

Impact Assessment Study of Holistic Rural Development Programme (HRDP) Mahendragarh, Haryana – P0250



Prepared For:



HDFC Bank Corporate Social Responsibility (CSR)

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Executive Summary

The study centres on measuring the impact of the Holistic Rural Development Programme (HRDP) of HDFC Bank that was implemented by SM Sehgal Foundation in the Mahendragarh district of Haryana during April 2018 till March 2022. This study largely focused on understanding the overall process that the HDFC Bank and the implementing organisation undertook in carrying out the programme activities, the key milestones achieved, the impact created by these activities, and the challenges faced. The key focus areas of the intervention were Natural Resource Management (NRM), Skill Training & Livelihood Enhancement (ST&LE), Health and Sanitation (H&S) and Promotion of Education (PoE). The framework used for the impact assessment was an adaptive version of the DAC criteria - Relevance, Effectiveness, and Sustainability. A comprehensive methodology, comprising both qualitative and quantitative primary data collection, was used for the assessment which was carried out in a participatory manner involving all the key stakeholders of the programme. The study included a sample size of 433 beneficiaries as respondents as against the planned sample of 400.

NRM: The focus was on water conservation and recharge, as well as soil revival through farm management practices. Clean energy was another focus area. **The interventions positively impacted farmers' income generation capacity, with more than 75% of the respondents satisfied** with the activities conducted. **Soil testing was credited by 66% of the respondents to aid in increasing income from agriculture.** Pond construction and deepening were particularly credited with improving water levels in the area in the qualitative interviews. However, due to incessant rains that severely destroyed the crops last year (2022), the agricultural income is reflected negatively in the present study; average net income came down from Rs 60,000 before interventions to Rs 50,000 after. "Poor weather conditions" have been blamed for the decrease by 98% of the respondents. Farm management practices were implemented at a large scale, with 328 and 1,060 farmers benefitting from soil testing and levelling respectively. 100% of the respondents were fully satisfied with the activity of mulching done on their fields.

Installation of sprinklers helped the agricultural community reduce their input cost as reported by 67% of the farmers. The enhanced water situation in the villages also helped farmers diversify to crops like cotton, mustard and vegetables. **100% of the respondents were satisfied with the interventions in clean energy.** The home lights distributed amongst the households helped in general reading and studying, thereby the study time increased for more than 40% of the respondents. Installation of street solar lights at public places enabled people to go out at night (81%), improved safety for women (71%), and safety from wild animals (67%). A major challenge observed under clean energy was the maintenance of the street solar lights; 40% of the respondents said the lights had stopped working due to lack of repair.

Skill Training and Livelihood Enhancement: Under the project, the emphasis was to expose farmers to the latest agricultural innovations. PoP training on crops was given to 1,345 farmers and 127 farmer training sessions were organised. Field schools, multi and intercropping techniques, PoP and other agricultural trainings were termed "highly useful" by 80% of the respondents. **The training and support was particularly helpful in improving capacity to increase production (70%) and reducing the input cost (63%).** Respondents noted an increase in productivity (73%) and income (68%). An average increase of Rs 57,600 in farmers' income was credited to the training

interventions. 121 units of compost bed were installed under the programme. Even so, application of organic manure and vermicomposting is being continued by only 33% and 20% of the farmers, respectively, hinting to the requirement of targeted efforts in the area. Understand the challenges faced by the farmers in Mahendragarh in organic farming, provide assistance and support accordingly.

Efforts were made to empower women through tailoring and beautician programmes. Approximately **75% of the trained women successfully established their own boutiques, with 63% reporting increased savings.** These training sessions also provided a safe space for women to gather and socialize outside their homes, fostering a sense of community. Notably, the women reported an average monthly income of Rs 2,658 from their tailoring shops and beauty parlors. The women expressed the desire to upskill and work with bulk orders of brands in qualitative interviews.

Out of the total beneficiaries in livestock management, 54% reported an increase in income, while another 23% observed an increase in household savings as a result of the interventions. 5 goats were provided to 109 households under this intervention. The beneficiaries now receive an average monthly income of Rs 4,357 due to the support provided in livestock management.

Health and Sanitation: 20 health camps and 118 hygiene related awareness drives were conducted during the programme implementation period. **Regularly organized health camps witnessed nearly 80% of attendees availing the free medications, with more than 25% referred to medical specialists, and an impressive 96% following through with the recommendations.** Qualitative interactions revealed high levels of satisfaction among the community, particularly women, who appreciated the convenience of the health services offered in their own village.

On the sanitation front, the cleanliness awareness campaigns were successful, with over 80% of respondents demonstrating mindfulness towards hygiene practices such as handwashing and toilet usage. Additionally, **60-70% of the participants had knowledge about the ideal methods of solid and liquid waste disposal.** Even so, 56% still dumps solid waste in open areas. Burning of waste is also a common practice, with 22% of the respondents resorting to it for handling their waste.

Promotion of Education: The interventions in educational infrastructure like smart class, library, furniture etc led to 88% of the students reported an improvement in their reading habits. The presence of separate washrooms for girls contributed to 90% of them being able to attend school regularly. These interventions ensured regular attendance (65%), interesting classes (57%), improved study material (43%), timely lesson plans (29%), higher enrolment (23%) and fewer dropouts (17%). A particular challenge observed was in the utilisation of smart class; the fluctuating electricity at the village disrupted the lesson flow, making teachers discontinue the use of projectors. Solar panels on school's rooftop were recommended by the teachers to solve this.

Table 1: Summary of Key Income Indicators

Income Indicators (based on median)	Before	After	% Change
Average Net Income from Agriculture (INR)	60,000	50,000	-16.66%

Average Income from Skill (income from enterprises) (INR)	1,500	3,000	100%
Average Productivity of 3 major crops (Qtl./Acre)	12	9.95	-17%
Income from Livestock			
Income from Allied Activities			
Increase in Irrigated Area			
Decrease in input cost			

The above table indicates there is a marginal decrease of average net income from agriculture which is primarily due to lower productivity of the major crops during the terminal year of the project implementation. As informed by the respondents there were less rainfall that affected their crop production and further affecting the income from it. However, the income from skill and enterprises have shown a significant increase over the project duration.

HRDI Indicators

The table below calculates the Holistic Rural Development Index (HRDI) on the four thematic areas of interventions under the project. While the overall HRDI has 141% increase over baseline, the impact observed to be high in Health & Sanitation with 100% increase over baseline and under skill training and livelihoods with 70% increase over baseline. NRM indicates no growth due to the crop loss made by the farmers during the terminal year of the project.

Table 2: Summary of HRDI Scores

Domain	NRM		ST&LE		H&S		PoE		Total	
HRDI Score	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
	0.08	0.08	0.10	0.17	0.11	0.22	0.20	0.24	0.29	0.70
% Change	-		70%		100%		20%		141%	

1 Introduction

India has experienced massive strides in rural development over the years. While 65% of the country's population live in rural areas (as of 2021), 47% are still dependent on agriculture for their livelihood (PIB Delhi, 2023). The rural ecosystem grew by around 10% per annum during the last 5 years but it continues to be plagued by numerous problems, such as lack of irrigation, degrading soil health, disguised unemployment, fewer skill development avenues, undependable healthcare availability, low literacy rates, and increasing environmental degradation, etc. To mitigate these diverse yet inter-linked developmental challenges, the HDFC Bank, under its Corporate Social Responsibility (CSR) initiative '*Parivartan*', supports numerous programmes that deliver holistic rural development to aid the growth and prosperity of the rural population.

1.1 About HRDP

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

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

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

1.2 Objectives of Impact Assessment

The impact assessment aims at understanding:

- Overall process undertaken for implementing HRDP activities
- Key milestones achieved
- Impact created by HRDP activities
- Challenges faced and how they were managed

The guiding philosophy behind this assessment is to add value by showcasing successful initiatives and recommending possible ways to address existing challenges.

It seeks to:

- Critically and objectively evaluate implementation and performance
- Determine reasons for certain outcomes or lack thereof
- Derive lessons learnt and good practices

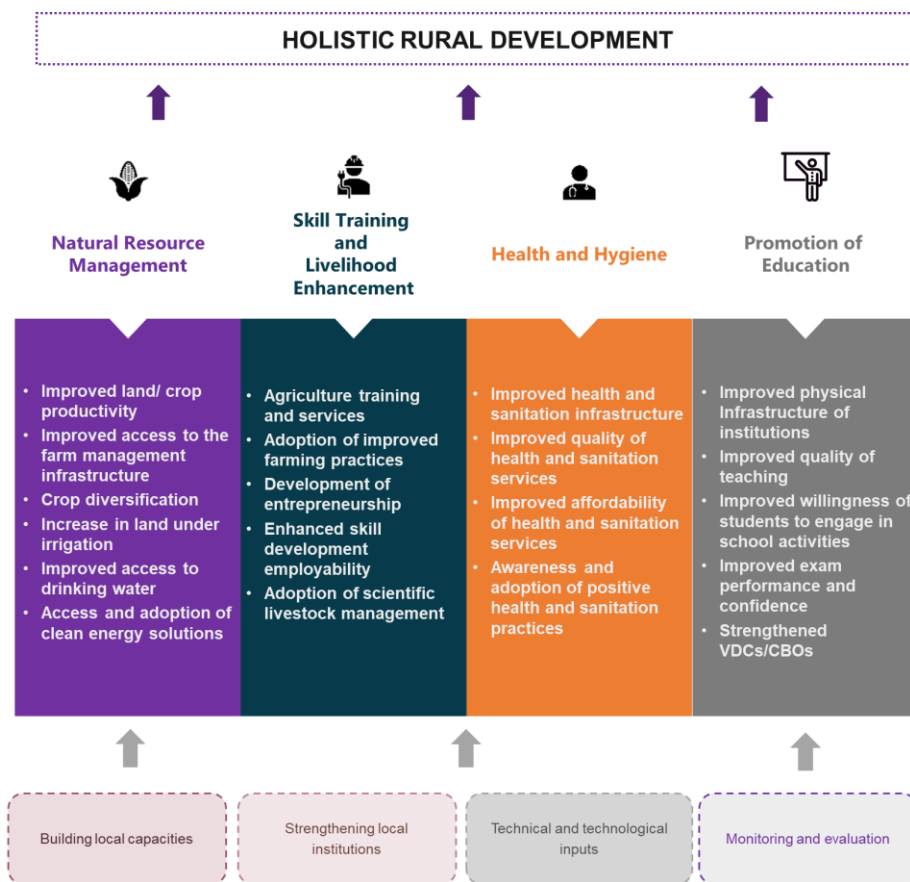
- Provide evidence-based findings to inform future operational and strategic decisions while planning and funding partner organisations

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

1.3 Conceptual Framework Adopted

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

Figure 1: Conceptual Framework



1.4 About the Project Area

The assessment provides an independent, third-party, detailed assessment report of HDFC Bank's HRDP intervention (under *Parivartan*) carried out in a backward district of Haryana, Mahendragarh, by SM Sehgal Foundation, the implementing partner in this district. The project was undertaken during April 2018 till March 2022 and the interventions covered nine villages across two blocks. The villages were selected for implementation because of their remote location near the border thereby making it difficult for any government scheme to reach. The assessment study was carried out from 29 May 2023 to 7 June 2023.

1.5 About the Implementing Partner

The SM Sehgal Foundation was set-up in 1999 with a mission to strengthen community-led development initiatives to achieve positive social, economic, and environmental change across rural India. It is headquartered in Gurugram, Haryana and works primarily on five thematic project areas: Agriculture Development, Water Management, Local Participation and Sustainability, Education, and Outreach for Development. In 2018, it started its partnership with HDFC Bank's CSR *Parivartan* to implement integrated rural development practices based on comprehensive sustainable development goals, under the flagship HRDP.

2 Research Design and Methodology

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

2.1 Criteria for Assessment

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

- Relevance and Convergence
- Impact and Effectiveness¹
- Sustainability

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

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

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

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

2.2 Primary and Secondary Data Sources

Primary research included a quantitative household survey that was conducted by the survey team consisting of 6 enumerators and 1 supervisor. With backstopping by one field coordinator. The primary quantitative data was collected using Computer Assisted Personal Interview (CAPI) method where we developed a mobile application to collect data. The qualitative research included in-depth interviews (IDIs), Key Informant Interviews (KIIs) and Focused Group Discussions (FGDs) with project beneficiaries and secondary stakeholders such as the team

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

members of SM Sehgal Foundation, the HDFC Bank programme team, local leaders from the project area etc. IDIs were conducted with the specific individuals who were recipients of the project. The qualitative data was conducted by our research coordinator.

Figure 2: An FGD in Progress



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

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

2.3 Sample Size and Distribution

From the nine villages of Mahendragarh where the project was implemented, beneficiaries were selected using purposive random sampling from a list of beneficiaries obtained from SM Sehgal Foundation. Since beneficiary selection was undertaken independently for each thematic area, the selection of more than one beneficiary from a single household was probable. Also, there were instances where a single beneficiary received multiple benefits and support across the four thematic areas. Inclusion of beneficiaries for all thematic areas was ensured. The target sample size across nine villages was 400, out of which 433 sample respondents were reached. The thematic areas wise sample covered was as follows (see **Error! Reference source not found.**).

Table 3: Sample distribution across thematic areas

Village Name	NRM	ST&LE	H&S	PoE
Bayal	27	29	13	12
Dhonkhera	29	28	0 ²	11
Golva	32	27	17	3
Lajota	32	17	25	0 ³

² Respondents with respect to H&S were unavailable in Dhonkhera and Panchnota.

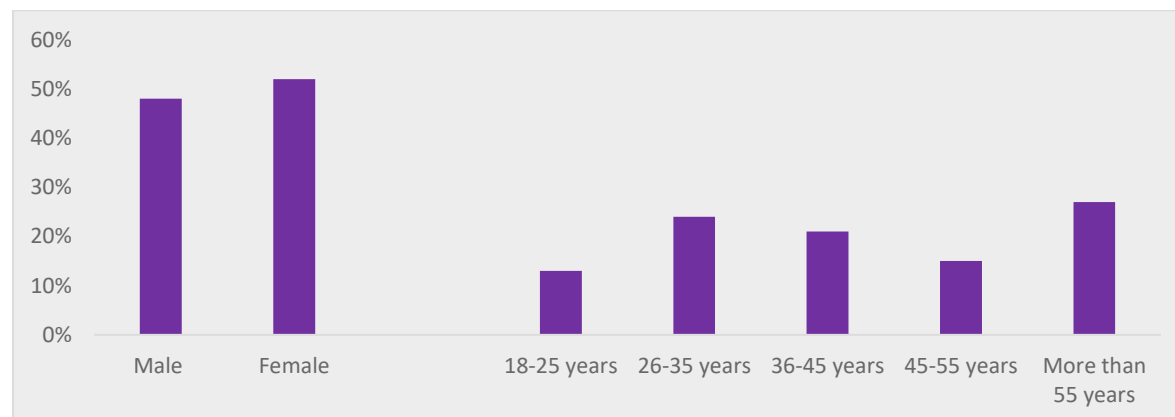
³ The limited sample covered in few of the villages was due to the unavailability of respondents with respect to education. As the schools were closed in lieu of summer vacation, the teachers and students could not be surveyed.

Meghot Binja	37	21	19	30 ³
Meghot Hala	39	18	31	30
Niaz Alipur	34	22	16	0 ³
Panchnota	14	24	0 ²	9
Sareli	29	24	13	0 ³
Total	273	210	134	65

A total of 12 qualitative data collection events were conducted in this project that included interviews with the principal of Panchnota school, a goat shed beneficiary, a tailoring shop owner, a toilet beneficiary in Bayal, a pond conservationist in Meghot Hala, a beauty parlour entrepreneur from Golwa and the sarpanch on Dhokhera. FGDs were conducted with farmers group, tailoring trainees group and with the general population. KIIs were conducted of the farmer field school, a migrant farmer, and two successful women entrepreneurs.

The total sample includes 48% male and 52% female attributing to the gender distribution of the sample. Similarly, youth (18-55 years) represented majority of the sample (73%) distributed in different age groups. The remaining 27% of the respondents were more than 55 years of age.

Figure 3: Gender and Age Group wise distribution of Sample



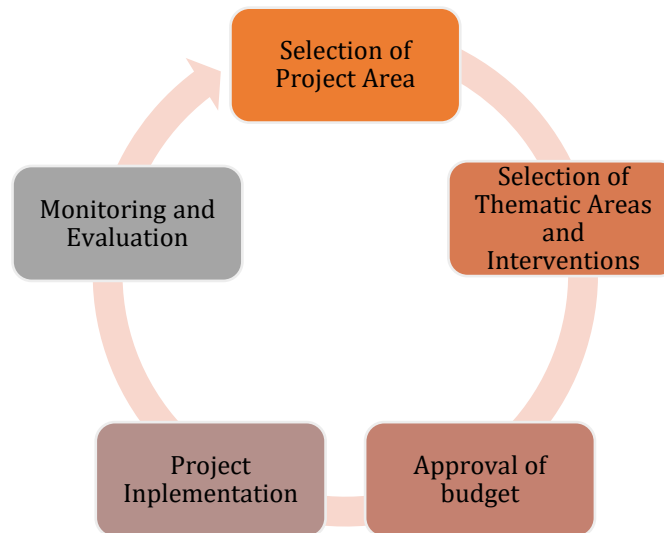
2.4 Training of Enumerators

A gender balanced survey team consisting of 6 local enumerators and 1 supervisor recruited with requisite education and experience, for data collection. Two days of training were provided to enumerators and supervisors by the field coordinator and the research coordinator. During the training the survey team was explained about the project, data collection tools, how to use CAPI, data collection protocols, data quality control etc. The training included both classroom teaching and mock practice of the survey tool.

3 Review of Project Planning and Implementation

The planning and implementation of the project involves five stages: selection of the project area viz. district, block, villages etc., selection of thematic areas and interventions, approval of budget, project implementation and monitoring and evaluation. Review of each of these stages are explained below.

Figure 4: Planning & Implementation Process



3.1 Selection of Project Area

The selection of program area is primarily based on the existing operational area of the implementing partner. In project P0250, the SM Sehgal Foundation was operating in the Mahendragarh district which has acute shortage of water; the Central Ground Water Board (CGWB) reported rainfall of 500mm in 2011⁴. There are no rivers and canals, and the annual rainfall is low and erratic. Although majority of the community relies on agriculture for their livelihood, farming is mostly subsistent, and shortage of water prevents farmers from sowing a second crop. Major crops grown are wheat, mustard and pearl millet. Emerging needs of animal husbandry and livestock rearing have resulted in additional pressure on the water resources increasing dependence on water reservoirs such as ponds. Being remotely located, they lack awareness of animal healthcare, nutrition, good hygiene and sanitation practices, prevention of diseases, and the consequences of their existing practices. Women of the villages lack skill and are therefore unable to access any income-generating livelihoods. The youth in these villages, especially girls, have no avenues to learn life skills to improve their social and emotional wellbeing or potential work skills. They mostly remain isolated from the outside world and do not avail higher education or employment opportunities, which further impairs their self-esteem.

3.2 Selection of Thematic Areas and Interventions

Considering the above challenges in the project area, The SM Sehgal Foundation proposed HDFC Bank CSR under HRDP interventions focused on promoting water and farm management in

⁴ https://cgwb.gov.in/District_Profile/Haryana/Mahendragarh.pdf

addition to clean energy under Natural Resources Management (NRM) theme. The project also focused on agricultural training and support, skill training, livestock management, and entrepreneurship development under ST&LE; educational institution development and education support under PoE; health awareness and sanitation practices under H&S.

The activities specific to each village under the project were decided after in-depth consultation with the respective Village Development Committees (VDCs), which were constituted during the beginning of the project implementation. Activities under each of the four thematic areas are as follows (see **Error! Reference source not found.4**).

Table 4: Activities under four thematic areas

Activity Category	Activities	Output Indicators
NRM		
Irrigation Management	Mini Sprinkler, Drip Irrigation, Zeba Technology	Income from agriculture
Water Management	Pond Development and Deepening, Water Budgeting Plans	
Farm Management	Soil Testing, Vermi Pits, Levelling, Bunding	
Clean Energy	Solar Lights (Street), Solar Home Light, Solar Spray Pump	Clean energy
ST&LE		
Agriculture Training and Services	Field School, Exposure Visit, Farm Techniques Training, Demo Plots, PoP Training, Natural/ Organic Farming	Access to Agriculture Training and Services
Skill and Entrepreneurship Development	Training of Women on Tailoring and Beautician work	Skill and Entrepreneurship Development
Livestock Management	Goats Provided, Animal Shelter Support, Animal Health Camps, Household Vaccination Service	Livestock Management
H&S		
Health	Health Camp, Hygiene related awareness sessions	Health Infrastructure and Services
Sanitation	Soak Pits, Toilet Construction, Waste Collection and Awareness Campaigns	Sanitation Infrastructure and Services
PoE		
Educational Institutions Development	School building renovation, BaLA, construction/ repair of separate washrooms for girls and boys, classroom furniture, science lab equipment/ Smart class	Infrastructure in Educational Institutions

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

3.3 Project Implementation

The project implementation comprised a combination of providing direct materials and services such as seeds, drips and sprinklers as farm inputs and implements, along with raising awareness about new agricultural techniques. Additionally, there was a focus on convergence with government schemes like the Mahatma Gandhi National Rural Employment Guarantee (MNREGA) for construction of natural resources infrastructure such as ponds, water harvesting structures etc. and the horticulture department for growing cash crops including orchards.

Under NRM, the project supported in improving the capacity of farmers in soil health management by conducting soil tests and suggesting measures to replenish the gap in soil nutrition. Composting kits were provided to selected farmers experiencing nutritional deficiencies in their farmland. Laser levelling and bunding were done for several farmers to ensure uniform production throughout the land. Mini sprinklers and drip irrigation systems were provided to exhibit their usefulness in saving water while providing lifesavings irrigation to the crop. Work was done on water management by reviving and/or constructing ponds in the nine villages. Clean energy was also a focus area where solar lights were installed at several junctions in the villages.

Under ST&LE, the project significantly targeted skill training and livelihood enhancement for the farming community. Cash crops like cotton and vegetables were introduced to the farmers while coaching them on inter cropping and multi cropping. Crop demonstrations as a Package of Practices (PoP) was carried out for cotton, wheat, pearl millet, gram and mustard. A Farm Field School (FFS) was developed in 1 acre of land in every village to educate the farmers on latest technological advancements in agriculture. Farmers were taken on exposure visits to the FFS at different stages of the crop production to aid their skill and knowledge. To bridge the information gap on government schemes, regular updates were provided on public benefits that could be leveraged during the farmers meetings conducted at the village level at monthly intervals during the agricultural season to augment more income from agriculture and allied activities. The project also promoted goat rearing as an income generation activity among landless families to provide them with an additional source of income. Tailoring and beautician training was provided to the women of the nine villages to enhance their skill on these professional traits and make them more employable.

Under H&S, attention was given to organising annual health camps for the public during the project duration, where medicines prescribed by the doctors were provided to the patients free of cost. Community soak pits were constructed at key points in the village for safe disposal of solid waste to ensure proper sanitation. Sixty household individual household toilets were also constructed under the project.

Under PoE, renovation work was carried out at *Anganwadis* and primary schools. Smart classes were introduced, and infrastructural support was given in the form of furniture, and books. Separate toilets for boys and girls were constructed and uninterrupted water supply was ensured under the project. Building as Learning Aid (BaLA) paintings and lab equipment were made available.

The implementing partner positioned a dedicated team of professional that was responsible for project implementation. They also inducted community level functionaries for mobilising communities and helping them in implementing project activities.

3.4 Monitoring and Evaluation

The HRDP has a standard monitoring & evaluation approach that was adopted by the implementing partners. These includes reporting of project implementation progress in periodically to the HDFC Bank. In addition, the program implementation team of HRFC bank visits to the project villages at regular intervals to review the project work sites. participate in the training programs, awareness camps and interact with project beneficiaries.

HDFC Bank has specific ask as regards to the project information concerned from the implementing partner. The project data are primarily managed by the implementing partner in

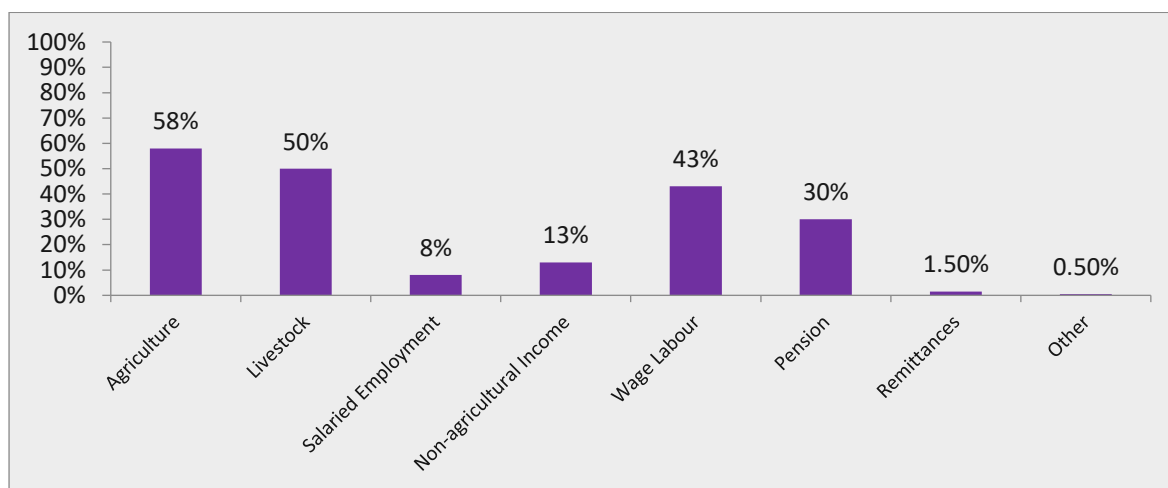
spreadsheets that include details of the village wise activities implemented, beneficiaries mapped against each of the project activities, expenditures etc. In addition, the implementing partner submits an annual progress report on the project activities to HDFC Bank along with the plan for the next year. This document serves as the major source of the information that provides a summary of the activities implemented, outputs delivered, and outcomes achieved.

In addition, the HDFC Bank hired NRMC as an external agency to conduct impact assessment of the project after one year of the completion of the project. This is an independent assessment that evaluated using four criteria: relevance and convergence, impact and effectiveness, sustainability, and replicability. This is backed up by the creation of a Holistic Rural Development Index (**Error! Reference source not found.**9) based on selected outcome indicators. The impact (**Error! Reference source not found.**0) of each activity has also been calculated and classified as high, medium, or low impact. The annexure goes into greater detail on these.

4 Study Findings

This section provides the analysis of the profile of the respondents covered in the nine villages of Mahendragarh district in Haryana. The population is mostly agrarian with 58% dependent on agriculture followed by 50% of the respondents depends on livestock rearing that includes goat, poultry etc. About 43% of the respondents said they depends upon daily wage that they earn from the local employment. About 30% respondents are getting pension particularly those who are retired from government service (mostly defence), central or state government’s social support schemes like the Old Age Pension etc..

Figure 5: Distribution of Sample based on their occupation



About one fourth of the respondents are illiterate and 40% of the respondents have attended schooling with different grades. 32% of the respondents are educated beyond class 10. The respondents are primarily from other backward classes (57%) followed by general category (22%) and scheduled caste (20%). The poverty among the respondents are high with 47% of them are under BPL and 2% are Antodaya that makes about half of the respondents living below poverty line.

Figure 6: Educational Qualification wise distribution of sample

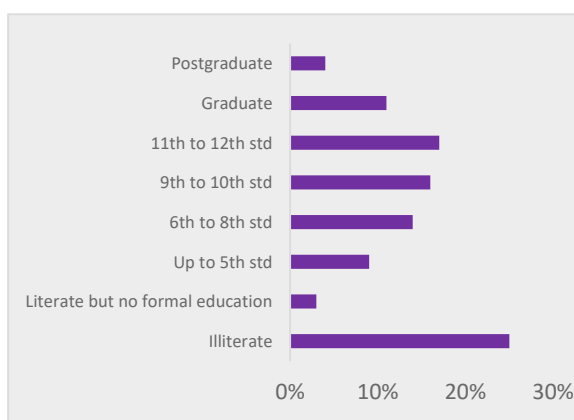
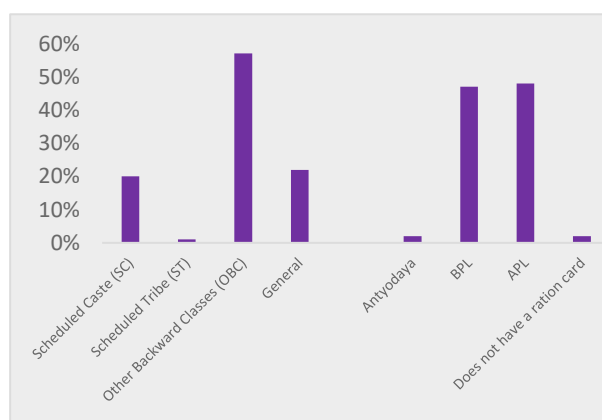


Figure 7: Caste and Income categorisation sample



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

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

Activity Category	Activities	Nos. (as provided by IA)
NRM		
Irrigation Management	Mini Sprinkler/ Drip Irrigation	133
	Zeba Technology	Info not provided by IA
Water Management	Pond Development and Deepening	11
	Water Budgeting Plans	2
Farm Management	Soil Testing	328
	Levelling	1060
	Bunding	Info not provided by IA
Clean Energy	Solar Lights (Street)	123
	Solar Home Light	90
	Solar Spray Pump	Info not provided by IA
ST&LE		
Agriculture Training and Services	Field Schools	7
	Exposure Visits	13
	Farmer Training	127
	Field Days Organised	115
	PoP Training	1345
	Natural/ Organic Farming Sessions	121
Skill and Entrepreneurship Development	Training Sessions in Tailoring/ Beautician	18
	Women Trained in Tailoring/ Beautician	10
Livestock Management	Goats Provided	109
	Animal Shelter Support	45
	Animal Health Camp	28
	Animal Balanced Nutrition and deworming	528
H&S		
Health	Health Camps	20
	Hygiene related Awareness Sessions	118
Sanitation	Soak Pits	52
	Toilet Construction	60
	Village Sanitation Drives	37
	Awareness Campaigns	37
PoE		
Educational Institutions Development	School Building Renovation Cost	Info not provided by IA
	BaLA	Info not provided by IA
	Construction/Repair of Separate Washrooms for Girls and Boys	2
	Classroom Furniture	Info not provided by IA
	Science Lab Equipment	Info not provided by IA
	Smart Class	1

(Source: Project MIS from Implementing Agency)

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

4.1 Natural Resource Management

NRM is one of the most important pillars of HRDP. In context of the acute water-scarcity in Mahendragarh, water conservation and recharge got particular attention; 11 ponds were constructed for ground water recharge. Support was made available to farmers in irrigation techniques and farm management practices. 133 drip or sprinkler irrigation units were installed

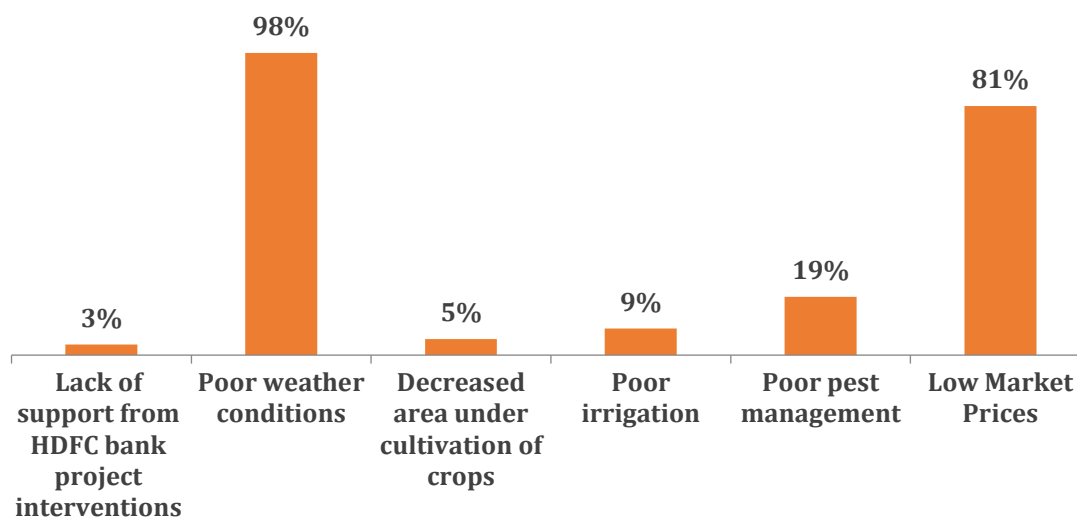
at the fields of farmers. 1060 acres of land was treated with laser levelling. Solar home lights were made available to 90 underserved families.

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

4.1.1 Income from Agriculture

HRDP focussed on reviving the soil through farm management practices of soil testing, levelling, mulching, and composting. Water management was also at the centre of the work done; drip irrigation systems and mini sprinklers were provided to selected farmers. A new technology called Zeba that helps conserve water in farms was also implemented. All of these activities resulted in significant improvement in the awareness of farmers and aided in enhancing the productivity of the land. **However, due to incessant rains that lashed the district in September 2022**, the kharif crops of bajra and cotton were severely destroyed⁵. As a result, **the agricultural production and income is reflected negatively in the present study; average net income came down from Rs 60,000 before interventions to Rs 50,000 after**. The decrease in income has largely been attributed to external factors such as adverse climatic conditions and less rain fall. According to the India Meteorological Department (IMD), the rainfall trend in Mahendragarh, Haryana since 2018-19 has been below average. The district has received an average annual rainfall of 700 mm during this period, which is 10% less than the long-term average.

Figure 8: Reasons for Decrease in Agriculture Income

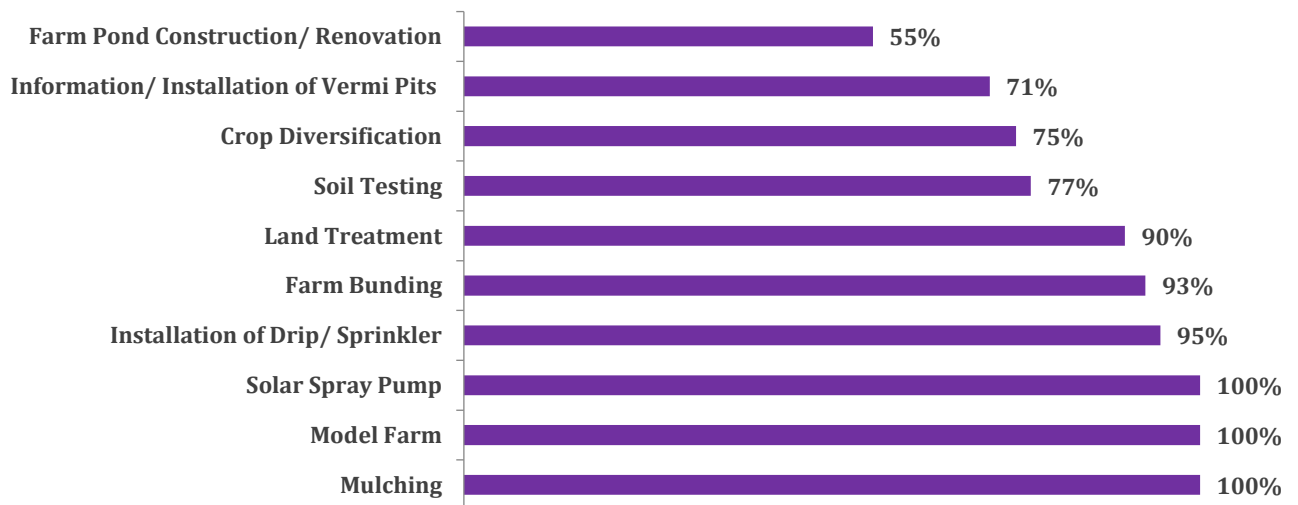


Despite the natural calamity, the HRDP interventions helped farmers to maintain productivity in an adverse condition as compared to other nearby villages as mentioned during qualitative interviews. These interviews reflected a high level of satisfaction amongst farmers with regards to the interventions; the work on pond construction and deepening was especially credited with improving the water availability during dry spells. . The percentage of respondents who reported high level of satisfaction with respect to NRM interventions are presented below (see **Error!**

⁵ <https://www.tribuneindia.com/news/haryana/16-900-farmers-await-crop-loss-relief-in-mahendragarh-521896>

Reference source not found..). Farmers in these villages fully recognised mulching, demonstration of model farm, availability of solar spray as most impactful activities followed by installation of drip & sprinkler irrigation, farm bunding, land treatment, soil testing etc. Crop diversification (71%) has also one of the instrumental activities that added value to the agriculture practices among the farmers. This was supported with the construction of irrigation facilities (55%) that helped the farmers to save their crop in adverse climatic situation. In addition, the information and knowledge provided on agriculture and natural resources management aspects to the farmers helped them well in understanding the know-how of the new approaches to farming.

Figure 9: % of Beneficiaries 'Fully Satisfied' with Interventions under NRM



The capacity of the farmers to raise their income from agriculture has risen due to these targeted interventions. For instance, the soil testing conducted on farmers' land gave them a fair idea of which crops to grow, what nutrients to add, how much fertilizer to use, etc. Majority of the farmers benefited from soil testing in their lands. Farmers in Meghot Hala particularly complimented the large-scale levelling work that helped them even out and **increase the production by 1.5 times. After conducting a 2-sample z-test on productivity of bajra, the p-value was 0.05 against a z-statistic of 2.85 (at 95% confidence level), indicating that it is significant.** The detailed calculations are reflected in the Annexure (D). It also decreased the consumption of fertilisers on their land. Installation of sprinklers helped the agricultural community reduce their input cost as reported by 67% of the farmers. **Panchnota farmers remarked that the mini sprinklers saved more than half of the 500 litres of water they earlier required. The enhanced water situation in the villages also helped farmers diversify to cash crops like cotton.**



Figure 10: Community Pond Deepened in Panchnota

4.1.2 Use of Clean Energy Solutions

Providing solar lights at the household level and at community level is an important component of the program. Solar lights were provided to marginalized, landless and widow households as this is economical and provided adequate light to the household. Solar home and streetlights were installed in all the 9 villages of Mahendragarh as part of the project. The home lights distributed amongst the households helped the children in reading and studying, thereby increasing the study time in the evening hours for more than 40% of the respondents. The streetlights erected at central locations provided good and improved lighting to the village population increasing mobility of women during evening hours.

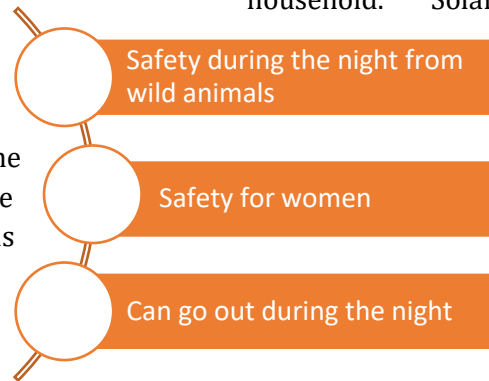


Figure 11: Benefits of Solar Street Lights

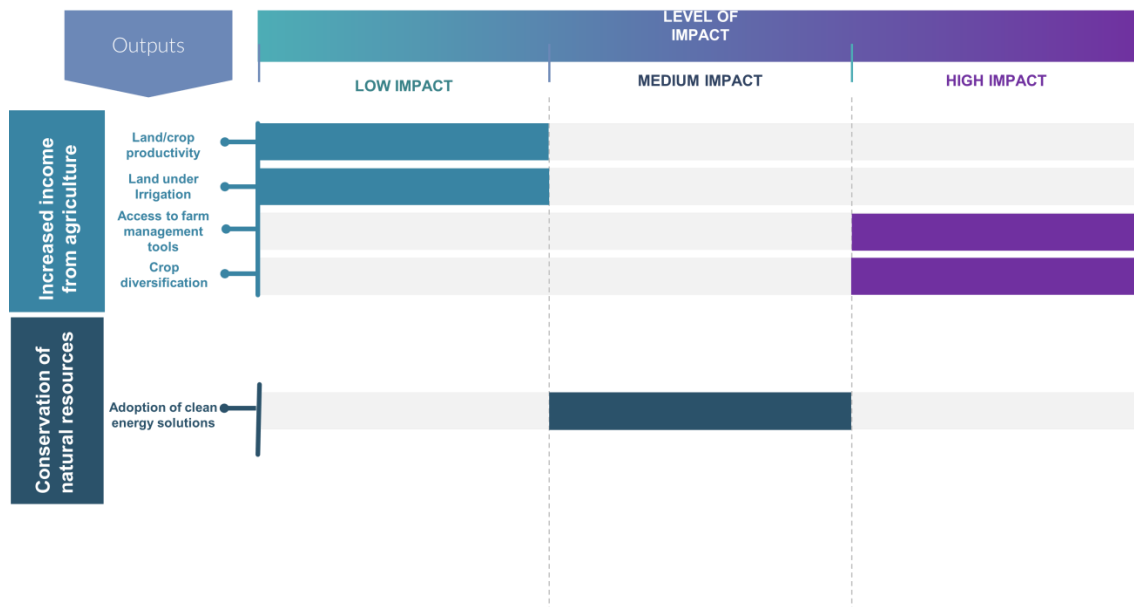
Figure 12: A Solar Light Installed in Bayal



100% of the respondents in the quantitative study were satisfied with the solar lights. However, a few of the solar lights in the villages had stopped working in the last year due to a lack of repair and maintenance, as pointed out by 40% of the respondents.

4.1.3 Impact Observations

Figure 13: Level of Impact - NRM



Under NRM, access to farm management tools and crop diversification have shown high impact. Major work was done with respect to soil testing and levelling, with 328 and 1060 beneficiary farmers respectively. The conservation of natural resources and adaptation of clean energy has shown moderate impact as it requires continuous support to the communities for ensuring repair and maintenance of the NR structures and solar equipment. Irrigation and crop productivity has shown low impact due to consecutive years of drought and low rain fall during the terminal years of the project. However, the beneficiaries acknowledged that the NR assets created will help them in future during a good rain fall year and also supported in saving their crops during interim day spells.

4.1.4 Case Study

Making Farming Profitable to Arrest Migration

Ranjeet Singh had to migrate from his native village of Bayal in Haryana 25 years ago in search of a better livelihood. The lack of employment opportunities, severe scarcity of water and the unproductive land, all drove him to the city of Gurugram. Living on rent in a congested colony of the millennium city, he often longed for the simplicity of his village. He despaired at leaving his family behind. During Covid, when diagnosed with sugar, he returned to Bayal for a brief visit.

Ranjeet Singh at his farm



After returning to his village, Ranjeet became aware of the initiatives undertaken under HDFC *Parivartan*. Villagers shared stories of the increased profitability of farming, which piqued his interest and ultimately influenced his decision to remain in the village. Utilizing his land, he started cultivating a diverse range of vegetables including brinjal, cucumber, chilly, and ladyfinger. In addition, he devoted an acre to cultivating black wheat, a crop that commanded a significantly higher market price compared to the traditional grains grown in the area.

His knowledge expanded through exposure visits to a nearby vegetable research institute, where he gained insights into the latest agricultural innovations. Armed with this newfound expertise, **his 4-acre landholding transformed into a source of biannual income amounting to Rs 1.5 lakhs, adequately meeting his family's needs within the village.**

Notably, efforts to enhance the village's water infrastructure yielded substantial results. **Interventions in the village pond led to a remarkable increase of 10-15 feet in the water level, providing relief from the chronic water scarcity that had long plagued the community.** Furthermore, the introduction of mini sprinklers as part of the project significantly curbed water consumption on Ranjeet's fields. This not only sustained his crops but also enabled him to sell surplus water to neighboring farmers, fostering a spirit of mutual support.

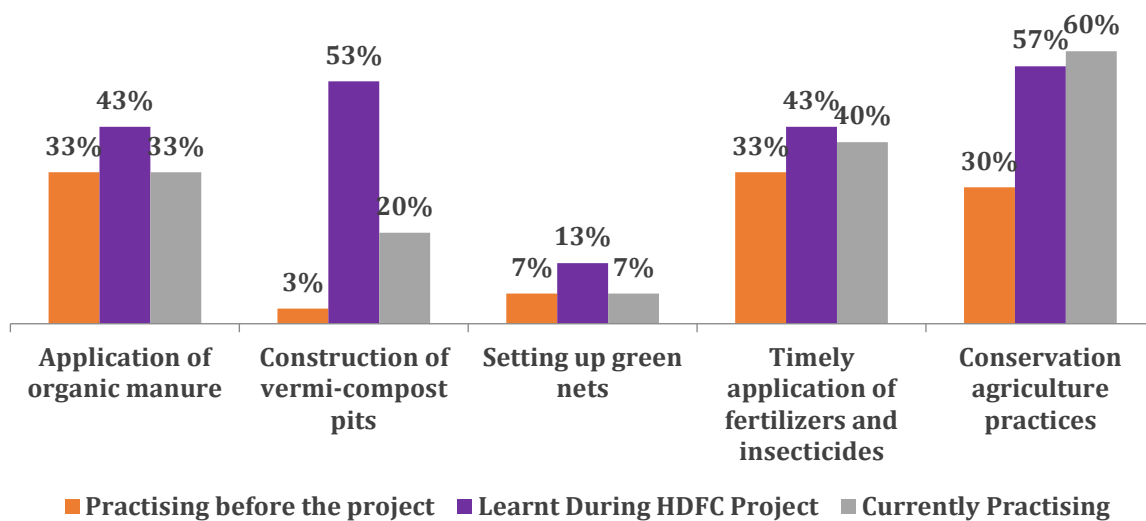
While his total income is not significantly higher than what he used to earn at Gurugram, he has no plans of returning to city life; “working on the field gives me immense satisfaction. I would further like to explore new crops like mushrooms”, he says.

4.2 Skill Training and Livelihood Enhancement

4.2.1 Access to Agriculture Training and Services

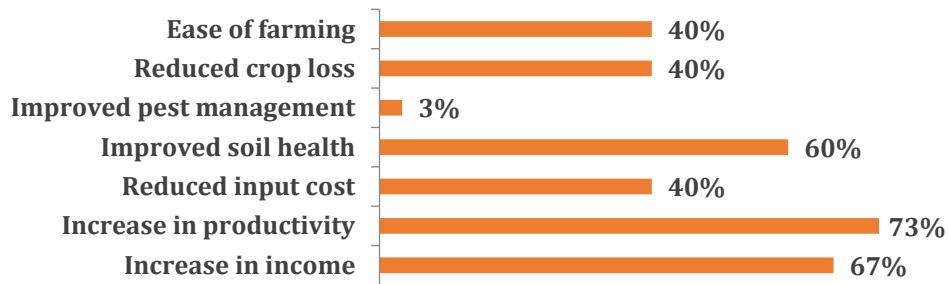
A total of 7 Farmer Field Schools (FFS) were established in 7 villages under the project where one acre of land was taken as demonstration plot to show various cropping practices to the farmers. These demonstration fields acted as a in-situ training ground for other farmers to learn of the latest innovations in agriculture. In addition, farmers were taken on exposure visits (13 visits) to Hisar and Delhi where they learnt new information and technologies on agriculture. Multi cropping and inter cropping techniques were demonstrated in these villages to improve crop production. 1345 Farmers were provided Package of Practice (POP) kits of Mustard, Millet, Cotton, Wheat and Gram to grow in their own field based on the training and exposure that they received. Initiatives were also taken with respect to promoting organic farming by distributing compost kits to the farmers and making them aware to apply this compost in their agricultural field.

Figure 14: Respondents Practising Different Activities Before, During and After the Interventions



Agricultural training and support greatly benefitted the farmers with 80% of the beneficiaries claiming that the interventions were very helpful. More than 70% of the farmers believed that the training improved their capacity to increase production. 40% of them also credited the learnings to reduce their input cost. The quantitative data showed an average increase of Rs 57,600 in farmer’s income across the villages.

Figure 15: Perceived improvements due to adoption of agricultural practices



4.2.2 Access to Skill and Entrepreneurship Development

In a bid to empower women, skill training was provided in all the 9 villages under the project. A 'silai' or tailoring centre was set up in each village where women members attended a 3-6 month course on tailoring. Up to 4 batches were run in the centre consisting of 20-25 women. Some women were also supported with sewing machines and furniture pieces at a nominal/ subsidised price for them to set up tailoring shop. 3 months of beautician training was also provided to the women members from the project villages. About three fourth of the women pursued their entrepreneurial journey after the training, opening shops catering to the demands of their village. The remaining one fourth went on to train several other young girls who were looking to upskill.

Figure 16: Skill Training focused on empowering women by helping them start their own enterprise

About 75% of the women who attended the training started operating their own boutiques. 63% of them reported an increase in savings, while another 52% could save more by being independent in their tailoring needs. These training sessions also provided a safe space for women to come together and spend some time outside of their homes, a practice that was unheard of before. The skill development sessions gave the women a taste of independence, where they now feel they are ready to take up embroidery lessons and fashion companies orders. Moreover, the women reported an average monthly income of Rs 2,658 incoming from their tailoring shops/ beauty parlours.

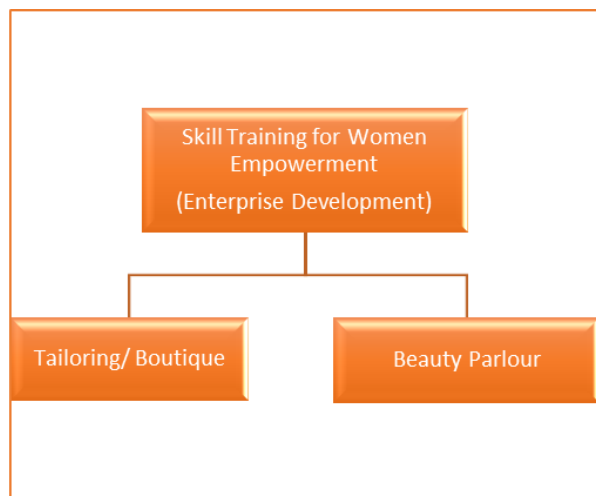
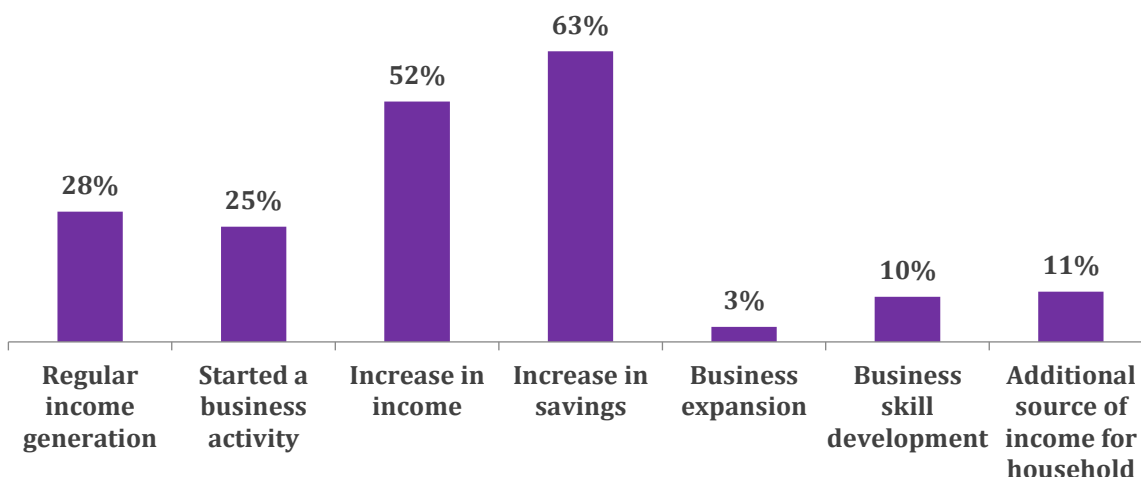


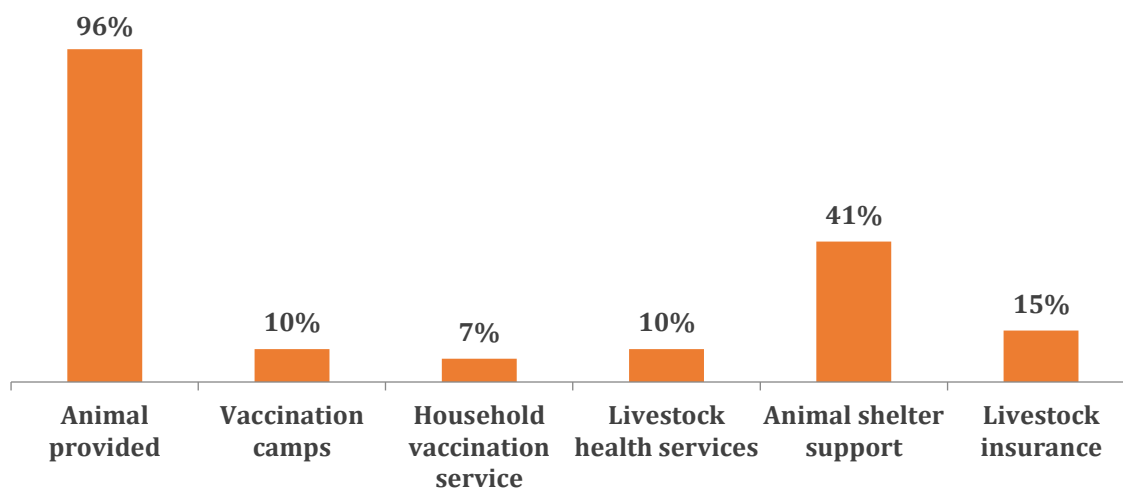
Figure 17: Perceived Benefits of Skill Development and Training of Women in Tailoring & Beautician work



Improved Capacity to Generate Income Through Livestock Management: To support the marginalised, landless households in the project villages, 5 goats were given to each beneficiary household selected under this intervention. The households that nurtured their goats well and could able to multiply the number of goats were also supported with goat shed. A total of 28 animal health camps were organized in all the nine villages. As presented in the chart below, 96% of the households under livestock intervention were provided with animals and 41% with animal shelters to keep their animals safe from theft and adverse weather. However, the support services on livestock such as vaccination, veterinary services, livestock insurance had limited outreach

Figure 18: Livestock management services availed through HRDP with respect to Goats

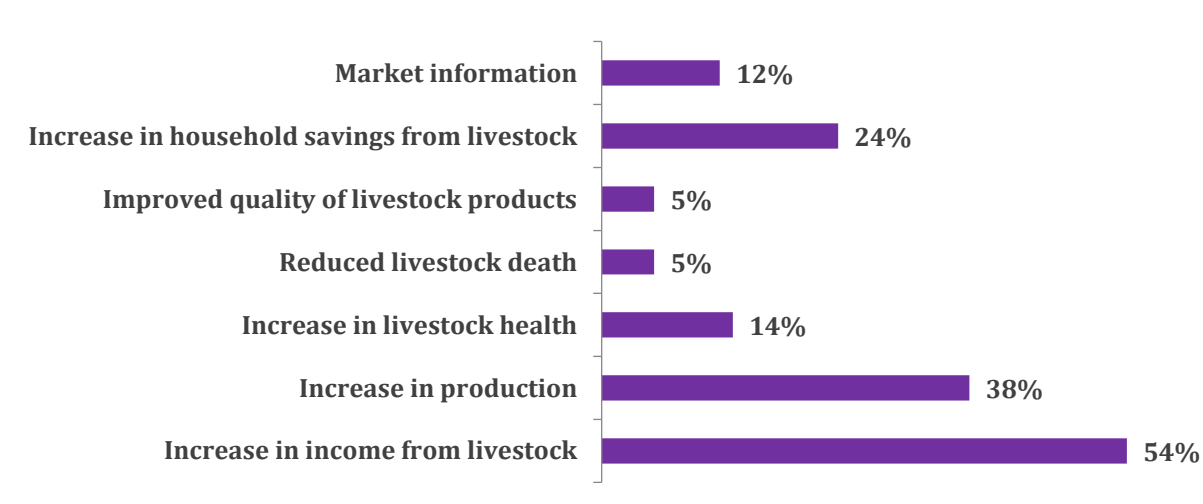
under the project.



54% of total beneficiaries under livestock management reported an increase in income while another 24% noticed an increase in household savings because of this interventions. This is primarily due to women members engaged in the livestock activities at the household level and

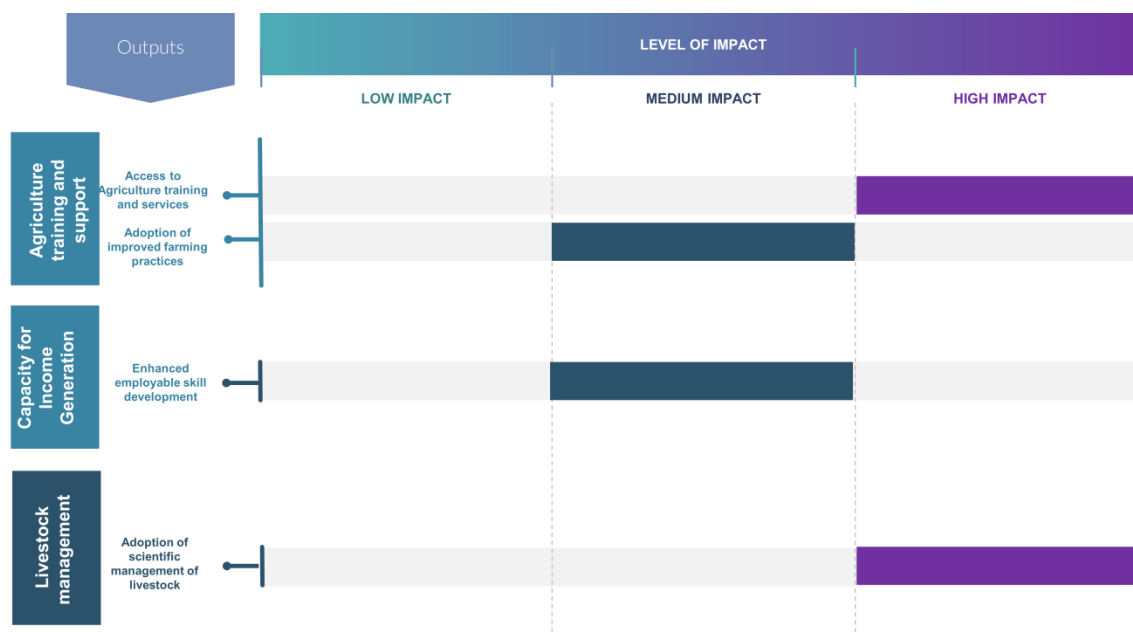
that provided cash income to the hands of women. The beneficiaries receive an additional average monthly income of Rs 4,357 because of the livestock support.

Figure 19: Perceived primary benefits of livestock interventions with respect to goats



4.2.3 Impact Observation

Figure 20: Level of Impact – ST & LE



Access to agricultural training and services was a primary focus area and has shown high impact under ST&LE. Exposure visit, field trainings, FFS, PoP training and others were conducted at large scale, as can be seen in Table 6: Quantum of Activities under each Activity Category of Four Thematic Areas. High impact is also seen in the adoption of scientific management of livestock where the project interventions like construction of goat shades, vaccination, animal health camp, livestock insurance etc. have attributed to the impact.

4.2.4 Case Study

Transforming Agriculture: Ramji Lal's Success Story at the Field Farm School

The Field Farm School (FFS) stands as a visionary initiative, meticulously designed to showcase and disseminate pioneering agricultural practices and cutting-edge technologies. Carried under the auspices of *Parivartan*, an acre of land in each of the seven villages has been transformed into an exemplar "model" crop area. This transformation involves the implementation of comprehensive features such as secure fencing, a state-of-the-art drip irrigation system, a precision-engineered poly house, and other essential facilities. The focus is on cultivation of a diverse array of vegetables, including tomato, sponge gourd, cauliflower, watermelon, chili, and cucumber, employing the strategic intercropping technique.



The commendable impact of FFS on enhancing farmers' knowledge, fostering the adoption of advantageous practices, and mitigating the excessive use of pesticides and environmental degradation is well-documented. Among the beneficiaries of this transformative initiative is Ramji Lal, a resident of Panchnota village, who stands as a testament to the remarkable outcomes born from the field school.

Ramji Lal at his FFS, poly house seen in the background

Ramji Lal's agricultural journey spans four acres of ancestral land traditionally devoted to wheat and bajra cultivation. However, the winds of change took root as he devoted a pivotal acre to the FFS programme, a decision that ushered in a transformative shift. Through meticulous cultivation and dedicated effort, he ventured into the realm of high-value crops, including the cultivation of strawberries alongside staples like tomatoes and cucumbers. Crop diversification combined with other innovative techniques resulted in an **exponential surge in his income from the previous Rs 50,000 to an impressive Rs 2-2.5 lakhs**. This newfound prosperity translates to over a threefold increase in earnings compared to the traditional farmer, a feat that speaks volumes of the efficacy of the FFS model.

The strategic benefits of this transition are multifold. Crop diversification leads to a consistent cash flow, as every crop takes different time to mature and be cultivated, This eliminates the need for external borrowing. Moreover, the practice of intercropping serves to mitigate seasonal risks, ensuring sustained agricultural productivity. The introduction of a sophisticated drip irrigation system and innovative mulching techniques has substantially reduced water consumption; this is apparent in the pump operation hours, which have come down from six to one. Polyhouse allows Ramji Lal a controlled environment for seedling cultivation. Furthermore, his resolute commitment to sustainability is evidenced by the inception of a personal compost pit, marking a gradual transition away from conventional fertilizers like urea and DAP.

Ramji Lal's achievements radiate far beyond the boundaries of his acreage, as his farm has become a model for farmers from the neighboring villages. A ripple effect of transformation has been set in motion, as his remarkable success story has encouraged others to also cultivate vegetables. This surge, in turn, augments agricultural productivity, bolsters sustainability efforts, and charts a course towards enduring prosperity for the entire region.

The Field Farm School's profound impact on individuals like Ramji Lal stands as a testament to the power of informed education, strategic implementation, and community empowerment in driving positive change. In the heart of Panchnota and beyond, the flourishing journey of one farmer symbolizes the collective transformation that can be achieved through the convergence of innovative agricultural practices and dedicated stewardship of the land.

Empowering Women through Skill Training: The Success Story of Deepika Beauty Parlour and Cosmetics

Anita and Meena Soni, the dynamic duo behind 'Deepika Beauty Parlour and Cosmetics,' have become a source of pride in their community. With their salon doubling as a cosmetics and tailoring shop, they've carved a niche for themselves in the world of beauty and fashion. Their inspiring journey began after the unfortunate loss of their father, which prompted them to seek a new path.

Sisters Anita and Meena running their beauty parlour and boutique



Seizing the opportunity for growth, the sisters enrolled in a skill training program offered by Sehgal Foundation as part of the *HDFC Parivartan*. This transformative initiative extended to them a 6-month training program in stitching and a 3-month course in becoming skilled beauticians. These training sessions, provided free of charge, equipped Anita and Meena with the foundational knowledge and skills necessary to excel in these crafts. They quickly developed expertise in a range of services including threading, haircuts, manicures, facials, and even bridal makeup. Additionally, their proficiency extended to the realm of fashion, allowing them to create stylish and elegant clothing items. In fact, the blue kurta worn by Anita (seen in the image above), the one on the left, stands as a testament to their creativity and craftsmanship.

Their hard work and dedication culminated in the establishment of their shop in Nangal Choudhary, a bustling town located around 12 kilometers from their hometown of Golwa in Mahendragarh. The lively atmosphere of their location ensures a steady stream of customers throughout the day. **Their efforts yield an income of approximately Rs 15,000 per month, which effectively supports their family of three, including their mother.**

Their accomplishments, however, extend far beyond individual success. During the peak wedding season, when orders for stitching and makeup surge, Anita and Meena extend their reach by employing other women from the community. This not only amplifies their business but also creates new avenues for women to secure better livelihoods. The sisters have become catalysts for economic empowerment in their vicinity, providing opportunities for other women to contribute to their households' financial stability.

Anita with Minu, who she employs when work is more



Their success story is marked by a newfound independence. The sisters no longer have to rely on anyone else for financial support, and they dictate their own work hours. The villagers hold them in high esteem, appreciating their efforts and treating them with respect. This sense of admiration from their community serves as a testament to their remarkable journey and underscores their valuable contribution to society. **“We don’t have to ask anyone for money now. We work the hours we want. People of our village encourage and respect us”, the sisters say.**

Livelihood Support to Uplift the Marginalised

Leelaram, a landless labourer belonging to the Scheduled Castes in Panchnota, faced the challenges of limited income and uncertain livelihood opportunities. However, his life took a positive turn when he became a beneficiary of the HDFC *Parivartan*. In 2019, as part of the project, Leelaram was provided with a total of 5 goats.

This intervention proved to be immensely beneficial for Leelaram, especially during the outbreak of the Covid-19 pandemic. The goats became a source of income for him and his family during these challenging times. Leelaram could sell the goat's milk, which not only provided them with a nutritious food source but also generated additional income.

During emergencies or in times of financial need, Leelaram can easily sell a baby goat for as much as Rs 30,000, or a fully grown goat for anywhere between Rs 50,000 to 60,000. This flexibility and value of the goats as an asset have provided Leelaram with a safety net and financial security. The frequent animal camps organised under the project help him maintain the health of the goats.

As the size of Leelaram's goat herd increased, a goat shed was constructed outside his house under the same HDFC *Parivartan* project. This provided a dedicated space for the goats, ensuring their safety and well-being.

Currently, Leelaram and his family of 7 successfully manage a herd of nine adult goats and four baby goats. The goats not only contribute to their income but also serve as a sustainable source of livelihood. This

project has transformed Leelaram's life, providing him with economic stability and improving the overall well-being of his family.

Goats provided and goat sheds constructed for Leelaram under HDFC Parivartan



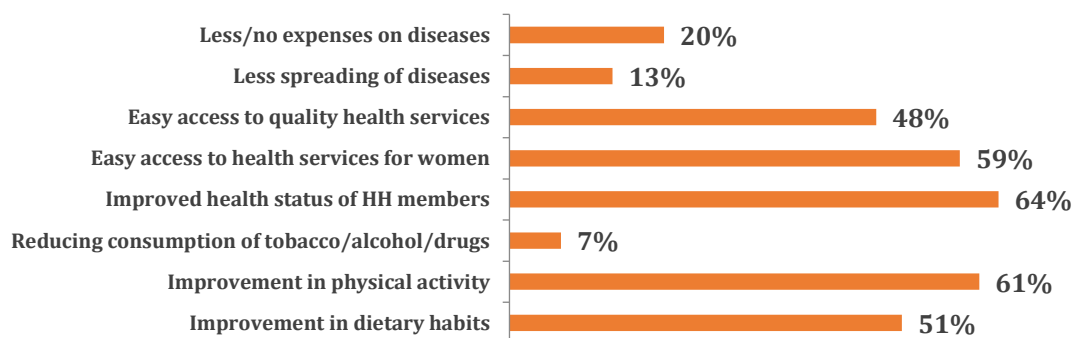
4.3 Health and Sanitation

4.3.1 Health Infrastructure and Services

Under the health and sanitation interventions, 20 general health camps were organized throughout the project duration, featuring multiple doctors specializing in various medical fields attending these camps. These camps provided essential healthcare services such as eye testing and treatment for knee pain which are the most common issues with the old age population living in the villages. Free medicines were distributed to the patients who attended the health camps, and when necessary, individuals were referred to the nearby town of Narnol for further medical assistance & consultation, saving them Rs 200 in fees. Additionally, a female doctor addressed women's sexual concerns in a discreet manner. Furthermore, work was carried out in Anganwadis, where infants up to six months old were provided with health kits, ensuring their well-being.

Almost 80% of the public that attended health camps availed the free medications. More than 25% were referred to a medical specialist out of which 96% went through with the recommendations. In our qualitative interactions, women members expressed their satisfaction on the health services conveniently made available to them in their own village.

Figure 21: Perceived Benefits of HDFC Bank Supported Health Camps/Clinics



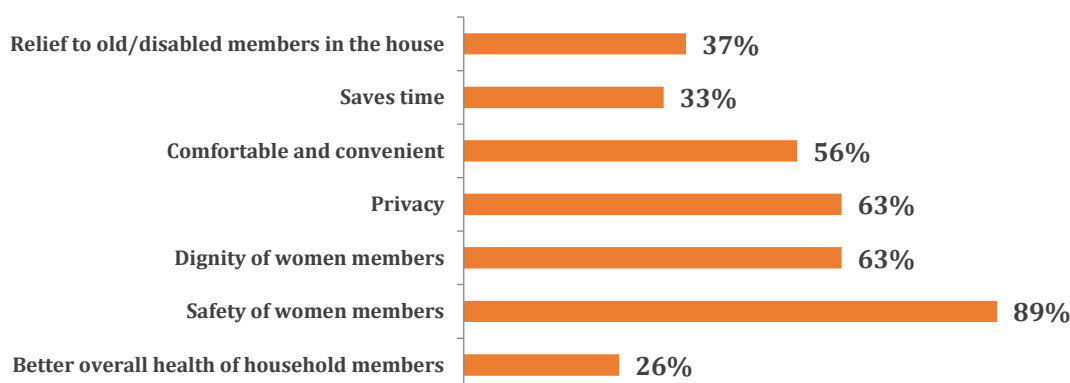
4.3.2 Sanitation Infrastructure and Services

The sanitation initiatives encompassed the construction of community soak pits and toilets for low-income families; 52 community soak-pits were built at common places of the villages and 60 household toilet units were constructed. Additionally, 37 village sanitation drives were

conducted, involving school children and women, to promote proper sanitation practices and hygiene within the community.

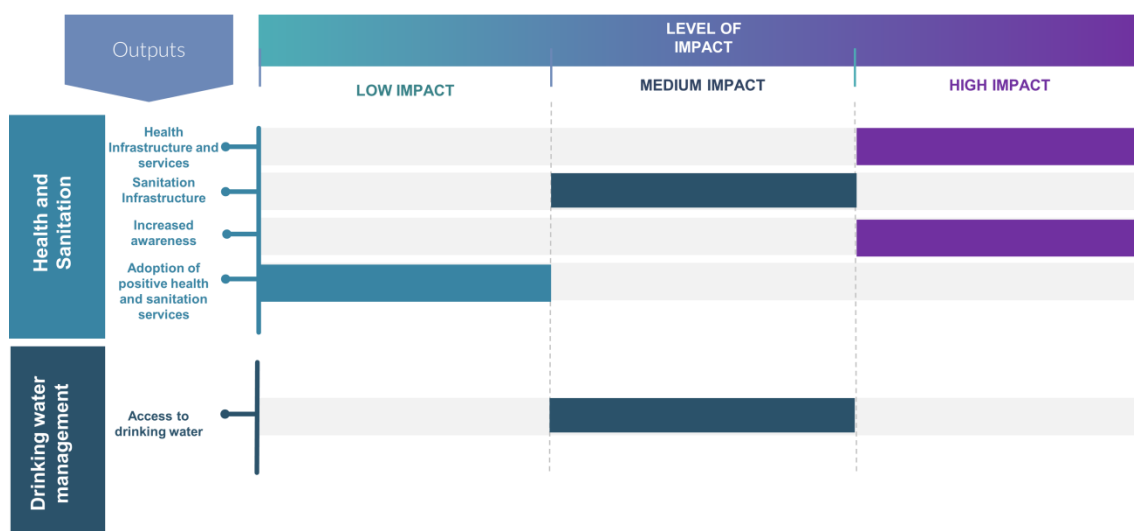
The impact of the sanitation initiatives was significant, with over 50% of the toilet beneficiaries reporting a shift from open defecation practices. Qualitative interactions revealed that women regularly faced challenges in managing their schedules and going outside for toilets. The soak pits proved to be beneficial during rainy seasons and other circumstances. Moreover, the awareness drives yielded positive results, with over 80% of the respondents demonstrating mindfulness towards hygiene practices like handwashing and toilet usage. Additionally, 60-70% of the participants had knowledge about the ideal methods of solid and liquid waste disposal, indicating the success of the awareness campaigns.

Figure 22: Perceived Benefits Sanitation Infrastructure



4.3.3 Impact Observation

Figure 23: Level of Impact - H&S



Under H&S, high impact was observed under health infrastructure and services, with 52 soak pits and 60 toilets constructed under the project. Significant impact was also observed in awareness of the people, albeit the adoption of positive health and sanitation services was a challenge. However, there are moderate impact in sanitation infrastructure and access to drinking water as the interventions in this regard are limited to few beneficiaries without coverage of the entire

village. Adaptation of positive health and sanitation services indicated low impact area, as it involves continuous engagement with the communities along with interventions around behavioural change.

4.4 Promotion of Education

4.4.1 Infrastructure in Educational Institutions

The education initiatives encompassed various activities aimed at improving the educational infrastructure and resources in the nine villages. Separate toilets for boys and girls with a consistent water supply were constructed in 4 government schools. School buildings underwent renovation, and furniture was provided. Creative activities like BaLA painting were encouraged, and the school management committee was revived with regular monthly meetings. Smart digital classroom was installed in Panchnota's government school. Work was also done to enhance the infrastructure of Anganwadi. Students actively participated in sanitation drives, and support was provided to set up a science laboratory, fostering a conducive learning environment.

Figure 24: Perceived benefits from improvements in school facilities/ buildings

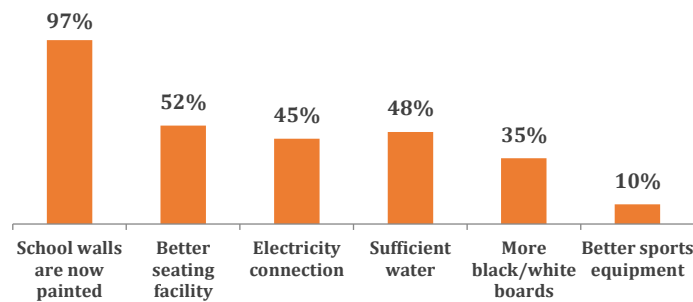
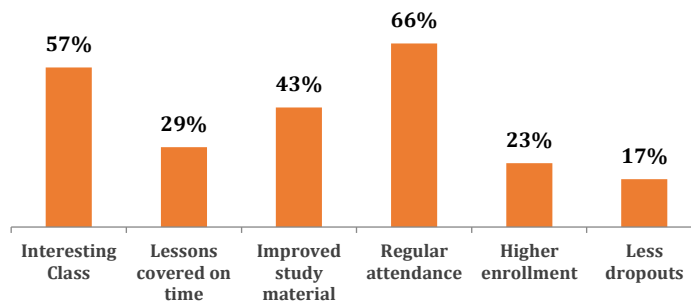


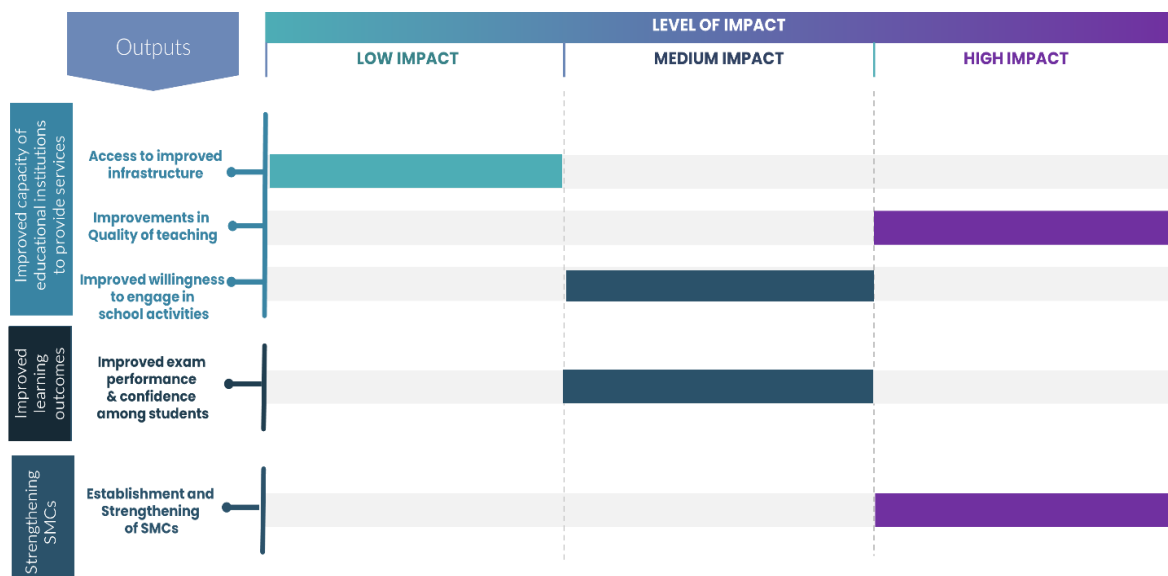
Figure 25: Perceived benefits from improvements in school activities



During the evaluation period, data collection from students and teachers was limited due to summer vacation. However, qualitative research revealed positive feedback from students, who expressed great enthusiasm for learning lessons on the projector. The books provided under the project were prominently displayed in the library, attracting students to borrow and read them, resulting in 88% of the students reporting an improvement in their reading habits. The presence of a separate washroom for girls led to 90% of them being able to attend school regularly. Additionally, the science lab played a crucial role in making lessons more interesting and memorable for the students.

4.4.2 Impact Observation

Figure 26: Level of Impact - PoE



Under PoE, high impact could be seen in quality of teaching and strengthening of SMCs that has resulted in improved willingness to engage in school activities by students and improved performance in the exams which is indicating a moderate impact. Access to improved infrastructure remains an area of low impact, with only 1 school benefiting from infrastructure development activity. The challenges with the school infrastructure is that these are developed or constructed in isolation without considering and aligning with the existing infrastructure of the school.

4.4.3 Case Study

Transformation of Panchnota School

The atmosphere at Panchnota Government School was absolutely buzzing with excitement on the final day before the summer break. Before HDFC Parivartan, the school had 106 students. But now, it had grown to a total of 182 students, all the way from grades 1 to 8.

Panchnota School



The project made some really impressive changes to the school's look and feel. As soon as you step onto the school grounds, you're greeted by signs that show you where everything is. These signs not only make it easy to find your way around, but they also help students practice their reading skills. It's like a fun way of learning while finding your path.

One of the most notable additions was a smart classroom. Imagine a classroom filled with all kinds of modern tools that make learning really exciting. This special room was designed to engage the students in a whole new way. Students

remarked that this enabled them to visually understand concepts like the solar system. And to make sure everyone had a comfortable place to sit, they added 70 benches. No more sitting on the ground!

But that's not all – they built separate toilets for the boys and girls. This was a big improvement, as it meant that everyone had access to clean and proper bathrooms. The toilet, shaped like a bus, was called 'Swachhata Vahini', 'vehicle of hygiene'. The school's roof got fixed up too, so no water would leak in during the rainy season. And the stage where students perform and have fun got a makeover. It was like a fresh start for all the creative and fun things that happen on that stage. The walls also got a splash of color and creativity with vibrant paintings that just made the whole place feel alive and exciting.

A bus shaped toilet known as 'Swachhata Vahini' (vehicle of hygiene) constructed at Panchnota School



The implementation team also understood the importance of reading. So, they brought in a whole bunch of Hindi storybooks – 450 of them! This was like giving a gift of stories to the students, encouraging them to love reading even more. A designated reading room cum library was made, where storybooks were displayed all around. This was done to attract the students, especially younger ones, who could conveniently fetch a book and start reading. And to keep everyone healthy and hydrated, drinking water connection was regularised. This meant that students and teachers could have safe and clean drinking water whenever they needed it.

The project didn't just make changes to the physical things in the school. They also made the school management stronger. Records of regular meeting of the School Management Committee (SMC) were maintained. SMC consisted of school and parents representatives who ensured that the interests of all the students were taken care of. This was like giving the school a strong foundation to keep growing and improving.

All in all, Panchnota Primary School transformed into a more lively and wonderful place for everyone there – students, teachers, and visitors alike.

4.5 Holistic Rural Development Index (HRDI)

There are multiple dimensions involved in achieving the goals HRDP that includes agricultural production, generates new jobs, enhances health, increases communication, and provides better living infrastructure.

Based on the design of the HRDP program supported by HDFC Bank, a composite index has been developed called Holistic Rural Development Index (HRDI) that indicates the achievements of the HRDP interventions leading to overall improvements of the results indicators. As, the program interventions varies across projects and geographies, it was not possible to ascribe a single impact indicator that might be able to accurately capture the overall performance of HRDP. Thus, HRDI serves the purpose of quantifying the impact through blending of results of various indicators grouped into four thematic areas.

For calculation of HRDI, the values of the impact indicators at baseline and endline were selected and assigned weights based on their relative contribution to the final expected outcome across four themes. Depending upon the variations in the interventions made in each project, the HRDI customized to accommodate the most significant results that attributes to the goal of the HRDP program. The detailed methodology and indicators are explained in detail (see Annexure B).

The HRDI calculation for project P0250 implemented in Mahendragarh has been given in the following table.

Table 6: HRDI Calculation for P0250

Domain	NRM		Skill		H&S		ED		Total	
HRDI Score	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
		0.08	0.08	0.10	0.17	0.11	0.22	0.20	0.24	0.29
% Change	-		70%		100%		20%		141%	

While the overall HRDI has 141% increase over baseline, the impact observed to be high in Health & Sanitation with 100% increase over baseline and under skill training and livelihoods with 70% increase over baseline. NRM indicates no growth due to the crop loss made by the farmers during the terminal year of the project.

5 Analysis of Assessment Criteria

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

- Relevance and Convergence
- Impact and Effectiveness⁶
- Sustainability

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

5.1 Relevance and Convergence

Haryana is predominately an agricultural state and farming is the main occupation. Most of the labour force in Haryana depends on agriculture, not because it is remunerative but because there are no alternative employment opportunities. The literacy rate in Haryana is 67.91%, with a stark difference in the literacy rates of men (78.49%) and women (55.73%)⁷. Mahendragarh district of Haryana is one of the most backward areas of the country, notified by the Ministry of Panchayati Raj in 2006⁸. Additionally, Mahendragarh district suffers from acute shortage of water. According to Ground water cell of Government of Haryana, 2006, the district was facing severe problem of declining groundwater table. The district has reported maximum annual decline in water table in Haryana which was 39 cm per year from 1974 to 2001⁹. Cognizance of this, the interventions made in the program area across the thematic areas are relevant particularly the NRM activities focused on irrigation, solar lighting, agriculture etc. Major work under HDFC *Parivartan* focused on reviving agriculture and making it remunerative, while taking steps to arrest the depleting water resources. Focus on women empowerment through skill development is also a step in the right direction within the context of Haryana.

The evaluation observed that there was convergence with the existing schemes of the government particularly in the areas of natural resources management. This implies that the programs were designed to work in harmony with the ongoing government schemes and initiatives. National schemes like MGNREGA and state specific initiatives of the horticulture department were made use of.

5.2 Sustainability

The material support under the project is accompanied with awareness campaigns and training schedules, educating the beneficiaries on the need and relevance of work done. The impact of the interventions has been demonstrated to ensure that the same was adopted willingly by the beneficiaries. Hence, even a year after the project ended, the results of the interventions are still visible. This indicates that the majority of the activities undertaken during the project have achieved sustainability and continue to benefit the population (see Annexure E).

⁶ While from an evaluation perspective impact and effectiveness are two different aspects, in the report, these are used interchangeably.

⁷ https://www.ijmra.us/project%20doc/2018/IJMIE_FEBRUARY2018/IJMRA-13300.pdf

⁸ JC Review. (2021). Impact of MNREGA on Women Empowerment: A Study of Mahendergarh District (Haryana). JC Review.

<https://www.jcreview.com/admin/Uploads/Files/61cd8cd4581ff1.96578764.pdf>

⁹ ResearchGate. (2018). LAND SUITABILITY AND SUSTAINABILITY OF CROPS IN MAHENDERGARH DISTRICT, HARYANA. ResearchGate.

https://www.researchgate.net/publication/326914878_LAND_SUITABILITY_AND_SUSTAINABILITY_OF_CROPS_IN_MAHENDERGARH_DISTRICT_HARYANA

The work conducted under NRM had a strong emphasis on water conservation. The deepening of 11 ponds has proven to be highly effective in collecting rainwater and recharging groundwater, contributing to a rise in water levels, as reported by the respondents. Majority of the solar lights installed continue to function, with the community occasionally taking responsibility for their maintenance if the Panchayat fails to do so. The structures for irrigation, water and farm management as well as for clean energy have been established, with people understanding its usage. In case of irrigation and farm interventions like installation of sprinklers, soil testing, levelling, mulching etc, the population has the technical know-how; they recognize that levelling evens out the land productivity and sprinklers conserve water.

Under ST&LE, the project made significant strides in supporting farmers and introducing sustainable agricultural practices. The provision of drip irrigation and sprinkler systems to selected individuals resulted in notable water savings, reducing input costs and encouraging other farmers to adopt these techniques. 60% of farmers are continuing with conservation-based agricultural practices. The success of levelling and bunding techniques inspired many farmers to seek information and implement them independently, leading to measurable improvements in their production. The farm field school played a crucial role in promoting vegetable cultivation among farmers, while exposure visits provided innovative techniques that are still being applied. The demonstrations on the best practices for growing different crops given to almost 1,425 farmers made valuable information accessible to them. Additionally, the project successfully introduced cotton farming, a previously unfamiliar practice, to the farmers.

The skilling of women through tailoring and beautician training has yielded remarkable results. 45% of the women who received the training have established their own shops within their villages. Additionally, numerous women remarked in the FGDs that they have started stitching their own clothes, thereby saving costs. The trained women are now imparting their knowledge by providing training to young girls in their communities. As reported by community members, the training has instilled a newfound confidence in these women, enabling them to speak about their work with pride and become more independent in their daily lives.

The animal health camps have empowered the population with the know-how of various diseases that may afflict their livestock. It has enabled them to maintain their animals well.

On the H&S front, soak pits continue to be used by the community, with 40.7% of the respondents claiming that they dispose of their liquid waste in soak pits. The 60 toilets constructed are in use; 93% of the population considers using toilets instead of open defecation as a cleanliness measure one must practice daily. 74% and 63% of the respondents are aware of solid and liquid waste disposal practices, respectively. However, burning of waste is still a common practice.

Under PoE, the infrastructural improvement of the local government school continues to aid students in their learning outcomes. The separate toilets made in two village schools have enabled students to attend school regularly, as reported by 93% of the respondents. The observation at Panchnota school confirmed that the renovation done to the school building, including roof repair and construction of stage, library, etc was intact. However, the interview with the teacher pointed towards limited use of the smart class, owing to electricity fluctuation in the village. The infrastructure and its usage are continued with the technical know-how and proper maintenance.

While the project interventions are sustaining in varied manner based on the adaptation by the communities, the institutional infrastructure created have issues in continuing the processes without continued support. The Village Development Committee (VDC) constituted during the

initial years of the project is not functional due to the intrinsic challenges of capacity on project management, financial management and synchronisation with the existing institutional setup at the village and Gram Panchayat level.

6 Recommendations

To further improve the outcomes of HRDP in Mahendragarh district of Haryana, the following recommendations are made for the HDFC Bank's *Parivartan* and HRDP teams and the implementing partner, under each thematic area:

6.1 Natural Resource Management

Work done under NRM was comprehensive, with more than 90% of the respondents being satisfied with interventions like land treatment, farm bunding, and installation of drip/ sprinkler systems. 100% of the respondents were fully satisfied with the activity of mulching done on their fields. Under the clean energy solutions, a major challenge was the maintenance of the street solar lights; 40% of the respondents said the lights had stopped working due to lack of repair. The recommendations are made below:

- In cases of assets being allocated as public goods, instilling a sense of responsibility within the community is paramount. Alternatively, a Village Development Committee (VDC) can be further strengthened to take the ownership of these assets.
- In one of the FGDs at Panchnota, it was suggested that the clean energy solutions could be expanded by evaluating the scope of converting non-irrigated land to solar parks.

6.2 Skill Training and Livelihood Enhancement

121 units of compost bed were installed under the project, with 3000 kg capacity each. Even so, application of organic manure and vermicomposting is being continued by only 33% and 20% of the farmers, respectively. The recommendations are made below:

- Understand the challenges faced by the farmers in Mahendragarh in organic farming, provide assistance and support accordingly.
- With respect to the skill and entrepreneurship support provided to women, a general consensus that emerged in FGDs was to explore opportunities by establishing partnerships with fashion brands and bringing in bulk orders for garment production.
- One other recommendation that came from the women was to upskill them in embroidery techniques, alongside the existing training programmes on tailoring.

6.3 Health and Sanitation

The health services were well appreciated by the community; 64% of the respondents reported improved health status of the household members as a result of the health camps. Regarding sanitation practices, while 60-70% of the participants had knowledge about the ideal methods of solid and liquid waste disposal, 56% still dumps solid waste in open areas. Burning of waste is also a common practice, with 22% of the respondents resorting to it for handling their waste. Based on these challenges that were observed, the recommendations are made below:

- Establish waste management facilities at the Gram Panchayat (GP) level to address the sanitation problem.
- Designate specific areas within the GP for waste disposal and establish proper waste collection systems.
- Provide necessary infrastructure and equipment for waste segregation, storage, and treatment at the GP level.

6.4 Promotion of Education

The smart classes introduced in the schools (which made use of a projector), were not being effectively used. The main reason for this was the fluctuating supply of electricity which interrupted the flow of the class. Hence, the recommendations are to:

- Install solar panels at the school to provide a sustainable and uninterrupted power source for the smart class projector.
- Raise awareness among students, teachers, and the community about the benefits of solar energy and encourage environmentally friendly practices.

The study focuses on assessing the impact of the Holistic Rural Development Programme (HRDP) by HDFC Bank, executed through SM Sehgal Foundation in Haryana's Mahendragarh district. It focuses on the program's process, milestones, impact, and challenges. Natural resource management (NRM), skill training and livelihood enhancement (ST&LE), health and sanitation (H&S), and education promotion (PoE) are the primary intervention areas. The assessment framework incorporates DAC criteria such as relevance, effectiveness, and sustainability. With a sample size of 433 beneficiaries, a comprehensive approach involving stakeholders and qualitative and quantitative data collection was used. The findings show that there are positive effects on income, water management, and energy. However, poor weather conditions reduced agricultural income. Skill development increased output and income, particularly for female entrepreneurs. Health services were well-received, sanitation awareness increased, and educational interventions improved student engagement and attendance.

Annexures

A Sampling Methodology

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

A.1 Quantitative Sample Size Calculation

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

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

Where,

N= sample size

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

$Z_{1-\alpha}$ = 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 (*enter number*).

A.2 Quantitative Sampling Methodology

All the nine project villages were selected for the study. The stages of sampling are explained as follows:

Stage 1 – Selection of beneficiaries:

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

Stage 2- Sampling for villages:

Sampling for each village was done using the Probability Proportionate to Size (PPS) method. The percentage of the total number of beneficiaries in a village was taken out from the total beneficiaries. This percentage was then converted into a sample per village. A total of nine villages were covered under the survey.

A.3 Qualitative Sample Size Calculation

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

Since there was no baseline available for this evaluation, recall method was used in the household survey to assess the change that has happened over time. For this purpose, the respondents were

asked to recall the value of critical indicators that they could recall from the time the programme started.

B HRDI Methodology

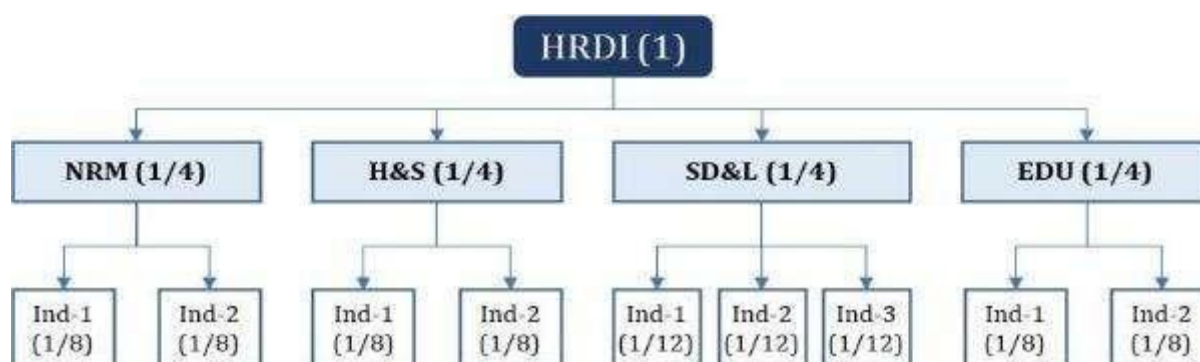
The outcome indicators included in the HRDI were obtained from different domains and are consequently measured on different scales. Therefore, to ensure the comparability of these indicators, all the indicators were converted into discrete variables such that the indicators could be measured between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

B.1 Indicator Weights

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

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

Figure 27: Domain and Indicator Weights



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

Table 7: Example of HRDI Calculation

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

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

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

B.2 Analysis Plan

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

B.3 Method to Calculate HRDI

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

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

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

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

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

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

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

The calculation for Mahendragarh has been detailed below (see **Error! Reference source not found.9**).

Table 8: HRDI Calculation for Mahendragarh

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
NRM	Proportion of farmers with net income above median	0.17	0.08	0.13	0.08	-
	Proportion of farmers reporting increased productivity of three main crops above median (before and after)	0.09		0.07		

Domain	Indicators	Baseline	HRDI	End line	HRDI	% Change
	Percentage of farmers reporting access to irrigation	0.08		0.11		
ST&LE	Percentage of households who are getting skill training & reporting increase in income from job/enterprise/self-employment	0.15	0.10	0.31	0.17	70
	Percentage of HH reporting income above median from livestock	0.24		0.37		
H&S	Percentage of households reporting increase availability of drinking water facility	0.0	0.11	0.0	0.22	100
	Percentage of households with access to improved toilet facility	0.44		0.89		
PoE	Percentage of respondents reporting increased access to functional school physical infrastructure (drinking water posts, separate washrooms, furniture etc.)	0.50	0.20	0.50	0.24	20
	Percentage of respondents reporting increased access to functional learning infrastructure (library, science labs, smart class, etc.)	0.28		0.45		
Total			0.29		0.70	141

C Overview of Impact Calculation

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

Table 9: Impact Calculation

Outputs	Output Indicators		Output Avg	Impact Level
NA. Increased income from agriculture				
Land/ crop productivity	Average change in productivity of crops (3 major crops) grown (quintal per acre)	-17%	1%	Low
	Change in Proportion of households who have irrigated land	0.91%		
	Change in Average Irrigated land in Acre	20%		
Access to the farm management infrastructure	Proportion of beneficiaries satisfied with the quality of available services (in farm management)	99%	83%	High
	Proportion of farmers who use both, chemical and natural fertilizers	89%		
	The proportion of farmers reporting a decrease in the use of chemical fertilizers	61%		
Increased adoption of crop diversification	Proportion of farmers diversifying their crops to kapas (cotton) with project support.	90%	75.81%	High
	Proportion of farmers who report income increase due to crop diversification (base = farmers who adopted crop diversification)	61%		
Land under irrigation	Increased area under irrigation	20%	17.72%	Low
	NA (4). (b). The proportion of farmers who received support for irrigation	15%		
Increased use of clean energy solutions				
.Adoption of clean energy infrastructure	Proportion of HHs using clean energy infrastructure (Base=all)	36%	53%	Medium
	Proportion of households fully satisfied from using clean energy infrastructure (Base=clean energy beneficiaries)	70%		
Improved access to agricultural training and services				
Access to Agriculture training and services	Proportion of farmers who reported project training services are useful	100%	75%	High
	Proportion of farmers who demonstrate awareness regarding sustainable farming practices	50%		
Adoption of improved farming practices	Proportion of farmers who continue to practise conservation agricultural practices	60%	67%	Medium

	Proportion of beneficiaries reporting an increase in productivity due to better farm management	66%		
	Proportion of farmers reporting increased income	73%		
Enhanced capacity for regular income generation				
Enhanced employable skill development	Percentage of women who accessed skill development training	23%	60%	Medium
	Percentage of women who report improved income through skill development	52%		
	Proportionate increase in average income from enterprise	100%		
	Percentage of women who report increased savings through skill development	63%		
Improved capacity to generate income through livestock management				
Adoption of scientific management of livestock	Proportion of beneficiaries who received support in livestock management services	21%	83%	High
	Proportion of beneficiaries reporting an increase in income from livestock management (goats)	51%		
	Proportion of beneficiaries reporting improved livestock health	61%		
	Proportionate increase in average income from livestock	200%		
Improved health infrastructure and services				
Establishment/enhancement of health infrastructure and services	Proportion of beneficiaries who gained access to health services	30%	77%	High
	Proportion of beneficiaries reporting lifestyle changes due to improved access	100%		
	Proportion of beneficiaries who availed free medications at camps	80%		
	Proportion of beneficiaries who consulted medical references from camps	97%		
Improved sanitation infrastructure and services				
Establishment/enhancement of sanitation infrastructure.	Proportion of beneficiaries who gained access to sanitation services	7%	57%	Medium
	Proportion of HHs with access to Household/community sanitation units (toilets/bathing enclosures)	75%		
	Proportion of beneficiaries reporting safety of women due to improved access	89%		
H.D Improved awareness and health-seeking behaviour				
Awareness regarding health	Improved awareness regarding cleanliness and sanitation practices	93%	81%	High

and sanitation practices	(Using toilets instead of open defecation)			
	Improved awareness regarding waste management	69%		
Adoption of positive health and sanitation practices	Increase in no. of HHs adopting proper solid waste management practices	19%	29%	Low
	Increase in no of HHs adopting proper liquid waste management practices	37%		
Improved availability and management of water				
Access to drinking water at household and community levels improved	The proportionate number of HHs reporting change in source of drinking water	68%	45%	Medium
	The proportion of households reporting improved well-being due to the availability of clean drinking water.	31%		
Improved capacity of educational institutions to provide services				
Access to improved physical infrastructure	Proportion of students/schools who report gaining access to functioning smart classrooms/ Bala/science labs/libraries/learning aid/furniture/sports equipment	100%	78%	High
	Proportion of schools who gained access to clean and functioning sanitation units/drinking water posts at education institutions	55%		
Improvements in quality of teaching	Proportion of teachers regularly utilizing smart classrooms/libraries/science lab (Regularly= Everyday+ Most days)	67%	53%	Medium
	Proportion of students who regularly use smart classrooms/science labs/ libraries for lessons ((Regularly= Everyday+ Most days)	38%		
Improved willingness to engage in school activities	Teachers reporting improvements in attendance due to improved infrastructure	67%	89%	High
	Proportion of teachers reporting an increase in enrolment post infrastructure development	100%		
	Proportion of institutions reporting a decrease in dropout rates	100%		

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

D Two Sample Proportions Z Test

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

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

$$z = (p_1 - p_2) / \sqrt{p(1-p)/(n_1 + n_2)}$$

where:

p_1 is the proportion in the first sample

p_2 is the proportion in the second sample

p is the pooled proportion, calculated as $(p_1n_1 + p_2n_2)/(n_1 + n_2)$

n_1 is the sample size of the first sample

n_2 is the sample size of the second sample

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

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

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

- The two samples are independent.
- The two populations are normally distributed.
- The sample sizes are large enough ($n_1p_1n_2p_2 > 10$) (Basically the Central Limit theorem should apply for the sampling distribution of the z-statistic can be approximated by the standard normal distribution.)

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

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

Assumptions:

- Independence: The two samples must be independent of each other.
- Normality: The two populations must be normally distributed, or the sample sizes must be large enough ($n_1p_1n_2p_2 > 10$).
- Binomial distribution: The population does not need to follow a binomial distribution, but the test is more powerful if it does.

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

Table 10: Z - Test conducted for P0250

Indicator	Proportion of farmers with average productivity of bajra above baseline median
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p1 (proportion of first sample-endline)	54
n1 (sample size of p1)	118
p2 (proportion of second sample-baseline)	36
n2 (sample size of p2)	119
p	0.379746835
Calculation	0.063050896
z statistic	2.854836498
	Statistically significant as it is less than our alpha value (0.05)
p-value for the z statistic	0.05

E Theme-wise Sustainability Matrix

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

Table 11: Theme wise sustainability matrix

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