Impact Evaluation of United Breweries Ltd. CSR Programmes

April 2021

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Abbreviations

Abbreviation	Description
ABGUS	Akhil Bhartiya Gramin Uthan Samiti
ASHA	Accredited Social Health Activist
BEO	Block Education Officer
BST	Basic School Teaching
DAC	Development Assistance Committee
FGD	Focus group discussion
GHPS	Government Higher Primary School
HH	Household
HNI	High Net worth Individuals
ICT	Information and Communication Technology
OECD	Organisation for Economic Co-operation and Development
PS	Primary School
REET	Rajasthan Eligibility Examination for Teacher
RO	Reverse Osmosis
SIRDS	Sarvodaya Integrated Rural Development Society
SMC	School Management Committee
SMILE	Social Media Interface for Learning Engagement
SS	Secondary School
SSS	Senior Secondary School
SST	Sir Syed Trust
TDS	Total Dissolved Solids
TTP	Teachers Training Programme
UPS	Uninterruptible Power Source
UPS	Upper Primary School
WHO	World Health Organisation

CHAPTER 1:
Overview of UBL's CSR

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UBL CSR - Introduction and Vision

United Breweries Ltd. (UBL) is a leading beverage company. UBL has always been a socially conscious company with a strong belief that the communities around the breweries are an essential and indispensable part of the ecosystem and thus their social initiatives are focused around breweries across various states in India.

As a company, UBL operates in the complex environment of peri-urban India which faces a multitude of development concerns. Availability and accessibility of safe drinking water, ensuring sustainability of environment especially water conservation, impact of education and health intervention on communities are the action areas identified by UBL with a vision to bring about sustainable social development for its co-communities.

UBL's approach to CSR interventions

In order to achieve its CSR vision, UBL has undertaken the below practices -
- Leverage resources, expertise, services, relationships, and influence for the benefit of communities and community partners.
- Take community interests into account in decision-making in the short and long-term.
- Actively work towards ensuring availability and accessibility of safe drinking water and sanitation for all co-communities.
- Work towards improving availability and accessibility of education and health services for co-communities.
- Work towards environmental sustainability with particular focus on water conservation
- Regularly monitor outcomes of initiatives and publicly report on progress in a transparent and effective manner.

As part of its CSR activities, UBL has undertaken interventions in thrust areas of Safe Drinking Water, Water Conservation and Education. Below are the key intervention areas of programmes implemented from 2016-18 through different implementation organizations across geographies -

Safe Drinking Water	Water Conservation	Primary Education
• Establishing RO water plants • Giving household water purifiers • Deepening of wells • Installing pumps • Providing water stations	• Desilting lakes and wells • Rejuvenating nallahs, wells and trenches • Construction of overhead tanks • Constructing dug-cum-bore wells and percolation ponds • Constructing cement nala bunds • Constructing gully plugs and gabions • Land levelling	• Mini Science Centre • Installing working science models • Making science education more interactive and interesting to the children • School Adoption Program • Revamping infrastructure • Capacity building of SMCs and teachers

UBL's CSR Implementation and study context

UBL CSR has on-boarded implementation partners, towards implementing key community projects aimed at the community around its breweries. The partnership has been initiated based on financial, technical and expertise due diligence with an intention to develop and implement strong interventions on ground.

As part of the current impact evaluation study, programmes undertaken by the below partners from the years 2016-18 have been included, to evaluate the impact and sustainability of the interventions.

Implementation Partners

Akhil Bhartiya Gramin Uthan Samiti (ABGUS) is a voluntary civil society organization working in the areas of empowerment and participation of children, women, and communities for their holistic development. ABGUS, through its close connection with the communities has learned that enhanced community participation always plays a vital role in the process of sustainable community development with behaviour & communication change. So, ABGUS has scaled up such experiences to many districts i.e., South-West Delhi, Alwar, Jhalawar, Rewari, Gurugram, Udaipur. ABGUS has networked with several smaller organizations, national & international organizations and corporate to add values in development practices & initiatives.

Ace Education Trust is a Mysore based NGO, founded by business entrepreneur Dr.Raju Deshani in 2010. Initially the trust was addressing the needs in primary education in rural areas like supply of notebooks, uniforms, and other basic needs. Now the trust has developed an immensely helpful concept of "Mini Science Centre" for teaching basic science to rural govt school children. This concept of Mini Science Centre is to inculcate rural children to learn children and pursue their studies in the field of science and technology in their studies. With the help of this Mini Science Centre the trust has an aim to produce a couple of Abdul Kalams in rural Karnataka in coming 20 years. The trust aims to set up such 500 mini science centers in rural Karnataka in coming five years

ASSIST is a registered non-governmental organisation working for the development of poor and marginalized communities in rural areas of Andhra Pradesh and Telangana, India. ASSIST's work strongly reflects this ideology. We are convinced that development in India can only take place when its most underprivileged members are able to fight with strength, courage and confidence for their own political, economic and social needs. Their mission is to promote comprehensive community development through community action and participation.

Dilasa - Dilasa Janvikas Pratishthan is a pioneering organization in Maharashtra state dedicated for the rural development. The NGO has been working in Water and Women sector, apart from Agri business for the last 27 years. Dilasa is a unique organization, which had treated six lakh ha. of land under different watershed programmes, apart from working in water supply, irrigation, and aquifer management. The organization is also implementing various developmental projects in 5648+ villages of 32 districts in Maharashtra, Karnataka, Goa, Tamilnadu and Bihar.

Sarvodaya Integrated Rural Development Society is a secular non-profit organization established in November 1994 with aim of promoting sustainable, equitable and participatory development, social welfare, and social justice by engaging with the sections of the community through social work, human resource management, health services and social research. SIRDS mission aiming towards holistic and sustainable development, of the less resourceful in both rural and urban areas, through integrating Economic, Physical, Social, Psychological, and environmental activities, in order to ensure progress by improving livelihood, socio economic status, health and self-reliance.

Spring health: Spring Health is an organisation which provides safe drinking water to the rural masses of eastern India at a very affordable price. Spring Health makes use of the age-old technology of Chlorination to remove the bacterial impurities from the water & make it safe for drinking. Spring Health uses the last mile distribution to ensure supply to its customers. Spring Health has been operational in the state of Odisha for the last 3 years. Spring Health is a for profit organization which works with investments from Family funds, Trusts, HNI, Philanthropist and investors who are interested.

Sir Syed Trust (SST) is registered in Jaipur as a voluntary organization under the Indian Trust Act, 1882. The Trust aims to shape an egalitarian society free of poverty, malnutrition, illiteracy, and discrimination of any kind. The Trust aims to ensure holistic development and provide sustainable livelihood to poor and disadvantaged families. With the mission of "Every child in school getting quality education and enabling poor for sustainable livelihood development" SST working in the states of UP and Rajasthan on enhancing sustainable livelihood and supporting 10 government schools by turning them into "schools of excellence"

Report Presentation

The report includes findings and insights from the thrust areas of
- Safe Drinking Water – Overall results presented from five partner projects
- Water Conservation – Overall results presented from three partner projects
- Education – Results presented from two partner projects

The insights have been presented to throw light on impact of the programmes undertaken in each thrust area, while highlighting differences observed across partners and projects. The analysis of each indicator from prior status, effectiveness, and short to long term impact perspectives at a project and partner level are presented in detail in the Annexures.
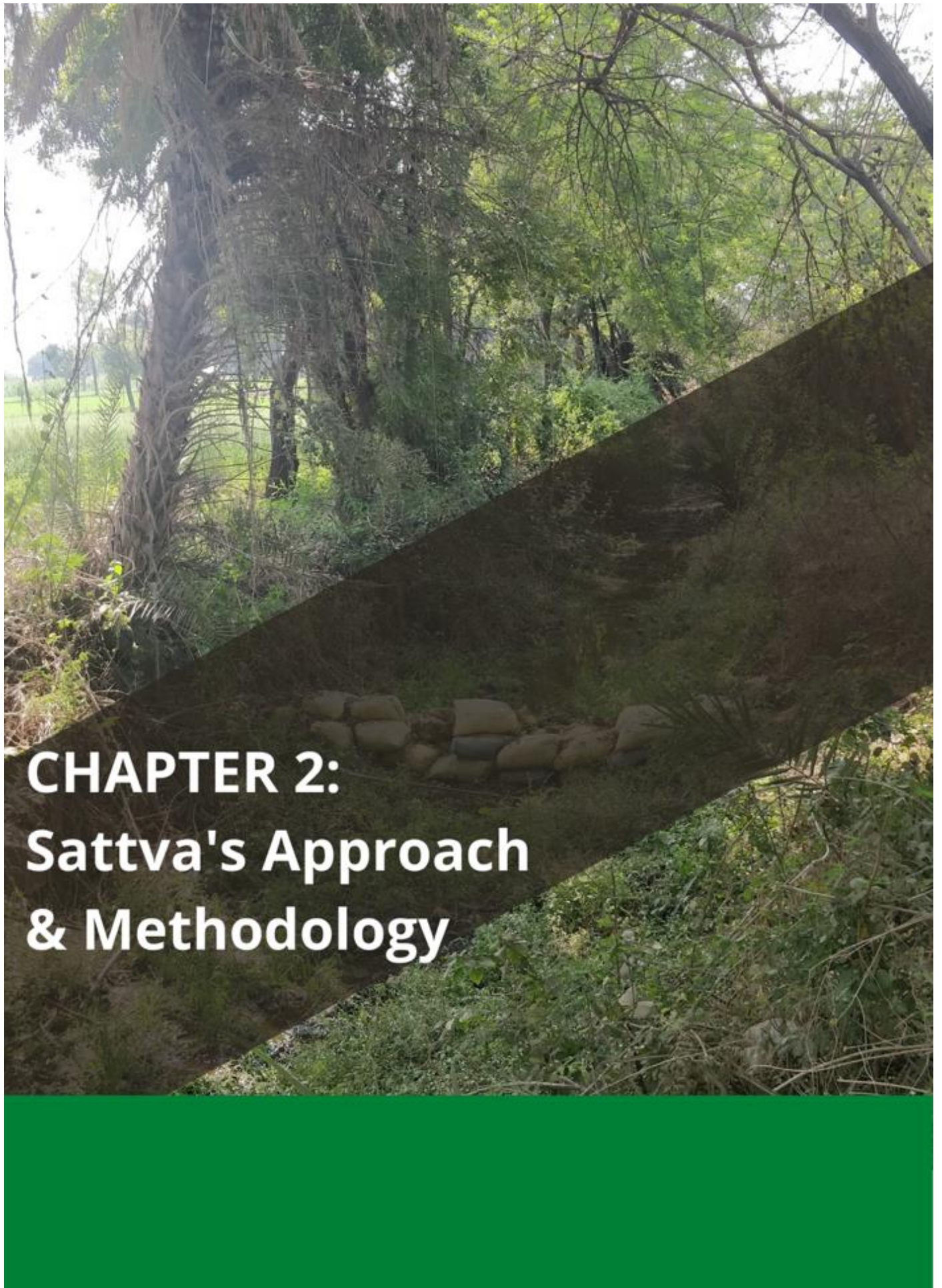
CHAPTER 2:
Sattva's Approach
& Methodology

Chapter 2: Sattva's Approach and Methodology

Sattva adopted a **mixed-method approach for safe drinking water and water conservation programmes**, consisting of **quantitative and qualitative** research methods using primary and secondary data collection methods. This helped in gathering valuable **impact** related insights from a 360-degrees angle across the stakeholders involved and served as a fundamental resource for providing recommendations around ways to inform the future scale-ups.

Sattva adopted **qualitative study for Primary Education interventions** to ensure the suitability of data collection among primary beneficiaries (students). Further, impact and sustainability related insights were gathered from all relevant stakeholders including teachers.

Objectives of the Impact Evaluation study
Purpose and key objectives of conducting the Impact Evaluation study

To evaluate the sustained impact of -
- Safe drinking water programmes on beneficiaries' access and usage of water for consumption
- Safe drinking water programmes towards health and wellbeing of the beneficiaries
- Water conservation programmes on the water availability for beneficiaries in project area
- Water conservation programmes on the quality of life and improved productivity in the area
- Mini science projects in championing understanding of scientific methods and their applicability among school students
- School Adoption Programme on changing enrollment levels and quality of education in the primary schools

To Improve
- Rigor of implementation on ground to sustain the intended results
- Sustainability of programmes' on ground to ensure functionality of models

Data Source

Primary Source of Data	Secondary Source of Data
The data collected from various stakeholders using data collection tools designed for this study was treated as primary data. • *Quantitative data collection:* Survey was administered to assess the perceptional and actual impact of beneficiaries of the projects. • *Qualitative data collection:* Collected through FGDs, in-depth interviews, observational guide, case studies with key stakeholders of the project with different stakeholders.	The data pertaining to comparing the planned targets, with regards to the actual, helped us to establish the extent to which processes were documented, and followed. • *Programme documents maintained by the partners:* The documents defining the programme's progress, processes, periodic status reports, etc. • *Prior monitoring and evaluation reports*

Framework for the Impact Evaluation Study

The OECD - (DAC)[1] principles for evaluation adopted to conduct the impact evaluation study.

Relevance
Assess the extent to which the program ensures suitability to the needs of the target group, pertinence to the market conditions and maximization of impact as part of design and execution

Effectiveness
Assess the extent to which the objectives of the program have been achieved; Identification of supporting processes and systems influencing the achievement/non-achievement of objectives

Impact
Assess the extent and type of (behavioral and attitudinal, skills and learnings) change produced in the lives of community members through the program directly

Sustainability
Assess the extent to which the program ensures intended benefits to the target group will continue notwithstanding partner organization through financial, institutional and operational levers

Stakeholders and Sampling

Sattva adopted a mix of **Stratified Random Sampling and Probability Proportional to Size** approach to ensure the right representation of the population in the study across partner organizations for each of the interventions. The sample size was calculated using the population frame (all beneficiaries of the intervention) with 95% confidence level and 5% margin of error.

Across interventions, the following stakeholders have been included in the study –

| Community members | Students and teachers | Community Leaders | Doctors/Health Workers | Implementation Team | CSR Program Team | Brewery and HR Heads |

Secondary stakeholders have been engaged through in depth interviews and focus group discussions. Primary stakeholders i.e., community members have been included through surveys and qualitative interviews.

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[1] **Note:** Adopted Development Assistance Committee's (DAC) framework developed by Organization for Economic Cooperation and Development (OECD) DAC,OECD
The framework defines 6 key criteria for evaluation of interventions and is globally used by aid agencies, international foundations

Sampling for **Safe Drinking Water**

Quantitative survey of intervention beneficiaries

Partners	Total beneficiaries*	Sample size
ASSIST	28765	85
SIRDS	3700	30
Dilasa	32690	89
Springhealth	44349	121
ABGUS	31247	85
Total	140751	410

Total beneficiaries as reported by partner organisation

Sampling for **Water Conservation**

Quantitative survey of intervention beneficiaries

Partners	Total beneficiaries*	Sample size
Dilasa	1208	101
ABGUS	9294	130
Sir Syed Trust	8086	165
Total	18,588	396

Total beneficiaries as reported by partner organisation

Sampling for **Education**

Qualitative discussions (interviews, FGD) with students, teachers, parents and SMC members
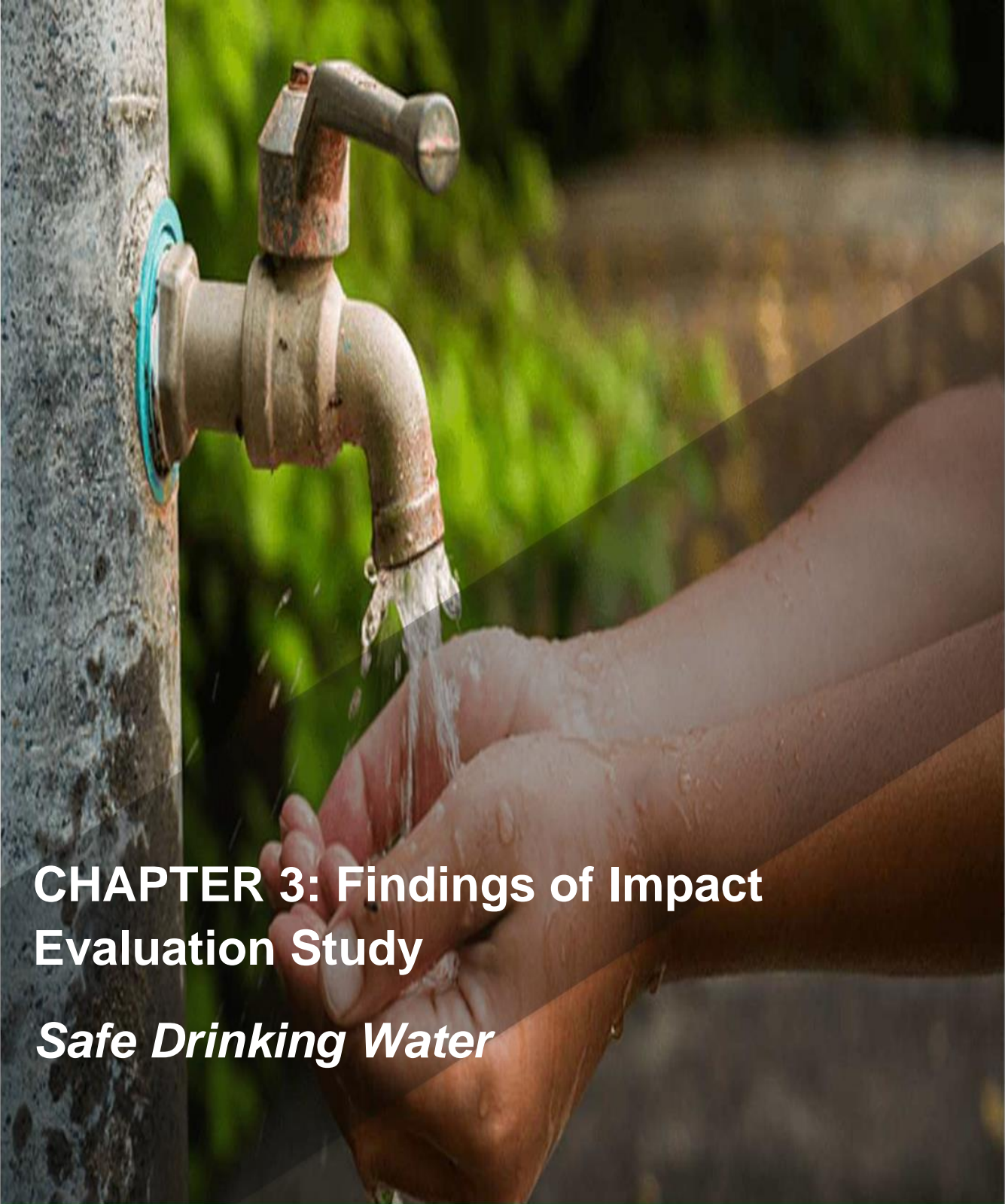
Partners	Total Schools	Sample size
Ace Education	5	2
Sir Syed Trust	10	3
Total	15	5

Ethical consideration for the Impact Evaluation Study

- As part of data collection, team members ensured ethical data collection by explaining the purpose of study and ensuring informed consent from the participants
- The interview sessions were conducted in an environment that ensures the privacy of the respondents as per their convenience and comfort
- The respondents were assured about the confidentiality of their information and the usage of data only for the purpose of this research
- The participation of respondents was ensured to be voluntary and were not compelled to answer any question

Limitations

- As the study is executed 3 years after the implementation of interventions, risks include recall bias (i.e., impact recall due to lower recall of intervention status) and mapping relevant stakeholders including panchayat officials etc
- The study considers interventions in water, particularly in water conservation as patient capital as the outcomes are impacted over an extended period.
- The water availability data has also been influenced by low rainfall observed in some of the target areas. However, recall of higher availability since the period of implementation has been accounted for in the findings.
- The study was conducted during the period of COVID-19 lockdown leading to lower availability of stakeholders

CHAPTER 3: Findings of Impact Evaluation Study

Safe Drinking Water

Introduction and context

UBL has implemented safe drinking water programmes around areas of operations across multiple states.

The following section of the report details the key results and insights of the impact assessment study across the OECD - DAC criteria outlined in the framework for the study. The insights have been drawn using a 360-degree approach of data collection by gathering data from qualitative and quantitative methods by engaging with different stakeholders of the programme.

Partners	Total beneficiaries*	Sample size
ASSIST	28765	85
SIRDS	3700	30
Dilasa	32690	89
Springhealth	44349	121
ABGUS	31247	85
Total	**140751**	**410**

Partners	Geography	Implementation Model
ASSIST	Sangareddy and Kondapur, Telangana	Community Water ATM
SIRDS	Nelamangala- Rural Bangalore, Karnataka	Community Water ATM
Dilasa	Aurangabad, Maharashtra	Household Purifiers
Springhealth	Khorda, Odisha	Door to Door Delivery
ABGUS	Dharuhera, Haryana	Community Water ATM

The sample size of the safe drinking water interventions was determined based on programmes' outreach during the implementation period. Overall, a sample of 414 community members have been surveyed through the study. This chapter details the key insights from the Safe drinking water programmes.

Respondent Profile

50% of the respondents have a household size of more than 4. Approximately 45% of the respondents have an income less than INR 1.2L per annum
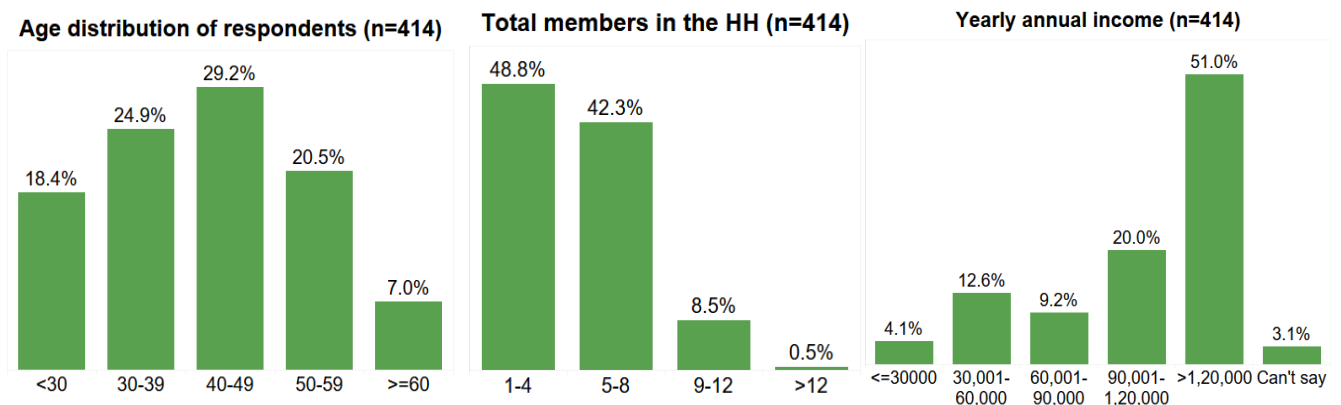
Age distribution of respondents (n=414)

- <30: 18.4%
- 30-39: 24.9%
- 40-49: 29.2%
- 50-59: 20.5%
- >=60: 7.0%

Total members in the HH (n=414)

- 1-4: 48.8%
- 5-8: 42.3%
- 9-12: 8.5%
- >12: 0.5%

Yearly annual income (n=414)

- <=30000: 4.1%
- 30,001-60,000: 12.6%
- 60,001-90,000: 9.2%
- 90,001-1,20,000: 20.0%
- >1,20,000: 51.0%
- Can't say: 3.1%

Relevance

This section aims to understand if the needs of the community with respect to water have been identified systematically, and if the programme objectives and activities are aligned with the identified needs of the community and if the programme targets the right geographies and stakeholders.

Study reveals there was an urgent need for the programme in the community due to lack of access to safe and affordable drinking water. In most geographies, the community members realized the need for the purified drinking water and sought support from UBL CSR towards the same. The purification technology and delivery model were customized based on the local context to ensure maximum benefit

Lack of safe drinking water source across geographies prior to the programmes reiterates the need for the project

Across geographies, tap and borewell were shared as the primary sources of drinking water prior to the programme.

Public tap water in India has shown the presence of arsenic and other heavy metals such as cadmium, zinc and mercury. The TDS (Total Dissolved Solids) levels of borewell water are also generally higher compared to other sources like tank or municipal. Average TDS for a borewell is 500, while TDS in the range of 300-500 is of poor quality and not fit for drinking.

In Neelamangala, the dissolved solids in ground water used for consumption were found to be more than 900mg/L prior to the intervention. While in Golconda, need assessment results had shown the water sources to contain high fluoride content and dissolved impurities.

Source of drinking water prior to the program (n=414)
Yes | No

Tap	44.2%
Borewell	38.9%
Well	29.5%
Lake/Pond	5.8%
Other (Hand pumps, street tanks etc)	10.1%

47% of the households did not treat water at all prior to the programme

47% of the community members did not undertake water treatment despite unsafe drinking water sources exposing them to a high degree of health risk. The rest of the community members treated the water by passing through the sieve, boiling or household filter. Water boiled the right way helps remove micro-organisms that cannot withstand high temperatures. It does not, however, remove dissolved solids or any other chemicals and impurities.

Methods of treating water before drinking prior to the program (n=414)
Yes | No

Didn't treat the water	47%
Pass it through a sieve	25%
Boil it	21%
Filter it using a household filter	18%
Use Alum in the water	16%
Other	2%

30% of households were aware that the water is unsafe, yet they consumed unsafe water due to unavailability of safe water source

Among the households who filter water with traditional methods, 62% were not certain that the water they consume is safe to drink.

Despite the knowledge of water being unsafe, 58% of the community members reported consuming from the same sources due to the lack of an alternative source. 32% of the community members resorted to unsafe water consumption due to accessibility issues with alternate source.

Perceived safety of drinking water prior to the program, even after filtering (n=221)
Safe | Unsafe | Don't know

| 38.46% | 46.15% | 15.38% |

Frequency of treating water (n=221)

Always	49.32%
Often	24.89%
Sometimes	15.84%
Rarely	9.95%
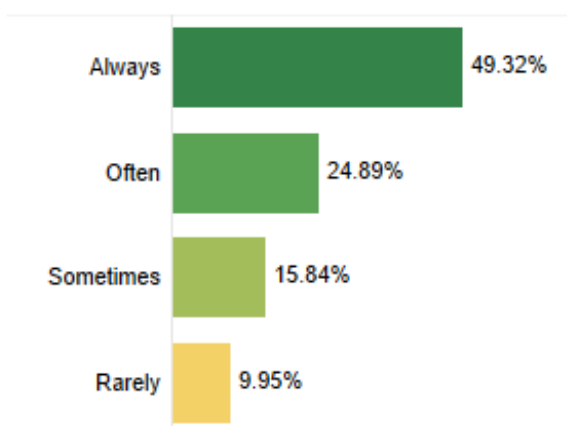
Reason for consuming the unsafe water prior to the program (n=190)
Yes | No

Lack of safe water source	57.9%
Distance of safe water source	32.6%
Cost of safe water source	10.5%
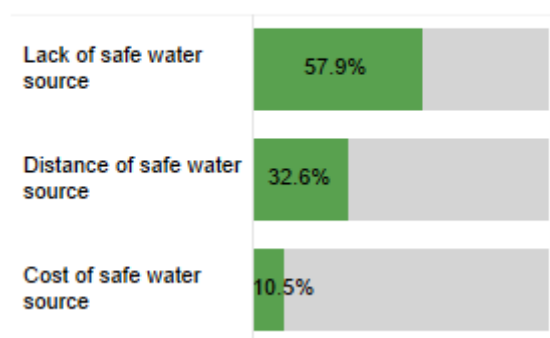
All implementation partners assessed the water quality and selected appropriate purification technology before implementation

Prior to the implementation of the intervention, all the partners have reported conducting water quality tests on available sources and undertook the mappi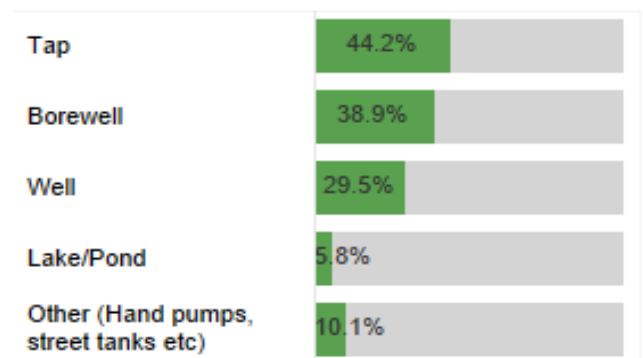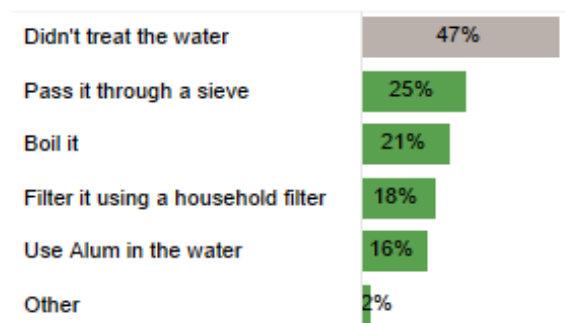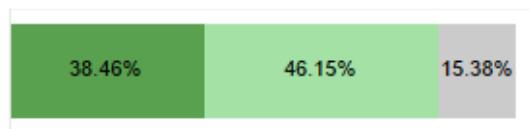ng of types of water sources accessed by the community. In Neelamangala, the dissolved solids in ground water used for consumption were found to be more than 900mg/L prior to the intervention. While in Golconda, need assessment results had shown the water sources to contain high fluoride content and dissolved impurities.

Multiple water purification technology methods were adopted by implementation partners including RO, chlorine addition, electrolysis. The type of water purification technology was chosen based on the expertise of the organisation and the need of community. In communities where distance or access to source was found to be a challenge, the implementation models have also included distribution systems and card service.

Effectiveness

This section aims to understand if the programmes have been designed with defined processes and systems to bring the desired outcomes in a timely manner

A mix of individual and community level interactions were adopted to generate awareness

Multiple modes of outreach were adopted by the implementation partners to ensure all community members consume purified water. 61% of the respondents recall awareness activities being conducted. Individual house visits by the NGO team and the water group members were the highest at 70% and reported to be the most effective. Implementation partners have also shar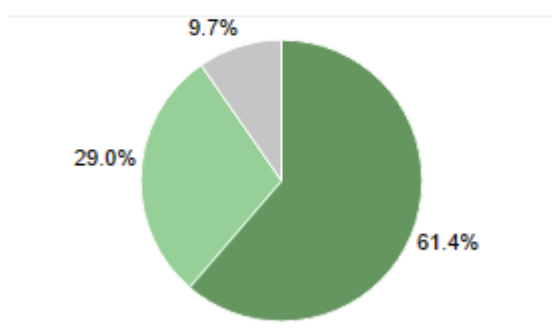ed focus on women household members for awareness generation cognizant of their involvement in fetching water, cooking and other domestic consumption practices.

Recall of community members regarding awareness activities (n=414)
Yes | No | Don't remember

- 9.7%
- 29.0%
- 61.4%

Medium of awareness generation in community (n=254)
Yes | No

House visits	69.7%
Community level event	53.9%
Posters and Banners	24.0%
Other	4.7%
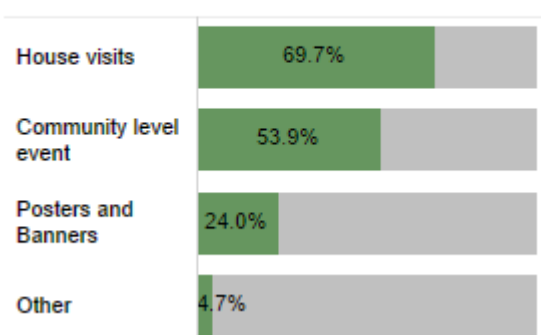
"NGO members used to come to the house in auto, explain water quality and give us water to taste. Based on that we started purchasing water from the plant – Community member, Khorda"

Programmes have ensured participation of community and panchayat to ensure effective implementation

Active participation from the community members through the formation of water user groups and involvement of the panchayat was planned to ensure the programme is implemented efficiently and sustained.

31% of the respondents reported that they believe all community members are responsible for the maintenance of the water quality. All the community members reported the NGO to be responsible for maintaining the water quality in Odisha as the programme is implemented through a water entrepreneur who delivers the water to the houses of the community members. In addition, 84% of the respondents in Dilasa and 52% in ASSIST perceive panchayat to be responsible for maintenance.

Who is responsible for maintaining water quality at the community level? (n=414)
Yes | No

NGO representatives	49.0%
Panchayat Members	43.2%
All Community members	31.6%
User group members	20.8%
Don't Know	4.6%
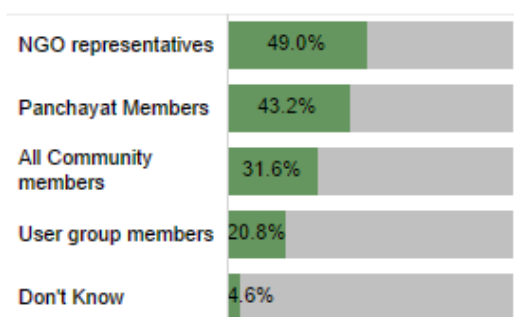
Programmes have included teams with clear roles and responsibilities for effective implementation

Regular maintenance and upkeep of the water structure was observed for 3/5 Partners

A dedicated person responsible for the upkeep of the water structure whose expense is managed through the nominal charge of 3-5 Rs per 20L ensures that the water structure is regularly serviced and well maintained. In addition, the team included mobilization staff, delivery person (where distribution was included) and external vendor/panchayat for maintenance.

Programmes by ASSIST, SIRDS and Springhealth ensured regular maintenance of the structures while ABGUS and Dilasa did not. In the programme run by Dilasa, the filters were home based and to be replaced every 6 months Not all the community members were diligent and replaced the filter regularly. In the programme implemented by ABGUS, Panchayat was responsible for maintenance of the water structures, but it was found that the water structure was not maintained, and panchayat was not held accountable by the community members.

Water Purification Structure in Khorda

The implementation partners were able to partially identify the operational risks of programme
The partners anticipated and planned for the need of regular operational and maintenance of RO/ plants and included trained personnel from the village or external vendor for the purpose. Additional risks, that were identified during implementation include drop off in usage of water ATM cards post focussed awareness generation in communities. It was addressed to an extent by conducting follow up rallies and awareness activities.
The programme implemented in Aurangabad, Maharashtra by Dilasa provided the community members with a home purifier which is required to be replaced every six months. As this was a one-time activity it was observed that many community members did not replace their purifier due to lack of visible perception in need for filter change.

Partner presence and monitoring is continued post active implementation of the project
The presence of implementation organization and trained personnel along with UBL team visits, has enabled the continuity of effective implementation leading to achievement of behavioral change in water consumption. The involvement of panchayat has also been seen as a key factor in sustaining the impact of the programme after the active implementation period 3 years prior to the study.

Impact

This section aims to understand if there has been a positive impact created by the programme through its initiatives.

Programmes have led to increased awareness among community members on the importance of safe drinking water

Community members recognize the importance of consumption of purified water and the illnesses caused by consumption of unsafe water. More than 65% of the respondents were aware of health problems caused by consumption of unsafe water and were able to recall the associated illnesses such as diarrhoea and jaundice.

Door to door awareness and water quality comparison has helped the community differentiate between quality of water sources. 83% of the community shared they are able to recognize the quality of water and suitability for drinking through taste, followed by smell and colour.

Awareness on diseases caused by consumption of unsafe drinking water (n=414)

Diarrhoea	43.75%
Skin Infection	36.96%
Jaundice	26.36%
Typhoid	22.01%
Cholera	19.84%
Nothing happens	36.41%
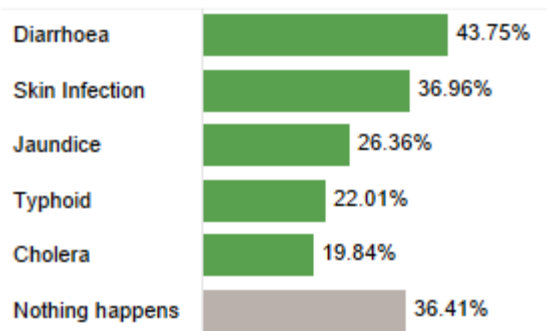
Perceived awareness of community on water safety (n=414)
Yes | No

Taste	83.3%
Smell	45.7%
Colour	40.1%
Source of water	26.8%
No particles	25.1%
People are falling ill with water borne diseases	6.8%
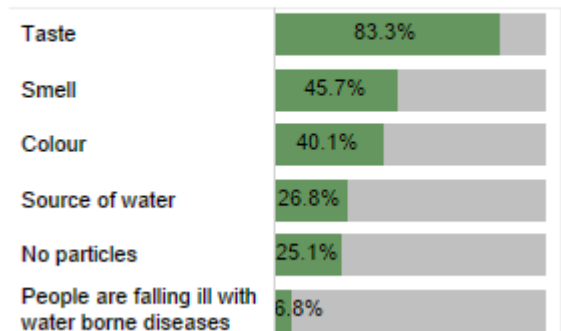
Programmes have enabled ease of access to safe and affordable drinking water, with 55% reduction in procurement time

On average, community members reported spending close to 2 hours every week prior to interventions to procure water with an added time to boil and filter the water.

Currently, water is home delivered for about 40% of the respondents compared to 26%

Time spent procuring water (Minutes per week) (n=414)

Prior to the program	118.86
Currently	53.98

55%

before the programme. Central location of water structure in addition to distribution mechanism has enabled reduction of water procurement time to 53 minutes per week. 55% reduction in water procurement time has been observed resulting in significantly reducing the domestic drudgery.
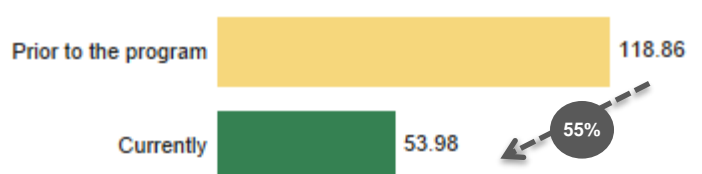
Primary mode of transport for collection for drinking water collection (n=414)

	Prior to the program	Currently
Walk	46.2%	33.8%
Home delivered	26.2%	40.1%
Bike	19.4%	18.8%
Cycle	6.1%	6.3%
Other	2.2%	1.0%
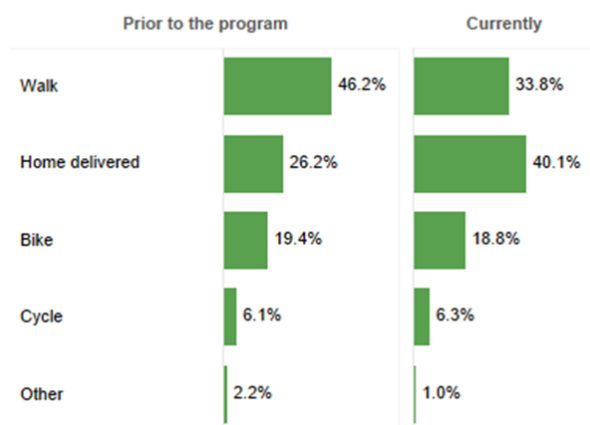
Water Purification Structure in Dharuhera

Programmes have enabled equal access to safe and affordable drinking water

Community members were charged a minimal cost for water to ensure the upkeep of the water structures. The annual income spent on water ranges from 1.5% to 0.3%. Community members reported being satisfied with the cost at which water is available to them

Implementation Partner	Average Annual Income	Cost per 20L of water	Annual water expense	% Income spent on drinking water
Spring health	₹ 2,52,434	₹ 20	₹ 3,776	1.50%
ASSIST	₹ 82,829	₹ 3	₹ 522	0.63%
Dilasa	₹ 1,30,815	₹ 3*	₹ 600	0.46%
ABGUS	₹ 2,20,209	₹ 3	₹ 685	0.31%
SIRDS	₹ 2,38,750	₹ 5	₹ 895	0.37%

* Approximate cost calculated based on household purifier charge and quantity of water consumed

80% of the community members access safe drinking water through the water plant

80% of the community members reported consuming water from the purified source provided through the interventions. Increased awareness, access, and affordability of safe drinking water in the communities has led to the high adoption. For the Springhealth and SIRDS programmes implemented in Odisha and Karnataka, all the respondents reported consuming water from the NGO.

Over 65% of the respondents for the programme implemented by ABGUS in Haryana reported not consuming water from the NGO due to factors such as unreliability of the structure due to dependence on electricity and internet, distant location of the structure and lack of chilled water availability.

Community consuming water from the water plant (n=414)
Yes | No
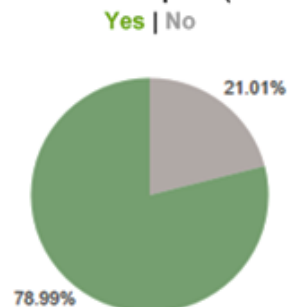
21.01%

78.99%

Community consuming water from the water plant (n=414)
Yes | No

	Springhealth Water Pvt Ltd	SIRDS	ASSIST	Dilasa Janvikas Pratishthan	ABGUS
Yes	100.00%	100.00%	86.59%	80.65%	32.56%
No			13.41%	19.35%	67.44%
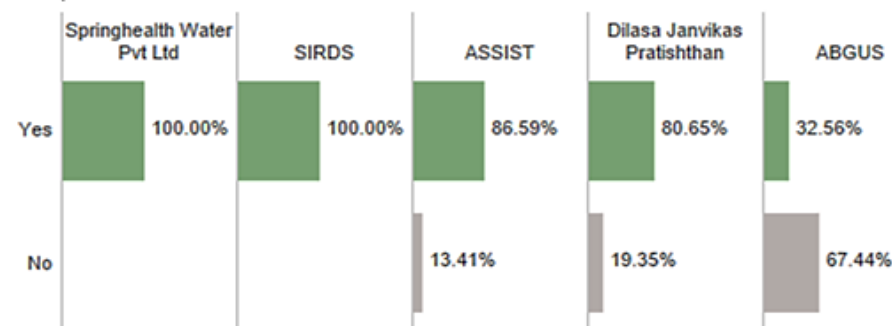
Sustainability

This section aims to understand if the programmes have been able to achieve sustainability, and if the impact of the programme is likely to be continued after the exit of active implementation

Programmes have created sustainable solutions for safe drinking water availability in the community

Less than 7% of the respondents reported a problem with water quality among water sources from interventions

Among the 414 respondents surveyed as part of the study, 29 respondents (7%) shared that they face problems with the current water source. In addition, more than 79% shared the problems are resolved within a week.

Water quality always satificatory (n=414)
Yes | No

93.48%

The respondents have shared they identified quality problems in water sources through taste and colour, although qualitative discussions have revealed that addition of purifying chemicals has also influenced the taste of water. Other maintenance problems occurred due to pipe breakage and were repaired within a week to continue operations.

Qualitative discussions have shown that the paid model of access to water has been incorporated across community members. Concerns with affordability of water have not been recognized during the study. The continued usage after 3 years of implementation is reflective of the quality and affordability of solutions. Community members have gained responsibility for maintenance of the safe drinking water structures with 32% of households reporting volunteering time to maintain the structure.

Usage of household portable water filters provided under the project in Aurangabad

CHAPTER 3: Findings of Impact Evaluation Study

Water Conservation

Introduction and context

UBL has recognized the water scarcity observed in areas of operation and has undertaken water conservation activities through implementation partners.

This chapter of the report details the key results and insights of the impact

Partners	Total beneficiaries	Sample size
Dilasa	1208	101
Sir Syed Trust	8086	165
ABGUS	9294	130
Total	**18,588**	**396**

evaluation study across the OECD - DAC criteria outlined in the framework for the study. The insights have been drawn using the 360-degree approach of data collection by gathering data from qualitative and quantitative methods by engaging with different stakeholders of the programme.

Partners	Geography	Implementation Model
Dilasa	Aurangabad, Maharashtra	Water Conservation Structures
Sir Syed Trust	Bhiwadi, Rajashtan	Water Conservation Structures
ABGUS	Dharuhera, Haryana	Pond Rejuvenation

The water conservation activities include de-silting, contours, farm ponds and naalas construction to enable groundwater regeneration and increased water availability for agriculture. The study has included a sample of **396 community members**, who were part of the programme through farm level or community level structures.

Respondent Profile

The distribution of the HHs with the demographic details have been provided below:
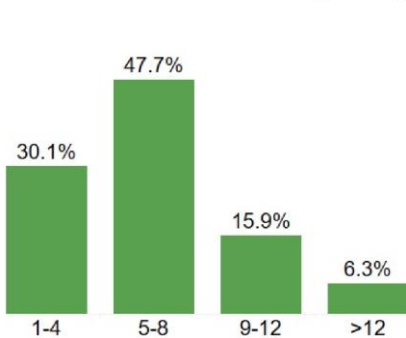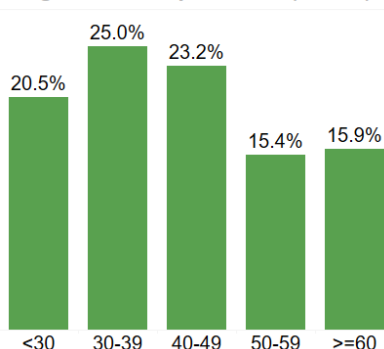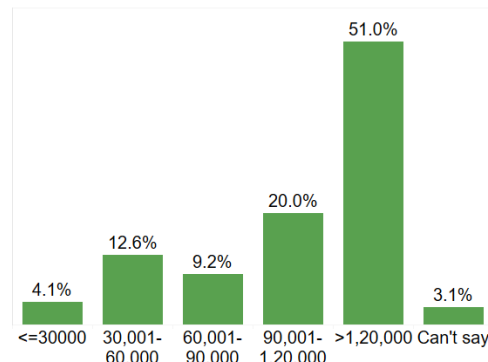
50% of the households surveyed earn less than INR 60,000 per annum while more than one - third of the household earned more than the specified minimum wage of INR 88,320[2].

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[2] Ministry of Labour & Employment, Chief Labour Commissioner, Revised VDA (Minimum Wages), Oct 2020

Relevance

This section aims to understand if the needs of the community with respect to water have been identified systematically, and if the programme objectives and activities are aligned with the identified needs of the community and the programme targets the right geographies and stakeholders.

Sparse rainfall and continuous discharge of rainwater has resulted in heavy depletion of groundwater in target geographies.

The geographies of water conservation programmes have been vulnerable to water availability in the regions, affecting daily life as well as productive income generating activities engaged in the regions. In addition, there is continued risk of water availability.

76.3% of the household members rated the water scarcity from concerning to overly concerning as they believe that it severely affects the well-being of the community.

More than 60% of the respondents have shared scarcity of rainfall and groundwater depletion as the factors influencing unavailability of water for household and agricultural consumption. In addition, qualitative discussions have revealed that the running rainwater, could not be preserved due to run off and drainage influenced by the terrain.

In Dharuhera, members cited that the ground water table is decreasing due to excessive water usage by industries in the area. Similarly, water has gone below 80ft in Aurangabad region due to low rainfall and no check dams to stop the flow of water.

Concern level among community on water scarcity in next 5 years (0-least concerned- 10-Most Concerned) (n=396)

23.7%	32.6%	35.9%	7.8%
1-3	4-6	7-8	9-10
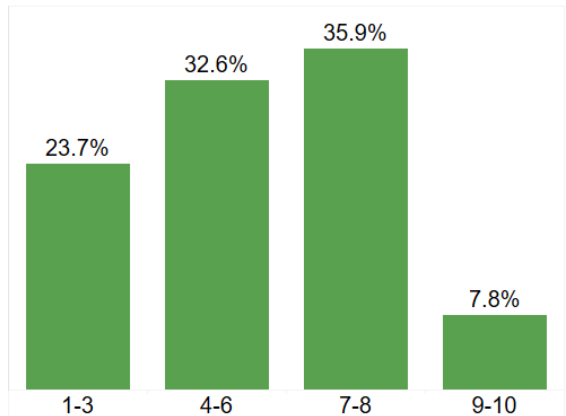
Reason for deficit in water consumption (n=396)
Yes | No

Reason	Yes
Groundwater depletion	67.4%
Less rainfall in the region	63.6%
Less water sources available	50.3%
Quality of water was poor	26.0%
Due to construction around the area	14.1%
Population growth	2.8%
High elevation of the villages	1.8%
There was sufficient water supply before the program	1.0%
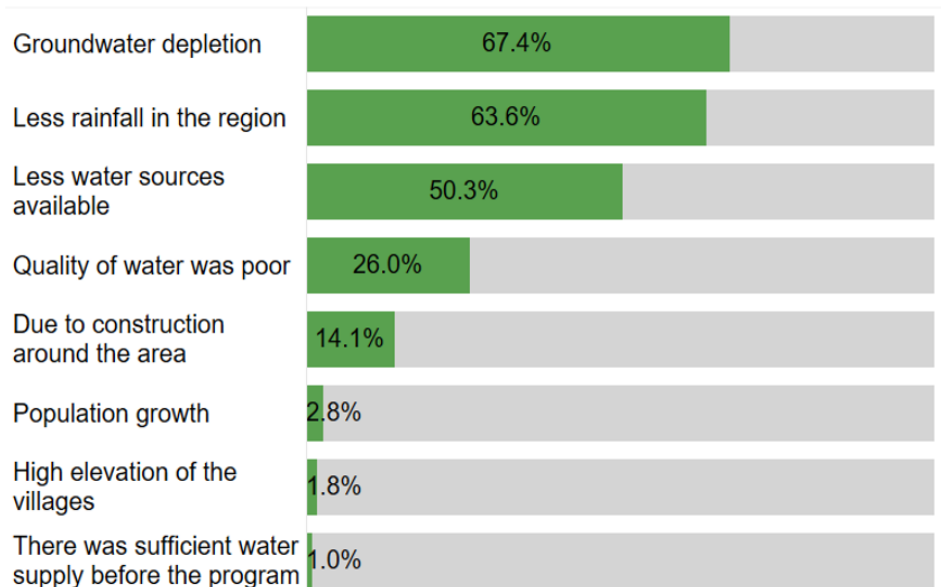
> *People in the villages understand the water problem in the region and hence, one seeks the benefits of water conservation in terms of financial support from the NGO's intervention.*
>
> ***:Santosh, Community Health Worker, Indor (SST)***

The need for water conservation in the region was systematically identified and aligned

During qualitative discussions with the implementation partner and community stakeholders involved, it was observed that a systematic approach was followed to align the mandate of the programme with the needs of the community.

SST conducted a geological survey of the Bhiwadi area understanding the terrain, river flows and the availability of water. Along with this, wealth ranking or grading of the village was done to identify the need for water conservation. Similar, geographical survey was done to identify the adequate water conservation technique in the intervention areas of ABGUS.

Dilasa studied the area identifying the watershed zones and existing structures in the Aurangabad region. Additionally, the community and panchayat members were included to understand their concern and involvement in the intervention.

> *The underground water table is decreasing due to excessive water usage by surrounding industries. If we do not conserve water now, then water shortage is inevitable in future. This need was identified systematically through surveys in the village.*
> *:Kusum, User Group Member, Jhoniyawas (ABGUS)*

Well-defined selection criteria were followed by ABGUS and Dilasa in their intervention areas, while in SST the identification mechanism has scope for strengthening

Of the total household members surveyed, about 50.8% of them responded that they were provided with the opportunity to apply for land levelling or site selection for the water structures.

The location for the water structures were finalized in consultation with the panchayat members, community leaders and village members for Dilasa and ABGUS while site-selection by SST was done in a closed-group of 15-20 members who were familiar with the project.

For SST, it was specified that random selection within group was conducted to shortlist the beneficiaries, due to budget constraints.

Selection criteria of community members (n=201)
Yes | No
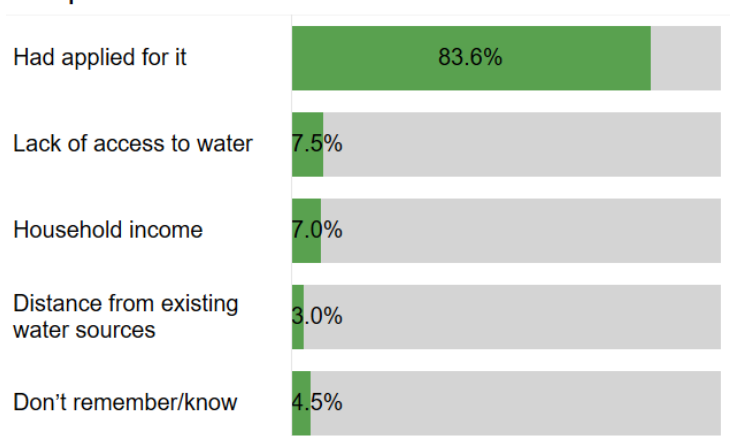
Had applied for it	83.6%
Lack of access to water	7.5%
Household income	7.0%
Distance from existing water sources	3.0%
Don't remember/know	4.5%

Effectiveness

This section aims to understand if the programmes have been designed with defined processes and systems to bring the desired outcomes in a timely manner

The programme has been implemented by teams with subject matter and community engagement expertise

It was communicated through the individual, panchayat members and support group discussions that though government water structures had been constructed to conserve ground water, the interventions were unsuccessful as the structures had developed cracks shortly after construction.

The implementation team were well-aware of the need in Bhiwadi, Dharuhera and Aurangabad and came up with a concrete plan to conserve water through scientifically proven water conservation techniques. This plan was shared with the community during the panchayat meetings and accordingly action was taken at the desired locations. Household members were especially satisfied with the work done by Dilasa as they could see the difference in material used by the NGO in contrast to that of the government.

The programmes have been implemented in a well-structured manner in respective intervention areas

The discourse with the different programme teams revealed the structured execution as depicted in the infographic below:

SIR SYED TRUST
Bhiwadi, Rajasthan

1. **Enhance Groundwater**
   - Levelling of land
   - Create dams/ bunds/ canal
   - Divert natural flow of water

2. **Agricultural Input**
   - Soil Profiling
   - Facilitating seeds and
   - Credit linkages

ABGUS
Dharuhera, Haryana

1. **Groundwater recharging**
   - Site-Selection
   - Create dams/ bunds/ canal

2. **Rejuvenating Ponds**
   - Cleaning pond
   - Bypassing the draining
   - Coherence with govt scheme

DILASA
Aurangabad, Maharashtra

Increase Groundwater level
- Facilitating Village Development Plan
- Create water shed structures
- Enhance irrigation system

Discussion with the individual, sarpanch and programme team showed that the implementation of the above-mentioned activities were carried out through a well-structured process including mobilization, awareness generation, training of relevant members and on-demand support mechanism.

- Overall, 84.3% of the members recall the sensitization activities conducted by the partners to generate awareness on water conservation activities.

Recall of community members regarding awareness activities (n=396)

Aware | Not aware | Not sure

6.1%
9.6%
84.3%
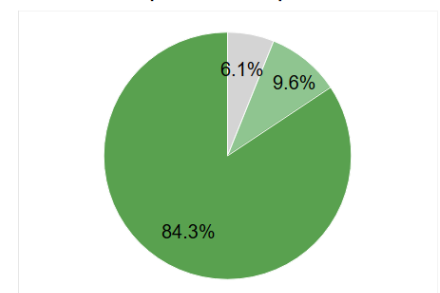
- The awareness campaigns were conducted by the NGO team and user group in the community as recalled by 82% and 50% of the household members, respectively.

- 81% of the community recall mobilization and awareness done through house visits followed by community level events at 53.4%. While multiple mediums have been utilized for awareness generation, the highest recall has been recorded for household visits.

- Community members and user groups shared that importance of water conservation and details on the conservation techniques were discussed during the awareness activities.

Medium of awareness generation in community (n=305)
Yes | No

House visits	81.6%
Community level event	53.4%
Posters and Banners	6.6%
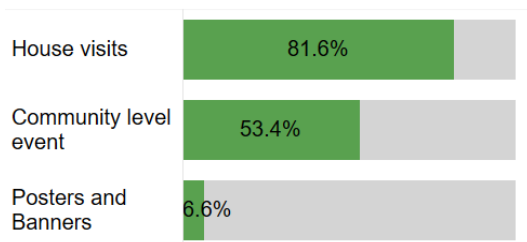
Sources of information about the program (n=334)
Yes | No

NGO member informed	82.0%
User group member in the village informed	50.0%
My neighbour informed	25.4%
Saw the water conservation structure	9.6%
Saw a banner/poster in the village	3.6%
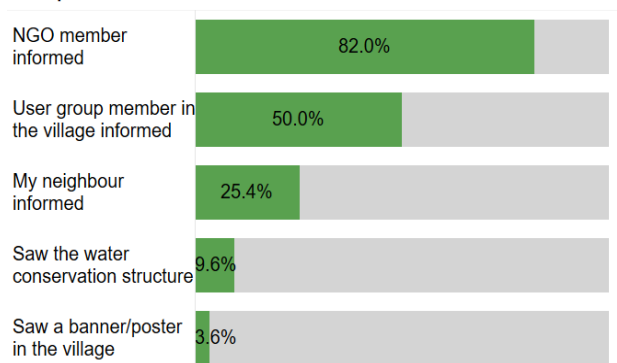
" *A detailed plan is always there, and it is accordingly communicated by the supervisor to the ground level team. The interventions are scientifically planned and communicated to the community through regular meetings.*
:Zakir Ali, User Group Member, Sare Khurd (SST) "

The programmes have been designed and implemented based on the needs of the communities

- 92.2% of the respondents perceive the interventions are accessible to all members of the community. While 90.6% are believe the user group members are capable of maintaining the structure.

- The community members were also satisfied with the quality and affordability of water accessed through structures.

- 44% of the community members did not perceive degradation of water structures, with Dilasa structures receiving highest positive response. In case of ABGUS, 71% of the respondents believe the structures have

Rating for aspects of the NGO water source (n=396)

Physical appearance

<5	5	6	7	8	9	10
9.1%	11.4%	20.2%	27.0%	23.5%	6.8%	2.0%

Water quality

<5	5	6	7	8	9	10
13.9%	9.3%	18.2%	24.7%	19.9%	8.1%	5.8%
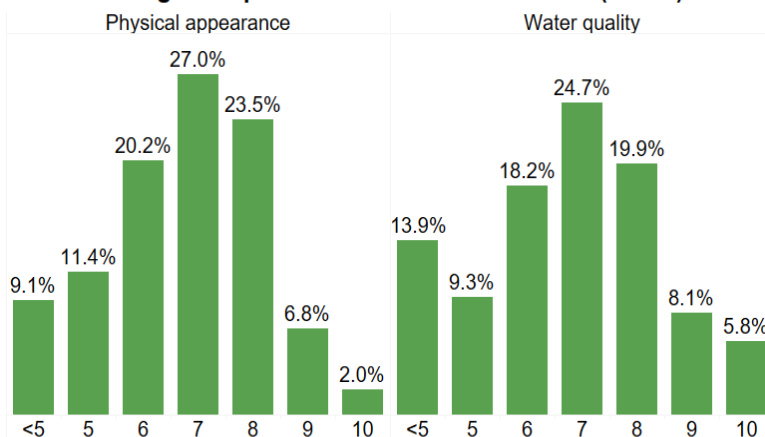
degraded from period of implementation (2016-19) and had not been repaired in Bhiwadi and Dharuhera.

Agreement on different aspects of the program (n=396)
Strongly agree | Agree | Neutral | Disagree

	Strongly agree	Agree	Neutral	Disagree
Everyone (including the minorities) are allowed to draw water from the community structures	40.9%	51.3%	6.8%	
User group members are capable to maintain the water structure	14.1%	76.5%	9.3%	
The price you pay for water is fair and affordable	13.1%	66.2%	14.1%	6.6%
All water needs are taken care of	14.1%	69.9%	5.3%	10.6%
Physical appearance of the water structure degraded over time	7.8%	47.5%	15.4%	29.3%

SST and Dilasa programme teams have visibility on the risks and relevant mitigation strategies but there is a scope of improvement for ABGUS in identifying the risks

Discussion with the implementation team revealed the following-

- The SST team mentioned the major challenge has been gaining the trust and confidence of the community members. Major concerns include fear of loss of land and indebtedness Additionally, despite shareholding interventions by the NGO, some community members were unwilling to contribute 20-30% of the shared cost as the community is economically vulnerable.

- Similarly, in Aurangabad due to lack of awareness on prior activities using shared models, farmers perceived that their land will be lost after construction of the structure on their farm. Generating awareness and creating understanding was cited as one of the major challenges faced by the Dilasa team. In such cases, community mobilisers have played a key role in spreading awareness about the project and its benefit among the community.

Increased water level of well in Aurangabad

The implementation partners have been able to mitigate these risks through higher involvement of mobiliser, panchayat members or surrounding farmers who are aware about the programme. Discussions with the ABGUS team did not reveal any structurally identified risks or planned mitigation mechanism

> Adoption is good but the NGO doesn't have enough funds to fulfil everyone's demand. Some 10% do not wish as they have good source already.
>
> :Santosh, User Group Member, Khatawali (ABGUS)

Rigorous physical monitoring has ensured regular improvisation of the programme activities

Monitoring mechanisms including frequency and role - responsibilities have been well defined in SST and Dilasa.

In SST, local resources in the village would visit fortnightly and Mr Asif Zaidi (Director) would visit half-yearly or annually to monitor the water structure in the community. Additionally, the community had the provision to reach out to the team for assistance if required. Through monitoring, the team tracked following metrics–

- o Water-level check after rain
- o Levelling vs non-levelling fertility of lands
- o Humidity
- o Soil fertility

Further based on monitored insights. the implementation team had identified mechanisms to address findings from ground in maintaining the water structure as required. For instance, based on the regular checks, "Murang" (red sand) was put to hold the structure and avoid erosion during the rainy season.

The community resource person or support group are always present from Dilasa, initially to monitor the progress of the construction and subsequently for regular check on the structure maintenance. Qualitative discussions in Dharuhera informed that after the implementation of the project, ABGUS team visits the villages as required, without defined mechanism for monitoring and evaluation of the project in the area.

Impact

This section aims to understand if there has been a positive impact created by the programme through its initiatives.

Community is aware of water scarcity in the region and understands the importance of the water conservation

While speaking to community members on the importance of water conservation, it was observed that they were aware of the water scarcity prevalent in the regions as it directly affects their living standards.
As understood by the members, groundwater depletion, scarce rainfall and less water sources primarily contribute to the water scarcity in the region.

Awareness among the community gradually developed through the interventions in the villages. People who were not part of the intervention and had the financial capacity to level their land have done so after observing the benefits of the same.

About 47% of the community members consider water conservation as overly important given the water scarcity in the region. After the completion of the water structures in the villages, awareness campaigns have not been conducted in a structured manner on conserving water domestically, signifying the scope for sustained awareness generation.

Perception of community on factors influencing water scarcity (n=396)
Yes | No
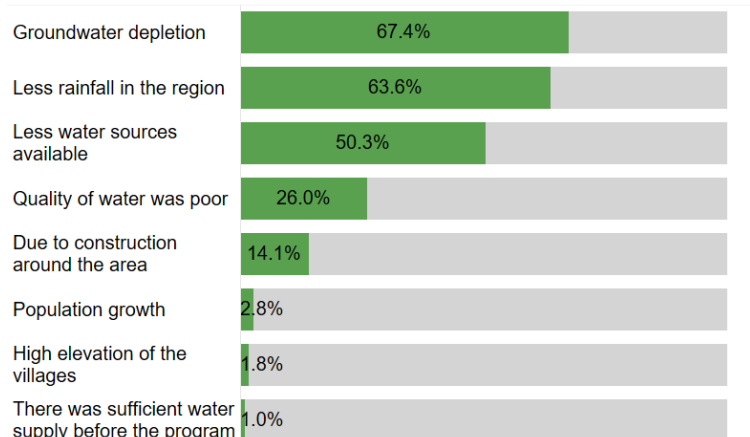
Factor	Yes %
Groundwater depletion	67.4%
Less rainfall in the region	63.6%
Less water sources available	50.3%
Quality of water was poor	26.0%
Due to construction around the area	14.1%
Population growth	2.8%
High elevation of the villages	1.8%
There was sufficient water supply before the program	1.0%

Rating on importance of water conservation (0:No importance-10: most important) (n=396)

Rating	%
<5	8.3%
5	6.6%
6	13.1%
7	25.0%
8	31.6%
9	9.1%
10	6.3%
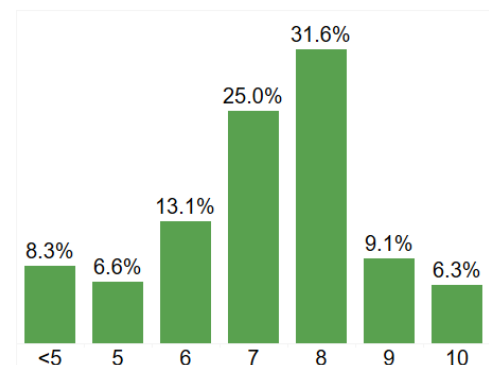
> " After the construction of the water bunds, 3-month training period is conducted to teach community members on the technicalities of the project. Also, SST took extra care of the language used during the training was easily comprehensible by the farmers.
>
> :Tayr Ali, Farmer, Gadheli (SST) "

Significant increase in the usage of the dams and bunds for domestic and agricultural activities by the community

The quantitative survey revealed that prior to the programme, 52.8% of the community members were dependent on borewell while 47.7% on wells in the village. This has significantly changed after the intervention as 43.2% of the community use contour bunds, 36.6% use dams and 33.8% use drop structures created along the river stream for domestic as well as agricultural activities.

60% of the respondents reported using the water for drinking followed by other domestic activities including bathing, washing clothes and utensils. 17% of the respondents use the water from structures for irrigation

Earthen bund built in Aurangabad

Water consumption sources prior to the program (n=396)
Yes | No
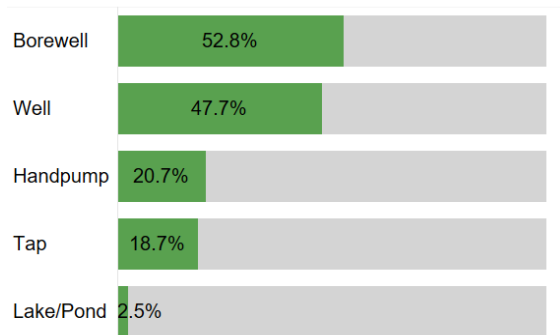
Borewell	52.8%
Well	47.7%
Handpump	20.7%
Tap	18.7%
Lake/Pond	2.5%

Usage of water supply from the community structures (n=396)
Yes | No

Drinking water	60.1%
Food preparation	53.3%
Washing and Bathing	37.9%
Washing clothes	27.3%
Watering plants	26.3%
Washing dishes	20.5%
Flushing	19.2%
Irrigation	17.2%
Raise livestock	10.6%

Water conservation structures being used for domestic and agriculture purposes (n=396)
Yes | No

Contour Bunds	43.2%
Dams	36.6%
Drop Structure	33.8%
Culverts	6.3%
Don't know	6.1%
Others	4.5%
Diversion	3.8%
Terracing	1.5%
Bank Protectors	0.8%
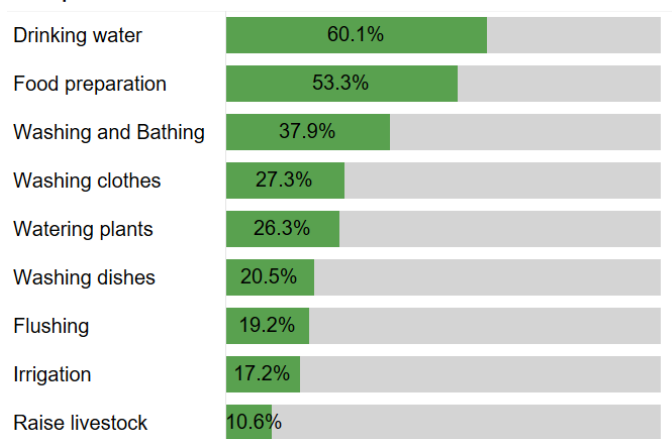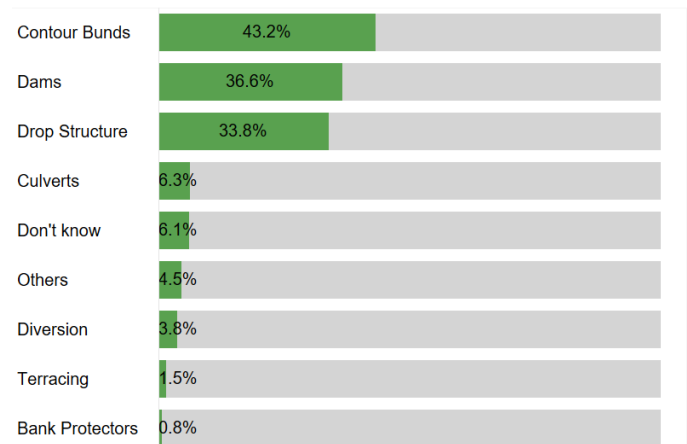
The programmes have led to substantial reduction in time to access the water

As represented in the graph below, the time required to collect sufficient water for household consumption has reduced. 40% of the respondents required more than 2 hours for water collection prior to the programme, while only 4.3% continue to need 2hrs or higher post intervention.

Time required for a person have to travel to collect water in a day (n=396)

Before		After	
0-1 hour	60.2%	<=15 mins	30.6%
		15-30 mins	36.1%
2-3 hours	35.0%	31 mins-1 hour	18.4%
		1-2 hour	10.6%
>3 hours	4.8%	>2 hour	4.3%
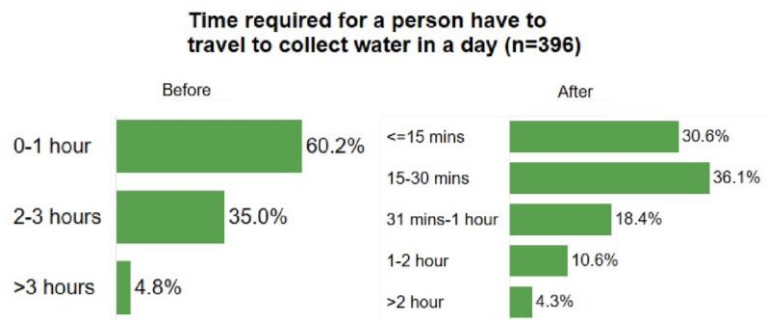
Due to the reduction in time, there has also been a change in the responsibility among the household members for the drudgery required to collect water. 90% of the HHs included women for procuring water prior to intervention, which has reduced to 52%.

After the programme, this change is reflected among men of the household as 82.1% of men are involved now as opposed to 52.3% prior to the programme. This indicates reduction in domestic drudgery among women in households both from time taken for procurement and responsibility shared.

HH member responsible for procuring drinking water for the household (n=396)
Yes | No

	Before	After
Women	90.4%	51.8%
Male	52.3%	82.1%
Children	12.9%	10.4%
All of the above	11.4%	8.6%
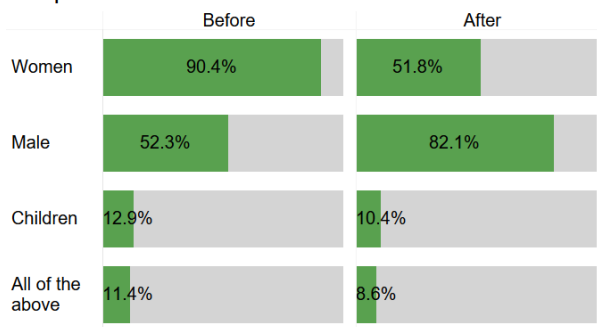
Primary mode of transport for collection for drinking water (n=396)
Yes | No

	Before	After
Walk	64.1%	59.3%
Home delivered	42.9%	34.3%
Bike		13.9%
Cart	5.8%	3.0%
Cycle	9.1%	7.6%
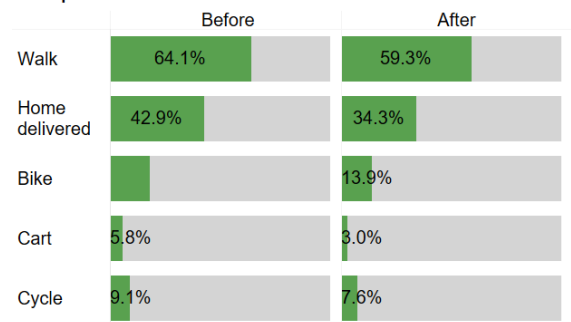
Communities had increased access to water through the structures. However, recent scarce rainfall impacted groundwater recharge

Qualitative discussions with community members have revealed that in Aurangabad area the groundwater depth had been extremely low, and well water was sunken. Post intervention, the water levels of deep wells have risen. In addition, among conservation structures mapped with agricultural lands, communities have shared that

Total months in which water is available at water sources (n=253)

	Before	After
1-3	13.4%	27.8%
4-6	8.4%	14.2%
7-9	13.4%	10.9%
10-12	64.1%	44.3%
Don't know	0.8%	2.8%
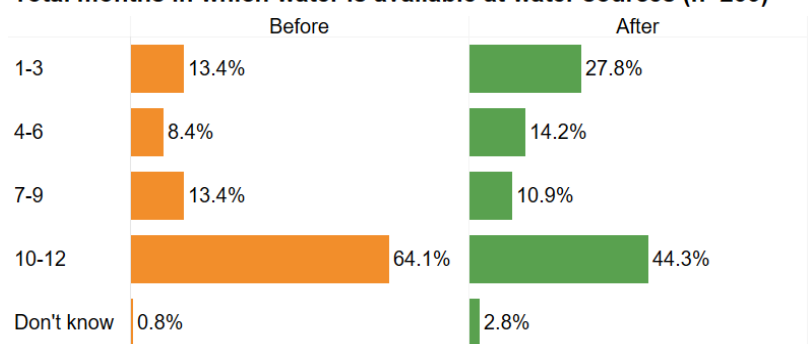
the farm ponds have led to increased supply of water to surrounding farmers. One of the farmers had reported a longer period of water availability for irrigation.

However, periodic decrease in water availability and water stress due to less rainfall in the recent years, has led to decreased groundwater recharging, evidencing the continued dependence on rainfall.

Total months in which water is available at water sources

	ABGUS (n=45)		Dilasa (n=186)		SST (n=165)	
	Before	After	Before	After	Before	After
1-3			23.2%	11.4%	6.1%	53.9%
4-6	26.7%	24.4%	11.4%	15.7%		9.7%
7-9	13.3%	15.6%	24.9%	17.3%	0.6%	2.4%
10-12	53.3%	46.7%	40.5%	55.7%	93.3%	30.9%
Don't know	6.7%	13.3%				3.0%
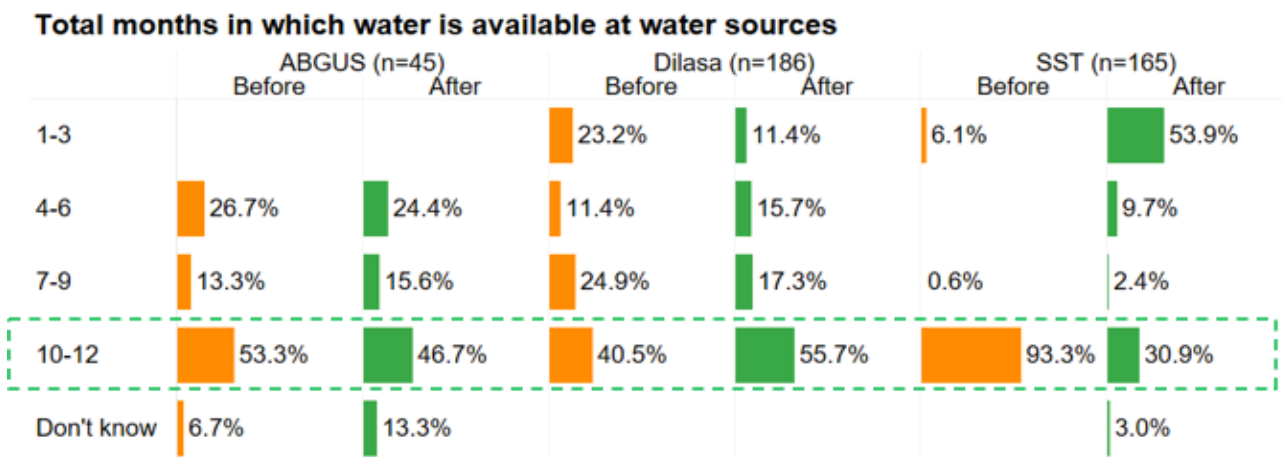
There has been a marginal improvement in the crop productivity after the programmes.

The water conservation structures that led to increased water availability for irrigation include farm ponds and bunds.

86.1% of the respondents observed no change in the crop yield or productivity. This is also influenced by majority of the community members surveyed accessing water for domestic purposes including drinking, cooking etc.

14% of the respondents have observed increase in agricultural productivity with 12.4% reporting a production increase of 1-2 ton per acre whereas 1.5% said it is above 2 tons per acre.

Among the community accessing water for irrigation, 71.4% reported better profitability while 38% reported diversification of crops.

The yield of the land increased due to irrigation (n=396)

No improvement	86.1%
1-2 tons/acre	12.4%
>2 tons/acre	1.5%

Change in productivity due to irrigation (n=42)
Yes | No

Better profitability	71.4%
More Diversification	38.1%
Better Input management	28.6%
Better quality products	23.8%
Don't know	2.4%
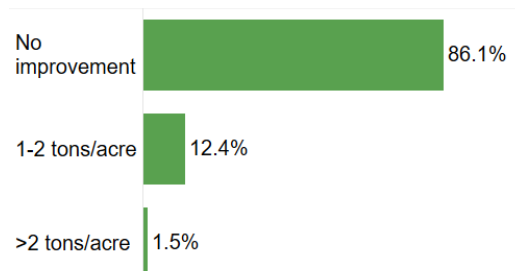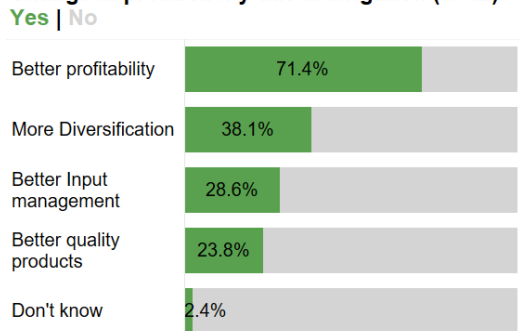
> " Well water is available for majority of the year now. Farms near the structure have higher water available for irrigation. Different vegetables are grown and dairy business has been taken up because of increased water. The farms distant from structure have limited water availability. We need more structures in other places too.
>
> :Aurna Chitrak, Community Member, Sultanwadi (Dilasa) "

Farmers perceive increased agricultural income due to the programme

Water availability has led to increase in irrigation available in cases where groundwater increase was complemented using sprinkler/drip irrigation. In addition, increase in grazing land and water available for livestock has been reported by the community members during qualitative discussions.

50% of the respondents perceive increased income among the members utilizing water for productive activity. Farmers have reported that support through agricultural inputs has benefited agricultural productivity, while land levelling has resulted in retention of soil moisture and prevented drain off.

40% of the respondents perceive an increase in household income through productive activities.

Has the program enabled wealth creation among the community members? (n=396)
Yes | No | Not sure

23.2%
50.0%
26.8%

Wealth created among the community members (n=198)
Yes | No

HH income has increased — 80.8%
HH savings has increased — 32.3%
HH has bought assets — 2.5%
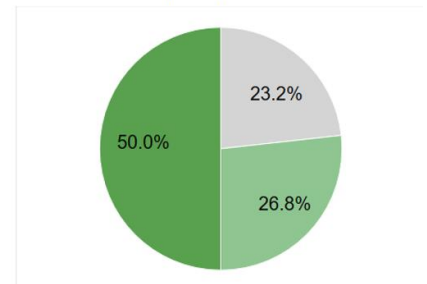
Increase in monthly due to irrigation (n=68)
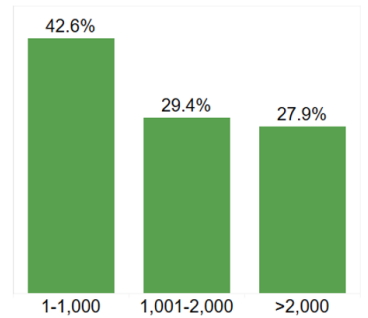
42.6%
29.4%
27.9%
1-1,000 | 1,001-2,000 | >2,000

Sustainability

This section aims to understand if the programmes have been able to achieve sustainability, and if the impact of the programme is likely to be continued after the exit of active implementation

User groups have been equipped with technical knowledge required to maintain water conservation structures except for the community in Dharuhera

- In respective areas, the NGO partners mobilized the individual household members and formed a user group, responsible for maintaining the water structure. It was found that over 33.8% of the households are part of the user group formed.

- Community members informed that the Dilasa team helped them with the technical knowledge required to maintain the water structure. In intervention areas of ABGUS, though the technical training was conducted, the members were unable to understand the same. Technical training conducted by SST were easily comprehensible as reported by the community members.

% of HH who were part of user group to maintain water structures (n=396)

Yes | No | Not sure

10.9%

33.8%

55.3%
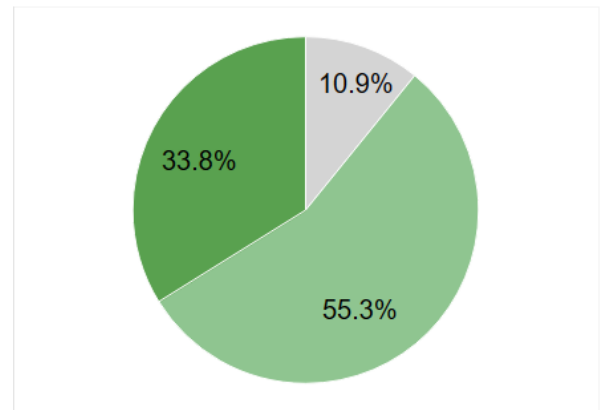
Increased community ownership in maintenance of the watershed structures

75% of the respondents perceive operation and maintenance of the structures to be the role of user groups, while 90% of the respondents perceive that the user group members are capable of structure maintenance. In addition, the community perceives mobilization and coordination, equitable distribution of water to be part of user group responsibilities.

Total hours in volunteered for water structure in a week (n=396)

Haven't volunteered	64.9%
1-5 hours	23.2%
5-9 hours	9.3%
>9 hours	2.5%
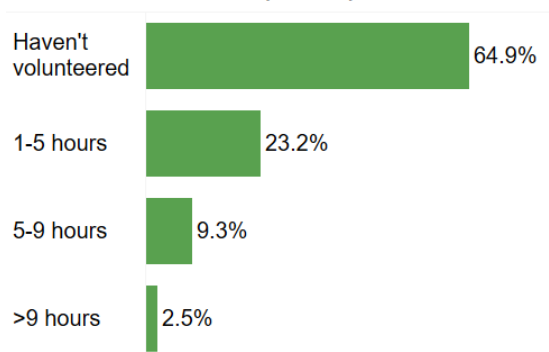
Roles and responsibilities of water user group (n=396)

Yes | No

Operation and maintenance of structure	75.8%
Coordinate with farmers and the NGO	58.3%
Water Distribution	41.4%
Resolution of local disputes	11.9%
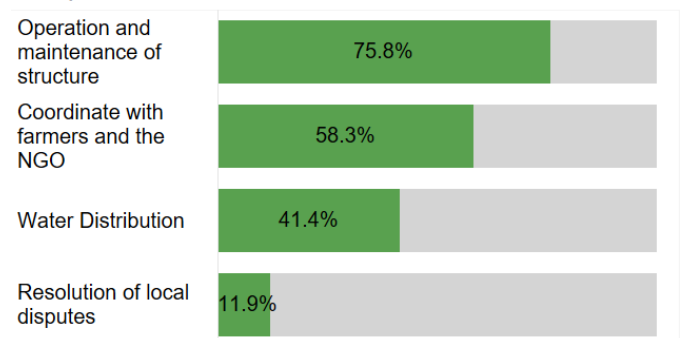
Scope for strengthening the affordability of maintaining the water structure across regions

61.1% of the members contribute a monthly amount to maintain the water structure while 16.4% give charges as per their usage. 20.7% said that they do not pay for the water utilized from the structure.

When the stakeholders were asked on the affordability of the water usage, it was found out that the monthly charges to maintain the water structure is above INR 1000 for 15% of the households, with 55% contributing between INR 250 to 1000 for maintenance.

Payment method followed by the ommunity (n=396)

Category	Percentage
Monthly lumpsum amount	61.1%
No charges	20.7%
Charges as per water structure	16.4%
Recharge membership card as per usage	1.8%
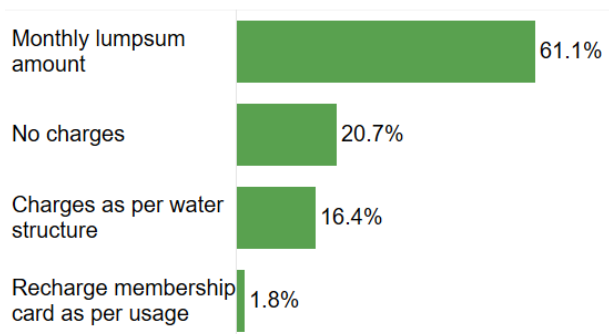
> " The passages that lead to the dams need repairing after monsoon period. However post construction, these repairs haven't been taken up. Apart from financial support, capacity building and role division for maintenance is required.
>
> :Kartar Singh, Farmer, Jhoneyawas (ABGUS) "

Further, the rigour of maintenance and operations has been observed to be dependent on the involvement of panchayat. Active addressal of maintenance issues, such as structural damage has been missing in case of ABGUS

Lumpsum amount paid by the HH in the month for water structures (n=242)

Range	Percentage
<250	30.2%
251-500	24.0%
501-750	16.1%
751-1000	14.9%
>1000	14.9%
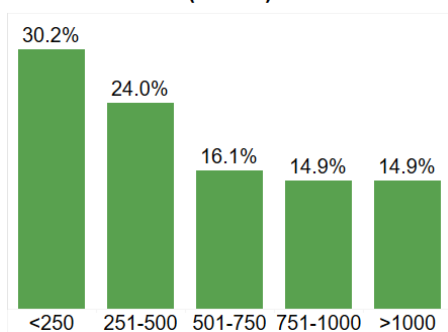
Amount paid in a month for water consumption from different community structures (n=43)

Range	Percentage
<50	4.7%
50-100	14.0%
100-150	25.6%
150-300	18.6%
>300	27.9%
Can't Say	9.3%
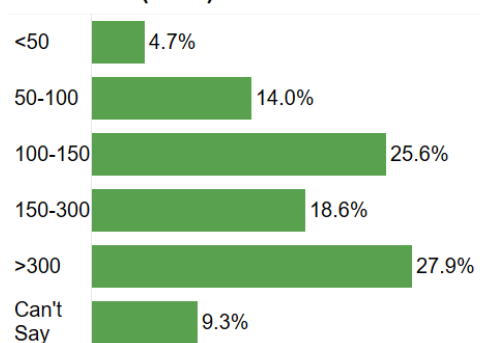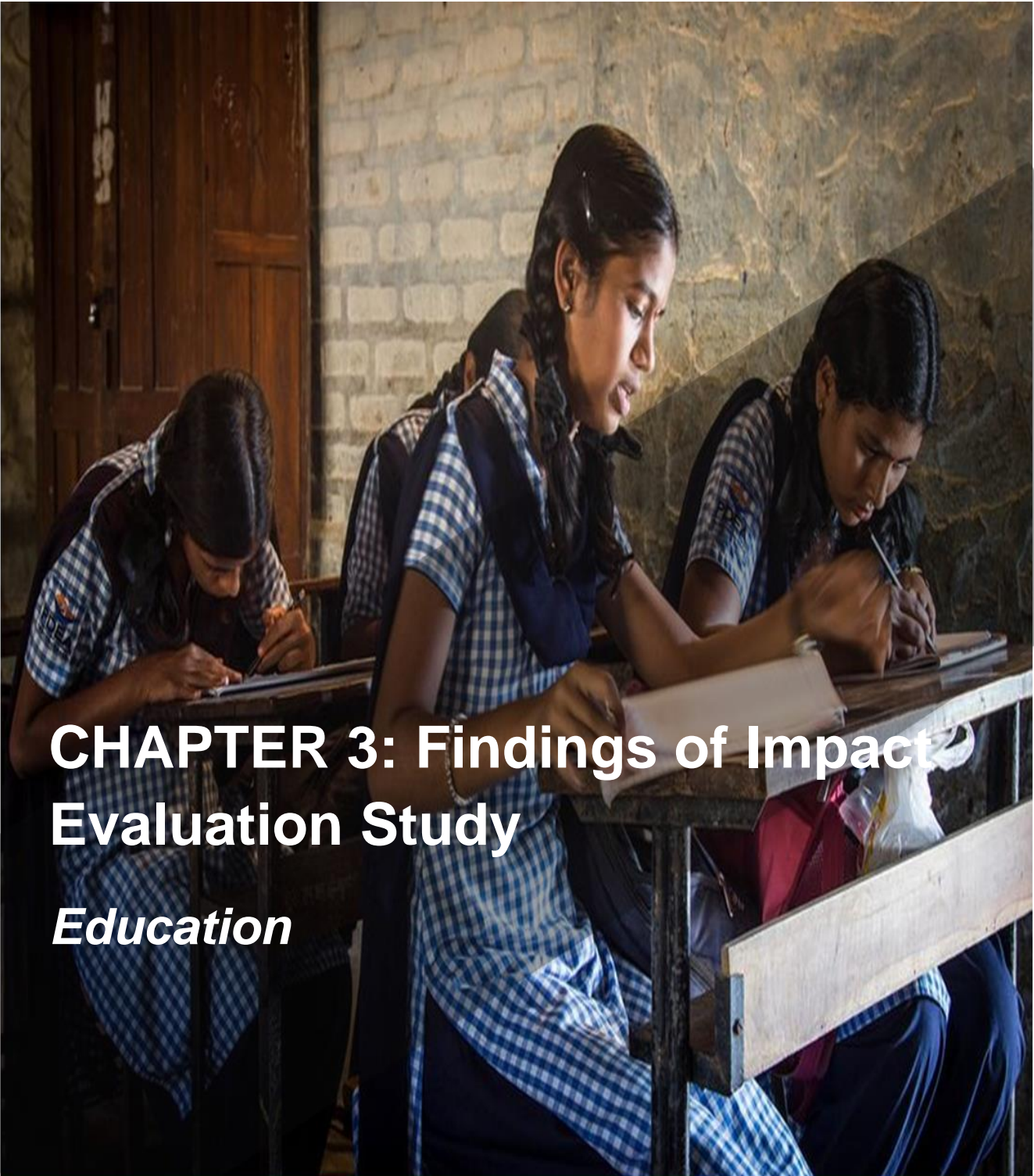
CHAPTER 3: Findings of Impact Evaluation Study

Education

Introduction and context

Science education is one of the most important subjects in school due to the universally applicable problem-solving and critical-thinking skills it generates amongst children. These are lifelong skills that allow children to generate ideas, weigh decisions intelligently, and even develop scientific temperament. Science activities done through the lab stimulate curiosity, provide practical opportunities to explore a concept in easy ways.

Research conducted by education departments such as NUEPA and NCERT have revealed the absence of science labs in more than 58% of the government schools in India.

UBL partnered with ACE education trust in Najanagud, Mysore to build science labs and to improve the infrastructure in the schools.

This chapter of the report details the key results and insights of the impact evaluation study across the OECD -DAC criteria outlined in the framework for the study. The insights have been drawn using the 360-degree approach of data collection by gathering data from qualitative methods and engaging with different stakeholders of the programme.

Mini science lab and infrastructure development programme by ACE education

Relevance

This section aims to understand if the needs of the community have been identified systematically, and if the programme objectives and activities are aligned with the identified needs of the community and the programme targets the right geographies and stakeholders.

The Science lab and school enhancement initiatives have been validated through qualitative discussions prior to the launch of the initiatives

There is a pre-established need for development of classroom and school infrastructure for a better education environment for students. The science lab, school enhancement programmes have materialized based on this pre-established need.

Qualitative discussions with teachers and HMs substantiated the need of the programme in view of low socio-economic development, absence of science labs and lab apparatus prior to the programme.

The quality of physical infrastructure was also observed to be low prior to the intervention with limited maintenance due to lack of funds. Najanagudu schools had only one toilet prior to the programme, presenting a need for construction of toilets separately for girls and boys.

Science lab room at Government Higher Primary School, Hulimavu

While the science labs have been relevant and critical in inculcating experiential learning among students, a focused need assessment study would be required to support in replication of the intervention in other areas.

A systematic process has been defined for the selection of schools under the science lab programme.

Schools were selected within 10km radius of United breweries plant in Najangudu based on strength of students, teachers' availability, need for infrastructure development and motivations of teachers and students. As per discussion with the programme team, the schools were evaluated through qualitative interactions with teachers in schools on infrastructural needs of the school.

ACE education followed due process with UBL plant and CSR teams, school headmaster and SMC team members for initiation of the program. The process also involved the approval from the BEO.

Further, the programme has been designed based on the identified needs of the schools, with the below objectives-

- Setting up science center/lab in the school to improve the science awareness among students
- Renovating rooms and toilets in the schools

Effectiveness

Systems and processes are set in place for executing the programme
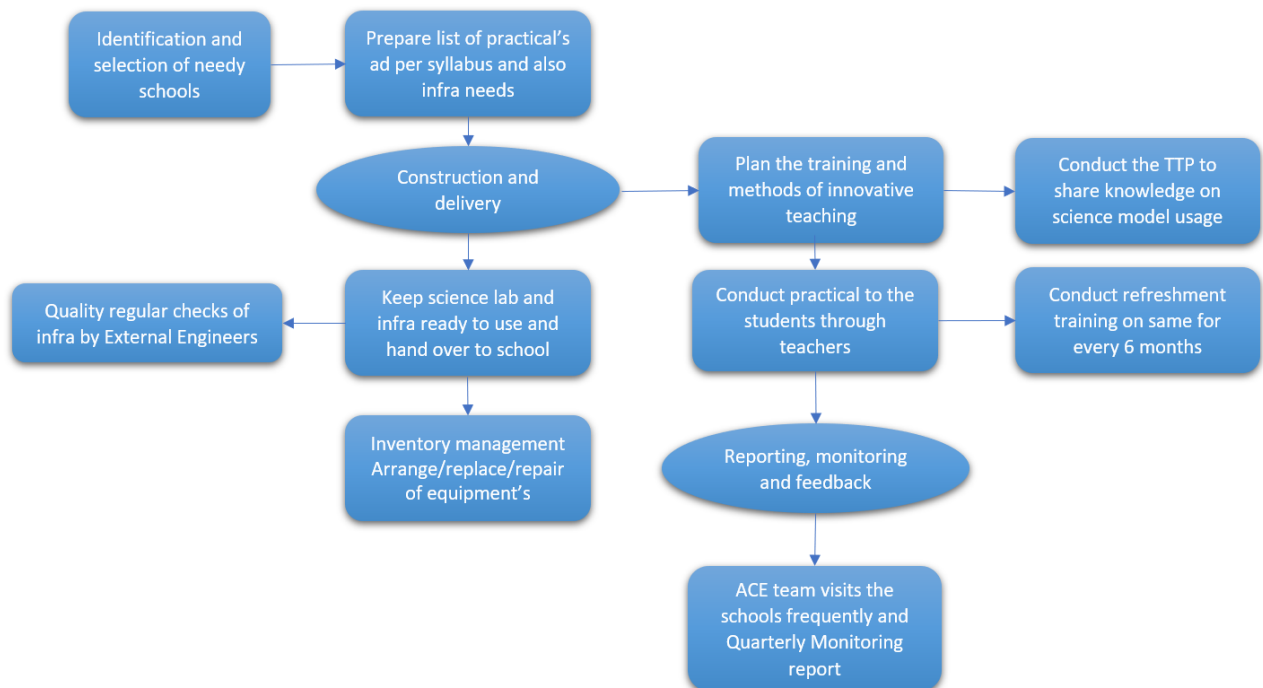
The programme has been implemented in a systematic manner with defined processes. Support areas such as permit generation from higher authorities, post construction responsibilities i.e.., operation and

maintenance of equipment; effective usage of models to the students are clearly drawn from a process point of view.

Based on qualitative discussions, different stakeholders are aware of the processes followed by the Implementation team, however there is a scope to strengthen the documentation for uniformity. The discussions with headmasters and teachers revealed the need for a documented SOP.

Science lab at Government Higher Primary School, Tandavapur

Curriculum-based model development and a team with relevant qualifications and experience have been involved in the programme

The programme team includes members with expertise on content and model development, teachers and subject matter experts with relevant professional qualifications. Capacity building for the teachers has been undertaken through TTP (Teachers Training Programme) every 6 months

The models have been developed by an external vendor with engineering expertise. These models have been integrated into pedagogy based on the government prescribed curriculum and concepts for 5th to 7th standard.

5th, 6th and 7th students access lab

Weekly 6 hours exposure to practical sessions

60 concept based demonstrative models

Structured implementation has been observed in the programme with inclusion of activity-based and group-based learning practices. In addition, schedules and timetables were developed by teachers at the school to ensure active usage of models in daily teaching.

Renovated walls of Government Higher Primary School, Srirampura with scientists and associated scientific concepts

Student level progress monitoring is undertaken by the school, while programme level monitoring is done on a quarterly basis by the ACE team

Students have shared the highest rating for science labs and classrooms among the facilities available at the school.

As part of monitoring, the implementation team conducts quarterly visits to the schools to enable reporting based on defined indicators like number of classes conducted using a model in quarter, conditions of equipment, repairs if any, frequency of usage, students' feedback and any other requirements requested during the visits.

Student level indicators i.e., attendance and cocurricular participation have been monitored by the teachers. The quality of infrastructure was being monitored by the external engineers as well as the ACE team.

Average rating on the school components as perceived by the students (n=18)

School component	Rating
Science lab	10.0
Classroom cleanliness	10.0
Functioning of Toilets	9.5
Drinking water facilities	9.5
Classroom space	9.5
Classroom furniture	9.5
Library	9.0
Condition of Teaching Aids	9.0
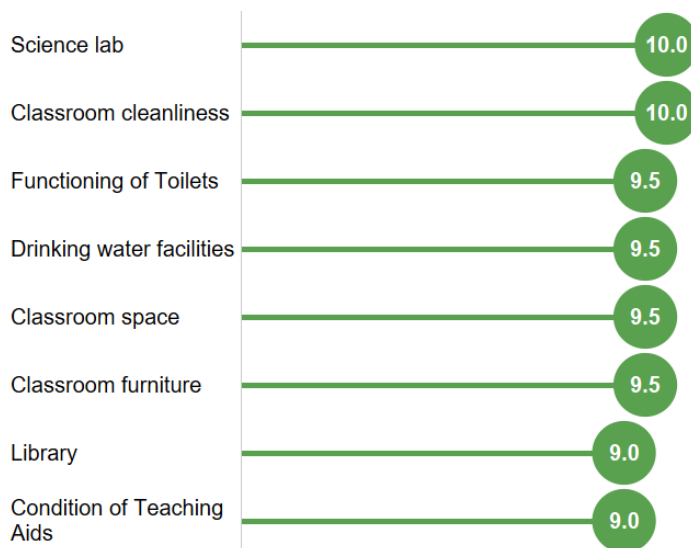
Project team has clear visibility of the key risk factors influencing the achievement or non-achievement of objectives

One of the key risks identified by the team was the frequent need for repairs of equipment and UPS which has been mitigated through the support of UBL for operations and maintenance. The team also recognized further infrastructure development needs at a school level which may bear additional costs. However, low involvement of SMC members has not been identified as a key risk by the team.

Impact

The programme has improved student learning atmosphere in schools

The programme has enabled access to quality infrastructure and learning methods for students. Qualitative discussions have revealed that lack of infrastructural capacity and the condition of maintenance were the key challenges prior to the intervention. Lack of proper roofing and construction led to disruption in school operations and classroom delivery prior to the programme.

Post intervention, the teachers of both the schools shared that the quality of infrastructure i.e., repairing of school roofs, painting the school building led to improved classroom delivery. The construction of separate toilets for girls and boys in Nanjanagud school has also led to improvement in student experience at school.

Programme has enabled innovative teaching practices and improvement in self-learning among the students

Discussion with teachers and students, has revealed a significant shift from theoretical classes to practical exposure.

Inclusion of group activities where students read the theory and steps behind each model followed by demonstration to the larger group has led to increased self-learning abilities.

Development of home-based science models and participation in science exhibitions has increased scientific curiosity among the students.

Science lab in Government Higher Primary School, Srirampura

> " *Our teacher teachers demonstrate the models while explaining the science concepts and laws which made us feel science as an easier subject. Also playing with models increased our curiosity on science*
> **Charan, Sushmitha and Anitha, 7th std, GHPS, Tandavapur** "

89% of the students have been able to demonstrate models and 78% have been able to recall the scientific concept behind the models

Student level and group-based learning through lab models, coupled with access to science exhibitions, competitions, essay writing on science topics at different levels has improved student understanding of scientific concepts.

78% of the students were able to recall the scientific concepts in their curriculum and 89% demonstrated the models learnt.

% of students able to recall the concepts (n=18)
Yes | No

Able to Demonstate the model clearly   Remembers laws behind the model

11.1%

88.9%

22.2%

77.8%
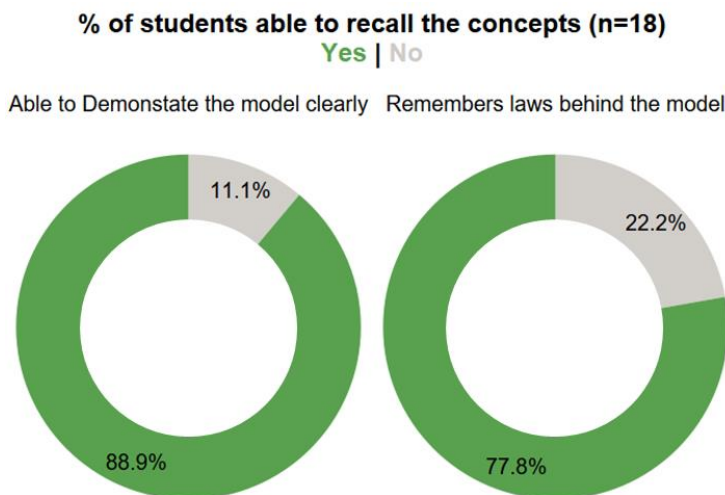
Students discussing models at Government Higher Primary School, Tandavapura

Further during FGDs it was observed that the students were able to recall and explain model operations and underlying scientific principles, despite a break in access to the lab due to COVID.

> *Students attentiveness has increased in the class as they were able to get the concepts or laws behind the real world solutions through practical classes in science lab. Students started asking doubts and interacting with teachers.*
>
> **Prabhavathi, HM, GHPS, Srirampura**

Teachers and headmasters of both the schools observed an increase in attentiveness in the class, with higher participation among students through doubts. As the school lab had included multiple visitors like dignitaries, students, teachers from different schools and districts, students' involvement in model demonstration to the visitors led to improvement in their confidence and communication skills.

30:1 | 18:1
Pre | Post
Student teacher ratio

0%
Dropout

> *Every year 400-600 visitors including students, teachers and officials from different districts visit the science lab. Students explain and demonstrate the models to the visitors, which has improved their confidence in communication. Inspired by the impact of science lab. some of the visiting schools have also built similar small scale models in their respective schools. :*
>
> **Mahadevi, HM, GHPS, Tandavpur**

Sustainability

Institutional sustainability is achieved, and operational sustainability needs to be strengthened through community ownership

Based on the discussion with various stakeholders, the programme team has been actively involved in infrastructural maintenance. While the management and ownership of the programme have been transferred to school authorities after the construction of the building, there is limited financial flexibility within school to allocate funds towards operations and maintenance.

The SMC members and community leaders participate in the events organized by the schools and programme team. However, their involvement has been limited to written consent for programmes. The lack of SMC participation and ownership presents a risk to the long-term sustainability of the programme.

SST: Enhancement of quality of education and learning atmosphere in primary and upper primary schools

Relevance

The need for school enhancement program is validated through systematic needs assessment before the start of the program

Prior to the program, SST conducted a survey of 100 schools to understand the infrastructure availability, learning atmosphere, and teaching quality. SMC members of these schools had described multiple challenges including inadequacy of teachers, low motivation among students, unavailability of basic amenities, and lack of enough space for students to learn. These inputs have been taken into consideration through the design of the program, with the identification of needs of the target group.

Based on discussions with school authorities, the SST team defined following objectives –

1. Revamping infrastructure to enhance overall environment of schools
2. Connecting education with livelihood opportunities and trainings
3. Working with the government system for mainstreaming
4. Focus on primary education
5. Renovating rooms and toilets in the schools

Selection criteria have been defined for identification of schools for adoption

Among the 100 schools surveyed, 10 upper primary schools (Up to Grade 6) were shortlisted for intervention based on the indicators of poor infrastructure, teacher, SMC absence and poor quality of education imparted in the schools. The profiling and selection of the schools were submitted to the UBL CSR team in the form of a proposal for school adoption intervention. Along with this, MoU with government, panchayat and SMC, were looped in for the SST programme in schools.

Effectiveness

Well-designed systems and processes are in place for the execution of the programme along with a well-qualified programme team

Based discussions with the stakeholders, the programme has been designed with systems and processes including classes, timetable, school activities. In addition, training on ICT infrastructure is conducted with the execution team, including para teachers and government teachers.

However, standardized documentation has not been maintained on the systems and processes. The key facets and aligned activities of the school adoption programme are mentioned below-

Uplifting Infrastructure	Empowering SMC	Pedagogical Innovation	ICT infrastructure	Bal Sansad	Teachers
Repairing walls of classrooms, toilets and overall building	Supporting SMC to enable better management of schools	Teachers are well-trained on 21st century teaching skills to enhance the learning experience	Providing ICT infrastructure to schools to enable IT skill development	Empowering advocacy among the learners and become better citizens through in-house student elections	Providing para teachers at the school in place of government appointed teachers

The programme team has more than 7 years of experience in the social sector, especially in education. The teachers who were part of the schools were qualified professionals with BST and RET certifications.

The students rated an average of 7.4 out of 10 to the school facilities provided by SST, with highest rating for teaching aids and drinking water facilities

Average rating on the school components as perceived by the students (n=41)

Component	Rating
Condition of Teaching Aids	9.0
Drinking water facilities	9.0
Library	9.0
Classroom furniture	8.0
Classroom cleanliness	7.0
Functioning of Toilets	5.0
Classroom space	4.5
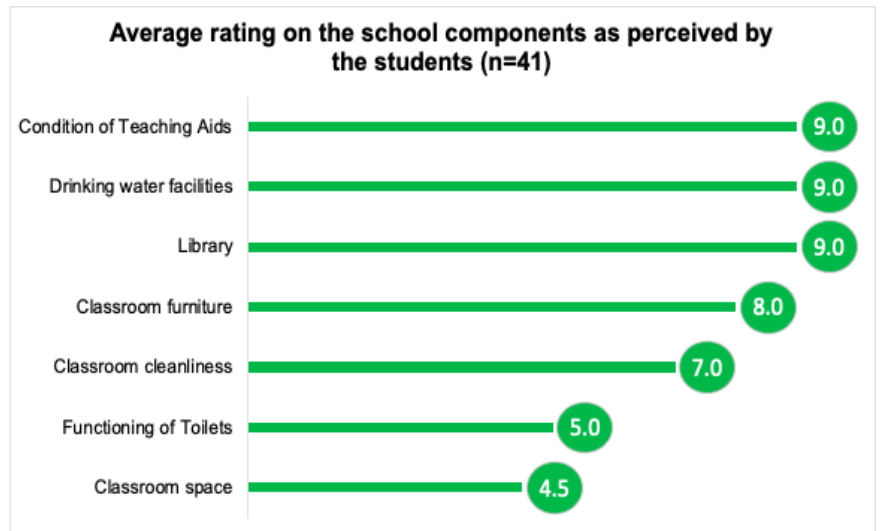
State curriculum and pedagogical interventions have been undertaken by SST through regular training of teachers at schools

The intervention has been integrated with the curriculum prescribed by the government primary education department. SST has adapted the curriculum to be complemented with teaching methodologies such as activity-based learning.

The capacity building of teachers is undertaken periodically to enable familiarization and usage of new teaching methods which includes demonstration methods using teaching aids and group activities.

For e.g. benefits of kitchen garden, entrepreneurship etc are included as holistic learning components through the programme.

> " While the curriculum is defined by the government, we are including innovative pedagogies through SST support. Our headmaster ensures adequate training is conducted for teachers to enhance our skills.
>
> **:Mithlesh and Deepchand, Teacher, GMPS, Sarekhurd** "

Defined monitoring mechanisms are in place and risks have been identified

The monitoring of the programme activities is done by the SMCs at school level and project coordinator on a regular basis. Student level monitoring is done through daily attendance in the classrooms and evaluation based on the assessments set by the government guidelines.
The programme team undertakes monthly monitoring visits complemented with SMC meeting schedule to understand the progress and resolve any issues.

Low classroom space and theft in the schools have been cited as major challenges faced by the programme. Infrastructure upgradation and increase of classroom space have been identified as the critical needs of schools in the programme, which is beyond the defined budget scope. As a redressal mechanism, SST has sought support from relevant government departments for the infrastructure upgradation required at school.

Impact

Students have access to quality education with a platform for self-expression and learning

Discussion with the students, parents, and teachers, has revealed that the enhancement of infrastructure and upskilling of teachers have enabled the students to gain better subject understanding.

The student- teacher ratio which was a key concern prior to the programme, has been addressed by appointing para-teachers and by presenting requests to the education department for adequate government appointed teachers. The student-teacher ratio has seen a drastic shift from **120:1** to **22:1.**

Students were able to recall the innovative activity-based teaching practices employed by their teachers resulting in a better learning environment. During qualitative discussions, 75% of the students perceived better quality teachers and teaching methods in their school compared to other schools in the area.

22:1
Student to Teacher ratio

3
Average Computers at school

1%
Annual Dropout Rate

The ICT infrastructure at school has enabled basic understanding of the computers to grade 3 and above students. This has also enhanced the interest level among the students on the information technology and other related subjects.
The Bal Sansad at school consisting of 10-12 student members, has enabled the students to understand the democratic process and institutions in place and it also enhances the ownership and responsibility among the students to take up different tasks at school such as cleaning of the school premises, discipline at school, participation in school activities etc. During qualitative discussions, students were able to recall key aspects of civic responsibility and basics of computer operation.

> *Because of the activities at school, student's absenteeism have reduced significantly. We have responsibility in maintaining the school through Bal Sansads. Regular school events are carried out which keeps us engaged.*
>
> *:Sooraj, Student, GPS, Indore*

Increase in motivation of children and teachers through change in classroom teaching practices

Inclusion of innovative teaching methods such as 'chart and pictures-based study', 'chit and puzzle-based engagement' has resulted in increased motivation among the students. Teachers have shared the increased participation of students in classroom leaning and Bal Samsad. The efficacy of models and the familiarization with basic computer operations has resulted in continuation of school education during the COVID lockdown. This was evident with the adoption of the online teaching platform as part of SMILE programme.

The change in teaching methodologies and co-curricular activities has resulted in holistic student development in the below areas –

- Higher participation in classroom learning
- Increased civic awareness and responsibility among students at school level
- Increased participation in extracurricular activities including drama, music and dance

Programme has led to an average increase in enrollment by 78% across 10 schools

The infrastructure upgradation, para teacher appointment and change in teaching methods have resulted in higher enrollment levels in the intervened schools. Further, qualitative discussions have revealed improvement in student learning outcomes with the annual **dropouts limited to 1%**

SST Schools	School Enrolment in June 2016			Enrolment in Sep 2017			Increase in Enrollment
	Boys	Girls	Total	Boys	Girls	Total	
SSS Jodiya Mev	147	79	226	303	161	464	105.3
SS Gandhola	174	109	283	280	186	466	64.7
SS Sarekalan	225	128	353	349	227	576	63.2
UPS HasanGori	84	53	137	138	88	226	65
UPS Indor	47	45	92	92	88	180	95.7
PS Sare Khurd	34	34	68	63	69	132	94.1
PS Khori Khurd	31	23	54	55	59	114	111.1
PS Shedwali	48	11	59	58	46	104	76.3
PS Kayra ki Dhani	39	24	63	47	49	96	52.4
PS Gadhelia	42	33	75	88	68	156	108
Total	871	539	1,410	1,473	1,041	2514	78.3

The school adoption programme has led to substantial increase in the income of para-teachers employed at school

SST employs para-teacher in the schools when there is a dearth of government appointed teachers. Teachers are trained on the curriculum to undertake classroom delivery for the students.

Para teachers have reported an increase in their salary after the programme. as described below:

Average salary of the para-teachers before and after the program

9,500 INR*   Before   13,750 INR   After
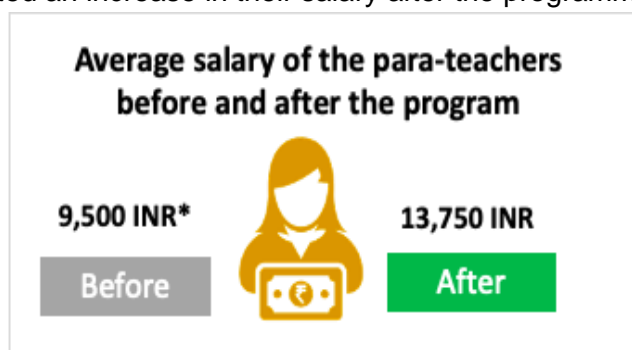
Note: The salary considered is of a full-time employee

Sustainability

SMCs act on their role responsibilities with ownership

SMC functioning has been reinitiated through the intervention. The SMC members are aware of individual role-responsibilities and participate in school volunteering activities on a rotational basis. Qualitative discussion with SMC members has revealed the need to improve the infrastructure of the government schools at the interior places as they lack adequate infrastructure facilities.

Below is the snapshot of key SMC metrics:

Total Number of SMC meetings held	Total number of SMC members	Average SMC members present	Percentage of SMC members present in a meeting
75	160	9.6	60.2

"
For sustained growth, the students needs to be encouraged for higher education. Parents in the villages are involved in farming and there has been less interest to teach students and want the to start earning as soon as possible because of financial condition of the households.
:Irfan, SMC Adhyaksh, GPS, Guwalda
"

CHAPTER 4: Recommendations

The recommendations have been developed in 3 key areas –

- **Strategic Recommendations** - Informing goals of the programmes
- **Tactical Recommendations -** Informing design of the programmes
- **Operational Recommendations -** Enabling effectiveness of the programmes

Safe Drinking Water

Strategic Recommendations

Observation	Recommendation
• Community has high awareness of importance of safe drinking water • Community has high adoption of safe drinking water sources • Community level resources have been involved in the implementation of the programme	**Integration of Safe Drinking Water programme into Jal Jeevan Mission's Village Action Plan** • Identification of key priorities identified at village level related to water availability and consumption • Integration of village committee members towards sustained impact of existing programme
• Community has high awareness of importance of safe drinking water and associated illnesses • Behavioural change achieved in the community through water treatment practices	**Integration of health and sanitation components into the programme towards holistic health and wellbeing of community** • Identification of water allied impact areas in the community, for awareness generation • Include preventive health and safe sanitation practices for awareness generation

Tactical Recommendations

Observation	Recommendation
• Low utilisation of water among ABGUS target community • Difficulty in continuous access due to disruption in operations when electricity supply has been sporadic, lack of chilling system	**Design change of programmes involving high resource, low impact models** • Include water delivery or cooling mechanisms in the structure (ABGUS) • Enable complete community or local government ownership
• Community has access to alternate safe drinking water sources in SIRDS target area	**Phase out of active engagement of programmes based on maturity** • Recognition of areas, where alternate safe water resources have emerged in the community to phase out active engagement through resources (SIRDS)

51

Operational Recommendations

Observation	Recommendation
• Monitoring indicators limited to amount of water filtered at plant level • Lack of defined frequency in monitoring indicators ie., quantity accesses, no of members accessing water etc	**Development of robust monitoring mechanism** • Enable better monitoring mechanisms to understand proximity, purpose of water utilisation among community members
• Target communities in Dilasa have household access to water filters but the cleaning of water filters has not been taken up in recommended frequency.	**Refresher awareness and best practices sessions in community towards water filter usage**

Water Conservation

Strategic Recommendations

Observation	Recommendation
• Community has high awareness of importance of safe drinking water • High adoption of safe drinking water sources (79% of the community) • Community level resources have engaged towards implementation of the programme	**Holistic development of water stewardship programme** • Identify water stress factors • Integrate strategies for water management in domestic and livelihood activities • Include agricultural management as a component through climate compatible inputs selection and agricultural practices
• 60% of the community use water for drinking purposes • Only 49% include water filtration before consumption of water • At a household level, water procured is used for consumption (drinking and cooking) as well as sanitary activities (washing, flushing etc)	**Integration of domestic water management into the programme** • Inclusion of household level practices towards water treatment for consumption • Identify water storage and usage practices to prevent recontamination

Tactical Recommendations

Observation	Recommendation
• Limited to no incidence of structural problems, low silting in Dilasa target community • Confidence among user groups higher in Dilasa water structures, where the upkeep did not include high technical knowledge requirement	**Replicate cemented and stone based water structures aimed at water diversion** • Include cemented structures for replication due to similar one-time cost, low maintenance problems
• Recall of community higher towards implementation organisation with limited brand recall of UBL • Community members were aware about the programme by looking at the structure	**Map water structures developed at public office or panchayat building for higher recall** • Include community level structure map for higher awareness among community

Operational Recommendations

Observation	Recommendation
• Maintenance of water structure has been observed to be higher in case of active panchayat and user group members • Lack of defined frequency in monitoring operational effectiveness of structures	**Address areas of low community ownership** • Among communities where the local government and user group involvement has been limited, include active capacity building component with defined frequency
• Water stress and ground level water availability continue to be prevalent concerns across geographies • Economic impact through productive activities has been enabled through supply of agricultural inputs in SST	**Include agricultural inputs, drought resistant crops awareness among community for higher economic impact** • Economic impact enhanced through water availability and input support • Address water stress among community through adoption of drought resistant crops

Education

Strategic Recommendations

Observation	Recommendation
• NUEPA study reveals **absence of science labs** in 58% of the government schools • Limited applicability of demonstrable teaching methods in government schools • High utilization of mini science centre in schools, along with improvement in student understanding of scientific concepts	**Development of Mini Science Project as a replicable initiative in hub and spoke model** • Identification of other locations at plant level with high gap in school infrastructure • Identify hub schools for development of science labs and capacity building of teachers • Enable annual science fair as a standard practice in schools of target community

Tactical Recommendations

Observation	Recommendation
• High need for enabling scientific rigour among school going children • Limited student level monitoring and learning outcomes data available with the programme	**Establish the effectiveness of Mini Science Center through a control-treatment evaluation** • Include comparative study of learning outcomes variation across students with and without access to demonstrable science lab
• Low teacher-student ratio as a significant gap in other locations in SST areas of operation • School infrastructure gaps persistent and higher in remote locations	**Scope to scale the school adoption programme by tailoring intervention facets relevant to the target schools** • Include comparative study of learning outcomes variation across students with and without access to demonstrable science lab

Operational Recommendations

Observation	
• Low involvement of SMCs in ACE education schools • Partner organisation continues handholding support in the science center.	**Operationalize SMCs with increased hand holding** • Increase SMC involvement to enable awareness and ownership of school lab infrastructure

Annexures

Annexure 1: Project and Partner Analysis of Safe Drinking Water

Demographics

Age distribution of respondents
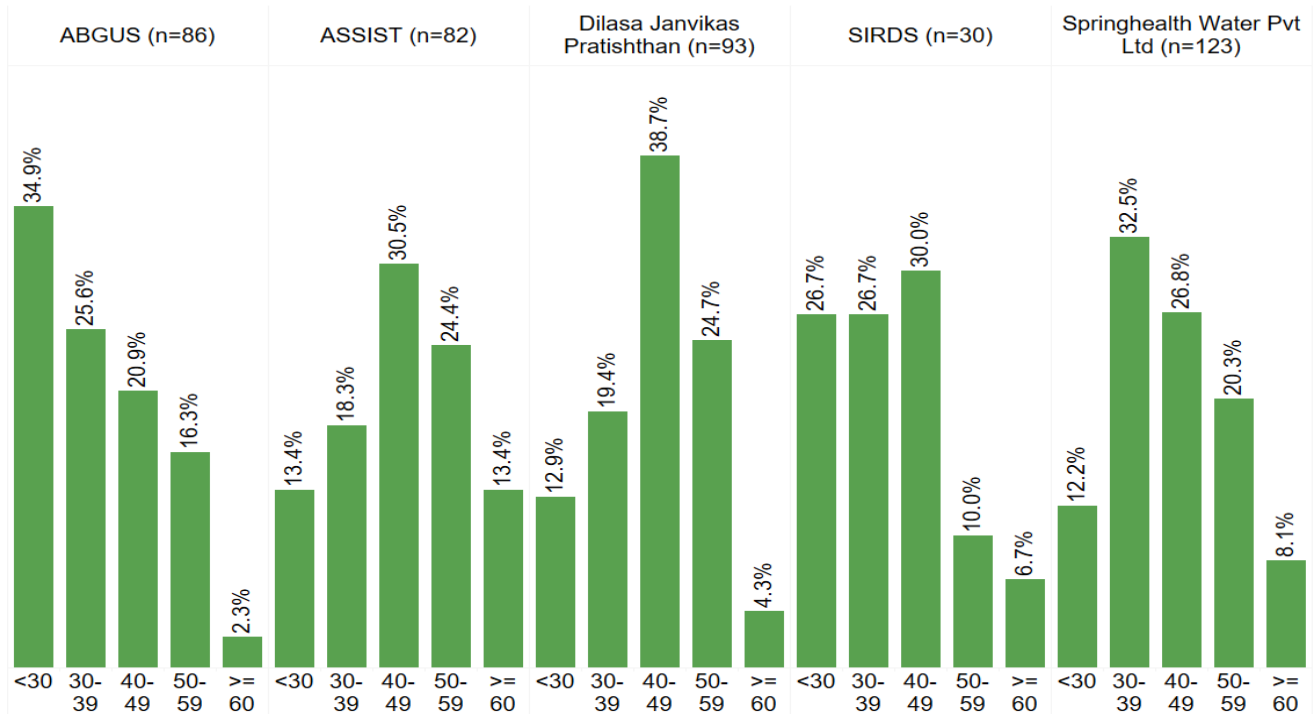
Total members in the HH
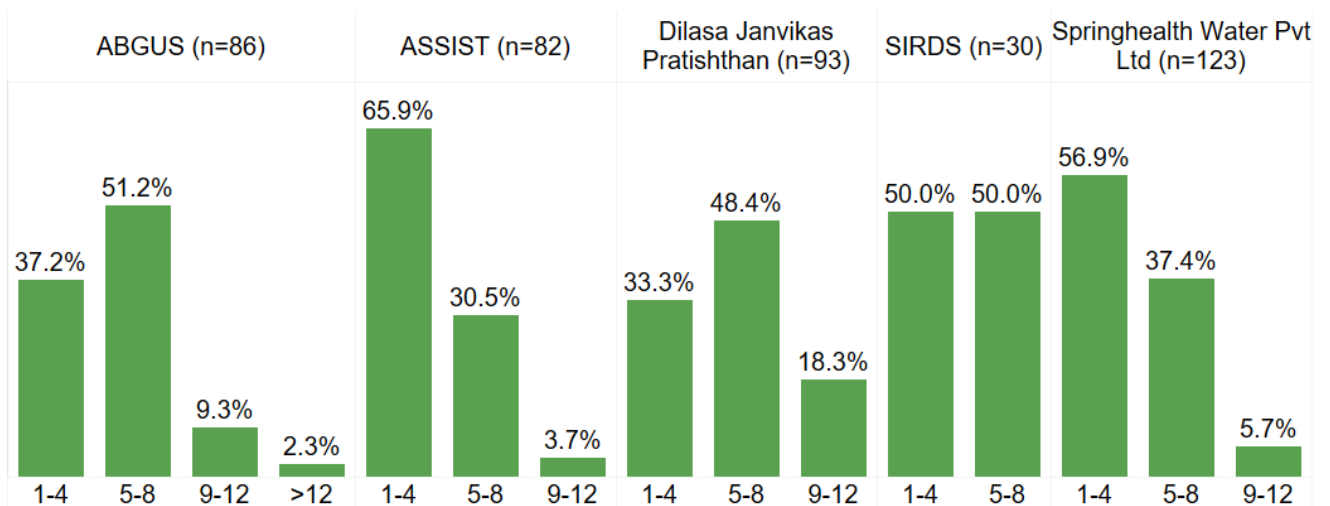
Relevance

The need for access and availability of safe drinking water has been identified in a scientific and systematic manner

Source of drinking water prior to the program

Yes | No

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
Tap	58.1%	29.3%	65.6%	13.3%	35.8%
Borewell	54.7%	43.9%	19.4%	66.7%	32.5%
Well	5.8%		57.0%		51.2%
Lake/Pond		25.6%	2.2%		
Other (Hand pumps, street tanks etc)	2.3%	9.8%	10.8%	20.0%	13.0%

Frequency of treating water

	ABGUS (n=6)	ASSIST (n=19)	Dilasa Janvikas Pratishthan (n=84)	SIRDS (n=8)	Springhealth Water Pvt Ltd (n=99)
Always	16.67%	68.42%	13.10%	100.00%	76.77%
Often	33.33%	21.05%	44.05%		12.12%
Rarely	16.67%	10.53%	14.29%		2.02%
Sometimes	33.33%		28.57%		9.09%

The need for appropriate water purification technology has been identified in a scientific and systematic manner

Methods of treating water before drinking prior to the program

Yes | No

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
Didn't treat the water	94%	78%	10%	60%	19%
Pass it through a sieve	1%	18%	51%	7%	32%
Boil it	2%	11%	8%	20%	51%
Filter it using a household filter	3%		9%	7%	49%
Use Alum in the water	1%		61%		6%
Other		1%	2%	13%	2%
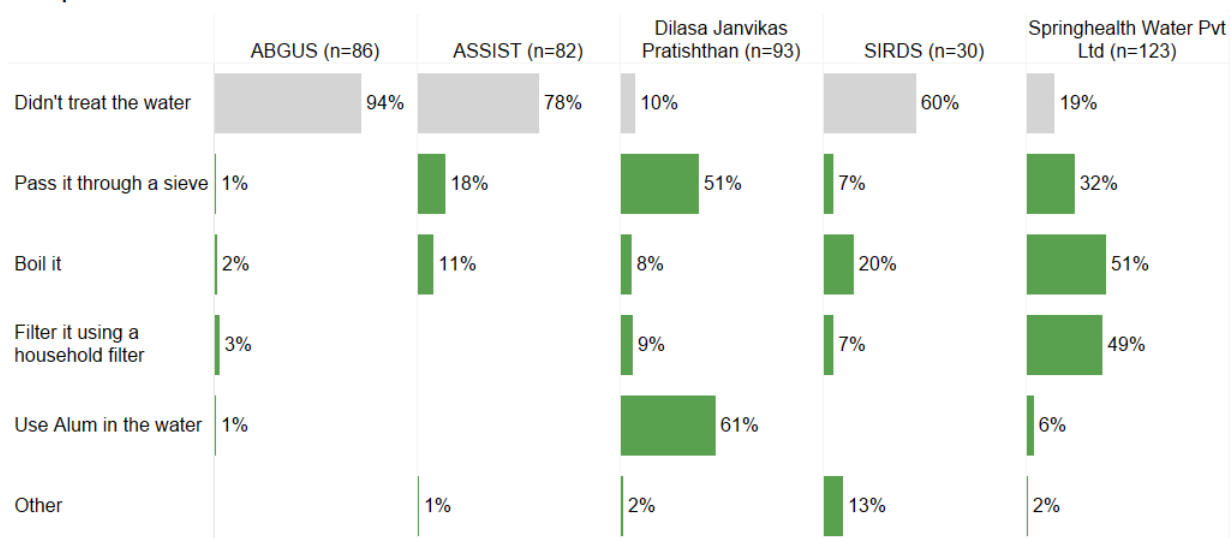
The project objectives and activities are aligned with the needs identified of the target group

Perceived safety of drinking water prior to the program, even after filtering

Safe | Unsafe | Don't know
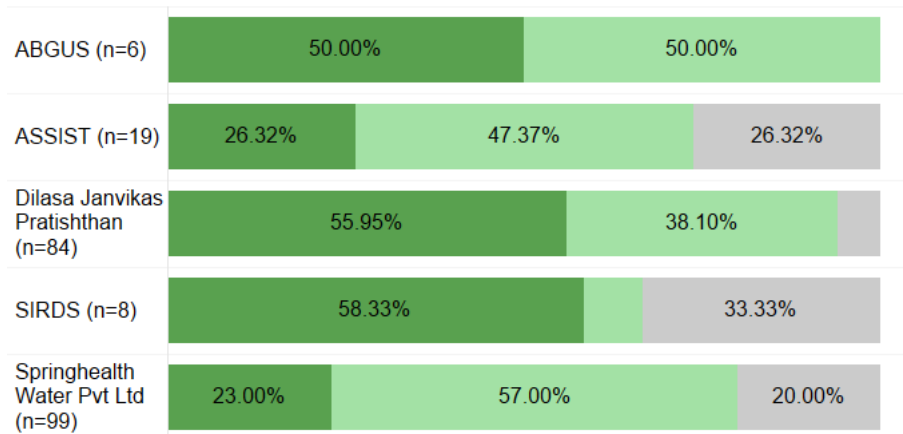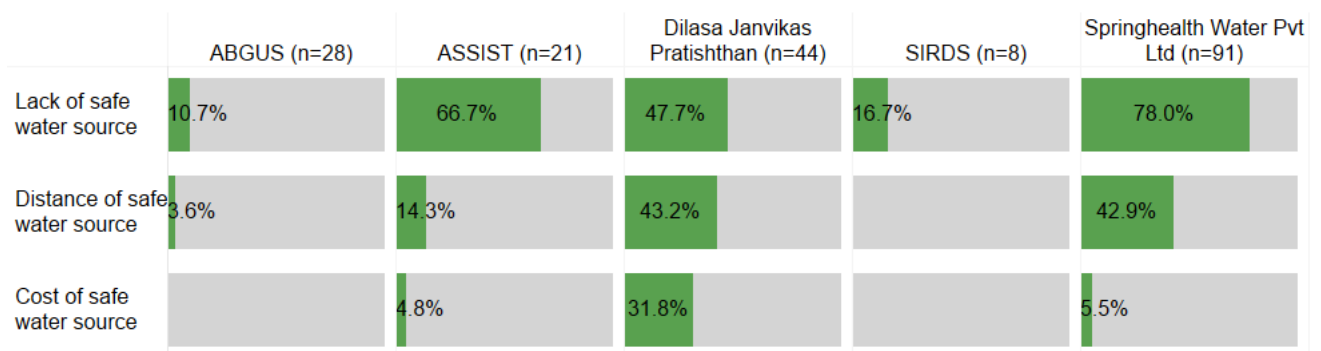
ABGUS (n=6)	50.00%	50.00%
ASSIST (n=19)	26.32%	47.37%	26.32%
Dilasa Janvikas Pratishthan (n=84)	55.95%	38.10%
SIRDS (n=8)	58.33%	33.33%
Springhealth Water Pvt Ltd (n=99)	23.00%	57.00%	20.00%

Reason for consuming the unsafe water prior to the program

Yes | No

	ABGUS (n=28)	ASSIST (n=21)	Dilasa Janvikas Pratishthan (n=44)	SIRDS (n=8)	Springhealth Water Pvt Ltd (n=91)
Lack of safe water source	10.7%	66.7%	47.7%	16.7%	78.0%
Distance of safe water source	3.6%	14.3%	43.2%		42.9%
Cost of safe water source		4.8%	31.8%		5.5%

The programmes are designed with defined processes and systems to bring the desired outcomes in a timely manner

Recall of community members regarding awareness activities

Yes | No | Don't remember

ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
39.5% / 31.4% / 29.1%	48.8% / 43.9% / 7.3%	75.3% / 15.1% / 9.7%	46.7% / 53.3%	78.0% / 22.0%

57

Medium of awareness generation in community
Yes | No

	ABGUS (n=34)	ASSIST (n=40)	Dilasa Janvikas Pratishthan (n=70)	SIRDS (n=14)	Springhealth Water Pvt Ltd (n=96)
House visits	94.1%	42.5%	52.9%	14.3%	92.7%
Community level event	2.9%	82.5%	64.3%	85.7%	47.9%
Posters and Banners	2.9%		22.9%		45.8%
Other		7.5%		21.4%	6.3%

Who is responsible for maintaining water quality at the community level?
Yes | No

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
NGO representatives	15.1%		52.7%	56.7%	100.0%
Panchayat Members	38.4%	52.4%	83.9%	30.0%	13.0%
All Community members	57.0%	28.0%	37.6%		19.5%
User group members	22.1%	15.9%	31.2%		20.3%
Don't Know	10.5%	4.9%	4.3%	6.7%	

Change in awareness among community members on the importance of safe drinking water
Awareness on diseases caused by consumption of unsafe drinking water

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
Diarrhoea	54.93%	40.68%	29.03%	20.00%	56.52%
Skin Infection	38.03%	20.34%	32.26%	3.33%	57.39%
Jaundice	4.23%	40.68%	20.43%		44.35%
Typhoid	16.90%	25.42%	23.66%	16.67%	23.48%
Cholera	16.90%	18.64%	31.18%		18.26%
Nothing happens	19.72%	45.76%	38.71%	80.00%	28.70%

Perceived awareness of community on water safety
Yes | No

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
Taste	88.4%	57.3%	92.5%	70.0%	93.5%
Smell	51.2%		58.1%	3.3%	56.1%
Colour	25.6%		81.7%		51.2%
Source of water	19.8%	35.4%	11.8%	10.0%	41.5%
No particles	7.0%	25.6%	25.8%	66.7%	26.8%
People are falling ill with water borne diseases		3.7%	7.5%		14.6%

Change in access to safe and affordable drinking water

Primary mode of transport for collection for drinking water

	ABGUS (n=86)		ASSIST (n=82)		Dilasa Janvikas Pratishthan (n=93)		SIRDS (n=30)		Springhealth Water Pvt Ltd (n=123)	
	Prior	Current	Prior	Current	Prior	Current	Prior	Current	Prior	Current
Walk	17.4%	29.1%	52.4%	42.7%	26.1%	21.5%	70.0%	63.3%	71.5%	33.3%
Home delivered	73.3%	44.2%	1.2%	15.9%	22.8%	36.6%			18.7%	65.9%
Bike	1.2%	9.3%	34.1%	30.5%	46.7%	38.7%	13.3%	30.0%	3.3%	
Cycle	8.1%	17.4%	11.0%	9.8%	4.3%	2.2%			4.1%	0.8%
Others			1.2%	1.2%		1.1%	16.7%	6.7%	2.4%	
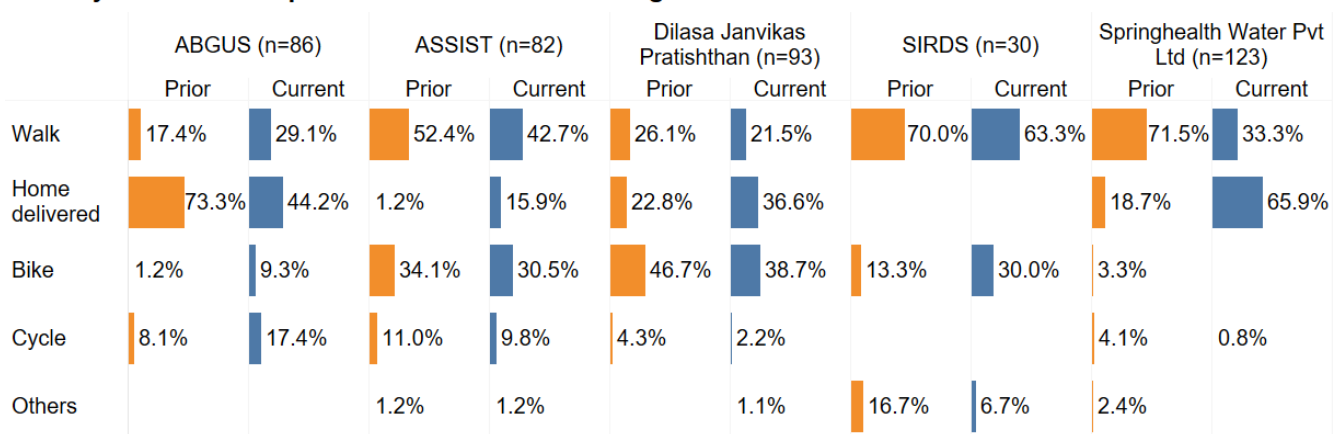
Current source of drinking water in the community (n=414)

Yes | No

SDW Plant	79.2%
Tap	19.6%
Borewell	9.5%
Well	8.0%
Lake	0.5%
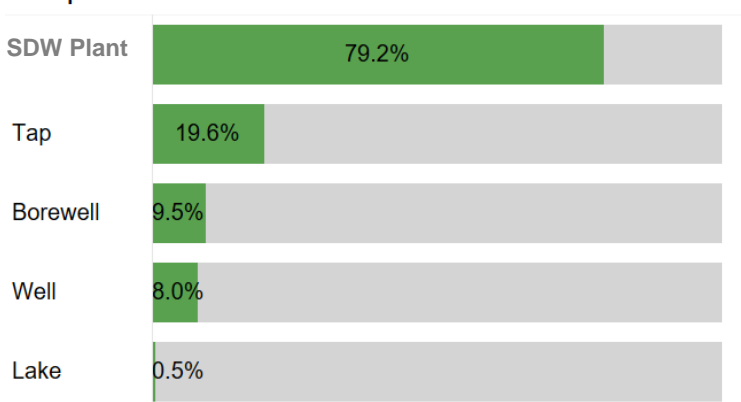
Sustainability

Quality of Safe Drinking Water structure

Water quality always satificatory

Yes | No

ABGUS (n=86)	100.00%
SIRDS (n=30)	96.67%
ASSIST (n=82)	95.12%
Springhealth Water Pvt Ltd (n=123)	93.50%
Dilasa Janvikas Pratishthan (n=93)	84.95%
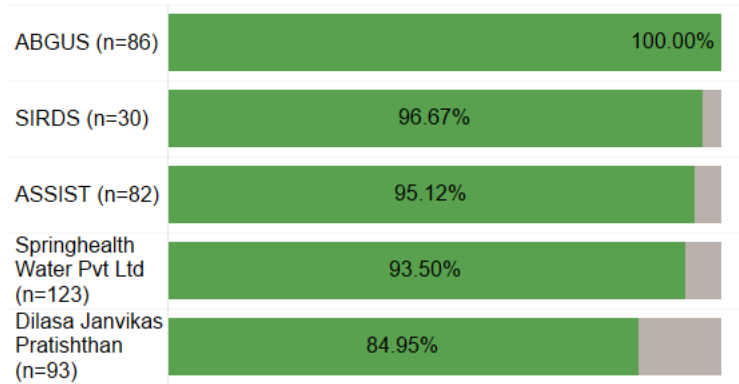
Community and user group ownership

Who is responsible for maintaining water quality at the community level?

Yes | No

	ABGUS (n=86)	ASSIST (n=82)	Dilasa Janvikas Pratishthan (n=93)	SIRDS (n=30)	Springhealth Water Pvt Ltd (n=123)
NGO representatives	15.1%		52.7%	56.7%	100.0%
Panchayat Members	38.4%	52.4%	83.9%	30.0%	13.0%
All Community members	57.0%	28.0%	37.6%		19.5%
User group members	22.1%	15.9%	31.2%		20.3%
Don't Know	10.5%	4.9%	4.3%	6.7%	
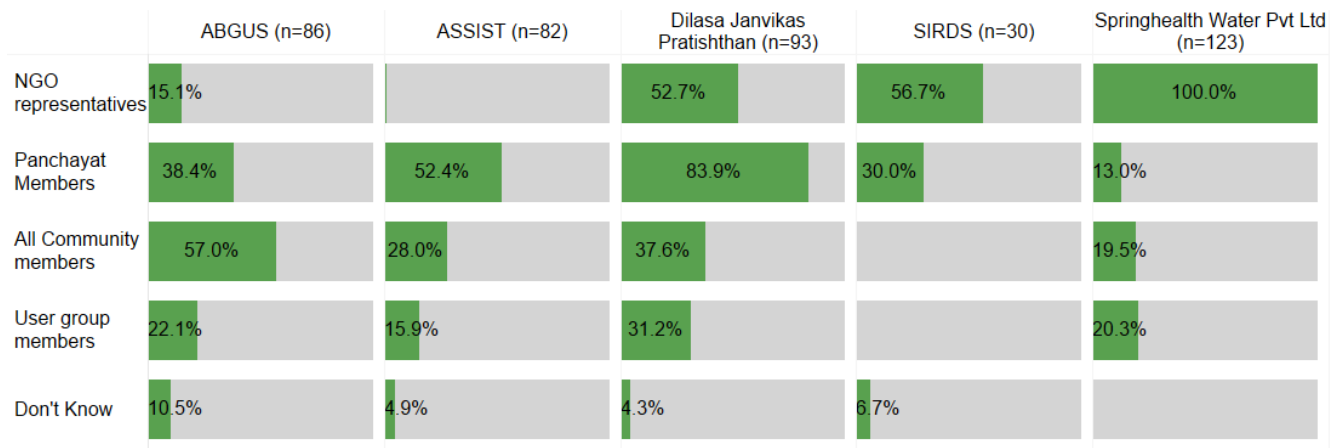
Annexure 2: Project and Partner Analysis of Water Conservation

Demographics:

Age of the respondents

Annual income of the HH

Total members in the HH (n=396)
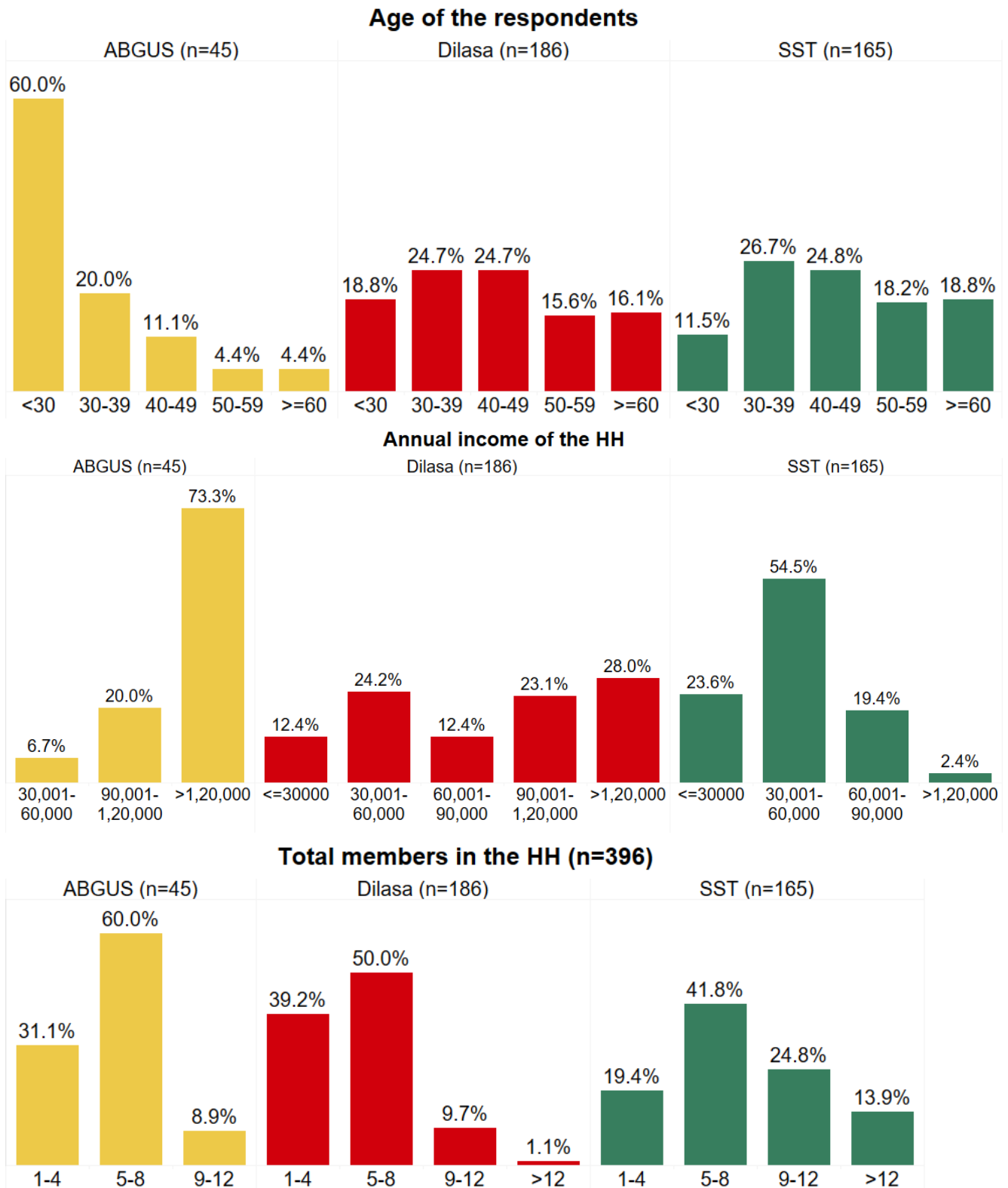
The need for water conservation has been identified in a scientific and systematic manner

Existing Water sources

Water consumption sources prior to the program (n=396)
Yes | No
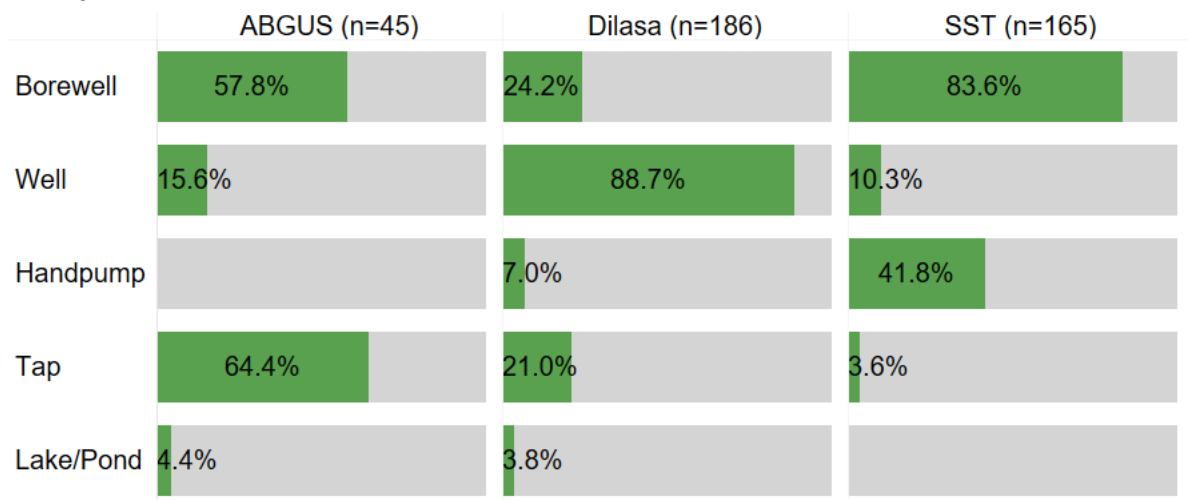
	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Borewell	57.8%	24.2%	83.6%
Well	15.6%	88.7%	10.3%
Handpump		7.0%	41.8%
Tap	64.4%	21.0%	3.6%
Lake/Pond	4.4%	3.8%	

Water conservation structures being used for domestic and agriculture purposes (n=396)
Yes | No

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Contour Bunds	57.8%	34.9%	48.5%
Dams		48.4%	33.3%
Drop Structure	2.2%	41.9%	33.3%
Culverts		1.6%	13.3%
Don't know	37.8%	2.2%	1.8%
Others		9.1%	0.6%
Diversion	2.2%	7.5%	
Terracing		1.6%	1.8%
Bank Protectors		1.6%	
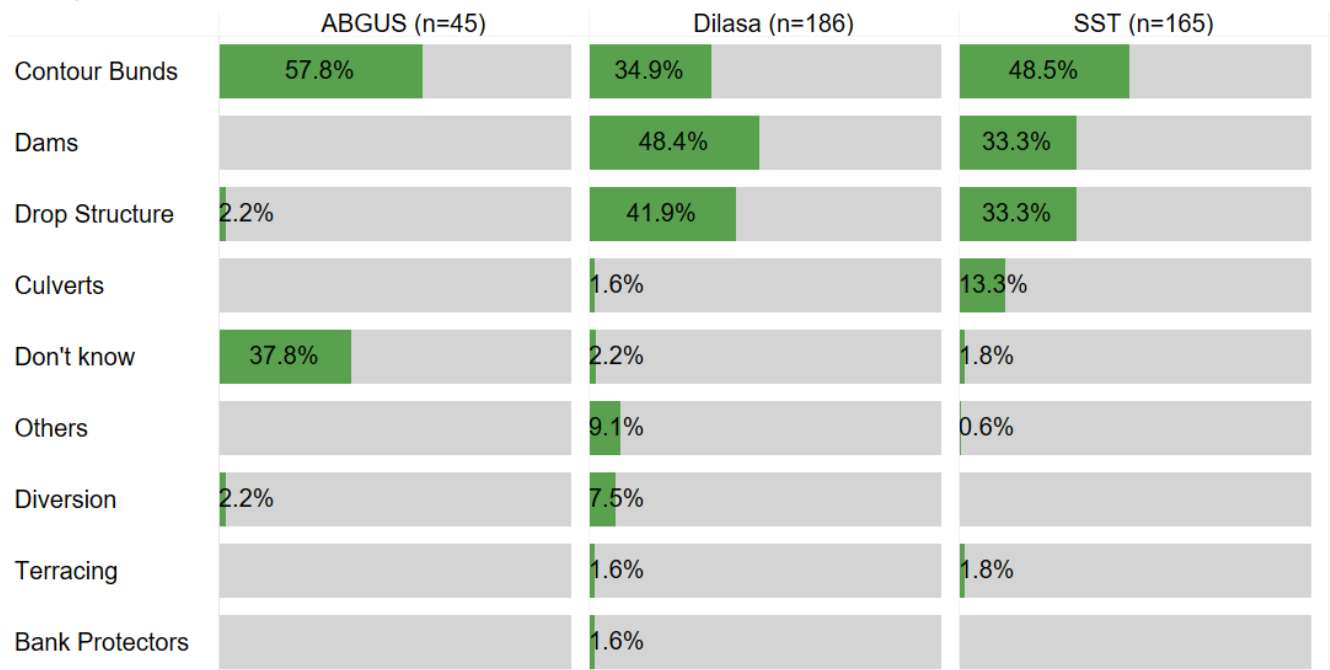
Community knowledge and beliefs regarding water conservation

Concern level among community on water scarcity in next 5 years (0-least concerned- 10-Most Concerned)

ABGUS (n=45)	Dilasa (n=186)	SST (n=165)

ABGUS (n=45):
- 1-3: 17.8%
- 4-6: 33.3%
- 7-8: 44.4%
- 9-10: 4.4%

Dilasa (n=186):
- 1-3: 24.2%
- 4-6: 45.2%
- 7-8: 19.4%
- 9-10: 11.3%

SST (n=165):
- 1-3: 24.8%
- 4-6: 18.2%
- 7-8: 52.1%
- 9-10: 4.8%
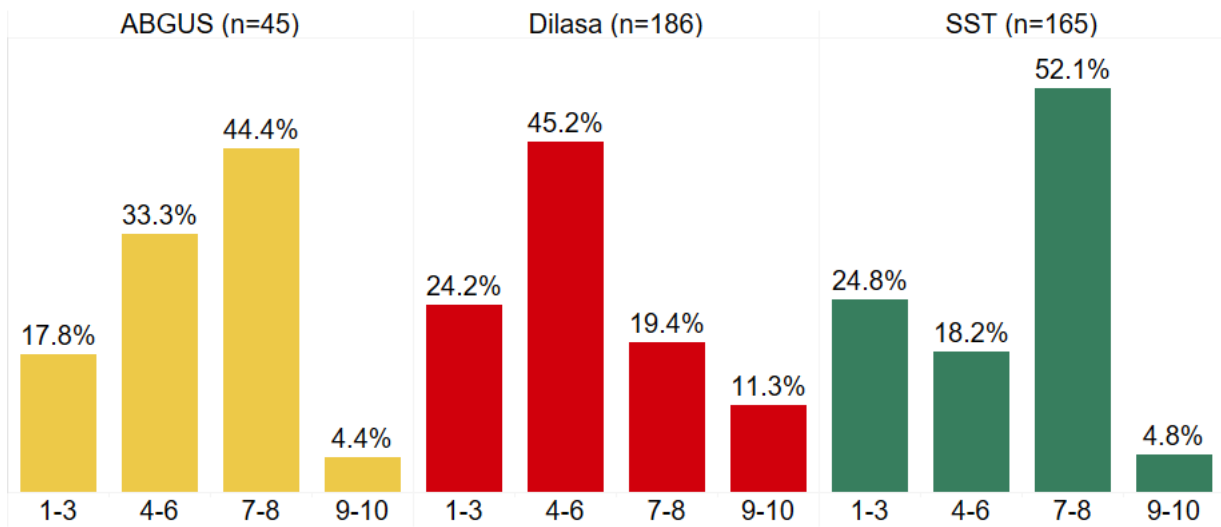
There is a well-defined selection criterion for beneficiaries, support group and location of the structure for the programme

% of respodents who were undergone shortlisting process
Yes | No
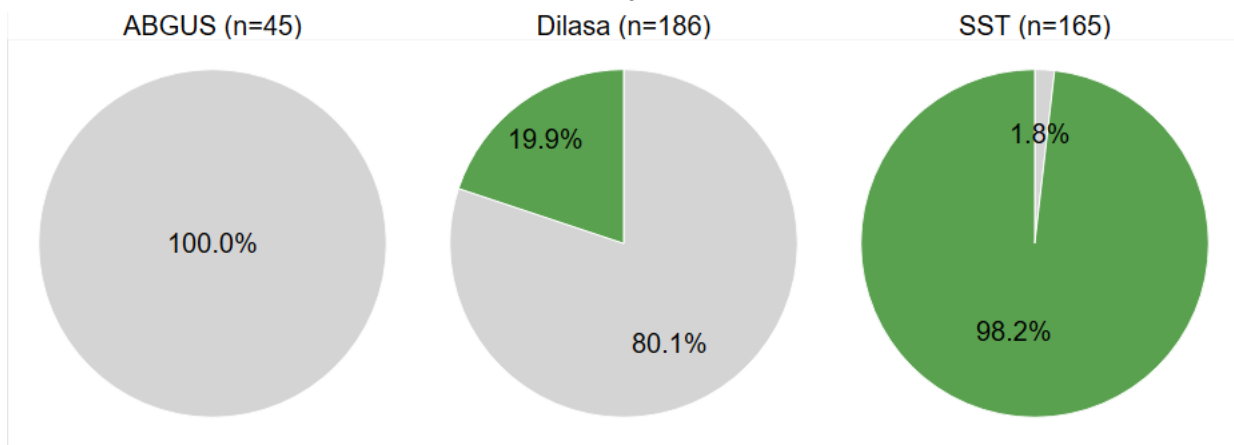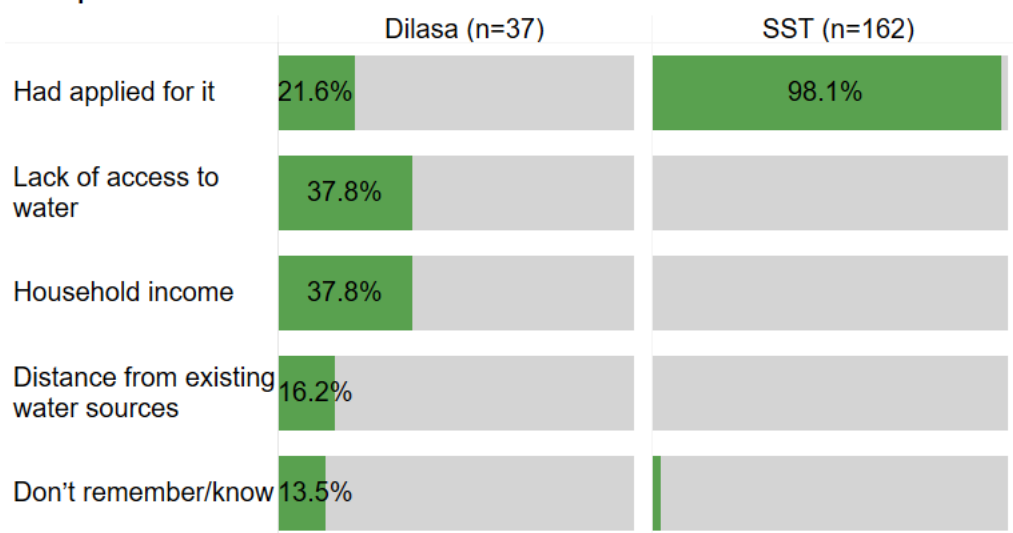
ABGUS (n=45)	Dilasa (n=186)	SST (n=165)

ABGUS (n=45): 100.0%

Dilasa (n=186): Yes 19.9%, No 80.1%

SST (n=165): Yes 98.2%, No 1.8%

Selection criteria of community members
Yes | No

	Dilasa (n=37)	SST (n=162)
Had applied for it	21.6%	98.1%
Lack of access to water	37.8%	
Household income	37.8%	
Distance from existing water sources	16.2%	
Don't remember/know	13.5%	

The programmes are designed with defined processes and systems to bring the desired outcomes in a timely manner

Recall of community members regarding awareness activities
Aware | Not aware | Not sure

ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
22.2% / 42.2% / 35.6%	90.3% / 9.1% / 0.5%	94.5% / 4.2% / 1.2%

Sources of information about the program
Yes | No

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
NGO member informed		75.6%	94.2%
User group member in the village informed	40.0%	53.6%	46.8%
My neighbour informed	80.0%	28.0%	19.2%
Saw the water conservation structure		17.3%	1.9%
Saw a banner/poster in the village		7.1%	
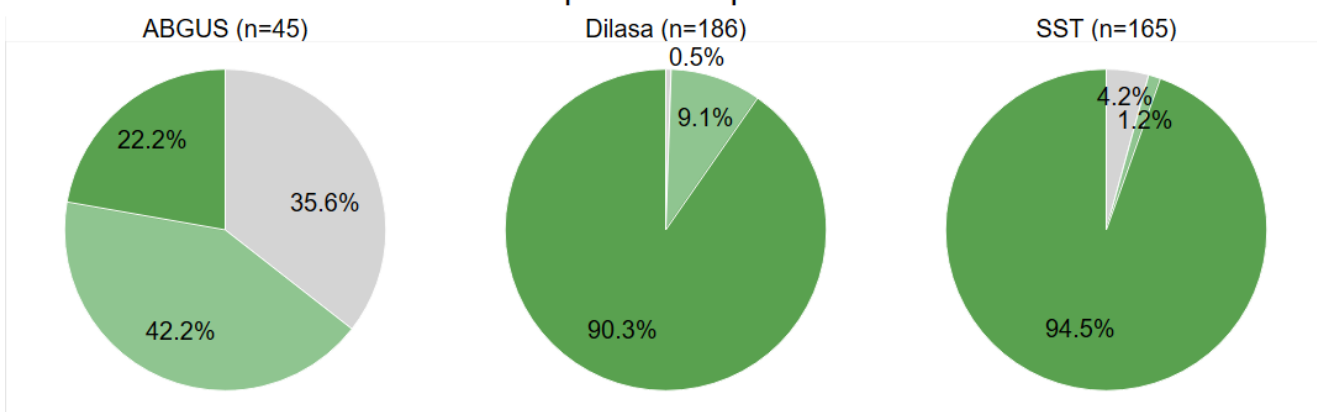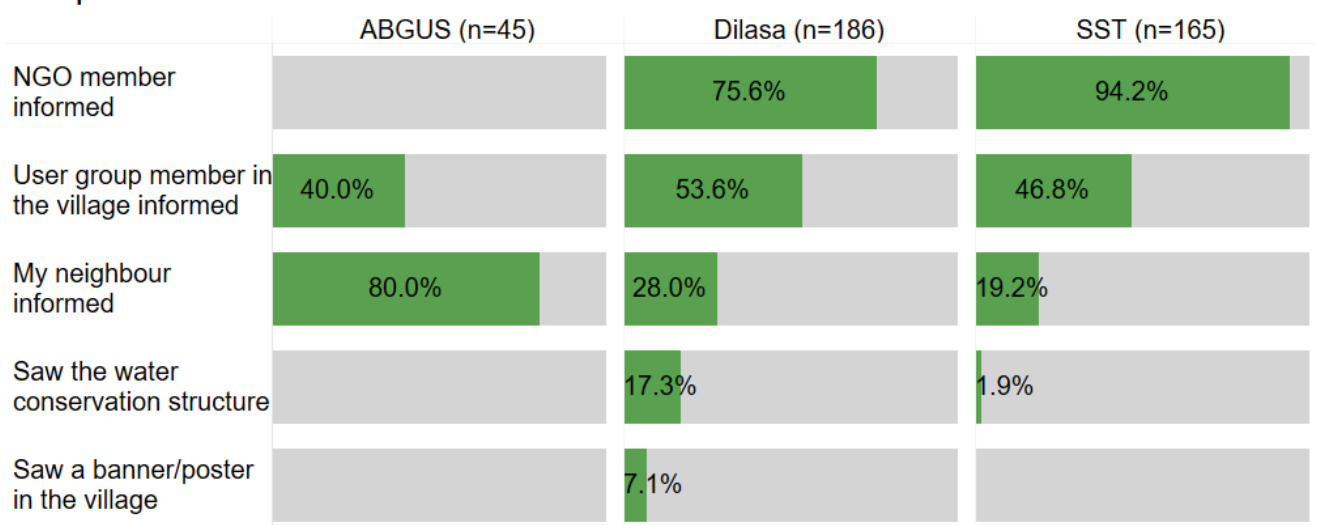
% of HH who recieved awareness on water conservation by NGO

Yes | No | Not sure

ABGUS (n=45)	Dilasa (n=186)	SST (n=165)

ABGUS (n=45): 26.7%, 37.8%, 35.6%
Dilasa (n=186): 0.5%, 8.6%, 90.9%
SST (n=165): 17.0%, 7.9%, 75.2%

Medium of awareness generation in community

Yes | No

	ABGUS (n=12)	Dilasa (n=169)	SST (n=124)
House visits	100.0%	69.8%	96.0%
Community level event		66.9%	40.3%
Posters and Banners		11.8%	
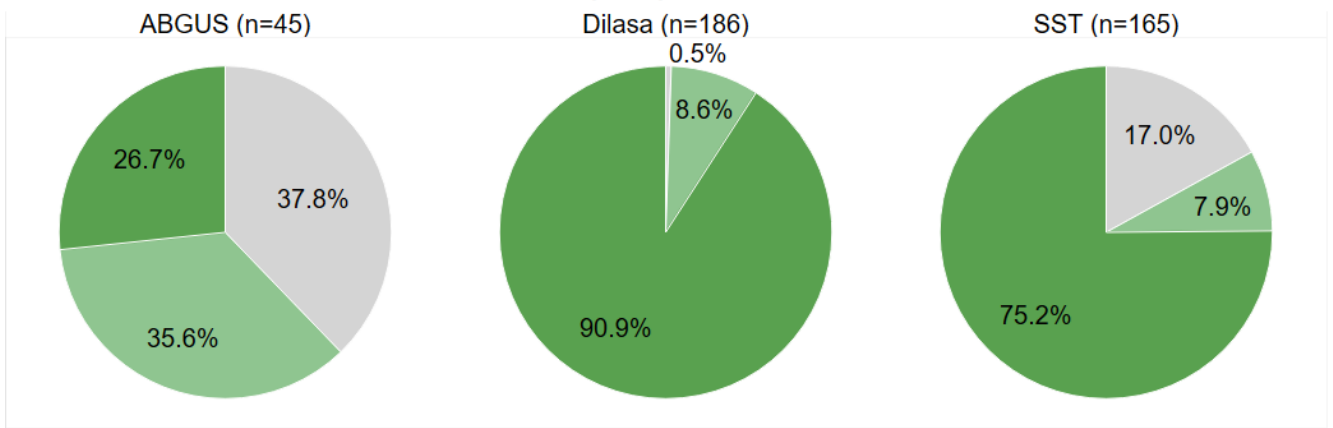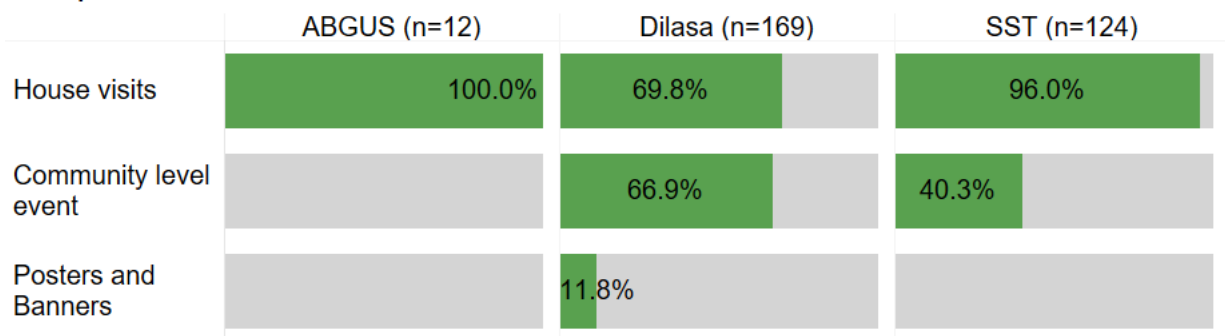
The programme includes processes to ensure delivery team is well equipped to achieve intended objectives

Payment method followed by the community (n=396)

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Monthly lumpsum amount	46.7%	31.2%	98.8%
Charges as per water structure	26.7%	28.0%	0.6%
Recharge membership card as per usage	4.4%	2.7%	
No charges	22.2%	38.2%	0.6%
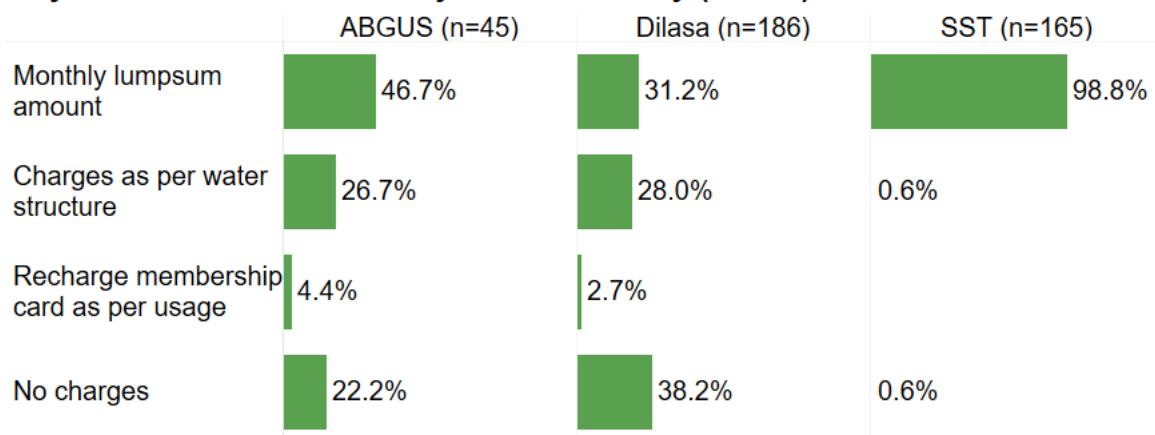
Project team has clear visibility of the key factors influencing the achievement or non-achievement of objectives.

Agreement on different aspects of the program
Strongly agree | Agree | Neutral | Disagree

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Everyone (including the minorities) are allowed to draw water from the community structures	22.2% / 57.8%	36.6% / 61.8%	50.9% / 37.6%
User group members are capable to maintain the water structure	86.7%	12.9% / 82.8%	18.8% / 66.7%
The price you pay for water is fair and affordable	11.1% / 73.3%	80.6%	24.2% / 47.9% / 26.1%
All water needs are taken care of	8.9% / 75.6%	72.0% / 21.5%	27.3% / 66.1%
Physical appearance of the water structure degraded over time	11.1% / 60.0%	40.3% / 54.8%	52.1% / 27.9%

Rating for aspects of the water structure

ABGUS (n=45) — Physical appearan.. / Water quality
Dilasa (n=186) — Physical appearance / Water quality
SST (n=165) — Physical appearan.. / Water quality
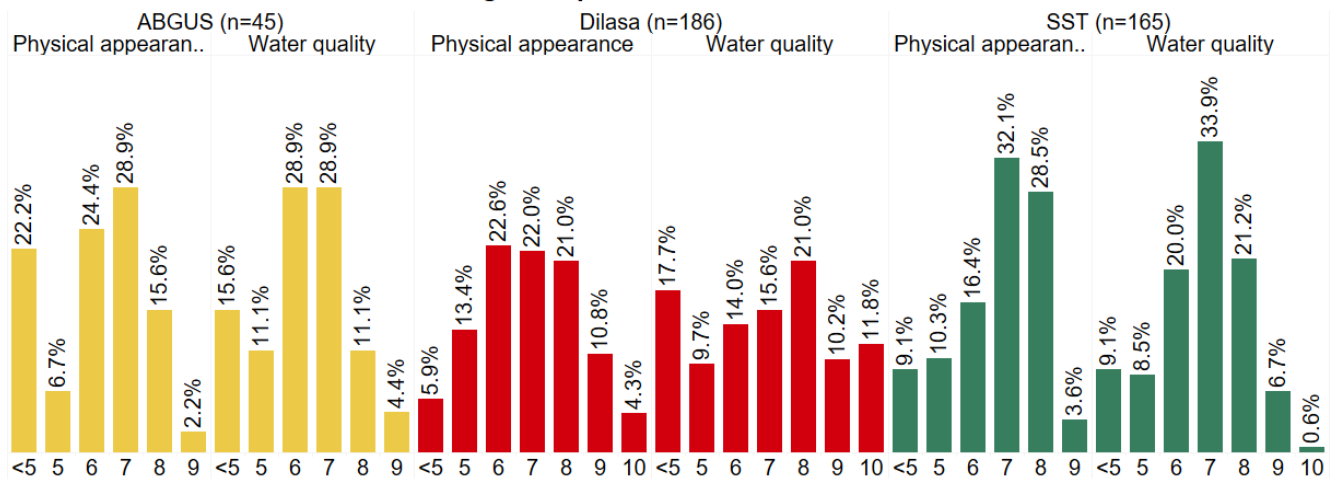
Change in awareness regarding the importance of water conservation amongst the community

Perception of community on factors influencing water scarcity
Yes | No
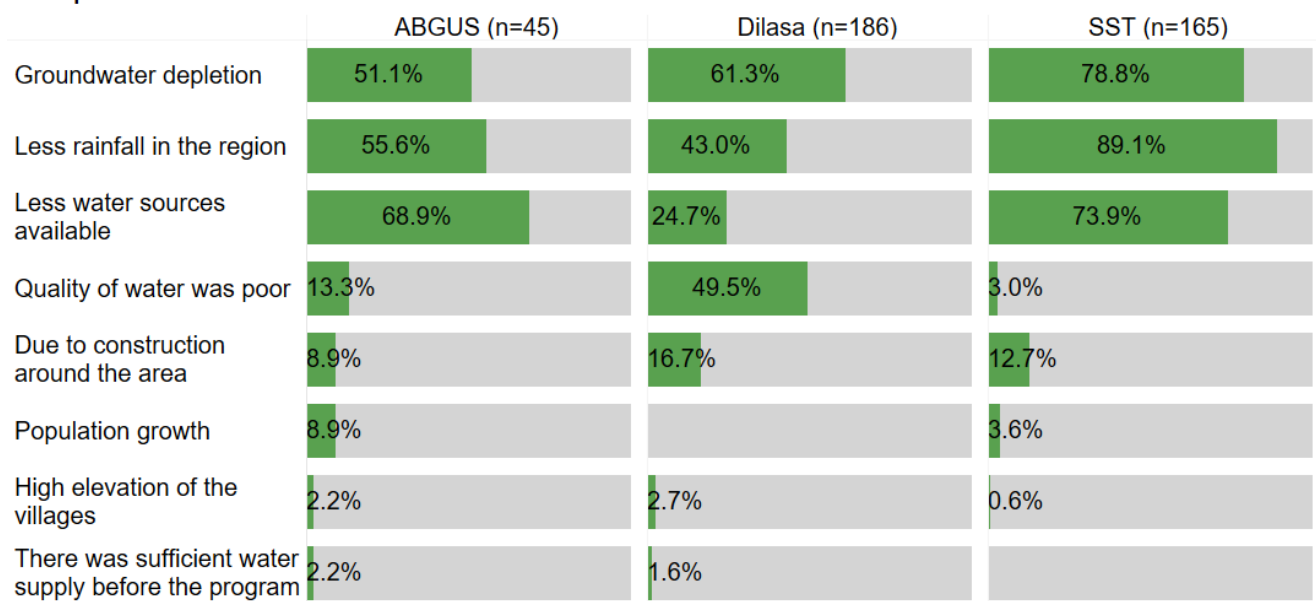
	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Groundwater depletion	51.1%	61.3%	78.8%
Less rainfall in the region	55.6%	43.0%	89.1%
Less water sources available	68.9%	24.7%	73.9%
Quality of water was poor	13.3%	49.5%	3.0%
Due to construction around the area	8.9%	16.7%	12.7%
Population growth	8.9%		3.6%
High elevation of the villages	2.2%	2.7%	0.6%
There was sufficient water supply before the program	2.2%	1.6%	

Rating on importance of water conservation (0:No importance-10: most important)

ABGUS (n=45): <5: 17.8%, 5: 15.6%, 6: 11.1%, 7: 26.7%, 8: 24.4%, 9: 2.2%, 10: 2.2%

Dilasa (n=186): <5: 4.3%, 5: 1.1%, 6: 14.5%, 7: 22.0%, 8: 31.2%, 9: 15.1%, 10: 11.8%

SST (n=165): <5: 10.3%, 5: 10.3%, 6: 12.1%, 7: 27.9%, 8: 33.9%, 9: 4.2%, 10: 1.2%
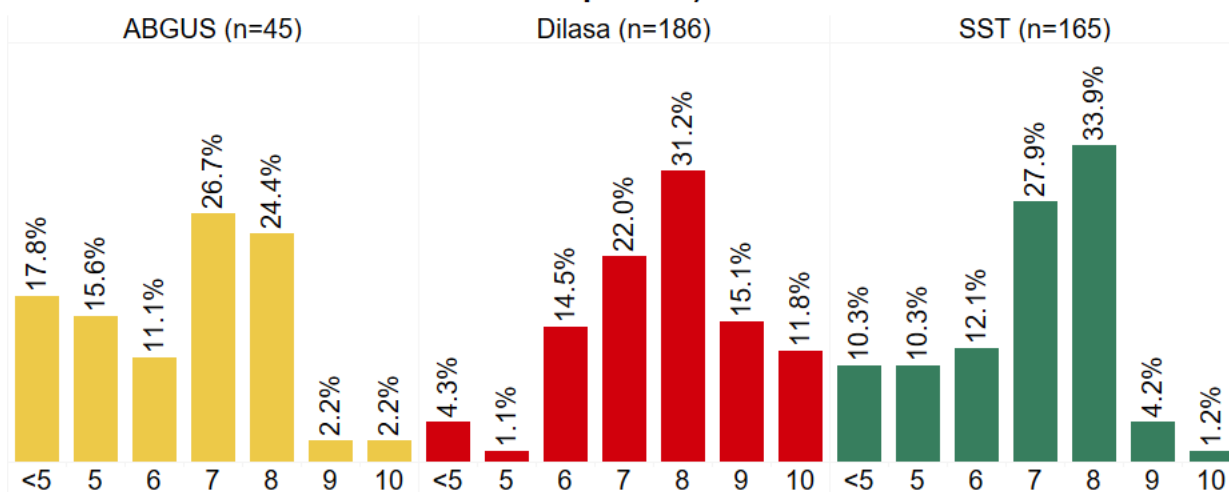
Change in knowledge regarding construction and maintenance of water conservation structures

% of HH who were part of user group to maintain water structures
Yes | No | Not sure

ABGUS (n=45): 82.2%, 17.8%

Dilasa (n=186): 71.0%, 26.3%, 2.7%

SST (n=165): 51.5%, 30.3%, 18.2%
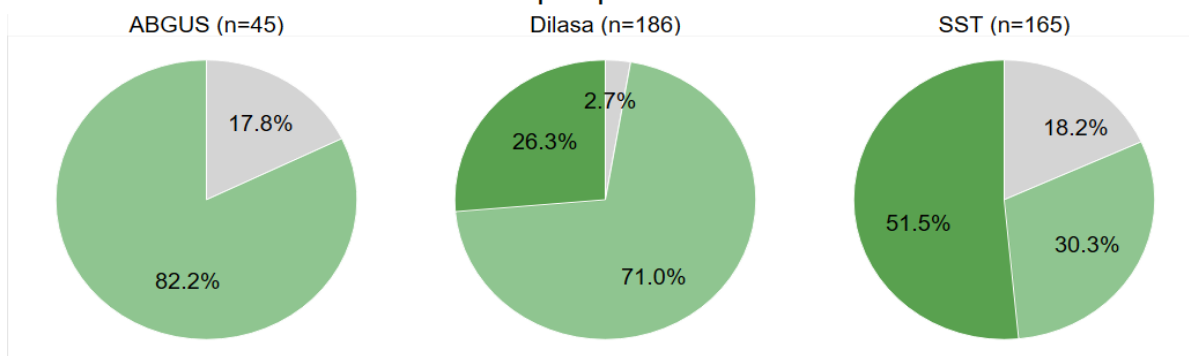
Change in access to water sources

Water consumption sources prior to the program
Yes | No
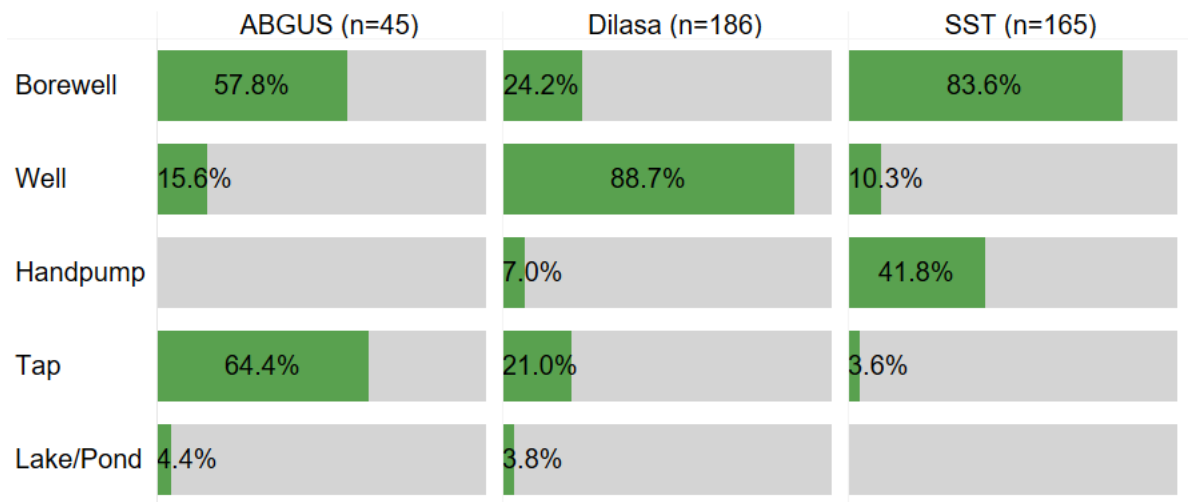
	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Borewell	57.8%	24.2%	83.6%
Well	15.6%	88.7%	10.3%
Handpump		7.0%	41.8%
Tap	64.4%	21.0%	3.6%
Lake/Pond	4.4%	3.8%	

Water conservation structures being used for domestic and agriculture purposes
Yes | No

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Contour Bunds	57.8%	34.9%	48.5%
Dams		48.4%	33.3%
Drop Structure	2.2%	41.9%	33.3%
Culverts		1.6%	13.3%
Don't know	37.8%	2.2%	1.8%
Others		9.1%	0.6%
Diversion	2.2%	7.5%	
Terracing		1.6%	1.8%
Bank Protectors		1.6%	
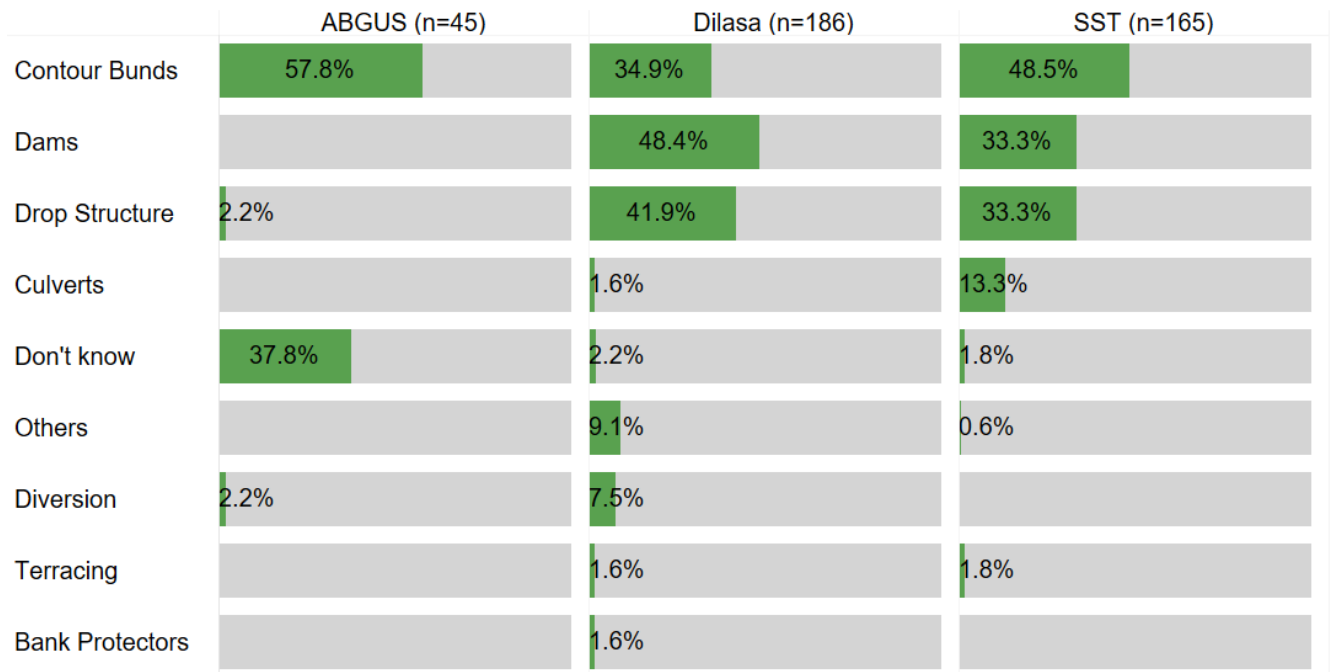
Change in adoption of water conservation practices

HH member responsible for procuring drinking water for the household

Yes | No

	ABGUS (n=45)		Dilasa (n=186)		SST (n=165)	
	Before	After	Before	After	Before	After
Women	88.9%	73.3%	88.2%	55.9%	93.3%	41.2%
Male	73.3%	82.2%	61.3%	83.3%	36.4%	80.6%
Children	17.8%	17.8%	3.8%	6.5%	21.8%	12.7%
All of the above	17.8%	17.8%	2.2%	3.8%	20.0%	11.5%

Time required for a person have to travel to collect water in a day

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
<=15 mins	46.7%	26.3%	30.9%
15-30 mins	40.0%	30.6%	41.2%
31 mins-1 hour	13.3%	28.0%	9.1%
1-2 hour		13.4%	10.3%
>2 hour		1.6%	8.5%
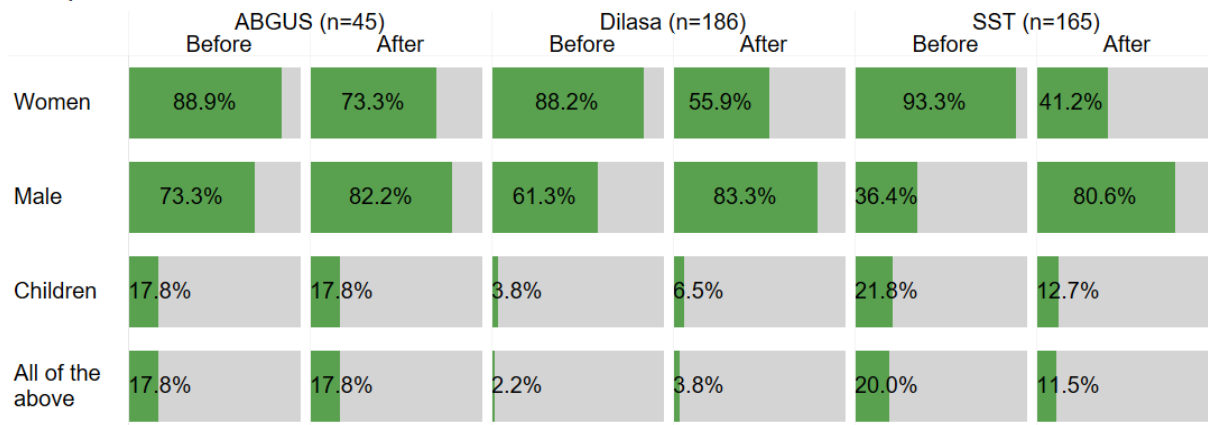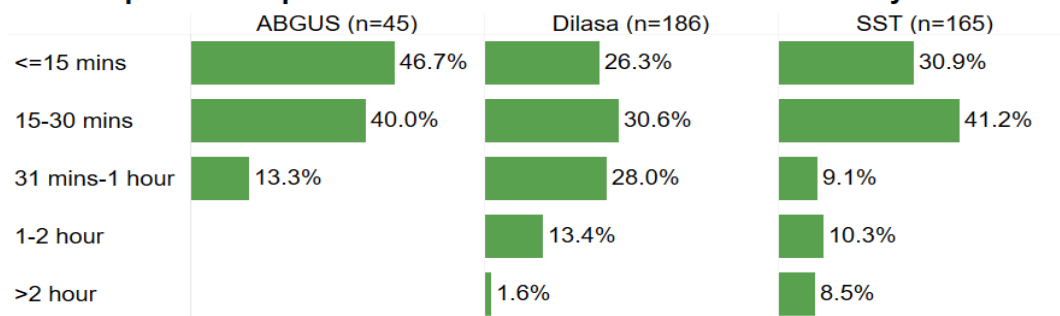
Prior to the program, time required for the person travel to collect water

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
0-1 hour	77.8%	48.9%	68.1%
2-3 hours	22.2%	40.9%	31.9%
>3 hours		10.2%	
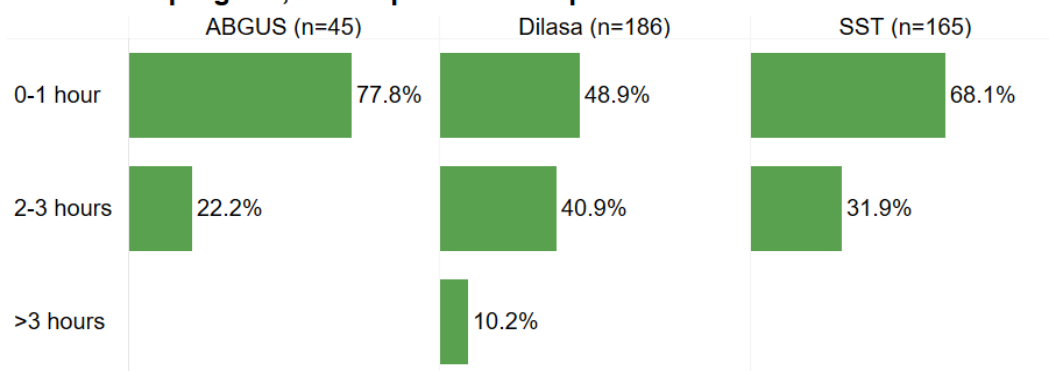
Change in ground water availability

Total months in which water is available at water sources

	ABGUS (n=45)		Dilasa (n=186)		SST (n=165)	
	Before	After	Before	After	Before	After
1-3			23.2%	11.4%	6.1%	53.9%
4-6	26.7%	24.4%	11.4%	15.7%		9.7%
7-9	13.3%	15.6%	24.9%	17.3%	0.6%	2.4%
10-12	53.3%	46.7%	40.5%	55.7%	93.3%	30.9%
Don't know	6.7%	13.3%				3.0%
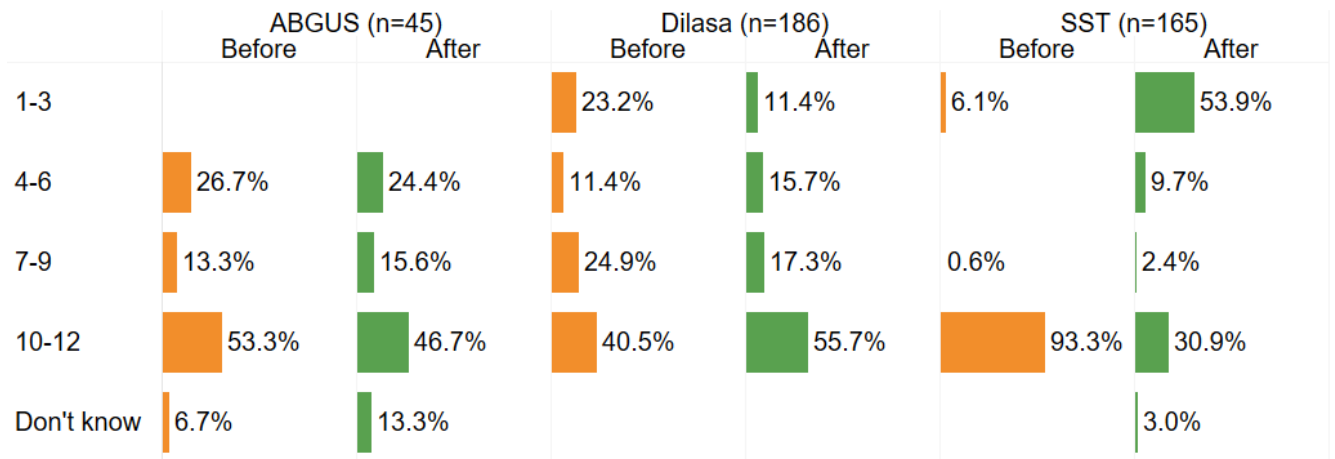
Access of water for domestic and productive purposes

Usage of water supply from the community structures
Yes | No

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Drinking water	82.2%	54.3%	60.6%
Food preparation	64.4%	52.7%	50.9%
Washing and Bathing	40.0%	51.1%	22.4%
Washing clothes	17.8%	49.5%	4.8%
Watering plants	2.2%	45.2%	11.5%
Washing dishes	17.8%	34.9%	4.8%
Flushing		40.3%	
Irrigation	6.7%	15.6%	21.8%
Raise livestock		16.1%	7.3%
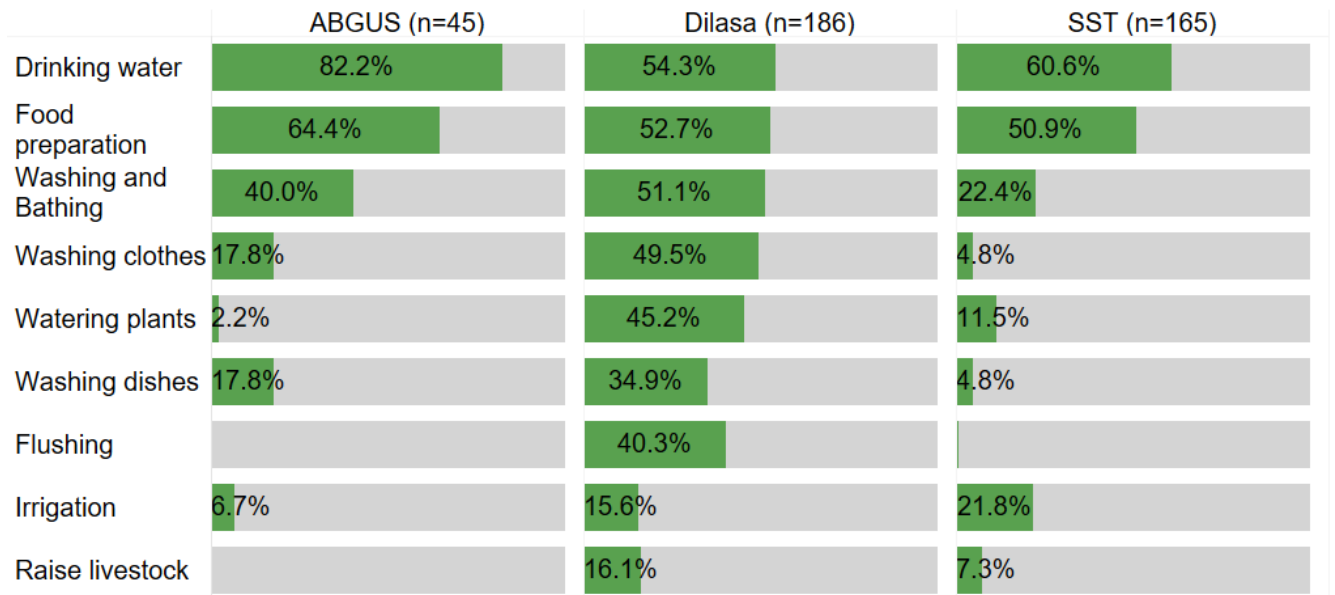
% of respodents who treats water before drinking
Yes | No

ABGUS (n=42)	Dilasa (n=108)	SST (n=110)
31.0% Yes / 69.0% No	81.5% Yes / 18.5% No	22.7% Yes / 77.3% No
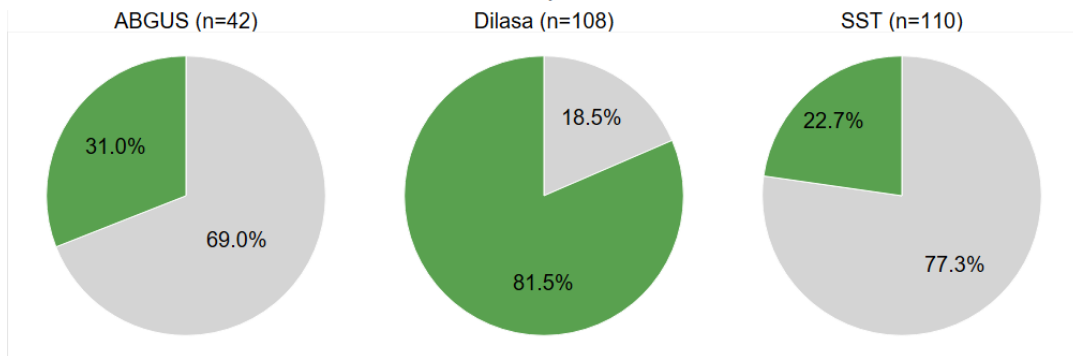
Change in income generation patterns in agriculture and allied activities

Livelihood improvement due to the program
Yes | No

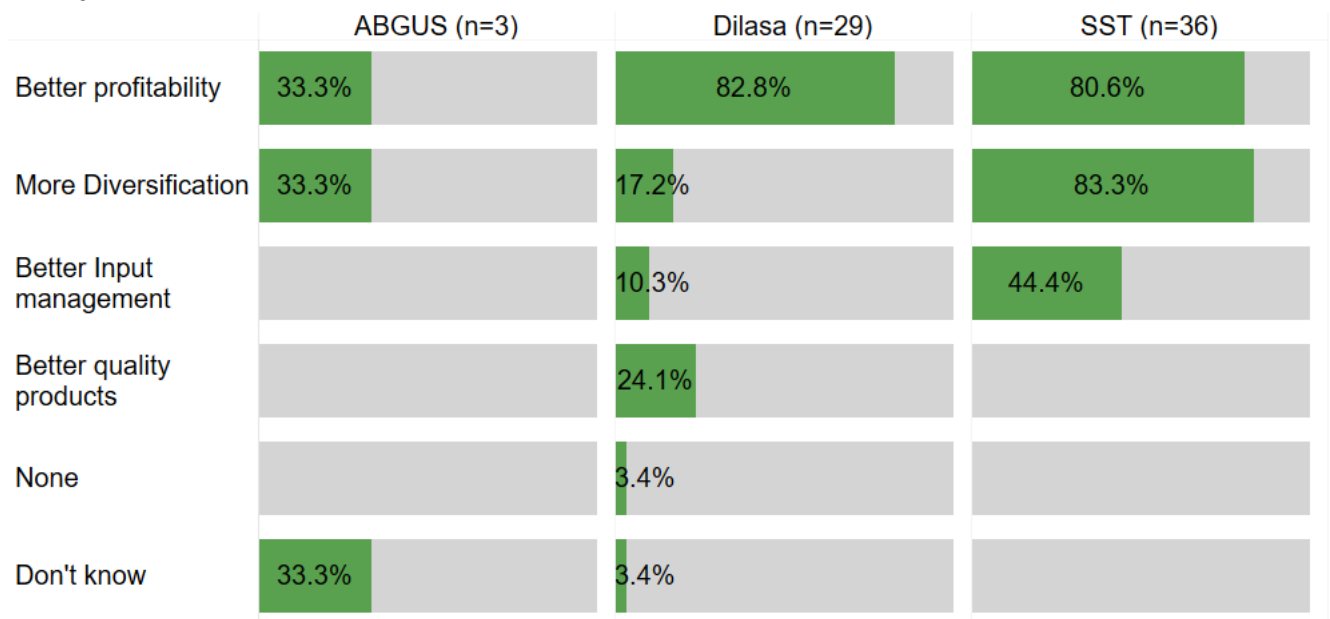|	ABGUS (n=3)	Dilasa (n=29)	SST (n=36)
Better profitability	33.3%	82.8%	80.6%
More Diversification	33.3%	17.2%	83.3%
Better Input management		10.3%	44.4%
Better quality products		24.1%	
None		3.4%	
Don't know	33.3%	3.4%	

Change in productivity due to irrigation
Yes | No

	Dilasa (n=30)	SST (n=12)
Better profitability	66.7%	83.3%
More Diversification	30.0%	58.3%
Better Input management	30.0%	25.0%
Better quality products	30.0%	8.3%
Don't know		8.3%

The yield of the land increased due to irrigation

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
No improvement	93.3%	90.9%	78.8%
1-2 tons/acre	6.7%	7.0%	20.0%
>2 tons/acre		2.2%	1.2%
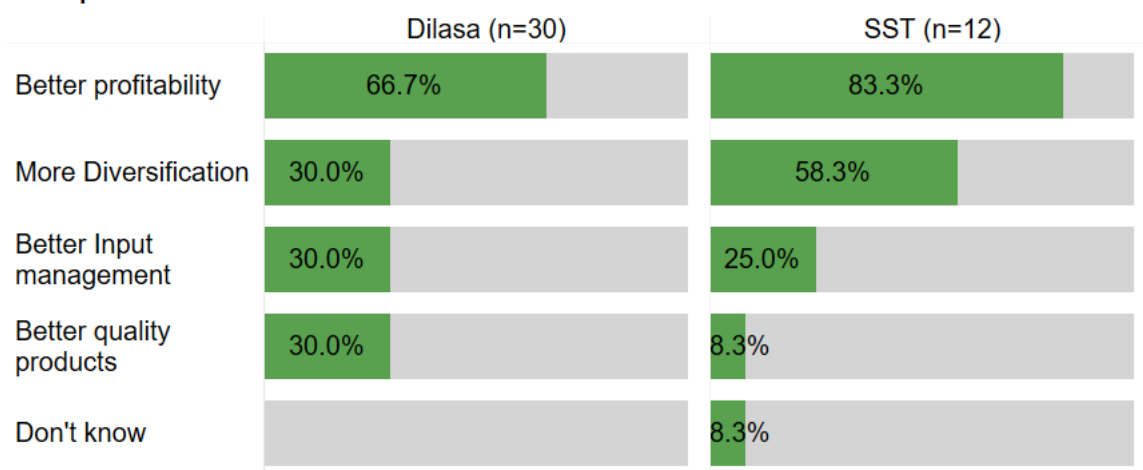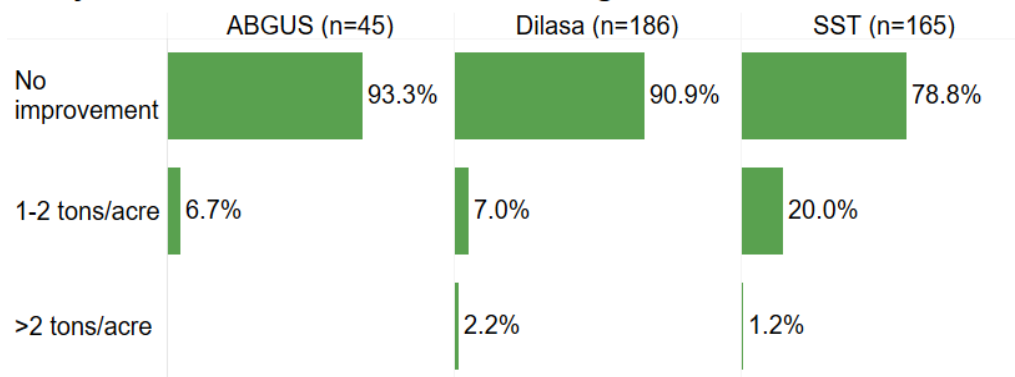
Change in socio-economic level of beneficiary HHs

% of HH where program enabled wealth creation
Yes | No | Not sure

ABGUS (n=45)	Dilasa (n=186)	SST (n=165)

ABGUS: 33.3%, 48.9%, 17.8%
Dilasa: 72.6%, 25.3%, 2.2%
SST: 29.1%, 22.4%, 48.5%
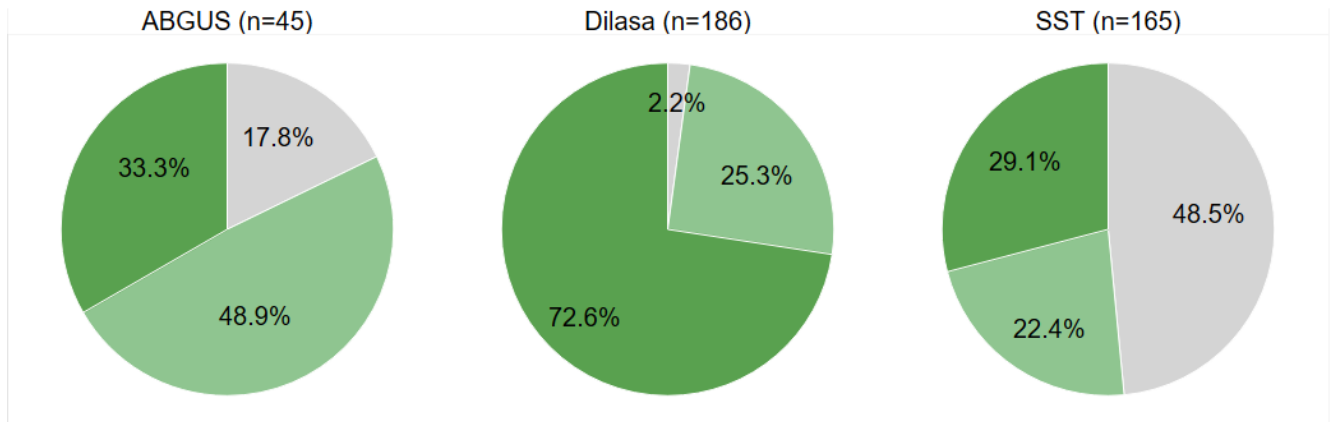
Wealth created in HH after the program
Yes | No

	ABGUS (n=15)	Dilasa (n=135)	SST (n=48)
HH income has increased	100.0%	73.3%	95.8%
HH savings has increased	6.7%	45.2%	4.2%
HH has bought assets		3.7%	
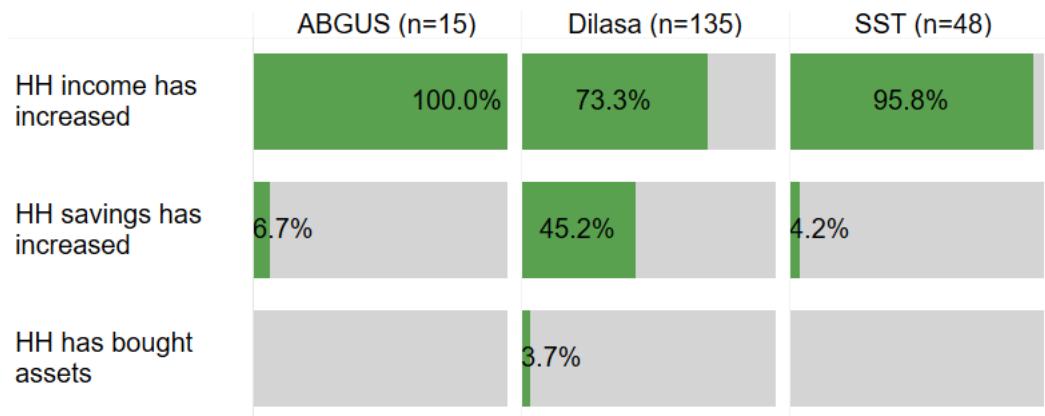
Increase in monthly income due to irrigation

ABGUS (n=3)	Dilasa (n=32)	SST (n=68)

ABGUS: 1- 1,000: 100.0%
Dilasa: 1- 1,000: 44.8%, 1,001-2,000: 13.8%, >2,000: 41.4%
SST: 1- 1,000: 36.1%, 1,001-2,000: 44.4%, >2,000: 19.4%
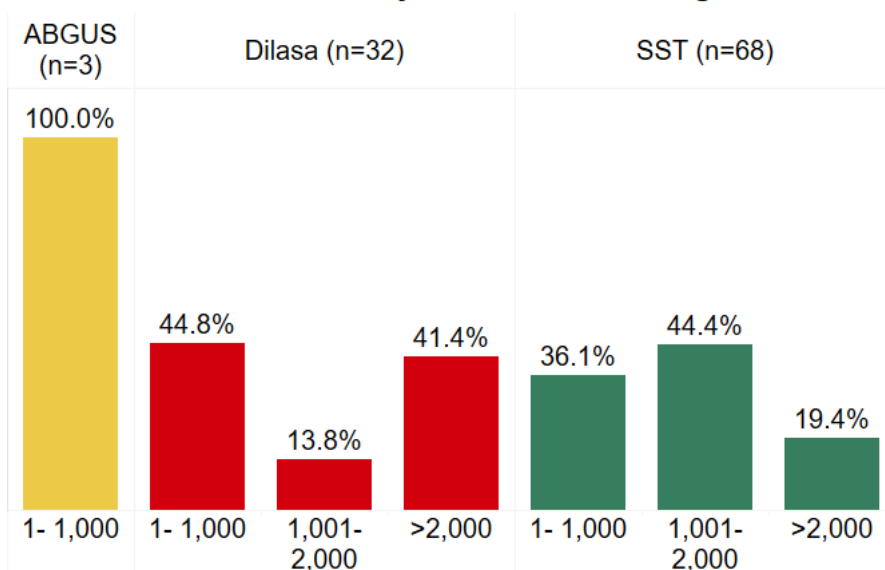
Ownership for the maintenance of the watershed structures taken up by the community

Roles and responsibilities of water user group
Yes | No

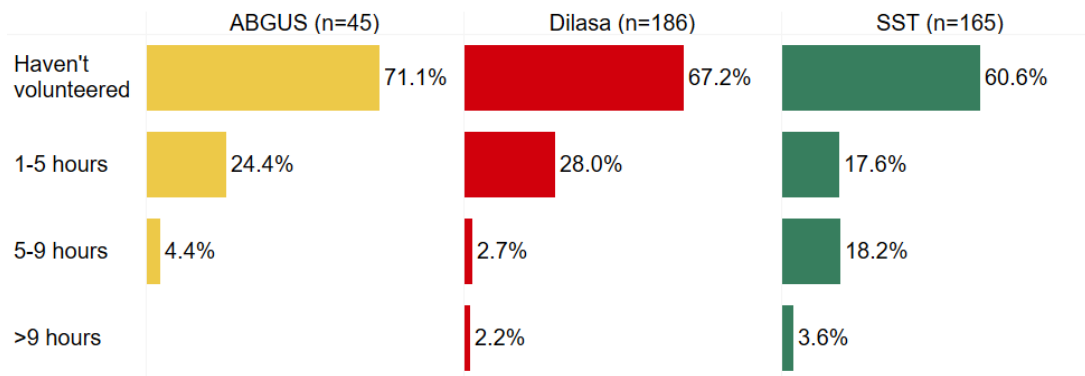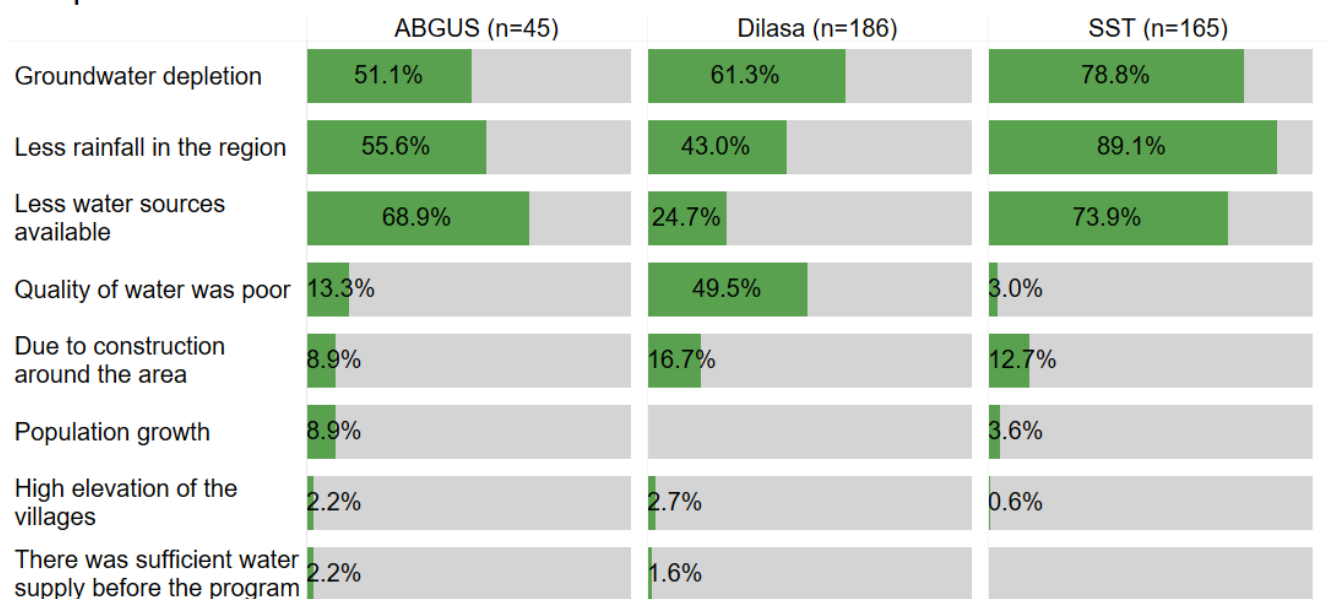|	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Operation and maintenance of structure	88.9%	57.5%	92.7%
Coordinate with farmers and the NGO	8.9%	74.2%	53.9%
Water Distribution	35.6%	54.3%	28.5%
Resolution of local disputes	2.2%	23.1%	1.8%

Total hours in volunteered for water structure in a week

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Haven't volunteered	71.1%	67.2%	60.6%
1-5 hours	24.4%	28.0%	17.6%
5-9 hours	4.4%	2.7%	18.2%
>9 hours		2.2%	3.6%
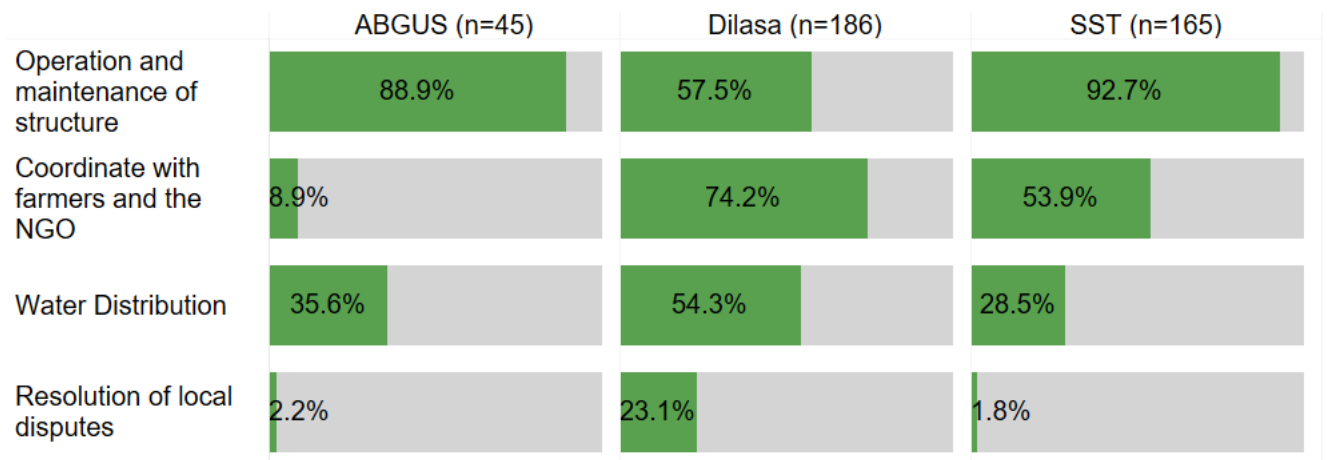
Increased demand for water conservation in the community

Perception of community on factors influencing water scarcity
Yes | No

	ABGUS (n=45)	Dilasa (n=186)	SST (n=165)
Groundwater depletion	51.1%	61.3%	78.8%
Less rainfall in the region	55.6%	43.0%	89.1%
Less water sources available	68.9%	24.7%	73.9%
Quality of water was poor	13.3%	49.5%	3.0%
Due to construction around the area	8.9%	16.7%	12.7%
Population growth	8.9%		3.6%
High elevation of the villages	2.2%	2.7%	0.6%
There was sufficient water supply before the program	2.2%	1.6%	

About Sattva

Sattva (www.sattva.co.in) is a social impact strategy consulting and implementation firm. Sattva works closely at the intersection of business and impact, with multiple stakeholders including non-profits, social enterprises, corporations and the social investing ecosystem. Sattva's work pans across multiple states in India, multiple countries in Africa and South Asia, on the ground, and Sattva has engaged with leading organizations across the globe through its practice in strategic advisory, realizing operational outcomes, CSR knowledge assessments, and co-creation of sustainable models. Sattva works to realize inclusive developmental goals across themes in emerging markets, including education, skill development and livelihoods, health care and sanitation, digital and financial inclusion, energy access and environment, among others. Sattva has offices in Bangalore, Mumbai, Delhi and Paris.