

Crompton

IMPACT ASSESSMENT REPORT

**INTEGRATED WATERSHED
DEVELOPMENT PROJECT
UKKADGAON, AHILYANAGAR,
MAHARASHTRA**

Implementing Partner: Vanarai

Project Period: FY 2023-25

Assessment Year: FY 2025-26

PREPARED BY:



SoulAce
Path to Sustainability

SOULACE CONSULTING PVT. LTD.

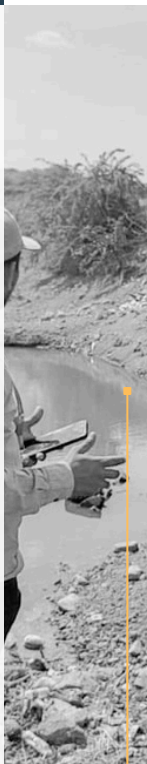


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BBREVIATIONS

CNB	Cement Nala Bund
CGWB	Central Ground Water Board
CSR	Corporate Social Responsibility
CCT	Continuous Contour Trench
FGD	Focus Group Discussion
FY	Financial Year
Ha	Hectare
HP	Horsepower
IA	Impact Assessment
IEC	Information, Education and Communication (if mentioned in tools/training; otherwise remove)
ITI	Industrial Training Institute
KII	Key Informant Interview
KPIM	Key Performance Indicator Matrix
NRM	Natural Resource Management
OECD- DAC	Organisation for Economic Co-operation and Development – Development Assistance Committee
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
SDG	Sustainable Development Goal
SHG	Self-Help Group
Sq.m.	Square Metre
TCM	Thousand Cubic Metres
WAT	Water Absorption Trench
WDC- PMKSY	Watershed Development Component – Pradhan Mantri Krishi Sinchayee Yojana

EXECUTIVE SUMMARY

PROGRAMME OVERVIEW

The Integrated Watershed Development Project was undertaken in Ukkadgaon village in Ahilyanagar district, Maharashtra, during FY 2023-2025 with support from the Crompton CSR Foundation and was implemented by Vanarai. With a total investment of ₹1.80 crore, the project covered 1,261 hectares and reached 1,432 residents across 321 households. Designed around a ridge-to-valley watershed development approach, the initiative focused on soil and water conservation, groundwater recharge, water resource augmentation, and community-led natural resource management. Through a combination of watershed treatments, water conservation structures, and capacity-building efforts, the project aimed to strengthen local water security and support sustainable agricultural development in Ukkadgaon village.

PROJECT SNAPSHOT



Project

The Integrated Watershed Development Project



Supported By

Crompton CSR Foundation



Implementing Partner

Vanarai Trust



Location

Ukkadgaon, Ahilyanagar District, Maharashtra



Watershed

Sina River Catchment



Duration

FY 2023 - 2025



Project Budget

₹1.80 Crore



Project Coverage

1 Village



Total Population Covered

1,432



Focus Areas

Water Security, Groundwater Recharge, Soil & Water Conservation, Sustainable Agriculture



Alignment with SDGs



Alignment with National Initiatives



PRADHAN MANTRI KRISHI SINCHAYEE YOJANA (PMKSY)

Supported water conservation and improved access to water for agriculture.



JAL SHAKTI ABHIYAN

Contributed to rainwater harvesting and groundwater recharge efforts.



WATERSHED DEVELOPMENT COMPONENT - PMKSY (WDC-PMKSY)

Aligned with integrated watershed development and natural resource management objectives.



ATAL BHUJAL YOJANA

Supported groundwater recharge and sustainable water resource management.

PROJECT INTERVENTIONS



NATURAL RESOURCE MANAGEMENT

- 6,300 cum of area treatment works were completed.
- 20 ha of seeding activities were carried out to promote vegetative cover and soil stabilisation.



DRAINAGE LINE TREATMENT

- 25 gully plugs were constructed.
- 15 loose boulder structures were constructed.
- 8 gabions and 2 core wall gabions were established to reduce runoff and enhance groundwater recharge.



WATER RESOURCE DEVELOPMENT

- 2 Cement Nala Bunds (CNBs) were constructed
- 14 lined farm ponds were developed.
- 37,000 cum of desiltation works were completed to enhance water storage capacity.



REHABILITATION OF EXISTING ASSETS

- 3 existing water harvesting structures were repaired and rejuvenated to improve their functionality and storage efficiency.



WATER ACCESS INFRASTRUCTURE

- 80 farm outlets were developed to improve water distribution to agricultural fields.
- 1 drinking water arrangement was established to strengthen access to safe drinking water.



COMMUNITY PARTICIPATION

- 5 community mobilisation and extension (IEC) activities were conducted to promote awareness and encourage community participation in watershed management.
- Awareness and extension initiatives strengthened community ownership, participation, and long-term maintenance of watershed assets.

ALIGNMENT WITH CSR MANDATES

THE PROJECT ALIGNS WITH SCHEDULE VII OF THE COMPANIES ACT, 2013, PARTICULARLY UNDER:

- Environmental sustainability and conservation of natural resources.
- Rural development initiatives.
- Sustainable livelihood enhancement through natural resource management.

KEY PERFORMANCE INDICATOR MATRIX (KPIM)

PERFORMANCE INDICATORS	UKKADGAON	KEY OUTCOME
Project Coverage		
Population Covered	1,432	Beneficiaries covered through the watershed development project
Geographical Area Covered (Ha)	1,261.00	Total watershed area treated under the project
Watershed Treatment & Soil Conservation		
Farm Bunding (Cum)	6,300.00	Improved soil moisture retention and reduced surface runoff
Farm Outlets (Nos.)	80	Improved water distribution and field drainage
Gully Plugs (Nos.)	25	Reduced runoff velocity and soil erosion
Loose Boulder Structures (Nos.)	15	Enhanced sediment retention and water conservation
Water Harvesting & Recharge Structures		
Gabions (Nos.)	8	Strengthened groundwater recharge and runoff regulation
Core Wall Gabions (Nos.)	2	Improved drainage-line treatment
Crest Wall Gabions (Nos.)	2	Enhanced water retention capacity
Cement Nala Bunds (Nos.)	2	Increased water storage and groundwater recharge potential
Solar Pump Systems Installed (Nos.)	1	Improved access to drinking water
Project-Level Interventions		
Desiltation (Cum)	37,000	Increased water storage capacity and recharge potential
Lined Farm Ponds (Nos.)	14	Enhanced farm-level water storage
Old Water Harvesting Structures Repaired (Nos.)	3	Restored functionality of existing water assets
Seeding Treatment (Ha)	20	Promoted vegetative stabilisation and soil conservation
Hydrological Outcomes		
Water Potential Created (TCM)	214.17	Improved water availability through enhanced recharge and storage

KEY FINDINGS & KEY IMPACTS

FARM-LEVEL
WATER
CONSERVATION

KEY FINDINGS

- > Farmers with access to farm ponds increased from 58.0% at baseline to 84.7%, while adoption of farm bunding increased from 33.6% to 78.8%, reflecting substantial expansion of on-farm water conservation measures.

KEY IMPACTS

- > **77.6%** of the farmers reported improved soil moisture retention, which supports healthier crop growth and reduces moisture stress.

COMMUNITY
WATER
INFRASTRUCTURE

- > **72.0%** of the farmers reported that their farmland did not benefit from community water harvesting structures. Following the intervention, 69.4% reported benefiting from the repaired and strengthened water-harvesting structures.

- > **64.7%** of the farmers observed improved groundwater recharge, contributing to enhanced water availability for agriculture.

IRRIGATION
ACCESS

- > The share of farmers with less than 5.0% assured irrigation declined sharply from 75.3% to 2.4%, indicating significant improvement in irrigation coverage.

- > **92.9%** of the farmers brought additional agricultural land under cultivation due to improved water availability.

AGRICULTURAL
PRODUCTION

- > **97.6%** of the respondents reported that crops were able to withstand longer dry spells following the watershed interventions.

- > **94.0%** of the respondents reported a 10.0%-19.0% increase in Kharif and Rabi crop yields, indicating improved agricultural productivity.

AGRICULTURAL
INCOME

- > Households earning ₹1-2 lakh annually increased from 2.4% at baseline to 45.9% after the intervention.

- > **95.3%** of the farmers reported increased agricultural income, strengthening household economic stability.

DRINKING WATER
SECURITY

- > The proportion of households experiencing five months of drinking water scarcity declined from 74.1% at baseline to 0.0% after the intervention.

- > **64.7%** of the households reported no longer relying on water tankers, indicating improved drinking water security.



LIVESTOCK SUPPORT

> **54.4%**
of the households experienced water shortages for livestock during the summer.

> **97.6%**
of the households reported improved water availability for livestock, supporting better livestock management and productivity.



FARMER CAPACITY BUILDING

> **12.9%**
of the farmers had previously received water management training, whereas exposure and capacity-building activities significantly improved awareness.

> **91.8%**
of the respondents reported enhanced knowledge of water conservation and sustainable farming practices.



COMMUNITY PARTICIPATION

> **90.6%**
of the respondents actively participated in crop planning and water management decisions, demonstrating strong community engagement.

> **82.4%**
of the respondents reported that watershed assets are regularly maintained by the community, indicating strengthened ownership and sustainability.



LIVELIHOOD IMPROVEMENT

> **85.9%**
of the respondents reported reduced seasonal migration due to improved agricultural opportunities.

> **95.3%**
of the respondents reported increased agricultural income, contributing to stronger and more sustainable rural livelihoods.



01. INTRODUCTION

PROJECT BACKGROUND & RATIONALE

Agriculture remains the backbone of rural livelihoods across Maharashtra, where farming systems depend critically on the availability and management of water resources. According to the Economic Survey of Maharashtra (2024-25) and the Maharashtra State Water Policy (2019), large parts of the state fall within semi-arid and drought-prone agro-climatic zones where agricultural productivity is highly dependent on rainfall patterns and groundwater availability, reinforcing watershed development as a key strategy for improving water security and sustaining agricultural livelihoods.

Ahilyanagar district, Maharashtra's largest area, faces significant challenges related to semi-arid conditions, uneven rainfall, and reliance on groundwater, as noted in the District Statistical Handbook and CGWB assessments. The project village, Ukkadgaon, located in the Sina River catchment, struggles with soil erosion, rapid runoff, and inadequate water retention, leading to water scarcity post-monsoon and in summer. This emphasizes the need for interventions to enhance soil and water conservation for the long-term sustainability of the catchment.

The baseline assessment conducted for the Integrated Watershed Development Project, supported by Crompton CSR Foundation, validated the water security and natural resource management challenges prevalent in the project area. Agriculture and livestock rearing emerged as the primary sources of livelihood, with onion (66.2%) and soybean (65.4%) as the dominant crops cultivated by farmers. While 97.1% of households reported access to piped drinking water, only 64.3% reported year-round availability, and 55.0% indicated inadequate water availability for domestic needs. Irrigation was largely dependent on groundwater sources, with 65.0% of farmers relying on wells and 35.0% on tubewells. Further, 74.3% of respondents had never undertaken soil testing, while 87.1% and 86.4% reported no prior training in water management and soil health management, respectively. In addition, 72.0% of respondents reported the absence of community water harvesting structures benefiting their farmland. These findings highlighted the need for interventions focused on groundwater recharge, soil and moisture conservation, water harvesting, and sustainable natural resource management. In response, Crompton CSR Foundation, in partnership with Vanarai Trust, initiated an integrated watershed development approach to strengthen the ecological health of the Sina River catchment, improve water security, enhance agricultural resilience, and support sustainable livelihood outcomes for the farming community of Ukkadgaon.

OBJECTIVE OF THE PROGRAM

The key objectives of the project were:



To strengthen water security in Ukkadgaon through integrated watershed development interventions that enhance water retention, groundwater recharge, and sustainable utilisation of rainfall.



To improve the ecological health of the Sina River catchment by reducing soil erosion, promoting soil and moisture conservation, and strengthening natural resource management practices.



To enhance agricultural productivity and livelihood resilience through improved water availability, community participation, and sustainable management of watershed assets.

ABOUT THE CROMPTON CSR FOUNDATION

The Crompton CSR Foundation is the corporate social responsibility arm of Crompton Greaves Consumer Electricals Limited. Through its CSR initiatives, the Foundation supports sustainable development programmes across key thematic areas including water stewardship, natural resource management, education, healthcare, skill development, and livelihood enhancement. The Foundation focuses on creating long-term social and environmental impact by partnering with experienced development organisations and implementing need-based, community-centric interventions.

ABOUT THE VANARAI TRUST (IMPLEMENTING PARTNER)

The Vanarai Trust, a non-profit established in 1982 by Padma Vibhushan Late Shri Mohan Dharia, focuses on sustainable rural development through community-led natural resource management. It emphasizes watershed development, water conservation, climate resilience, afforestation, sustainable agriculture, and livelihood enhancement. The Trust has executed significant watershed and environmental restoration projects across various states, promoting groundwater recharge, soil conservation, and rural livelihoods. As part of the Integrated Watershed Development Project, it managed technical planning, community mobilization, and watershed intervention execution.

PROGRAMME DESIGN OVERVIEW

The Integrated Watershed Development Project in Ukkadgaon village, Maharashtra, aims to combat water scarcity, soil erosion, rapid runoff, and inadequate groundwater recharge. It employs a ridge-to-valley approach that integrates soil and water conservation, groundwater recharge, and community participation to enhance water security, agricultural resilience, and sustainable resource management within the Sina River catchment.

THEORY OF CHANGE

This Theory of Change (ToC) sets out the logical pathway through which the Ukkadgaon watershed development programme, supported by Crompton CSR Foundation and implemented by Vanarai Trust, is expected to address chronic water scarcity and land degradation. It traces the causal chain from the underlying problem, through the inputs and activities deployed, to the resulting outputs, short-term and intermediate outcomes, and the long-term impact on water security and rural livelihoods.

CHANGE PATHWAY



Underpinned throughout by Key Assumptions – see detailed framework below

COMPONENT	DESCRIPTION
Problem/ Need	Ukkadgaon village experienced recurring water scarcity due to inadequate groundwater recharge, rapid surface runoff, soil erosion, limited water harvesting infrastructure, and low adoption of sustainable natural resource management practices. These challenges resulted in limited irrigation coverage, low agricultural productivity, seasonal drinking water shortages, and livelihood vulnerability.

COMPONENT	DESCRIPTION
Intervention	Financial support from Crompton CSR Foundation; technical expertise of Vanarai Trust; community participation; engineering and watershed planning; training resources; local institutional support.
Activities	• Area treatment through farm bunding and seeding. • Drainage-line treatment using gully plugs, loose boulder structures, gabions, and core wall gabions. • Construction of Cement Nala Bunds (CNBs), lined farm ponds, farm outlets, and drinking water infrastructure. • Desiltation and rehabilitation of existing water harvesting structures. • Community mobilisation, IEC activities, and farmer capacity-building on water conservation and sustainable agriculture.
Outcomes	• Improved availability of water for domestic and agricultural purposes. • Enhanced soil moisture retention and reduced land degradation. • Increased adoption of sustainable natural resource management practices. • Improved agricultural resilience and productivity.
Outputs	• Soil and water conservation structures established and rehabilitated. • Groundwater recharge and water harvesting capacity enhanced. • Improved watershed infrastructure and irrigation support systems. • Increased awareness and community participation in watershed management.
Short-Term Outcomes	• Improved groundwater recharge and water availability. • Increased soil moisture retention and reduced soil erosion. • Improved irrigation access and drinking water availability. • Greater adoption of sustainable water and soil management practices.
Intermediate Outcomes	• Increased cultivated area and cropping intensity. • Improved crop resilience during dry spells. • Higher agricultural productivity and farm income. • Reduced seasonal migration and improved livelihood opportunities. • Strengthened community ownership and maintenance of watershed assets.
Long-Term Impact	Improved water security, climate-resilient agriculture, enhanced agricultural productivity, sustainable rural livelihoods, and long-term conservation of land and water resources through community-led watershed management in Ukkadgaon village.
Key Assumptions	• Communities continue to maintain watershed assets. • Rainfall remains sufficient to recharge water conservation structures. • Farmers continue adopting sustainable agricultural and water management practices. • Community institutions remain actively engaged in watershed governance.

In summary, the programme converts targeted watershed inputs and activities into durable soil and water conservation assets, translating these into improved water availability, agricultural resilience, and household income, while sustained impact depends on continued community stewardship and adequate rainfall.

RESEARCH METHODOLOGY

The impact assessment was commissioned by the Crompton CSR Foundation and conducted by Soulace Consulting to evaluate the outcomes of the Integrated Watershed Development Project implemented by the Vanarai Trust in the village of Ukkadgaon in Ahilyanagar district, Maharashtra. The study evaluated the project's contribution towards strengthening water security, natural resource management, agricultural productivity, and livelihood resilience among beneficiary communities.

OBJECTIVES OF THE STUDY



To assess the relevance, effectiveness, and outcomes of the Integrated Watershed Development Project.



To understand stakeholder perceptions regarding project implementation, benefits, and sustainability.



To examine changes in water availability, agricultural practices, and livelihood conditions among beneficiary households.



To identify key learnings and opportunities for strengthening future watershed interventions.

RESEARCH DESIGN

The assessment adopted a mixed-methods approach, integrating quantitative and qualitative techniques to generate a comprehensive understanding of project outcomes. Quantitative methods provided measurable evidence of change, while qualitative methods captured stakeholder experiences, perceptions, and contextual insights.

APPLICATION OF QUANTITATIVE TECHNIQUES

A structured household survey was administered among 85 beneficiary households in Ukkadgaon village. The survey captured quantitative data on water availability, irrigation access, agricultural practices, natural resource management, and livelihood conditions, enabling assessment of project-level outcomes and beneficiary-level changes.

APPLICATION OF QUALITATIVE TECHNIQUES

Qualitative methods included Focus Group Discussions (FGDs), interviews with Gram Panchayat representatives and implementing agency personnel, field observations, beneficiary testimonials, and detailed case studies. These methods provided contextual insights into project implementation, community participation, perceived benefits, behavioural changes, and sustainability of watershed interventions.

ENSURING TRIANGULATION

The assessment adopted a triangulation approach by integrating findings from household surveys, FGDs, stakeholder interviews, field observations, testimonials, case studies, and project documents. Cross-validation of evidence from multiple sources enhanced the reliability, validity, and overall robustness of the assessment findings.

STANDARDISED FRAMEWORK FOR EVALUATION

The research study applied the OECD-DAC framework for evaluation, ensuring alignment with globally accepted standards and norms. This framework offered a robust, uniform method for evaluating the project's impact, bolstering the credibility and relevance of the research findings.



DATA SOURCES

The assessment utilised both primary and secondary data sources. Primary data were collected through household surveys, FGDs, and stakeholder consultations. Secondary data included project documents, baseline assessment reports, progress reports, and relevant literature reviewed during the assessment process.

PROJECT SNAPSHOT



Name of the project

Integrated Watershed Development Project



Funding Agency

Crompton CSR Foundation



Implementing Partner

Vanarai Trust



Project Location

Ukkadgaon Village, Ahilyanagar District, Maharashtra



Project Period

FY 2023-24 to FY 2024-25



Assessment Year

FY 2025-26



Assessment Agency

Soulace Consulting Pvt. Ltd.



Research Design

Mixed-Methods



Quantitative Survey

85 Beneficiary Households



Qualitative Methods

FGDs, Panchayat Leader Interviews, Implementing Agency Interviews, Case Studies, Testimonials, and Field Observations

KEY STAKEHOLDERS



Farmers & Villagers



Village leaders



Vanarai Trust representatives



Crompton CSR Foundation representative

STUDY TOOLS



Structured Household Questionnaire



Focus Group Discussion Guide



Key Informant Interview Schedule



Observation Checklist



Secondary Data Review Framework

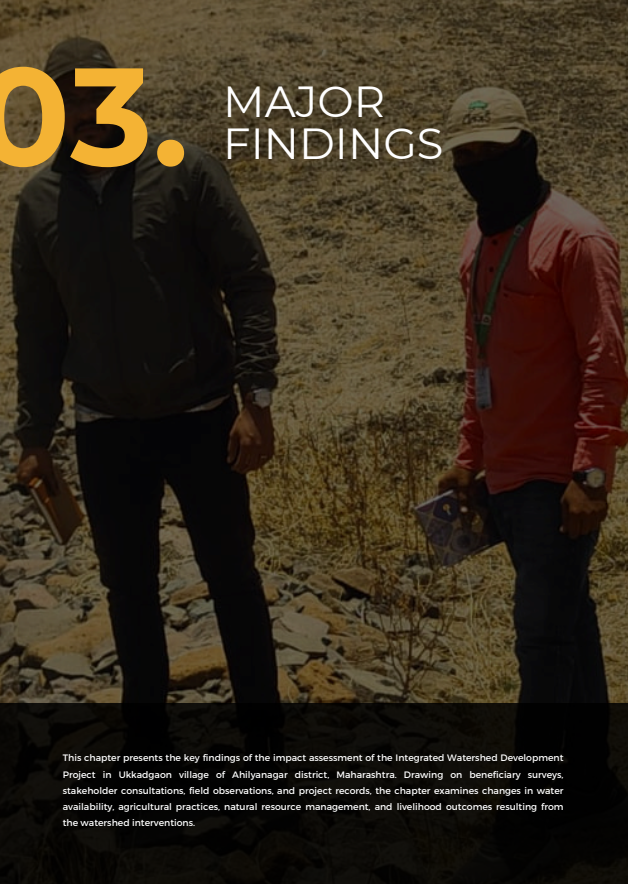
ETHICAL CONSIDERATIONS

The assessment adhered to ethical research principles, including informed consent, voluntary participation, confidentiality of responses, and respectful engagement with all stakeholders.



SOULACE TEAM WITH THE PANCHAYAT MEMBER WITH BRANDING OF PROJECT CARRIED AT UKKADGAON

03. MAJOR FINDINGS

A photograph of two men standing in a dry, rocky landscape. The man on the left is wearing a dark jacket and dark pants, holding a brown folder. The man on the right is wearing a red long-sleeved shirt, dark pants, a tan cap, and a green lanyard with an ID card. He is holding a blue folder. The background is a dry, hilly area with sparse vegetation and many rocks.

This chapter presents the key findings of the impact assessment of the Integrated Watershed Development Project in Ukkadgaon village of Ahilyanagar district, Maharashtra. Drawing on beneficiary surveys, stakeholder consultations, field observations, and project records, the chapter examines changes in water availability, agricultural practices, natural resource management, and livelihood outcomes resulting from the watershed interventions.

KEY FINDINGS

The findings presented in this chapter are based on a survey of 85 beneficiary households in Ukkadgaon village. The analysis examines changes in water security, agriculture, groundwater recharge, and livelihoods, and is triangulated through FGDs, stakeholder consultations, case studies, field observations, and project records.

DEMOGRAPHIC PROFILE (N=85)

AGE GROUP

31.8%
41-50 years

28.2%
51-60 years

23.5%
31-40 years

16.5%
Above 60 years

GENDER

84.7%
Male

15.3%
Female

EDUCATION

35.3%
10th Std

28.2%
12th Std

15.3%
Up to 5th Std

12.9%
Up to 8th Std

8.3%
Diploma/ITI &
Degree

ANNUAL FAMILY INCOME

67.1%
₹1-2 lakh

25.9%
₹2-3 lakh

3.5%
Less than ₹1 lakh

3.5%
₹3-4 lakh

LANDHOLDING SIZE

55.3%
1-2 hectares

22.4%
2-3 hectares

9.4%
3-4 hectares

7.1%
Less than 1 hectare

5.8%
4-5 hectares

The findings indicate that most respondents were male farmers (84.7%) and belonged to the 41-60-year age group (60.0%). All respondents (100.0%) owned agricultural land, with a majority (55.3%) holding 1-2 hectares. Households were typically medium-sized, with 85.9% reporting four to five family members, while 67.1% reported annual family incomes between ₹1-2 lakh. Agriculture was primarily centred on soybean cultivation (95.3%), with limited engagement in vegetable cultivation (12.9%), and oranges/mosambis and mangoes were the most cultivated fruit crops. The respondent profile reflects smallholder farming households primarily dependent on agriculture-based livelihoods.

CHART 1: PRIMARY IRRIGATION METHODS USED BY FARMERS (N=85) (MULTIPLE RESPONSES)

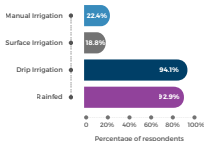
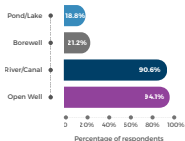


CHART 2: SOURCES OF IRRIGATION WATER (N=85) (MULTIPLE RESPONSES)



DRIP IRRIGATION IS WIDELY ADOPTED



94.1%

of the respondents emerged as the most commonly reported irrigation method. Compared to the baseline, where flood irrigation was predominant (68.4%), this reflects greater adoption of water-efficient irrigation practices.

OPEN WELLS REMAIN THE PRIMARY IRRIGATION SOURCE



94.1%

of the respondents rely on open wells for irrigation, reaffirming their importance in agriculture. This is consistent with the baseline, where wells were the primary irrigation source for 83.5% of farmers.

RIVER AND CANAL WATER SUPPORT IRRIGATION NEEDS



90.6%

of the respondents indicating the continued importance of surface water in supporting cultivation.

LIMITED RELIANCE ON ALTERNATIVE SOURCES



Borewells (21.2%) and ponds/lakes (18.8%) were reported by fewer respondents, suggesting that irrigation continues to be primarily supported by wells and surface water sources.



Devappa Pandurang Ukirde, Farmer, Ukkadgaon.

Earlier, we depended mainly on rainfall, and water availability for irrigation was uncertain. Now, wells retain water longer, and water is available from multiple sources for irrigation. This has made irrigation more reliable and helped us manage our crops better throughout the season.

POST INTERVENTION SCENARIO

CHART 3: FARM-LEVEL WATERSHED INTERVENTIONS IMPLEMENTED ON AGRICULTURAL LAND (N=85) (MULTIPLE RESPONSES)

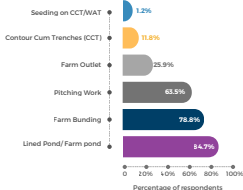


CHART 4: COMMUNITY-LEVEL WATERSHED INTERVENTIONS IMPLEMENTED IN THE VILLAGE (N=85) (MULTIPLE RESPONSES)

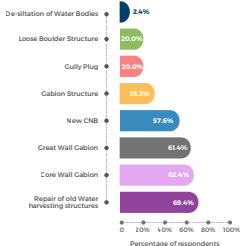
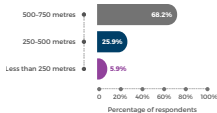


CHART 5: DISTANCE OF FARMLAND FROM THE NEAREST COMMUNITY WATERSHED STRUCTURE (N=85)



FARM-LEVEL WATERSHED INTERVENTIONS ACHIEVED WIDE COVERAGE

Lined farm ponds (84.7%) and farm bunding (78.8%) were the most commonly reported interventions. Compared to the baseline, where 58.0% of farmers reported access to farm ponds and 33.6% reported farm bunding, the findings suggest a considerable expansion of on-farm water conservation infrastructure.

COMMUNITY-LEVEL WATER CONSERVATION STRUCTURES STRENGTHENED LOCAL WATER INFRASTRUCTURE

Repair of old water harvesting structures (69.4%), core wall gabions (62.4%), crest wall gabions (61.2%), and new cement nala bunds (57.6%) were widely reported, indicating substantial strengthening of village-level water conservation assets.

MOST BENEFICIARIES HAD CONVENIENT ACCESS TO WATERSHED ASSETS



68.2%

of the respondents reported that their farmland was located within 500-750 metres of the nearest community watershed structure, while a further 25.9% were located within 250-500 metres, suggesting broad accessibility of watershed infrastructure.

The intervention combined farm-level and community-level measures, and the findings reflect a complementary approach that strengthened both individual farm assets and shared watershed infrastructure.



72.0%

of the respondents reported that their farmland did not benefit from any community water-harvesting structure, indicating improved access to water-conservation assets across the intervention area.

FOCUS GROUP DISCUSSION INSIGHT

Discussions with community members highlighted that the village previously had limited water conservation infrastructure, resulting in poor water retention and seasonal water shortages. Participants reported that the creation and strengthening of farm-level structures, such as farm ponds and bunds, along with community-level water harvesting structures, have improved the village's capacity to conserve rainwater and recharge groundwater. Beneficiaries noted that the availability of these structures throughout the village has enhanced access to water resources, supported agricultural activities, and improved water management during dry periods. Community members also emphasised that the combined focus on individual farm assets and shared watershed infrastructure has helped extend benefits to a larger number of households within the village.

CHART 6: MAJOR CROPS CULTIVATED BY RESPONDENTS (N=85) (MULTIPLE RESPONSES)

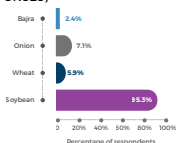
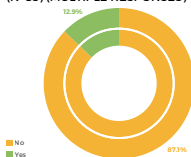


CHART 7: VEGETABLE CULTIVATION AMONG RESPONDENT FARMERS (N=85) (MULTIPLE RESPONSES)



SOYBEAN REMAINED THE DOMINANT CROP CULTIVATED BY RESPONDENTS



95.3%

of the respondents reported cultivating soybean, compared to 65.4% at baseline, indicating its continued importance within the local cropping system and an expansion in its cultivation among farming households.

CULTIVATION OF WHEAT, ONION, AND BAJRA WAS REPORTED BY A SMALLER PROPORTION OF RESPONDENTS



Wheat (5.9%), onion (7.1%), and bajra (2.4%), suggesting that soybean remains the principal crop in the intervention area.

VEGETABLE CULTIVATION REMAINED LIMITED



12.9%

of the respondents reported cultivating vegetables, indicating that a relatively small segment of farmers practises vegetable production despite improvements in water availability.

THE CROPPING PATTERN CONTINUES TO BE CENTRED ON FIELD CROPS



The findings indicate a strong concentration of cultivation in major field crops, particularly soybean, with comparatively limited diversification into vegetables among respondent households.



Sahebrao Yadav Kamble, Community Member, Ukkadgaon Village

For many years, soybeans have been the main crop cultivated in our village, and it continues to be the preferred crop for most farmers. Earlier, farming options were limited, and crop planning largely depended on rainfall. With improved water availability and better farming conditions, some farmers have started cultivating crops such as wheat, onion, and gram alongside soybean. While soybeans remain the backbone of our agriculture, farmers now have greater flexibility in planning their crops and making better use of their land throughout the year.

KEY BENEFITS REPORTED BY RESPONDENTS (N=85)

ENHANCED AWARENESS OF WATER CONSERVATION PRACTICES



91.8%

of the respondents reported improved knowledge of water conservation practices following the exposure visits. Community discussions also highlighted greater awareness of watershed and water conservation measures.

GREATER INCLINATION TOWARDS IMPROVED FARMING PRACTICES



87.1%

of the respondents reported increased motivation to adopt improved agricultural practices, indicating greater openness towards improved cultivation methods.

STRENGTHENED ORCHARD MANAGEMENT KNOWLEDGE



90.6%

of the respondents reported improved knowledge of orchard management practices, reflecting enhanced technical understanding of horticulture management.

IMPROVED PLANTATION MANAGEMENT PRACTICES



75.3%

of the respondents reported improved knowledge of plant survival and growth practices, supporting better maintenance of horticulture plantations.

IMPROVED ACCESS TO DRINKING WATER



89.4%

of the respondents reported benefiting from the solar pumps installed to supply drinking water. Panchayat consultations further indicated improved availability of drinking water for households.



Sandip Kisan Shinde, Community Member, Ukkadgaon, Ahilyanagar - Maharashtra

The exposure visits helped us learn practical ways to conserve water and improve farming. We gained a better understanding of orchard and plantation management, and many farmers became more interested in adopting improved agricultural practices. The solar pump facility has also made drinking water more accessible for households, reducing some of the challenges we faced earlier.

COMMUNITY OWNERSHIP AND PARTICIPATION IN WATER GOVERNANCE (N=85)

COMMUNITY-LED WATER GOVERNANCE PRACTICES WERE WIDELY ADOPTED



100%

of the respondents reported adherence to water governance protocols, while 90.6% participated in crop planning and water management decisions. Insights from community discussions and stakeholder consultations further highlighted active community involvement in planning and management of watershed activities.

COMMUNITY INSTITUTIONS SUPPORTED COLLECTIVE PARTICIPATION



74.1%

of the respondents reported membership in Self-Help Groups, indicating the presence of local platforms that facilitate community engagement and collective action around resource management.

MAINTENANCE OF WATERSHED ASSETS WAS INTEGRATED INTO COMMUNITY SYSTEMS



82.4%

of the respondents reported that repair and maintenance activities were undertaken as needed. This was further corroborated by stakeholder consultations and community discussions, which highlighted ongoing community participation in the maintenance of watershed structures.



Mr Navnath Bhanudas Mhaske, Sarpanch, Ukkadgaon Village, Ahilyanagar District

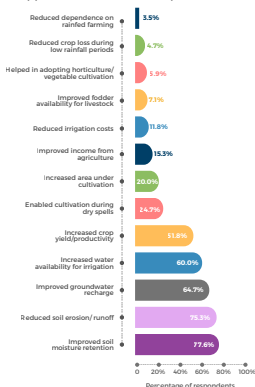
During my 12 years as Sarpanch of Ukkadgaon, I have seen a significant change in community participation around water conservation and resource management. Earlier, water-related issues were largely addressed through temporary measures, and community involvement in long-term water management was limited. With the support of Vanarai, villagers became actively involved in identifying problems, planning interventions, and maintaining watershed structures. Today, the community demonstrates a strong sense of ownership towards these assets and works collectively to ensure their upkeep. This participation has strengthened local water governance and contributed to the long-term sustainability of the interventions.

KEY IMPACTS

The key impacts of the watershed intervention are presented below, based on beneficiary responses and triangulated with qualitative insights. The analysis highlights changes in irrigation access, agricultural productivity, groundwater availability, drinking water security, and livelihood outcomes experienced by the community.

IMPROVEMENT IN IRRIGATION POTENTIAL

CHART 8: BENEFITS OF FARM-LEVEL WATERSHED INTERVENTIONS ON AGRICULTURE AND LIVELIHOODS (N=85) (MULTIPLE RESPONSES)



IMPROVED SOIL MOISTURE RETENTION EMERGED AS THE MOST WIDELY REPORTED BENEFIT:



77.6%

of the respondents reported it, indicating better water conservation and moisture availability for agriculture.

REDUCED SOIL EROSION AND RUNOFF WERE COMMON



75.3%

of the respondents reported these changes, suggesting improved soil conservation and reduced loss of fertile topsoil.

GROUNDWATER RECHARGE AND IRRIGATION ACCESS IMPROVED FOR A SUBSTANTIAL PROPORTION OF RESPONDENTS**64.7%**

of the respondents reported improved groundwater recharge and increased irrigation water availability (60.0%), reflecting a positive shift from the baseline of low groundwater levels and limited irrigation access.

AGRICULTURAL PRODUCTIVITY BENEFITS WERE ALSO REPORTED**51.8%**

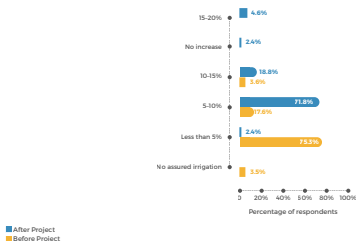
of the respondents reported increased crop productivity, indicating that improved water conservation and irrigation availability have supported better agricultural performance.

**Sandip Kisan Shinde, Community Member, Ukkadgaon Village, Ahilyanagar District**

Earlier, rainwater would flow away quickly from our fields, and the soil often dried out soon after the rains. Now, we can see better moisture retention in the soil, reduced erosion during heavy rainfall, and improved water availability in nearby wells. These changes have made irrigation more reliable and helped farmers cultivate crops with greater confidence. As a result, crop performance has improved, and farming has become more productive and stable than before.

GROUP DISCUSSION WITH THE FARMERS BY SOULACE TEAM

CHART 9: CHANGE IN CULTIVABLE LAND UNDER ASSURED IRRIGATION BEFORE AND AFTER INTERVENTION (N=85) (MULTIPLE RESPONSES)



Beneficiaries reported a clear improvement in the proportion of cultivable land receiving assured irrigation following the watershed intervention.



75.3%

of the respondents indicated that less than 5.0% of their cultivable land had assured irrigation.

Post-intervention, this declined to 2.4%, while 71.8% reported irrigation coverage of 5.0%-10.0% of their cultivable land and 18.8% reported 10.0%-15.0%.

From the beneficiaries' perspective, improved water availability has enabled irrigation to reach a larger share of cultivable land, reducing reliance on rainfall and supporting more consistent agricultural activities. The intervention has strengthened irrigation security and enhanced the productive use of cultivable land, creating favourable conditions for improved cropping intensity and agricultural productivity.



Ms Kavita Gangadhar Sarvade, Vanarai Representative, Ukkadgaon Village, Ahilyanagar District

Before the intervention, limited water availability and poor groundwater recharge restricted the area that farmers could cultivate under assured irrigation. Through desiltation, recharge structures, soil and water conservation measures, and improved water retention, we have observed a noticeable increase in water availability across the village. Higher groundwater levels and improved irrigation access have enabled farmers to bring larger areas of land under cultivation, supporting more reliable agricultural production and better use of available farmland.

CHART 10: ADDITIONAL LAND RECEIVING PROTECTIVE IRRIGATION DURING KHARIF SEASON (N=85)

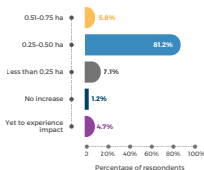


CHART 11: ADDITIONAL LAND MADE CULTIVABLE DUE TO INCREASED WATER AVAILABILITY (N=85)

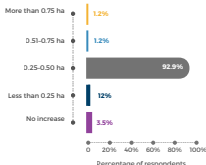
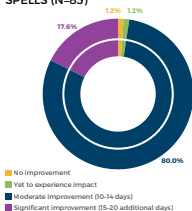


CHART 12: IMPROVEMENT IN KHARIF CROP RESILIENCE DURING DRY SPELLS (N=85)



Beneficiaries reported improved agricultural resilience and expanded cultivation opportunities due to enhanced water availability.



80.0%

of the respondents reported that crops can now withstand dry spells for an additional 10-14 days, while 17.6% reported resilience extending to 15-20 days.

Improved water access also enabled 81.2% of respondents to provide protective irrigation across an additional 0.25-0.50 ha during the Kharif season.



92.9%

of the respondents reported bringing an additional 0.25-0.50 ha of land under cultivation due to increased water availability.

These findings indicate that watershed interventions have reduced moisture stress, strengthened crop survival during rainfall variability, and enabled more productive utilisation of agricultural land.



Vasant Bhagwan Ukirde,
Farmer, Ukkadgaon,
Ahilyanagar -
Maharashtra

Before the watershed activities were implemented, farming on my land was largely dependent on rainfall, and irrigation was available only for a limited area. During dry periods, crop cultivation became difficult, and opportunities for diversification were very limited. With improved groundwater recharge and greater water availability, a larger portion of my land now receives irrigation. This has enabled me to cultivate crops such as wheat, onion, mango, and orange alongside soybean. The availability of protective irrigation has reduced the impact of dry spells, improved crop performance, and allowed me to make better use of my land throughout the year.

INCREASE IN CROP YIELD AND AGRICULTURAL INCOME

CHART 13: CHANGE IN KHARIF CROP YIELD AFTER INTERVENTION (N=85)

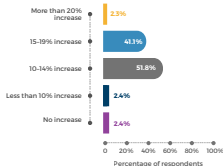
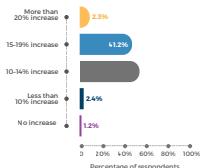


CHART 14: CHANGE IN RABI CROP YIELD AFTER INTERVENTION (N=85)



KEY INFERENCE (AS REPORTED BY BENEFICIARIES)

Beneficiaries reported an increase in crop productivity across both Kharif and Rabi seasons following the watershed intervention.

IMPROVEMENT IN KHARIF CROP YIELDS



A majority of respondents reported higher Kharif yields, with 51.8% reporting a 10.0%–14.0% increase and 41.1% reporting a 15.0%–19.0% increase. This indicates improved crop performance supported by better water availability during the growing season.

IMPROVEMENT IN RABI CROP YIELDS



52.9%

of the respondents reported a 10.0%–14.0% increase in Rabi crop yields, while 41.2% reported a 15.0%–19.0% increase. The findings suggest that improved irrigation access has enabled more reliable cultivation during the Rabi season.

ENHANCED AGRICULTURAL PRODUCTIVITY



The widespread increase in yields across both Kharif and Rabi seasons reflects the contribution of watershed interventions, with improved water availability translating into measurable productivity gains.



Ramdas Bhau Maske, Farmer, Ukkadgaon Village, Ahilyanagar District

Before the farm pond was made on my land, I could only grow soybeans in the monsoon, and if the rain failed, my crop failed. There was no irrigation water, so farming was a big risk. After the pond was built, I have water whenever I need it. Now I can grow onions, wheat, gram, and soybeans in different seasons. My crops grow better, I get more produce, and I can use my land effectively year-round. Farming has become steady, and I don't worry about rain anymore.

CHART 15: CHANGE IN ANNUAL AGRICULTURAL INCOME BEFORE AND AFTER INTERVENTION

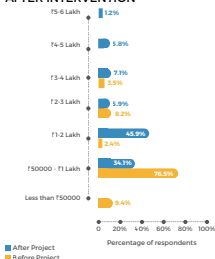
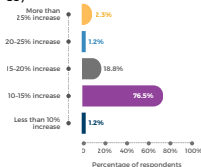


CHART 16: PERCENTAGE INCREASE IN ANNUAL AGRICULTURAL INCOME (N=85)



The findings indicate a positive shift in annual agricultural income among beneficiary households following the intervention. The proportion of households earning ₹1-2 lakh annually increased from 2.4% to 45.9%, while the share of households earning less than ₹50,000 declined from 9.4% to 0.0%. The emergence of households in higher income categories, including ₹4-5 lakh and ₹5-6 lakh annually, further suggests improved agricultural earnings and livelihood outcomes.

From the beneficiaries' perspective, these findings indicate that:



Income gains were experienced across a large proportion of farming households.



Most respondents reported moderate but consistent improvements in agricultural earnings, suggesting enhanced returns from farming activities.



The increase in income aligns with the improvements observed in irrigation access, cultivable areas, and crop productivity in Ukkadgaon village.

Beneficiaries perceive these income gains as contributing to improved household economic stability and strengthening agriculture as a sustainable livelihood source.



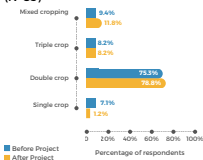
Sanjay Ramchandra Mhaske, Farmer, Ukkadgaon Village, Ahilyanagar District

Earlier, water availability was a major constraint, and farming income depended heavily on rainfall. With improved irrigation and greater water availability, I have been able to cultivate more crops and achieve higher yields. Today, I grow soybeans, bajra, onions, and oranges, and improvements in crop yields have increased my annual agricultural income from around ₹2-3 lakh to ₹3-4 lakh. Farming has become more stable, and I am now more confident about planning future agricultural activities.



INTERACTION WITH COMMUNITY MEMBERS BY TEAM SOULACE

CHART 17: CHANGE IN CROPPING FREQUENCY BEFORE AND AFTER INTERVENTION (N=85)



KEY INFERENCE (AS REPORTED BY BENEFICIARIES)

The findings show a substantial shift in cropping practices following the watershed intervention.



66.4%

of the respondents cultivated crops only once a year and 32.1% cultivated twice; post-intervention, only 1.2% continued single-crop cultivation, 78.8% practised double cropping, and 8.2% reported triple cropping.

This transition has also been accompanied by greater crop diversification across Kharif and Rabi seasons.



Single cropping declined significantly (66.4% → 1.2%), indicating reduced dependence on season-bound cultivation.



Triple cropping expanded (1.4% → 8.2%), enabling more intensive utilisation of cultivable land.



Double cropping became the dominant practice (32.1% → 78.8%), reflecting improved opportunities for cultivation across multiple seasons.



Crop diversification improved, with farmers moving beyond a predominantly soybean-wheat system to cultivate crops such as onion, green gram, maize, fruits, sugarcane, pulses, and other crop combinations across Kharif and Rabi seasons.

Overall, beneficiaries perceive these changes as strengthening agricultural productivity and resilience through multi-season cultivation and a more diversified cropping system.

EXPANSION OF VEGETABLE CULTIVATION (AS SHARED BY RESPONDENTS) (N=11)

The proportion of vegetable growers cultivating 3–4 acres increased from 27.3% to 45.5%, indicating greater adoption of vegetable cultivation supported by improved water availability.

INCREASE IN INCOME FROM VEGETABLE CULTIVATION

A majority of vegetable growers (90.9%) reported income gains of 5.0%–20.0%, suggesting improved returns from higher-value crops.

EMERGING DIVERSIFICATION OPPORTUNITY

The findings indicate that improved irrigation access has enabled a section of farmers to diversify beyond traditional crops and strengthen farm-based income opportunities.

**PROJECT BENFICIARY SHARING
INFORMATION TO SOULACE TEAM**

GROUNDWATER AVAILABILITY AND IRRIGATION USE TOP OF FORM

CHART 18: CHANGE IN SUMMER WATER LEVEL IN WELL BEFORE AND AFTER INTERVENTION (N=85)

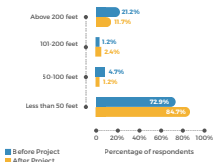


CHART 19: CHANGE IN RAINY SEASON WATER LEVEL IN WELL BEFORE AND AFTER INTERVENTION (N=85)

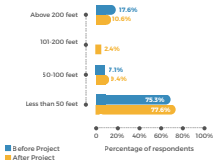
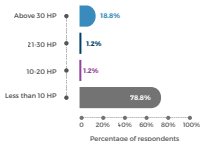


CHART 20: HP CAPACITY OF BOREWELL MOTORS USED BY FARMERS



The findings show an improvement in groundwater availability following the watershed intervention. This is particularly significant as the baseline assessment highlighted concerns regarding declining groundwater levels in the intervention area. During summer, the proportion of respondents reporting water levels within 50 feet increased from 72.9% to 84.7%, while those reporting water levels above 200 feet declined from 21.2% to 11.7%. Similarly, during the rainy season, the proportion reporting water levels above 200 feet declined from 17.6% to 10.6%.



78.8%

of the respondents reported using borewell motors with capacities of less than 10 HP.



More wells reported water at shallower depths, indicating improved groundwater availability.



Dependence on deeper water sources reduced, as fewer respondents reported water levels above 200 feet across both summer and rainy seasons.



Most farmers use low-capacity borewell motors (78.8%), reflecting the accessibility of groundwater without extensive pumping requirements.

Beneficiaries perceive these changes as improving water security and supporting more reliable access to groundwater for agricultural activities.

CHART 21: CHANGE IN DAILY BOREWELL USAGE DURING NON-RAINY SEASON BEFORE AND AFTER INTERVENTION (N=85)

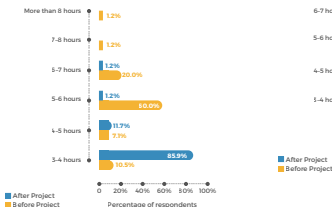
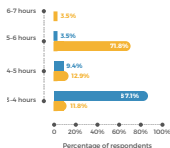


CHART 22: CHANGE IN DAILY BOREWELL USAGE DURING RAINY SEASON BEFORE AND AFTER INTERVENTION



The findings show a significant reduction in daily borewell usage following the watershed intervention. During the non-rainy season, the proportion of respondents using borewells for 3-4 hours per day increased from 10.5% to 85.9%, while the proportion using borewells for 5-6 hours per day declined from 60.0% to 1.2%. A similar trend was observed during the rainy season, indicating reduced reliance on prolonged pumping for irrigation.



Shorter pumping durations became more common, with a majority of respondents reporting borewell usage of 3-4 hours per day after the intervention.



Dependence on extended pumping reduced considerably, as the proportion of respondents using borewells for five or more hours declined across seasons.



Access to irrigation water improved, reducing the time required to draw groundwater for agricultural use.

Beneficiaries attribute these changes to improved groundwater availability and recharge, which appear to have enhanced the reliability of irrigation water and reduced the effort required to access it.



Jaisingh Asaram Mhaske, Farmer, Ukkadgaon Village, Ahilyanagar District

One of the most noticeable changes has been the improvement in groundwater availability. Earlier, farmers depended heavily on wells and borewells, especially during the summer months, and there was constant concern about water availability. Today, water remains available for longer periods, and irrigation can be managed more efficiently. Improved groundwater recharge has reduced pressure on borewells and made water more accessible for farming year-round. This has brought greater stability to agricultural activities and reduced many of the uncertainties we faced earlier.

CHART 23: CHANGES EXPERIENCED AFTER PARTICIPATING IN AGRICULTURAL TRAINING PROGRAMMES (N=85) (MULTIPLE RESPONSES)

IMPROVED KNOWLEDGE ON SCIENTIFIC FARMING METHODS



80.0%

of the beneficiaries reported enhanced understanding of scientific agricultural practices, indicating strengthened technical capacity for farm management.

INCREASED CROP PRODUCTIVITY



69.4%

of the respondents associated training participation with improvements in agricultural productivity through adoption of better farming practices.

IMPROVED SOIL AND WATER CONSERVATION PRACTICES



69.4%

of the findings suggest increased awareness and application of sustainable resource management practices among beneficiaries.

BETTER CROP PLANNING AND MANAGEMENT



64.7%

of the beneficiaries reported improved planning and decision-making related to crop cultivation and farm operations.

IMPROVED AGRICULTURAL INCOME



64.7%

of the respondents perceived improvements in farm income, reflecting the practical benefits of training-led adoption of improved practices.

INCREASED AWARENESS OF CLIMATE-RESILIENT AGRICULTURE



41.2%

of the training programmes contributed to greater awareness of agricultural practices suited to changing climatic conditions.



Abhijit Baban Mhaske, Farmer, Ukkadgaon Village, Ahilyanagar District

The training sessions and exposure visits helped me learn beyond what I was already practising on my farm. Interacting with experienced farmers and seeing successful farming models gave me practical insights into water management, crop planning, and orchard cultivation. These learnings have helped me make better farming decisions and adopt improved practices on my farm.

CHART 24: CHANGE IN DURATION OF DRINKING WATER SCARCITY BEFORE AND AFTER INTERVENTION (N=85)

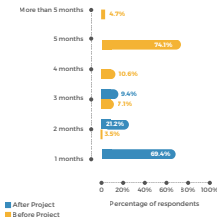


CHART 25: CHANGE IN DEPENDENCE ON WATER TANKERS BEFORE AND AFTER INTERVENTION (N=85)

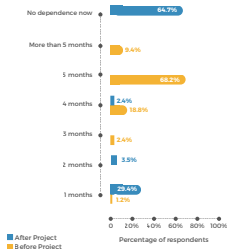


CHART 26: CHANGE IN DEPENDENCE ON WATER TANKERS BEFORE AND AFTER INTERVENTION (N=85)

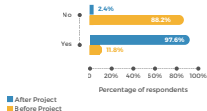
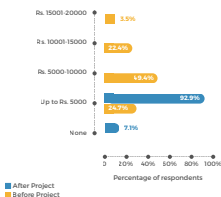


CHART 27: CHANGE IN ANNUAL EXPENDITURE ON WATER TANKERS BEFORE AND AFTER INTERVENTION



CHANGE IN DRINKING WATER AND LIVESTOCK WATER SECURITY (AS REPORTED BY BENEFICIARIES)



Beneficiaries report a significant improvement in water availability for both household consumption and livestock following the watershed intervention.

REDUCTION IN DRINKING WATER SCARCITY (77.6% EXPERIENCING 5+ MONTHS OF SCARCITY → 64.7% REPORTING NO SCARCITY)



Households experiencing five or more months of drinking water scarcity reduced substantially, while 64.7% reported no drinking water scarcity following the intervention.

REDUCED DEPENDENCE ON WATER TANKERS (75.3% SPENDING ₹5,000-₹20,000 ANNUALLY → 92.9% SPENDING UP TO ₹5,000)



Households report a substantial decline in reliance on tanker water, reflecting improved availability of local water sources and reduced expenditure on water procurement.

IMPROVED WATER AVAILABILITY FOR CATTLE (11.8% → 97.6%)

Farmers report easier access to water for livestock, reducing challenges associated with managing cattle during water-scarce periods and supporting livestock-based livelihoods.

IMPROVED DRINKING WATER AVAILABILITY DURING SUMMER (11.8% → 98.8%)

Nearly all respondents now report adequate availability of drinking water during summer, indicating a marked improvement in water security during the most water-stressed months of the year.

Beneficiaries perceive these changes as a significant improvement in household water security, with more reliable access to water for both domestic use and livestock throughout the year.

**Anjum Sameer Shaikh, Farmer, Ukkadgaon Village, Ahilyanagar District**

Earlier, during water-scarce months, many families in the village had to depend on water tankers, making it difficult to manage daily household needs. Today, drinking water is available for longer periods, and our dependence on tankers has reduced significantly. This has eased the uncertainty we faced during scarcity months and brought greater convenience to everyday life. Households no longer worry about water availability as much as they did in the past.

UKKADGAON PROJECT BENEFICIARY SHARING HIS INFORMATION TO THE SOULACE TEAM

PERCEIVED VILLAGE-LEVEL CHANGES

CHART 28: CHANGES EXPERIENCED AT THE VILLAGE LEVEL (AS REPORTED BY BENEFICIARIES) (N=85)

IMPROVEMENT IN SOIL FERTILITY



96.5%

of the beneficiaries report healthier soil conditions, experiencing better support for crop growth and agricultural productivity.

IMPROVEMENT IN GROUNDWATER RECHARGE



100%

of the respondents perceive improved groundwater recharge, reflected in greater availability and reliability of water resources across seasons.

REDUCTION IN MIGRATION DUE TO IMPROVED AGRICULTURAL OPPORTUNITIES



85.9%

of the beneficiaries report reduced migration, suggesting that enhanced agricultural opportunities have strengthened local livelihood options.

IMPROVEMENT IN WATER AVAILABILITY FOR LIVESTOCK



97.6%

of the farmers experience easier access to water for livestock, reducing water-related challenges and supporting livestock-based livelihoods.

IMPROVEMENT IN DRINKING WATER AVAILABILITY DURING SUMMER MONTHS



98.8%

of the beneficiaries report improved access to drinking water during the summer, indicating stronger water security during peak periods of water stress

Beneficiaries overwhelmingly reported positive experiences with the watershed intervention, highlighting improved water availability, reduced seasonal water scarcity, enhanced irrigation access, increased agricultural productivity, and higher farm incomes. Many respondents acknowledged that the intervention has strengthened agricultural practices, improved livelihood opportunities, and contributed to the overall development and resilience of the village community.

FOCUS GROUP DISCUSSION INSIGHT

PARTICIPANTS SANDEEP RAMESH TAMBOLI, MR UKIRDE BABASAHEB, MR TIPULE VINOD YUVRAJ & MR KISAN SHINDE (COMMUNITY MEMBERS), UKKADGAON, AHILYANAGAR - MAHARASHTRA

FGD participants recalled that before the intervention, agriculture in Ukkadgaon was largely rain-dependent, with low groundwater levels, limited irrigation opportunities, and frequent uncertainty in crop production. Through community participation and the implementation of watershed activities such as de-siltation, bund strengthening, repair of water harvesting structures, and soil and water conservation measures, water availability in the village improved considerably. Participants reported that groundwater levels increased, wells retained water longer, and irrigation became more reliable. These changes enabled farmers to cultivate multiple crops across seasons, improve land utilisation, and achieve better crop growth and harvest outcomes. Community members also noted improvements in fodder availability, local employment opportunities, and overall livelihood stability, attributing these changes to enhanced water security and strengthened agricultural productivity.

ON FIELD BENEFICIARY INTERACTION WITH TEAM SOULACE



CASE STUDIES



CASE STUDY 1: IMPROVED WATER AVAILABILITY STRENGTHENS FARMING AND LIVELIHOODS

» **BENEFICIARY PROFILE**

Sharad Pandit Sathe (39) is a farmer from Ukkadgaon village in Ahilyanagar district. He owns 4–5 acres of agricultural land and primarily cultivates soybean, bajra, wheat, and vegetables. Agriculture is the main source of livelihood for his family.

» **BEFORE THE INTERVENTION**

Before the watershed intervention, farming was largely dependent on rainfall. Water scarcity during summer, limited irrigation facilities, and high irrigation costs affected crop productivity and restricted opportunities for crop diversification, resulting in limited agricultural income.

» **INTERVENTION SUPPORT**

Under the Watershed Development Programme, a farm pond and other water conservation measures were established to improve water availability and strengthen irrigation access. Guidance on irrigation management and crop planning was also provided to support better utilisation of available water resources.

» **OUTCOMES AND FUTURE OUTLOOK**

Improved water availability enabled Sharad to cultivate crops more effectively throughout the year and diversify cultivation by introducing vegetables alongside soybean, bajra, and wheat. The intervention contributed to better crop productivity, reduced irrigation costs, increased agricultural income, and improved livelihood security for his family. Encouraged by these positive outcomes, he plans to expand vegetable cultivation further and continues to support the maintenance of watershed assets to sustain long-term benefits.





CASE STUDY 2: **SUCCESSFUL FARMER BENEFITING FROM WATERSHED INTERVENTIONS**

» BENEFICIARY PROFILE

Ravindra Baban Mhaske (32 years) is a farmer from Ukkadgaon village in Ahilyanagar district. He owns 4.5 acres of agricultural land and cultivates bajra, wheat, onion, and seasonal crops. Agriculture is the primary source of livelihood for his family.

» BEFORE THE INTERVENTION

Before the watershed intervention, Ravindra's farming activities were highly dependent on rainfall. Uncertain water availability often affected crop performance during dry periods, resulting in fluctuating agricultural income and financial uncertainty. Limited access to irrigation also restricted his ability to utilise available land fully and to invest confidently in farming.

» INTERVENTION SUPPORT AND OUTCOMES

The watershed intervention improved groundwater availability and strengthened irrigation access, reducing dependence on rainfall. With improved water security, Ravindra experienced fewer crop losses during dry periods and greater stability in agricultural production. Reduced irrigation costs and improved crop performance contributed to more predictable farming income, helping strengthen his family's financial security. The intervention has increased his confidence in agriculture as a sustainable livelihood and encouraged him to explore opportunities for improving farm productivity in the future.



CASE STUDY 3: **SUCCESSFUL FARMER BENEFITING FROM WATERSHED INTERVENTIONS**

» BENEFICIARY PROFILE

Maruti Pandurang Ukirde (50 years) is a farmer from Ukkadgaon village in Ahilyanagar district. He owns a small agricultural landholding and cultivates soybean, bajra, and wheat. Agriculture is the primary source of livelihood for his family.

» BEFORE THE INTERVENTION

Before the watershed intervention, farming was heavily dependent on rainfall, and recurring water shortages affected agricultural productivity. Limited irrigation access often resulted in lower crop yields, higher irrigation costs, and reduced farming income. Water scarcity during summer further constrained agricultural activities and affected the efficient use of available farmland.

► INTERVENTION SUPPORT AND OUTCOMES

Under the Watershed Development Programme, water conservation and farm support activities were undertaken to improve water availability and strengthen irrigation access. Technical guidance on irrigation and farming practices was also provided. Improved water availability enabled Maruti to manage crops more effectively, resulting in better crop performance and increased agricultural productivity. Reduced irrigation expenses and improved water-use efficiency helped optimise farm operations, while greater water availability supported cultivation during dry periods. These improvements strengthened overall farm sustainability and improved his family's livelihood outcomes.

► FUTURE OUTLOOK

Maruti continues to support the maintenance of watershed structures and plans to improve irrigation facilities on his farm further. Based on his experience, he believes that wider awareness and adoption of water conservation practices can help strengthen agricultural productivity across the community.

”

PROJECT BRANDING AT UKKADGAON



IMPACT CREATED ACROSS MULTIPLE LEVELS

INDIVIDUAL LEVEL

Improved irrigation access enabled 92.9% of respondents to bring additional land under cultivation.



Farmers reported improved agricultural productivity, with more than 94.0% reporting a 10.0%–19.0% increase in Kharif and Rabi crop yields.



95.3% reported an increase in agricultural income, reflecting improved farm-level economic outcomes.



Improved water availability supported better crop planning, reduced production risks, and enhanced confidence in farming.



91.8% reported improved knowledge of water conservation practices, strengthening the adoption of sustainable agricultural practices.



FAMILY LEVEL

Households earning ₹1–2 lakh annually increased from 2.4% to 45.9% following the intervention.



Increased agricultural income strengthened household livelihood security and reduced economic vulnerability.



The share of households experiencing five months of drinking water scarcity fell from 74.1% to 0.0%, improving access to water for domestic use.



97.6% reported improved water availability for livestock, supporting household livelihood assets and reducing seasonal stress.



Improved livelihood opportunities and reduced migration contributed to greater family stability and well-being.



COMMUNITY/ VILLAGE LEVEL

At baseline, 72.0% of farmers reported receiving no benefit from community water harvesting structures; current findings indicate widespread benefits from watershed assets.



Improved water conservation infrastructure strengthened village-level water security and resource availability.



64.7% reported improved groundwater recharge, supporting water availability for agriculture, livestock, and domestic needs.



85.9% reported reduced migration, reflecting improved livelihood opportunities within the village.



Strong community ownership was evident, with 90.6% participating in water management decisions and 82.4% reporting community-led maintenance of watershed structures.



STATE LEVEL

The intervention contributed to Maharashtra's efforts to strengthen water security in drought-prone regions through improved groundwater recharge and irrigation access.



Farmers with less than 5.0% assured irrigation reduced from 75.3% to 2.4%, enabling more reliable agricultural production and improved utilisation of cultivable land.

The intervention provides evidence of how integrated watershed management can improve water security and agricultural outcomes, offering a replicable approach for government agencies, NGOs, CSR foundations, and development institutions working in similar regions.



Increased agricultural productivity and income, along with reduced migration (85.9%), helped strengthen rural livelihoods in the project area.

NATIONAL LEVEL

The intervention contributed to national priorities of improving agricultural productivity, water security, and rural livelihood resilience.



More than 94.0% of respondents reported a 10.0%–19.0% increase in crop yields, while 95.3% reported increased agricultural income, supporting rural economic development.



The intervention aligns with SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), and SDG 15 (Life on Land).

Improved groundwater recharge, reduced drinking water scarcity, and enhanced irrigation access contributed to sustainable natural resource management and climate-resilient agriculture.



KEY CHALLENGES AND BARRIERS

The following challenges are based on stakeholder consultations and baseline findings.



CHRONIC WATER SCARCITY AND GROUNDWATER DEPLETION

Before the intervention, the village faced severe water scarcity, declining groundwater levels, and drying wells and borewells, limiting water availability for agriculture, livestock, and domestic use.



HIGH DEPENDENCE ON RAINFALL AND LIMITED IRRIGATION ACCESS

Agriculture was largely rain-dependent, making farmers vulnerable to rainfall variability and dry spells. At baseline, 75.3% of respondents had less than 5.0% of their land under assured irrigation.



LIMITED AWARENESS OF SCIENTIFIC WATER MANAGEMENT PRACTICES

Baseline findings indicated low exposure to water and soil management practices, with only 12.9% of respondents having received water management training and 13.6% having received soil health training.



TECHNICAL AND SEASONAL IMPLEMENTATION CONSTRAINTS

Stakeholder consultations highlighted challenges related to uneven terrain, site-specific technical conditions, and execution of activities during the monsoon season, requiring careful planning and coordination during implementation.

ARTIFICIAL WATER POND DONE IN THE PROJECT WORK BY THE CROMPTON AT UKKADGAON



KEY LEARNINGS

The following key learnings emerged from baseline and assessment findings and stakeholder consultations.

-  **Integrated watershed interventions can significantly improve water security and agricultural outcomes**, as reflected in increased groundwater recharge, improved irrigation access, higher crop productivity, and increased agricultural income.
-  **Community participation plays a critical role in ensuring sustainability**, with active involvement in planning, implementation, water governance, and maintenance strengthening ownership of watershed assets.
-  **Combining physical infrastructure with capacity-building efforts enhances project effectiveness**, enabling farmers to adopt improved water conservation and agricultural practices.
-  **Improved water availability generates benefits beyond agriculture**, contributing to enhanced livelihoods, reduced migration, improved livestock management, and better household water security.

WATER STRUCTURE CHECKING BY SOULACE TEAM TO GET IDEA OF WATERSHED DEVELOPMENT WORK DONE



04. SWOT ANALYSIS



STRENGTHS



Integrated watershed approach combining recharge structures, water harvesting measures, capacity building, and community engagement.



Strong community participation in planning, water governance, and maintenance of watershed assets (90.6% participated in water management decisions; 82.4% reported community-led maintenance).



Demonstrated improvements in irrigation access (60.0%), groundwater recharge (64.7%), crop productivity (51.8%), and agricultural income (95.3% reported income increase).



High community ownership of water structures supports the long-term sustainability of project assets.



WEAKNESSES



Variations in outcomes across beneficiary households indicate that not all farmers uniformly experienced benefits from watershed interventions.



Improvements in groundwater recharge (64.7%) were reported less frequently than improvements in soil moisture retention (77.6%) and reduced soil erosion (75.3%), suggesting scope for further strengthening recharge measures.



Adoption of multi-season cultivation and commercial crop expansion has increased but has not yet been achieved across all farming households.



OPPORTUNITIES



Expand watershed treatment activities to untreated areas and neighbouring villages to increase coverage and benefits.



Promote the wider adoption of drip and sprinkler irrigation systems to improve water-use efficiency and optimise the use of available water resources.



Strengthen farmer capacity-building on climate-resilient agriculture, water conservation, and sustainable farming practices.



Leverage convergence with relevant government watershed, irrigation, and rural development schemes to enhance scale and sustainability.



THREATS



Climate variability and erratic rainfall patterns may affect future groundwater recharge and water availability.



Increasing irrigation demand may place additional pressure on groundwater resources over time.



Inadequate maintenance of watershed assets could reduce long-term effectiveness and sustainability.



Expansion of relatively water-intensive crops without efficient water management practices may affect long-term water security.



05

OECD FRAMEWORK



Relevance



Coherence



Effectiveness



Efficiency



Impact



Sustainability



RELEVANCE



Addressed critical challenges of water scarcity, groundwater depletion, limited irrigation access, and rain-dependent agriculture in Ukkadgaon village.



Interventions were aligned with baseline needs related to water security, agricultural productivity, and livelihood enhancement.



Water conservation structures, groundwater recharge measures, and capacity-building activities directly responded to community priorities.



Remained highly relevant for strengthening water security and rural resilience in a drought-prone region.



COHERENCE

- Aligned with national and state priorities on water conservation, groundwater management, and climate-resilient agriculture.
- Supported key government initiatives, including PMKSY, Jal Shakti Abhiyan, WDC-PMKSY and Atal Bhujal Yojana.
- Aligned with CSR priorities related to water security, sustainable agriculture, and rural livelihoods.



EFFECTIVENESS



The intervention effectively strengthened water security by creating 214.17 TCM of water potential, benefiting 1,432 people in Ukkadgaon village.



64.7% of respondents reported improved groundwater recharge, while 60.0% reported increased irrigation water availability.



More than 94.0% of respondents reported a 10.0%-19.0% increase in Kharif and Rabi crop yields, indicating improved agricultural productivity.



92.9% of respondents reported bringing additional land under cultivation, supported by improved irrigation access and water availability.



68.0% of respondents reported adopting multi-season cultivation, reflecting improved utilisation of water resources and enhanced agricultural opportunities.



EFFICIENCY



Adopted an integrated implementation across the village.



Combined water conservation, groundwater recharge, drinking water, and farm-level interventions through a single investment framework.



Leveraged community participation in planning, implementation, and maintenance, enhancing resource utilisation and ownership.



Applied watershed-based technical planning and natural drainage systems to optimise water harvesting and recharge.



IMPACT



95.3% reported increased agricultural income, contributing to improved livelihood resilience.



85.9% reported reduced migration, reflecting enhanced local livelihood opportunities.



Households experiencing five months of drinking water scarcity reduced from 74.1% at baseline to 0.0% at endline, improving household water security.



97.6% reported improved water availability for livestock, strengthening livelihood assets beyond crop cultivation.



Improved groundwater recharge, soil conservation, and community stewardship contributed to broader environmental and socio-economic benefits.



Area for Improvement: Expanding watershed treatment activities could extend benefits to a larger geographical area.



SUSTAINABILITY



90.6% participated in water management decisions and 82.4% reported community-led maintenance of watershed assets, indicating strong local ownership.



Capacity-building and exposure activities strengthened awareness of water conservation and sustainable agricultural practices.



Durable watershed assets, including farm ponds, CNBs, recharge structures, and repaired water harvesting structures, are expected to continue generating long-term benefits.



Community institutions and local participation provide a foundation for continued management and upkeep of project assets.



Risk: Continued maintenance and active community participation will be critical for sustaining long-term outcomes.



Relevance



Coherence



Effectiveness



Efficiency



Impact



Sustainability

06. WAY FORWARD



The following recommendations are derived from beneficiary feedback and stakeholder consultations conducted during the assessment.



STRENGTHEN MAINTENANCE OF WATERSHED ASSETS

Respondents emphasised the need for regular maintenance, desilting, and timely repair of water conservation structures to sustain project benefits over the long term.



EXPAND WATER CONSERVATION AND STORAGE INFRASTRUCTURE

Beneficiaries recommended constructing additional water storage and recharge structures to improve water availability further and extend benefits to a larger area.



CONTINUE FARMER CAPACITY-BUILDING AND COMMUNITY ENGAGEMENT

Respondents highlighted the need for continued training, technical guidance, and active community participation to support sustainable water management and agricultural development.

07 CONCLUSION

The Crompton CSR Foundation-supported Soil and Water Conservation Project, implemented by Vanarai in Ukkadgaon village of Ahilyanagar district, significantly strengthened water security, agricultural productivity, and rural livelihoods through integrated watershed development interventions. The project created an estimated 214.17 TCM of water potential and benefited 1,432 community members, improving water availability for agriculture, livestock, and domestic use.

Assessment findings indicate improvements in groundwater recharge, irrigation access, crop productivity, and agricultural income, enabling farmers to expand cultivation, adopt multi-season farming, and diversify into higher-value crops. The intervention also contributed to reduced migration, improved drinking water availability, and enhanced livelihood resilience among farming households.

Strong community participation in water governance and the maintenance of watershed assets has further strengthened the sustainability of project outcomes. While continued maintenance and expansion of water conservation measures remain important, the project demonstrates an effective community-led approach to improving water security, climate resilience, and sustainable rural development in drought-prone regions.

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