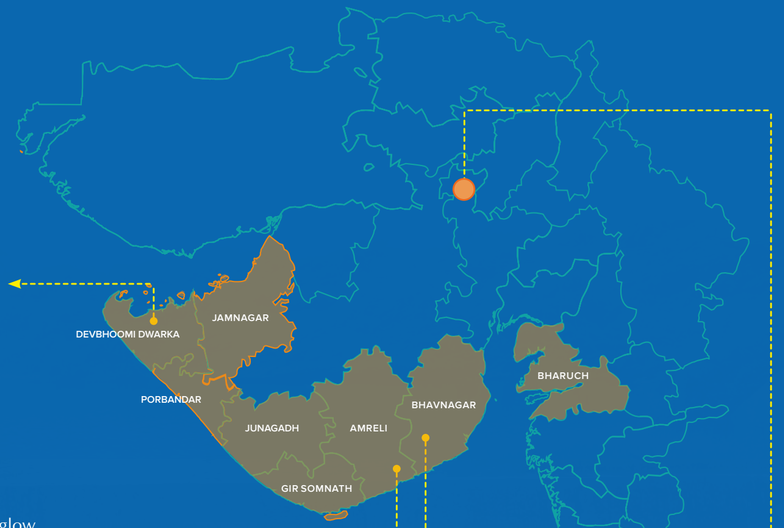


Dwarka
Coastal Salinity Prevention Cell
HostelComplex
Behind Okhai Handicraft
Mithapur-361345
Devboomi Dwarka- Gujarat

Rajula
Surya Niwas Bunglow
Opposite Gyan Jyot Shaikshanik Sankul
Chhatadiya Road, Rajula-365560
District Amreli-Gujarat

Talaja
Coastal Salinity Prevention Cell
Gopalbhai Fafdiya's House
Opp. Baraiya Street, Nr. Gayatri Mandir
Talaja- 364140, District- Bhavnagar

CSPC
Coastal Salinity Prevention Cell
AN INITIATIVE OF TATA TRUSTS, AKRSP(I) AND ACF

www.cspc.org.in

Head Office

Coastal Salinity Prevention Cell
3, Sanidhya Bungalow, Opp. Landmark Hotel,
Nr Ashok Vatika BRTS Stand, Amli-Bopal Road,
Off. S. G. Road, Ahmedabad- 380058
Ph No:- 079- 26936406 | Email : info@cspc.org.in

CSPC-Coastal-Salinity-Prevention-Cell

Coastal Salinity Prevention Cell Gujarat

@CSPC_Guj

CSPC_Guj

CSPC
Coastal Salinity Prevention Cell
AN INITIATIVE OF TATA TRUSTS, AKRSP(I) AND ACF

TATA TRUSTS

D Mart FOUNDATION

SUSTAINABLE PATHWAYS

Community-Led Water Solutions for a Better Future

D Mart FOUNDATION

PROJECT

Salinity Ingress Management
through Community-based
Sustainable Water Resources Interventions
in Coastal blocks of Bhavnagar District, Gujarat

SUSTAINABLE PATHWAYS

Community-Led Water Solutions for a Better Future

FOREWORD

Water is the essence of life, and its sustainable management holds the key to empowering communities, enhancing livelihoods, and preserving our environment. The D-Mart Foundation's transformative project in the coastal block of Talaja, Bhavnagar District, Gujarat, reflects an unwavering commitment to creating lasting change through integrated and community-driven solutions.

This initiative, spanning from September 2022 to December 2024, addresses the critical challenges of water resource management, livelihood enhancement, and WASH (Water, Sanitation, and Hygiene). By promoting water access, improving water quality, and ensuring water security, the project empowers communities to prosper in the face of environmental challenges. The addition of capacity-building programs, functional household tap connections, bio-gas plants, and tree plantation drives underscores a holistic approach to development.

With a focus on convergence and collaboration, this initiative transcends traditional boundaries, combining innovation, community participation, and sustainable practices to build resilience and ensure a brighter future for all.

CSPC takes immense pride in presenting this coffee table book, showcasing the remarkable journey of change, the stories of impact, and the lessons learned through this project. It is our hope that these efforts inspire collective action toward a sustainable and equitable world.

ACKNOWLEDGEMENTS

We extend our heartfelt gratitude to DMart Foundation for their generous funding and unwavering support in making this project a reality. Their vision for sustainable development and community empowerment has been instrumental in driving meaningful change in the coastal block of Talaja, Bhavnagar District.

Our sincere thanks to the entire team of Coastal Salinity Prevention Cell (CSPC) for their dedication, expertise, and tireless efforts in implementing this project. Their commitment to water resource management, livelihoods, WASH initiatives, and capacity building has been pivotal in transforming lives and fostering resilience in the region.

This coffee table book is a testament to the collaborative efforts of all stakeholders, including local communities, government agencies, and partner organizations, who have contributed to the success of this initiative. We deeply appreciate their active participation and collective vision for a sustainable and prosperous future.

FROM THE LEADER'S DESK

Addressing Coastal Water Challenges in Gujarat

Coastal salinity ingression, worsened by climate change, poses serious challenges to Gujarat's coastal villages. Rising sea levels, increased cyclones, and over-extraction of groundwater have caused saltwater intrusion into freshwater aquifers, affecting agriculture, potable water supply, and public health. The stress on water resources also threatens rural livelihoods and ecosystems.

However, successful water management initiatives have shown positive results in these villages. By adopting an integrated approach, communities have improved their adaptive capacity. The region's suitable topography and geohydrological conditions support water harvesting and groundwater recharge, offering solutions to these challenges.

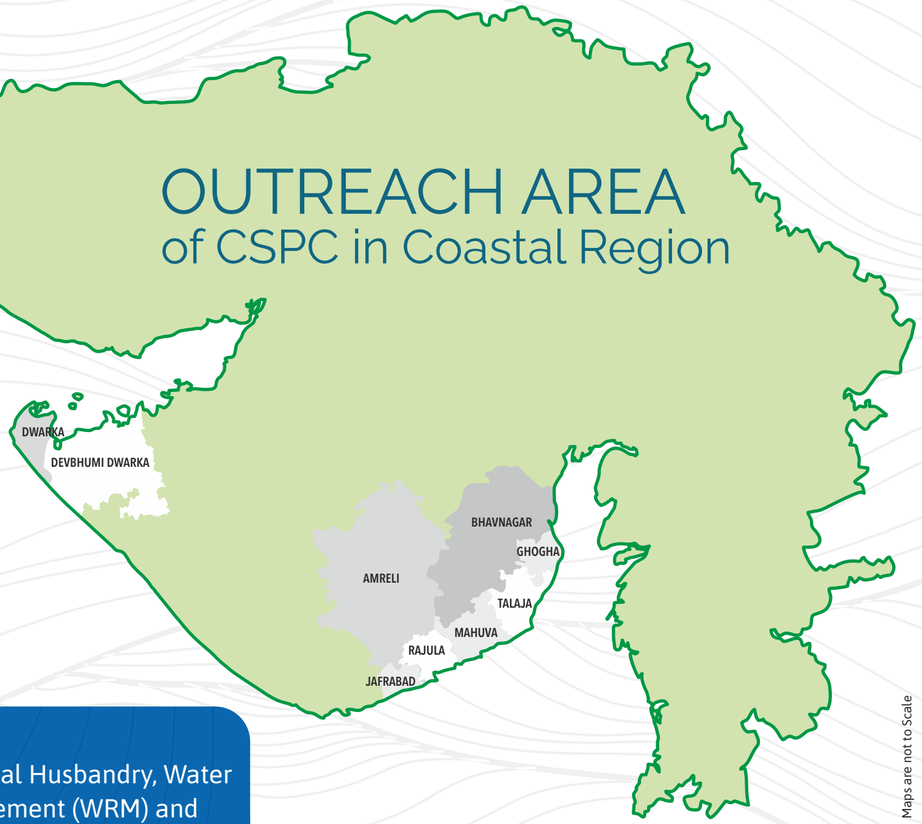
To build on these successes, CSPC has partnered with the DMart Foundation to implement a project aimed at enhancing rainwater harvesting and groundwater quality in 20 villages in Talaja, Bhavnagar district. Over three years, the project has engaged over 3,000 households, creating a rainwater harvest potential of over 10.70 million cubic feet (MCft). Key activities include the construction of new check dams, renovation of old water structures, desilting, and borewell recharge interventions. Water-efficient practices like drip irrigation and sprinkler systems have also been promoted to optimize water use.

These efforts have raised awareness about efficient water management, with village water user groups now taking responsibility for the upkeep of water infrastructure and mobilizing the community for broader adoption of good practices.

We thank the DMart Foundation for their financial support in helping these coastal villages move towards a more sustainable water future.

Sujit Kumar Gopinathan
Chief Executive Officer

OUTREACH AREA
of CSPC in Coastal Region



Maps are not to Scale

Livelihood
Agriculture, Animal Husbandry, Water Resource Management (WRM) and Soil Health Management, FPO

Water Sanitation & Hygiene
MHM, Jal Jeevan Mission, Wash in School

Education
Early Childhood Education

District - Taluka	Area Of Interventions
Bhavnagar - Gogha	WASH [MHM]
Bhavnagar – Talaja	Livelihood, WASH [JJM & MHM]
Bhavnagar – Mahuva	WASH [JJM & MHM]
Amreli – Rajula	Livelihood, WASH [JJM]
Amreli – Jafrabad	Livelihood, WASH [JJM & MHM]
Dev. Dwarka – Okhamandal	Education [ECE and Primary]

CSPC
Coastal Salinity Prevention Cell
AN INITIATIVE OF TATA TRUSTS, AKRSP(I) AND ACF

CSPC @ A GLANCE

Coastal Salinity Prevention Cell (CSPC) is dedicated to creating lasting change through targeted programmatic interventions that address the unique challenges faced by communities in Gujarat's coastal regions. Our work is anchored in three core areas: Water Sustainability and Resource Management for Improved Livelihoods, Water, Sanitation, and Hygiene (WaSH), and Education. Each of these programs is meticulously designed to not only address immediate needs but also to encourage long-term resilience and sustainable development. Through a combination of community engagement, innovative practices, and strategic partnerships, CSPC's interventions aim to improve the quality of life, promote environmental administration, and empower communities to take charge of their futures. In the following sections, we detail the interventions carried out under the programmatic area, showcasing how CSPC is making a tangible difference on the ground.

Vision

Evolve sustainable approaches for prevention and mitigation of salinity ingress, whilst enhancing livelihood resilience of communities affected by salinity in coastal villages of Gujarat.

Philosophy

To enable greater interaction and cross- learning between practitioners, researchers and policy makers to ensure that the unique and emerging problem of salinity is adequately understood allowing for design as well as implementation of effective programmes and policies to address the problems being faced by coastal communities.

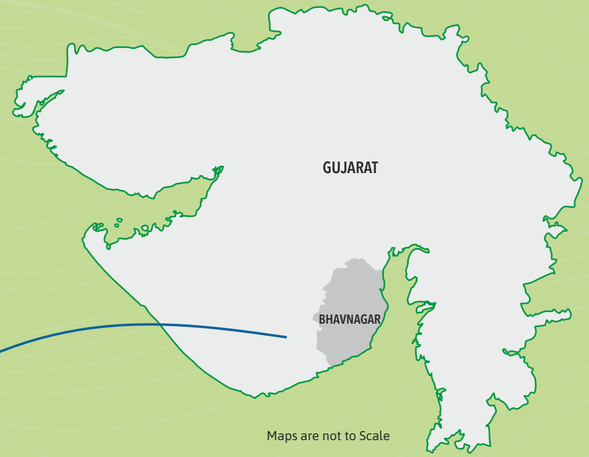
Approach

CSPC has a multi-pronged approach to evolve sustainable solutions to effectively deal with multifaceted challenges of salinity ingress. The salient pillars of our approach to work include knowledge creation on issues of salinity ingress, design of context-specific solutions through evidence-based research, effective inground implementation of programs, strengthening community institutions to sustain the interventions and liaison with government for policy advocacy on issues related to salinity mitigation.

PROJECT LOCATION & PROFILE

State	Gujarat
District	Bhavnagar
Block	Talaja
Total Villages	20
Total Households	3000

Majority are Small and Marginal Farmers



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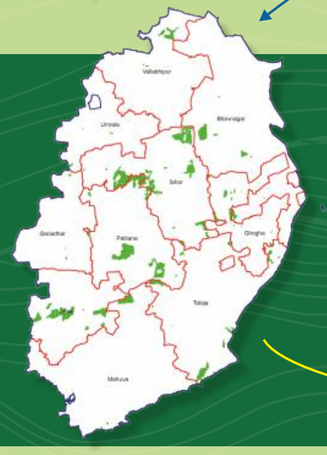


Bapada	Bapasara	Bharapara	Chopada	Devali
Dhardi	Gadhada	Gorkhi	Isora	Kathava
Mathavada	Padri Gohil	Panch Pipala	Piparala	Rajapara No-2
Sathara	Tarasara	Umarala	Velavadar	Trapaj

D Mart FOUNDATION

The **D Mart Foundation project** aims to enhance water security in 20 villages across Talaja block in Bhavnagar, Gujarat, benefiting over 3,000 households. It addresses both supply and demand aspects of water management to ensure access to clean drinking water and reduce landward salinity in coastal areas. It promotes sustainable water use, Agri-Water-Energy solutions, and strengthens farmers' livelihoods. Key focus on Participatory groundwater management, empowering community institutions to secure long-term water sustainability amid climate challenges.

Objectives

- Promote participatory ground water management to achieve water security by community institutions
- Address supply and demand side management of available water resources to ensure quality drinking & domestic water availability
- Stop or reduce the speed of landward salinity ingress in coastal areas through community-driven initiatives

Key Interventions

Enhancing Understanding on Groundwater Management: Promotes knowledge of groundwater systems, emphasizing sustainable extraction and conservation practices to prevent depletion and contamination.

Demand Side Water Management: Focuses on reducing water consumption through efficient usage, conservation strategies, and community awareness to balance demand with available resources.

Supply Side Water Management: Involves enhancing water availability by developing infrastructure, improving storage, and augmenting sources such as rainwater harvesting and watershed development.

O&M of WRM Structures by Village Committee: Empowers local committees to oversee the operation and maintenance of water resource management (WRM) structures, ensuring functionality and longevity through community participation.

Ensuring Improved Drinking Water: Implements measures to provide access to safe, potable water through source protection, purification technologies, and infrastructure improvements for rural and urban communities.

PROJECT INTERVENTIONS

Supply Side Water Management
- Repair Structures
- New Structures
- Gabion Structures
- Water Meter

Demand Side Water Management
- Drip Irrigation
- Sprinkler Irrigation
- Laser Irrigation
- Soil Moisture Meter
- Water Meter

WaSH (Water and Sanitation Hygiene)
- Drinking water source sustainability
- Water Quality (Inline Chlorinator)
- Functional Household Tap Connections
- Community Mobilization for Water Tariff collection

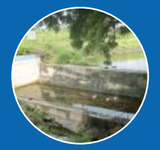
Convergence
- Bio Gas
- Net House
- Solar based Irrigation
- Soil Testing
- Horticulture
- Tree Plantation

Training and Capacity Building
(Multi Thematic Trainings)

We support the United Nations' **Sustainable Development Goals (SDGs)** and share the UN's vision for peace and prosperity for people and the planet.

PROJECT HIGHLIGHTS

SUPPLY SIDE WATER MANAGEMENT



Desilting
16

Desilting plays key role increasing water storage capacity translating into availability of water for longer time. It also makes available fertile soil for the farmer.

Repair Structures
9

Renovation and repair of water harvesting structures keeps the water storage capacity for a longer time and makes available water for various purposes.

New Structures
14

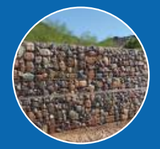
Construction of new check walls and nullah bundh helps to guide the flowing rain water and leads to proper storage structures in the area.

Recharge Shaft
6

Ddesigned to replenish groundwater by channeling water directly into deep aquifers. They enhance groundwater levels and ensure sustainable water management.

Well Recharge
73

A technique that directs rainwater or runoff into existing wells to replenish groundwater levels. It improves water availability and supports sustainable groundwater management.



Gabion Structures
2

A wire mesh boxes filled with stones or other materials, In water resource management, they reduce surface runoff, enhance groundwater recharge, and protect against soil erosion.

PROJECT HIGHLIGHTS

DEMAND SIDE WATER MANAGEMENT

Drip Irrigation

21 Acres

Drip Irrigation delivers water directly to the plant roots through a network of tubes and emitters, minimizing water waste and improving efficiency.

Sprinkler Irrigation

161 Acres

Sprinkler Irrigation disperses water through a system of pipes and sprinklers, simulating rainfall to irrigate crops over a large area.

Laser Irrigation

61 Acres

Laser irrigation uses laser technology to level fields, ensuring uniform water distribution and improving irrigation efficiency.

Soil Moisture Meter

115 Farmers

Soil Moisture meter measures the moisture level in the soil, helping farmers to optimize farmers irrigation practices to prevent under or over watering.

Water Meter

5

A water meter measures the amount of water used for irrigation, helping farmers manage water consumption efficiently and ensure sustainable usage.

PROJECT HIGHLIGHTS

CONVERGENCE

Bio Gas

76

Integration of biogas production with other renewable energy or waste management systems, promoting sustainable energy and waste recycling in communities.

Net House

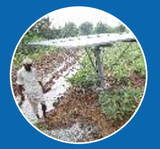
2

Net House is a structure covered with mesh or netting, used for growing crops in a controlled environment to protect them from pests and extreme weather conditions.

Solar based Irrigation

12 Farmers

The solar-powered irrigation system is an application of a solar-powered water pumping system used in paddy fields, and gardens for watering plants, vegetables, etc.



Soil Testing

239

Soil testing is the process of analyzing soil samples to determine their nutrient content, pH, and other properties. This helps assess soil fertility and guides appropriate fertilizer and soil management practices for optimal plant growth.

Horticulture

88 Farmers

Horticulture is the science and art of cultivating plants for food, medicine, and aesthetic purposes. It involves the growth, production, and management of fruits, vegetables, flowers, and ornamental plants.

Tree Plantation

2000 Saplings planted

Tree Plantation Activity involves planting trees to improve environmental sustainability, enhance biodiversity, and combat climate change.

PROJECT HIGHLIGHTS

TRAINING AND EXPOSURE VISITS

Water Security Trainings in Villages

20

Water Security Trainings in Villages educate local communities on sustainable water management practices, conservation techniques, and strategies for ensuring long-term water availability.

School Training Program in 20 villages

9,244 Students

School Training Program provides students with knowledge and practical skills related to agriculture, environmental sustainability, or community health.

O&M Trainings

20

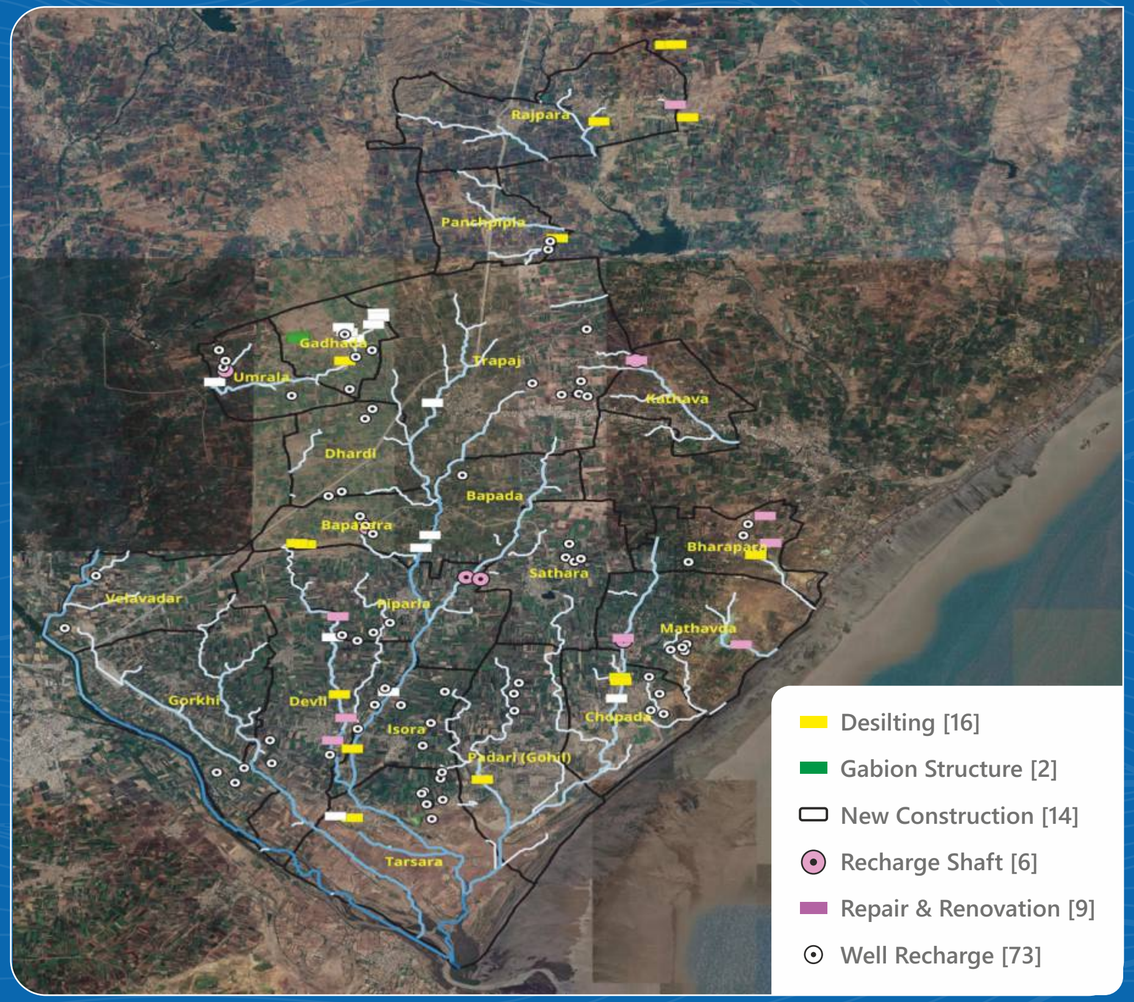
O and M Trainings (Operation and Maintenance Trainings) focus on teaching individuals or groups how to efficiently operate and maintain agricultural equipment, infrastructure, or water systems.

Experience Sharing Workshop

5

Experience Sharing Workshop is a platform where participants share their insights, challenges, and successful strategies, fostering collaborative learning and knowledge exchange.

PROJECT HIGHLIGHTS



3,014

HH get access to improved drinking water

1,473

HH benefitted directly through WRM intervention for support irrigation

10.73

McFt of Rain Water Harvested (~30 Cr Liter Annually)

2,045

Acre of land benefitted in immediate Catchment area

Series of Check dam in Gadhada Village

COMMUNITY HEROES

IMPACT STORIES

These initiatives have played a vital role in reducing the presence of salinity in soil, water and other also natural resources prevailing in the project area. The positive impact in the lives of people are clearly visible and in this book some instances are being presented in form of case studies.

FROM SCARCITY TO SECURITY

Mathavada's Journey Towards Sustainable Livelihood and Water Conservation

Mathavada a coastal village, located in the Talaja Block of Bhavnagar District, has long faced the challenges of erratic rainfall and an over-reliance on groundwater for irrigation and daily needs. With a population of 3,349 and 554 households, the village sustains itself through farming and animal husbandry, with 291 farmers and a significant livestock population of 1,617 cattle. Over the years, the excessive withdrawal of groundwater and lack of perennial rivers made the village highly vulnerable to seawater intrusion, negatively affecting its water quality and overall livelihood security. However, through the targeted interventions of CSPC, Mathavada has seen a transformation in its water resource management, access to safe drinking water, agricultural practices, and overall well-being.

FLOWING FORWARD

OUR HOLISTIC WATER MANAGEMENT JOURNEY

Water Budgeting

A comprehensive assessment of available water resources. This step ensures efficient allocation for drinking, irrigation, and other needs.

Water Security Plan

Strategic planning to safeguard long-term water availability. It involves measures to prevent water scarcity and future risks.

Supply Side Management

Focuses on augmenting water supply through infrastrucutral improvements. It includes strengthening existing resources groundwater recharge, and enhanced distribution systems.

Demand Side Management

Encourages responsible water usage by managing consumption levels. It promotes water-saving practices and efficient use.

Drinking Water and Irrigation Source Sustainability

Ensures continuous and sustainable access to potable water and irrigation. Balances resource distribution between household and agricultural needs.

Water Access

Provides reliable access to clean drinking water for every household. Infrastructure improvements and equitable distribution mechanisms are key elements.

Community Engagement

Actively involves the community in water conservation efforts. Educates people on sustainable practices and builds ownership.

Water of Hope Celebration

A community-driven celebration recognizing the success of water initiatives. It includes sanitation drives and tree planting, symbolizing growth and renewal.

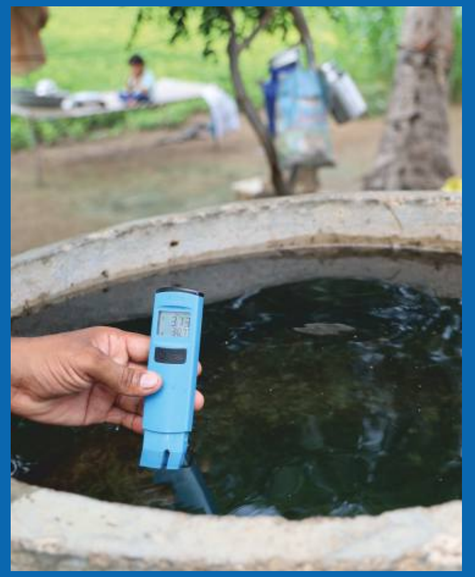
The Challenge

Before CSPC's intervention, Mathavada's only source of drinking water was the Jalumb Well, with a Total Dissolved Solids (TDS) reading of ~800 PPM —indicating unsafe drinking water quality. The village also relied on 5-6 hand pumps for domestic water usage, which were inadequate given the growing needs of the population. Water scarcity was a constant threat, exacerbated by over-extraction of groundwater and poor irrigation methods. Most of the village's population, especially small and marginal farmers, faced deteriorating soil quality, lower crop yields, and limited water availability for livestock.

CSPC's Intervention

Understanding the village's critical water needs, CSPC stepped in with a comprehensive strategy that not only focused on water resource management but also incorporated social and behaviour change principles to promote long-term sustainability.

1. Water Resource Management



Source Strengthening

CSPC carried out source strengthening of the Jalumb Well, which improved the water supply for the community. Additionally, a recharge tubewell, 4 wells recharge, and 2 check dams were repaired, and major desilting was also undertaken to improve the water storage capacity and thereby enhance the groundwater potential –

Water Quality Improvement

To assure the quality of the tap water being supplied, CSPC installed an in-line chlorinator in the village's water supply system under the JJM program supported by the state government. This ensured the water was purified before reaching households. A sensor-based pumping machine was also installed to enhance operational efficiency and reduce water wastage.

2. Efficient Irrigation Practices

Recognizing the importance of sustainable agriculture, CSPC introduced the concept of micro-irrigation techniques such as drip irrigation, laser irrigation, and water metering demonstrations. These methods helped the farmers reduce water wastage and adopt more efficient irrigation systems for crops like groundnut, cotton, onion, wheat, and fodder. Demonstrating the benefits of these irrigation techniques motivated farmers to shift from traditional to modern methods, ultimately leading to better yields and water conservation.

3. Social and Behaviour Change Communication (SBCC)

CSPC's approach wasn't limited to infrastructure development but also integrated social and behaviour change principles to ensure community participation and ownership of the interventions.

- **Community Engagement**: Through extensive workshops and training sessions, CSPC educated the villagers on the importance of water conservation, water quality management, and efficient management of water resources.

The Other interventions included

- **Installation of household tap connections under the government supported flagship scheme of JJM – Har Ghar Nal Se Jal**: With 504 functional household tap connections, access to safe drinking water became more reliable and assured, reducing the time and effort spent by women and children on fetching water.
- **Sanitation Awareness Campaigns**: CSPC conducted awareness sessions to educate villagers about the importance of hygiene and safe water practices, including the need for household water treatment and storage.
- **Menstrual Hygiene Promotion**: The organization introduced menstrual hygiene-related behaviour change communication campaigns to educate women and adolescent girls on the importance of proper menstrual hygiene management, especially for the well-being of young girls and vulnerable groups. These campaigns emphasized safe practices, the use of hygienic products, and the importance of clean sanitation facilities to promote health and dignity.

Conclusion

The transformation of Mathavada Village is a testament to CSPC's holistic approach, which goes beyond infrastructure development to include social and behaviour change, community engagement, and long-term sustainability. By addressing the village's water scarcity issues, promoting efficient irrigation, and encouraging sustainable livelihood practices, CSPC has created a model for community led water resource management that can be replicated in other coastal villages facing similar challenges. The success of Mathavada's journey highlights the importance of community ownership, behavioural shifts, and innovative interventions in tackling the pressing issue of water security in Gujarat's coastal regions.

SMART PUMPS SMARTER VILLAGE

CSPC's Functional Tech Solution for Easy Water Management

In coastal Bhavnagar, Mathawada faced a unique challenge: its water source, Jallumb well, lay two kilometers away from the village center. The pump operator made multiple daily trips to manually operate the system, costing Rs. 12–15 thousand monthly in labor & fuel.

CSPC recognized this inefficiency & facilitated collaboration between Mathawada Pani Samiti, the Sarpanch, WASMO, & other stakeholders. Their solution: an automatic mobile-based pumping system. This innovation allowed the operator, Gusabhai, to control the pump remotely via phone, eliminating physical trips.

The impact has been substantial. The new system saves time, reduces operational costs, & improves water supply efficiency. It also decreases wear & tear on the motor, lowering maintenance costs. With reduced labor needs, the Pani Samiti can hire operators at lower costs, enhancing overall operational efficiency. Mathawada now serves as a pilot village for this L&T supported technology, demonstrating its feasibility in remote coastal settings. CSPC's commitment goes beyond providing water access; it ensures sustainable & efficient water supply systems.

This initiative not only addressed immediate logistical challenges but also laid the groundwork for future advancements in water management. CSPC's approach in Mathawada exemplifies how innovative solutions can significantly improve coastal communities' quality of life.

Transforming Mathavada's WATER FUTURE by Jal Yodha (Water Warriors)

The coastal residents of Mathavada faced challenges beyond operational inefficiencies in water distribution. The community lacked awareness about water supply, quality management, & maintenance. To tackle this, CSPC realized they needed to both set up efficient systems & extensively train the Pani Samiti & Jal Yodha to make the village water independent.

CSPC's intervention resulted in a well-organized distribution system, dividing the village into four zones receiving water daily at 6 pm for 30 minutes each. They installed an ILC system, which Chiragbhai, the Jal Yodha, diligently monitors to maintain proper chlorine levels.

Chiragbhai oversees all O&M mechanisms, from timely distribution & chlorination to maintaining registers & repairing pipelines. He's the point person for new connections & provides support to families. CSPC's training has enabled him to ensure fair, equitable water supply across households.

The impact extends beyond infrastructure. It has fostered community service & pride through CSPC's approach of combining technical solutions with community empowerment. By training local operators like Chiragbhai, CSPC has created a sustainable, community-driven water management system in Mathawada.

This comprehensive approach has not only improved water access & quality but also significantly enhanced the quality of life for Mathawada's coastal residents, showcasing the power of local empowerment in solving water challenges.

WATER RESOURCE MANAGEMENT

Transforming Rural Agriculture through Sustainable Water Management: The Case of Himmatbhai Mathurbhai

Water scarcity has long been a pressing challenge in rural regions like Talaja Block, where erratic rainfall and insufficient water resources have constrained agricultural productivity and livelihoods. For farmers like Himmatbhai Mathurbhai from Gadhada, these challenges were acutely felt. Limited to a single cropping season due to a lack of reliable irrigation, Himmatbhai faced restricted agricultural output, unstable income, and compromised quality of life.

Recognizing this critical issue, the Coastal Salinity Prevention Cell (CSPC), with support from D-Mart Foundation, initiated a series of targeted interventions, including the construction of a checkdam near Himmatbhai's farmland. While not a standalone program, this checkdam formed a crucial part of a broader initiative to manage water resources sustainably, enhance livelihoods, and promote environmental conservation in the region.

Addressing Water Scarcity Through Community-Led Solutions

The intervention began with extensive consultations with local farmers, who highlighted the need for year-round access to water. The construction of the checkdam offered a sustainable solution by capturing and storing rainwater. This reservoir not only provided a consistent water supply for irrigation but also improved soil moisture levels, allowing farmers like Himmatbhai to extend their cropping cycles and cultivate multiple crops annually.

The results were transformative. Himmatbhai transitioned from single-crop farming to growing diverse crops such as onions, sorghum (jowar), and groundnuts, significantly increasing both his yield and income. The intervention also enriched soil health, promoting sustainable agricultural practices and ensuring resilience against climate variability.

Outcomes and Broader Impact

The check dam intervention yielded a range of positive outcomes:

- **Increased Productivity**: Reliable irrigation enabled higher crop yields and better utilization of farmland.
- **Diversified Farming**: Farmers moved from monoculture to cultivating multiple crops, ensuring income stability and food security.
- **Economic Growth**: Improved yields and diversified crops substantially boosted Himmatbhai's earnings, enhancing his family's quality of life.
- **Environmental Sustainability**: The check dam improved groundwater levels, increased soil moisture retention, and supported biodiversity in the area.

The benefits extended beyond Himmatbhai's farm, impacting 51 acres and supporting neighboring farmers with access to the reservoir. The intervention inspired other farmers in the community to adopt similar water conservation measures, contributing to regional socio-economic development and ecological sustainability.

Laying the Foundation for Resilience

Himmatbhai's success story demonstrates the transformative power of sustainable water management. By addressing water scarcity through community-driven solutions, this intervention not only improved agricultural productivity but also created a ripple effect of positive change across Talaja Block. Farmers now view water as a shared resource, promoting collaboration and stewardship for future generations.

This case stands as a testament to the potential of integrated water resource management to build resilience, empower communities, and secure sustainable livelihoods in vulnerable regions. For Himmat Bhai and others, the intervention has unlocked opportunities for growth and prosperity, setting a benchmark for development in rural agriculture.

DRIP IRRIGATION and LASER IRRIGATION

Modern Irrigation Technologies for Sustainable Development and Climate Resilience

In the semi-arid landscapes of Talaja, Gujarat, where water scarcity and erratic rainfall have long hindered agricultural productivity, innovative water management solutions are reshaping livelihoods and promoting sustainability. Through government-supported initiatives and collaborative efforts by the Coastal Salinity Prevention Cell (CSPC), farmers like Solanki Bipinbhai Dhirubhai of Mathavda village and Dodiya Vallabhbhai Narsinhbhai of Gorkhi village have embraced modern irrigation technologies, setting inspiring examples for their communities.

Transforming Challenges into Opportunities

Prior to intervention, both farmers faced immense difficulties in maintaining sustainable agricultural practices. Bipinbhai, cultivating watermelon, muskmelon, and cotton, grappled with water wastage and soil degradation caused by traditional irrigation methods. Similarly, Vallabhbhai's uneven terrain and insufficient water availability jeopardized his groundnut crops, pushing his farming operations toward unsustainability. These challenges, compounded by climate variability, underscored the urgent need for innovative and efficient solutions.

Sustainable Solutions with Tangible Benefits

Bipinbhai adopted a drip irrigation system, supported by a 65% government subsidy and additional financial assistance from CSPC. This technology allowed precise water delivery directly to plant root zones, minimizing evaporation and runoff, enhancing soil health, and increasing crop yields. Vallabhbhai employed a laser irrigation system, which utilized precision land leveling for uniform water distribution. With solar-powered irrigation pumps reducing dependence on conventional energy sources, Vallabhbhai significantly lowered his operational costs while addressing water scarcity.

These interventions yielded remarkable results. Bipinbhai experienced a substantial boost in crop productivity, particularly in cotton, while reducing labour and irrigation costs. Vallabhbhai achieved stable groundnut yields even with limited water availability, thanks to optimized water usage and renewable energy integration. Both farmers significantly reduced water consumption, contributing to the region's water security and climate resilience.

Catalyzing Community-Wide Impact

The success of these initiatives extends beyond individual farms. Bipinbhai and Vallabhbhai have become local champions for sustainable farming, inspiring other farmers in Talaja to explore similar technologies. Their experiences highlight the critical role of modern irrigation in conserving resources, improving livelihoods, and building resilience against climate-induced challenges.

By integrating renewable energy, promoting efficient water use, and reducing soil degradation, these initiatives align with broader goals of environmental conservation and sustainable development. Moreover, they foster community awareness, encourage government and community collaboration, and support regional efforts to achieve water security and agricultural sustainability.

Conclusion

The transformative journeys of Bipinbhai and Vallabhbhai underscore the potential of sustainable practices in addressing development challenges and climate risks. Their stories not only validate the effectiveness of modern irrigation technologies but also demonstrate the power of innovation, collaboration, and community-driven action in creating resilient and prosperous farming ecosystems.

With continued support from government bodies and organizations like CSPC, such initiatives can serve as a model for sustainable development, ensuring that farming communities thrive despite environmental and climatic adversities. These efforts contribute to a brighter future where water, energy, and livelihoods are harmoniously integrated to build resilience and prosperity.

Functional Household Tap Connection (FHTC)

Empowering Lives through Access to Clean Water in Bharapara Village

Access to clean water is essential for social development, improving health, well-being, and economic opportunities. Bharapara village in Talaja district, Gujarat, demonstrates how solving water scarcity can lead to transformative change, as seen through the life of Ashaben Bharatbhai Makwana.

The Challenge

For years, Ashaben walked half a kilometre daily to fetch water from a communal source. This task was physically exhausting, time-consuming, and limited her ability to focus on productive activities. The inconsistent water supply caused health issues and highlighted the inequities faced by rural communities, particularly women.

The Intervention

To address this challenge, a household tap connection programme was implemented in Bharapara. This intervention ensured sustainable access to clean water directly at people's doorsteps. For Ashaben, the change was life-altering, saving time and energy that had previously been spent on water collection.

Impact on Daily Life

- **Time and Energy Savings**: With water at her doorstep, Ashaben could focus on family and other productive activities.
- **Improved Health**: The reliable water supply reduced waterborne diseases, improving overall family health and hygiene.
- **Empowerment**: Freed from the burden of water collection, Ashaben could contribute more meaningfully to her family and community.

Broader Social Impact

The programme addressed structural inequities by empowering women like Ashaben. Improved water access allowed for better participation in economic activities, breaking cycles of poverty and enabling progress. Neighbouring villages were inspired to implement similar initiatives, fostering collective change and sustainable resource management practices.

Conclusion

Ashaben's story highlights how access to clean water can transform lives, empowering individuals and communities. The Bharapara tap connection programme not only met a basic need but also catalyzed broader social and economic development. This initiative underscores the importance of equitable and sustainable solutions in building resilient and empowered communities.

SOURCE STRENGTHENING

Transforming Water Access in Bharapara Village

Bharapara village in Talaja district, Gujarat, faced a critical water scarcity issue, particularly during dry seasons when the primary well's water level would plummet. This scarcity disrupted daily life, posed health risks, and hindered agricultural productivity. Under the visionary leadership of Sarpanch Dineshbhai Parshottambhai Solanki, and with support from the Coastal Salinity Prevention Cell (CSPC), the community embarked on an ambitious project to strengthen its water sources through innovative and sustainable solutions.

Identifying the Problem

Challenges: The village's growing population and seasonal water shortages strained the existing water supply system.

Impact

Residents faced disrupted daily routines, increased health risks due to limited hygiene, and conflicts over water allocation. Farmers, heavily reliant on water for irrigation, saw reduced agricultural productivity, exacerbating economic challenges.

Strategic Intervention

Assessment and Planning: A thorough evaluation of the village's water needs and the well's potential was conducted. Experts identified horizontal boring as a viable technique to improve water availability sustainably.

- Implementation: Horizontal boring was executed around the well in four directions to access additional water-bearing strata.
- Community members actively participated in the project, ensuring local ownership and understanding of the intervention.

Objectives

- Immediate resolution of water scarcity.
- Establishment of a sustainable water management system to meet long-term needs.

Outcomes and Impact

- Enhanced Water Availability:
- Increased well yield through horizontal boring.
- Consistent drinking water supply throughout the year.

Improved Quality of Life

- Reduced health risks due to better hygiene practices.
- Elimination of conflicts over water resources.

Agricultural Benefits

- Reliable water access boosted irrigation, leading to increased agricultural productivity and improved livelihoods.

Community Empowerment and Awareness

Leadership and Engagement: Dineshbhai's proactive governance and collaboration with CSPC fostered community participation and ownership.

Awareness Campaigns: The project raised awareness about water conservation and sustainable resource management, promoting responsible practices among residents.

Ripple Effect: Inspired by Bharapara's success, neighboring villages began adopting similar interventions, amplifying the project's impact.

Sustainability and Maintenance

Infrastructure Maintenance: Regular upkeep of the well and associated infrastructure ensures continued efficiency and reliability.

Institutional Strengthening: The initiative established a robust framework for water management, empowering the community to address future challenges independently.

Conclusion

Bharapara's journey highlights the power of community-driven solutions in addressing critical water challenges. By combining modern techniques with proactive governance, the village not only resolved its water scarcity issues but also set a precedent for sustainable development. The success of this initiative underscores the importance of strategic interventions, local leadership, and community engagement in transforming lives and promoting sustainability.

Concluding Insights from
D-Mart Project through
An **Impact Assessment** Report
Conducted in the
Talaja Block (2021–2023)
by **GeoExTerra**

1. Dynamic Agriculture System

- Crop patterns and Density exhibit fluctuations, with a notable increase in double cropping.
- Double cropping plays a vital role in boosting agricultural income.

2. Water Conservation and Groundwater Recharge

- Average surface runoff is 52.6% of total rainfall against the benchmark of 80 % rainfall in normal condition.
- CNB repairing, check dams, recharge shafts, and well recharge has contributed significantly to groundwater recharge

3. Enhanced Groundwater Quality

- Total Dissolved Solids (TDS) levels in groundwater have decreased annually by 200–300 mg/l.
- This improvement enhances the suitability of groundwater for both irrigation and drinking purposes.

4. Enhanced Groundwater Availability

The Data from the Observation wells Show a rise in the water availability in the wells

- An average increase of 3.5 meter seen in the month of May
- An average increase of 2.15 meter seen in the month of Oct

5. Positive Feedback Loop in Agriculture and Water Dynamics

- Reduced surface runoff and better groundwater recharge improve water quality.
- Enhanced water quality supports intensified agricultural practices, creating a cycle of sustainable productivity and resource use.

6. Seasonal Rainfall Variations and Planning

- Seasonal variations, heavily influenced by the southwest monsoon, shape the region's agriculture and water management needs.
- Insights into these patterns help optimize strategies for climate change adaptation, water resource management, and agricultural planning.

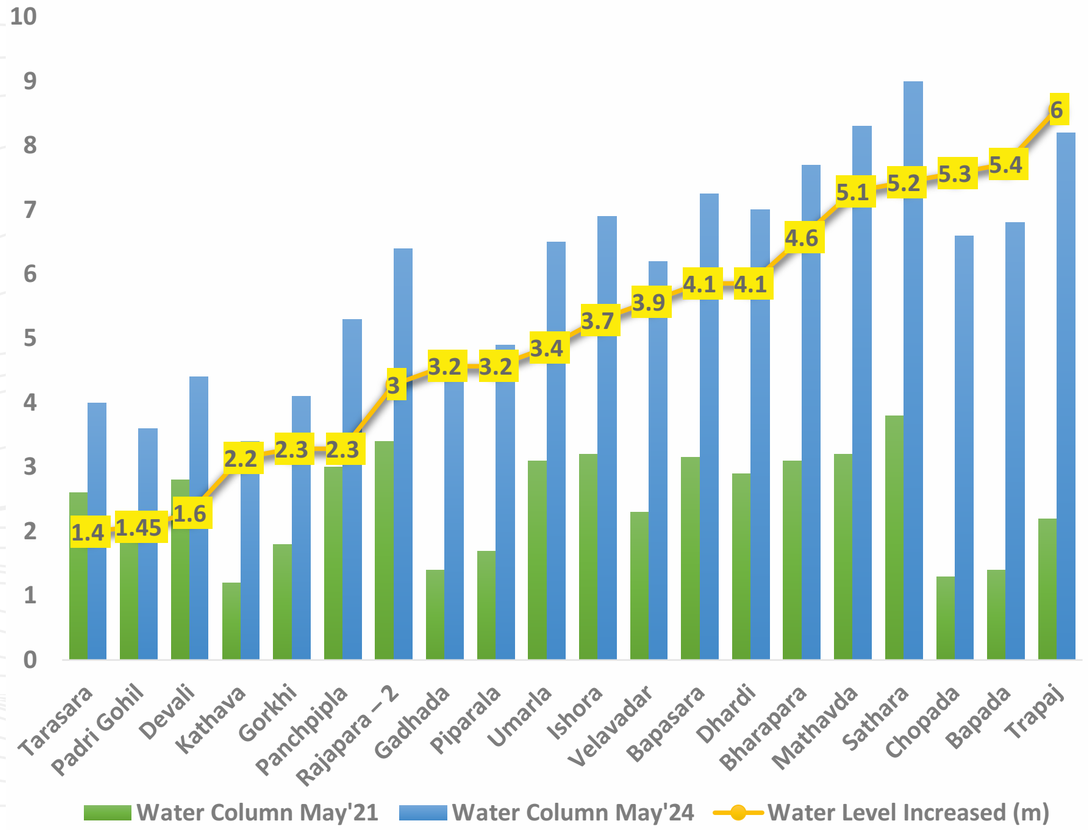
7. Strategic Learnings for Sustainability

- The interplay between agriculture, water conservation, hydrological dynamics, and groundwater quality highlights the need for integrated resource management approaches.

These learnings pave the way for replicable and sustainable practices in similar agro-climatic regions.

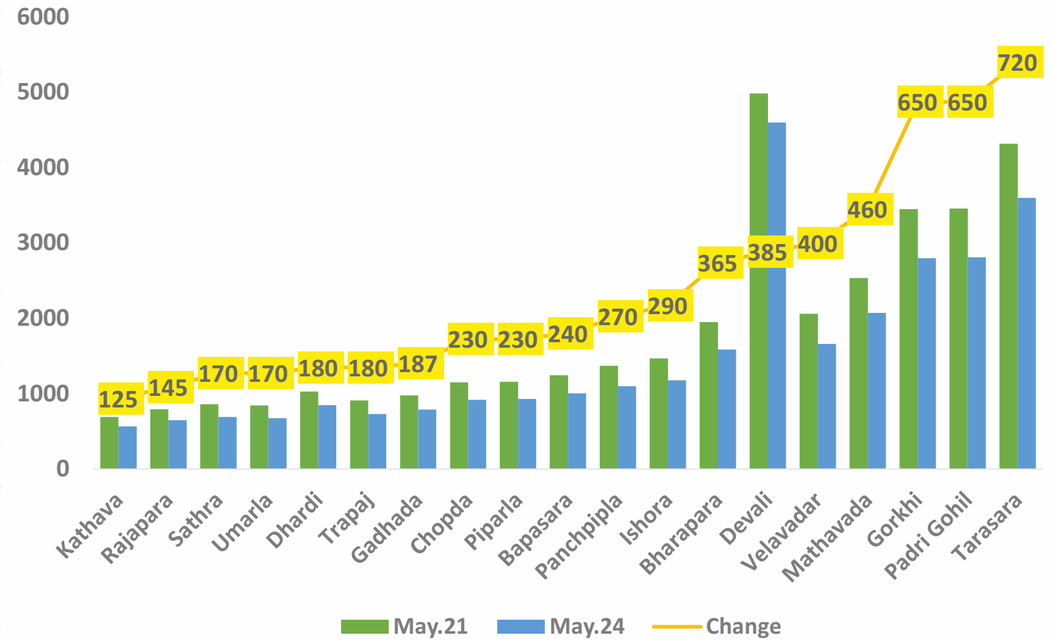
Increase in Water Level (May '21 - May '24)

WATER COLUMN

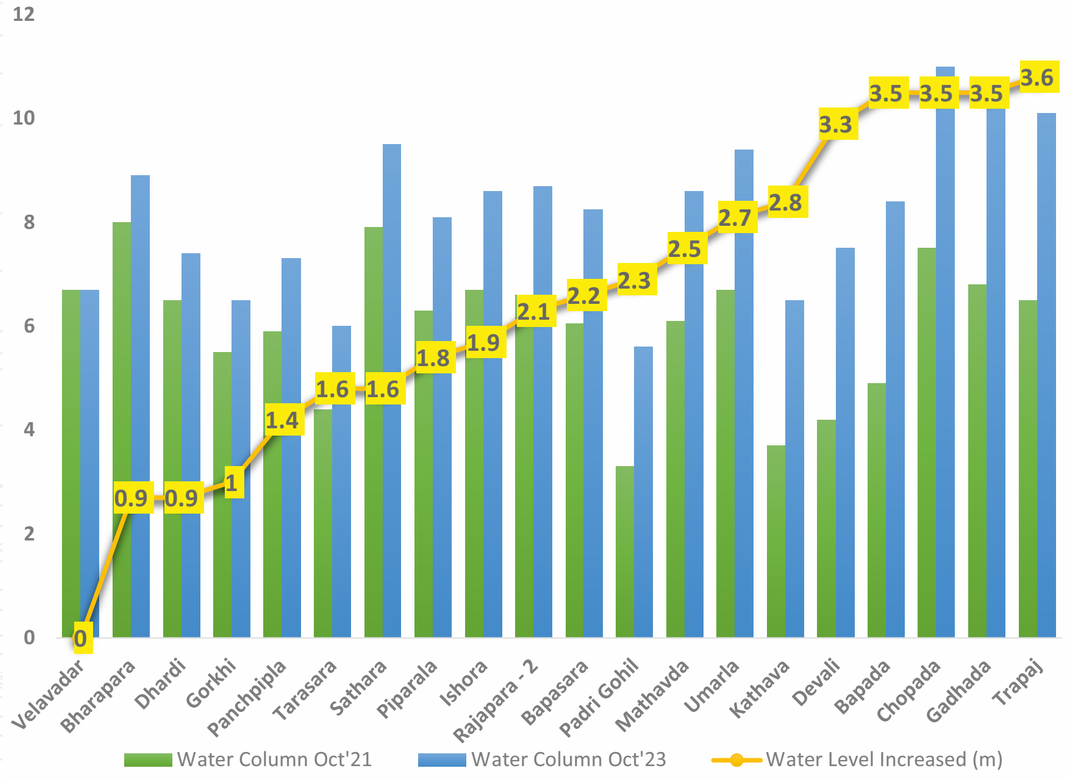


Improvement in Water Quality (May '21 - May '24)

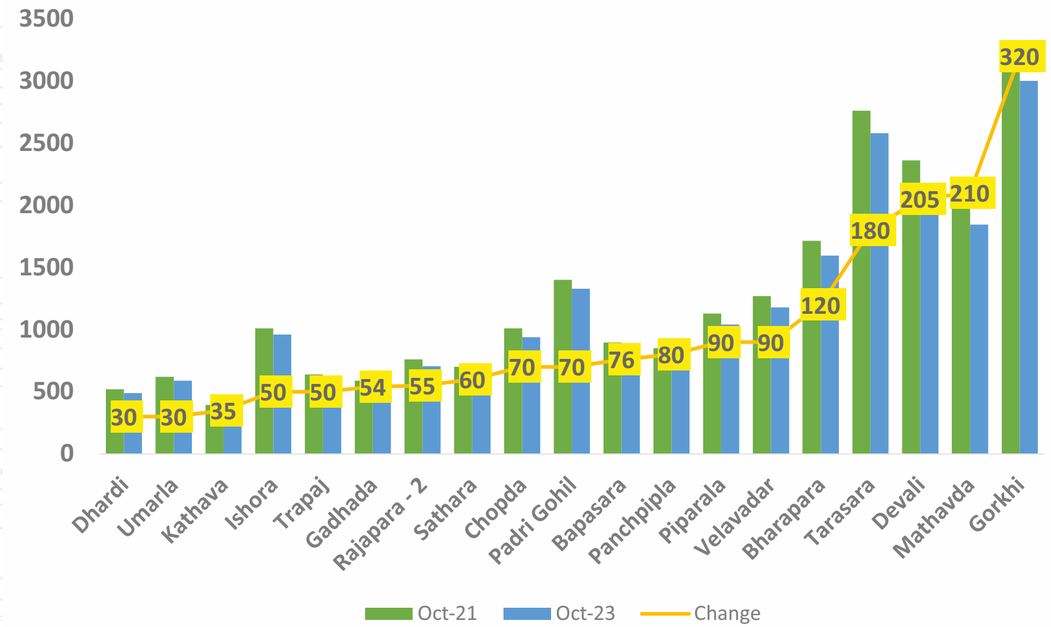
TDS (Total Dissolved Solids)

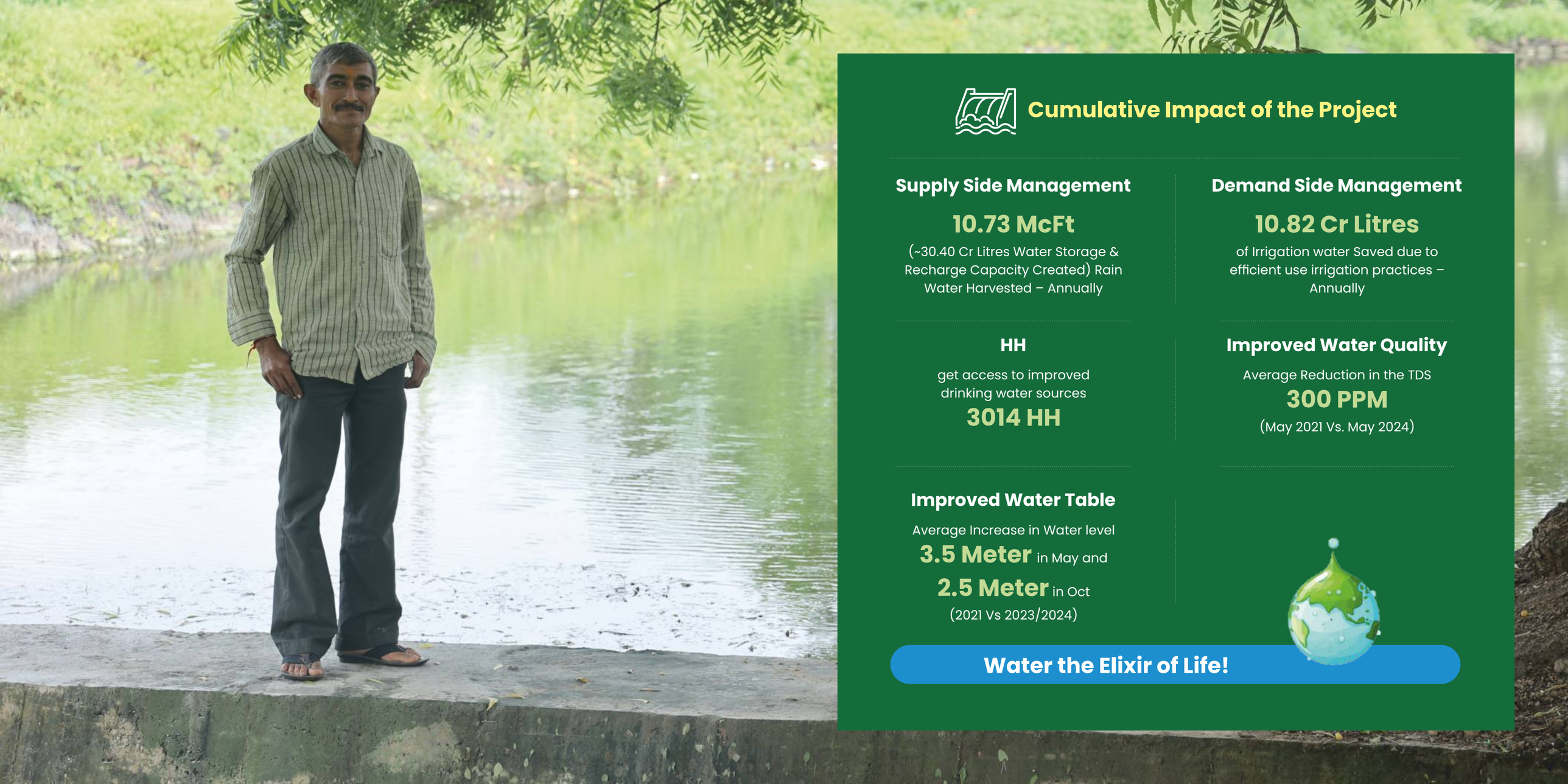


Increase in Water Level (Oct '21 - Oct '23)
WATER COLUMN



Improvement in Water Quality (Oct '21 - Oct '23)
TDS (Total Dissolved Solids)





Cumulative Impact of the Project

Supply Side Management

10.73 McFt

(~30.40 Cr Litres Water Storage & Recharge Capacity Created) Rain Water Harvested – Annually

Demand Side Management

10.82 Cr Litres

of Irrigation water Saved due to efficient use irrigation practices – Annually

HH

get access to improved drinking water sources

3014 HH

Improved Water Quality

Average Reduction in the TDS

300 PPM

(May 2021 Vs. May 2024)

Improved Water Table

Average Increase in Water level

3.5 Meter in May and

2.5 Meter in Oct

(2021 Vs 2023/2024)

Water the Elixir of Life!

CAPTURING THE PROGRESS

DESILTING - BHARAPARA

Before Monsoon | After Monsoon

Before Repairing

After Completion

REPARING - MATHAVADA

After Monsoon

NEW CHECKDAM - BHARAPARA

Before Monsoon | After Monsoon

Before Monsoon

WELL RECHARGE

After Monsoon

Media Coverage

11

SUNDAY, 9•04•2023

તળાજા તાલુકામાં પીવાના પાણીની તંગી વચ્ચે જળ બચાવવાના પાઠ ભણાવ્યા

૯૧ કરોડ લિટર પાણી નો સંગ્રહ કરવા માટેના આયોજનો થયા

તળાજા (સંદેશ ન્યૂઝ)

નીયર સિટીઝન બન્યા ભોગ
ડ જોઈને વાત
માવવા પડ્યા

07

SUNDAY, 21•04•2024

જમીનનો ભેજ માપીને પાકને પાણી આપવાથી અનેક ફાયદા

વરસાદી પાણીની ગંભીરતા નહિ હોવાથી જમીનમા ઉતરતુ માંડ ૧૦ ટકા પાણી

તળાજામા CSPC સંસ્થા દ્વારા દર મહિને ચકાસાતુ પાણીનું બજેટ

તળાજા (સંદેશ ન્યૂઝ)

ભુગર્ભ જળનો ઉપાડ કરવાના કારણે ખારાશનો પ્રશ્ન

28-08-2023

જળ શક્તિ મંત્રાલય દ્વારા વેળાવદરમાં

હર ઘર નળથી જળ યોજનાની બે દિવસની શિબીર યોજાઈ

18 ગામના 75થી વધુ સભ્યોએ હાજરી આપી

તળાજા/ભાવનગર | 27 ઓગસ્ટ

25-01-2024

ભાવનગર ગ્રામ્ય

મહુવા • તળાજા • પાલિતાણા | સિહોર • ગારિયાધાર • વલભીપુર

શ્રા કઠવા પ્રાથમક શાળા

જળસંચય • તળાજાના કંઠાળ વિસ્તાર સહિત ગામડાઓમાં જાગૃતિ કેળવવા સ્વૈચ્છિક સંસ્થા દ્વારા

પાણીની તંગી ભોગવતા ગામોમાં ઝુંબેશ

વરસાદી પાણીનો ભૂગર્ભમાં સંગ્રહ કરવા તેમજ ખેતી માટે ધરતીના જળનો મહતમ ઉપયોગ થાય તે માટે માર્ગદર્શન

30 જેટલા ગામોમાં અપાયુ માર્ગદર્શન

30-04-2023

ભાવનગર ગ્રામ્ય

તળાજાની CSPC સંસ્થા દ્વારા 21 શાળામાં આરોગ્યલક્ષી કાર્યક્રમો

તળાજા બ્યુરો | તાજેતરમાં તળાજા તાલુકાની 21 પ્રાથમિક શાળાઓના બાળકોના આરોગ્ય માટે ટાટા સંસ્થાના ક્લસ્ટર કો-ઓર્ડીનેટર ગૌતમભાઈ સોલંકી અને તેમની ટીમ દ્વારા દરેક શાળાઓમાં પાણી, સ્વચ્છતા અને આરોગ્યલક્ષી કાર્યક્રમો યોજવામાં આવ્યા હતા.આ કાર્યક્રમ અંતર્ગત તળાજા તાલુકાના ત્રાપજ,દેવલી, ગોરખી, સથરા, પીપરલા, કઠવા, ધારડી, વેળાવદર, રાજપરા-૨, ઈસોરા, બપાસરા, બપાડા, પાંચ પીપળા, ગઢડા, ઉમરલા, તરસરા, પાદરી ગો, ચોપડા સહિત 21 ગામોની પ્રાથમિક શાળાઓમાં બાળકોને જળસંચય અને જળપ્રબંધનની અગત્યતા અંગે સમજણ અપાઈ હતી. કાર્યક્રમ અંતર્ગત ધો. 6, 7 અને 8 ના બાળકોની પાણી, સ્વચ્છતા અને આરોગ્યલક્ષી મુદ્દાઓ પર બાળકોની સ્પર્ધાત્મક પરીક્ષા લેવામાં આવી હતી. ઉતમ પ્રદર્શન કરનાર બાળકોને ઈનામો આપીને પ્રોત્સાહિત કરાશે.

ખારા પાણી સામે આયોજન અંગે પાણી સમિતિની શિબિર યોજાઈ

તળાજા-મહુવાના ૧૮ ગામના ૭૫ સભ્યોની હાજરીમાં શિબિર યોજાઈ

CSPC દ્વારા ઓનલાઈન ક્લોરીનેશન, ભેજમાપક મીટરનુ નિદર્શન કરાયુ

તળાજા (સંદેશ ન્યૂઝ)

13 કૃષિ પ્રભાત ખેડ-ખાતર-પાણી

તળાજા પંથકમાં સીએસપીસી ટીમ વિવિધ ગામોમાં વોટર બજેટિંગ કરીને પાણીનું સરવૈયું કાઢવામાં આવ્યું

10-04-2023

ભાવનગર ગ્રામ્ય

સહકારથી સફળતા | 91 કરોડ લિટર જેટલા પાણીની સંગ્રહ ક્ષમતા વધારવામાં સફળતા મળી

તળાજામાં પાણી પહેલા પાળ બાંધવાની કામગીરી

E-PAPER

સંદેશ

શુક્રવાર, 26 જુલાઈ 2024, અષાઢ વદ છઠ્ઠ

MONSOON 2024

પ્રેરણા દાયક : તળાજાના મથાવડા ગામે બાવળ કાઢી બે હજાર વૃક્ષનું વાવેતર થશે

એક હેકટરમાં છોડમાંથી વૃક્ષ બનવવાની જવાબદારી પંચાયત સભ્યોએ સ્વીકારી

તળાજા (સંદેશ ન્યૂઝ)