for further exploration.

### **Skill Training and Livelihood Enhancement**

Establishing linkages with the State Rural Livelihood Mission could provide reduced capital and an easy market for finished goods of micro-enterprises. For local communities that are multi-dimensional in functionality, skill-building options will only add up to combat development deficits.

### **Health and Sanitation**

Healthcare services must have focused target groups where women and children feature first. Linkages with health-related insurance schemes or health cards should be made easily accessible. Structures like kitchen gardens can be accompanied by risk-addressing mechanisms in case of crop failure. Kitchen gardens are an example of good practice where the household members, especially women and children can access nutritious food options.

### **Promotion of Education**

Quality education is the path to a better quality of life. With a higher standard of education, communities have positive impacts on health too, especially female health. Therefore, it is important to ensure the capacity building of SMCs and regular follow-ups. This will lead to increased interest and participation on their end. Additional efforts must be put into remedial classes that include conventionally marginalized groups such as female students, and tribal students.

## 6. Annexures

### 6.1. Detailed Activity List

SI No	Focus area	Category	Sub-category	Activity	Beneficiary Type
1	NRM	Farm Management	Dairy farming	Integrated farming system model	Community
2	NRM	Farm Management	Duckery with fishery-integrated farming	Integrated farming system model	Community
3	NRM	Farm Management	Installation of Incubators	Technological intervention for poultry management	Community
4	NRM	Clean Energy	Biomass chulha	Promotion of renewable energy for cooking purposes	Community
5	NRM	Clean Energy	Solar home light	Promotion of renewable energy (for households with school students)	Community
6	NRM	Clean Energy	Solar Street Light	Promotion of renewable energy (Market places and common space)	Community
7	NRM	Clean Energy	Solar irrigation promotion activity	Promotion of renewable energy for agriculture	Farmers
8	Skill training and Livelihood Enhancement	Agriculture Training and Support	Extend System of Rice Intensification (SRI)	Post or Pre-flood paddy cultivation through SRI	Farmers
9	Skill training and Livelihood Enhancement	SHG/Women Development	Training on SRI & Horticulture	Post or Pre-flood paddy cultivation through SRI	Farmers



10	Skill training and Livelihood Enhancement	Skill Training	Training on Drawboy & Dobby	Training cum entrepreneurs hip development support to women	Women
11	Skill training and Livelihood Enhancement	Skill Training	Training on Drawboy	Training cum entrepreneurs hip development support to women	Women
12	Skill training and Livelihood Enhancement	Skill Training	Training on Eri Spinning & Drawboy	Training cum entrepreneurs hip development support to women	Women
13	Skill training and Livelihood Enhancement	Skill Training	Training on Jacquard machine	Training cum entrepreneurs hip development support to women	Women
14	Skill training and Livelihood Enhancement	Skill Training	Training on Eri Spinning	Training cum entrepreneurs hip development support to women	Women
15	Skill training and Livelihood Enhancement	Entrepreneurs hip Development	Youth resource (learning) centre	Training cum entrepreneurs hip development support to youth	Farmers
16	Skill training and Livelihood Enhancement	Entrepreneurs hip Development	Agriculture resource centres	Training cum entrepreneurs hip development support to farmer community	Farmers
17	Skill training and Livelihood Enhancement	Entrepreneurs hip Development	Weaving promotion activity	Training cum entrepreneurs hip development support to women	Women
18	Skill training and Livelihood Enhancement	SHG/Women Development	Eri silk extraction	Training cum entrepreneurs hip development	Women

				support to women	
19	Health and Sanitation	Kitchen Garden	Compost pit	Training, development, and material support of organic farming	Individual HH
20	Health and Sanitation	Kitchen Garden	Vermi compost	Training, development, and material support of organic farming	Individual HH
21	Health and Sanitation	Kitchen Garden	Kitchen garden setups	Training, development, and material support of organic farming	Individual HH
22	Promotion of Education	Educational Institutions Development	School infrastructure development programme	Promotion of joyful learning and renovation of toilet and drinking water facilities, painting the school exterior in lower primary school of Panikhaity LP School and Panikhati Ancholik High School	Students and teachers
23	Promotion of Education	Educational Institutions Development	Improving facilities and anganwadi centres	Mural painting with message promoting education	Students and teachers
24	Promotion of Education	Educational Institutions Development	Smart Classrooms installation	Promotion of innovative learning by installation of electronic interactive whiteboard	Students and teachers
25	Promotion of Education	Educational Institutions Development	Remedial classes	Remedial classes for students that need extra attention, especially during Covid lockdown	Students and teachers

## 6.2. Sampling Methodology

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

### 6.2.1. Quantitative Sample Size Calculation

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

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

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 tests);

$S_e$ = 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**.

### Quantitative Sampling Methodology

A detailed outcome harvesting process was carried out during the inception phase, and after discussions with the HDFC Bank team, the outcome indicators were finalized.

### 6.2.2. Qualitative Sample Size Calculation

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

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

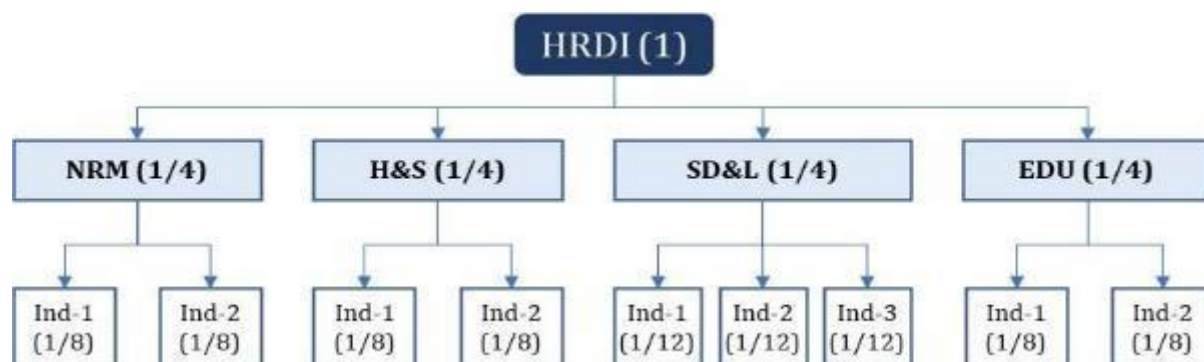
## 6.3. HRDI Methodology

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 50<sup>th</sup> 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.**

## Indicator Weights

Weights were applied to each of these indicators, along similar lines to the HRDI calculation. Attribution of equal weights to all the domains was done in order to create a standard HRDI for each cluster. Equal weights were assigned to each of the four domains. Further, the domain weight was equally distributed among the indicators of that domain; thereby ensuring that equal weightage of the domains was maintained overall.

Domain and indicator weights<sup>12</sup>



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 11: HRDI Weights

Domain	Indicator	Weight
<b>Project X</b>		
Natural Resource Management	Average net income from farming	$(1/4) \times (1/3) = 0.083$
	Percentage of farmers reporting access to irrigation	$(1/4) \times (1/3) = 0.083$
	Area under irrigation (Ha)	$(1/4) \times (1/3) = 0.083$
Health and Sanitation	Average number of months with access to adequate drinking water	$(1/4) \times (1/3) = 0.083$
	Percentage of households with access to improved toilet facility	$(1/4) \times (1/3) = 0.083$
	Percentage of households utilizing soak pits	$(1/4) \times (1/3) = 0.083$
Livelihoods and Skill development	Average monthly income of household from Livestock (INR)	$(1/4) \times (1/3) = 0.083$
	Average monthly income from enterprises (INR)	$(1/4) \times (1/3) = 0.083$
	Average monthly income of SHG women from enterprise (INR)	$(1/4) \times (1/3) = 0.083$
Education	Percentage of students reporting increased access to functional school physical	$(1/4) \times (1/2) = 0.125$

<sup>12</sup> NRM: Natural Resource Management | H&S: Health and Sanitation | SD&L: Skill Development and Livelihoods | EDU: Education

infrastructure (drinking water posts, separate washrooms, etc.)	
Percentage of students reporting increased access to functional learning infrastructure (library, science labs, learning aids, etc.)	$(1/4) \times (1/2) = 0.125$

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

**Analysis Plan:** HRDI for each cluster/ NGO was calculated at two points in time i.e., before and after HRDP and can be compared cross-sectionally to understand which domains contributed to an increase or decrease in HRDI value. Concurrently, the NGOs can be ranked according to the HRDI score based on their performance across different domains, but care should be taken as the project context varies for each area. Since the value attribution of the indicators is in proportion, the HRDI value numerically ranges between 0 and 1.

### 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 50<sup>th</sup> percentile for each indicator before HRDP (baseline). For instance, consider the indicator- average annual income of farmers, at baseline, then sorted all the farmers across the seven clusters in ascending order based on their income. The 50<sup>th</sup> percentile i.e., the median value of the income was taken. This median or 50<sup>th</sup> percentile was taken as the cut-off (baseline cut-off to be precise).

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

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

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

**Step-6:** Sum all the indicators (i.e., weighted sum) to calculate the HRDI value at baseline and end-line.

**Step-7:** Calculated the relative change in the HRDI value from baseline to end line.

**Step-8:** Ranked the clusters based on relative change brought about in the HRDI value i.e., the cluster that brought the maximum change in the HRDI value received the first rank.

Table 12: HRDI score calculation

Domain	Indicators	Baseline	Weight	HRDI	Endline	Weight	HRDI
NRM	Proportion of farmers with Net income above baseline median	0.25	0.5	0.15	0.31	0.5	0.17
	Percentage of farmers reporting access to irrigation	0.23	0.25		0.25	0.25	
	Proportion of farmers reporting area under irrigation above baseline median	0.11	0.25		0.12	0.25	
H&S	Proportion of HHs with area under kitchen garden above baseline median	0.50	1	0.13	1.00	1	0.25
Skill	Proportion of SHG members reporting enterprises activities undertaken by their SHGs	0.25	0.25		0.23	0.25	
Skill	Proportion of livestock owners reporting average livestock income above baseline median	0.10	0.25		0.22	0.25	
Skill	Proportion of beneficiaries reporting average enterprise income above baseline median	0.12	0.25	0.14	0.20	0.25	0.22
	Proportion of beneficiaries reporting average SHG income above baseline median	0.10	0.25		0.23	0.25	
ED	Percentage of students reporting increase in general awareness activities at school (WASH game, Hygiene mural on walls etc.)	0.12	0.5	0.03	0.15	0.5	0.04

## 6.4. Overview of Impact Methodology

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

Outputs	Output Indicators	Value	Output Avg	Impact Level
<b>Increased income from agriculture</b>				
Land/ crop productivity	Proportion of farmers reporting an increase in production of crops that were supported under HRDP	68%	55%	Medium
	Proportion of farmers reporting increased input efficiency after the intervention	100%		
	Proportion of farmers reporting increased income from crops that were supported under HRDP.	100%		



	Average increase in income from crops that were supported under HRDP (% change)	31%		
	Average increase in productivity from crops that were supported under HRDP (% change)	15%		
	Average decrease in input cost (% change)	17%		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	96%	66%	Medium
	Proportion of farmers reporting project interventions in seeds, tools, and irrigation leading to an increase in production	64%		
	Proportion of farmers reporting project interventions leading to increase in income (average of top 4-5 crops)	41%		
	Proportion of farmers currently practicing organic farming/conservation agriculture/other sustainable practices	60%		
	The proportion of farmers reporting an increase in the use of natural fertilizers?	67%		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops with project support.	25%	30%	Low
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	35%		
Land under irrigation	The proportion of farmers who received support for irrigation	71%	71%	High
<b>Increased use of clean energy solutions</b>				
Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	98%	99%	High
	Proportion of households reporting benefits from using clean energy infrastructure (Base=clean energy beneficiaries)	100%		

<b>Improved access to agricultural training and services</b>				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	90%	95%	High
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	100%		
Adoption of improved farming practices	Proportion of farmers who adopt scientific agricultural practices	100%	75%	High
	Proportion of beneficiaries reporting an increase in productivity due to better farm management	43%		
	Proportion of farmers reporting increased income	81%		
<b>Economic empowerment through collectivization (Only for SHG members)</b>				
Formation/ revival of SHG-based Enterprises	Proportion of members who received support with establishing/reviving SHGs	7%	62%	Medium
	Proportion of members who received support with establishing/reviving SHG enterprises	90%		
	Proportion of members whose SHGs are currently functioning	88%		
	Proportion of SHG members who received training	23%	74%	High

Development of entrepreneurship	Proportion of SHG members undertaking entrepreneurial activities	90%		
	Proportion of SHG members reporting starting new SHG enterprises	NA		
	Proportion of SHGs with increased savings	85%		
	Proportion of SHG members reporting improved income	97%		
<b>Enhanced capacity for regular income generation</b>				
Enhanced employable skill development	Proportion of youth who accessed skill development training	100%	98%	High
	Proportion of youth who report improved income through skill development	96%		
Access to self-employment and entrepreneurial opportunities	Proportion of beneficiaries who established/ expanded entrepreneurial activities	31%	50%	Medium
	Proportion of beneficiaries reporting improved capacity to undertake entrepreneurial activities	46%		
	Proportion of beneficiary HHs reporting an increase in income	74%		
<b>Improved capacity to generate income through livestock management</b>				
Adoption of scientific management of livestock	Proportion of beneficiaries who received support in livestock management services	14%	50%	Medium
	Proportion of beneficiaries reporting an increase in income from livestock management	68%		
	Proportion of beneficiaries reporting improved livestock health	69%		
	Proportionate increase in average income from livestock	50%		

<b>Development of Kitchen gardens</b>				
Increased adoption of kitchen gardens	Proportion of HHs reporting income gains from kitchen gardens	83%	45%	Medium
	No of HHs received seeds/training in the kitchen garden	63%		
	No of HHs with improved vegetable/fruit consumption due to kitchen gardens	50%		
	Proportion of HHs reporting improved nutrition	17%		
	Increase in the area under the kitchen garden	11%		

<b>Improved capacity of educational institutions to provide services</b>				
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	49%	54%	Medium
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	58%		
Improvements in quality of teaching	Proportion of teachers regularly utilizing smart classrooms/libraries/smart class	76%	73%	High
	Proportion of students who prefer/regularly use smart classrooms/science labs/ libraries for lessons	62%		

	Proportion of parents/students/teachers who report improvements in teaching quality	75%		
	Proportion of students/teachers reporting regular utilization of other infra	78%		
	Proportion of teachers reporting improved capacity to adopt innovative teaching methods (Base= teachers who received training)	NA		
	Awareness among teachers regarding child development (Base= teachers who received training)	NA		
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	80%	60%	Medium
	Proportion of teachers reporting an increase in enrolment post infrastructure development	85%		
	Proportion of institutions reporting a decrease in dropout rates	15%		
<b>Improved learning outcomes</b>				
Improved exam performance and subject confidence among students	Proportion of students who gained access to coaching classes	NA	70%	Medium
	Proportion of students who report improvements in access to reference material	69%		
	Proportion of students reporting an increase in confidence in various subjects (lessons are easy to understand, more interesting, etc.)	100%		
	Proportion of students who received scholarships	NA		
	Proportion of teachers reporting improvements in learning outcomes due to infrastructural facilities at institutions (concept retention, attention span, and exam performance)	40%		
<b>Improved Awareness</b>				
Improved Awareness among students, parents, and teachers	Awareness activities conducted	39%	39%	Low
<b>Strengthening SMCs</b>				
Establishment and strengthening of SMCs	Proportion of teachers reporting SMCs that are functioning regularly	100%	96%	High
	Proportion of beneficiaries(teachers) who actively engage in SMCs	89%		
	Perceived benefits of SMC	100%		

**Change**

0%-40%	Low
>40% - 70%	Medium
>70%- 100%	High

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