Pidilite

IMPACT ASSESSMENT REPORT

Construction of Check Dam to help Mitigate Water Stress situation for household and community level initiatives

Zanzmer, Bhavnagar – Gujarat

Reported On 27 March 2026

Impact Assessment conducted by:

SYNERGY CONNECT
DATA INSIGHTS TO ACTIONS

CONTENTS

As on Dt: Apr 16, 2021

ETHICAL CONSIDERATION

Informed Consent: The interviews were done after receiving respondent's consent. Even after the interviews were completed, their permission was sought to proceed with their responses.

Confidentiality: The information provided by participants has been kept private. At no point were their data or identities disclosed. The research findings have been quoted in a way that does not expose the respondents' identities.

Comfort: The interviews were performed following the respondents' preferences. In addition, the interview time was chosen in consultation with them. At each level, respondents' convenience and comfort were considered.

Right to reject or withdraw: Respondents were guaranteed safety and allowed to refuse to answer questions or withdraw during the study.

ACKNOWLEDGEMENT

We, **SYNERGY CONNECT**, would like to express our gratitude to Pidilite for their assistance during the course of the study.

We thank everyone who supported and facilitated the study and contributed to gathering insights.

We truly appreciate all the intellectual guidance from the Pidilite's team throughout the study. Last but not least, we want to express our gratitude to everyone who spent the time answering the extensive survey.

01 SETTING THE CONTEXT

Water scarcity continues to remain one of the most critical development challenges in rural India, particularly in semi-arid and drought-prone regions. Districts such as Bhavnagar experience high dependence on seasonal rainfall and groundwater sources, which are increasingly stressed due to erratic rainfall patterns, over-extraction, and climate variability.

According to the Central Ground Water Board, more than 70% of rural drinking water supply in India depends on groundwater. In many drought-prone areas of Gujarat, groundwater depletion has resulted in declining well levels and limited irrigation potential.

Agriculture remains the primary livelihood for most households in the project villages. However, due to limited water availability, farming systems were largely restricted to single seasonal crops, particularly cotton. This constrained household incomes and increased economic vulnerability.

Water scarcity also affected livestock productivity and domestic water access. During summer months, households struggled to secure adequate water for livestock, and women often spent significant time managing household water needs.

Recognizing these challenges, Pidilite Industries Limited supported the construction of a Check Dam at Zanzmer village as part of its Corporate Social Responsibility (CSR) initiative. The intervention aimed to improve water availability, enhance groundwater recharge, and strengthen rural livelihoods.

This report presents the impact assessment of the check dam intervention, highlighting the changes observed in water availability, agricultural practices, livelihoods, and community wellbeing.

EXECUTIVE SUMMARY 02

The impact assessment conducted in March 2026 indicates that the construction of the check dam has significantly improved water availability and agricultural productivity in Zanzmer village.

Prior to the intervention, water levels in local wells declined sharply from February onwards, limiting irrigation opportunities and restricting farmers to single-crop cultivation, predominantly cotton. Water availability during summer months was barely sufficient to sustain livestock.

Following the construction of the check dam, groundwater levels have improved and water availability has been sustained for longer periods after the monsoon. This has enabled farmers to diversify cropping patterns and cultivate additional crops such as jowar, wheat, bajra, and vegetables alongside cotton.

The intervention has also had positive effects on livestock productivity and household wellbeing. Farmers reported improved availability of fodder crops and better milk production from cattle. Women reported reduced dependency on neighboring households for water and improved access to water from local sources.

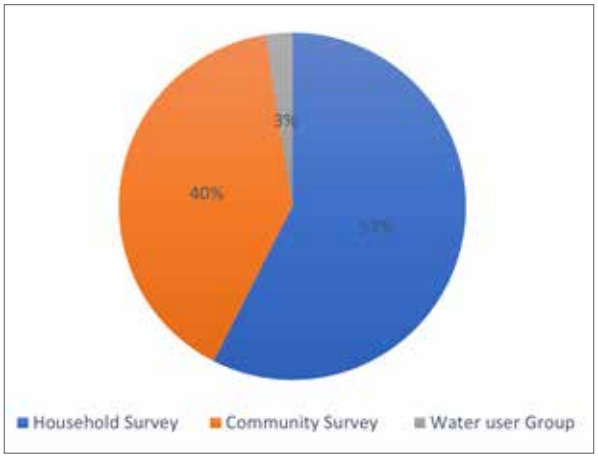
The impact assessment findings indicate that the intervention has created multi-dimensional benefits across agricultural productivity, livelihoods, and household water security, demonstrating strong potential for replication in other water-stressed regions.

The assessment covers key check dam interventions including Zanzmer (₹84.34 lakhs) and Ankolali (₹28.86 lakhs) in Palitana Taluka, reflecting the scale and impact of the CSR initiative implemented in partnership with the Government of Gujarat.

03 IMPACT AT GLANCE

Demographics

1. Respondent Distribution



2. Gender

70% male respondents

30% female respondents

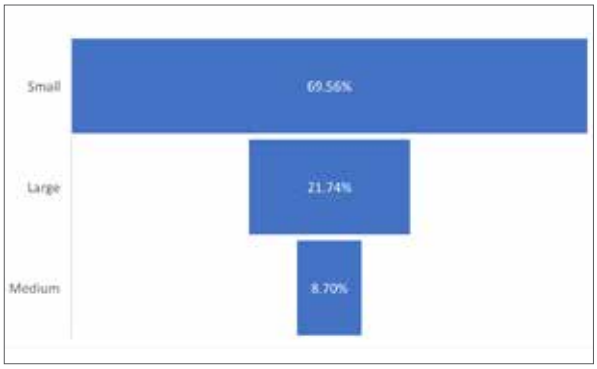
"Given that respondents are primary livelihood earners, their responses reflect practical, experience-based insights on water and agriculture."

3. Age

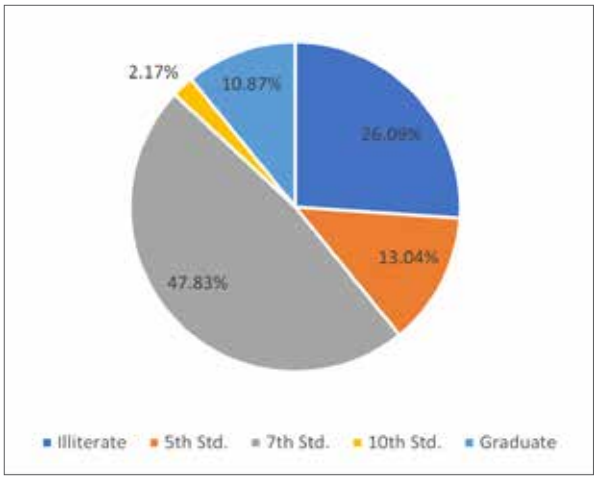
>30 years

The majority of respondents fall within the 30–60 year age group, representing the active agricultural workforce.

4. Landholding Count



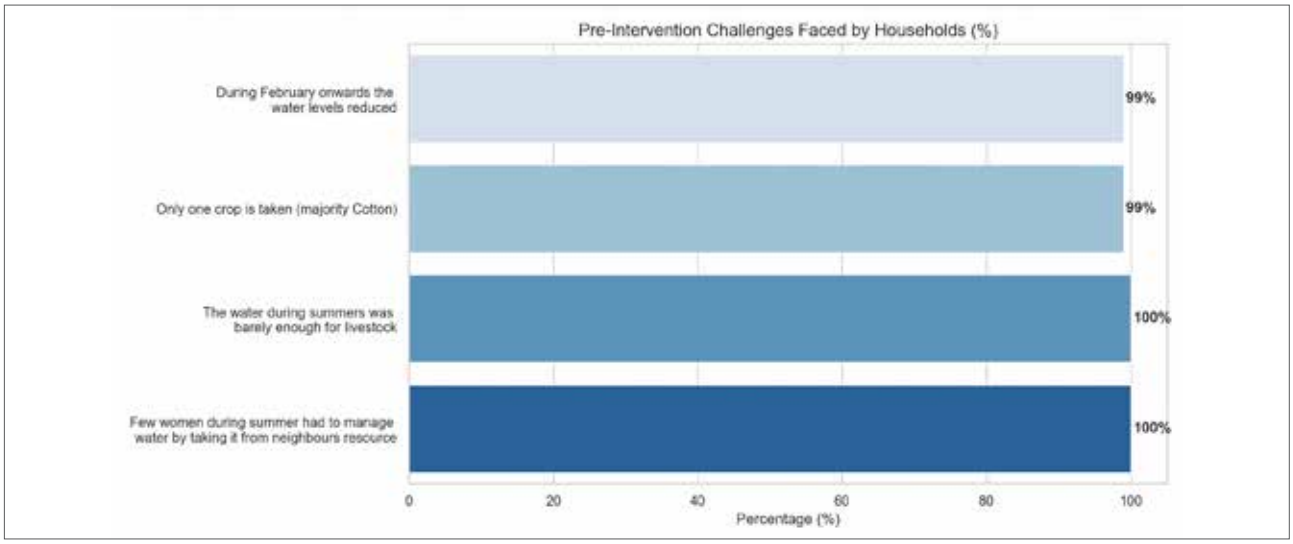
5. Education Level



Key Highlights

INDICATOR	FINDINGS
Households surveyed	46
Community surveys	32
Water User Group Interviews	2
Total respondents	80
Small farmers	70%
Agriculture dependent households	~80%

Before Intervention Challenges Faced by Community



Feb onwards it was observed that the water levels reduced.

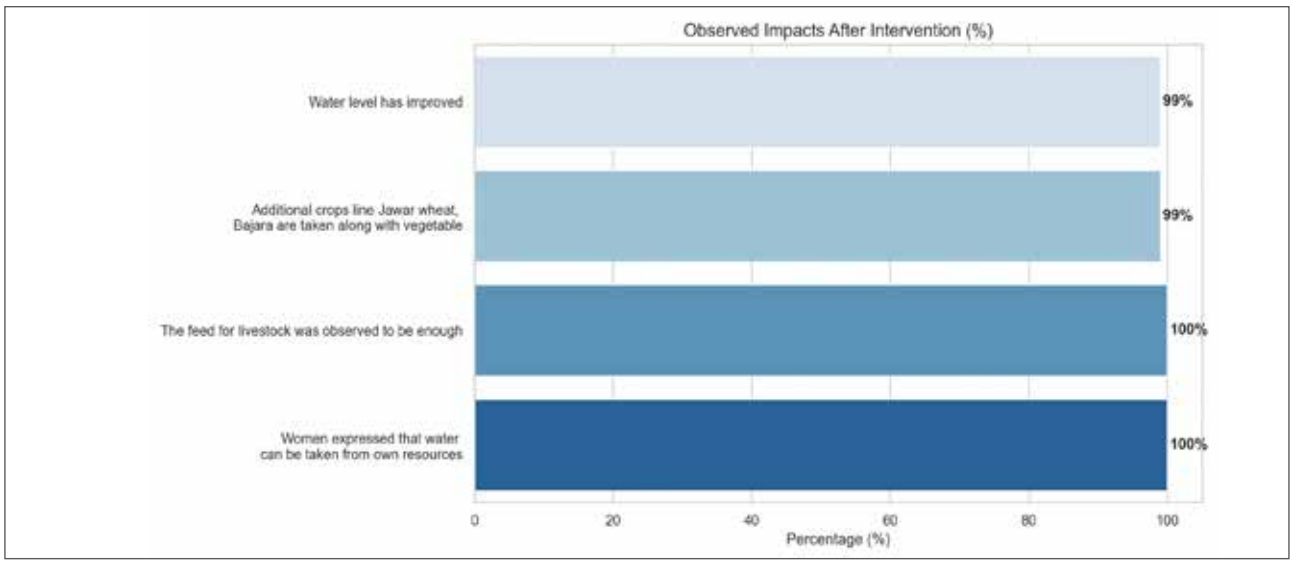
Only one crop is taken (majority Cotton) Rain Fed agri.

The water in summers was barely enough for livestock.

Few women during summer had to manage water by taking it from neighbours resource.

"All respondents reported water scarcity and crop failure as primary challenges, with a majority also highlighting high climate risk, indicating severe vulnerability of agriculture to water stress."

After Intervention Observed Impacts



The water level are observed to be improved.

Additional crops are taken Jowar, wheat, Bajra followed with vegetable.

The feed for livestock was observed to be enough.

Women expressed that now the water can be taken from own resources.

"The intervention has delivered strong environmental outcomes, with nearly all respondents reporting improvements in groundwater levels, soil moisture, runoff reduction, and extended water retention post-monsoon—indicating high effectiveness of the check dam in enhancing local water systems."

Key Analytics / Observation:

100%
Check Dam contributed most to improved water availability

97%
Improved Groundwater, Reduced runoff , increase soil moisture, longer water retention post monsoon

100%
Duration of water availability after monsoon has Increased Significantly

100%
Cropping intensity has increased to multiple crops
(Additional crops like wheat, jowar, bajra, Rochko (cattle feed), kitchen garden has introduced)

100%
Crop yield compared to earlier

100%
During low rainfall years, outcomes are now better than earlier

2-4
Saved (mostly by Women)

₹20,000
Saved Annually for Cattle Fodder

"Water is no longer a daily struggle; it has helped to improve income sources."

Daya ben *(woman farmer from Zanzmer)*

PROJECT OVERVIEW 04

The project involved the **construction of a check dam in Zanzmer village**, located in the Umrala block of Bhavnagar.

The intervention aimed to enhance water storage capacity during the monsoon and support groundwater recharge for irrigation, livestock, and household use.

The project was implemented with support from Pidilite Industries Limited in collaboration with local stakeholders and the village Panchayat.

Title	Providing safer drinking water to marginalized communities by household and community level initiatives
Implementing Organization	Pidilite Industries Limited
Funding Partner	Pidilite Industries Limited
Project Duration	FY 2022-2024
Location	Zanzmer, Bhavnagar (Gujrat)

Beneficiary Demographics

Survey Type	Respondents
Household Survey	46
Community Survey	32
Water User Group Interviews	2
Total	80

Education Profile

Education levels among respondents remain low, with approximately 66% having no formal education and 34% having studied up to primary or secondary school level.

This highlights the importance of practical, community-based interventions that do not rely heavily on technical literacy.

Challenges – Seasonal Migration, No water Availability post Monsson, Limited Income Source, Single Cropping.

CSR Project Objective

1. **Water Access:** Create and revive traditional and decentralized water structures for drinking, irrigation, and livestock use.
2. **Rainwater Harvesting:** Construction of Check Dam at Zanzmer village, Umrala Taluka, Bhavnagar.
3. **Engagement:** Government gave permission and layout framework of the check dam and Pidilite used CSR funds and engagement the concern expertise to implement the same
4. **Government Convergence:** Leverage public schemes a nd engage officials to scale and sustain water infrastructure improvement.

Livelihood Profile

Approximately **80%** of respondents are engaged in agriculture or allied activities, including crop cultivation and livestock rearing. A smaller proportion is engaged in daily wage labour or other informal occupations.

Key Interventions

ZANZMER CHECK DAM PROJECT

Check Dam at Zanzmer Village,
Umrala Taluka, Bhavnagar

LOCATION:
Umrala Taluka | 12 km from Sanosara Office

Check dam No: 2
Rangholi River

Size of Check dam:
Length: 132 meter | Height: 2.5 meter

Foundation depth:
2 meter

Estimated cost:
84.34 lakh

Benefits as per Govt. estimate:
70 Hectare

Technical Innovation: Deployment of engineers for quality assurance; capacity-building of local staff on water design, monitoring, and sustainability

Community Contribution: Grampanchyat support per mission etc. and in-kind inputs from beneficiaries to ensure ownership and maintenance

Government Alignment: The project aligns with national and state-level water missions such as the Jal Shakti Abhiyan, Atal Bhujal Yojana, and Gujarat's Sujalam Sufalam Jal Abhiyan, which emphasize rainwater harvesting, local water body rejuvenation, and community participation.

05 APPROACH & METHODOLOGY

This section outlines the approach adopted to assess the impact of the intervention, including the study design, data collection methods, sampling strategy, and analytical framework used to derive key insights.

A mixed-methods approach was employed to ensure a comprehensive and nuanced understanding of the intervention's outcomes. The study combined both quantitative and qualitative data collection tools, enabling triangulation of findings and capturing diverse stakeholder perspectives. Participatory assessment techniques were integrated to actively involve beneficiaries and local stakeholders in the evaluation process, thereby enhancing the reliability and contextual relevance of the results.

The impact assessment was guided by the Organization for Economic Cooperation and Development (OECD) framework, providing a structured evaluation across key dimensions such as relevance, effectiveness, efficiency, impact, and sustainability. This framework enabled a systematic review of the intervention's design and implementation, and helped identify strengths, challenges, and opportunities for scaling and improvement. The methodology was tailored to support DS Group in measuring progress against intended objectives and informing evidence-based decision-making for future interventions.

*The impact assessment adopted a **mixed-methods approach**, combining both quantitative and qualitative data collection tools.*

The assessment framework was guided by the OECD evaluation criteria, focusing on:

- Relevance
- Effectiveness
- Efficiency
- Impact
- Sustainability
- Data Collection

Method	Sample
Household Surveys	46
Community Surveys	32
Water User Group Interviews	2
Case Studies	3

- The field visit and data collection were conducted between 5–6 March 2026.
- Participatory approaches such as Focus Group Discussions (FGDs) and stakeholder interviews were used to capture community perspectives and validate findings.

Phase I: Planning

The SYNERGY CONNECT'S team collaborated with the Pidilite's team to gain a comprehensive understanding of the project and its objectives. Based on these discussions, Synergy team interacted with all stakeholders and the relevant qualitative and quantitative details were collected and the finding based on the analytics was prepared.

Field enumerators received training and orientation from the SYNERGY CONNECT team, and a detailed field plan was developed and finalized in coordination with the Pidilite's team and the implementing partners.

Phase II: Implementation - Zanzmer

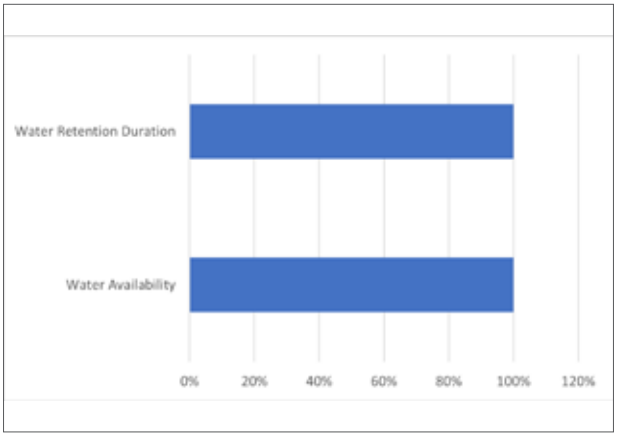
Mixed methods approach was adopted for data collection comprising of qualitative tools (semi-structured KIIs and FGDs) as well as quantitative survey tools. Customized qualitative and quantitative tools were developed, exclusive for each project as well as stakeholders. Data collection was carried out in project site in Gujarat. Diverse stakeholders, based on their interest and influence in the project were interviewed.

Phase III: Assessment & Dissemination

Post the data collection, the raw information was structured and analyzed to form actionable findings for the Pidilite's team as well as respective implementing partners. This comprehensive report was prepared based on the findings.

06 KEY FINDINGS POST INTERVENTION

1. Water Availability



The intervention has created a strong and sequential impact on rural livelihoods. Improved water availability has led upto 100% increase in cropping intensity, with farmers shifting from single cropping to multiple cropping systems. This has further enabled diversification into vegetables, horticulture, and fodder crops, strengthening both agricultural and livestock-based livelihoods. The project helped in increasing the water levels of all the water within the vicinity (Well, Bore well, River).

This was the result of increase in water recharge due to project implementation.

Increased fodder availability has supported livestock productivity, while agroforestry practices have enhanced long-term sustainability. As a result, all households reported an increase in income, and women highlighted improvements in household food security and the improved financial stability.

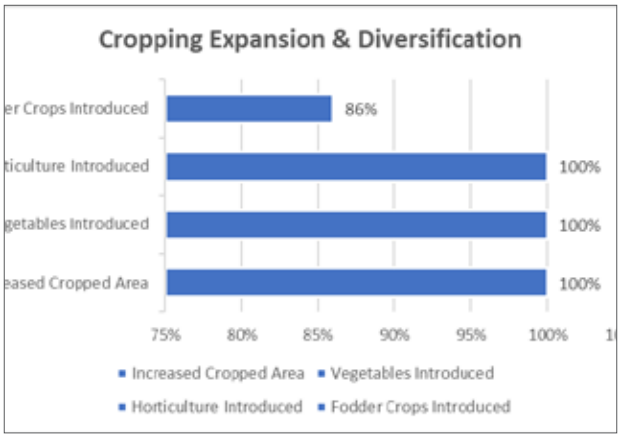
Crop diversification with the enhanced water avaliability, farmers shared that they were encouraged to take additional crops like Jawar, Wheat, and Bajra followed with vegetable.

Additionally, Community shared that the better recharge of water in ground also resulted in better natural vegetation like grass, plants etc. This complemented the fodder need of livestock.

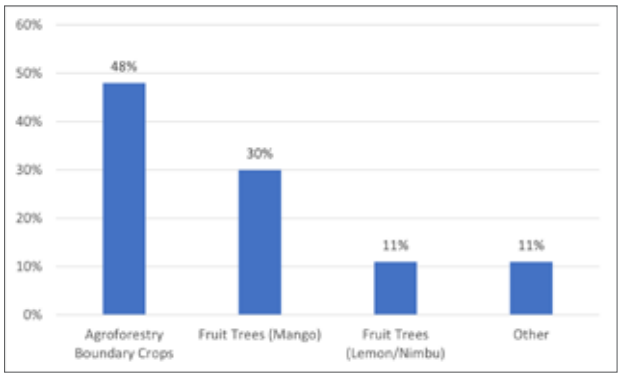
Community members perceive agriculture as more reliable than before, indicating enhanced resilience against climate variability.

2. Cropping Expansion & Diversification

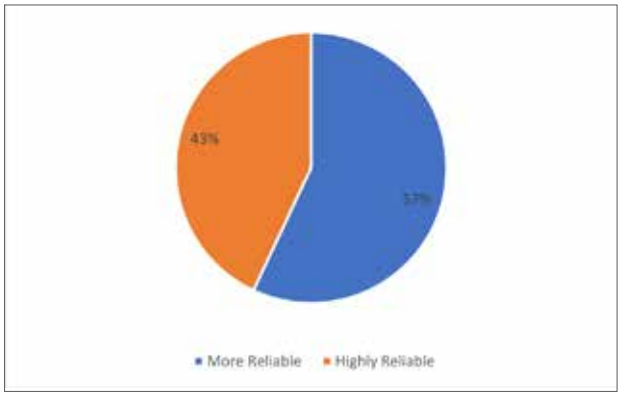
The community shared that due to adequate water for the farming the yield of the crop increased



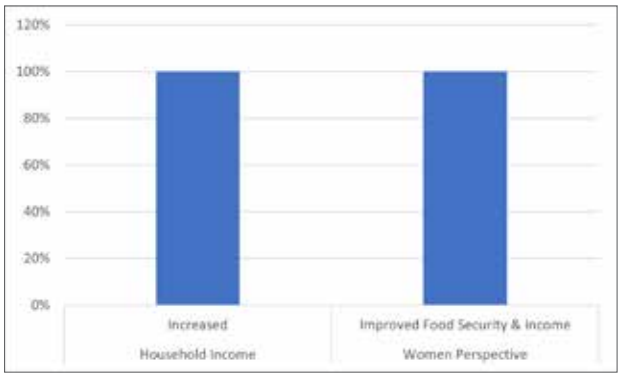
3. Agroforestry Adoption



4. Agriculture Reliability



5. Income & Livelihood Impact



The improved water recharge due to check dam also resulted in better natural vegetation like grass, plants growth. This also complemented as feed for livestock.

RELEVANCE 07

Prior to the intervention, water scarcity was identified as the most critical challenge affecting both agriculture and household livelihoods. Farmers reported that water levels declined significantly after February, irrigation was limited to a single cropping season, and water availability for livestock was inadequate during the summer months.

Water scarcity emerged as the central issue influencing agriculture, livestock, and daily life. Farmers were restricted to single-crop patterns, fodder costs increased, and women bore a significant time burden in managing water resources. The underlying problem was not only limited rainfall but also the lack of reliable access to water.

In this context, the construction of the check dam directly addressed these challenges by improving water storage and enhancing groundwater recharge. The intervention is therefore strongly aligned with community needs and is highly relevant.

08 EFFECTIVENESS

The check dam has resulted in a visible improvement in water availability across the village.

Key changes observed include:

- Improved groundwater levels in wells
- Increased soil moisture availability
- Extended water availability after monsoon
- Community shared natural vegetation (grass, plants etc.) were seen to have increased which helped as cattle feed

As a result, farmers have diversified cropping patterns and started cultivating additional crops such as:

- Jowar
- Wheat
- Bajra
- Vegetables

EFFICIENCY 09

The check dam was executed with optimal use of funds, materials, and local resources, ensuring cost-effectiveness. Its timely completion before and around the monsoon maximized water capture potential.

The intervention delivered strong output, such as improved water storage and groundwater recharge relative to the investment made. Community participation enhanced implementation efficiency and fostered a sense of ownership. Minimal delays and controlled costs reflect effective planning and execution. Furthermore, appropriate technical design and site selection ensured efficient utilization of available runoff. Strong coordination with partners and stakeholders supported smooth implementation. Overall, the project demonstrates strong value for money in addressing water challenges and was implemented efficiently.

The intervention has also generated notable economic benefits by reducing operational costs for households.

Prior to the intervention, farmers spent approximately **₹20,000** annually on cattle feed. With improved water availability, farmers are now able to cultivate fodder crops, resulting in reduced household expenditure on livestock feed. This has, in turn, improved farm profitability and enhanced livestock productivity.

10 IMPACT

The intervention has generated several positive outcomes across multiple dimensions.

Agricultural Impact

- Farmers have adopted multi-cropping practices
- Crop diversity has increased significantly

Livelihood Impact

- Additional farm income reported by several households
- Improved milk production due to better fodder availability

Women's Wellbeing

Women reported reduced stress related to water access and improved household water security.

CASE STUDY 11

Case Study 1
Farmer Livelihood Improvement

Mr. Pethbhai reported that before the intervention he had to spend approximately **₹20,000** annually on cattle feed.

After the construction of the check dam:

- He began cultivating fodder crops
- Reduced cattle feed expenses
- Increased milk production
- Achieved approximately **₹40,000** monthly revenue through additional crops and dairy activities

Case Study 2
Land Expansion Through Agricultural Income

Mr. Mukeshbhai Waghela owns approximately 2.5 bigha of land.

Following improved water availability:

- His family adopted additional cropping
- Generated savings from farm income
- Purchased an additional piece of land after **2.5 years**

Case Study 3

Women's Perspective

Women participating in focus group discussions reported that improved water availability has enabled:

- Multi-cropping
- Improved fodder availability
- Reduced dependency on neighbours for water during summer

SUSTAINABILITY 12

The intervention has created a strong foundation for long-term benefits; however, certain sustainability gaps were identified.

Key observations include:

- Lack of clarity regarding maintenance responsibility
- Absence of a formal community maintenance committee
- Silt accumulation observed in the check dam

To ensure long-term sustainability, the establishment of Water User Groups and community-led maintenance mechanisms is recommended.

13 CONCLUSION

The impact assessment demonstrates that the check dam intervention has successfully addressed critical water scarcity challenges in Zanzmer village.

Improved water availability has enabled farmers to diversify agricultural practices, enhance livestock productivity, and strengthen household livelihoods.

Beyond economic benefits, the intervention has contributed to improved household wellbeing, particularly for women who previously faced challenges related to water access.

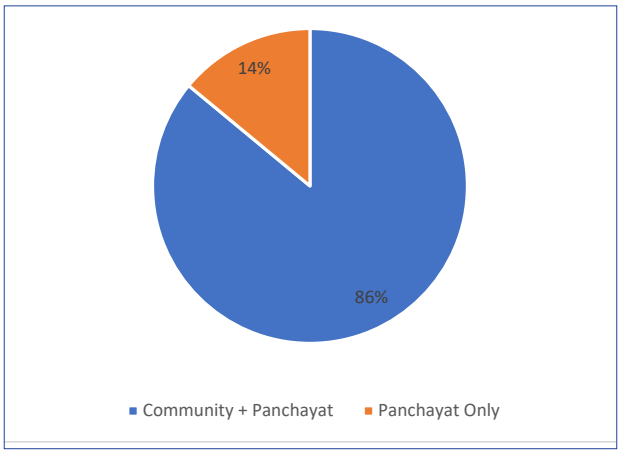
Overall, the project represents a practical and scalable model for decentralized water management in water-stressed rural regions.

RECOMMENDATIONS 14

1. Responsibility

100% of respondents believe that the responsibility for maintaining water structures lies with the government, indicating a lack of community ownership and awareness.

2. Future Responsibility



While current ownership is low, community responses indicate a shift towards shared responsibility between the community and Panchayat in the absence of external support.

Sensitization to Grampanchyats and guidance on what step to be taken to maintain would help them align and initiate the process.

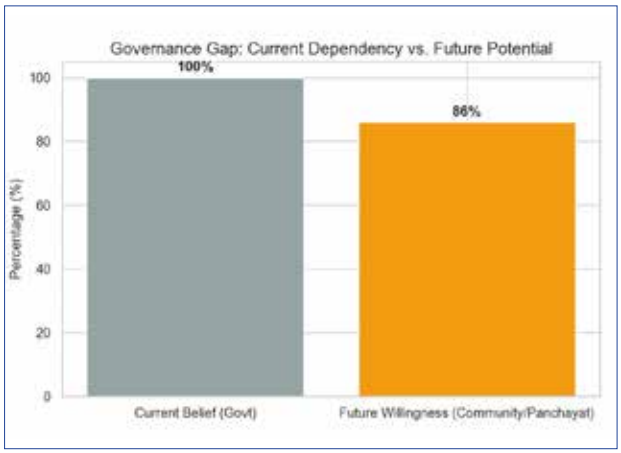
3. Gap Analysis

A clear transition gap exists between current dependency on government-led maintenance and the expected future role of the community, highlighting the need for structured capacity building and governance mechanisms.

4. Qualitative Impact Theme

Qualitative feedback highlights strong improvements in agriculture, livestock, and water availability; however, awareness about the implementing agency remains low.

5. Governance Gap



Despite strong functional outcomes, the intervention currently lacks institutional ownership at the community level, with all respondents attributing maintenance responsibility solely to the government.

Strengthen Community Governance

Establish Water User Groups to ensure regular maintenance and equitable water management.

Improve Awareness on Maintenance

Conduct community awareness sessions on check dam maintenance and water resource management.

Promote Women's Economic Participation

Encourage formation of Self-Help Groups (SHGs) and livelihood initiatives for women.

Expand Climate Resilient Agriculture

Provide training on water-efficient crops and sustainable farming practices.

Replicate the Model

Given the positive outcomes, the intervention can be replicated in other water-stressed villages of Gujarat.

Sustainability Opportunity

Encouragingly, community responses suggest willingness to participate in future maintenance, particularly through Panchayat-led mechanisms.

Risk Statement

Without immediate intervention in governance structures and awareness building, the long-term sustainability of assets may be at risk.

PHOTO DOCUMENTATION

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