

## THIRD-PARTY IMPACT ASSESSMENT

# Coffee Plantation and Allied Agriculture Activities for Sustainable Livelihoods Development

Tata Elxsi Limited | Programme Period: 2022–2026

## 1. Programme Context & Background

The Kodagu district cluster in Karnataka faces interconnected agricultural, environmental, and socio-economic challenges. The tribal communities in this region—specifically the Yeravas, Soligas, and Jenu Kurubas—experience acute livelihood pressures due to limited cultivable land (only 23.18% of the geographical area), water scarcity during non-monsoon months, low agricultural productivity, and frequent human-animal conflicts. These structural vulnerabilities have historically forced tribal households into precarious daily wage labor, leading to economic instability and distress migration.

To address these challenges, Tata Elxsi Limited partnered with the BAIF Institute for Sustainable Livelihoods and Development (BAIF) and implemented the "Coffee Plantation and Allied Agriculture Activities for Sustainable Livelihoods Development" project in Kodagu district, Karnataka. The project commenced in October 2022 and is being implemented across 18 tribal hamlets (Hadis), targeting 100% tribal communities. The project adopted an integrated approach centered on the Wadi agroforestry model (coffee, pepper, and forestry species), complemented by water resource development and allied livelihood activities like apiculture and poultry.

## 2. Programme Reach | Key Metrics (2019–2026)

The project has generated significant outputs, reaching 878 unique beneficiary households across multiple intervention components

<b>200 Acre</b> Wadi Developed/Rejuvenated	<b>2,45,00</b> Coffee Saplings Distributed	<b>103</b> Farm Ponds Established	<b>120</b> Solar Pumps Installed
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### 2.1 Wadi Agroforestry and Environmental Restoration

The core intervention involved the development of 100 acres of new Wadi and the rejuvenation of 100 acres of existing plantations. This large-scale agroforestry effort distributed over 2.45 lakh coffee saplings, 98,000 pepper saplings, and 47,500 silver oak seedlings. Environmentally, this transition has been profound: 86% of surveyed beneficiaries reported a noticeable increase in green cover on their lands. Furthermore, the 200 acres of Wadi are projected to sequester an estimated 1,863 tons of carbon by their fifth year of maturation, directly aligning local livelihood generation with global climate change mitigation goals.

### 2.2 Water Resource Management

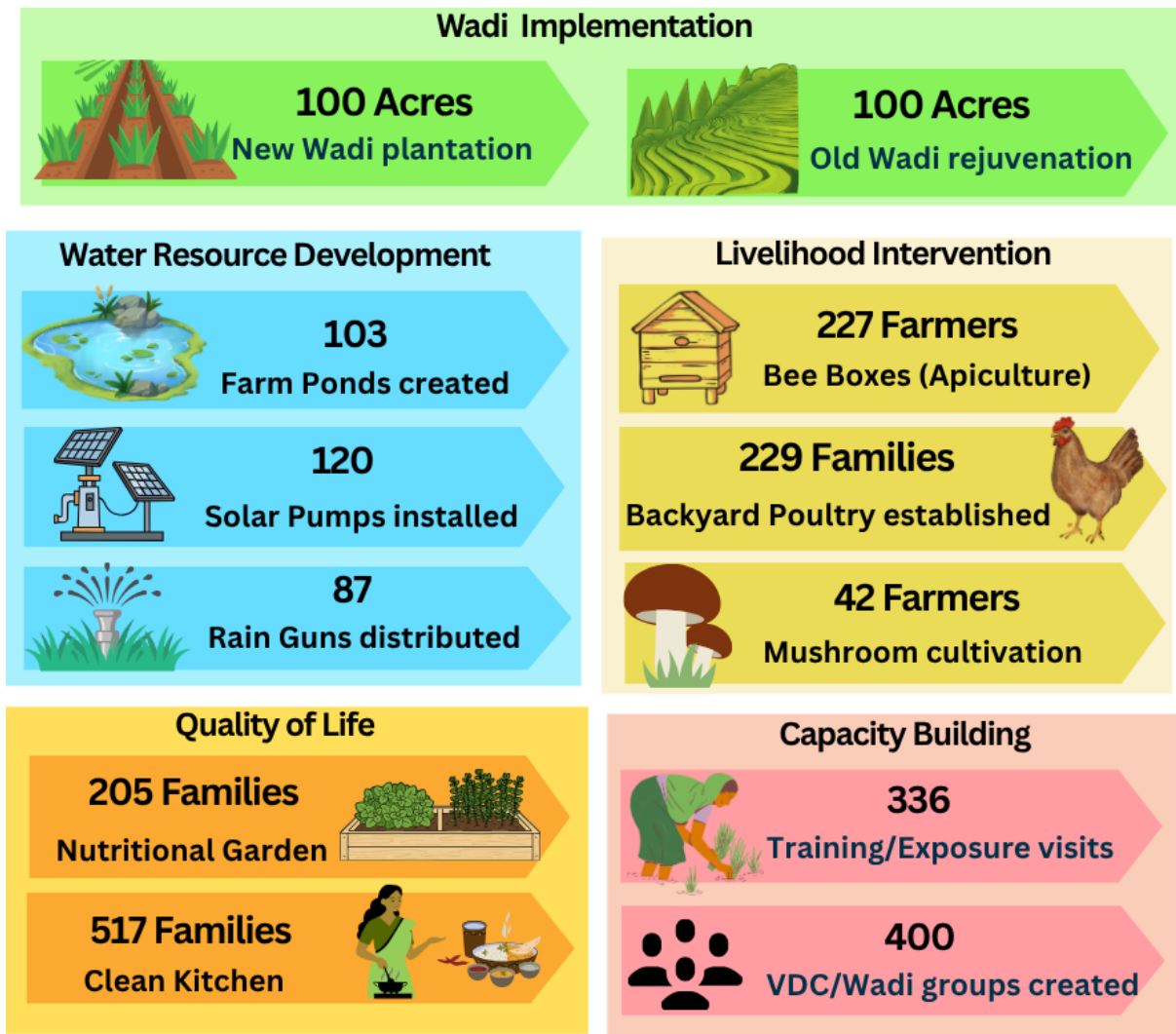
To combat non-monsoon water scarcity, the project successfully established 103 farm ponds, distributed 120 solar pumps, and provided 87 rain guns. This infrastructure provides critical supplementary irrigation, particularly crucial during the coffee flowering stage, which can double yields. Beneficiary households actively contributed to this infrastructure (e.g., ₹3,300 per household towards farm pond pipes, solar panel, poultry and honey bee box), demonstrating strong

community ownership. Approximately 75% of surveyed households acknowledged an increased availability of water for irrigation.

### 2.3 Economic Impact and Livelihood Diversification

The project successfully diversified income streams to provide short-term economic stability while the coffee plantations mature. Interventions included the distribution of bee boxes to 227 families and poultry support to 249 families. The economic transformation is significant: prior to the project, 87.8% of households relied on a single income source (primarily daily wage labour). Post- project, this dropped to just 14.8%, with over 81% of households now possessing two or three distinct income sources. Income distribution shows a significant upward shift post-project, with households in the ₹0–50k bracket reducing from 175 to 49, while those in the ₹60k–₹1 lakh and above categories increased substantially, indicating improved income levels across strata

## KEY PROJECT OUTPUTS 2022-2026



### 3. Assessment — REECIS Framework

This impact assessment was commissioned by Tata Elxsi and conducted by NuSocia (April 2026) using the OECD-DAC evaluation framework. The assessment utilized a mixed-methods approach, including secondary

document reviews, household surveys (196 tribal households), key informant interviews, and focus group discussions across five hamlets.

Dimension	Rating	Summary Observation
Relevance	High	The project directly addresses the structural vulnerabilities of tribal smallholders (water scarcity, low income). Coffee cultivation and allied activities are highly suited to the local ecology and tribal context
Effectiveness	Moderate to High	Strong achievements in water resource management and apiculture. Wadi sapling survival faces challenges (61.6% survival rate) due to water stress and wildlife conflict.
Efficiency	Moderate to High	Despite significant logistical constraints (remote geography, poor roads) and behavioral resistance from farmers, the BAIF team implemented adaptive management strategies, including intensive field monitoring and engagement with government officials. All planned activities were completed on schedule within the designated timeline. The investment of 2.82₹ crores reached 878 unique beneficiary households with 200 acres of agroforestry, 103 water structures, and multiple livelihood interventions.
Coherence	High	Strong alignment with national policies (National Agroforestry Policy, NMSA, PMKSY, IWMP, DAY-NRLM) and active convergence with Coffee Board of India and Krishi Vigyan Kendra for technical validation and support.
Impact	High	Demonstrated significant economic shifts (income diversification and overall household income increase) reducing single-source income dependency from 87.8% to 14.8% and significantly elevating household income brackets and environmental benefits (increased green cover and projected carbon sequestration).
Sustainability	Moderate	Strong community ownership of water assets via Village Development Committees (VDCs). However, long-term sustainability is challenged by a lack of structured, practice-oriented agricultural training

## 4. Programme Highlights

### Strategic Livelihood Diversification

The project's multi-faceted design successfully bridged the gap between short-term survival and long-term asset creation. By integrating immediate income-generating activities like apiculture (which yielded an average of 3.43 kg of honey per beneficiary) alongside the long-gestation Wadi plantations, the project provided a critical economic safety net that drastically reduced reliance on precarious daily wage labor. Beekeeping has emerged as a particularly successful intervention, with beneficiaries reporting annual income increases of ₹8,000–10,000 per family and expressing a strong commitment to sustaining the activity post-project.

### Community-Led Water Governance

The project leveraged existing community structures to manage shared resources effectively. Village Development Committees (VDCs) took active roles in coordinating the equitable use of shared solar pumps among farmers and mobilizing community financial contributions. This approach prevented conflict and ensured the efficient use of critical water infrastructure. VDC members have demonstrated clear commitment to long-term asset stewardship, treating the farm

ponds and solar pumps as permanent village infrastructure rather than a temporary project resources.

### Capacity Building and Training Requirements

While the project has provided awareness and asset distribution to beneficiaries, the assessment reveals that “training and capacity building remain a critical area of improvement”. Across all focus group discussions, beneficiaries consistently reported insufficient structured, practice-oriented training. Survey data shows that 163 beneficiaries (18.8% of total responses) identified “more training support” as the top improvement needed, with 109 specifically requesting advanced training for post-project sustainability. This training gap has directly constrained the effectiveness of multiple interventions: coffee sapling mortality (61.6% survival rate) has been partly attributed to inadequate knowledge of plant care and climate adaptation, poultry farming faced high attrition due to lack of disease management and breed selection training; and Mushroom cultivation was discontinued due to insufficient technical knowledge and market linkage support. Beneficiaries have explicitly noted that while they received awareness and inputs, they lacked the Package of Practices (POP) training necessary to effectively manage these interventions. This gap must be addressed through a comprehensive, multi-level training framework to ensure the sustainability and success of project outcomes.

### Recommendations for Scaling and Strategies

- 1. Comprehensive Training Framework at Three Levels:** Establish structured, practice-oriented training covering (a) technical training on core interventions including coffee/pepper cultivation, water resource management, disease management, and soil health; (b) post-harvest management and value addition, specifically wet processing techniques that can increase coffee value by nearly double, quality control procedures, and organic certification documentation; and (c) market linkages and institutional development through formation of Self-Help Groups (SHGs) and Farmer Producer Organizations (FPOs) for collective processing, branding of “tribal organic coffee,” and direct marketing channels. This comprehensive approach will address the critical training gap identified across all beneficiary groups.
- 2. Youth Engagement in Value Chain Activities:** Target youth (currently only 18% of beneficiaries) for specialized training in higher-value coffee value chain activities rather than basic cultivation. Youth should be specifically engaged in post-harvest operations, market linkages, and business management to ensure generational continuity of assets and knowledge, bring technical skills that enhance profitability, and create viable income opportunities that reduce distress migration.
- 3. Enhanced effectiveness of the solar pump with Battery Storage:** Upgrade solar pump installations with battery storage capacity to enable farmers to store excess solar energy during peak sunlight hours and access irrigation during non-sunny periods. This will eliminate diesel pump dependency, maximize annual cost savings year-round, improve crop productivity through consistent irrigation access during critical growth stages, and reduce environmental impact.
- 4. Livelihood Diversification:** Future livelihood interventions could prioritize beneficiary preferences and local conditions such as pig farming, duck/duckling rearing, fisheries in farm ponds, and animal husbandry. For existing interventions like poultry, prioritize disease management.
- 5. Continued Post-Project Monitoring and Support:** Implement continued monitoring and follow-up support for at least 12–18 months post-project completion to strengthen VDC governance structures and record-keeping systems, monitor livelihood intervention outcomes, and provide adaptive support where needed. Formal capacity-building sessions should be conducted for VDC members on asset management, maintenance protocols, and record-keeping before project completion.

**Conclusion**

*The project has driven a remarkable economic transformation, reducing single-source income dependency from 87.8% to 14.8% elevating household income brackets. Environmentally, the initiative increased local green cover and established critical water infrastructure that 75% of beneficiaries report improved irrigation access. The project's adaptive management approach successfully navigated significant logistical and behavioural challenges, completing all planned activities on schedule despite remote geography and initial community resistance. However, the assessment identified notable gaps: the Wadi sapling survival rate stands at a moderate 61.6%, hindered by wildlife conflicts and localized water stress. Allied activities like poultry faced high attrition due to disease. Most critically, the assessment reveals that training and capacity building represent the most significant constraint to sustainability and effectiveness. Beneficiaries consistently reported receiving awareness and assets but lacking structured, practice-oriented training (Package of Practices) necessary to maximize yields, manage diseases, and sustain interventions.*