

Impact Assessment Study Of Holistic Rural Development Programme (HRDP)

Bihar



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 Darbhanga, Aga Khan Rural Support Programme was the implementation partner of the assessed HRD program (15 villages). The major focus areas for intervention were Natural Resource Management (NRM), Skill Development & Livelihood Enhancement, Healthcare & Hygiene, and Promotion of Education.

Table 1 Summary of key Income Indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	7,860	11,375	45%
Average Annual Income from Skill (income from enterprises) (INR)	12,000	24,000	100%
Average Annual Income from SHG (INR)	19,284	24,360	26%
Average Annual Income from Livestock (INR)	36,000	42,000	17%
Average Productivity of 3 major crops (Kg/Acre)	1,920	1,822	-5%

Natural Resource Management: Natural Resource Management is the main pillar under HRDP and the project has achieved notable improvements in farmers' income and adoption of sustainable practices. The interventions have impacted a **45% increase in the net average income of farmers from agriculture**. Crop diversification, timely application of pesticides and fertilizers, solar-based group irrigation, and installation of vermi-pits have been the major factors in enhancing production, decreasing the cost of cultivation, and increasing agricultural income from main crops viz., rice, wheat, and maize. The solar GI has benefitted the beneficiaries by **reducing the cost of irrigation by 50%**. Recognizing the irregularity in power supply and poor power quality, clean energy sources such as solar home lanterns and solar street lights were promoted under the HRDP programme.

Skill Training and Livelihood Enhancement: To enhance income and generate livelihood, a number of interventions focused on agriculture skill training, enterprise development, youth skill training, and livestock management were conducted in the project villages. There was a positive response from the community regarding these interventions especially since there was a **significant increase in the average annual income from the baseline across the activities**. SHG+ groups were formed to promote savings and generate income from dividends through the share-out concept. **A 26% increase in average annual income from SHG activities** were reported by the SHGs involved in enterprise activities. Financial literacy sessions were conducted with the SHG members to train them in banking and financial management activities. The skill training and enterprise development activities did not translate into sustained high-impact interventions as the enterprises were either not adapted by people after the training sessions or they were not able to sustain after the completion of the project.

Health and Sanitation: The major interventions under Health & Sanitation were focused on four aspects — improved access to health services, improved access to safe drinking water, improved access to sanitation infrastructure with increased awareness of hygiene practices, and improvement in nutrition of the households. The interventions around sanitation were successful in creating a high impact on the ground as **more than 90% of the beneficiaries gained access to sanitation units** which helped in improving the overall health of the household and ensuring the safety of the women. Although rigorous efforts were made to promote the kitchen garden through training, distribution of seeds, and support in the construction, low uptake was reported as only 20% of beneficiaries received training for the kitchen garden.

Promotion of Education: Upgradation of the physical infrastructure of the schools, by way of renovation of the school building, construction, or renovation of the toilet, setting up of smart classes, mini libraries, and drinking water facilities, has led to visible positive outcomes. Around 60% of teachers reported improvement in the schools after the intervention and 77% believed that attendance has improved because of the infrastructure improvement. All the interventions had direct positive results and have encouraged **higher attendance and increased interest in students to attend school.**

HRDI Indicators: HRDI calculations based on findings from the field indicate high effectiveness in natural resource management, medium impact in health and skill development, and low impact in education.¹

Table 2: Summary of HRDI scores

HRDI Score	Baseline	Endline	% Change
	0.41	0.60	46%

Recommendations: A combination of training and physical infrastructure support would lead to better maintenance and sustained **effectiveness of interventions, especially in natural resource management, skill training, and livelihood enhancement.** In the case of health, enhancing the project scope to **revive existing health centers would** add to the impact on health outcomes created by the project through consistent health camps. Furthermore, as **drinking water is a crucial requirement** in the region during monsoon floods, it becomes pertinent for **more people in the districts to be supported by drinking water interventions.** With regard to education interventions, although Science labs, washrooms, and libraries are functional, ensuring proper maintenance would be required to sustain them for a long time. To ensure the same, **community members need to be sensitized and involved in the maintenance process through institutions such as SMCs.**

¹ 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)

Image 1 Overview of project impact

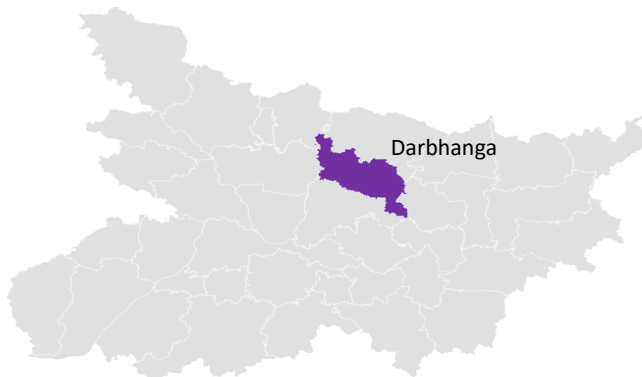
	Health and Sanitation	Skill Training and Livelihood Enhancement	Natural Resource Management	Promotion of Education	Financial Literacy and Inclusion
Overview of Activities	Health Services (Camps, Clinics), Drinking Water Management, Kitchen Garden, Sanitation infrastructure	Agricultural Trainings Enterprise Development Youth Skill Training Livestock Management	Irrigation Management, Farm Management and Clean Energy	Educational Institutions Development Provision of TLM Strengthening of SMCs	Finance Management Training and Bank linkages.
Areas of Improvement	Duration of Health Services, Follow-up services in Kitchen Garden	Market linkage of the enterprises is needed to sustain them	Systematic training programmes for Kisan Vikas Samiti	Training to teachers on technical know-how of the digital infrastructure	Make the training sessions interactive and include practical tests
Challenges	Low interest among people to avail health services. Limited capacity of landless HH to create kitchen garden	Women do not have the socio-economic awareness and accessibility to continue the entrepreneurial activity	High cost activities related to organic farming deterred many small-scale farmers	Although SMCs are constituted they do not function at ground level	High illiteracy rate among women made it difficult to understand the technical details.
Recommendations	Convergence with government infrastructure and schemes.	A CRP can create the link between the women enterprises and the market.	Convergence with government schemes to promote organic farming	Asset maintenance system needed to sustain the interventions.	A holistic approach with hand-holding support in the initial phase.

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 Programme" (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.

Image 2: Areas covered under the study



In Bihar, the HRDP project was focused on five thematic areas: Natural Resource Management, Skill Training and Livelihoods Development, Health and Hygiene, Promotion in Education, and Financial Literacy. The interventions that AKRSP(I) has undertaken in Bihar are working on agriculture by improving productivity, crop diversification, and access to irrigation

facilities; ensuring access to basic sanitation, hygiene, education, drinking water, electrification facilities through infrastructure support; enhancing nutritional security; livelihood enhancement; empowerment of women and mobilization of household savings for productive use. The mode of delivery has been through the creation of village-level institutions or user groups to ensure sustainability and ownership by the community. The project was implemented in the Darbhanga district of Bihar in conjugation with another similar intervention in the Muzaffarpur district. Fifteen villages in the Singhwara block were selected based on the methodology adopted by the Aspirational Districts Program for screening the districts.

1.2. Partner Organization- Aga Khan Rural Support Program (India)

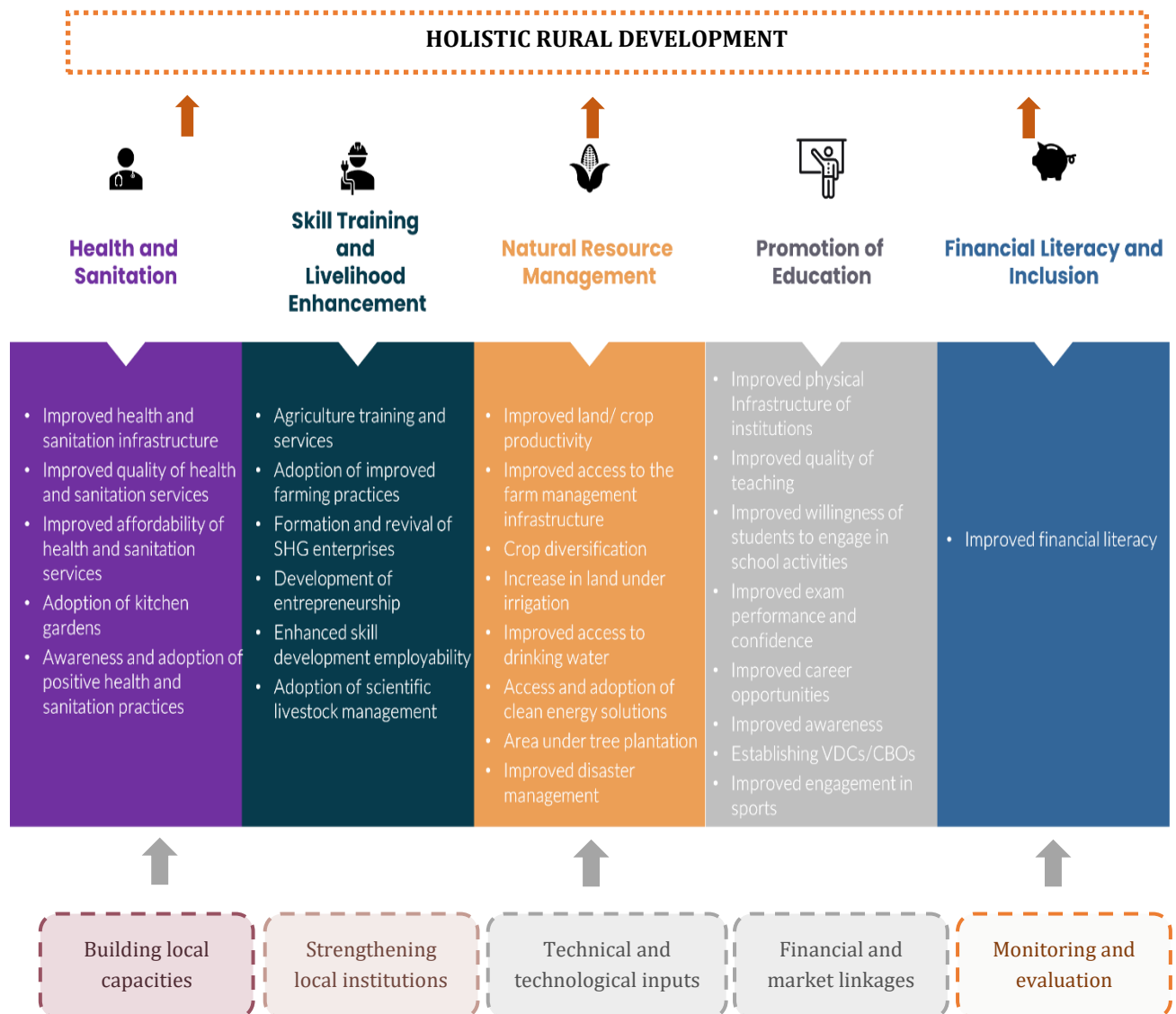
Aga Khan Rural Support Program (India), referred to as AKRSP(I), in support of HDFC bank Ltd. initiated the implementation of its ambitious program named Parivartan in the Singhwara block of Darbhanga district in 2018. Parivartan as the name suggests focuses on bringing a multi-fold change in the life of rural communities through a different set of interventions. AKRSP(I) has specialized in the implementation of a Multi-input Area development (MIAD) program since 2008 in Bihar. The MIAD program has been conceptualized with a belief that a single or dual intervention cannot bring a significant change in the life of communities.

In the HRDP program, AKRSP has played a pivotal role as the implementing agency. The organization worked on the project during the period 2018-2021.

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 programme activities, key milestones achieved, impact created by these activities, challenges faced, and the manner in which 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 impact assessment aims to critically and objectively evaluate the implementation and performance, determine the reasons why certain results occurred or not, draw lessons, and derive good practices and lessons learned. 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 programmes. The evaluation was also an opportunity to learn about the relevance of the programmes implemented and the effectiveness of such programmes.

Image 3: Conceptual framework of the implementation



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, Sustainability and Replicability**. The evaluation process was carried out in a consultative manner involving interactions with both HDFC bank and the Aga Khan Rural Support Program 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 effectiveness² 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 an 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/could be replicated.

2.1. Design and Methodology

A review of various program documents including HDFC Bank'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 were 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 bank team. The exercise resulted in the identification of standardized key outcomes and indicators related to each of the program's thematic areas. Based on the standardized list of outcomes and outputs, the questionnaire for the state was developed.

² 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:

Table 3: Quantitative Sample Covered

District	Health and Sanitation	Skill Training and Livelihood Enhancement	NRM	Promotion of Education	Financial Literacy and Inclusion	Total
Actual	293	224	289	68	79	453
Planned	80	80	80	80	80	400

Table 4: Qualitative sample size covered

District	FGDs				IDIs				
	VDC	Student	Committee	SHG	Head master	Farmers	Anganwadi Worker (AWW)	Micro enterprise	SHG
Actual	1	2	4	3	1	2	1	4	2
Planned	2	2	2	3	2	3	2	2	2

Image 4 Training of the field team in Muzaffarpur



Teams of local enumerators, with requisite education and experience, were hired for data collection. Three days of training at Muzaffarpur, Bihar was provided to enumerators and supervisors by the NRMC team.

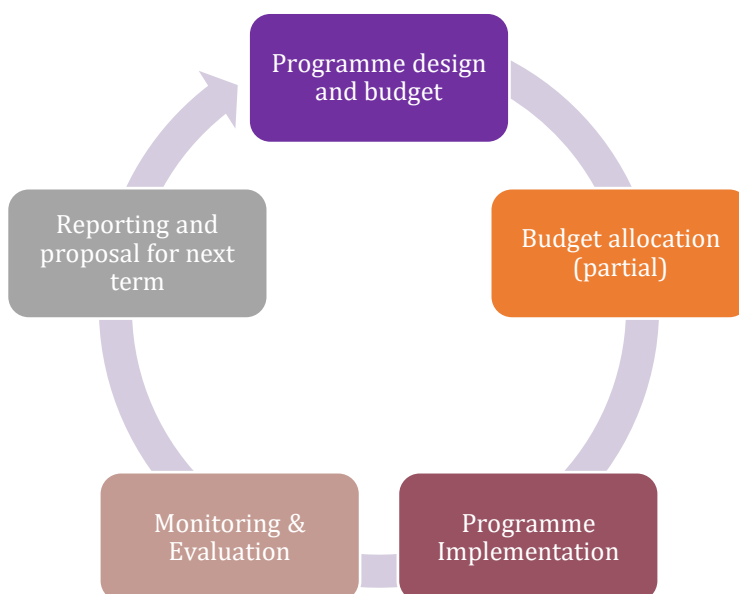
3. Program Review

3.1 Program Design and Implementation

The programme's interventions were decided on an annual basis, with an annual budget allocation based on the proposal by AKRSP to HDFC Bank. Based on our discussions with the partner team, a preliminary rapid rural appraisal (RRA) for each programme village was conducted in Bihar which was also accessed during the study.

Based on these preliminary assessments, the partner organization prepared an annual work plan wherein activities were proposed on a need basis. While this approach has helped in providing support to the immediate need of the communities, a systematic approach to resolving issues around such needs and a long-term vision and outcomes towards the thematic areas for HRDP remain desirable.

Image 5: Project Planning and implementation process



Based on the observation from the field, budget allocation was largely provided for infrastructure and material support. In Bihar, a relatively larger focus was on training and skill-building while behavioral interventions were limited.

Monitoring of the intervention by HDFC Bank is quite frequent and resources from different levels are deployed to monitor the activities frequently. However, such monitoring visits focus on the output aspects such as infrastructure and access while the usage and community-level challenges are usually not taken into the account.

3.2 Program Relevance

NRM: Due to the fertile alluvial soil, Bihar has very rich and productive agricultural land. To maximize grain productivity, intensified rice and wheat cropping systems are widely practiced. However, these have become synonymous with excessive use of chemical fertilizers, over-extraction of groundwater, and other unsustainable farming practices. Farmers in Bihar lack **access to affordable irrigation** as many farmers use diesel pumps which is an expensive alternative. Moreover, before the programme and its support in installing solar lights, **streets were unfit for travel at night due to the absence of street lights** in all the programme villages.

Image 6: Solar GI in Fathepur, Bihar



Skill: Agriculture dominates Bihar's economy, employing 54% of the total workforce (Labour Bureau 2015–16)³, and therefore, the programme felt the **need to strengthen the agriculture sector by** promoting agricultural skill sets, with a focus on value addition to current agricultural produce or livelihood diversification. Due to the poor nutritional status of the State, especially women and children's nutrition, the programme conducted activities around livestock management to improve the nutritional status.

Image 7: Youth Resource Center under HRDP in Birdipur, Bihar



It **undertook the initiative of backyard poultry and goatry**. Further, in order to deepen the assistance to the ultra-poor landless households and explore the scope for rural entrepreneurship in SME (Small and Medium Enterprises) sector economy, **HRDP took the initiative of setting up individual- and group level microenterprises to promote entrepreneurship and livelihood diversification in the community**. This component of the programme became more relevant during the COVID-19 lockdown when people lost their sources of income.

Health and Sanitation: The respondents experienced challenges in receiving regular access to clean water. **Hand pumps were the main source of drinking water for them but they were either located 40-50 ft. away or dried up during summers**. Community people **also faced several health issues due to impure water**. Therefore, the HRDP's intervention in the installation of solar-powered, community-based drinking water supply systems was relevant to provide low-cost safe drinking water at the doorsteps of the community.

Being an economically struggling state, Bihar's performance is poor in terms of health and sanitation. In the fourth state health index released in 2021, Bihar was rated the second worst performer among

³ Hoda, Anwarul & Gulati, Ashok & Jose, Shyma & Rajkhowa, Pallavi. (2021). Sources and Drivers of Agricultural Growth in Bihar. 10.1007/978-981-15-9335-2_8.

19 large states with a score of 31⁴. There is limited availability of quality health infrastructure and a major shortfall of facilities and staff. According to the Swachhta Status Report published in 2016, **Bihar fell in the top 3 states where the rural population still practiced open defecation.** To address the gaps, **HDFC realized the importance of sensitizing the people regarding the need of having toilets and undertook toilet and soak pit construction. It also facilitated government health camps and undertook behavioral change training sessions to promote good health.**

Image 8: Sanitation infrastructure built under HRDP in Bihar



Under its nutrition promotion initiative, the **programme promoted a nutritional kitchen garden or landless garden for extra poor households to help them both in terms of nutrition and income.**

Education- In Bihar, **the state of literacy is still the country's lowest**⁵. The dropout rate in Bihar stood at 30.5% for 2017-18, one of the highest in the country, with maximum dropout happening at **Image 9: School infrastructure development- smart class in Birdipur, Bihar** two stages: from primary to middle school (13.3%⁶) and from middle to high school ⁷. A non-conducive school environment, poor infrastructure, lack of training centers for teachers, poor access, and economic conditions of the families, to a large extent are responsible for children dropping out of school. Further, **Bihar also scored the lowest⁸ in terms of infrastructure and facilities in the Performance Grading Index (PGI) 2019-20 for states and union territories in the field of education**⁹. This is a



cause of concern as a proper school building with adequate facilities is a must to improve the overall quality of school education. Therefore, the programme's infrastructural support to government schools and Anganwadi centers in this context was found relevant with the aim of bridging the gaps in building a conducive learning environment and increasing the enrolment and attendance rate.

⁴<https://timesofindia.indiatimes.com/city/patna/niti-aayog-report-bihar-second-worst-on-health-parameters/articleshow/88530011.cms>

⁵ [Census 2011](#)

⁶ <https://www.republicworld.com/education/news/bihar-schools-witness-highest-decline-in-drop-out-rates-among-girls-min-annpurna-devi-articleshow.html#:~:text=Bihar%20schools%20accounted%20for%20the,Check%20other%20details%20here.&text=Union%20Minister%20Annpurna%20Devi%20talked,Monday%2C%20April%204%2C%202022.>

⁷<https://timesofindia.indiatimes.com/city/patna/database-to-help-bihar-govt-keep-tab-on-school-dropout-rate/articleshow/80191334.cms>

⁸ A total of 81 points out of 150

⁹ [PGI 2019-20](#)

4. Study Findings

4.1. Demographic Profile

High poverty and illiteracy levels reflect the backwardness of the region which can be associated with the majority population belonging to the lower caste groups.

Total Sample (N)	385
Gender	
Male	34%
Female	66%
Age Category	
18-25 Years	9%
26-35 Years	31%
36-45 Years	33%
46-55 Years	15%
56 and above	12%
Educational Status	
Illiterate	50%
Literate but no formal education	15%
up to 8th std	20%
9th to 10th std	8%
11th to 12th std	4%
Graduate and above	3%
Social Category	
Scheduled Caste	38%
Scheduled Tribe	7%
Other Backward Classes	45%
General	9%
Poverty Status	
Antyodaya	4%
BPL	74%
APL	18%
Do not have a ration card	4%
Livelihood Sources	
Cultivation	53%
Livestock	50%
Salaried employment	6%
Non-agricultural income (business, rental income, etc-)	17%
Wage labor	69%
Pension	9%
Remittances	8%
Other (Floriculture, Beekeeping)	1%
Type of House	
Kutch house	43%
Semi-Pucca house	34%
Pucca house	23%
The main source of drinking water	
Piped water	3%
Private Handpump	78%
Others (public handpump, public tap)	19%

4.2. Natural Resource Management

Under Natural Resource Management, four major activities were covered in the district. These activities include Irrigation Management, Farm Management, and Clean Energy. Considering the scarcity of water for irrigation and dependency on rainfall for irrigation, solar power-based water irrigation systems were installed in ten of the fifteen villages chosen for the interventions. Agricultural interventions like producing organic fertilizer through the vermicomposting method, orchard development, and soil testing activities were also conducted in the beneficiary villages. Under clean energy, solar lamps were distributed to adolescent girls with an aim to facilitate studying at home for girls, and solar streetlights were installed on the streets for increasing the safety and better lighting of the villages at night.

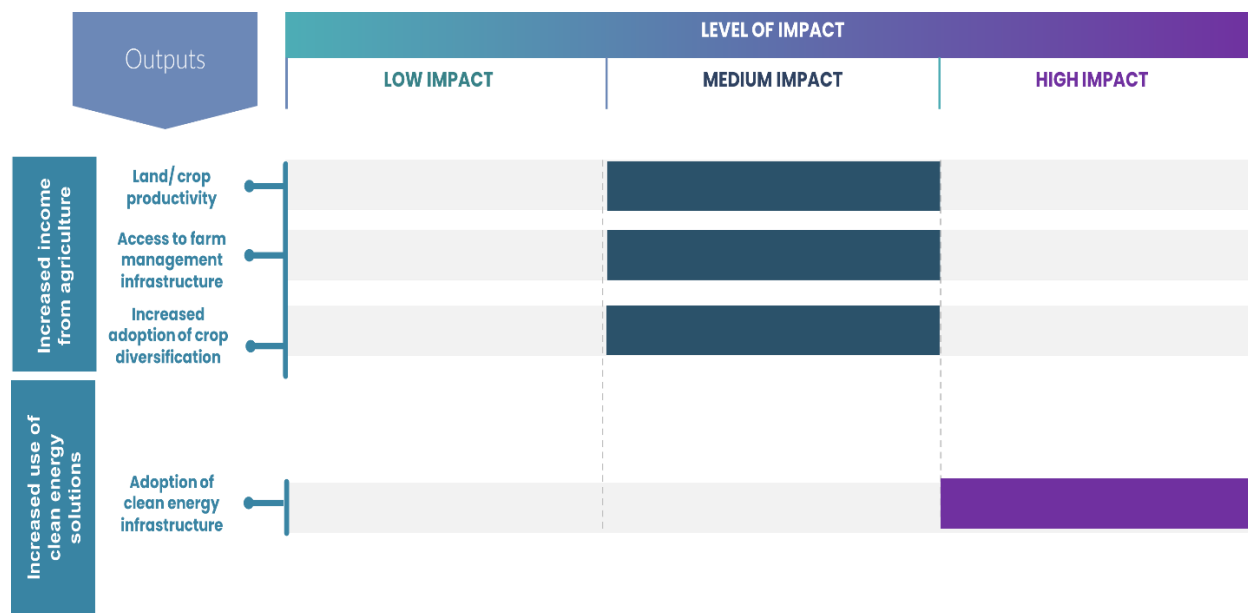
Table 5: Activities under NRM in Darbhanga, Bihar

Activity Category	Activities
Irrigation Management	Establishment of Solar-based Group Irrigation System
Water Management	Water quality testing
Farm Management	Construction of vermi-pits, soil testing, orchard development
Clean Energy	Solar Lamp for Adolescent Girls (students), Street Solar Light

4.2.1. Effectiveness and Impact

The below figure shows the scale of impact across different outputs in NRM.

Image 10: An overview of project effectiveness and impact in NRM



Income from agriculture: There has been a 45% increase in the net annual income from agriculture as the net income increased to ₹11375 (endline) from ₹7860 (baseline). This change was tested significant at a 95% confidence interval. Similarly, the gross income also increased by 26% (significant at 95% confidence interval) from ₹13500 at baseline to ₹17000 at the endline, as no significant perceived increase in the input cost was reported by the beneficiaries. This

increase in net income could be attributed to the impact of various interventions around income-generating activities, as was reported in the qualitative interviews, but the statistical tests did not show a significant correlation between the interventions and income change. Around 52% of beneficiaries reported an increase in the productivity of the crops that were supported under the interventions of the HDFC bank programme while 79% reported a reduction in the use of fertilizers which has reduced the input cost. More than half of the beneficiaries have also adopted crop diversification practices supported by the HDFC bank programme. Among these beneficiaries, 50% perceived an increase in income due to crop diversification. **The productivity in the last year was affected due to the floods and hence it decreased by 5% from 1920 kg/acre(baseline) to 1822 kg/acre (endline).**

During the duration of the project, there has been a 15% increase in the households that have irrigated land since the project's inception. This increase can be attributed to the solar group irrigation interventions which were implemented in 10 of the intervention villages. The interventions around the promotion of the use of organic fertilizers have led to an increase in the adoption of organic fertilizer with 71% of the beneficiaries adopting it after the project interventions. Among them, 60% of beneficiaries have adopted the vermicomposting method taught to them in the farm field school.

Although the project also supported orchard development in the intervention villages, only a few orchards have survived in the past years. The low survival rate can be attributed to most of the young trees being washed away in the floods. The surviving trees are still young and thus are not contributing to income generation at present.

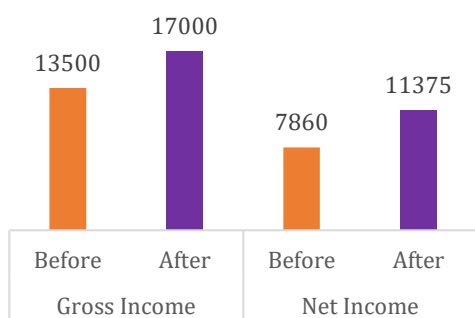


Figure 1 Increase in agricultural income (in ₹)

Crop diversification, timely application of pesticides and fertilizers, solar-based group irrigation, and installation of vermi-pits have been the major catalysts in increasing the income of the main crops viz., rice, wheat, and maize according to project beneficiaries¹⁰.

Figure 2 HRDP interventions that contributed to an increase in income

Intervention	Crop				
	Rice	Wheat	Maize	Masoor	Mustard
Crop Diversification	58%	47%	58%	39%	14%
Pesticides/fertilizers	67%	66%	68%	46%	29%
Solar-based group irrigation system	67%	73%	63%	39%	71%

¹⁰ The statistical tests do not suggest a significant correlation ($p > 0.05$) between the project interventions and change in income.

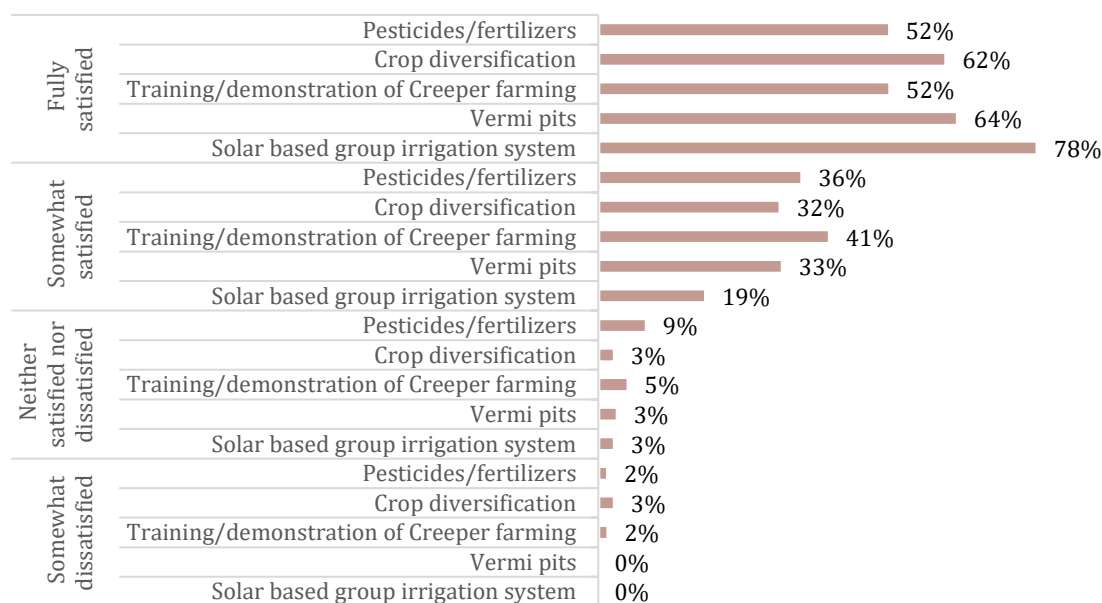
Information about Vermi pits or their installation	58%	64%	58%	31%	29%
Soil testing	25%	24%	32%	32%	14%
Conservation Agriculture	17%	38%	16%	15%	14%

Interventions in organic farming and solar group irrigation have been the major contributors to the increase in the production of the main crops cultivated in the district. On the other hand, beneficiaries identified the weather changes as the main reason for the decrease in productivity of the crops.

Figure 3 HRDP interventions that contributed to an increase in productivity

Intervention	Crop				
	Rice	Wheat	Maize	Masoor	Mustard
Project interventions in seeds and tools	29%	45%	33%	10%	
Interventions in irrigation (GI)	41%	64%	78%	90%	100%
Soil testing and land treatment	29%	36%	39%	30%	33%
Interventions in farming techniques	24%	7%	28%	10%	
Agricultural installations	6%	10%			
Interventions in organic farming	53%	60%	56%	50%	67%

Figure 4 Level of satisfaction with HRDP NRM interventions



Solar group irrigation pumps have been a high-impact intervention as they have been a real harbinger of relief for the marginal farmers. The marginal farmers are now able to access a cheaper source of irrigation. More than 80% of beneficiaries are fully satisfied with this intervention. The irrigation committee constituted by AKRSP collects a reasonable charge of Rs 50- 100/hour from the farmers who avail the facility. This has led to a **50% reduction in expenditure on irrigation.**

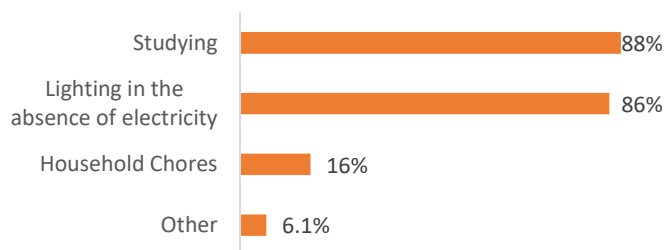
Training/demonstration of creeper farming has helped grow vegetables in vegetable clusters or kitchen gardens.

Overall, the interventions in agriculture have made a medium-scale impact in terms of the outreach of the interventions to the proportion of beneficiaries. The proportion of beneficiaries who have experienced an increase in income from these interventions is also significant.

Use of clean energy solutions: To promote clean energy solutions two major interventions were done- solar streetlights in villages and solar lamps distribution to adolescent girls.

A large-scale solar lamp distribution was done among adolescent girls with 1176 solar lamps being distributed in the period 2018-2020. The main aim of solar lamp distribution was to promote the education of girl students by providing them an alternative lighting source at night as the region experiences frequent power cuts. The solar lamp has replaced other light sources like candles or kerosene lamps which were an additional expense for households. **The result shows that most households who have received a solar lamp use it daily for 3-4 hours at night as per the availability of electricity** and often treat it as a substitute for a kerosene lamp. The findings also show that access to solar lamps increased children’s use of light and consequently the time spent on studying. However, during qualitative interactions, some of the beneficiaries have reported that the solar lamps stopped working after a few months and their grievances remain unaddressed. This indicates that post-sale technical support is necessary to ensure the sustained use of solar lamps.

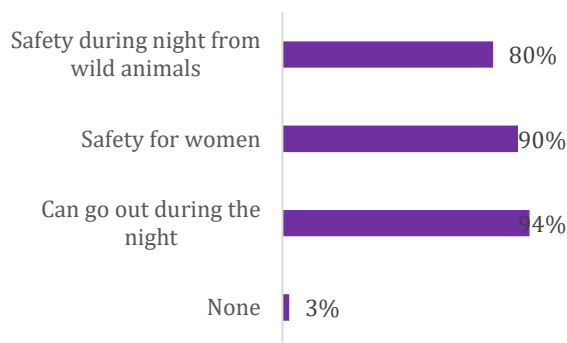
Figure 5 Uses of Solar Lamps



In total, 124 solar street lights were installed across the fifteen beneficiary villages to promote eco-friendly lighting systems which are not dependent on electricity. The installation of solar streetlights has increased the lighting in the village at night.

Although some of the villages also have government-installed solar streetlights, these were far few. **The intervention has reduced the risk of snake or scorpion bites when going out at night** according to the beneficiaries. More than 90% of the streetlights are still operational. Solar street lights have increased the ease of going out at night after the installation of streetlights. The other major perceived benefit has been an **increase in the safety of women when going out at night**. The interventions on clean energy had a high impact on the ground level as they benefitted a larger proportion of the population.

Figure 6 Perceived benefits of solar street lights



4.2.2. Case Study - I



Solar Group Irrigation System in Fatehpur: Fatehpur is a flood affected village, experiencing scarcity of water for irrigation purposes in the village. During the summer sowing season, the ground water level is very deep at 200 ft. At the time of the field assessment, many farmers were still awaiting the rains to sow paddy in their field. Keeping this need in view, AKRSP met with the community and after discussion with some enthusiastic villagers a solar group irrigation system was planned to be installed in the village. Although the funding for the GI was majorly supported by the programme, to develop a sense of ownership among the beneficiaries a contribution of ₹ 1.7 lac was also take as their contribution. A Sichayi Samiti was formed to handover the operations and maintenance of the GI system.

The solar GI has been a boon for the beneficiaries as they now have easy access to irrigation facility. The GI benefits around 40 farmers in the village. The Samiti charges ₹50- ₹100 per hour for usage while the private diesel pump owners charge ₹200 per hour. Hence, the beneficiaries are quite happy with the cheaper irrigation facility. They are now able to sow paddy on time and do not have to depend on the rainfall. The sum collected from the users is either deposited in the bank account which was opened with the help of AKRSP. The collected sum was used to pay the operator of the pump as it provides him some additional income and the rest is kept for the maintenance of the machinery.

4.3. Skill Training and Livelihood Enhancement

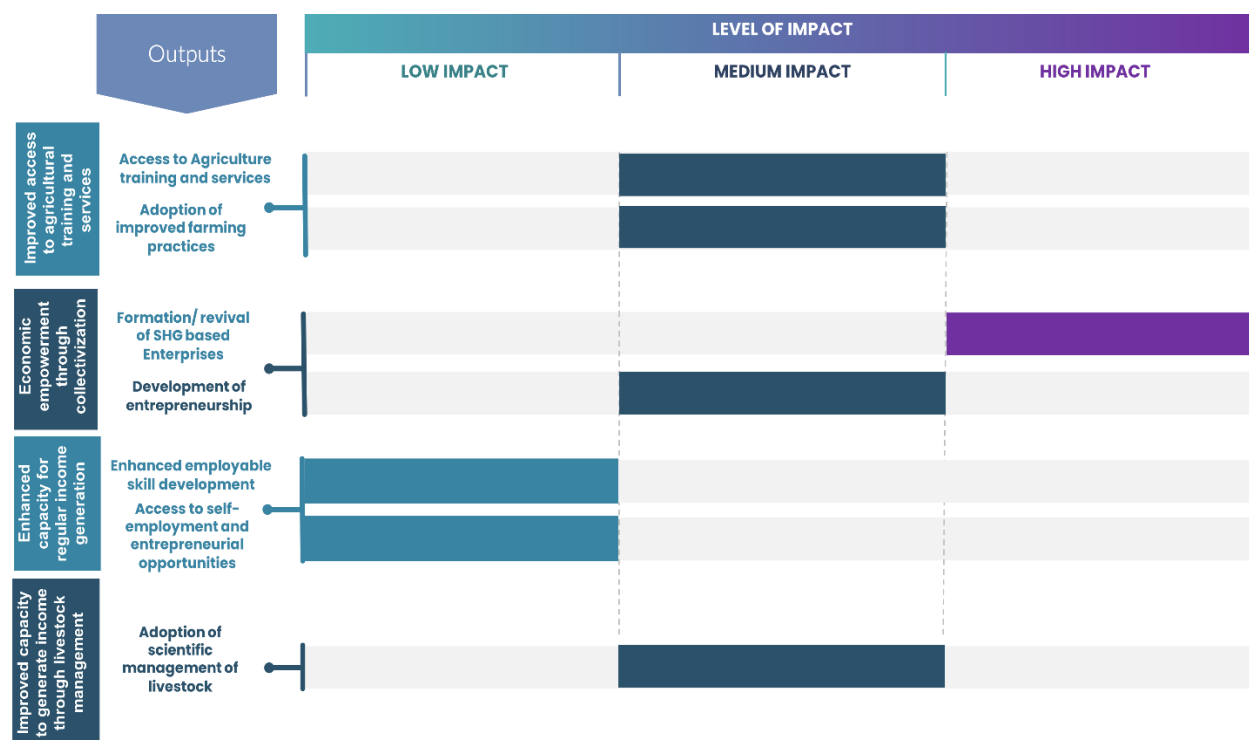
The interventions under skill-building and livelihood enhancement focused on the livelihood diversification approach. The interventions under the thematic area are given below. The activity-wise number of beneficiaries covered during the study is given in the methodology and sampling section. Further, the relevance, effectiveness, and sustainability of activities under Skill Training and Livelihood Enhancement will be discussed in detail.

Table 6: Activities under skill training and livelihood enhancement in Bihar

Activity Category	Activities
Agriculture Training and Support	Support to Farm field School as demonstration/training site for farmers in villages, Demo Plots (IVC), Formation of Kisan Vikas Samiti, Installation of green net house,
SHG-Based Women Empowerment	SHG+ Formation, Training to SHG+ members on Enterprise development
Skill Training	Development of resource center for Adolescent Girls group/community women for enterprise development on Madhubani Paintings, Formation of Village Resource Center
Livestock Management	Promotion of Pashu Sakhi, Establishing Pashu Suvidha Kendra, Livestock Health Camp, Construction of Goat Sheds, Piloting Backyard Poultry, Goat Rearing
Entrepreneurship Development	Establishment of Vegetable clusters in villages, Bee Keeping, Fisheries

4.3.1. Effectiveness and Impact

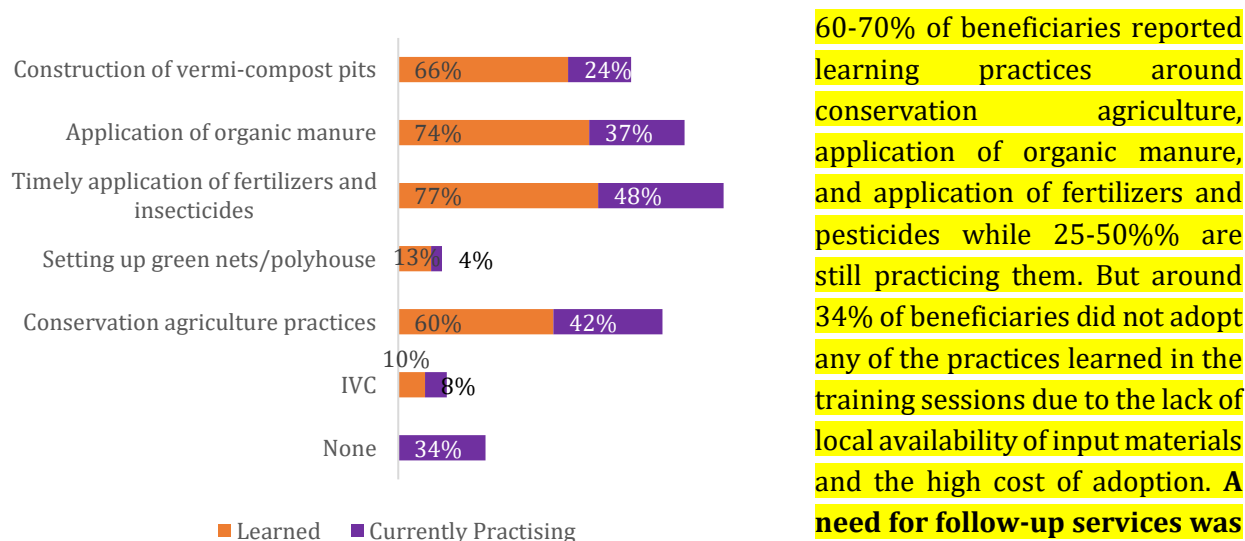
Image 11: An overview of project effectiveness and impact and skill training and livelihood enhancement



The agricultural skill training was much appreciated by the beneficiaries and more than 50% of beneficiaries reported an increase in income and productivity. Only about one-third of beneficiaries (34%) were not able to adopt these practices because they felt that it was cost-intensive and the inputs were not locally available (such as usage of organic fertilizer, and construction of vermicompost pits). Interventions around SHGs were comparatively more successful in both empowering the women as well as generating awareness regarding income generation activities. Livestock management activities centered around goat rearing were effective in reducing the cases of zoonotic diseases in goats and generated awareness among beneficiaries about better animal husbandry practices.

Agriculture training and services: Various interventions around agricultural practices were promoted through an integrated farm field school approach in which the farmers were given training at Kisan Vigyan Kendra, Jale, and Birauli. To promote sustainable agriculture practices the training was concentrated around the usage and application of organic fertilizer (construction of vermicompost pits, application of organic manure), improvement of soil health, and increase in farmer’s income. Around 25% of the total respondents were beneficiaries of this intervention. Kisan Vikas Samiti was formed under a village-level approach to creating a dedicated group of farmers to lead agriculture-related activities within the village. Through this Samiti, an agricultural tool bank was developed for facilitating day-to-day activities. Most of the training was imparted to the KVS members who were supposed to further impart the lessons learned to the other villagers. Although the idea of ‘training of trainers’ was novel, it was not completely successful as further training at the village level did not take place due to a lack of initiative from either side.

Figure 7 Agriculture practices learned through HDFC training and currently practicing

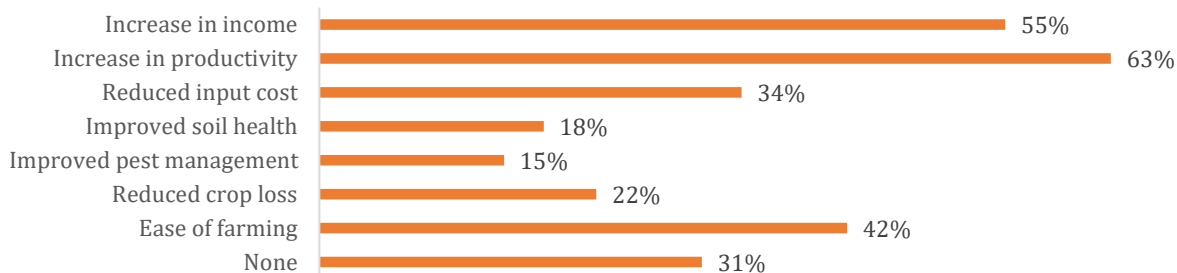


60-70% of beneficiaries reported learning practices around conservation agriculture, application of organic manure, and application of fertilizers and pesticides while 25-50% are still practicing them. But around 34% of beneficiaries did not adopt any of the practices learned in the training sessions due to the lack of local availability of input materials and the high cost of adoption. A need for follow-up services was also felt by 50% of the

beneficiaries. More than half of the beneficiaries who adopted the agricultural practices reported an increase in income and productivity and ease of farming. The perceived average annual increase

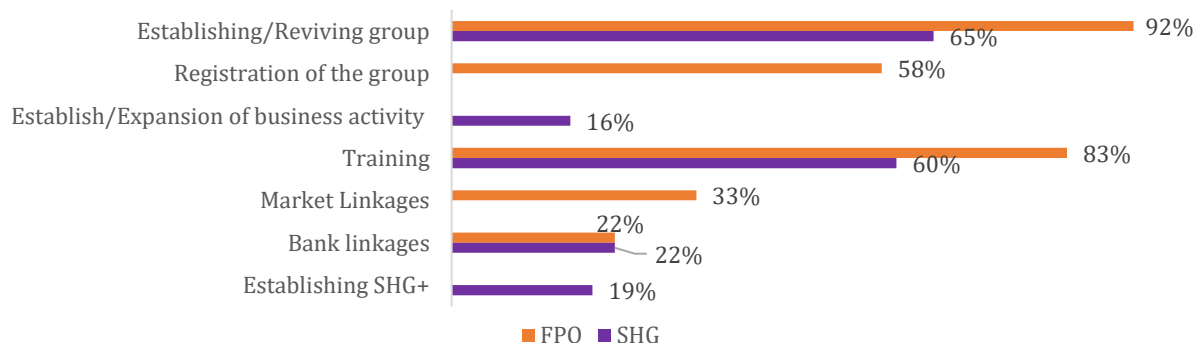
in income due to the skills learned under the intervention was reported to be around ₹8,767 which is a significant increase as the interventions were undertaken at a small-scale¹¹.

Figure 8 Perceived improvements due to the adoption of agricultural practices



Economic Empowerment through collectivization: To increase access to financial services, access to input support, linkages with the market systems, and other support collectivization of farmers and women were promoted. The formation of a collective group is one of the most effective ways of capacity building for individual farmers. A collective facilitates farmers with easy purchase of inputs and sale of produce. The project supported the FPOs and the SHG/SHG+ groups through various interventions like establishment/revival of groups (92% FPO, 65% SHG), registration of groups (58% FPO), establish/expansion of business activity (16% SHG). Over 19% of beneficiaries reported that they benefitted from the formation of SHG+ groups.

Figure 9 Support provided for groups through HRDP



Through the formation of FPOs, the group members perceived significant benefits in the form of easy availability of inputs (78%) and availability of information (75%). More than 50% of members also felt that functioning as a group reduced the risks that they had to take individually.

Among the SHG women, a high impact was noticed, especially in terms of an increase in the saving activities of the group. As the contribution in the SHG+ groups was higher, the savings and the credit availability were also higher than before. The SHG women were supported in the mobilization of

¹¹ Due to lack of baseline data this figure cannot be statistically tested

members for the formation of groups and in the organization of meetings. Qualitative findings indicated that the groups meet fortnightly without fail.

Figure 10 Benefits perceived from the formation of FPOs

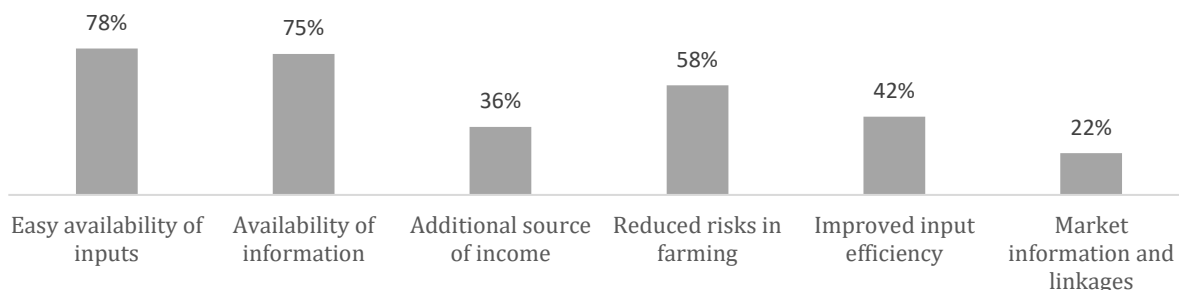


Figure 12 Support received in establishing groups

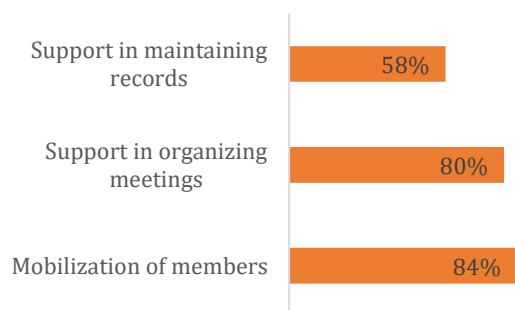


Figure 11 Benefits perceived from SHG+

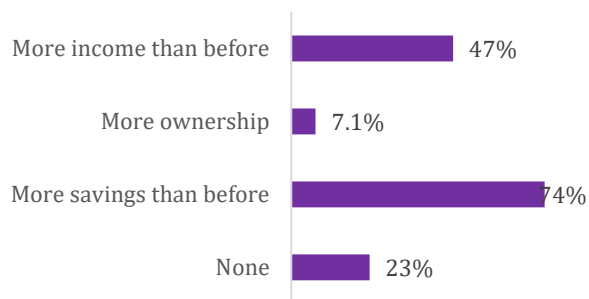
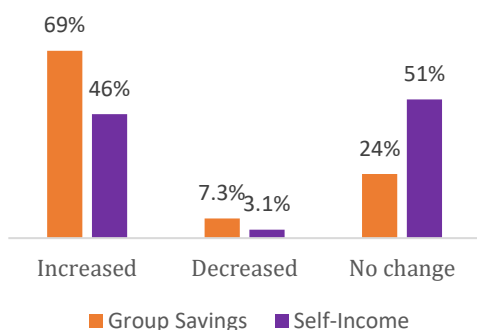


Figure 13 Change in SHG savings and member's income



As some of the SHG members or groups have also undertaken enterprise activities like goatry, poultry, and beekeeping, around 47% of respondents reported an increase (significant at 95% confidence interval) in household income from the SHG activities. **The annual average income increased by 26% from ₹19,284 (baseline) to ₹24,360 (endline) although the median income remained the same at both baseline and endline (₹12,000). The proportion of HH**

earning income from SHG-based activities increased by 23%.

Skill and Entrepreneurship Development: Under the skill development training, two main activities were conducted with the youth namely, the opening of a village resource center in two villages (one resource center in each run by youth) and a youth resource center for adolescent girls and women where they were trained in Madhubani painting. In the village resource center, the youths were supported with the provision of the equipment while the place for the center was arranged at their house itself. The village resource center has helped provide income support to the

two youth during the pandemic. The Madhubani painting center started during the pandemic to provide livelihood support to young girls and women in the community. The beneficiaries were taken to a training center for a week to learn the art of Madhubani painting which they used on the clothing items. Then a resource center was established in the village where these women and girls worked on a daily basis to make Madhubani-style masks and cloth bags. The beneficiaries were paid ₹100 per article. The materials were provided by AKRSP and the finished products were also sold by them in the market.

Additionally, the intervention of Pashu Sakhis was a convergence of two interventions: skill training and livestock management. The Pashu Sakhis were trained as Community Resource Persons (CRPs) for promoting livestock management practices in the intervention villages. The skill-building of these women empowered them to carry on an income-generating activity while supporting the villagers. The Pashu Sakhis charged a fee of ₹50 for providing various facilities like medicine for livestock, vaccination, and animal health checkups. **Around 52% of beneficiaries availed the services of Pashu Sakhi and reported an increase in livestock health.** The Pashu Sakhis have also benefitted as the intervention has provided them with an alternative source of livelihood.

Under entrepreneurship development, several activities were supported for establishing group enterprises. The major enterprises promoted were beekeeping, fisheries, and vegetable clusters. In beekeeping, the necessary equipment was provided to the women SHG members for undertaking the activity. In two out of three villages the activity was disrupted by the floods while in one village the enterprise was still functioning and doing well. The group faced some issues with operations and market linkage for which they hired a person who now takes care of the whole enterprise's activities. But the profit earned from the enterprise is only around ₹180 per month. The fisheries enterprise also did not sustain itself because of the flood. Due to the untimely implementation of the boundary net, the fish in the pond were washed away during the floods. The details of the enterprise are covered in the case study section.

38% of beneficiaries of enterprise activities reported a 100% increase in the average monthly income from the enterprise activities under the programme interventions as the annual income increased from ₹12000 at baseline to ₹24000 at endline¹². Although the interventions were beneficial, they were limited to a small number of beneficiaries.

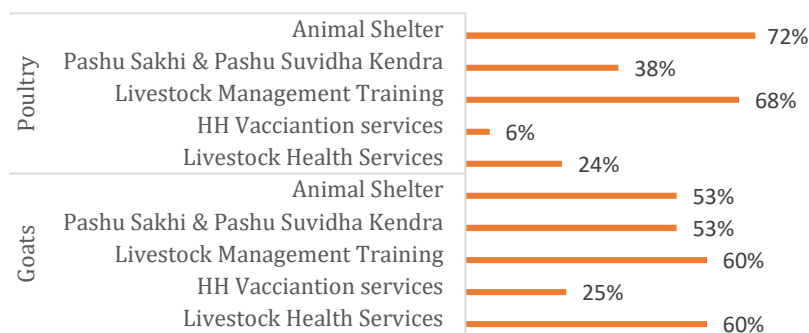
The skill training and enterprise development activities were implemented rigorously in the field, but the level of impact was limited as the enterprises were either not adopted by people after the training sessions or were not able to sustain themselves after the completion of the project.

Livestock Management: The programme has promoted better livestock care and management by providing financial assistance for creating goat shelters and chicks for promoting poultry which helped them in starting to rear livestock for their livelihood. A mother unit for poultry was established from where the chicks were distributed to the beneficiary women and the programme focused on goats and poultry. Production. Considering the capacity needs of the community, the

¹² The sample size was not large enough (<30) to establish a statistical significance.

programme, in convergence with GalvMed and the Department of Animal Husbandry and Veterinary, Bihar, also provided training to the Pashu Sakhis as well as to beneficiaries. This has helped the farmers in learning about improved breeds, and feed practices. Around 68% of the beneficiaries availed of Livestock management training services while 72% of the beneficiaries who participated in the activity availed assistance for the construction of animal shelters. Pashu Sakhi and Pashu Suvidha Kendra were sought out more by the goat-rearing beneficiaries as the intervention was more focused on protecting the goats from zoonotic diseases.

Figure 14 Livestock management services availed through HRDP

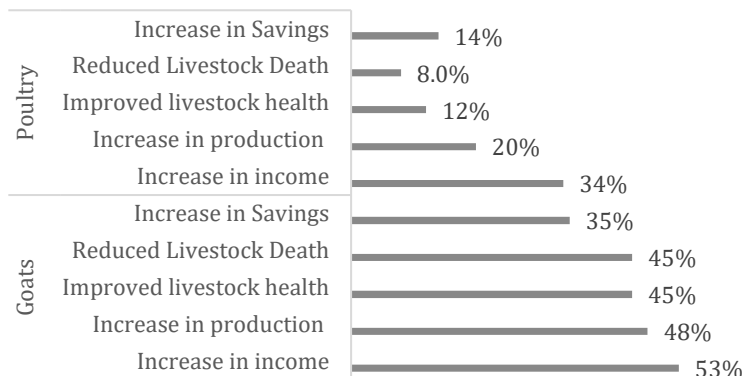


Although 34% of the beneficiaries have reported that there has been an increase in income due to the support for livestock management the statistical tests do not show a significant correlation between the intervention and an increase in income. **The annual average income increased from**

₹36000 (baseline) to ₹42000 (endline), a 17% change, which tested significant at a 95% confidence interval.

Figure 15 Perceived primary benefits of livestock interventions

Overall, the interventions on livestock management have shown good results and their outreach was also significant. There have been some discrepancies in the context of continuity with a few Pashu Sakhis and Pashu Suvidha Kendras after the completion of the project. In one of the intervention villages, the Pashu Sakhi married off into another village due to which the Pashu Suvidha Kendra had to be shut down. In another village, the construction of the Pashu Suvidha Kendra could not be completed causing the Pashu Sakhi to function from her home. She is also running out of medicines for the livestock now and does not feel confident in being able to replenish the stock. A follow-up service could help support such beneficiaries until they are confident enough to sustain themselves.



4.3.2. Case Study - II



Village Resource Center in Kalwara

Harish Chandra Thakur, a village youth, who is a postgraduate, had become unemployed during the Covid lockdown. In search of employment, he even tried to start a coaching center in the village but due to Covid the center did not perform well and he could not make any significant earnings. After discussion with the VDC, AKRSP planned an enterprise development activity to support Mr. Thakur through the tough times. As Mr. Thakur had knowledge of operating computer and online form filing therefore a village resource center was decided to be opened to support him. The center was opened within his house. A desktop, inverter, UPS, printer, lamination machine and other supporting equipment were provided at the VRC. Mr. Thakur provides services related to filling online college applications, land registry documents, and any other online form filling and printing. He takes a nominal charge of ₹10 per form which is affordable to the villagers as well. The VRC provided a financial support to Mr. Thakur during the difficult pandemic period.

Total number of beneficiaries till date (approximately)- 150 students applied for online application for college, 14 farmers for farmers registration, 10-passbook made, 18-land registry documents filed.

The VRC has benefitted not only Mr. Thakur but also the villagers as it has provided easy accessibility to internet, form application and printing services for which the villagers earlier needed to go outside the village to the block.



Fisheries enterprise in Village Sabaul

Among the diverse set of enterprise development activities, one of the group activities promoted by AKRSP was fisheries. After a round of discussion with the villagers, the AKRSP team decided to construct a pond and establish a fisheries enterprise in village Sabaul. Mr. Dharam Yadav had a low-lying tract of land behind his house which could be easily turned into a pond with some digging. An eleven member committee, Machhli Palan Samiti, was constituted for the ownership and functioning of the enterprise.

Mr. Yadav says that the work was started with great vigor, and everything was going well. They were provided with fish seeds and feed; the fishes were growing but there was some delay in the installation of the boundary net for the pond. By the time the net could be installed, there was a flood in the village which washed away most of the fishes in the pond and also introduced some predatory fishes from the river. The members could not salvage much after the flood. Mr. Yadav gave away the river fish to relatives and other villagers for free at first but later he realized that the fish was sold at ₹600/ kg in the market. He could compensate some of his losses by selling those fishes but now he is stuck with a pond which has no value as there are no more fishes in the pond.

Mr. Yadav still supports the enterprise idea. He says that a more planned and timelier implementation would have made the fishery pond a successful enterprise. He wishes that there be another intervention from the programme team so that they can run a successful enterprise this time around.

4.4. Health and Sanitation

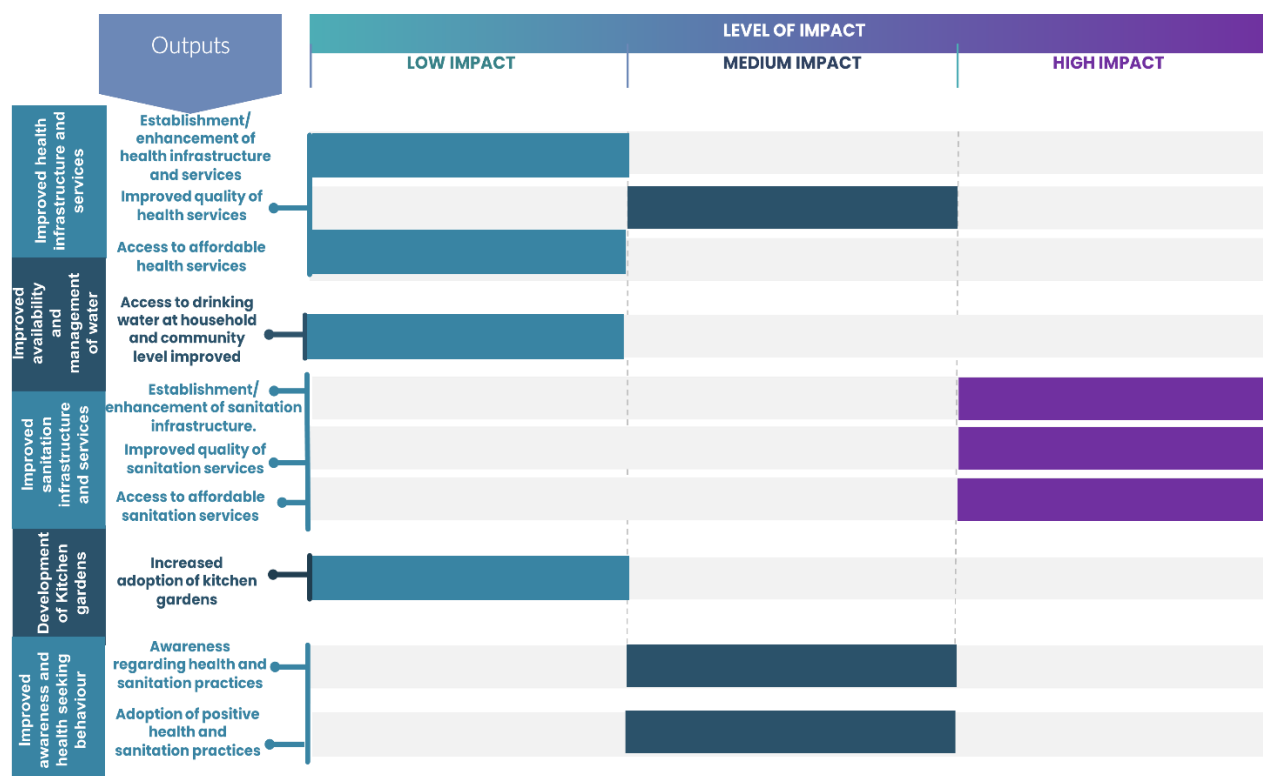
Health and Sanitation is an essential component contributing to rural development and has become even more critical since the pandemic. Diverse interventions on improving health and sanitation were carried out in the district under the programme. The focus was on improving sanitation through the construction of toilets and soak pits at household and community levels. Kitchen gardens were also promoted through training and distribution of seeds for improving nutritional intake, especially among the poorer landless households.

Table 7: Activities under health and sanitation in Darbhanga, Bihar

Activity Category	Activities
Drinking Water Management	Solar-powered community-based drinking water supply system
Health	Village Health Camp & Health Profiling,
Sanitation	Construction of individual toilets, individual and community soak pits, Hygiene and behaviour change training and events
Kitchen Garden	Development of Kitchen Garden, Distribution of Vegetable Seeds

4.4.1. Effectiveness and Impact

Image 12: An overview of project effectiveness and impact on Health and sanitation

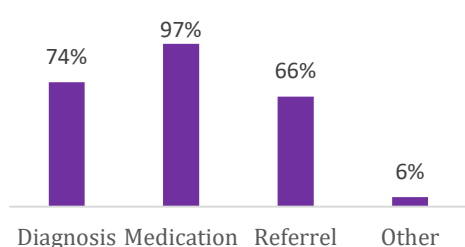


The programme created a high level of impact in terms of access to sanitation infrastructure and quality of sanitation services. **A 60% increase in access to community sanitation units was reported by the beneficiaries where earlier there was no community sanitation infrastructure in the villages.**

Since the programme intervention was not focused on the establishment of health infrastructure therefore a low-scale impact was observed in terms of access to health infrastructure and services. **The beneficiaries of the kitchen garden, on the other hand, reported an average weekly saving of Rs. 160 in buying fruits or vegetables which was found to be statistically significant at a 95% confidence interval.**

Health infrastructure and services: The basic healthcare/ treatment centers reported by households in their area include health sub-center, private clinics, and district hospitals. The distance to various health facilities varies in villages, with some villages having better access to facilities as compared to other remote villages.

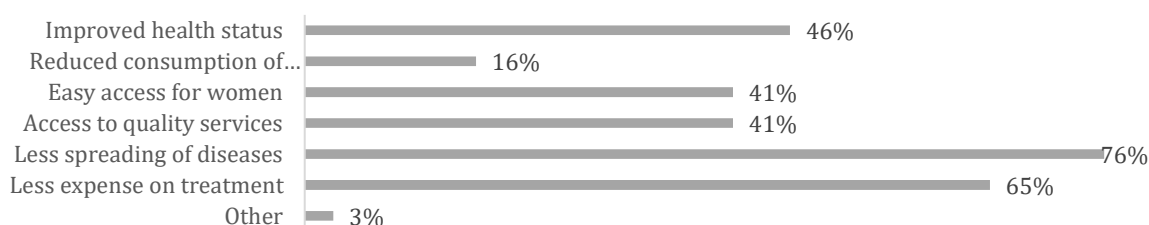
Figure 16 Services availed at HDFC bank-supported camps/clinics



Only 53% of the total beneficiaries who had access to health services (17% of the total respondents), attended the health camps while only 7% attended the health clinics. These beneficiaries gained the benefits of free medication for general health conditions like blood pressure, headache, and fever along with referral services.

Due to the narrow scope of the interventions taken under health services, there was a limited impact in terms of long-term improvements of the health services. Nevertheless, the beneficiaries (65%) who availed themselves the health services reported that during the project duration they had to spend less on treatments as they had easy access to health services.

Figure 17 Perceived benefits of HDFC bank-supported health camps/clinics

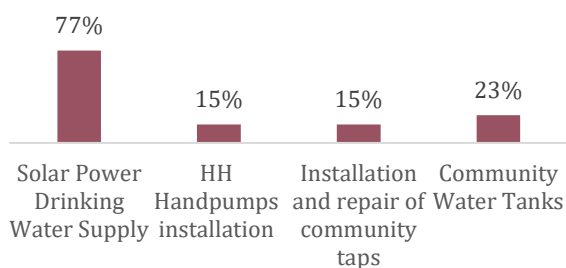


Although the intervention was only operational for a few years, it helped in awareness creation and lifestyle changes to improve the health status which may be a contributing factor to the decline in healthcare burden. However, an approach in which the programme had undertaken measures to build local resources at the village level and strengthen the existing government health infrastructure could have resulted in more sustainable impact changes in the lifestyle practices of the people.

Availability and Management of Drinking Water: The activity has focused on creating and developing the infrastructure of a community-based mini drinking water supply system through an underground pipeline supply system. The Solar Based community-owned mini drinking water supply system is a community-based system aimed to provide low-cost safe drinking water at the doorsteps

of the community members. In Saraia, the water supply system is connected to a nearby Madrassa which has greatly benefitted the students. The students now have better access to safe drinking water as earlier they were dependent on a hand pump. Around 77% of respondents in drinking water management intervention availed the benefits of the drinking water system. Across the 15 villages, there were 76 beneficiaries of the water supply system as it was installed in 2 villages only.

Figure 18 Drinking water management services availed through HRDP

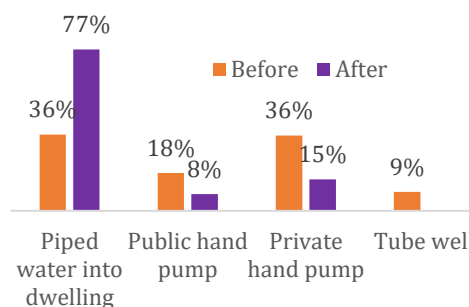


The intervention has led to almost a 40% increase in access to piped water dwellings among the beneficiaries and a decrease in dependence on hand pumps. Due to the change in drinking water source, 55% of beneficiaries perceived relief in stomach-related problems and a decrease in water-borne diseases. However, the data is not statistically significant

to establish a correlation between the intervention and the outcome. In the qualitative interviews, the beneficiaries reported satisfaction with the facility as they had easy accessibility to good quality water.

Figure 19 Changes in HH drinking water source since project inception

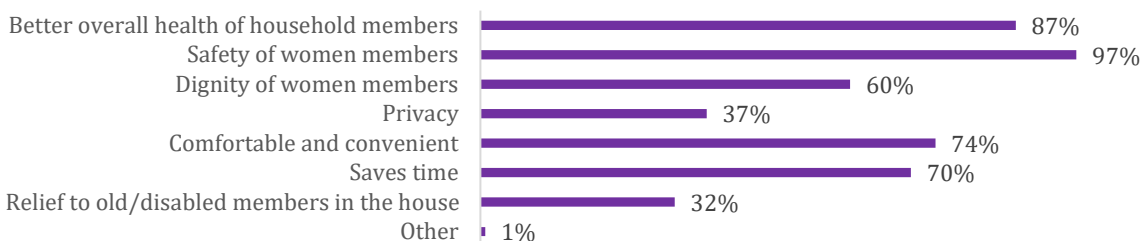
The intervention in the drinking water supply system has been remarkably successful in creating an impact on the ground. It has not only benefitted the community but also promoted clean energy interventions in the district and set a precedent for the government to follow such models for solving the water scarcity issue in the district.



Sanitation infrastructure and services: The project has been impactful in the provision of sanitation infrastructure. Among the total beneficiaries who availed of health and sanitation services, **93% benefitted from access to sanitation units in the form of construction of individual household toilets or community toilets¹³** leading to increased safety of women and improved overall health of the households. Soak pits were availed by 24% of the beneficiaries **leading to a 30% increase in households releasing the liquid waste into the soak pits instead of open land** thus improving the liquid waste management in the villages. As per the qualitative data, there were still a significant number of households that could not gain access to sanitation services. This gap in access was large because these households had kutchha houses and did not have the required land and income for the construction of the sanitation units. Regarding solid waste management, the interventions were limited to awareness generation hence there no significant impact was achieved in this aspect.

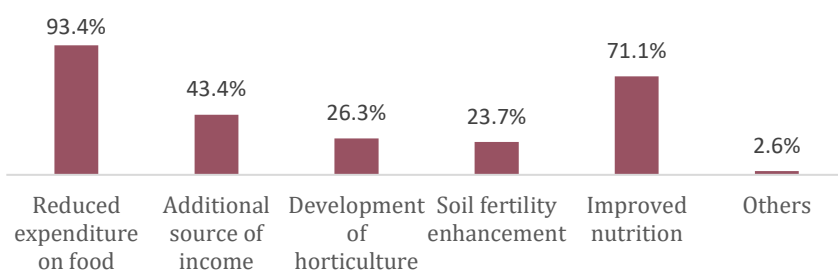
¹³ A significant relationship between the two groups (before and after) has been established at 95% confidence interval.

Figure 20 Perceived benefits of sanitation units



Kitchen Garden

Figure 21 Perceived benefits of HRDP-supported kitchen gardens



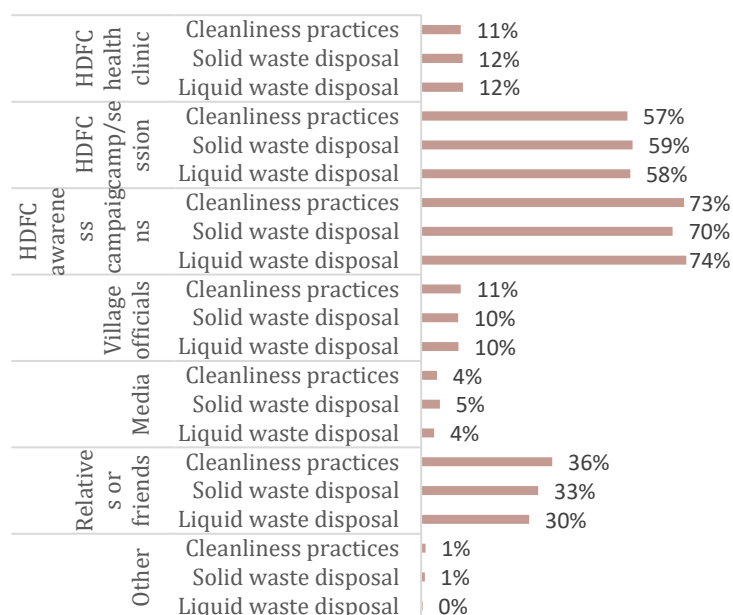
In the context of the kitchen garden, the programme’s focus was on providing the seeds and training for planting and growing the vegetables. About 90% of beneficiaries utilized the

kitchen garden for self-consumption only. The activity is a low-cost intervention undertaken with individual beneficiaries to encourage communities to have marginal/ no land to adopt the practice of consuming vegetables. However, the majority of landless households have not been able to adopt it due to a lack of homestead land. The kitchen garden has helped in reducing the household expenditure on food as was reported by 93% of beneficiaries of the intervention. **They save around Rs. 160 per week on fruits and vegetables while those who sell the vegetables reported an average monthly income of ₹2000.** Another important benefit has been the improvement in the nutrition level of the beneficiaries as they are now able to consume a variety of nutritious food.

There has been an interesting finding of convergence of various interventions under HRDP, for instance, of the total beneficiaries of the kitchen garden, 63% of them were also using organic fertilizer in their kitchen gardens. These beneficiaries used the manure from the vermicompost that was constructed in their house, indicating an increasing awareness of the benefits of using vermicompost and organic fertilizer among the community members. According to beneficiaries, only the installation of the structure was the constraint for adoption. This in turn, indicates the scope of replicability in the community among the people who have the land and income to support it.

Awareness and health-seeking behavior: The awareness-raising work was undertaken through camps, and clinics, training local people at the village level and equipping them with basic medical equipment such as a BP machine, glucometer, weighing scale, and thermometer.

Figure 22 Health and sanitation practices learned through different sources



The villagers had low awareness of health and sanitation practices with information from relatives being the main source of information before the project intervention. The camps and awareness sessions proved helpful in promoting awareness among the villagers as around 60% of people reported awareness through health camps and 70% through the HDFC awareness campaigns. Nukkad natak were also conducted in the village central areas to create awareness about sanitation practices like using the toilets instead of going for open defecation. The women were given

information about practices related to menstrual health in an awareness session conducted at the Anganwadi centers.

4.4.2. Case Study - IV



Kitchen Garden in Kalwara, Bihar

Mr Ajay Thakur was one of the beneficiaries of the HRDP programme. Prior to the interventions done by AKRSP in the village Mr. Thakur did not own any land or practice farming. His primary source of income is his private job and hence had low inclination towards farming. However, after participating in the training sessions and farm field schools, Mr. Thakur developed interest in vegetable farming. He had around 1 bigha fallow land behind his house. With the help of the support from AKRSP he constructed two vermi-compost pits in a corner and turned the fallow land into a kitchen garden. He uses the organic fertilizer prepared in the vermi-compost pits in the kitchen garden. He grows various vegetables like lauki, taroi, pumpkin, etc. He mostly uses these vegetables for household consumption and distributes the surplus to the neighbors and relatives.

4.5. Promotion of Education

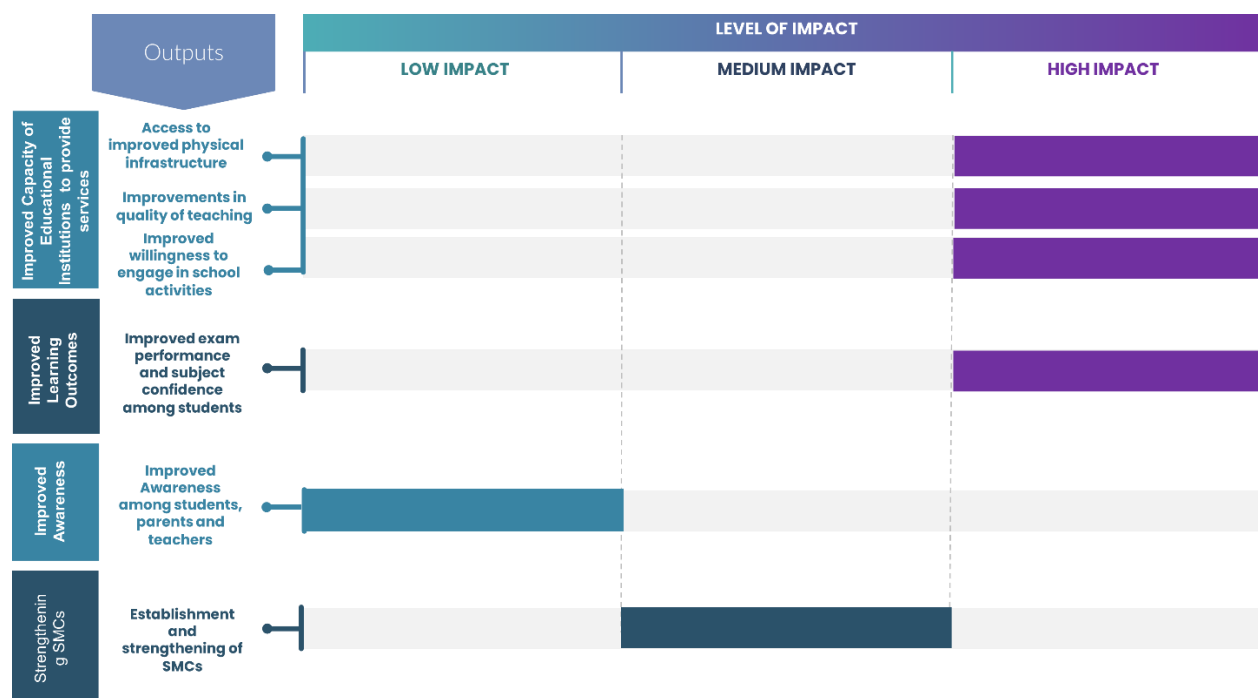
In the assessed programme clusters, HRDP is working on promoting quality education through infrastructure improvements and various other activities as listed below for each programme state

Table 8: Activities under education in Darbhanga, Bihar

Activity Category	Activities
Educational Institutions Development	Piloting Smart Class in Schools, Teachers Training on learning outcomes & improving teaching methodology, establishing mini libraries & Supporting TLM in schools, Solar Power Jal Minar facility in schools, Establishing Hygiene Corner in schools, Toilet Renovation in Schools, Implementing Waste Segregation in Schools, Providing enriched learning/play materials/stationery to anganwadis, Renovation of Anganwadi Centres
Awareness Generation	Celebration of Important Events (Water Day, Toilet Day, Global Handwashing Day)
SMC Strengthening	Capacity Building of SMCs

4.5.1. Effectiveness and Impact¹⁴

Image 13: An overview of project effectiveness and impact on Education



The interventions by HRDP have resulted in achieving better learning outcomes in the schools in Darbhanga. In summary, the following figure shows in which outcome indicators the programme has performed well. In this section, findings around these indicators are discussed in detail.

¹⁴ Most of the parents did not have awareness about the interventions in school due to which the number of sample respondents among parents were statistically low. Hence, a comparative analysis of parents' and teachers' responses cannot be presented.

Upgradation of the physical infrastructure of the schools has led to visible positive outcomes. The improvements of the schools have been by way of renovation of the school building, construction, or renovation of toilets, setting up of smart classes, mini libraries, and drinking water facilities. **Around 60% of teachers reported improvement in the schools after the intervention and 77% believed that attendance has improved because of the improvement in infrastructure.** Teachers from all the sampled villages reported that schools are now equipped with basic facilities which were non-existent or not functioning properly prior to HRDP. A medium-level impact was reported by the teachers as well as students in the increase in enrolment due to the intervention.

The students prefer studying in smart classes provided by the programme as was reported by 88% of the students. Teachers also find it easy to teach concepts to students with the help of smart class facilities. **There is 100% regular usage of smart classrooms but the teachers require training to adapt to more innovative learning methods** as only 22% of teachers reported improvement in capacity to adapt to these methods. Prior to the intervention of the programme, there were no smart classrooms in any of the villages. Smart classrooms were set up in the schools to achieve better learning outcomes. The schools received projectors, monitors, software, and materials for the smart classes to set up the smart classes in all the schools. A corner in the common room of teachers in some schools is designated for the library and about 43% of the students were reported to make use of this facility. The usage figures are low because, the rest of the students, mostly lower primary students, were reportedly not using the libraries as the books available were incomprehensible to them.

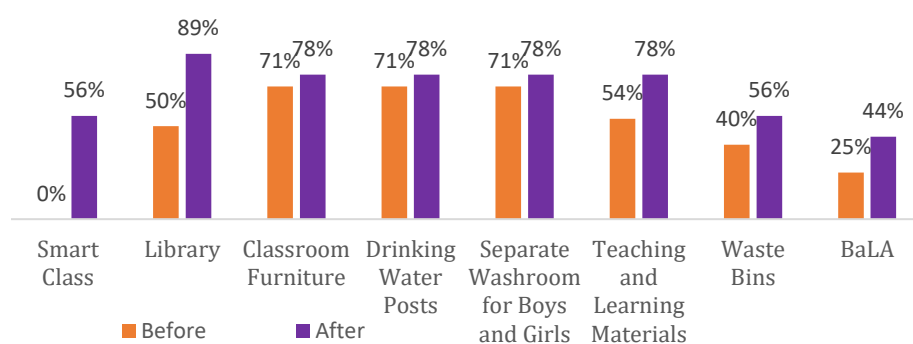
Around 70% of schools had access to drinking water tanks before the intervention. Under the interventions made by the project, 82% of students reported an increase in access to clean drinking water. Access to clean drinking water has increased attendance as reported by 81% of the teachers but the availability of drinking water has not been a major stimulus in increasing the enrolment rate in the schools.

Sanitation-related activities like the construction or renovation of separate washrooms for girls and boys and the installation of hygiene corners and waste bins have been appreciated by both the students and the teachers. All the students expressed interest and satisfaction in coming to school every day. From qualitative discussions, Anganwadi workers have reported that the number of children coming to the Anganwadi centers has increased visibly, particularly after the renovation works and Bala implementation. The use of play toys has aided in this regard. Through the anganwadis, pregnant mothers were given a plate full of nutritious food as “godbharai”. Nutritional mapping of the Anganwadi centers was conducted to assess the nutrition content in the food being provided to the kids and lactating mothers.

Educational Institutions: Under the Sarva Shiksha Abhiyan, the government has been actively working on improving educational institutions through infrastructure development and improvement in existing educational facilities. In the district, out of the nine schools in which interventions were made, smart classrooms were provided in five schools. All five schools did not have smart classroom facilities before the intervention. Mini libraries were also a new intervention in these schools which assisted the students and teachers in their learning and teaching abilities,

respectively. The libraries were installed in 90% of schools under the program. Since under Swachhh Bharat, toilet construction has been a primary focus of the government therefore more than 70% of schools had existing washrooms for boys and girls before the project intervention. Thus, the project provided support for the renovation of these toilets.

Figure 23 Infrastructural services available before and after project inception



With respect to intervention in smart classes, the programme has only supported middle and senior secondary schools. On interaction with students, almost 88% of the students stated that

they like smart class as it made lessons more interesting and easier to understand. They were also generally assisting teachers in operating it in the classroom. The students reported that the smart classes were mostly being used on a regular basis. Other infrastructures like a library, drinking water posts, and waste bins were also being used almost regularly. The library has helped the students by providing them with reference materials and improving their reading habits. The provision of drinking water posts has had a high impact on the increase in time spent in the school with 76% of students and 86% of teachers reporting an increase in attendance and time spent in school. Implementation of Bala in anganwadis has helped in the learning outcomes of the children. The students pay more attention to lessons. Around 80% of students and teachers also perceived fewer health issues due to the availability of safe drinking water.

Figure 24 Perceived benefits of infrastructural services according to students

Intervention	Lessons more interesting	Easy understanding	Syllabus covered faster	Reference material	Improved reading habits	Regular Attendance	Interest increased	Less health issues
Smart Class	88%	88%	60%	88%				
Library				86%	75%			
Drinking Water Posts						76%		71%
Separate Washroom for Boys and Girls						77%		
Teaching and Learning Materials		93%		93%			87%	

Although the interventions have improved the learning outcomes of the students and increased their interest in education as reported by the teachers, there is only a medium-scale impact on enrolment rate and dropout rate as only around 55-60% of teachers perceive benefits in these aspects. Since enrolment and dropout rates are dependent on other socio-economic factors therefore interventions

centered around school infrastructure and learning facilities are not sufficient in addressing these issues. For example, children in poorer households drop out of school to support the household income by working on farms or the girls take care of the household activities.

Figure 25 Perceived benefits of infrastructural services according to teachers

Perceived benefits Intervention	Increase in Attention	Easy understanding	Syllabus covered faster	Lessons are easy to remember	Regular/Increased Attendance	Increase in enrolment	Less Dropout	Interest increased	Less health issues
Smart Class	75%	75%	67%	75%	75%			75%	
Infrastructure	55%			82%	77%	59%	55%		
Drinking Water Posts	50%				86%				79%
Teaching and Learning Materials	94%	100%	56%						
BaLA	100%		80%						
Separate Washrooms	40%				80%				73%

4.5.2. Case Study - IV



Government School in Brahmura

To promote safe and joyful learning environment in school the programme has conducted renovation of the school infrastructure. The existing setup of Rajkiya Madhya Vidyalaya has been renovated to create a better experience for students. The activity is done in an integrated way to create a school infrastructure that has all facilities visualized at school so that an ideal learning atmosphere is ensured. The activity has had a positive impact on the school's learning outcomes. There was no smart classroom in the school before the project intervention. After the installation of the smart classroom, the middle school students have developed more interest in learning. The visual learning experience has made it easier for the students to understand the lessons. The smart classroom is currently used for only the middle school students and not the primary students.

The school was also supported with installation of drinking water post. Earlier the school had a handpump for drinking water purpose but under the intervention a solar-powered facility has been provided for easy and safe access to drinking water.

4.6. Financial Literacy and Inclusion

Training to SHG members on aspects of financial literacy and training on aspects of women empowerment were organized to encourage awareness of the aspects of financial management and awareness of social issues.

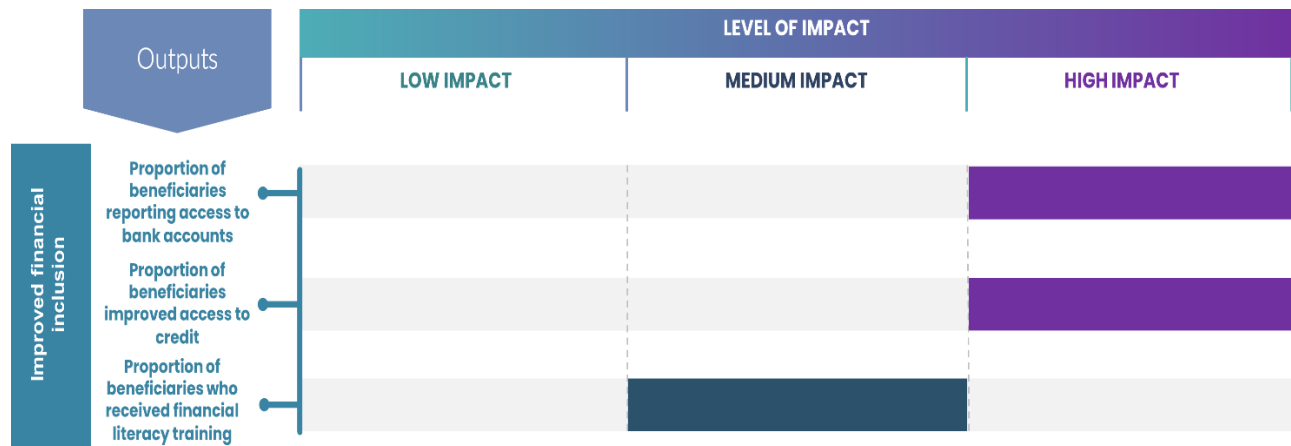
Table 9: Activities under financial literacy and inclusion in Bihar

Activity Category	Activities
Financial Literacy	Training events on women empowerment, and financial literacy for SHG

4.6.1. Effectiveness and Impact

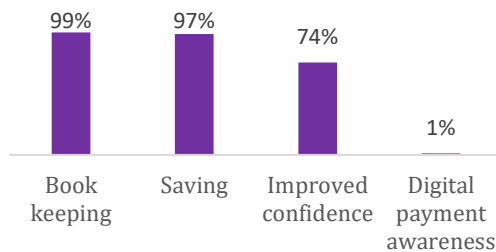
The interventions were made among both the SHGs and SHG+ groups. The group has been imparted training on management of finances, maintaining records, saving, inter-lending, and share-out after 50 weeks. The self-help groups have been successful in promoting saving and lending activities among women as 99% of respondents reported these two as the primary benefits of the group. Women also felt more confident in managing their personal and group-related finances.

Image 14 Effectiveness and Impact of activities under Financial Literacy



Financial Inclusion

Figure 26 Perceived benefits of financial management training



As Jan Dhan Yojana has already covered a large proportion of the rural population under its financial inclusion programme therefore most of the beneficiaries already had a bank account and there was no requirement for opening bank accounts for the women members. But the intervention in finance management training was availed by 94% of the SHG

members in the sample who found it helpful in promoting an understanding of bookkeeping, financial management, and increasing saving habits. The SHG+ groups had a higher contribution of ₹100 per week which led to higher saving and lending ability among the members.

4.7 Holistic Rural Development Index (HRDI)

According to the World Bank, there are multiple dimensions involved in achieving the goals of rural development and the resulting mixture raises agricultural production, generates new jobs, enhances health, increases communication, and provides better living infrastructure. Rural development is defined by the World Bank as the improvement in the social and economic environment of the rural population. Thus, the fundamental aims of rural development include planning, creating, and using the resources such as land, water, and manpower in order to promote equal opportunity for the population reliant on them.

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 programme 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 Bihar. Based on our calculation, the HRDI for the studied clusters is presented in the table below. Since the programme did not have an available baseline, the baseline was captured through the recall method.

Table 10: Holistic Rural Development Index for Darbhanga, Bihar

Domain	NRM		Skill and Livelihood		Health and Sanitation		Education		Overall HRDI	
HRDI Score	Base line	End line	Base line	End line	Base line	End line	Base line	End line	Base line	End line
	0.14	0.17	0.04	0.12	0.06	0.14	0.14	0.17	0.41	0.60
% Change	21%		200%		55%		21%		46%	

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 Bihar, some needed modifications in accordance with the program and also in accordance with the study design, and the information collected. The detailed methodology can be accessed in Annexure 6.4.

Further, the thematic-wise indicators were assigned weights to arrive at the composite HRDI score of **0.6** indicating a **notable positive change toward the desired impact** from the baseline score of 0.41.

4.8 Sustainability

More than 90% of farmers are currently adopting the services and practices accessed through the project under farm management. These are namely adoption of vermi-pits, conservation agriculture, and timely application of fertilizers and insecticides. Continued adoption of sustainable farming solutions has also resulted in notable improvements in productivity and reduction of input costs as

discussed in the earlier section. More than 90% of solar light beneficiaries also reported that solar street lights are still functioning indicating the sustained impact of the intervention.

In the case of both agricultural training and skill training, more than 60% are still utilizing at least one practice/skill they learned through the project. This in turn indicates sustained adoption and impact, especially in the case of organic manure application. SHG enterprise beneficiaries, on the other hand, have not been able to scale up or continue their business activities in most cases. On the other hand, livestock management beneficiaries report better health and reduced death among livestock in response to better access to livestock health services and livestock management training they received. While animal shelters are not effectively utilized due to space constraints, and lack of incentive for maintenance among small livestock owners, the technical know-how gained has sustained an impact on overall livestock health. Interventions aimed at the skill and capacity development were seen as more impactful when accompanied by physical capital.

The interventions made around the formation of various committees like VDC or KVS need to be provided with hand-holding and follow-up support. The low literacy rate across the villages, especially among women, reflects the lack of understanding of the purpose of the formation of such groups. There is also a general lack of leadership among the members to proactively engage with the villagers and support them in farming activities by imparting the knowledge gained in the farm field schools.

The outcomes around interventions carried out to achieve improved health and sanitation are sustainable in terms of established structures, technical know-how, usage, maintenance, and social demand. The community is aware of the usage of sanitation structures and kitchen gardens and has been trained in the same. The members also volunteer for the maintenance of the community toilets. The health interventions that have taken place are health camps, and no structures were required to be built. But they have been used well by the community. In the case of drinking water management, most of the project beneficiaries have reported utilization period of over two years indicating a sustained impact.

The interventions in education have performed well in the aspects of structures established and usage which has resulted in creating a conducive environment by achieving improved sanitation facilities, use of learning aids, and upgraded infrastructures. The improved infrastructure, facilities, and more involvement of the teachers have increased the interest in children to go to school and for parents to support the same. The schools have reached a level where they would continue to carry out educational activities even after the completion of the programme. However, the maintenance aspect, in the long run, is not well-assured. **The budget for the repair of smart classrooms, washrooms, drinking water posts, or Bala is not clear due to which the sustainability of these interventions is uncertain.** Improvements in this aspect will have direct positive impacts on this thematic intervention.

Although the SHG+ group was formed with the motive to promote differential savings and income from dividends, this aspect is missing from several groups as the women do not seem to be aware of this difference in characteristics between an SHG and an SHG+. Therefore, there is a need for hand-holding support through CRP or implementing organizations to implement such interventions.

5. Conclusion

5.1. Summary of Findings

The HRDP project is aimed to support the lives of communities by adopting a holistic approach to development. This involved 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. The development of human capital, natural resources, and infrastructure in poor and backward villages was expected to bring about their socio-economic transformation.

Natural Resource Management: The project can be deemed **effective in creating noticeable changes in the income generation capacity of farmers through improved productivity, reduced input cost, and capacity building of farmers to adopt sustainable and innovative agricultural practices.** Furthermore, the project also brought about changes in facilitating access to clean energy solutions such as solar lights.

Skill Training and Livelihood Enhancement: The project activities within skill and livelihood enhancement also have **opened up economic opportunities not just for farmers, but for SHG women and youth in the community.** These beneficiary categories, who otherwise have limited access to economic opportunities benefitted from the project by gaining the skills, technical support, and physical capital to undertake and expand entrepreneurial activities during the project period. While sustained profit generation is yet to be achieved, the project was successful in initiating entrepreneurial activities in the community among women and youth.

Health and Hygiene: The health interventions aimed at facilitating access to health services have been **effective in terms of improving women's access to sanitation services, household health status, and dietary practices.** The adoption of kitchen gardens has not only contributed to improved dietary diversity but also serves as a source of income for the beneficiaries. Furthermore, 80% of drinking water beneficiaries report reduced illnesses in response to access to improved drinking water sources.

Promotion of Education: The project has also **contributed toward improving and enhancing the infrastructural and learning environment at schools.** To facilitate the same, several project interventions were undertaken including the construction and renovation of physical infrastructural facilities such as drinking water posts, classroom furniture, and separate washrooms for boys and girls that led to improved capacity of students to spend more time at school, be actively involved in school activities and has even led to increased enrolment according to the teachers. Furthermore, with the aim of improving the learning environment, project support was also provided in terms of science labs, and libraries in addition to capacity building of teachers for the adoption of innovative teaching methods. Thus, **in addition to creating physical infrastructural facilities, the project also contributed to improving the teaching quality.** Nevertheless, to bridge the gaps in implementation and address the challenges, some of the recommendations are discussed in the following section.

5.2. Recommendations

Based on the observations and analysis of primary and secondary information presented in the report, the study recommends strategies for the program to meet the desired outcomes better. These are:

- **Health and Sanitation: An integrated approach for health interventions that are aligned with the existing government health infrastructure would be more sustainable** in the long term. Short-term health camps have shown limited interest from the community.
- **Skill Training and Livelihood Enhancement:** Procurement of appropriate tools with a proper system of renting/ management/ maintenance is required. **A system for the formation and training of the members with hand-holding support in the initial phase would make the committees more sustainable.** For enterprise development, **the focus should be given to establishing market linkages, especially for women-run enterprises.** The enterprises did not sustain themselves after the completion of the program as they did not have any linkages with the market and were not familiar with the value chains. **A follow-up service** could be beneficial in sustaining the enterprises.
- **NRM:** In some interventions, **after-sale technical service is required.** For example, there were instances of solar lamps not working after weeks or months of sale. Given the remoteness of the area, it was difficult for the community to access technical support once the equipment broke down.
- **Promotion of Education: An asset maintenance fund/ committee** needs to be established in the programme-supported schools to ensure the necessary maintenance of supports such as - drinking water posts, washrooms, library, and smart classes.
- **Financial Literacy:** The illiteracy of the women members has created an obstacle in the holistic functioning of the SHG+ groups as the members are not able to understand the core features and functionalities of the group. Most of these groups are functioning like a common SHG but only with a higher saving contribution and higher interest rate. A more nuanced **hand-holding support is needed to support the women in understanding and adopting the features of an SHG+.**

6. Annexures

Annexure 6.1: Detailed List of Activities

Activity Category	Activities
NRM	
Irrigation Management	Establishment of Solar-based Group Irrigation System
Water Management	Renovation of pond and water quality testing
Farm Management	Construction of vermi-pits, soil testing, orchard development
Clean Energy	Solar Lamp for Adolescent Girls (students), Street Solar Light
Skill Training and Livelihood Development	
Agriculture Training and Support	Support to Farm field School as demonstration/training site for farmers in villages, Demo Plots (IVC), Formation of Kisan Vikas Samiti, Installation of green net house,
SHG-Based Women Empowerment	SHG+ Formation, Training to SHG+ members on Enterprise development
Skill Training	Development of resource center for Adolescent Girls group/community women for enterprise development on Madhubani Paintings, Formation of Village Resource Center
Livestock Management	Promotion of Pashu Sakhi, Establishing Pashu Suvidha Kendra, Livestock Health Camp, Construction of Goat Sheds, Piloting Backyard Poultry, Goat Rearing
Entrepreneurship Development	Establishment of Vegetable clusters in villages, Bee Keeping, Fisheries
Health and Sanitation	
Health	Village Health Camp & Health Profiling,
Drinking Water Management	Solar-powered community-based drinking water supply system
Sanitation	Construction of individual toilets, individual and community soak pits, Hygiene and behavior change training and events
Kitchen Garden	Development of Kitchen Garden, Distribution of Vegetable Seeds
Promotion of Education	
Educational Institutions Development	Piloting Smart Class in Schools, Teachers Training on learning outcomes & improving teaching methodology, establishing mini libraries & Supporting TLM in schools, Solar Power Jal Minar facility in schools, Establishing Hygiene Corner in schools, Toilet Renovation in Schools, Implementing Waste Segregation in Schools, Providing enriched learning/play materials/stationery to Anganwadis, Renovation of Anganwadi Centres
Awareness Generation	Celebration of Important Events (Water Day, Toilet Day, Global Handwashing Day)
SMC Strengthening	Capacity Building of SMCs
Financial Literacy	
Financial Literacy	Training events on women empowerment, and financial literacy for SHG

Annexure 6.2: Sampling Methodology

The quantitative household survey was administered for 5 thematic areas in each district.

6.2.1. Quantitative Sample Size Calculation

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

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

Where,

N = sample size

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

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

S_e = margin of error, set at 5%;

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

Thus, the estimated maximum sample size is 400.

Quantitative Sampling Methodology: The quantitative household survey was administered for five thematic areas in the district. A detailed outcome harvesting process was carried out during the inception phase, and after discussions with the HDFC team, the outcome indicators were finalized. An estimated 80 respondents for each focus area in a cluster were selected, bringing the total number of household survey respondents to 400 per cluster. Since one household was the beneficiary of activities belonging to more than one thematic area therefore the collected sample has a higher figure.

The intervention villages were the sampling frame/universe for the selection of sample villages. From the total list of villages in each cluster, all of the villages were selected using Probability Proportionate to Size (PPS) sampling method but later on, keeping field logistics and practicality in mind four villages were dropped as they had a very small sample size (less than 20). Care was taken to select villages that have received the maximum number of interventions in order to get appropriate coverage of all components of the programme.

Stage 2 – Selection of beneficiaries: The list of beneficiaries in each of the components acted as the sampling frame for that programme. This list was obtained from the implementing partner - AKRSP. Simple random sampling was done to select a required number of households from within the list. Since beneficiary selection was undertaken independently for each programme, the selection of more than one beneficiary from a single household was probable.

6.2.2. 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.

Annexure 6.3: Sustainability Thematic 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:

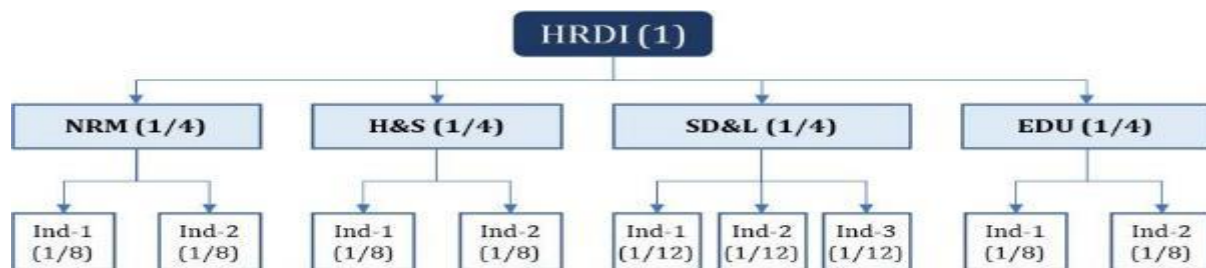
Support provided	Structures established	Technical Know-how	Usage	Maintenance
<i>NRM</i>				
Farm Management	✓		✓	✓
Irrigation Management	✓	✓	✓	✓
Clean Energy	✓	✓	✓	✓
Skill Training and Livelihood Enhancement				
Agriculture Training and Support		✓	✓	✓
SHG-Based Women Empowerment		✓	✓	X
Skill Training		✓	✓	
Livestock Management	✓	✓	✓	X
Entrepreneurship Development	✓	✓	X	X
Health and Sanitation				
Health			✓	✓
Sanitation	✓	✓	✓	✓
Drinking Water Management	✓	✓	✓	✓
Kitchen Garden	✓	✓	✓	X
Education				
Educational Institutions Development	✓	✓	✓	✓
Financial Literacy and Inclusion				
Financial Literacy training for SHG members	✓	X	✓	✓

Annexure 6.4: 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.**

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	Endline	Domain Weight	Indicator Weight
NRM	Proportion of farmers with Net income above average	1/4	1/2
	%age of farmers reporting access to irrigation		1/4
	Area under irrigation (Ha)		1/4
H&S	%age of households with access to improved drinking water facility	1/4	1/3
	%age of households with access to improved toilet facility		1/3
	%age of households with increased access to soak pits		1/3
Skill	%age of SHG members participating in rural enterprises	1/4	1/4
	%age of households with improved skills in Agriculture		1/4
	Average annual income of household from Livestock (INR)		1/4
	Average annual income of SHG women from enterprise (INR)		1/4
ED	%age of students reporting increased access to functional learning infrastructure (library, sports equipment etc.)	1/4	1/2
	%age of students reporting increased access to school physical infrastructure (washrooms, drinking water, etc)		1/2

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 was compared cross-sectionally to understand which domains contributed to an increase or decrease in HRDI value. Concurrently, the NGOs were ranked according to the HRDI score based on their performance across different domains. Since the value attribution of the indicators is in proportions, the HRDI value numerically ranges between 0 and 1. To examine the domain contribution, domain indicators and the differences between the clusters were studied while statistically verifying the numbers. Given that most indicators had small bases and non-normal distribution, it restricted the calculation to using the non-parametric test to test the significance of differences in these indicators across clusters. Wilcoxon’s matched-pair signed-rank test-which is a

non-parametric substitute of the paired t-test was performed to test the significance of the differences.

Method to calculate HRDI

Step 1: All the 9 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%ile 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 50th%ile i.e. the median value of the income was taken. This median or 50th%ile 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.

Domain	Indicator	Baseline	HRDI	Endline	HRDI
NRM	Proportion of farmers with Net income above average	0.25	0.14	0.32	0.17
	%age of farmers reporting access to irrigation	0.21		0.24	
	Area under irrigation (Ha)	0.12		0.14	
H&S	%age of households with access to improved drinking water facility	0.01	0.04	0.01	0.12
	%age of households with access to improved toilet facility	0.11		0.31	
	%age of households with increased access to soak pits	0.04		0.15	
Skill	%age of SHG members participating in rural enterprises	0.04	0.09	0.08	0.14
	%age of households with improved skills in Agriculture	0.11		0.17	
	Average annual income of household from Livestock (INR)	0.11		0.16	
	Average annual income of SHG women from enterprise (INR)	0.09		0.15	
ED	%age of students reporting increased access to functional learning infrastrucure (library, sports equipment etc.)	0.22	0.14	0.34	0.17

	%age of students reporting increased access to school physical infrastructure (washrooms, drinking water, etc)	0.32		0.36	
Total		0.41		0.6	

Annexure 6.5: Overview of Impact Calculation

Outputs	Output Indicators	Output Avg	Impact level
NA. Increased income from agriculture			
N. A1Land/ crop productivity	NA1. (a) Proportion of farmers reporting increase in production of crops that were supported under HRDP	57%	Medium
	NA1. (b) Proportion of farmers reporting increased input efficiency after the intervention		
	NA1. (c) Proportion of farmers reporting increased income from crops that were supported under HRDP.		
	N.A1.i(d) Average increase in income from crops that were supported under HRDP (% change)		
	N.A1.i(e) Average increase in productivity from crops that were supported under HRDP (% change)		
	N.A1.i(f) Average decrease in input cost (% change)		
N.A2. Access to farm management infrastructure	N.A2(a) Proportion of beneficiaries satisfied with quality of available services (in farm management)	54%	Medium
	NA2. (b) Proportion of farmers reporting project interventions in seeds, tools and irrigation leading to increase in production		
	NA2. (c) Proportion of farmers reporting project interventions leading to increase in income (average of top 4-5 crops)		
	NA2. (e) Proportion of farmers currently practicing organic farming/conservation agriculture/other sustainable practices		
	N.A2.(f) Proportion of farmers reporting an increase in the use of natural fertilizers?		
NA.3 Increased adoption of crop diversification	NA3. (a) Proportion of farmers diversified their crops with project support?	56%	Medium
	NA3. (b) Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)		
NC. Increased use of clean energy solutions			
NC1.Adoption of clean energy infrastructure	NC1 (a) Proportion of HHs using clean energy infrastructure (Base=all)	31%	Low
	NC1. (b)Proportion of households reporting benefits from using clean energy infrastructure (Base=clean energy beneficiaries)		
NE. Communities have reduced risk and vulnerability due to natural disasters			
NE.1 Improved coping capacity of community	NE1(a) Proportion of community members trained on techniques of Search, Rescue and First Aid after intervention	72%	High
	NE1(b) Proportion. of community members reporting improved health after intervention during disasters		
	NE1 (c) Proportion of community members demonstrating disaster preparedness in livelihood activities after intervention (improved awareness)		
	NE1 (d) Proportion of community members reporting reduced risk life, livestock and property		

NE.2 Access to disaster management infrastructure	NE.2 (a) Proportion of community members who have access to early warning systems after intervention	60%	Medium
	NE.2 (b) Proportion of community members who had access to rescue shelters post disasters after intervention		
	NE.2(c)Proportion of HHS who have access to proper evacuation mechanisms in case of disasters after intervention		
	NE.2 (d) Proportion of HHs who had access to drinking water sources during disasters after intervention		
	NE.2 (e) Proportion of HHs who had access to sanitation units during disasters after intervention		
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	48%	Medium
	SA.i(b) Proportion of farmers who demonstrate awareness regarding sustainable farming practices		
S.A.2.Adoption of improved farming practices	SA.ii(a) Proportion of farmers who adopt scientific agricultural practices	61%	Medium
	SA.ii(b) Proportion of beneficiaries reporting increase in productivity due to better farm management		
	SA.iii(c) Proportion of farmers reporting increased income		
SB. Economic empowerment through collectivization (Only for SHG members)			
SB.1 Formation/ revival of SHG based Enterprises	SB.i(a) Number of SHGs formed	70%	High
	SB.i(b) Number of SHGs revived		
	SB.i(c) Number of SHG based micro enterprises established		
SB.2 Development of entrepreneurship	SB.ii(a) Proportion of SHG members who received training	49%	Medium
	SB.ii(b) Proportion of SHG members undertaking entrepreneurial activities		
	SB.ii(c) Proportion of SHG members reporting starting new SHG enterprises		
	SB.ii(d)Proportion of SHGs with increased savings		
	SB.ii(e) Proportion of SHG members reporting improved income		
SC. Enhanced capacity for regular income generation			
SC.1 Enhanced employable skill development	SC.1(a)%age of youth who accessed skill development training	34%	Low
	SC.1(b)%age of youth who report improved income through skill development		
SC.2 Access to self-employment and entrepreneurial opportunities	SC.2(a) Proportion of beneficiaries who established/ expanded entrepreneurial activities	48%	Medium
	SC.2(b) Proportion of beneficiaries reporting improved capacity to undertake entrepreneurial activities		
	SC.2(c) Proportion of beneficiary HHs reporting increase in income		
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	42%	Medium
	SD.i(b) Proportion of beneficiaries reporting increase in income from livestock management		
	SD.i(c)Proportion of beneficiaries reporting improved livestock health		
	SD.i(d) Proportionate increase in average income from livestock		
H.A. Improved health infrastructure and services			

H.A.1 Establishment/ enhancement of health infrastructure and services	H.A.i(a) Proportion of beneficiaries who gained access to health services	37%	Low
	HA. i(b) Proportion of beneficiaries reporting lifestyle changes due to improved access		
	H.A.i(c) Proportion of beneficiaries who consulted medical references from camps		
H.A.2. Improved quality of health services	H.A.ii(a) Increase in no. of beneficiaries reporting improved quality of available services	>40%	Medium
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	75%	High
	H.B.i(b) Increase in no of HHs with access to sanitation infrastructure/ facilities		
	H.B.i(c) Proportion of beneficiaries reporting benefits due to improved access		
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	20%	Low
	HC.i (b) HHs received seeds/training in kitchen garden		
	HC.i(c) No of HHs with improved vegetable/fruit consumption due to kitchen gardens		
	HC.i(d) Proportion of HHs reporting improved nutrition		
	HC.i(e) Increase in area under kitchen garden		
H.D Improved awareness and health seeking behaviour			
H.D.1 Awareness regarding health and sanitation practices	H.D.i (a) Improved dietary practices/ reduced tobacco consumption/ improved physical exercise	64%	Medium
	H.D.i(b) Improved awareness regarding cleanliness & sanitation practices		
	H.D.i(c) Improved awareness regarding waste management		
H.D.2 Adoption of positive health and sanitation practices	H.D.ii(a) Increase in no of HHs demonstrating adoption of WASH practices	>40%	Medium
	H.D.ii(b) Increase in no. of HHs adopting proper solid waste management practices		
	H.D.ii(c) Increase in no of HHs adopting proper liquid waste management practices		
H.E. Improved availability and management of water			
H.E.1. Access to drinking water at household and community levels improved	NB.1. (a) Proportionate increase in average number of months with access to clean drinking water	29%	Low
	NB.1. (b) Proportion of households reporting improved well-being due to availability of clean drinking water.		
E.A. 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 class rooms/ BaLa/science labs/libraries/learning aid/furniture/sports equipment	71%	High
	EA.i(b) Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions		
EA.2 Improvements in	EA.ii(a) Proportion of teachers regularly utilising smart class rooms/libraries/smart class	77%	High

quality of teaching	EA.ii(b) Proportion of students who prefer/regularly use smart class rooms/science labs/ libraries for lessons		
	EA.ii(c) Proportion of parents/students/teachers who report improvements in teaching quality		
	EA.ii(d) Proportion of students/teachers reporting regular utilization of other infra		
	EA.ii(e) Proportion of teachers reporting improved capacity to adopt innovative teaching methods (Base= teachers who received training)		
	EA.ii(f) Awareness among teachers regarding child development (Base= teachers who received training)		
EA.3. Improved willingness to engage in school activities	EA.iii(a) Teachers reporting improvements in attendance due to improved infrastructure	>70%	High
	EA.iii(b) Proportion of teachers reporting increase in enrolment post infrastructure development		
	EA.iii(c) Proportion of institutions reporting decrease in dropout rates		
E.B. 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	>70%	High
	EB.i(b) Proportion of students reporting improvements in access to reference material		
	EB.i(c) Proportion of students reporting an increase in confidence in various subjects (lessons are easy to understand, more interesting etc.)		
	EB.i(d) Proportion of students who received scholarships		
	EB.i(e) Proportion of teachers reporting improvements in learning outcomes due to infrastructural facilities at institutions (concept retention, attention span and exam performance)		
E.C. Improved Awareness			
EC.1 Improved awareness among students, parents, teachers	EC.i(a) Awareness activities conducted	36%	Low
Outcome E.D. Strengthening SMCs			
ED.1 Establishment & strengthening of SMCs	ED.i(a) Proportion of teachers reporting SMCs that are functioning regularly	45%	Medium
	ED.i(b) Proportion of beneficiaries(teachers) who actively engage in SMCs		
	ED.i(c) Perceived benefits of SMC		

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