Themes: Natural Resources Management, Climate Smart Agriculture and Livelihood diversification

IMPACT ASSESSMENT REPORT

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Prepared for: ITC Limited

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Section 1:
About the CSR Programmes covered for the Assessment

About the Programmes covered for the Assessment

Natural Resources Management (NRM) - Water Stewardship

This initiative prioritized water security through community-based conservation efforts, enhancing groundwater and balancing water use in agriculture. The programme targeted revitalizing natural resources for sustainable agriculture, involving conservation efforts within supply chains, community-led landscape renewal, and restoring ecosystem services essential to agriculture, focusing on forest fringes and commons restoration.

Geographies covered under the assessment

Andhra Pradesh, Karnataka, Tamil Nadu

Number of Beneficiaries
12,689

Implementation Partner
BAIF, OUTREACH, GRAMASIRI, MYRADA, SSGS, MYKAPS, DHAN

Projects undertaken in FY 2023-24

Natural Resources Management (NRM) - Biodiversity

This initiative focuses on conserving and restoring biodiversity through community-based natural resources management practices. The programme aims to protect native species, enhance habitat quality, and maintain ecosystem balance by promoting sustainable land-use practices and ecological restoration. It supports activities such as afforestation, conservation of forest and common lands, protection of wildlife habitats, and regeneration of degraded ecosystems.

Andhra Pradesh, Karnataka

Implementation Partner
BAIF, OUTREACH, GRAMASIRI, MYRADA, SSGS, MYKAPS, DHAN

Climate Smart Agriculture (CSA)

The CSA initiative was designed to build climate change adaptation, enhance farmer resilience, and sustainably improve crop yield and income. It promoted practices that are regenerative, productive, and climate resilient. The programme focused on reducing emissions, improving water use efficiency, and building farmer capacity through the adoption of innovative agricultural practices

Andhra Pradesh, Assam, Bihar, Karnataka, Tamil Nadu

Number of Beneficiaries
4,20,457

Implementation Partner
BAIF, OUTREACH, GRAMASIRI, MYRADA, SSGS, MYKAPS, DHAN, Pravah, RGVN, SSSS, DHAN

On-farm Livelihood- Social Forestry

The goal of this programme was to improve incomes and mitigate the risks posed by climate change through tree and fruit plantations incorporated with traditional crops (agro-forestry). By promoting plantations of various tree species, the programme planned to help farmers capitalize on market opportunities and meet their wood requirements. It supported small farmers through models like block plantations and bund plantations.

Andhra Pradesh, Karnataka

Number of Beneficiaries
4,370

Implementation Partner
BAIF, GRAMASIRI, MYRADA, SSGS, MYKAPS

Approach and Methodology

Phase I: Development

- **Kick-off meeting with ITC and PIAs** to align on objectives, timelines, sampling frame and study protocols
- **Desk review** of key documents, such as ITC Sustainability Report 2024, government schemes, and best practices
- Develop sampling plan, **data collection tools** with translation, finalize sampling based on OECD DAC Criteria
- **Finalize** field plan with ITC team
- **Team training** for pilot visit
- **Preliminary pilot** visit to Eluru (AP) for tool **testing**
- **Submission of pilot report**

Deliverable:

❑ Inception report, including study design, sampling framework and translated tools

❑ Pilot report

Phase II: Design

- **Training of state field teams** on data collection instruments, ethical protocols
- **Primary data collection** (household surveys, FGDs, KIIs, observations) across project and control populations by using **CAPI**
- Document **field observations, challenges, success stories/case studies**
- Clean and analyze **quantitative data**
- Thematically code and synthesize **qualitative data** for insight generation
- **Triangulate findings** from primary and secondary data sources

Deliverable:

❑ Raw and cleaned datasets on Excel

Phase III: Deliver

- **Preparation of draft Impact Assessment** Report - Abridged version
- Submission of **draft Impact Assessment** Report - Abridged version for review and feedback
- **Incorporate feedback** from ITC and **finalise Abridged report**
- Submission **of main Report** with annexures (**survey tools, transcripts, tables**)

Deliverable:

- Draft & final impact assessment report (Abridged version)
- Final impact assessment report

Objectives of the Impact Assessment

This impact assessment adopted the globally recognized **OECD-DAC evaluation framework, covering Relevance, Coherence, Effectiveness, Efficiency, Impact, and Sustainability**, in alignment with the RFP's requirement for use of a standard evaluation framework to assess programme performance and outcomes. The framework provided a structured and evidence-based lens to evaluate Mission Sunehra Kal Horizon-I programmes across multiple states, while also generating actionable insights on programme effectiveness, scalability, and sustainability.

RELEVANCE
To assess the extent to which programme interventions were aligned with local livelihood needs, agro-ecological conditions, and climate risks, and whether the intervention design remained appropriate to the evolving context of beneficiary communities

EFFECTIVENESS
To evaluate how far the selected interventions achieved their intended objectives, including improvements in water access, adoption of climate-smart practices, reduction in cost of cultivation, and diversification of livelihood sources

EFFICIENCY
To assess whether programme resources were utilised efficiently, with a focus on optimisation of inputs, reductions in cost of cultivation, labour efficiencies, and effectiveness of delivery mechanisms at the community and institutional level

COHERENCE
To assess the degree of internal coherence across programme components and external coherence with government schemes, institutional frameworks, and partner initiatives, including convergence with line departments and state-led programmes

IMPACT
To examine early and indicative impact pathways emerging from the interventions, such as changes in farm productivity, income stability, climate resilience, and environmental outcomes

SUSTAINABILITY
To evaluate the likelihood of programme benefits being sustained beyond the project period by examining community ownership, institutional mechanisms, behavioural changes, and long-term maintenance of created assets

Outcomes

A refined OECD DAC-aligned impact assessment Framework	Validated indicators and tools for programme- and theme-level assessment	Evidence-based inputs for scaling the assessment across districts and states

Sample Selection Logic and Programmatic Coverage

The sampling framework for the Impact Assessment was designed to ensure thematic representation, geographic diversity, and analytical comparability across treatment and control groups. Given the scale of Horizon I interventions spanning Natural Resources Management, Climate Smart Agriculture, and On-Farm Livelihood Diversification, a multi-stage stratified sampling approach was adopted.

The overall household survey sample size was determined using Cochran's Formula for large populations to ensure statistical reliability at a 95% confidence level and ±5% margin of error.

Control block selection logic

Control blocks across the five states were selected from geographies located **approximately 15-20 km away from the treatment blocks** to minimise overlap and avoid potential contamination of intervention effects. In Bihar, given the widespread presence of the ITC programme across districts, Jamui district was identified as the control geography for both Sitamarhi and Munger to enable a robust comparative assessment. The finalisation of control areas was undertaken in consultation with ITC state SPOCs and implementing partners (PIAs).

State-wise programme coverage

State	District	Interventions Covered	Implementation Partner
Assam	Darrang, Baksa	CSA	RGVN
Andhra Pradesh	Eluru (Pilot), Prakasam, Palnadu, ASR	NRM, CSA, Social Forestry	SSGS, GRAMASIRI, BAIF, MYRADA
Bihar	Sitamarhi, Lakhisarai, Munger, Jamui	CSA	Pravah, SSSS
Karnataka	Hassan, Mysore, Kolar	NRM, CSA, Social Forestry	BAIF, MYRADA, MYKAPS, OUTREACH
Tamil Nadu	Pudukottai	NRM, CSA, Social Forestry	DHAN Foundation

Note: *Baseline comparisons in this assessment are primarily based on treatment-control analysis, with control geographies serving as the primary comparison group to assess programme contribution; baseline values, where presented, are based on respondent-reported pre-intervention recall and/or available programme records referred by the implementation partner, wherever applicable.*

Sample Coverage

Sample Coverage: Pilot in Eluru District, Andhra Pradesh

Block	Village	Planned		Achieved	
		Treatment	*Control*	*Treatment*	*Control*
Gopalapuram	Chittiyala, Cherukumilli, Guddigudem, Gopalapuram, Vadalakunta	120	21	121	22
Jaggareddygudem	Nagulagudem, Tirumulapuram				
Koyyalagudem	Kannapuram, Dippakayalapadu, Ankalagudem, Gavaravaram				
Buttaigudem	Chimalavarigudem, Padmavarigudem, Manchulavirgudem, Kapavaram				

Overall Sample Coverage: Quantitative

State	District	Achieved	
		Treatment	*Control*
Assam	Darrang	215	49
	Baksa	217	50
Andhra Pradesh	ASR	30	6
	Palnadu	144	30
	Prakasam	159	29
	Eluru (Pilot)	121	22
Bihar	Katihar	115	22
	Lakhisarai	115	22
	Munger	163	0
	Sitamarhi	63	0
	Jamui (Control for Munger & Sitamarhi)	0	67 (55+12)
Karnataka	Hassan	97	40
	Kolar	128	20
	Mysore	179	73
Tamil Nadu	Pudukottai	348	44
Total (N=2,568)		2,094	474

Overall Sample Coverage: Qualitative (Treatment only)

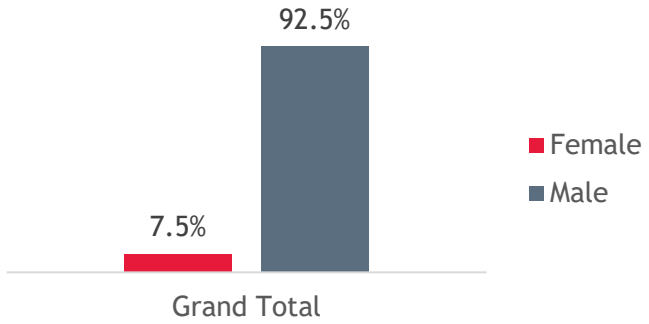
State	District	KIIs	FGDs
Assam	Darrang	5	2
	Baksa	5	2
Andhra Pradesh	Eluru (Pilot)	10	2
	ASR	7	2
	Palnadu	12	2
	Prakasam	14	3
Bihar	Katihar	4	2
	Lakhisarai	4	2
	Munger	4	3
	Sitamarhi	5	2
Karnataka	Hassan	7	2
	Kolar	5	2
	Mysore	5	2
Tamil Nadu	Pudukottai	4	3
Total		**91**	**31**

Section 2:
Profile of Respondents

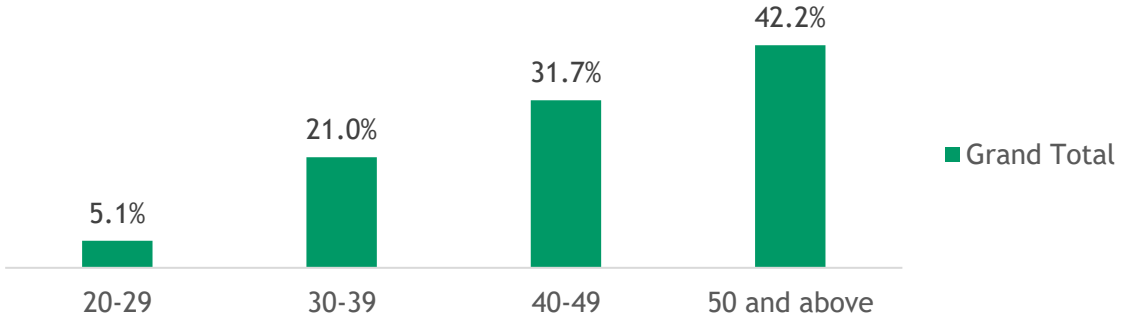
Profile of Respondents

This section covers the demographic and socio-economic profile of the respondents across treatment and control groups for all 3 thematic areas combined. A total of 2,568 respondents were covered under the survey, comprising of 2,094 treatment respondents and 474 control respondents across 5 states.

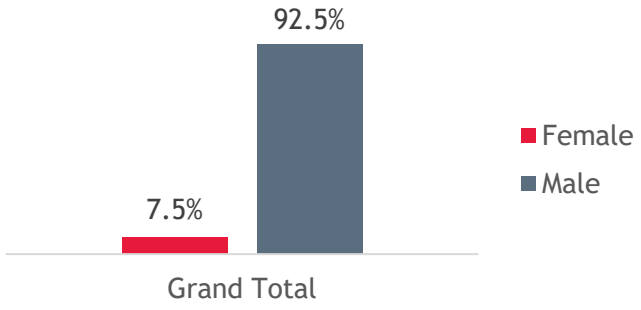
Gender of the treatment respondents



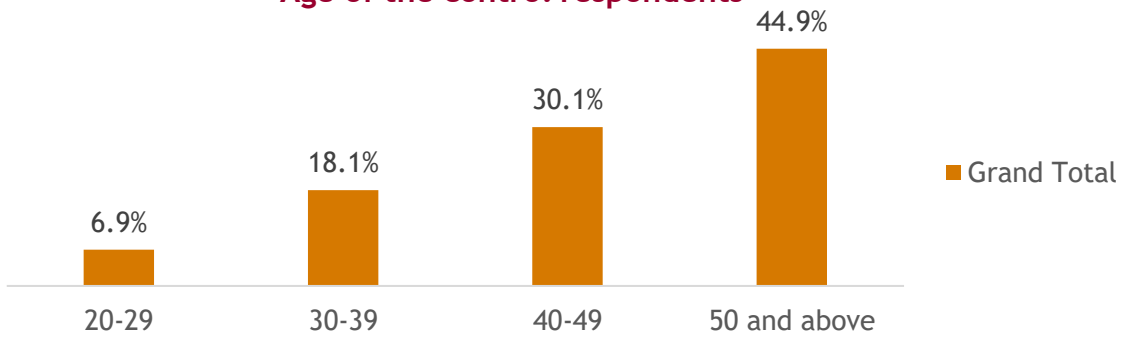
Age of the treatment respondents



Gender of the control respondents



Age of the control respondents



- **Chief breadwinner status:** All respondents across both groups serve as chief breadwinners, reflecting high household dependency on their agricultural income and the critical role of farm productivity improvements.
- **Social category distribution:** Respondents predominantly represent General and OBC categories, indicating broad socio-economic reach across states, influenced by regional demographics and targeted outreach.
- **Primary income source:** Agriculture dominates as the main livelihood for both treatment and control groups, underscoring its foundational role in sustaining rural households.
- **Alternative sources of income:** Both groups diversify via livestock rearing, allied cultivation, and daily wage labour, highlighting resilience strategies amid agricultural variability.

Section 3:
Key Findings-
Programme-wise Results

Section 3.A:
NATURAL RESOURCES MANAGEMENT-WATER STEWARDSHIP AND BIODIVERSITY

Support Mechanisms and Beneficiary Gains

This section highlights the key findings of the impact created by the "Natural Resources Management – Water Stewardship and Biodiversity Programme" among the beneficiaries. The findings are based on the survey responses received from 988 respondents, of which 814 were from the treatment group and 174 were from the control group across Andhra Pradesh, Karnataka and Tamil Nadu. The survey data is also supported by qualitative findings. Pre-post and treatment-control comparisons were undertaken, with baseline values primarily based on respondent recall and primary findings, wherever applicable.

Type of support received under the programme

Infrastructure support

- The programme has **improved water availability** through the construction of various water harvesting structures. **Contour trenches** were found to be the most prevalent structure among around three-fourths of respondents across Andhra Pradesh (AP), Karnataka (KN) and Tamil Nadu (TN); rejuvenated check dams were accessed by ~55% respondents in Karnataka, thereby, enhancing groundwater recharge.
- ~82% respondents from TN reported access to **community tanks and ponds,** followed by Karnataka (64%) and AP (58%), aiding water conservation.

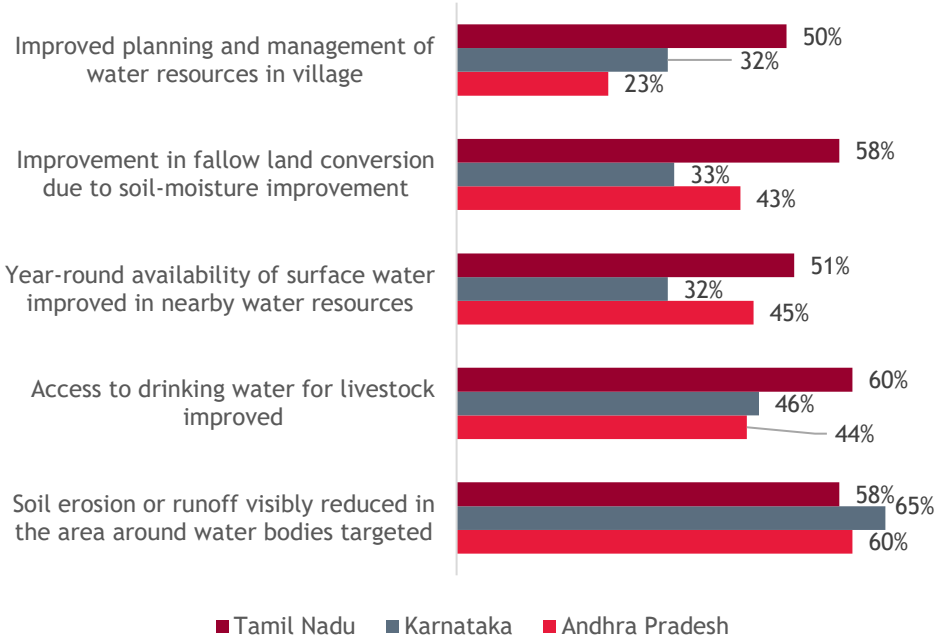
Training support

- MSK-supported training and capacity-building were associated with higher adoption of select water-efficient agricultural practices in some project locations, particularly through greater awareness and uptake of practices such as micro-irrigation, mulching, crop planning and water-use optimisation among beneficiary farmers. In AP, treatment farmers reported a 74% adoption rate compared to 43% among control farmers (a 31-percentage point difference). In Karnataka, adoption levels were broadly comparable between treatment and control groups (65% vs. 63%).
- **DSR: Treatment farmers in AP adopted DSR at 61%** vs 33% among non-trained farmers (nearly double). KN treatment farmers achieved 54% adoption compared to 41% in control groups.

Convergence enablement

- **Stronger access to MGNREGA/PMKSY-type scheme linkages** as well as **State Government scheme** for subsiding irrigation assets.

Impact of programme activities (Treatment)



This is a multiple-choice question and the response total for a particular state may be more than 100%.

Other **biodiversity impacts observed** were majorly (a) improvement in pollinators (bees, butterflies) and (b) improvement in water regulation & soil erosion reduction

Detailed impact of programme activities (1/3)

Approximate savings per cropping season

State	Treatment Avg.	Control Avg.	Difference
Andhra Pradesh	₹ 10,165	₹ 1,727.0	₹ 8,438
Karnataka	₹ 18,154	₹ 7,875.0	₹ 10,279
Tamil Nadu	₹ 9,274.2	₹ 5,227.3	₹ 4,047
Overall	**₹ 12,531**	**₹ 4,943**	₹ 7,588

Months of irrigation available for your agriculture and allied activities

State	Treatment		Control		Difference at Evaluation: Treatment - Control
	Pre (baseline)	At the time of evaluation	Pre (Baseline)	At the time of evaluation	
Andhra Pradesh	3.3	4.6	3.2	3.8	0.8 months
Karnataka	4.4	5.4	3.8	4.3	1.1 months
Tamil Nadu	1.8	3.0	1.7	2.1	0.9 months
Overall	**3.3**	**4.5**	**3.0**	**3.6**	**0.9 months**

Note: Overall values are weighted using theme-wise state sample sizes. State-level treatment-control differences should be used for interpretation.

Groundwater Depth (Meters below ground level)

Parameter	Treatment Total	Tamil Nadu	Karna -taka	AP	Control Total	Tamil Nadu	Karna -taka	AP
Pre-intervention (A)	**106.1**	107.3	106.7	104.2	**106.7**	107.9	106.4	105.8
Post-intervention (B)	**93.0**	95.1	90.8	92.7	**104.5**	106.1	104.0	103.3
% improvement (A-B)	**12%**	11%	15%	11%	**2%**	2%	2%	2%

- MSK interventions delivered measurable economic efficiency gains in irrigation. Programme farmers reported average irrigation cost savings of ₹12,531 per season, which is **nearly 2.5 times higher than the ₹4,943 savings observed in control villages**. In Karnataka, the adoption of drip irrigation and scientific water management practices translated into annual savings of approximately ₹18,154 per farmer.
- Reported groundwater depth (below ground level) reduced by ~12% in treatment villages compared to ~2% in control villages, **indicating improved groundwater conditions** during the assessment period; however, external factors such as rainfall variability and local extraction patterns may also have contributed
- The programme strengthened **decentralized water harvesting and recharge systems**, improving irrigation reliability and reducing seasonal water stress. Survey findings indicate that treatment farmers had **access to an average of 4.5 months of irrigation water**, supporting more stable cropping cycles and demonstrating higher **irrigation availability than control farmers by an average of 0.9 months across the assessed States.**
- There was also **reduction in time spent collecting fodder**. Majority (53%) respondents reported saving more than 2hrs per day. Additionally, 33% respondents reported saving 2-4 hrs per day in **collecting fuelwood**.

Detailed impact of programme activities (2/3)

Impact on yield of different crops due to improved water availability (quintal/acre)

Crop	Group	Average yield pre-intervention (in quintal per acre)	Average yield post-intervention (in quintal per acre)	Yield change
Paddy	Treatment	16.88	20.16	19% Increase
	Control	17.91	19.83	11% Increase
Maize	Treatment	18.16	22.38	23% Increase
	Control	17.11	18.56	8% Increase
Millets	Treatment	8.14	9.28	14% Increase
	Control	7.60	8.06	6% Increase
Chilli	Treatment	17.19	19.05	11% Increase
	Control	19.92	20.31	2% Increase
Red gram	Treatment	7.4	8.2	11% increase
	Control	Not Grown	Not Grown	-

- **Investments in** farm ponds, tank rejuvenation and recharge structures enhanced water storage duration and distribution efficiency. Farmers reported that water bodies now retain water for longer periods, supporting cultivation during previously unviable seasons. Enhanced water availability was linked to reported economic gains among surveyed beneficiaries during the assessment period.
- Treatment respondents reported average irrigation cost savings of about ₹12,531 per season, driven by improved water-use efficiency and reduced reliance on purchased or diesel-based irrigation. In contrast, control areas recorded more limited cost reductions, suggesting that infrastructure gains alone were insufficient without complementary governance and capacity support.
- Greater irrigation reliability also enabled higher cropping intensity and diversification, with farmers expanding into vegetables, pulses and other higher-value crops. Field consultations highlighted that improved water security reduced cultivation risk and encouraged seasonal crop planning, while control farmers remained cautious and continued traditional cropping patterns.
- The programme contributed to improved irrigation efficiency and reduced operational burden. Farmers reported lower irrigation frequency, better synchronization with crop stages and reduced labour effort due to adoption of water-saving practices. Control areas continued to face challenges related to unstructured irrigation and higher seasonal stress.
- Beyond farm productivity gains, the programme strengthened local water governance and institutional convergence. Substantial number of ITC MSK beneficiaries reported linkages with government schemes and collective water management systems, compared with lower coverage in control villages. Functioning Water User Groups and community maintenance mechanisms helped sustain infrastructure benefits and supported long-term livelihood resilience.

Detailed impact of programme activities (3/3)

Gross Sown Area before and after MSK support (in acres per household)

State	Gross Sown Area (Pre-Intervention)		Gross Sown Area (At the time of evaluation)		% change	
	Treatment	Control	Treatment	Control	Treatment	Control
Andhra Pradesh	3.2	3.4	3.6	3.5	13%	3%
Karnataka	4.0	3.9	4.4	4.0	10%	3%
Tamil Nadu	2.2	2.1	2.5	2.2	14%	5%
Overall Average (3 States)					**12%**	**4%**

Net Sown Area before and after MSK support (in acres per household)

State	Net Sown Area (Pre-Intervention)		Net Sown Area (At the time of evaluation)		% change	
	Treatment	Control	Treatment	Control	Treatment	Control
Andhra Pradesh	2.6	2.7	2.8	2.8	8%	4%
Karnataka	3.3	3.2	3.5	3.3	6%	3%
Tamil Nadu	1.8	1.7	1.9	1.8	6%	6%
Overall Average (3 States)					**7%**	**4%**

Implied cropping intensity before and after MSK support

State	Pre-Intervention		At the time of evaluation		Change in cropping intensity (percentage points)	
	Treatment	Control	Treatment	Control	Treatment	Control
Andhra Pradesh	123%	126%	129%	125%	+6 pp	-1 pp
Karnataka	121%	122%	126%	121%	+5 pp	-1 pp
Tamil Nadu	122%	124%	132%	122%	+10 pp	-2 pp
Overall Average (3 States)					**+6 pp**	**-1 pp**

- The study conducted in Andhra Pradesh, Karnataka and Tamil Nadu revealed that compared to baseline, access to irrigation contributed to **increase in gross cropped area by 12% and improved cropping intensity by 6%.**
- Both gross and net sown areas show **moderate but consistent increases in treatment villages across all three states**, indicating improved utilisation of agricultural land under MSK support. **Tamil Nadu records the highest growth in gross sown area (14%)**, followed by **Andhra Pradesh (13%) and Karnataka (10%)**, while corresponding increases in control groups remain limited (3-5%), reinforcing the programme's contribution.
- In terms of net sown area, gains are relatively modest across states i.e. **8% in Andhra Pradesh and 6% each in Karnataka and Tamil Nadu (treatment)**, with control groups showing comparable but slightly lower increases (3-6%). This suggests **limited expansion in operated land area**, likely due to structural constraints such as small and fragmented landholdings and already high baseline land utilisation.
- In contrast, the increase in gross sown area outpaces net sown area, pointing toward **enhanced cropping intensity rather than land expansion**. This is further substantiated by the **rise in cropping intensity across treatment groups**, with **Tamil Nadu witnessing the highest increase (+10 percentage points)**, followed by **Andhra Pradesh (+6 pp) and Karnataka (+5 pp)**. Control groups, on the other hand, show stagnant or marginally declining trends (-1 to -2 pp).
- The findings indicate that MSK interventions have enabled farmers to undertake additional cropping cycles and improve land productivity within existing land constraints, driven by better water availability, agronomic practices, and institutional support.

Findings by OECD DAC Framework (1/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Relevance - HIGH	• Programme interventions were widely perceived as highly relevant, as they addressed key livelihood risks including seasonal water scarcity, groundwater decline, irrigation uncertainty and limited livestock water access. • Investments in farm ponds, tank rejuvenation, percolation structures and bund strengthening were well aligned with local agro-ecological conditions and farmer priorities. Qualitative consultations confirmed that interventions were shaped by community-identified water constraints, ensuring strong contextual fit and high adoption.	Impact on productivity due to access to water, for major crops grown; Availability of water for agriculture, especially during summer seasons; Water User Groups (WUG) Efficiency, Benefits and Maintenance of Structures, Women Involvement in WUGs
Effectiveness - HIGH	• Treatment farmers reported higher irrigation availability than control farmers across all assessed states, indicating relatively stronger irrigation reliability in intervention areas. • Enhanced water access enabled higher cultivation intensity and crop diversification, with farmers expanding production during previously water-scarce periods, particularly into vegetables and pulses. In contrast, control areas showed more limited productivity gains due to weaker infrastructure performance and governance mechanisms.	Impact on productivity due to access to water, for major crops grown; Availability of water for agriculture, especially during summer seasons; Groundwater depth (same season comparison); Net area and gross area under cultivation as a result of increased water availability; Water User Groups (WUG) Efficiency, Benefits and Maintenance of Structures
Efficiency - MEDIUM-HIGH	• Programme interventions delivered clear economic efficiency gains by reducing irrigation costs and improving water-use practices. Treatment farmers reported average savings of about ₹12,531 per season due to lower dependence on diesel pumping and purchased irrigation, alongside reduced labour and operational effort. • Improved irrigation scheduling, recharge-supported pumping and collective water management enabled more efficient resource use. Convergence with micro-irrigation and water-saving schemes further strengthened the cost-effectiveness of programme investments.	Impact on cost of cultivation due to access to water, for major crops grown; Package of Practices used in each crop to reduce demand for water in agriculture

High | Medium-High | Low

Findings by OECD DAC Framework (2/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Coherence - HIGH	• The programme showed strong coherence with government priorities on watershed management, groundwater recharge, climate resilience and sustainable agriculture. Field consultations indicated effective convergence with micro-irrigation subsidies, rural employment programmes for tank maintenance and agricultural extension support. • Coordination through Water User Groups and community maintenance systems aligned infrastructure investments with long-term resource governance. This ensured programme efforts complemented public interventions, improving overall efficiency and sustainability.	Package of Practices used in each crop to reduce demand for water in agriculture; WUG Efficiency, Benefits and Maintenance of Structures
Impact - HIGH	• Natural Resources Management interventions improved agricultural productivity and livelihood resilience. Reported/observed groundwater trends enabled expansion of cultivated area, higher cropping intensity and cultivation during summer seasons. Improved irrigation reliability also supported crop diversification into higher-value crops, strengthening income stability. • Environmental benefits were also observed, including improved groundwater recharge, better soil moisture retention and increased vegetation and pollinator presence. Expanded irrigation coverage and longer water storage duration enhanced community resilience to climate variability and drought.	Net area and gross area under cultivation as a result of increased water availability; Crops grown season wise and cropping intensity
Sustainability - MEDIUM to HIGH	• Programme outcomes show strong sustainability potential, supported by institutional strengthening and community ownership. Functioning Water User Groups, community contributions for maintenance and continued convergence with government schemes enhance the long-term viability of water infrastructure. • However, sustained benefits will depend on ongoing capacity building, periodic technical support and stronger local governance. Rising groundwater extraction, maintenance financing gaps and climate variability remain key risks, underscoring the need for continued system stewardship.	WUG Efficiency, Benefits and Maintenance of Structures, Women Involvement in WUGs; Groundwater depth (same season comparison)

High | Medium-High | Low

Key Programmatic Recommendations

1

Institutionalise community-led water asset management to protect irrigation gains

While water harvesting structures have improved irrigation reliability, groundwater recharge, and cropping intensity, the study highlights persistent concerns around long-term financing of O&M and potential weakening of collective action post project withdrawal. Institutionalising structured O&M financing mechanisms and strengthening Water User Groups (WUGs) and local governance systems would ensure **sustained asset functionality, prevent deterioration, and manage risks of over-extraction.**

2

Alignment of focus on water productivity optimization, beyond access to water

The study shows strong improvements in irrigation access and yield gains; however, inter-state variation indicates that higher efficiency gains (e.g., in Karnataka) are driven by adoption of water-use efficient practices rather than access alone. Therefore, future investments should prioritise **efficient water use per acre rather than only expanding irrigation coverage**. Scaling irrigation scheduling, crop-water matching and micro-irrigation convergence can reduce irrigation costs and stabilise farm incomes.

3

Capacity strengthening for groundwater monitoring and climate-resilient water security planning

Reported/observed groundwater trends have been found across treatment areas, but qualitative insights indicate risks of reversal due to increasing water demand, absence of monitoring systems, and climate variability. Therefore, **embedding community-based monitoring systems and integrating climate risk advisories will be critical to sustaining water availability under increasing climate variability.**

4

Integrate NRM investments with cropping system diversification and livelihood planning

Enhanced water availability has enabled higher cropping intensity, diversification, and improved farm incomes. However, these gains are not yet fully optimised across all geographies. **Linking NRM interventions with agronomic planning, extension services and market access** will maximise economic returns from natural resources investments for future programmatic planning.

Section 3.B:
CLIMATE SMART AGRICULTURE

Support Mechanisms and Beneficiary Gains

This section highlights the key findings of the impact created by the "Climate Smart Agriculture" among the beneficiaries. The findings are based on the survey responses received from 1,399 participants, of which 1,133 were from the treatment group and 266 respondents from the control group across Assam, Andhra Pradesh, Bihar, Karnataka, Tamil Nadu. The survey data is also supported by qualitative findings. Pre-post and treatment-control comparisons were undertaken, with baseline values primarily based on respondent recall and primary findings, wherever applicable.

Type of support received under the programme

Training support

- The programme offered extensive **training to boost agricultural productivity and sustainability.** Stakeholders mentioned **promotion of mulching, drip/sprinkler, AWD, Integrated Pest Management (IPM), nutrient budgeting**, as opposed to earlier reliance on inefficient flood irrigation and expensive tube-well irrigation methods.
- **Crop-specific CSA packages were found to have been covered across all states through FFS trainings** as reported by an average of 76% respondents; respondents also indicated learning about soil health management, water use efficiency practices and climate-resilient agronomy through FFS.

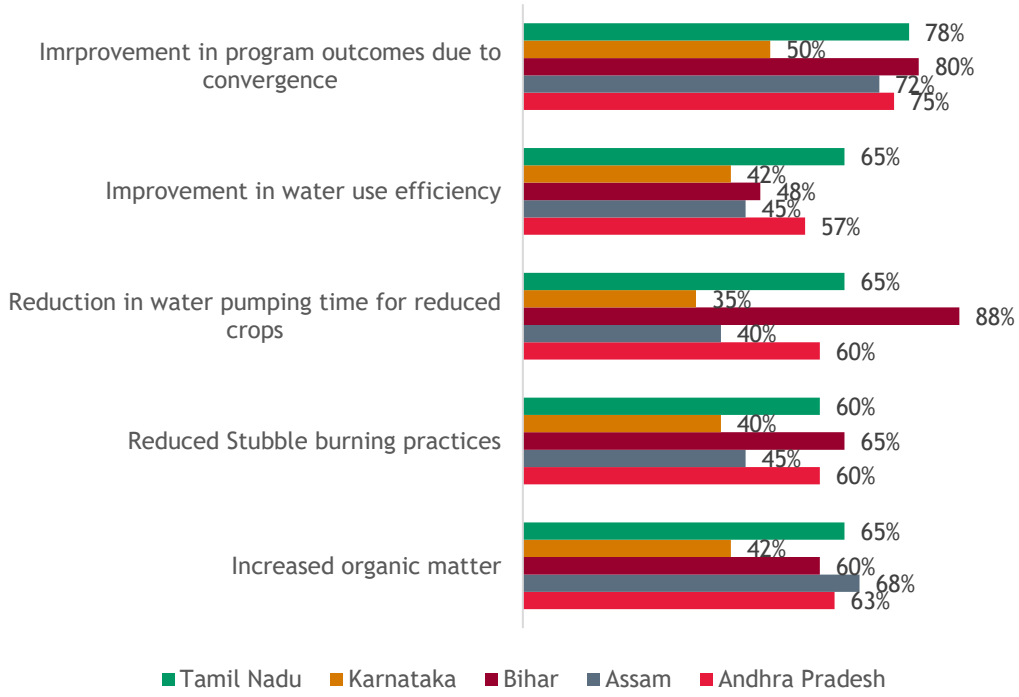
Establishment of Agri-Business Centres (ABCs)

- **ABCs were established through CSA** to provide localized access to equipment, inputs, and demonstrations under MSK interventions. They also **served as hubs for Custom Hiring Centres** offering water-related equipment.

Convergence efforts

- MSK **aligned with line departments via ATMA coordination, KVK partnerships, connected farmers with the right schemes** and supporting them in maintaining key documents for scheme access and **linking them with banks**.

Impact of programme activities (Treatment)



This is a multiple-choice question and the response total for a particular state may be more than 100%.

Detailed impact of programme activities (1/3)

Adoption rate of sustainable agricultural practices

Practices	Andhra Pradesh		Assam		Bihar		Karnataka		Tamil Nadu	
	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control
Direct Seeded Rice (DSR)	44%	12%	74%	47%	36%	20%	38%	12%	67%	27%
Reduced/Conservation Tillage	18%	6%	20%	9%	22%	10%	16%	6%	52%	34%
Mulching	32%	13%	21%	6%	14%	8%	17%	7%	18%	8%
Integrated Crop Management Practices (IPM/INM)	43%	30%	82%	36%	73%	43%	66%	40%	68%	48%
Drip Irrigation	32%	18%	14%	7%	22%	12%	43%	13%	23%	11%
Alternate Wetting and Drying (AWD)	38%	8%	26%	14%	35%	21%	34%	9%	56%	12%

Climate-smart agriculture adoption shows state-specific transition pathways rather than a uniform maturity pattern. Tamil Nadu reflects consolidation in water-efficient and conservation practices, while Karnataka demonstrates strong progress in irrigation-led intensification and integrated crop management. Andhra Pradesh shows broad-based programme-driven adoption across practices. Assam exhibits rapid scaling in select high-impact practices, indicating strong uptake potential with continued technical support. Bihar reflects gradual but consistent movement towards scientific agronomic practices, with scope for further deepening adoption.

- **Adoption of climate-smart practices is higher in programme villages** due to effective Farmer Field Schools and demonstration-based learning, with IPM, nutrient management and improved irrigation scheduling becoming mainstream.
- **Majority of paddy-growing treatment farmers adopted DSR**, especially in Assam and Tamil Nadu; IPM/INM was found to be prominent in all States; drip irrigation adoption was highest in Karnataka, followed by Andhra Pradesh, indicating stronger irrigation-led CSA adoption in these geographies.
- **Water-efficient practices such as Alternate Wetting and Drying (AWD) have been gaining traction across programme geographies.** AWD adoption was highest in Tamil Nadu at 56% among treatment farmers, while other states showed moderate uptake, ranging from 26% in Assam to 38% in Andhra Pradesh.
- **Adoption remains lower in control villages** due to weaker training exposure and limited collective learning platforms, highlighting the programme's role in accelerating behavioral change.

Detailed impact of programme activities (2/3)

Summary of impact on Cost of Cultivation and Yield

Treatment group performance better than control group

Crop	Group	Cost Pre-Intervention (in INR per Acre; baseline)	Cost at the time of Evaluation (in INR per Acre)	Cost change	Yield Pre-Intervention (in Quintal per Acre; baseline)	Yield at the time of Evaluation (in Quintal per Acre)	Yield change
Wheat	Treatment	17,981	14,114	22% Decrease	16.94	22.01	30% Increase
	Control	20,210	19,812	2% Decrease	14.51	17.56	21% Increase
Paddy	Treatment	21,449	18,275	15% Decrease	16.88	20.16	19% Increase
	Control	20,991	24,615	17% Increase	17.91	19.83	11% Increase
Maize	Treatment	18,910	18,284	3% Decrease	18.16	22.38	23% Increase
	Control	21,097	22,676	7% Increase	17.11	18.56	8% Increase
Millets	Treatment	21,017	21,040	0.1% Increase	8.14	9.28	14% Increase
	Control	20,698	20,827	0.6% Increase	7.60	8.06	6% Increase
Chilli	Treatment	39,648	34,438	13% Decrease	17.19	19.05	11% Increase
	Control	48,115	46,115	4% Decrease	19.92	20.31	2% Increase
Onion	Treatment	21,102	16,967	24% Decrease	80.00	94.25	18% Increase
	Control	Not Grown	Not Grown	Not Grown	Not Grown	Not Grown	Not Grown
Vegetables (Excluding Onion & Chilli)	Treatment	23,730	22,950	3% Decrease	30.90	42.10	36% Increase
	Control	19,636	23,564	20% Increase	28.76	33.96	18% Increase
Banana	Treatment	21,500	18,000	16% Decrease	182.86	228	25% Increase
	Control	Not Grown	Not Grown	Not Grown	Not Grown	Not Grown	Not Grown
Fruiting Trees/Crops (Excluding Banana)	Treatment	22,895	19,003	17% Decrease	22.34	34.86	56% Increase
	Control	15,000	13,050	13% Decrease	18.76	24.34	30% Increase

- **Productivity gains across crop categories**: Yield improvements were observed in both staple crops and high-value crops. Staple crops such as wheat and paddy recorded moderate increases, while horticulture crops (vegetables, onion, fruit crops) showed relatively higher growth, indicating stronger gains under diversified cropping systems.
- **Horticulture crops driving highest yield growth**: High-value crops showed the largest productivity improvements, including vegetables, onion, and fruit crops, highlighting the programme's strong impact on diversified and high-value farming systems.
- **Improved agronomic practices reduced cultivation costs**: Improved agronomic practices were associated with reduced cultivation costs for several major crops, particularly wheat, paddy, chilli, banana and fruiting tree crops.
- **Fruiting trees show early progress toward long-term yield and livelihood security**: Increase in fruit yield was observed in treatment orchards compared to baseline levels, indicating improved survival, better crop management, and early stabilization of plantations. However, given the inherent gestation period of perennial fruit crops, this yield gain reflects progress towards long-term livelihood security.

Note: Cost of cultivation and net income values are based on respondent-reported crop-wise estimates and may reflect different cost components captured across crop categories.

Detailed impact of programme activities (3/3)

Summary of impact on Gross Income and Net Income Gain (Crop Wise)

Crop	Group	Gross Income Pre-Intervention (in INR per Acre per cropping cycle; baseline)	Gross Income at the time of Evaluation (in INR per Acre per cropping cycle)	Gross Income change	Net Income Pre-Intervention (in INR per Acre per cropping cycle; baseline)	Net Income at the time of Evaluation (in INR per Acre per cropping cycle)	Net Income change
Wheat	Treatment	27,948	36,891	32% Increase	9,979	14,769	48% Increase
	Control	25,189	30,227	20% Increase	9,967	12,359	24% Increase
Paddy	Treatment	27,670	35,418	28% Increase	10,751	14,775	37% Increase
	Control	36,180	38,692	7% Increase	9,438	10,345	10% Increase
Maize	Treatment	34,445	44,401	29% Increase	15,976	22,047	38% Increase
	Control	29,517	33,240	13% Increase	8,421	10,442	24% Increase
Millets	Treatment	15,162	22,031	45% Increase	5,145	6,586	28% Increase
	Control	14,536	17,600	21% Increase	4,838	5,309	10% Increase
Chilli	Treatment	1,54,731	1,73,152	12% Increase	53,785	67,867	26% Increase
	Control	1,72,371	1,79,467	4% Increase	67,564	71,287	6% Increase
Onion	Treatment	50,250	71,355	42% Increase	33,283	51,589	55% Increase
	Control	Not grown	Not grown	NA	Not grown	Not grown	NA
Vegetables	Treatment	84,063	1,11,891	33% Increase	33,622	48,326	44% Increase
	Control	87,362	1,03,511	18% Increase	34,986	43,583	25% Increase
Banana	Treatment	1,67,467	2,23,064	33% Increase	62,879	92,843	48% Increase
	Control	Not grown	Not grown	NA	Not grown	Not grown	NA
Fruiting Trees/Crops	Treatment	77,376	89,567	16% Increase	45,268	54,893	21% Increase
	Control	63,784	67,546	6% Increase	36,741	39,842	8% Increase

- **Income gains:** CSA treatment farmers reported income gains across major crops, with stronger improvements observed in high-value crops such as onion, vegetables and banana, while gains in staple and perennial crops varied by crop type and production context.
- **High-value crops/cash crops drove stronger gains:** Onion, vegetables, and fruit crops recorded the highest income improvements, indicating the strong impact of diversification towards horticulture.
- **Stable improvements in staple crops: ITC MSK supported beneficiaries growing** wheat, paddy, and maize showed higher income growth compared to control group respondents, reflecting improved productivity and farm management practices.
- **Higher net income due to cost efficiency:** Net income increased faster than gross income in several crops, suggesting reduced cultivation costs and improved input efficiency.

Gross Income: *Total crop value per acre (yield × farm-gate price) before costs.*

Net Income: *Earnings per acre after deducting all cultivation and operating costs.*

Increase rate of ITC MSK intervention group higher than control group

Increase in ITC MSK intervention group

Findings by OECD DAC Framework (1/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Relevance - High	• CSA interventions were rated highly relevant across programme geographies as they directly addressed farmers' priority risks such as erratic rainfall, heat stress, pest outbreaks and rising input costs. Training modules on crop-specific CSA packages, soil health management and water-efficient practices were aligned with local cropping systems (paddy, maize, vegetables, pulses), enabling practical adoption. • The programme design was particularly suited to small and marginal farmers, who constituted the surveyed treatment group, who required low-cost, risk-reducing agronomic solutions to stabilise productivity under climate variability.	Crop-wise List of all the Major CSA Practices Promoted, Under MSK Intervention; Impact on Area Covered by Water Use Efficient Practices in Programme Catchment; FFS Training Effectiveness, Knowledge Dissemination and Adoption, CSA Role in Climate Resilience, Cascading Benefits Beyond Income
Effectiveness - High	• The programme was effective in driving behavioural change and improving adoption of climate-resilient agronomic practices. A majority of treatment farmers participated in multiple FFS sessions, resulting in improved knowledge of soil health management, risk mitigation and climate-resilient agronomy. • Treatment farmers showed higher adoption of climate-smart practices, especially IPM/INM, DSR and AWD, with uptake generally 1.5–3x higher than control groups, indicating strong programme-driven behavioural change. • Some treatment farmers reported improved ability to cope with extreme weather events relative to control respondents, based on survey responses during the study period.	Impact on Productivity, Cost of Cultivation, Gross Income and Net Income for the Major Crops Grown; Input and Mechanisation Cost Savings, Credit and Interest Savings, Scheme-Linked Income; Impact on Area Covered by Water Use Efficient Practices in Programme Catchment; Comparison with Conventional Practices
Efficiency - Medium-High	• CSA interventions improved operational efficiency through reduced labour requirements, improved irrigation scheduling and collective access to farm machinery. Treatment farmers reported labour drudgery reduction of ~13 hours per season, alongside reduced input intensity due to better nutrient and pest management practices. • Mechanisation platforms such as CHCs and pooled procurement systems further lowered cultivation costs.	Crop-wise List of all the Major CSA Practices Promoted, Under MSK Intervention; Impact on Area Covered by Water Use Efficient Practices in Programme Catchment; FFS Training Effectiveness, Knowledge Dissemination and Adoption, CSA Role in Climate Resilience, Cascading Benefits Beyond Income; Comparison with Conventional Practices

High | Medium-High | Low

Findings by OECD DAC Framework (2/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Coherence - High	• CSA interventions showed strong institutional coherence by reinforcing government extension services and scheme convergence mechanisms. The programme supported uptake of Soil Health Cards, crop insurance, mechanisation schemes and micro-irrigation subsidies, ensuring alignment with national and state agricultural priorities. • Farmer Field Schools functioned as an effective delivery platform for disseminating climate-resilient practices, and FPO linkages strengthened input and service access. Qualitative evidence consistently indicated that programme efforts complemented rather than substituted public extension systems.	Impact on Productivity, Cost of Cultivation, Gross Income and Net Income for the Major Crops Grown (primary); Input and Mechanisation Cost Savings, Credit and Interest Savings, Scheme-Linked Income (primary)
Impact - High	• CSA interventions contributed to improvements in crop productivity, resilience and diversification. Treatment farmers reported increased cropping intensity, reduced yield losses during extreme climatic events and shifts towards vegetables and other higher-value crops. Soil health improvements such as better moisture retention and increased organic matter were widely observed, indicating environmental co-benefits.	Impact on Area Covered by Water Use Efficient Practices in Programme Catchment (primary); Impact on Productivity, Cost of Cultivation, Gross Income and Net Income for the Major Crops Grown; Crop-wise List of all the Major CSA Practices Promoted, Under MSK Intervention; FFS Training Effectiveness, Knowledge Dissemination and Adoption, CSA Role in Climate Resilience, Cascading Benefits Beyond Income
Sustainability - Medium - High	• Prospects for sustaining CSA outcomes are favourable due to strong behavioural adoption and peer learning networks through FFS groups. • A majority of treatment farmers expressed willingness to continue practices such as DSR, IPM and water-efficient irrigation beyond project support. Institutional anchoring through government extension systems and FPO platforms further strengthens sustainability prospects.	FFS Training Effectiveness, Knowledge Dissemination and Adoption, CSA Role in Climate Resilience, Cascading Benefits Beyond Income (primary); Impact on Productivity, Cost of Cultivation, Gross Income and Net Income for the Major Crops Grown; Comparison with Conventional Practices

High | Medium-High | Low

Key Programmatic Recommendations

1

Accelerate scale-up of proven water-efficient and yield-enhancing agronomic practices

Treatment farmers consistently showed higher adoption of CSA practices such as DSR, IPM/INM, AWD, drip irrigation, mulching, and irrigation scheduling compared to control groups. These practices were linked to lower cost of cultivation, improved yields, and stronger resilience to water scarcity and climate shocks. **Scaling these practices across larger farmer cohorts can materially improve farm profitability and reduce climate-related production risks.**

2

Institutionalise climate-aligned crop planning and risk advisory systems

Farmers in treatment areas reported lower exposure and yield loss from climate risks such as delayed monsoon, untimely rainfall, heat stress, water scarcity, and pest outbreaks. **FFS, WhatsApp advisories, KVK inputs, and demonstration-based extension were key drivers of this improved preparedness.** Integrate **hyper-local digital decision-support platforms** into routine extension delivery. ITC can scale mobile-based advisories in regional languages using **satellite and weather data for real-time crop calendars, irrigation scheduling, and pest alerts, enabling farmers to respond proactively to climate variability**. Leveraging existing ecosystems such as **e-Choupal and ITC MAARS** can help reach larger farmer cohorts, improve productivity stability, and reduce income volatility through data-driven farm management at scale.

3

Improve access to quality inputs, mechanisation services and working capital

ABCs, FPOs, CHCs and other collective platforms **helped reduce input and mechanisation costs, improve access to institutional credit, and enhance scheme linkages.** Treatment farmers reported higher cost savings, better access to KCC/bank loans, and stronger uptake of soil testing and PM-KISAN benefits compared to control groups. Strengthen last-mile input supply chains, expanding custom hiring services, and facilitating timely credit through farmer aggregation platforms. ITC can further enhance resilience by **partnering with regional agricultural universities and research institutes** to promote climate-resilient seed systems, localised varietal adoption and field validation of improved practices—thereby reducing production risks, lowering per-acre costs and sustaining long-term CSA adoption.

4

Strengthen women-centric CSA interventions to enhance labour productivity and livelihood diversification

The study indicates that **women's participation in training and CSA-related farming activities has increased**, particularly in practices such as intercropping, bio-input preparation, and crop management. However, women's role in formal decision-making and financial decisions remains limited. Therefore, strengthen women-centric CSA interventions to enhance labour productivity and livelihood diversification. Targeted capacity building, aggregation support and market linkages can help promote women-led climate-smart enterprises such as nursery raising, bio-input production, small livestock management and value-added agri-activities, translating participation into higher income, improved agency and strengthened household resilience.

Section 3.C:
ON-FARM LIVELIHOOD DIVERSIFICATION - SOCIAL FORESTRY

Support Mechanisms and Beneficiary Gains

This section highlights the key findings of the impact created by the "Social Forestry" among the beneficiaries. The findings are based on survey responses received from 94 participants, of which 82 were from the treatment group and 12 respondents from the control group across Andhra Pradesh and Karnataka. The survey data is also supported by qualitative findings. Pre-post and treatment-control comparisons were undertaken, with baseline values primarily based on respondent recall and primary findings, wherever applicable.

Support received under the programme

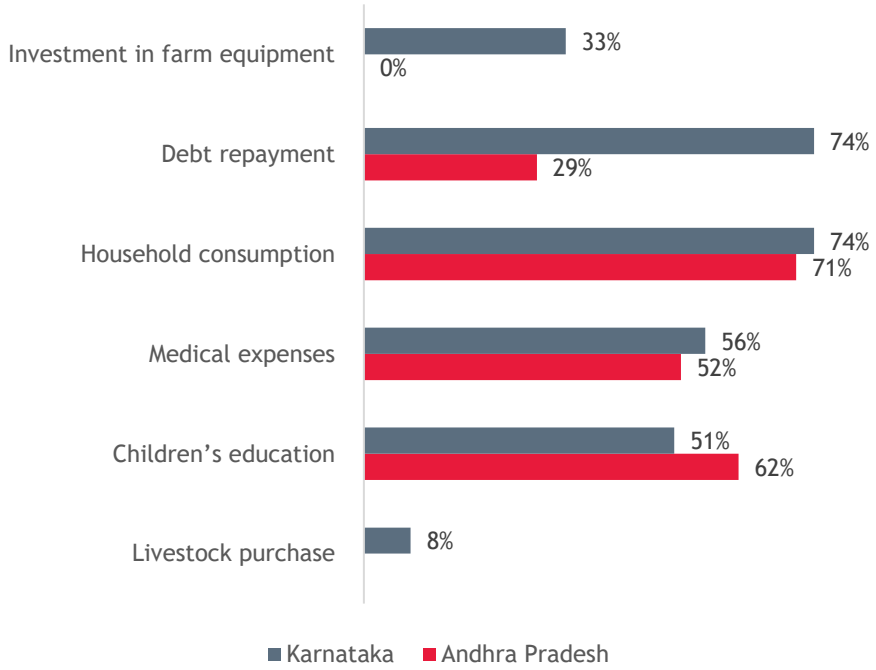
Plantation Establishment

- Design and promotion of context-appropriate agroforestry models such as bund/boundary plantations, block plantations, and mixed tree-crop systems
- Advisory on optimal spacing and plantation layout to balance tree growth, crop productivity, and future harvesting logistics, including guidance on row orientation, plant density, and compatibility with local cropping patterns.
- Support in species selection based on agro-climatic suitability, market demand, and livelihood objectives, covering pulpwood species (e.g., eucalyptus, casuarina, subabul), timber species (for example, melia dubia, silver oak) etc.
- Facilitation of productive use of marginal, degraded, or fallow land for tree-based systems, enabling farmers to convert underutilised land into long-term income-generating assets while enhancing soil conservation, micro-climate regulation, and resilience to climatic variability.

Convergence support

- The programme, in collaboration with the Forest Departments and nurseries, distributed **high-quality saplings of fast-growing species** like Eucalyptus, Subabul, Melia Dubia, Silver Oak, Mango, and Lime to farmers. This enhanced sustainable tree plantation practices.

Diversified use of additional income from Social Forestry intervention (Treatment)



This is a multiple-choice question and the response total for a particular state may be more than 100%.

Detailed impact of programme activities (1/3)

Maintenance practices adopted

What are the maintenance practices adopted by beneficiary and their family to sustain the SF?	Andhra Pradesh		Karnataka	
	Treatment	Control	Treatment	Control
Regular watering/routine care	43%	25%	58%	38%
Regular Weeding	42%	24%	55%	32%
Permanent Fencing	28%	12%	32%	14%
Regular Pruning	34%	13%	29%	15%
Mulching (Plastic/Natural)	14%	6%	12%	5%
No Maintenance Done (Self Growing)	16%	38%	14%	31%

Improvements observed after plantation

What all Improvements you have observed after plantation?	Andhra Pradesh		Karnataka	
	Treatment	Control	Treatment	Control
Improved soil moisture	64%	31%	52%	27%
Reduced soil erosion	56%	25%	58%	28%
Increased biodiversity (birds/insects)	32%	22%	38%	21%
Improved microclimate (cool shade, reduced heat)	41%	18%	34%	21%
Increased greenery on farm	48%	25%	45%	24%

- Respondents reported several **positive environmental improvements following plantation activities**, particularly in relation to **soil and farm ecosystem conditions**. A substantial proportion of treatment households observed **reduced soil erosion**, especially in Karnataka (58% reporting reduced erosion). Beneficiaries also noted increased greenery on farms, improved microclimate through shade and reduced heat, and moderate increases in biodiversity.
- **Mixed adoption of maintenance practices:** Treatment households reported higher adoption of routine plantation maintenance practices such as watering, weeding, pruning, fencing and mulching compared to control households, indicating stronger technical guidance and post-plantation care under the programme.
- **Programme influence on improved plantation management:** While basic maintenance practices are widely followed across both groups, the programme appears to have **enhanced beneficiaries' orientation toward structured plantation protection and sustainability measures**. Treatment villages also show **some uptake of fencing and other protective practices that are largely absent in control villages**, reflecting improved technical guidance and exposure provided through the intervention.
- Respondents reported visible improvements in vegetation cover, micro-climatic conditions and potential long-term income diversification, though sustained gains will depend on continued technical handholding, convergence with state level and local level Forestry Department schemes.

Detailed impact of programme activities (2/3)

Average survival rate of saplings

Average sapling survival rate (in %)	Treatment	Control
Pre-intervention (A)	32%	31%
Post-intervention (B)	68%	52%
Percentage point change (B-A)	+36 pp	+21 pp

- **Moderately higher survival in treatment villages:** Post-intervention sapling survival was higher in treatment villages at 68%, compared to 52% in control villages, indicating stronger plantation establishment in programme-supported areas.
- **Role of protective practices:** Higher survival in treatment areas is linked to greater adoption of protective measures such as fencing and mulching, along with improved technical awareness among beneficiaries.
- **Survival remains moderate overall:** Despite programme support, **survival rates remain below optimal levels across both groups,** reflecting challenges such as water stress, grazing pressure, and inconsistent maintenance during early growth stages.

Average Annualised yield (in Quintal/acre/year)

Type of tree	Treatment	Control
Eucalyptus	95.1	67.8
Subabul	98.7	69.3
Melia Dubia	91.6	Not Grown
Silver Oak	38.4	25.9

- **Higher annualized wood yield reported in select plantation species:** Treatment farmers reported **slightly higher yields for species** such as Eucalyptus (≈95.1 vs. 67.8 quintal/acre), Subabul (≈98.7 vs. 69.3 quintal/acre) and Silver Oak (≈38.4 vs. 25.9 quintal/acre), indicating productive plantation performance in supported areas.
- **Diversified plantation harvest across species:** Treatment plantations also reported **harvests from multiple species** such as Subabul, Melia Dubia etc. reflecting diversification of farm forestry systems and potential for supplementary income generation.

Cost of Cultivation per harvesting cycle (in INR) - Annualized

Type of tree	Treatment	Control	Decrease
Eucalyptus	43,238	49,500	13%
Subabul	14,667	28,000	48%
Melia Dubia	31,762	Not Grown	N/A
Silver Oak	21,273	28,500	25%

- **67% of treatment respondents reported reduction in cost of cultivation, compared to 33% in control,** indicating stronger farm-level economic benefits.
- Where comparable data were available, treatment farmers reported lower annualised cultivation costs for Eucalyptus, Subabul and Silver Oak, compared to control farmers. The reductions have been driven by **efficient use of irrigation, inputs and maintenance practices**, supported by programme-promoted guidance.
- Treatment farmers also benefited from **diversified multi-species plantations & intercropping**, reducing risk and dependence on single crops. In contrast, control farmers faced **higher and more variable input costs**, particularly in areas without structured support and advisory services.

Detailed impact of programme activities (3/3)

Cost of cultivation, gross income and net income (annualized)

Type of Tree	Gross Income (Treatment)	Gross Income (Control)	Cost (Treatment)	Cost (Control)	Net Income (Treatment)	Net Income (Control)
Eucalyptus	47,000	41,000	43,238	49,500	3,800	-8,500
Subabul	22,000	20,000	14,667	28,000	7,300	-8,000
Melia Dubia	45,000	Not Grown	31,762	Not Grown	13,200	Not Grown
Silver Oak	11,000	9,000	21,273	28,500	-10,300	-19,500

Note: Net income values are rounded to the nearest hundred

- The economic analysis highlights a shift in the viability of farm forestry under the intervention. Treatment areas demonstrate that tree-based systems, particularly for faster-growing species, have transitioned to income-generating source for the MSK beneficiaries. **Eucalyptus and Subabul show marked improvements**, moving from negative returns in control conditions to positive net incomes in treatment areas, driven not only by higher realisations but, more importantly, by improved cost efficiencies. Notably, Subabul reflects the strongest cost optimisation, indicating better management practices and input rationalisation.
- **Melia Dubia emerges as the most commercially attractive species within the portfolio**, delivering the highest net returns and indicating successful introduction of a high-value, short-rotation species in intervention areas.
- In contrast, while performance of Silver Oak improves under treatment, it has yielded negative returns in the current cycle, **which is consistent with its longer gestation period and positioning as a long-term timber asset rather than a short-term income source.**
- Therefore, in Andhra Pradesh and Karnataka, the programme appears to be supporting near-term livelihood gains through short-rotation commercial species, while also facilitating longer-term asset creation through diversified agroforestry systems.

Findings by OECD DAC Framework (1/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Relevance - High	• Social Forestry interventions were found to be highly relevant across programme geographies, particularly in addressing fuelwood scarcity, land degradation, income diversification needs and climate vulnerability among smallholders. • Beneficiaries highlighted that plantation support on bunds, fallow land and farm boundaries was aligned with local agro-ecological conditions and livelihood priorities. • The programme also responded to increasing pressure on common forest resources and rising input costs, making tree-based systems an important resilience strategy.	Survival Data of Plantations Done in 2023-24 - Plantation Model-wise; For Agro-Forestry and Bund Plantation Models: Crop Productivity, Cost of Cultivation, Gross Income; Cascading Impacts of the SF Programme (Asset Purchase, Children Education, Health, Other Impacts)
Effectiveness - Medium - High	• Programme-supported plantations demonstrated higher survival rates compared to control areas, reflecting improved establishment practices and follow-up support. • Treatment farmers also benefited from diversified multi-species plantations & intercropping, reducing risk and dependence on single crops. In contrast, control farmers faced higher and more variable input costs, particularly in areas without structured support and advisory services. • However, effectiveness varied across states due to uneven training coverage and differences in water availability, indicating scope for strengthening technical extension and post-plantation support.	Purposes for which Wood was Sold – Pulp, Energy, Agarbatti Bamboo, Others; Survival Data of Plantations Done in 2023-24 - Plantation Model-wise
Efficiency - Medium	• Social Forestry interventions contributed to moderate reductions in cost of cultivation and improved land productivity, particularly where tree integration supported soil fertility and moisture retention. 67% of treatment respondents reported reduction in cost of cultivation, compared to 33% in control. • Efficient utilisation of fallow or under-productive land enhanced overall farm returns, though delayed financial returns from tree harvest cycles affected short-term cost-benefit perceptions among some beneficiaries.	Survival Data of Plantations Done in 2023-24 - Plantation Model-wise; For Agro-Forestry and Bund Plantation Models: Crop Productivity, Cost of Cultivation, Gross Income

High | Medium-High | Low

Findings by OECD DAC Framework (2/2)

DAC Criterion and Overall Rating	Key Evidence Points	KPI Linkage
Coherence - High	• The programme demonstrated strong alignment with state forestry priorities, climate-resilient agriculture initiatives and watershed development programmes. • Convergence opportunities with government schemes related to agroforestry, plantation drives and soil conservation were evident in several locations. • Social Forestry interventions complemented Natural Resources Management and Climate Smart Agriculture activities, creating integrated farm-level resilience pathways through water conservation, diversified cropping and tree-based systems.	Cascading Impacts of the SF Programme (Asset Purchase, Children Education, Health, Other Impacts);
Impact - Medium to High	• The intervention contributed to visible environmental and livelihood impacts, including improved vegetation cover, reduced soil erosion and enhanced micro-climatic conditions. Treatment respondents reported moderate yield improvements (≈10–15%) in intercropped systems compared to ≈5–8% in control villages, along with improved risk distribution across farm enterprises. • Plantation adoption also supported long-term income diversification potential through timber, fuelwood and non-timber outputs, strengthening climate resilience among small and marginal farmers.	Cascading Impacts of the SF Programme (Asset Purchase, Children Education, Health, Other Impacts); Impact from Wood Harvest for Older plantations (annualized income from 2018-19/2019-20 harvests)
Sustainability - Medium	• Sustainability prospects appear positive in the assessed locations, while continued technical support and institutional convergence may strengthen long-term outcomes. However, risks remain related to water availability, pest management, and delayed economic returns from tree crops. • Strengthening community-based plantation monitoring, linkage with Forestry Department schemes and sustained advisory support will be critical to ensuring long-term ecological and livelihood benefits.	Impact from Wood Harvest for Older plantations (annualized income from 2018-19/2019-20 harvests); Survival Data of Plantations Done in 2023-24 - Plantation Model-wise

High | Medium-High | Low

Key Programmatic Recommendations

1

Institutionalize plantation maintenance systems to protect survival gains

Treatment areas recorded **consistently higher survival rates than control areas** across major species and plantation models. The findings also show that survival was closely linked to maintenance practices such as watering, weeding, fencing, pruning, and mulching, while lack of watering, fencing, and high initial maintenance costs were key barriers. Therefore, improvements need to be safeguarded **through formalised community maintenance funds, structured monitoring cycles and technical refresher support**. Converting plantation assets into durable livelihood and ecological outcomes requires moving from one-time planting to sustained management systems.

2

Scale agroforestry integration to unlock land productivity and income diversification

Agroforestry and intercropping models generated clear income diversification benefits, with **treatment farmers reporting around 33% improvement in intercropping income** compared to about 10% in control areas. Boundary and agroforestry models also helped farmers generate interim income while trees matured. Encourage **systematic integration of tree plantations with cropping systems** through intercropping models, bund plantations and use of fallow land. This can improve land-use efficiency, stabilise farm incomes and enhance climate resilience, particularly for small and marginal farmers.

3

Strengthen last-mile access to quality saplings and technical advisory services

Plantation outcomes varied by species, model, and geography. Andhra Pradesh showed stronger eucalyptus-led outcomes, while Karnataka had a more diversified portfolio with Melia Dubia and Silver Oak performing better under agroforestry systems. This points to the importance of species suitability, plantation planning, and technical handholding. There is a need to **standardise nursery quality, species suitability guidance and site-specific plantation planning**. Strengthening extension delivery and digital advisories can improve survival rates and long-term plantation productivity.

4

Enable forward market linkages to improve economic viability of plantations

Treatment farmers showed better commercial utilisation of harvested wood, especially for eucalyptus, subabul, and Melia Dubia. However, market access remains uneven, with Karnataka still relying on local traders and no visible uptake of certified/FSC-linked channels. Long gestation periods remain a key adoption barrier. Developing **aggregation platforms, buyer linkages and price discovery mechanisms for timber, fuelwood and allied products** will help translate ecological investments into tangible farm income opportunities.

Section 4:

Assessment Considerations and ‘Voices from the Grassroots’

Assumptions and Limitations

General Assumptions

- The assessment is based on information shared by ITC Limited, implementing partners, and programme beneficiaries, as well as primary data collected during field visits and stakeholder consultations.
- The analysis assumes that responses provided by beneficiaries and stakeholders were accurate and provided in good faith.
- Programme outcomes have been assessed within the defined scope and time horizon of the engagement and do not represent long-term impact trajectories.
- The study focuses on indicative programme contribution rather than strict attribution, recognising that external factors such as rainfall variability, market prices, government schemes, and local socio-economic conditions may influence observed outcomes.
- Findings are intended for internal management use by ITC Limited and should be interpreted alongside the detailed Impact Assessment report.

Methodological Limitations

- The assessment relies on sample-based household surveys and qualitative consultations, and therefore findings represent directional insights rather than statistically exhaustive conclusions.
- Recall bias may influence beneficiary responses, particularly for baseline conditions and income-related indicators.
- In certain locations, secondary project documentation (for example, MoUs, monitoring reports, survival registers) was limited; hence programme understanding was supplemented through stakeholder interactions and field observations.
- Seasonality and climatic variability during the assessment period may affect the comparability of agricultural productivity and water availability indicators.
- The assessment did not include independent technical verification of infrastructure performance, plantation biomass, or hydrological measurements, and relied on reported and observed indicators.
- Programme recommendations provided in the report are advisory in nature, and implementation responsibility rests with ITC Limited and its partners.

Voices from the Grassroots: Testimonials from MSK beneficiaries…

"Before the MSK (ITC)-NRM programme, groundwater was available only at 300-400 feet and we could grow just one crop, forcing migration. After creating 2 ponds and desilting 2 tanks with MYRADA, we now cultivate two seasons, use drip irrigation, reduce fertilizer and water use, increase income locally, and women actively participate in farming." - ***Water Usage Group member, Prakasam, Andhra Pradesh***

"Before the MSK (ITC)-CSA programme, farmers faced low produce prices, pest attacks, high fertilizer and pesticide costs, degraded soils, and severe water scarcity. With MSK facilitating PM-KISAN (₹20,000/year), PMFBY crop insurance, organic farming, crop rotation, and tree plantation, farmers reduced input costs, improved incomes, and restored greenery while reducing dependence on forests." - ***Village Sarpanch, ASR, Andhra Pradesh***

"Before the programme, traditional farming, irregular input availability, and extreme weather caused 20-30% crop losses, high costs, and low income. After Mission Sunhera Kal, FFS, and CSA practices like Zero Tillage, DSR, sprinklers, and modern machinery, my costs reduced by 20-25%, crop losses fell to 10-20%, and my income increased by 30-40%." - ***Lead Farmer, Lakhisarai, Bihar***

"Before the MSK (ITC)-CSA program, farmers faced low production, high input costs, frequent crop diseases, and had no strategies to manage floods and erratic weather. Through CSA practices, training and information from KVK and ATMA officials and access to affordable machinery via ABCs, farmers achieved a 10-20% increase in production, reduced input costs, improved weather resilience, better market access, and higher incomes with strong participation from women and marginal farmers." - ***FGD Testimonial, Bihar***

"Before the tank restoration, farming in Madapura village was highly rain-dependent, water storage was poor, and low yields caused financial stress for farmers. After ITC's tank desiltation work, water availability improved for longer periods, enabling expansion of cultivated area, multiple cropping, groundwater recharge, and an estimated 30% improvement in farming outcomes, leading to higher incomes and renewed confidence among farmers." - ***Farmer, Arakalagudu Taluk, Madapura Village, Karnataka***

"Before the CSA programme, farming in Doddanallala village relied on traditional practices, leading to low yields, high input costs, and limited technical knowledge. After CSA intervention and FFS trainings, farmers adopted scientific crop and water management practices, reduced fertilizer and water use, improved productivity and crop quality, and experienced positive gains in income and confidence in farming."- ***Farmer, Kolar District, Karnataka***

"Before the intervention, severe water leakage, low groundwater levels, and a shallow tank led to water scarcity, poor crop production, drinking water issues, and low agricultural income. After ITC desilted and deepened the tank and supported bund plantation, groundwater levels improved, two crops were cultivated, fodder availability increased, women began participating in farming, and overall agricultural income and water security improved." - ***Tank User Group, Tamil Nadu***

Before the MSK programme, low groundwater levels, poorly maintained ponds, and water scarcity limited farming to one crop and forced seasonal migration for work. After MSK desilted and deepened ponds, planted suitable saplings, and trained farmers, groundwater rose, two crops are now cultivated, agricultural incomes and fodder availability increased, women's participation improved, and seasonal migration reduced." - ***Panchayat Official, Tamil Nadu***

"Before the intervention, farming was rain-dependent with paddy and lentils, most land lay fallow, vegetables were market-dependent, and poor market access limited incomes—especially for women. After ITC-led FFS and ATMA demos, collective FPC procurement (~₹5 lakh pooled) cut input costs by 10-20%, brinjal expanded to 100+ bighas, and within ~4 years the village became a net vegetable producer with steadier, multi-month incomes for 500+ farmers" - ***Borgurakhuti, Assam***

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Note: This document has been prepared by BDO India Services Private Limited (BISPL) for ITC Limited as part of the Impact Assessment of the Mission Sunehra Kal (MSK) Programme, based on information obtained through field visits, stakeholder consultations, Key Informant Interviews (KIIs), Focus Group Discussions (FGDs), household/farmer surveys, and supporting documents/materials shared by ITC and Programme Implementing Agencies (PIAs). The analysis reflects the inputs received during these interactions and is intended solely for the purposes of this impact assessment.

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