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Transforming Tribal Livelihoods through CSR-Led Dairy Value Chain Development: A Case Study from TVS Srinivasan Services Trust's Initiative in Pudurnadu, Tamil Nadu

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Peer Review Information	Abstract
<p><i>Submission: 11 Jan 2026</i></p> <p><i>Revision: 22 Jan 2026</i></p> <p><i>Acceptance: 10 Feb 2026</i></p>	<p>Corporate Social Responsibility (CSR) initiatives in India increasingly emphasize sustainable livelihood interventions, particularly in rural and tribal settings. This study evaluates the Dairy Value Chain Project of TVS Srinivasan Services Trust (TVS SST) in Pudurnadu, a remote tribal region of Tamil Nadu, implemented in partnership with Hatsun Agro Product Ltd. The program established milk collection centers with bulk chilling facilities, provided farmer training, and conducted veterinary health camps to enhance productivity. Using a mixed-method approach—quantitative surveys of 50 farmers and qualitative interviews—the study assessed changes in livestock ownership, milk yield, and household income. Results indicate a significant rise in average cattle per farmer (from 1.1 to 4.1), daily milk yield (from 1.7 to 4.2 litres), and monthly income (from ₹2700/- to ₹7875/-). Beyond economic gains, the intervention fostered women's participation and integrated tribal farmers into the formal dairy economy. The findings highlight CSR's transformative potential in strengthening sustainable livelihoods, promoting socio-economic inclusion, and building resilience among marginalized tribal communities.</p>

Introduction

Corporate Social Responsibility (CSR) in India has increasingly emphasized sustainable livelihood interventions, with particular focus on rural and tribal communities. Among these, dairy-based value chain projects have gained prominence as effective mechanisms for reducing poverty, strengthening household incomes, and promoting economic inclusion.

Pudurnadu, a remote tribal settlement in the Javadhu Hills of Tamil Nadu, is inhabited by the Malayali tribes, who have historically depended on subsistence farming and forest-based activities. These households face limited access to sustainable livelihoods, organized markets, and institutional support, leaving them vulnerable to economic and social marginalization.

In response to these challenges, TVS Srinivasan Services Trust (TVS SST), the CSR arm of TVS Motor Company, launched a dairy-based livelihood initiative to connect tribal farmers to the formal dairy economy. The intervention emphasized livestock health, farmer training, and milk collection infrastructure, while also fostering community participation and women's involvement.

This study examines the impact of the initiative on tribal households in Pudurnadu, with specific attention to changes in productivity, income, and market participation. By situating the case within the broader discourse on CSR-led rural development, it contributes to understanding how corporate interventions can promote

resilience and socio-economic transformation among marginalized communities.

Background of the Study

Pudurnadu, situated in the Javadhu Hills of Tirupathur district, Tamil Nadu, is home to the Malayali tribes, a community that has long experienced marginalization, discrimination, and limited access to education, healthcare, and sustainable livelihoods. Their geographic isolation, reliance on traditional subsistence farming, and poor integration with formal markets have contributed to persistent socio-economic disadvantage.

In response to these challenges, TVS Srinivasan Services Trust (TVS-SST), the social arm of TVS Motor Company, initiated a dairy value chain project in partnership with Hatsun Agro Product Ltd. Launched in December 2022, the intervention sought to create market linkages and improve household incomes by establishing milk collection centers (MCCs) with chilling facilities, quality checks, and direct procurement arrangements with Hatsun. Beyond infrastructure, the program also extended credit access, technical guidance, and veterinary support to tribal farmers.

Capacity building formed a core component of the project. Farmers received structured training through the National Dairy Development Board (Erode) on disease control, shed management, feeding practices, and artificial insemination. More than 100 veterinary camps provided vaccinations, deworming, and livestock treatment. Importantly, the project encouraged community participation and women's involvement, ensuring greater ownership and long-term sustainability.

By embedding tribal farmers into the formal dairy economy, the initiative not only improved productivity and income but also addressed structural barriers to inclusion, underscoring the role of CSR-led interventions in fostering rural transformation.

Review of Literature

Corporate Social Responsibility (CSR) interventions are increasingly recognized as important enablers of livelihood transformation in tribal and rural India. Choudhury (2020), in a study from Tripura, demonstrated how CSR-driven initiatives improved household incomes and reduced marginalization, highlighting the potential of corporate engagement in addressing livelihood vulnerabilities.

Within the dairy sector, cooperative structures and NGO facilitation have been central to inclusive development. Evidence from the Nashik Tribal Milk Cooperative Federation (Pashudhan

Praharee, 2025) shows how collective action improved pricing mechanisms and veterinary access. Similarly, Sahoo (2024) highlights NGO-led interventions that provided training, market linkages, and long-term empowerment for dairy producers in remote areas.

Another strand of scholarship emphasizes value chain strengthening through institutional collaborations. The FAO-NDDDB (2025) case study from Chambal illustrates how structured milk value chain development enabled farmers to overcome infrastructure barriers. Gammon (2017) provides evidence from Tamil Nadu that village milk collection centers not only enhanced farm-level incomes but also strengthened women's participation in community institutions.

Technical and veterinary support have also proven pivotal. Rao (2024) reports that CSR-supported veterinary camps and improved feeding practices raised milk yields through better livestock care, while Singh et al. (2025) document how nutritional and health interventions boosted productivity and household resilience.

Women's empowerment emerges as a consistent outcome across dairy interventions. MSSRF (2017) found that women's participation in village milk centers enhanced decision-making and mobility, while Cairn India (2025) shows how SHG-based dairy projects expanded credit access and promoted gender-inclusive growth.

Taken together, these studies demonstrate that CSR-led dairy initiatives deliver multidimensional benefits—raising incomes, embedding farmers in formal markets, and fostering resilience. However, gaps remain in understanding how such interventions operate in geographically isolated tribal regions with limited institutional exposure. This study addresses that gap through an assessment of TVS Srinivasan Services Trust's dairy value chain project in Pudurnadu, Tamil Nadu.

Research Methodology

The study employed a descriptive research design with a mixed-method approach to assess the multidimensional impact of the CSR intervention. The population comprised 350 dairy farmers in the Pudurnadu region, from which a sample of 50 respondents was drawn using simple random sampling to ensure representativeness and minimize selection bias. Quantitative data were collected through a structured questionnaire capturing changes in livestock ownership, milk yield, household income, and access to veterinary and training services. The quantitative findings were analyzed using descriptive statistics and paired

comparisons to assess changes before and after the intervention.

To complement this, qualitative data were gathered through semi-structured interviews and focused group discussions with selected farmers, enabling exploration of perceptions, challenges, and social outcomes such as women’s participation and community cohesion. The qualitative data were thematically coded to identify recurring patterns and insights.

Triangulation of both datasets provided a holistic understanding of the intervention’s outcomes, capturing not only measurable improvements but also nuanced transformations at the household and community level. Ethical considerations, including informed consent and confidentiality of respondents, were observed throughout the study.

Comparative Analysis of Key Indicators before and after the Intervention

Parameter	Before Intervention	After Intervention	Mean Difference	SD (Before)	SD (After)	SD (Diff.)	SEM (Diff.)	p-value
Number of Cows per Farmer	1.20	3.50	2.30	0.60	1.50	1.24	0.175	< 0.0001
Milk Produced per Farmer (Monthly)	90.0 L	262.5 L	172.5	45.0	112.5	92.8	13.1	< 0.0001
Income per Farmer (Monthly)	Rs. 2,700	Rs.7,875	Rs.5,175	1,350	3,375	2,783	394	< 0.0001

Improvement in Cattle Ownership

The intervention produced a marked increase in cattle ownership among participating farmers. The mean number of cows per farmer increased from 1.20 before to 3.50 after the intervention, indicating an average gain of 2.30 cows. This expansion in livestock assets suggests that the intervention successfully enhanced farmers’ capacity to invest in and manage cattle possibly through improved access to resources and training, through the CSR intervention a The change was statistically significant ($p < 0.0001$), confirming that the observed improvement was consistent and not attributable to chance variation within the sample.

Enhancement in Milk Production

A corresponding improvement was observed in milk production following the intervention. The mean monthly milk yield per farmer increased from 90.0 litres to 262.5 litres, representing an average rise of 172.5 litres per month. This substantial growth reflects both the increase in herd size and potential improvements in animal productivity, husbandry practices, and feeding management introduced through the program. Although individual variations were evident, the overall trend demonstrated a significant enhancement in output ($p < 0.0001$), indicating

that the intervention effectively translated asset gains into higher productive performance.

Increase in Milk-Based Income

The improvement in production capacity led to a significant rise in household income derived from milk sales. The average monthly income per farmer increased from Rs. 2,700 before to Rs. 7,875 after the intervention, amounting to a mean increase of Rs. 5,175 per month. This statistically significant improvement ($p < 0.0001$) highlights the program’s strong economic impact on participants’ livelihoods. The findings indicate that the intervention contributed not only to asset accumulation and productivity enhancement but also to sustainable income generation, thereby strengthening the overall livelihood resilience of farming households.

Interpretation of Results

The results presented in Table 1 highlight the significant changes experienced by farmers in Pudurnadu following the CSR-led Milk Value Chain intervention.

Major Change and Statistical Inference

The analysis reveals that the CSR-led dairy value chain intervention resulted in statistically significant improvements across three critical dimensions: livestock ownership, milk

production, and household income. The paired t-test results ($p < 0.0001$ for all three indicators) confirm that these improvements are not due to chance but reflect systematic changes attributable to the intervention. Among these, the increase in income stands out as particularly transformative, reflecting not merely incremental gains but a fundamental shift in economic security for participating households. These outcomes underscore the ability of CSR initiatives to deliver measurable and sustainable livelihood impacts. Collectively, the findings

provide compelling evidence of the effectiveness of CSR-driven value chain models in empowering marginalized tribal farmers and facilitating their integration into the formal economy.

Theory of Change Framework for CSR Dairy Value Chain in Pudurnadu

The Theory of Change (ToC) for the CSR-led dairy value chain intervention in Pudurnadu illustrates how targeted inputs and activities translated into measurable outputs, outcomes, and long-term impacts for tribal communities.

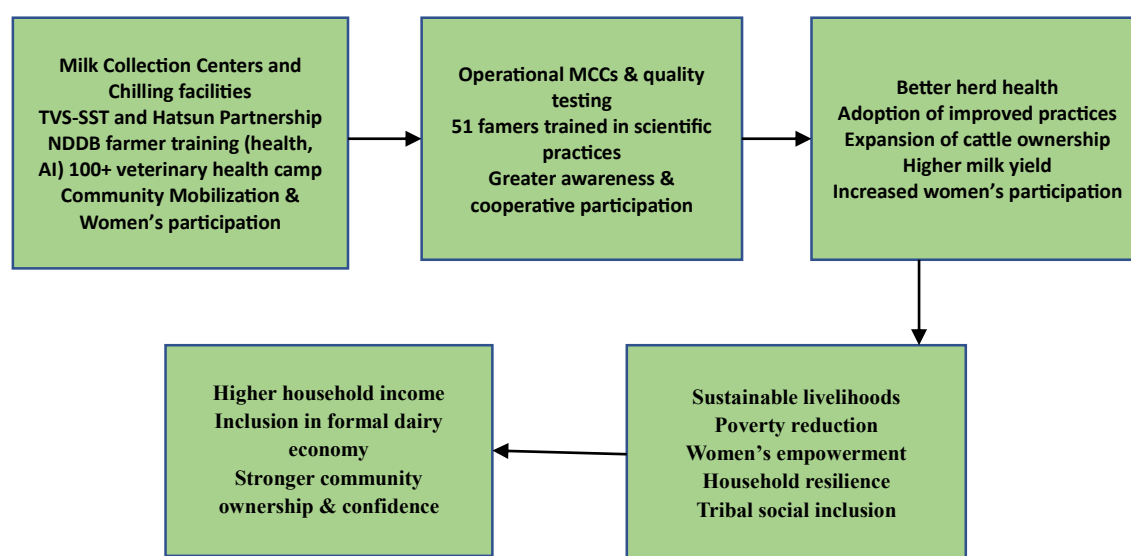


Figure 2: Theory of Change Framework

Figure 2 illustrates the Theory of Change (ToC) framework, showing how inputs and activities translated into outputs, outcomes, and long-term impacts.

Inputs and Activities

The CSR-led dairy value chain intervention in Pudurnadu was built on a series of targeted **inputs and activities** designed to integrate tribal farmers into the formal dairy economy. The initiative began with the establishment of Milk Collection Centers (MCCs) equipped with bulk chilling facilities to ensure efficient aggregation and preservation of milk. A strategic partnership between TVS Srinivasan Services Trust (TVS-SST) and Hatsun Agro Product Ltd. further guaranteed reliable market linkages for farmers.

To strengthen technical capacity, intensive training programs were organized, including a one-week course at the National Dairy Development Board (NDDDB) covering animal health, shed management, feeding practices, and artificial insemination. The program also

emphasized animal welfare through more than 100 veterinary health camps offering vaccination, deworming, and treatment services. Alongside these efforts, community mobilization and awareness campaigns were conducted, with special focus on enhancing women's participation in the dairy economy.

Outputs

These inputs translated into tangible outputs. MCCs became operational, providing aggregation, quality testing, and direct sales channels to Hatsun. Fifty-one farmers were trained in modern scientific dairy practices, while hundreds of others benefitted from veterinary services that reduced cattle morbidity and mortality. As a result, tribal households gained improved awareness and became active participants in dairy cooperatives, strengthening collective action within the community.

Short-term Outcomes

The intervention generated significant short-term outcomes. Preventive veterinary care improved herd health, while better feeding, disease management, and breeding practices were adopted. Farmers began expanding their cattle ownership, which in turn led to higher milk yields per household. Importantly, women assumed greater roles in milk pouring and cooperative decision-making, enhancing gender inclusivity in the process.

Intermediate Outcomes

These changes paved the way for intermediate outcomes. Households experienced higher incomes from increased milk sales, supported by fairer pricing through direct procurement linkages. Tribal farmers were gradually included in the formal dairy economy, and the cooperative structures fostered stronger community ownership and collective confidence.

Impacts

Over the long term, the initiative has the potential to deliver profound impacts. It promises to create sustainable livelihood opportunities for tribal households, reduce poverty, and mitigate livelihood vulnerabilities. Women’s economic empowerment and enhanced household resilience are expected to further transform

Pudurnadu from a subsistence-based farming community into a vibrant dairy-centered local economy. Ultimately, the project contributes to the greater social inclusion of marginalized tribal communities into mainstream economic systems.

Key Challenges Faced by Tribal Farmers

While the socio-economic transformation in Pudurnadu has been encouraging, tribal dairy farmers continue to face several constraints that limit the scaling up of operations:

1. **Credit and Finance** – Access to institutional credit remains limited. Farmers often depend on informal moneylenders, making it difficult to invest in high-yielding breeds such as Jersey, Holstein Friesian, or crossbreds.
2. **Shed Management** – Inadequate knowledge of ventilation, hygiene, and drainage practices contributes to poor housing conditions, increasing the risk of infections.
3. **Breed Suitability** – Exotic breeds are less adaptable to the hilly and rainy climate of Pudurnadu, resulting in higher disease incidence and mortality rates compared to indigenous varieties.
4. **Fodder and Feed** – Seasonal scarcity of quality fodder, coupled with land-use restrictions, hampers consistent livestock nutrition.

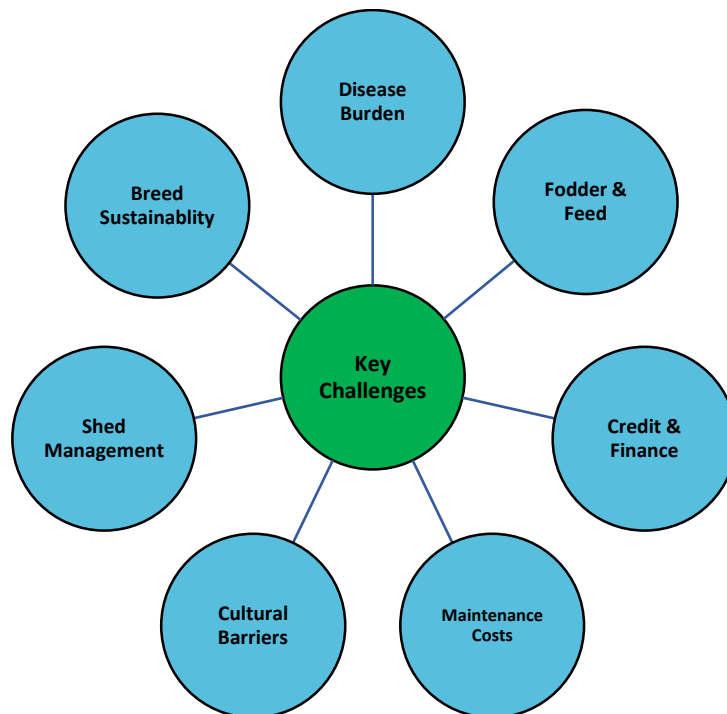


Figure 3: Network of Key Challenges Faced by Tribal Dairy Farmers

5. **Disease Burden** – Frequent outbreaks of foot-and-mouth disease (FMD), mastitis, and

parasitic infestations remain major threats to productivity.

6. **Maintenance Costs** – Rising expenses for feed, veterinary medicines, and animal care discourage herd expansion and long-term investment.

7. **Cultural Barriers** – A strong preference for traditional low-yielding breeds, combined with reluctance to adopt modern practices, limits the adoption of improved technologies.

Conclusion and Way Forward

The study demonstrates that the CSR intervention of TVS Srinivasan Services Trust (TVS-SST) in Pudurnadu successfully established Milk Collection Centers, bulk chilling units, and market linkages with Hatsun, thereby creating a structured dairy value chain for tribal farmers. Through intensive training, veterinary camps, and community mobilization, the initiative promoted healthier cattle and improved dairy practices. These efforts translated into significant increases in cattle ownership, milk production, and household income, highlighting CSR's transformative potential in empowering marginalized tribal communities and embedding them within the formal economy.

At the same time, persistent challenges—such as limited credit access, high maintenance costs, fodder scarcity, disease incidence, and cultural barriers—restrict the scaling up of benefits. Moving forward, stronger credit linkages, promotion of climate-resilient breeds, establishment of fodder banks, and expanded veterinary outreach will be crucial. Equally important are capacity-building and behavioural change programs that address cultural preferences and encourage modern practices. By combining these strategies with CSR-led institutional support, tribal dairy farmers can achieve sustainable livelihoods, enhanced resilience, and deeper socio-economic inclusion.

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