Impact assessment of JALA VIKASA project

Pernod Ricard India Private Limited

June 2024

Price Waterhouse Chartered Accountants LLP

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7. PW have not acted in the capacity of the client management; client had identified qualified personnel responsible for overseeing the project. We have not assigned responsibilities to client personnel. It was the responsibility of the client to identify the core member team who assisted us in this assignment. We have not acted in a supervisory capacity over members of client.
8. Our scope of work, including any advice / assistance, was limited to the scope of services specifically defined in the Letter. We were not responsible for the implementation of our recommendations.
9. We are responsible only for providing options for consideration of client and not make any management decision for selection, prioritization, and implementation of the same.
10. Our work was limited to the samples/specific procedures described in this report and were based only on the information and analysis of the data obtained through interviews of beneficiaries supported under the programme, selected as sample respondents. Accordingly, changes in circumstances/samples/ procedures or information available could affect the findings outlined in this report.

11. We assume no responsibility for any user of the report, other than Pernod Ricard India Private Limited's management. Any person who chooses to rely on the report shall do so at their own risk.

12. Our observations represent our understanding and interpretation of the facts based on reporting of beneficiaries and stakeholders. The recommendations provided may not be exhaustive from the perspective of bringing about improvements in the programme and additional steps/efforts may be required on the part of the management to address the same.

13. The report prepared by PW is based upon the (a) information/ documents provided by Pernod Ricard India Private Limited and (b) data collected during the field visit to the project locations by the PW team. PW performed and prepared the information at the client's direction and exclusively for the client's sole benefit and use pursuant to its client agreement. Our report is based on the completeness and accuracy of the above-stated facts and assumptions, which if not entirely complete or accurate, should be communicated to us immediately, as the inaccuracy or incompleteness could have a material impact on our conclusions.

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List of Acronyms

Acronyms	Full Form
CSR	Corporate Social Responsibility
FGD	Focus Group Discussion
IDI	In-Depth Interview
INR	Indian Rupee
IRECS	Inclusiveness, Relevance, Effectiveness, Convergence and Sustainability
KII	Key Informant Interview
KPI	Key Performance Indicator
LoE	Letter of Engagement
MoU	Memorandum of Understanding
MSP	Minimum Selling Price
OBC	Other Backward Classes
PRIF	Pernod Ricard India Foundation
PRIPL	Pernod Ricard India Private Limited
PW	Price Waterhouse
SC	Scheduled Caste
SDG	Sustainable Development Goals
SHC	Soil Health Card
SHG	Self Help Group
ST	Scheduled Tribe

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Executive Summary

Pernod Ricard India Private Limited (PRIPL) has undertaken various initiatives for communities within and around their operational areas. PRIPL commissioned PW to conduct an **impact assessment of their CSR project 'JALA VIKASA' to evaluate its effects on local communities from 2019 to 2023**.

The assessment involved understanding the project implementation plan and reviewing Key Performance Indicators (KPIs) established by management to measure project outputs, outcomes, and impact. The evaluation framework, known as the Inclusiveness, Relevance, Efficiency, Convergence, and Sustainability (IRECS) framework, was agreed upon with management. The objective of the study was to assess the outcomes and impact created on the stakeholders covered under the project and provide recommendation on the project performance for Management's evaluation. Based on the nature of project, a mixed methodology method was adopted. Interactions were planned for all projects based on the study methodology after mapping the key stakeholders.

Pernod Ricard India Private Limited, in collaboration with Bala Vikasa as its implementing partner, launched the Jala Vikasa project in various districts of Telangana and Andhra Pradesh. The aim was to catalyse positive change within the farmer communities by mobilizing and motivating residents of villages towards water conservation practices, improving storing capacity of current water tanks, establishment of new water conservation structures and promoting tree plantations in villages. The project was able to reach 3,400 beneficiaries over the course of 3 years.

A total of 259 project beneficiaries were surveyed while conducting the impact assessment study along with 10 qualitative interactions with key project stakeholders.

Key findings:

- The project included the most vulnerable sections of the society **with illiterate individuals forming a significant part of the project beneficiaries. 43% of the respondents reported that they have received no formal education**. Associating with the programme has allowed these people to gain much needed exposure and knowledge related to various aspects of water conservation practices.
- **49% of farmers**, due to the lack of proper water harvesting structures, are unable to cultivate crops (Paddy) in the dry season (Rabi).
- **100% of farmers** report that paddy is their main source of livelihood, the lack of water and inability to cultivate during one full (Rabi) season, leads to a loss of income and livelihood among farmers.
- The water holding capacity (of structures constructed prior to intervention) was also less as farmers have unlevelled land (22%) which reduced the efficiency of irrigation causing another challenge.

Mobilization / motivation sessions

Mobilization / Motivation session was conducted in each village that was selected for project interventions, to orient the farmers on need for and importance of water conservation. The total sample of 259 respondents were interacted with and it was reported that,

- **95%** (n=259). of respondents **were aware** of such sessions being conducted in their villages.
- **85% of farmers** (n-247) found the awareness sessions to be beneficial and improved their understanding on water conservation practices. Of those, 98% reported that they are using the attained knowledge in their daily farming.
- The farmers stated that these sessions were helpful in gaining knowledge i.e., **using the attained knowledge** in their daily farming, either by properly **maintaining the water conservation structure** (bore well, farm pond), or by **using fewer chemical fertilizers** (as a result of using silt obtained from de-silting), **knowledge of how silt is a natural fertilizer and can be used as an alternative to chemical fertilizers.**

- Further, the mobilization/motivation sessions helped farmers understand the **importance of mud (obtained via de-silting) in levelling farmland.**

Water conservation structures (Bore well and Farm pond)

Water conservation structures, i.e., Bore well recharge pits and Farm Ponds were excavated to meet the challenge of farmers inability to efficiently cultivate paddy in the dry seasons (Rabi). 111 unique beneficiaries of Bore well recharge pits and Farm ponds were interacted with during the course of the field visit. It was reported that,

- **100% change/ improvement** in cropping cycles (n=111). Farmers who were only able to grow in monsoon season are now able to cultivate in both (Rabi and Kharif) seasons leading to an overall improvement in livelihood.
- **17% decrease in time** taken of irrigation of 1 acre of land (n=111). Earlier on average 6 hours were taken to irrigate 1 acre of land now 5 hours for irrigating one acre of land.
- It was reported by the respondents that on an average, **19% improvement in ground water levels** were observed. Post the project intervention, the average ground water level remains at 145 feet throughout the year with little to no fluctuation. Earlier the ground water level was at an average of 180 feet. Post intervention the water pressure has improved leading to reduced effort in irrigation (n=111).
- **178% improvement in yield of paddy** during Rabi seasons (n=111). Improvement in productivity (yield of paddy) has been a major contributing factor leading to an overall improvement in savings of the farmers (~ improvement of 2 times / 100% improvement).
- Establishment of farm ponds has allowed farmers to rear fish and access an additional source of income. As reported an average farmer earns **INR 225 / adult fish sold** (n=37)**.**

De-silting and bund strengthening

De-siltation of the large village irrigation tanks was essential for multiple reasons. It helped in maintaining the water storage capacity by preventing sedimentation build up, provides silt to farmers an alternative to chemical fertilizers and the excess gravel and sediments dug out were used to strengthen the bunds. A sample of 151 beneficiaries of this activity were interacted with and reported the following,

- **38% decreased in number of chemical fertilizer** (n=151) bags used per acre of land per seasons. Average three bag reduction in usage of chemical fertilizers leading to decrease in expenditure on the same.
- The use of silt, as a natural fertilizer has led to an **improvement in the yield by 4-5 quintals** (n=151).
- Bund strengthening has improved commute between villages.

Key Recommendations:

- Farmers had received information on proper maintenance of farm ponds during the mobilization / motivation sessions. It is recommended to further develop and disseminate comprehensive, long-term maintenance plans for farm ponds, building upon the foundational information provided during these sessions. These plans can encompass regular activities such as periodic de-silting and embankment/ bund repairs, ensuring the sustained functionality and efficiency of the farm ponds.
- Collaborate with NGOs and government agencies to pool resources, share expertise and scale up project impact. For example, linking farmers with the Soil Health Card (SHC) scheme, will allow farmers to get their soil health checked and provide incentive to switch from chemical fertilizers to more natural ones.

A detailed analysis of the assessed impact of all the interventions can be found in the Detailed findings and recommendations section, and recommendations can be found in the section titled Recommendations in the report.

1. Introduction and background

1.1. About PRIPL

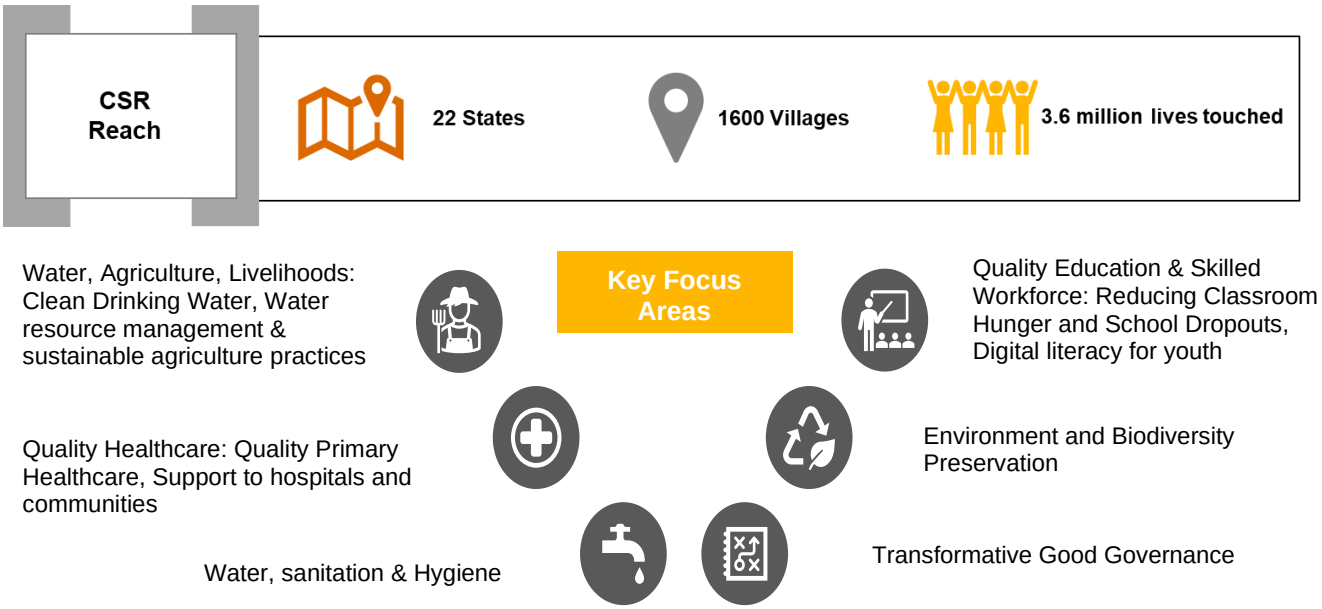
Pernod Ricard India Private Limited (PRIPL) is a leading multinational alcohol beverage company that delivers quality products to its consumers across the country. As an industry leader, it is known for promoting safe and responsible alcohol consumption. To drive its commitment to the cause of Corporate Social Responsibility near its operations and beyond, in areas of special needs, Pernod Ricard India Foundation (PRIF) was formed as a Section 8 Company incorporated under the Companies Act, 2013. PRIPL aims to drive sustainable solutions to address social, economic & environment sustainability while partnering in India's development initiatives.

Through the CSR initiatives, PRIPL aims to address social, economic, and environment sustainability by:

- Delivering on corporate social commitments
- Partnering in India's development initiatives
- Aligning CSR initiatives more closely with our core business

Over the years, the CSR Foundation of PRIPL has worked across several themes as illustrated in the figure. With a strong Plant-based focused approach, PRIPL is actively working with more than 3.6 million people from communities near 22 Plant locations across 22 states in India through 285 programmes[1]. All these programmes are designed in a manner that they can contribute towards the SDGs and national priorities[2].

Figure 1: CSR reach and Key Focus Areas



1.2. About the project

The state of Telangana stood first in the country in terms of chemical fertilizer application per hector of farmland as per a report published by the Reserve Bank of India[3].Additionally, the state faces issues with its water resources particularly evident in fluctuating depths of water in bore wells. As per the baseline report[4] provided by Pernod Ricard India Private Limited (PRIPL), during summer months the average depth in bore wells plunges to ~245 feet below the surface, emphasizing the strain on groundwater levels.

To address the challenges of water conservation and excessive use of chemical fertilizers, PRIPL through their foundation (Pernod Ricard India Foundation PRIF) and with support of **Bala Vikasa (Implementing Partner)**

[1] Pernod Ricard India Foundation website - www.prifoundation.com
[2] Pernod Ricard India website - https://www.pernod-ricard.com/en/locations/india
[3] Memorandum Of Understanding/ Agreement between PRIF and Bala Vikasa (2019-20, 2021-22, 2022-23)
[4] Baseline report shared by PRIPL and Bala Vikasa

launched the **Jala Vikasa project** in various districts of Telangana. The project started in the year 2019 and continued till 2023.

The Jala Vikasa project focuses on the following objectives[5]

1. To mobilize and motivate residents of villages towards water conservation practices.
2. To improve storing capacity of irrigation tanks by renovating them through silt excavation and bund strengthening.
3. To improve soil fertility by silt application and reduce application of chemical fertilizers.
4. To improve water levels in wells for enhanced irrigation facilities and fish cultivation opportunities by constructing farm ponds.
5. To recharge bore wells.
6. To improve green cover in project villages by tree / plant plantation.

Figure 2: Overview of the project

Project Location	Project Duration	Project Beneficiaries
Telangana and Andhra Pradesh	2019 – 2020, 2021 – 2023*	3,400+ farmers

*During the Covid Pandemic activities were halted and programme activities of 2019-2020 were extended to 2020-2021 as per email communication received from Pernod[6]

To meet the objectives mentioned above, the project activities centred around the theme of **water conservation** and the following activities were conducted:

1. Mobilization/ Motivation sessions conducted in each village at project inception
2. Construction of bore well recharge pits
3. Construction of individual farm ponds
4. De-siltation of the large irrigation tanks. The slit obtained from de-siltation was provided to interested farmers for application in their land
5. Tree plantation around farm ponds to improve greenery

1.3. About the implementing agency[7]

Bala Vikasa is a non-profit organisation with multi-sectoral sustainable development interventions aimed at achieving an equitable and just society for all. Founded by Singareddy Bala Theresa Gingras and her husband, André Gingras, a career diplomat with CIDA (Canadian International Development Agency), Bala Vikasa is widely regarded as a Development Innovator committed to Community-Driven Development. Their programmes have impacted over 8 million rural poor in more than 7,g000 villages spanning 7 states over the past 44+ years. Bala Vikasa works in the following thematic areas:

- **Safe Water**
- **WASH**
- **Food Security**
- **Water Conservation**
- **Women Empowerment**
- **Quality Education**
- **Widow Emancipation**
- **Model Communities**
- **Humanitarian Relief**

[5] Memorandum Of Understanding/ Agreement between PRIF and Bala Vikasa (2019-20, 2021-22, 2022-23)
[6] Email communication on confirmation of extension received from Pernod
[7] As taken from Bala Vikas website - https://www.balavikasa.org/Organization

2. Approach and methodology

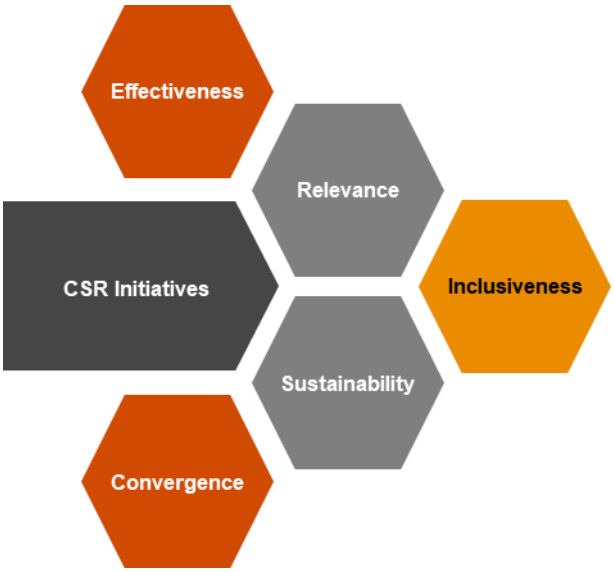
2.1. Scope of work

Pernod Ricard India Private Limited (PRIPL) engaged PW to carry out the impact assessment of their CSR projects with a purpose to evaluate the impact created on the community during the project period of 2019 to 2023. The scope of work includes reviewing the Key performance indicators (KPIs) as defined by the Management under the framework for implementing the CSR project for the outputs, outcomes, and impact of the Project. Inclusiveness, Relevance, Efficiency, Convergence, and Sustainability framework (the 'IRECS') (defined later) as agreed with the Management was used.

The assessment was undertaken using the quantitative and qualitative methods to understand the interventions undertaken under its CSR initiative in mutual discussion with PRIPL. As per the engagement letter signed with PRIPL, the scope of work involved conducting the desk review of the project documents, mapping of key project stakeholders, developing research methodology & impact map, data collection & analysis and report writing.

2.2. IRECS Framework

The impact of the programme was assessed using the IRECS framework. IRECS is geared to provide overall feedback on the efficacy of implementation as well, as its efficiency in terms of achievement of the desired project outputs with reference to inputs. IRECS framework measured the performance of programme on five parameters – Inclusiveness, Relevance, Effectiveness, Convergence and Sustainability.



Overview of areas assessed under each of these five parameters is provided below:

Inclusiveness - Ability of different stakeholders, particularly poorest and most marginalised - to access the benefits of activities, be part of institutions (healthcare / education committees) and derive equitable benefits from assets created.

Relevance - Are the services /inputs /institutions facilitated in the project able to meet community priorities? How was the planning done? Was it participatory? How were the success indicators developed? Was the community involved in development of project indicators?

Effectiveness (& Efficiency) - Have the activities been able to effectively address community expectations? How efficiently have the resources been deployed, monitored, and utilized?

Convergence - Degree of convergence with government/other partnerships; relationship between individuals, community, institutions, and other stakeholders.

Sustainability - Do communities feel ownership over the assets created by the activities and/or will the Project initiated community interventions sustain even after the exit of the funding agency. Are the institutions strengthened adequately to effectively manage and sustain the activities after the completion of project? Has an exit strategy been drafted?

2.3. Overall methodology

Team has adopted a **coherent and integrated approach** to deliver the scope of work of the engagement. The following **4-stage approach** ensured that impact assessment study was carried in systematic and consultative manner:

Inception and Desk review

- Inception meeting and engagement kick off with the PRIPL team
- Building consensus on scope of work, understanding PRIPL's expectations
- Getting a deeper understanding of the projects basis discussion with the PRIPL team
- Desk review of documents and reports related to the project received from PRIPL
- Stakeholder mapping

Planning and tool preparation

- Finalising the data collection plan in consultation with the PRIPL team.
- Finalising key indicators as per the finalized stakeholders for impact assessment in consultation with PRIPL
- Developing data collection tools
- Digitization of the developed tools
- Communicating the data collection plan to the PRIPL team

Data collection and field visit

- Training of field team on tools
- Initiation of field data collection process as follows:
  - Quantitative survey with beneficiaries.
  - In-depth Interviews (IDIs) with Implementation partners and other relevant stakeholders
  - Focused group discussion with beneficiaries, community/ opinion leaders, PRI members, etc.

Data analysis and report writing

- Assimilate the key findings to analyse the data
- Present the draft of the impact assessment report to PRIPL team
- Obtain and incorporate feedback received from PRIPL
- Prepare and submit final impact assessment report to PRIPL

Stage 1: Inception and desk review

An **inception meeting with** PRIPL team was organized to introduce the engagement team and provide an overview of the roles and responsibilities of the project team members. Discussions were also held during the meeting to align on the scope of work including the finalization of projects to be assessed during the first phase of the engagement and further, to finalize sample, timelines, and deliverables.

PW team **requested documents/ information relevant for conducting impact assessment** to develop a deeper understanding of the **projects under assessment**. In this regard, following documents were received from the PRIPL project team for the desk review:

- MoU between PRIPL and respective Implementing Partner (Bala Vikasa) of the project
- Project monitoring reports
- Beneficiary data of project
- Baseline reports
- Closure reports / annual reports

Post receiving the documents, the team initiated the desk review of the projects. Simultaneously, the team also initiated the desk review of the available secondary literature on the prevailing situation of natural resource availability, livelihoods, and social inclusion across the project geographies. This helped the team with the following:

- Develop understanding of the project details
- Mapping of stakeholders to be interacted with during the study
- Selection of study geography and finalization of sampling plan for primary research
- Strengthening our understanding on the socio-economic and demographic scenarios in the select geography
- Understand the relevance of the intervention with local problems, and national and state priorities
- Understand the coherence of the programme with other similar interventions especially government schematic assistances

Stage 2: Planning and tool preparation

Post mapping of key stakeholders in the previous phase, the study design comprising of a **mixed methodology (combining both quantitative & qualitative aspects) for projects was finalised.** Quantitative research was used to capture the value of the selected indicators whereas qualitative research helped in validating the quantitative findings and understand the rationale and reasoning behind them. The adopted sampling methodology for the impact assessment is described below:

Quantitative Research

Basis the data shared by Bala Vikasa team; it was understood that **~3,400 farmers** have been covered under Jala Vikasa project. A sample of **259** was estimated at a 90% confidence level and 5% margin of error. The total respondents were selected across 3 districts (Medchal, Medak and Sanga Reddy) where all three major activities (bore well recharge pit construction, creation of farm ponds and tank de-siltation) were undertaken through the project.

The sample size for quantitative research was calculated using the following:

$n' = n/1+ \{[z^2 * p (1-p)]/m^2*N\}$

where the parameters are.

- n' – sample

- Z is z score depending on Confidence Level (in this case = 90% and z = 1.645)
- $n = z^2 * p(1-p)/m^2$
- N = population size (depending on individual projects as obtained from each project MoU)
- M = margin of error (5%)
- p = population proportion (considered as 50%,0.5)

The distribution of the respondents **(for quantitative interactions, conducted using questionnaire developed by PW)** across different activities is provided in the following table

Table 1: Sample coverage of Respondents

District	Borewell recharge	Activity – De-silting and bund strengthening	Activity – Construction of farm ponds	Total
Medak	14	109	83	206
Medchal	4	37	2	43
Sangareddy	1	5	4	10
TOTAL	**19**	**151**	**89**	**259**

Qualitative Research

In addition to the respondents interacted during the quantitative study, the key stakeholders were mapped for the project based on the desk review. PW team conducted Focus Group Discussions (FGD), In-Depth Interviews (IDI), and Key Informant Interviews (KII) with the selected stakeholders to capture their perceptions related to the respective projects. The following stakeholders as shown in the below table were interacted as part of the qualitative research.

Table 2: Interaction with Respondents

Stakeholder	Type of interaction	Number of interactions
Beneficiaries of water conservation structures, motivation sessions, fisheries, tree plantations	Focused Group Discussion (FGD)	6 (2 per district)
Project team from Bala Vikasa	In-Depth Interview (IDI)	1
Panchayat members	Key Informant Interview (KII)	3 (1 per district)
TOTAL		**10**

Stage 3: Data collection and field visit

Before starting the quantitative and qualitative survey, a training of field team was conducted to make them familiar with the project activities and the tool. The field investigators/ enumerators were sensitized and trained beforehand for ensuring smooth interaction with the community. The field visits started with mobilizing the stakeholders at the field which was done in consultation and support of PRIPL and its implementing partners: to capture the present conditions of the stakeholder's and their perceptions towards the project activities. Data collection process was done through in-house research team. The team conducted survey, IDIs and FGDs in

the sampled locations as per the finalised sampling frame and used tools to capture the data. The team collated the quantitative data and summarised the key findings from the qualitative part of the study.

Stage 4: Data analysis and report writing

The next step was to clean the quantitative data in order to initiate the analysis process. Post cleaning, data was reviewed and triangulated with the qualitative findings. The team then generated the data tables and started analysis of the key data points. Accordingly, draft impact assessment report was prepared and shared with PRIPL detailing the process adopted, the results, key findings, and suggestions. Basis the inputs received from PRIPL, the report was finalized and submitted for the Management's consideration.

3. Detailed findings and recommendations

This section of the report highlights the key findings of the impact assessment study of Project Jala Vikasa as per each of the activities and interventions. It provides a basis for IRECS analysis and recommendations for the project.

3.1. Profile of the respondents

Among the 259 respondents interviewed, **88% were male and 12% were female** as depicted in figure below. The **average age** of respondents was **46 years** with the highest percentage i.e., 31%, belonging to age bracket of 40-49 years followed closely by 25% belonging to age bracket of 50-59 years. A majority (56%) of respondents belong to the Other Backward Classes (OBC) category. The following figures provides a snapshot of the respondent's profile.

Figure 3: Gender of respondents (n=259)

88%

12%

Figure 5: Social category of respondents (n=259)

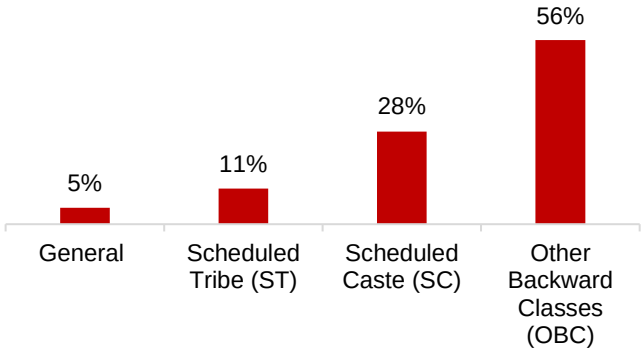
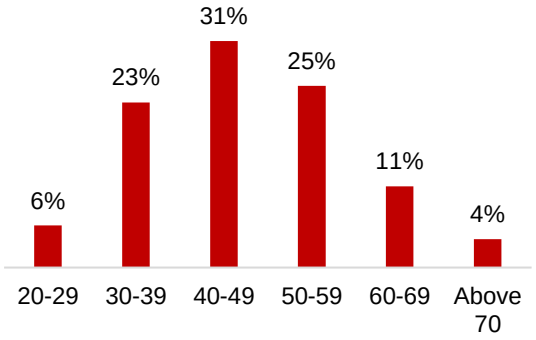
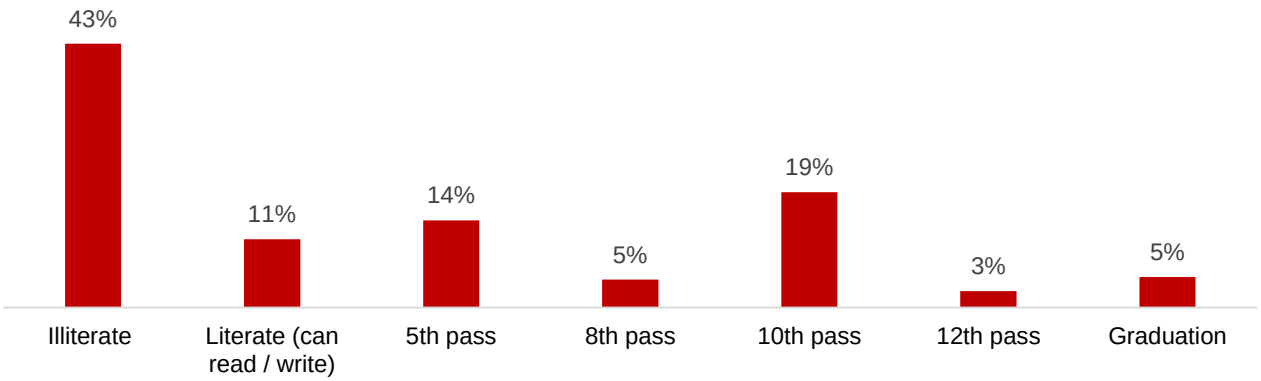


Figure 4: Age profile of respondents (n=259)



When asked about their education level, **43%** of the respondents shared that they have received **no formal education**. 10th pass was the highest level of education attained by 19% (n=259) of the respondents. As mentioned by the Bala Vikasa team, farmers in this region are mostly illiterate, thereby facilitating the need for mobilization / motivation sessions to bring about awareness to farmers on need of water conservation practices and less dependency on chemical fertilizers.

Figure 6: Education levels among the respondents (n=259)



It was reported that 97% of the respondents were married, and the average number of children per married couple was reported as 3.

Agriculture was reported as the major livelihood activity across the 3 districts with **100% (n=259) respondents reported of being indulged in agricultural activities** as their primary source of income. **The median**

landholding capacity of farmers was reported as 2 acres (small/marginal farmers) (n=259). In addition to primary source, it was reported during FGD's that some farmers are also dependent on secondary sources for income such as non-agricultural labour, farm labour and running small business (shops, stalls). However, the amount of income generated via the secondary sources was proportionally lesser compared to amount earned via primary source of income, i.e., cultivation / agriculture.

3.2. Mobilization / motivation sessions

3.2.1. Need for the intervention

As mentioned by the Bala Vikasa team, the farmers in this region of Telangana have been cultivating paddy for generations, which is a **water intensive crop**. However, due to the region's **semi-arid climate and frequent drought conditions**, adoption of water conservation practices among farmers was crucial. These sessions were crucial in empowering farmers in fostering water conservation practices. Through these sessions, farmers were able to understand the benefit of water conservation practices and would then approach Bala Vikasa team to understand how they can go about implementing such practices in their own farmland to improve productivity. Panchayat members from Medak district reported, that through these sessions, farmers would become **aware of their own roles and responsibilities** and be oriented on the activities (de-silting of tanks, process of acquiring silt, creation of farm ponds, tree plantation etc.) that would be implemented in their village.

3.2.2. About the intervention

As was understood from interactions with Bala Vikasa, one major Mobilization / Motivation session was conducted in each village that was selected for project interventions. These sessions were conducted to orient the farmers on need for and importance of water conservation.

During these sessions farmers would get information on:

- Importance of water conservation.
- What type of activities / structures can be built for efficient water conservation.
- What the roles and responsibilities of farmers would be during the course of the project and post completion of project.
- Importance of using fewer chemical fertilizers and using silt as a substitute.

Figure 7: IEC material from sessions

While these orientation sessions were the major source of awareness generation, some smaller sessions were also conducted in villages, along with distribution of IEC material (as shown in the figure on the right) when the need arose.

As reported, **95%** of respondents **were aware** of such sessions being conducted in their villages (n=259). 80% of the above respondents stated that they personally attended these sessions, and it was beneficial in **instilling** in them the **importance of water conservation** and being **less dependent on chemical fertilizers**. On average 2 such sessions were attended by each farmer.

It was noted during interaction with Bala Vikasa that these sessions would in turn prompt many farmers to adapt water conservation practices in their own farms. The mobilization was done for selection of farmers who are interested in being part of the project. Following flow chart provides an overview on how the farmer would be influenced via these sessions to adapt water conservation practices and be a part of the project.

Farmers would hear about the importance and would go on exposure visits to other villages where water harvesting structures are already built / where de-silting in underway and silt is being provided to farmers.

Farmers interested in being a beneficiary would submit their details to local panchayat, who would then submit to Bala Vikasa team.

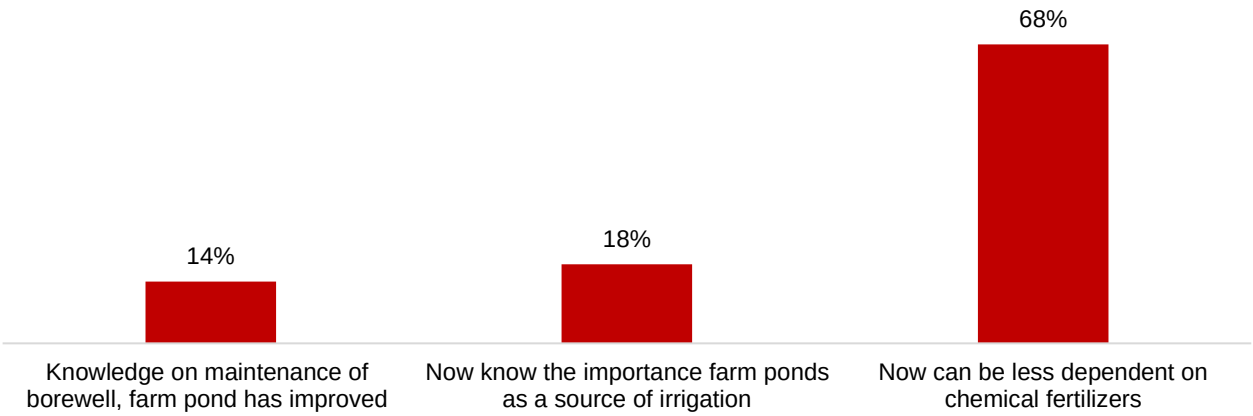
Bala Vikasa team would approach interested farmers to understand need and scope out area for farm pond or bore well recharge pit. In case of silt, the farmer would collect from the irrigation tank using a hired tractor.

3.2.3. Impact of the intervention

Farmers who attended the sessions or knew about these sessions (through another family member who had attended), reported that **85% of them found the sessions to be beneficial and improved** their understanding on water conservation practices (n=247). Out of those who found the session to be beneficial (n=210), **98% reported** that they are **using the attained knowledge** in their daily farming, either by properly **maintaining the water conservation structure** (bore well, farm pond), or by **using fewer chemical fertilizers** (as a result of using silt obtained from de-silting), **knowledge of how silt is a natural fertilizer and can be used as an alternative to chemical fertilizers**. The following figure depicts the knowledge gained by farmers during the sessions.

Also noted during focused group discussion with farmers was that in-spite of their lack of education, how the mobilization/motivation sessions helped them understand the **importance of mud** (obtained via de-silting) **in levelling farmland**.

Figure 8: Knowledge gained via training sessions (n=210)



3.3. Water conservation structures

3.3.1. Need for the intervention

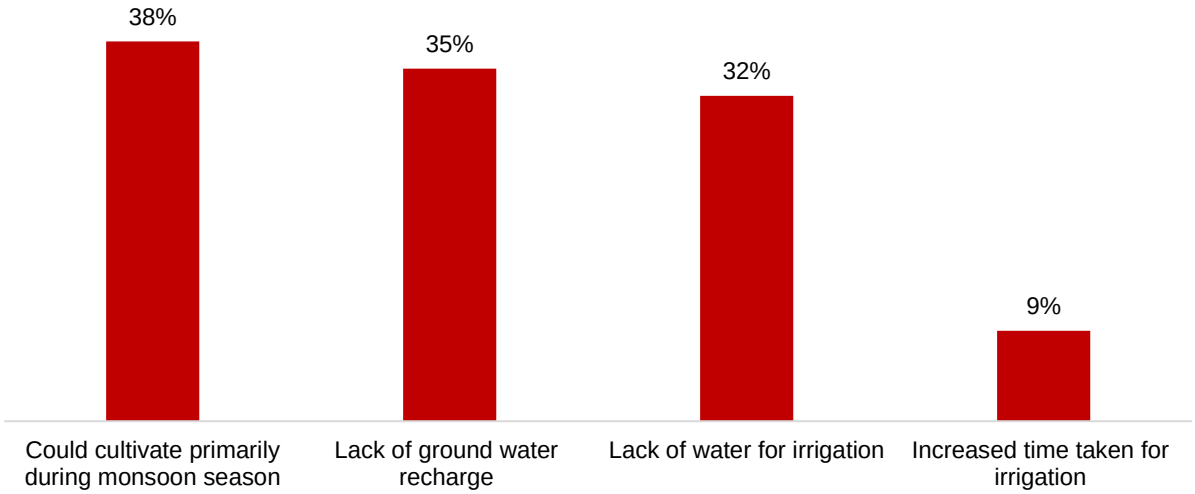
As reported by **49% of farmers**, due to the lack of proper water harvesting structures, they were unable to cultivate crops in the dry season (Rabi – Yasangi). They highlighted that the lack of availability of water for irrigation (during Rabi) hindered them from cultivating crops over their total cultivable land affecting their income generation potential.

The ground water level prior to the intervention was reported as approximately **180 feet**. During the months following monsoon rains, the water level used to rise to an extent which allowed farmers to properly irrigate their lands however, in dry season, the water level depletes to lower depths leading to increased time and effort in irrigation.

Interactions with **42 respondents** of **bore well recharge** pits and **104 respondents** of **farm ponds** were conducted. Since there were some beneficiaries who had received the support of both activities (bore well recharge pits and farm ponds), 111 unique beneficiaries were considered for these activities during reporting. As reported by **38% of farmers**, the lack of water during dry season (Rabi) leading to decrease in cultivation, and forcing them to **cultivate primarily in monsoon season**, was a major challenge. Additionally, the lack of ground water recharge due to decreased rain, led to a fall in the ground water levels. This was especially true during the dry seasons, **35% of the farmers reported the lack of ground water recharge** as a challenge faced during cultivation of crops. Similarly, the **lack of sources of water for irrigation during the dry season** was a challenge faced by 32% of farmers. This was also collaborated during qualitative interactions with farmers, who stated that the drying up of surface-based water sources and decrease/fall in ground water levels was a common occurrence when dry / summer months arrive. The following figure provides a depiction of the major challenges faced by farmers.

Figure 9: Challenges faced by farmers during cultivation (n=111*)

*This is a multiple-choice question so total may be more than 100%



3.3.2. About the intervention

As part of the project activities, Bala Vikasa set about constructing:

1. **Bore well recharge pits** (depicted below figure) around bore wells of farmers who had earlier submitted their names/details to local panchayat. As noted during discussion with the Bala Vikasa team, these bore well recharge pits were constructed by drilling a hole in the ground and filling it with course material like gravel or crushed stone. A small wall was then built around the pit to provide a catchment area for rainwater. This allowed rainwater to percolate into the ground, replenishing the below ground aquifers. The following figure depicts a constructed bore well recharge pit with Pernod India branding.

Figure 10: Constructed bore-well recharge pit with Pernod branding

2. **Farm ponds (with tree plantations)** were constructed for farmers in the three districts. As mentioned by Bala Vikasa team, the process involved the following key steps.

    a. Site selection – appropriate location is selected on farmer land based on acres to cover, topography and soil conditions.
    b. Excavation – this phase involves use of heavy machinery to dig out the pond basin.
    c. Embankment – the excavated soil is used to build embankments around the pond, creating a barrier to retain water. To prevent seepage, liners such as clay were used, and inlet and outlet structures were built to ensure efficient water management.
    d. Water retention measures – lastly, measures such as providing tree plantations were implemented around the border of the bund to prevent erosion, improve greenery, and prevent wild animals from encroaching.

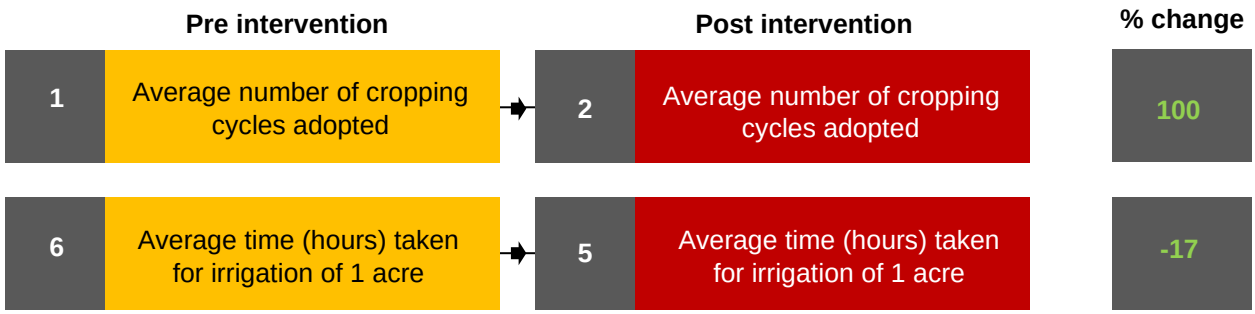
The following figure depicts a constructed farm pond with tree plantations surrounding the area.

Figure 11: Constructed farm pond with bund and tree plantations surrounding

3.3.3. Impact of the intervention

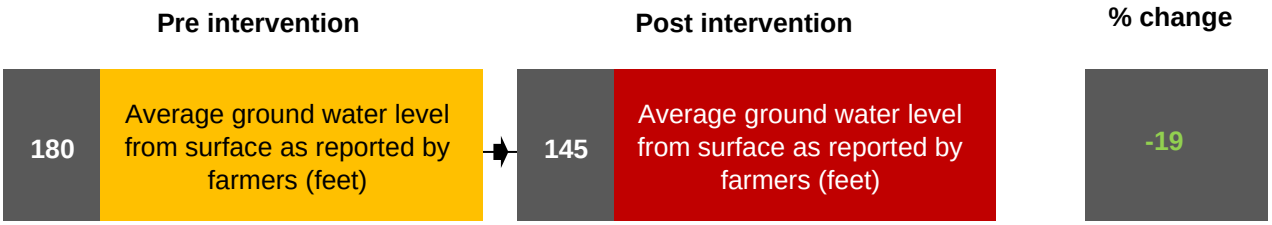
Post construction of bore well recharge pits and farm ponds, the farmer reported changes in their cropping patterns. Prior to the initiative, **69% of farmers (n=111) would cultivate paddy only in one season** (monsoon season). As noted during interaction with the farmers, paddy is the major crop grown in this region and due to the lack of steady water supply, depleted ground water levels in rabi season, they were unable to grow paddy. During this time farmers would switch to less water intensive crops (maize, vegetables, onions etc.). Post the initiative of constructing bore well recharge pits and farm ponds, it was noted **that 100% of the farmers (n=111) are now able to grow paddy in both seasons** which is the preferred crop due to farmers having market security through the Minimum Selling Price (MSP) scheme.

Figure 12: % change in cropping and irrigation pattern (n=111)



Though the actual project activities (construction) started post Covid, efforts made via the project activities helped in improving ground water levels to some extent. While the average time taken for **irrigating 1 acre of land** has reduced by **1 hour**, the farmers reported that the **level of effort needed to irrigate has gone down**. This can be attributed to increase in ground water levels **(~increase in 35 feet**) leading to better water pressure from electric bore wells. As reported by farmers, the average ground water level (post intervention) **remains at 145 feet throughout the year.** The following figure shows the change in ground water levels post the initiative.

Figure 13: % change in ground water levels (n=111)



The farmers have **reported an improvement in the production / yield of paddy** crop post the intervention. The change in cropping pattern (improvement in ground water levels, sources of irrigation post the intervention) has led to more paddy cultivation during Rabi season thereby **increasing the overall yield and income generated by the farmers**. Similarly, the addition of new source of irrigation and decrease in time taken for irrigating 1 acre of land has led to **more efficiency in paddy cultivation** which in turn has contributed to slight improvement in average yield of paddy in the Kharif season. As stated by the panchayat members (of all three districts), farm ponds created under this project have improved paddy yield in both Rabi and Kharif season, leading to an overall increase in farmer income. As can be seen from the below illustration, improvement in yield of paddy is more pronounced in the Rabi season as the effects of water scarcity for irrigation was more prominent in the Rabi season in comparison to Kharif (during which farming is largely rainfed).

As noted during interaction with farmers and Panchayat members of the villages, there has been an overall **improvement in savings of farmers** in the villages largely due to enhanced yield of paddy. This is also corroborated by the quantitative data which is being shown below:

Figure 14: % change in paddy yield per acre of farmland (n=111)

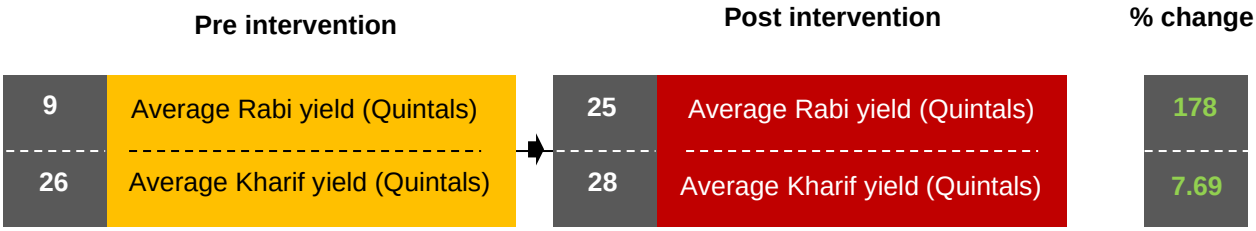
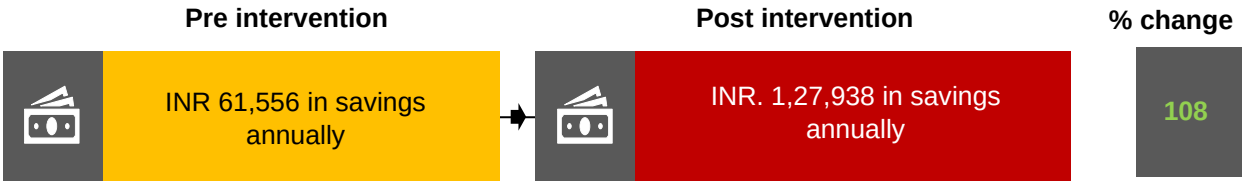
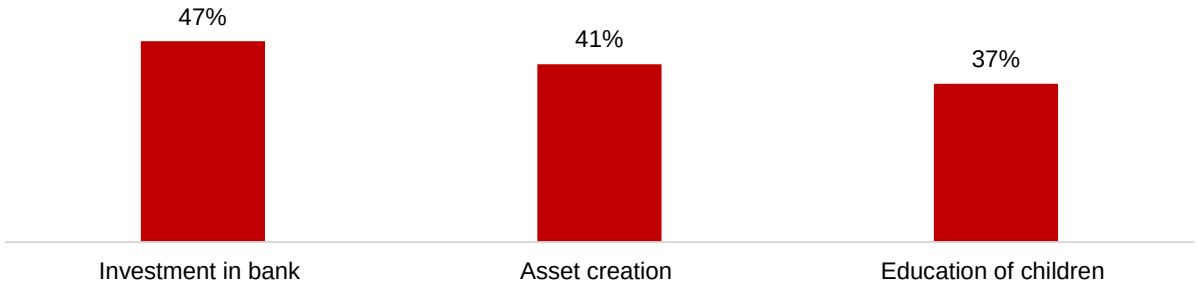


Figure 15: Improvement in farmers' savings (n=111)



This additional savings is being used to buy new assets like tractor, machinery etc. for the farm, education of children, and investing in bank, which can be seen in the following figure.

Figure 16: Savings being used for (n=111)



Additionally, **farmers have started to rear fish in the farm ponds as a source of income** and/or as a source of food.

As noted during qualitative interactions, the cost and profit of rearing fish vary based on factors such as type of fish (breed, farmers would buy at rate of INR 1 /fish or INR 4 /fish or INR 7 /fish), size of the farm pond, and operating costs which involve expenses for feed **(INR 300-400 /Kg packet),** avoiding pests like birds and animals (farmers would put sticks in the pond preventing low flying birds from hunting, wild animals are prevented by tree plantations surrounding the pond).

As reported by **35% of farmers with farm ponds** the fish are either being sold to local market for a profit or are being used for consumption at home. The following figure provides an illustration on how grown fish are being used by the farmers.

Figure 17: Usage of fishes raised in farm ponds (n=37)

Farmers would buy a bag of **1,500-3,000 fishes (baby fish – "Fry")** and place into their pond. It would take on average 6-8 months for the fish to grow. Around 50% of fish would survive the full growth period and farmers would sell the same at an average cost **of INR 150/Kg of fish**, thereby earning an additional source of livelihood. The farmers mentioned that an adult fish would weigh around 1.5-2.0 Kg, and they would sell it for approximately **INR 225 per fish.** For those who did not sell fish, they would consume the same as a source of food (saving on food expenditure).

Based on interaction with farmers, **trees were also planted** around their farm ponds. As informed by the farmers, the tress included mango, guava, lemon, orange, custard apple and papaya. The harvested fruits are **used only for consumption by farmers** and not sold. As mentioned by the Bala Vikasa team, the tree plantation does serve the additional purpose of **strengthening the bund surrounding the pond**.

3.4. Tank de-siltation and bund strengthening

3.4.1. Need for the intervention

As reported by the panchayat, the de-siltation of the large village irrigation tanks was essential for multiple reasons. It helped in maintaining the water storage capacity by preventing sedimentation build up, provides silt to farmers an alternative to chemical fertilizers and the excess gravel and sediments dug out were used to strengthen the bunds. It was noted during interactions that the bunds for these irrigation tanks were narrow prior to the intervention. This would allow only bikes to cross making travel / transport of produce between villages (2-3 villages sharing a single irrigation tank) difficult.

3.4.2. About the intervention

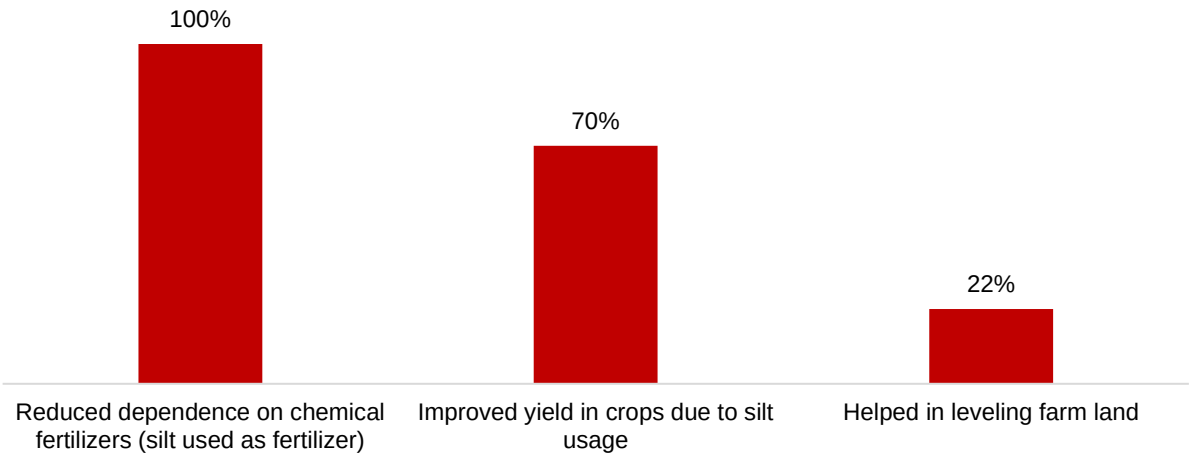
As noted during interaction with the Bala Vikasa team, tank de-siltation **involved removing accumulated sediment from water tanks** (constructed earlier in villages). This silt, rich in nutrients, is a valuable resource for farmers as an alternative to chemical fertilizers. The process followed by the team, was first identification of the tank, then post permission from the panchayat (confirmed during interaction with panchayat) the Bala Vikasa team would go about hiring machines for dredging (process of excavation conducted partially underwater).

To maintain a sense of ownership of this activity amongst villagers, the farmers themselves were responsible for hiring of excavating machines for the process of dredging. While 70% of the cost were covered by the project the remaining 30% was the responsibility of the farmer community (individual farmers would contribute INR 1,000 towards the activity). Additionally, farmers were responsible for hiring their own tractors that would ferry silt from the tank to their land. As highlighted during interaction with the team from Bala Vikasa, farmers **gained a sense of ownership and were able to source tractors at a subsidized rate**, since they themselves sourced tractors for ferrying the silt.

3.4.3. Impact of the intervention

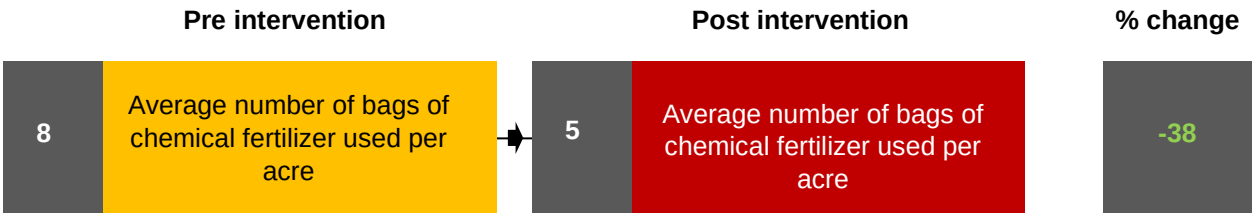
58% (n=259) of farmers have received silt that they are using on their land. Out of the 151 farmers who had received silt, **100% reported** benefitting from the motivation / mobilization sessions that were conducted in their villages. They now understand the importance of using **fewer chemical fertilizers** and how **silt can be used as an alternative**. On an average the cost of hiring per tractor was INR 150/ trip and on average each farmer made approximately 60 trips. The above figure depicts how farmers have benefitted from tank de-silting activity.

Figure 18: Benefits of tank de-silting according to farmers (n=151)



Additionally, farmers also reported an average reduction of expenditure on chemical fertilizers and number of bags used per acre (**average reduction of 3 bags**). The below figure depicts the reduction in chemical fertilizer bags.

Figure 19: Reduction in number of fertilizer bags used



As reported during interactions, a bag of fertilizer (Urea – INR 300 + Di-ammonium Phosphate (DAP) – INR 1400) would cost ~ INR 1,700. Considering the average number of bags used/acre land/season, the average **cost reduction is** estimated at **INR 5,100/acre of land/season**. There has also been an improvement in paddy yield due to usage of silt (improvement by 4-5 quintals as reported during qualitative interactions). As reported, farmers would also use the **mud obtained via de-siltation, for levelling of their land (22% of farmers**), which in turn reduces the amount of irrigation needed, thereby saving time and effort in cultivation.

Another benefit of the tank de-silting was on **bund strengthening.** Earlier the bunds were too narrow and only bikes, cycles could cross. Now however, the bund is much bigger, and tractors can easily cross from one village to another facilitating ease of travelling.

3.5. Stories of change

Case story 1: Taking ownership of intervention – raising fish in farm pond
Mr. Suresh Reddy (changed name) is a 38-year-old male who is residing in Kuknoor village, Medak district, Telangana along with his family of 5. He has completed his education till 8th standard. Suresh once grappled with the relentless challenges of water scarcity and unpredictable yields during dry seasons leading to loss of livelihood. He is one of the farmers who was present during the first mobilisation / motivation awareness building session that Bala Vikasa had held for water conservation practices. Recognising the economic potential that a farm pond could have on his land of 2 acres, he submitted his name to the panchayat. Post construction of the farm pond by the Bala Vikasa team (funding support PRIPL and with labour support from Suresh), he decided to utilize it as a habitat for fish rearing. Suresh stocked the farm pond with suitable fish species, ensuring compatibility with the local climate and water conditions. Over time Suresh observed successful fish growth and as the fish population thrived, established a small-scale business of selling the harvested fish to the local market (INR 140/Kg), thereby providing an alternate income source. Fish that were not sold were instead consumed by his family as a food source contributing towards their nutritional security. Suresh's initiative not only improved his financial well-being but also inspired neighbouring farmers to explore similar intervention, fostering sustainable livelihood within the community.
Case story 2: Using the intervention as a means of solving issue of uncultivable land
Mr. Mahesh Narsahyah (changed name) is a 55-year-old male residing in Goutagiguda village, Medak district of Telangana, with his family of 4. He has never attended school and has been working his land since childhood. He currently owns 5 acres of land out of which 1 acre was not cultivable till 3 years ago due to its highly sandy soil. With the Jala Vikasa project supporting the farmers of Goutagiguda village by conducting tank de-siltation, Mahesh seized the opportunity by harnessing the silt and mud obtained from tank de-silting and using it over his unfertile land. By strategically incorporating this nutrient rich sediment into the sandy soil, Mahesh transformed the barren 1 acre into a fertile one. The silt obtained is natural fertilizer thereby also reducing his expenditure on chemical fertilizers. Now he is able to successfully cultivate on all 5 acres of land thereby allowing him to enhance his income potential. This initiative by Mahesh not only improved his own land and identify the importance of using natural fertilizers, but other farmers seeing the innovative approach started to use the mud obtained from de-silting in levelling their land.

3.6. IRECS analysis

Based on the interactions with the key stakeholders and desk review of the documents, the impact of the program was evaluated on 'IRECS framework.' The IRECS analysis summary has been presented in below Table:

Table 3: IRECS Analysis

Parameter	Assessment from the study
Inclusiveness	• The **project involved all community members**, irrespective of caste, religion, or gender. • The project also included the most vulnerable sections of the society **with illiterate individuals forming a significant part of the project beneficiaries. 43% of the respondents reported that they have received no formal education**. Associating

Parameter	Assessment from the study
	with the programme has allowed these people to gain much needed exposure and knowledge related to various aspects of water conservation practices. • The project involved small and marginal farmers (**median land holding of 2**) The water conservation practices have been essential in improving their livelihood.
Relevance	• **49% of farmers**, due to the lack of proper water harvesting structures, are unable to cultivate crops (Paddy) in the dry season (Rabi). • **100% of farmers** report that paddy is their main source of livelihood, the lack of water and inability to cultivate during one full (Rabi) season, leads to a loss of income and livelihood among farmers. • The water holding capacity (of structures constructed prior to intervention) was also less as farmers have unlevelled land (22%) which reduced the efficiency of irrigation causing another challenge. • **Depleted ground water levels** during summer months led to decreased water pressure and increased farmer effort needed for irrigation.
Effectiveness	• **85% of farmers found the awareness sessions to be beneficial** and improved their understanding on water conservation practices. Of those, 98% reported that they are using the attained knowledge in their daily farming. • **100% change/ improvement in cropping cycles**. Farmers who were only able to grow in monsoon season are now able to cultivate in both (Rabi and Kharif) seasons leading to an overall improvement in livelihood. • **16.67% decrease in time taken of irrigation of 1 acre of land**. Earlier on average 6 hours were taken to irrigate 1 acre of land now 5 hours for irrigating one acre of land. • **19.44 % improvement in ground water levels**. The average ground water level remains at 145 feet throughout the year with little to no fluctuation. Earlier the ground water level was at an average of 180 feet. Post intervention the water pressure has improved leading to reduced effort in irrigation. • **178% improvement in yield of paddy during Rabi seasons**. Improvement in productivity (yield of paddy) has led to an overall improvement in savings of the farmers (~ **improvement of 2 times / 100% improvement**). • Establishment of farm ponds has allowed farmers to rear fish and access an additional source of income. As reported an average farmer earns INR **225 / fish sold.** • **38% decreased in number of chemical fertilizer bags** used per acre of land per seasons. Average three bag reduction in usage of chemical fertilizers leading to decrease in expenditure on the same. • The use of **silt, as a natural fertilizer** has led to an improvement in the yield by **4-5 quintals.** • **Bund strengthening has improved commute between villages.**
Convergence	• Panchayats were responsible for providing permissions and making list of farmers who needed farm ponds and bore well recharge pits. • Panchayat ensured community participation in de-silting of tanks. Farmers would contribute for de-silting activity (hiring of excavation machines @INR 1,000). Farmers would also be responsible for arranging tractors, thereby ensuring ownership of project activity. • No other convergence with government organisations was noted.
Sustainability	• Individual farmers own Farm ponds, bore well recharge pits and tree plantations. Therefore, the sustainability of the project depends on the farmers actions on the farm ponds / bore well recharge pits. • The farmers are responsible for maintaining their farm ponds and bore well recharge pits. Farmers have gone beyond what the project activities were and started rearing fish in the farm ponds for additional source of livelihood. • Farmers were responsible for acquiring excavations machines (with majority funding from PRI/Bala Vikasa). The processes of hiring excavation machines for further de-

Parameter	Assessment from the study
	silting can be done in collaboration with Panchayats. The tractors (for ferrying silt) were sourced via the farmers themselves.

3.7. Limitation

Time constraint faced during the collection of data made it challenging to conduct the interviews during the data collection process. Many of the respondents had limited time availability for interviews.

3.8. Recommendation

1. Long term maintenance plans for farm ponds

Farmers had received basic information on proper maintenance of farm ponds during the mobilization / motivation sessions. It is recommended to further develop and disseminate comprehensive, long-term maintenance plans for farm ponds, building upon the foundational information provided during the earlier sessions. These plans can encompass regular activities such as periodic de-silting and embankment/ bund repairs, ensuring the sustained functionality and efficiency of the farm ponds.

2. Collaboration with government and agencies

Collaborate with NGOs and government agencies to pool resources, share expertise and scale up project impact. For example, linking farmers with the Soil Health Card (SHC) scheme, will allow farmers to get their soil health checked and provide incentive to switch from chemical fertilizers to more natural ones.