WRITESHOP PROCEEDINGS REPORT

Participatory Assessment of Agroecological Interventions

Evidence, Reflections, and Transition Pathways from Stakeholders in Telangana, India

SCALAGRO Project -Centre for Sustainable Agriculture (CSA)

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Abstract

This report presents the proceedings and analytical outcomes of the SCALAGRO Writeshop convened on 20 February 2026 at the Deccan Development Society's Krishi Vigyan Kendra (DDS-KVK), Zaheerabad, Telangana, India. The writeshop constituted a structured participatory knowledge synthesis exercise, convening eleven specialists encompassing agronomists, animal husbandry scientists, community mobilisers, and farmer practitioners, with the objective of critically evaluating five operational pilot interventions under the SCALAGRO project's India component.

These interventions, Bio-input Resource Centres (BRCs), Indigenous Poultry Systems, Large Livestock Support as a Community Revolving Fund, and a Bio-Village and Water Management initiative, collectively constitute a multi-pronged strategy for catalysing agroecological transition among smallholder farming communities in semi-arid Telangana. Thematic working groups examined each intervention against four analytical dimensions: technical performance, institutional governance, livelihood outcomes, and scalability. This report synthesises the empirical findings, community-generated evidence, and co-developed recommendations that emerged from those deliberations, with particular attention to the post-project sustainability of community-managed enterprises, the potential of indigenous livestock systems for nutritional and economic security, and the enabling conditions required for agroecological market linkages.

Keywords: *agroecology; bio-inputs; indigenous livestock; participatory guarantee systems; community enterprise; natural farming; Telangana; smallholder agriculture; writeshop methodology*

1. Introduction

1.1 Study Setting and Research Context

Smallholder agricultural systems across semi-arid Telangana and formerly northern Andhra Pradesh have undergone profound structural transformation over the preceding three decades, driven by the convergence of market liberalisation, the Green Revolution's input subsidy regime, and demographic shifts associated with rural out-migration. The progressive displacement of polyculture millet and pulse systems by commercial monocrops, principally cotton (Gossypium hirsutum L.) and soybean (Glycine max L.), has generated cascading ecological and socio-economic consequences: declining soil organic matter and microbial biodiversity, reduced on-farm fodder availability, contraction of livestock populations, and heightened household vulnerability to input price volatility and climatic shocks.

Agroecology, broadly defined as the application of ecological concepts and principles to the design and management of sustainable agricultural systems (Gliessman, 2015), has gained policy and practitioner attention as an alternative development pathway capable of simultaneously addressing food security, environmental sustainability, and rural livelihood objectives. The SCALAGRO project (Scaling Agroecology in India, Bolivia, and Burkina Faso) operationalises this framework through evidence-based participatory interventions, grounded in prior qualitative research with farmer communities in the study region. The project's India component is implemented through a partnership between the Centre for Sustainable Agriculture (CSA) and the Deccan Development Society (DDS).

1.2 The Writeshop as a Research Methodology

The writeshop, as a structured participatory methodology, occupies a distinctive position in qualitative research. Distinct from conventional knowledge dissemination events, a writeshop engages participants as co-producers of analytical outputs, combining field-based reflection, small-group deliberation, and collective synthesis to generate both empirical documentation and actionable knowledge (Vernooy et al., 2010). The SCALAGRO writeshop in February 2026 used this methodology to consolidate learning from the first operational phase of the five pilot interventions, identify implementation challenges, and co-develop community-endorsed transition roadmaps.

Participants were purposively selected to represent the full range of stakeholder expertise relevant to the project's thematic scope: agricultural science (agronomy, entomology, animal husbandry), community facilitation, grassroots farming practice, and programme management. This deliberate epistemic diversity ensured that technical findings were assessed against the lived realities of farming households, a methodological principle consistent with the tenets of transdisciplinary sustainability research (Lang et al., 2012).

1.3 Scope and Structure of This Report

This report is organised into eight substantive sections. Following a description of the writeshop methodology (Section 2), findings are presented across four thematic domains: Bio-input Resource Centres (Section 3), Livestock and Animal Husbandry Systems (Section 4), Community Governance and Institutional Sustainability (Section 5), and Youth and Women's Livelihood Pathways (Section 6). Section 7 presents prioritised recommendations for the project's next operational phase, and Section 8 offers a synthesis of the conclusions. All participant citations reproduce community voices as recorded during proceedings, identifying details are used only with the consent of named participants who are themselves project staff or public figures within the community.

2. Writeshop Methodology and Participant Profile

2.1 Event Design

The writeshop was structured into two sequential phases. The morning session comprised small-group deliberations on specific pilot interventions. Groups were constituted to maximise diversity of internal expertise: technical specialists and community practitioners were mixed rather than segregated, facilitating dialogue across the chosen themes of Bio-inputs/Non-Pesticide Management approaches and Livestock systems (Large livestock, goatery and poultry). The afternoon plenary session served as a synthesis forum, wherein group rapporteurs presented findings for collective review, interrogation, and consensus-building. Proceedings were documented in real time through structured note-taking and subsequently validated by participants.

2.2 Participant Profile

Eleven participants attended the writeshop, spanning five functional categories: research management, agricultural science, animal husbandry science, community mobilisation and facilitation, and farmer-practitioner representation. Table 1 presents the participant profile.

Participant	Designation	Specialisation and Relevant Experience
Dr. Shirisha Junuthula	Research Manager, CSA	Food systems, nutrition, and agricultural development; two years of direct field engagement with farming communities through the CSA.
Dr Gowri Shankar Rao	Agriculture Expert, CSA	Government agricultural institutions and seed systems; active collaboration with CSA and farmer organisations in the study region.
Mr Laxmi Bhairava Kumar	Programme & Research Manager, CSA	Twelve years of programme experience, including nine years in farmer training and a three-year fellowship in natural farming systems.
Dr. Ramesh	Agronomist, KVK	Organic farming systems; millet and sorghum seed conservation and improvement.

Dr. Kailash	Animal Husbandry Scientist, KVK	Poultry science, livestock management, and animal health systems.
Mr Vinay Kumar	Community Mobiliser, DDS	Livestock integration for household food security; facilitation of women's collective groups (Sangams).
Mrs Chukkama	Community Advocate, DDS	Former village schoolteacher (since 1987); sustained advocacy for single women and marginalised farming households.
Mr Prahalad	Sangam Supervisor, DDS	Adult education; oversight of Sangam group operations at DDS.
Dr. N. Snehalatha	Entomologist, KVK	Plant protection science; specialist in apiculture and biological pest management; quality oversight for BRC operations.
Mrs Chandu Bhai	Farmer &Karyakartha, Jamlai Thanda, Zaheerabad	Four decades of farming practice; expertise in heirloom seed conservation; management of BRC with DDS technical support.
Ms Goundla Mamatha	Research Associate, CSA	Monitoring and documentation of SCALAGRO India pilot interventions.

Table 1. Writeshop participant profile: designation and primary area of expertise.

3. Bio-input Resource Centres: Technical Performance and Scale-Up Pathways

3.1 Theoretical and Empirical Rationale

The increase of synthetic agrochemicals, principally nitrogenous fertilisers (urea, diammonium phosphate) and broad-spectrum pesticides, has substantially degraded soil biological communities across the study region. Soil microbial biomass and functional diversity are widely recognised as foundational determinants of agroecosystem productivity, nutrient cycling efficiency, and long-term soil carbon sequestration capacity (Barrios, 2007; Wall et al., 2015). BRCs are designed to address a specific market failure; despite growing policy and practitioner interest in biological inputs, commercially available microbial inoculants, biopesticides, and biofertilisers remain largely absent from rural agricultural input markets in semi-arid Telangana. This absence compels farmers either to produce inputs individually, an activity requiring specialised knowledge, dedicated infrastructure, and significant labour investment, or to forgo biological inputs entirely, continuing chemical dependency.

The BRC model operationalises the agroecological principle of 'closing ecological loops' (Wezel et al., 2014) by establishing community-level production facilities that convert locally available organic substrates into standardised biological inputs, thus substituting external agrochemical inputs with internally generated ecological capital.

3.2 Operational Performance of the DDS-KVK BRC

The BRC established at DDS-KVK under SCALAGRO serves as a demonstration, training, and production facility. As of the writeshop date, the facility comprises four production vessels with a capacity of 5,000 litres each, yielding an annual theoretical production volume of approximately 96,000 litres at full utilisation. Field application trials indicate that a smallholder farmer cultivating one to three acres requires approximately 20-25 litres of microbial consortium per application cycle, suggesting that current facility output is theoretically sufficient to supply approximately 4,500 cultivated acres per production cycle. Table 2 summarises key performance parameters.

Performance Parameter	Documented Value or Status
Production infrastructure	4 fermentation vessels × 5,000 L = 20,000 L total installed capacity
Annual production (theoretical)	~96,000 L under continuous 8 to 12-month operation
Application rate (smallholder farmers)	20-25 L per acre per application cycle
Coverage potential (current)	~4,500 cultivated acres per production cycle

Bio-inoculants produced	Rhizobium spp., Azospirillumbrasilense, Phosphate-Solubilising Bacteria (PSB), Potassium-Solubilising Bacteria (KSB), Zinc-Solubilising Bacteria (ZSB), Trichoderma harzianum
Biopesticides produced	Trichoderma viride, Pseudomonas fluorescens, Beauveria bassiana, Metarhizium anisopliae, Bacillus thuringiensis (Bt) var. kurstaki
Rabi season pilot	20 farmer households received 50 L each for application on maize and jowar; positive soil health and pest suppression outcomes reported
Training throughput	>150 farmer entrepreneurs and Farmer Producer Organisation (FPOs) members trained in production, quality assurance, and distribution
Input cost comparison	Natural farming inputs (bovine dung, urine, curd, local soil) are largely zero-cost vs. ₹ 1,500 per bag of diammonium phosphate; an estimated 50% reduction in total input costs is achievable

Table 2. Operational performance parameters of the DDS-KVK Bio-input Resource Centre (BRCs).

3.3 Identified Constraints and Risks

Three principal constraints to BRC performance and replication were identified during the writeshop discussions. First, contamination of microbial consortia by competing environmental microorganisms during the open-vessel fermentation process represents a technical quality risk with direct implications for product efficacy and farmer trust. Standardised production protocols, closed fermentation systems, and routine microbiological quality checks are required to mitigate this risk. Second, farmer awareness of the biological basis and agronomic benefits of bio-inputs remains insufficient to generate demand without sustained extension support; this educational deficit constitutes a significant adoption barrier independent of supply-side constraints. Third, the absence of viable market structures for agroecologically produced commodities, including the lack of Participatory Guarantee System (PGS) certification infrastructure, reduces the financial incentive for farmers to incur the transition costs associated with shifting from synthetic to biological inputs.

3.4 Proposed Community Cluster BRC Model

The writeshop converged on a spatially clustered community BRC model as the preferred architecture for scale-up. This model groups villages within an approximate 10-kilometre radius into operational clusters, each anchored by a BRC unit with a production capacity of 200-1,000 litres, calibrated to local agronomic demand. Management responsibility is to be vested in an identified youth enterprise leader or a Sangam collective, depending on cluster-specific social and organisational capacity.

Notably, during proceedings, it was mentioned that the Sarpanch of Jadimalkapur Gram Panchayat made a concrete commitment to this model, pledging to allocate free community land for the establishment of a BRC. Participating households from the Jadimalkapur community additionally committed to the termination of synthetic pesticide application and to the communal use of village water resources for bio-input preparation, a significant demonstration of community-endorsed behaviour change that warrants documentation as an evidence outcome in itself.

The writeshop further endorsed the recommendation that at least one Participatory Guarantee System (PGS) group be registered per mandal during the current agricultural season, with farmer coordination facilitated by the CSA's dedicated PGS team. PGS certification, as a participatory and low-cost alternative to third-party organic certification, is particularly relevant for smallholder producers who lack the resources to engage with formal certification bodies (Milestad&Dämmrich, 2003; Nelson et al., 2010).

4. Livestock and Animal Husbandry Systems

4.1 Ecological Function of Livestock in Agroecological Transition

Livestock integration is a foundational principle of agroecological farming systems, enabling the internalisation of nutrient cycles, the production of organic amendments for soil biological restoration, and the diversification of household income streams. In the study region, cattle and buffalo manure serve as the primary substrate for preparing Jeevamrutam (a fermented microbial inoculant) and other indigenous biological amendments, directly linking the livestock base to the BRC value chain and to the broader natural farming system.

The writeshop discussions surfaced a well-documented regional trend: the progressive attrition of livestock populations over the preceding three decades, driven by the contraction of common grazing lands following commercial crop expansion, escalating daily wage rates that render animal husbandry labour economically unattractive, and the dissolution of joint family structures that historically distributed the care burden across multiple household members. This livestock decline has created a structural dependency on externally sourced agrochemical inputs, undermining the circularity that is central to agroecological system design.

4.2 Seasonal Fodder Dynamics and Feeding Protocols

Writeshop participants documented a detailed seasonal fodder calendar reflecting the integration of crop residues and common grazing resources across the annual agricultural cycle. This calendar, presented in Table 3, has direct implications for the carrying capacity of village-level livestock systems and for the design of supplementary fodder programmes.

Season / Month	Primary Fodder Source	Nutritional and Management Implications
September	Green gram (Vigna radiata) husk	Moderate protein; marks the onset of residue-based feeding
October	Black gram (Vigna mungo) husk	High digestibility; mixed with other husks to increase intake
November	Soybean (Glycine max) husk	Elevated lipid content supports milk fat production
January	Red gram (Cajanus Cajan) husk	High crude protein supplements, dry fodder period
February	Bengal gram (Cicer arietinum) husk	Closes the legume residue cycle, combined with dry husk
March - July	Dry crop residue (pottu / dry husk)	Low nutritional quality; critical supplementation period requiring mineral mixtures
August -November	Green grass from common grazing lands	Optimal forage period; target ratio: 60% green: 40% dry fodder for peak milk yield and fat content

Table 3. Seasonal fodder calendar and nutritional management implications for smallholder livestock in the study region.

4.3 Livestock Distribution Models: Design and Economics

Three livestock intervention modalities were assessed during the writeshop: backyard poultry, small ruminant (goat) rearing, and large ruminant (cattle and buffalo) support. Each modality is calibrated to a distinct beneficiary profile, reflecting differentiated capacity, risk appetite, and livelihood objectives. Table 4 presents the economic parameters associated with each intervention type, derived from participant deliberation.

Intervention Type	Target Beneficiary	Operational Unit	Economic Parameters and Projections
Backyard Poultry (household scale)	Women farmers; women-headed households	25 indigenous hens per household	Rearing cycle: 6 months. Total cost per bird: ₹ 700 (chick: ₹ 120; feed/concentrates: ₹ 450; miscellaneous: ₹ 50). Market value at harvest: ₹ 1,000. Net

			profit per bird: ~₹ 300. Layer hens: ~200 eggs per cycle; equivalent income ~₹ 1,000 per hen. Breeds: Aseel, Sonali, Rajshri, Kadaknath, Naked Neck.
Poultry Enterprise (youth entrepreneurship)	Unemployed rural youth	250 hens (layers and broilers), with shed infrastructure	Capital requirement: ~₹ 50,000 (incubator and shed). Chicks are supplied at ₹ 120 each (no free distribution). Diversified revenue from meat sales (₹ 300/bird) and egg production (~200 eggs/layer). The model requires low-interest institutional credit to be viable.
Small Ruminants (goat rearing)	Single women; women-headed households (minimum); unemployed youth (commercial scale)	2 goats (1 male + 1 female) minimum; 20-25 goats for commercial scale	Birth: 2 kids per doe per 6-month cycle. Value per kid at 9 months post-weaning: ~₹ 15,000. Annual income potential per beneficiary: ~₹ 40,000. Manure yield: ~3 quintals per animal per year. Breeds: Boer and Osmanabadi (sourced from Nimkar, Maharashtra; Narayankhed and Mailaram markets).
Large Ruminants (cattle and buffalo)	Village smallholder families (1 unit per village; 10 families across 10 villages)	1 animal per household; 25% cows: 75% buffalo ratio	Financing: 75:25 co-investment model (project 75% at low interest; household 25%). Buffalo: milk production ~8 months per year; manure for natural farming inputs. Draught animals (oxen): ~20 working days/month during cropping season; hire rate ~₹ 3,000/day. All animals are insured via government registration. Repayments are pooled for revolving distribution.

Table 4. Livestock intervention types: target beneficiaries, operational units, and economic parameters.

4.4 Agro-Ecological Zonation and Species Suitability

Writeshop deliberations underscored the necessity of location-specific livestock planning as a condition for ecological and economic viability. A uniform distribution approach risks introducing species or breeds unsuited to local fodder availability, water regimes, or existing husbandry knowledge. Table 5 presents the location-specific suitability framework generated through community-informed deliberation.

Settlement Type / Locality	Recommended Livestock Focus and Rationale
Peri-urban villages with reliable irrigation access	Buffalo-based commercial dairy; milk collection centres with 300-litre daily capacity, managed by unemployed youth; proximity to urban market allows premium pricing.
Thandas (tribal hamlets, remote semi-arid locations)	Indigenous cattle breeds (Jersey × local crosses) and native Desi cows; low-input maintenance aligned with available fodder; ghee production for household use and local sale.
Yadav community (Backwards	Revitalisation of traditional goat rearing using improved breeds

Community) settlements	(Boer, Osmanabadi); this community retains residual husbandry knowledge, reducing training investment.
Ibrahimpur and comparable rain-fed villages	Goat rearing is already culturally embedded and ecologically suited; interventions should strengthen existing practices by improving access to breeds and veterinary support, rather than introducing new species.
All settlements (baseline intervention)	Backyard poultry (25 indigenous hens) for all women-headed and single-woman households; lowest-risk entry point for livestock diversification; immediate nutritional benefit.

Table 5. Agro-ecological suitability framework for livestock species and scale across settlement types.

5. Community Governance and Institutional Sustainability

5.1 The Post-Project Sustainability Problem

A central, methodologically well-grounded concern across all writeshop deliberations was the institutional architecture needed to sustain pilot enterprises beyond the SCALAGRO project period. The development literature identifies the distribution of assets without accompanying institutional scaffolding as a leading cause of community programme failure: physical assets are consumed, degraded, or appropriated without the governance structures needed to sustain their productive function (Pretty, 2003; Uphoff, 2000). Participants drew on institutional memory spanning four decades of community development work in the Zaheerabad region to assess which governance configurations have demonstrated durability in comparable contexts.

The agreement was that sustainable community enterprises in this setting require five enabling conditions: (i) a clearly defined legal or social institutional identity, whether a cooperative, registered Sangam, or Farmer Producer Organisation; (ii) transparent and participatory financial management systems with clear accountability mechanisms; (iii) defined leadership roles with legitimate community mandate; (iv) a revolving or pay-forward financing model that enables expansion without continued external subsidy; and (v) access to technical backstop support during the consolidation phase.

5.2 Pilot-Specific Governance Frameworks

Table 6 presents the governance frameworks developed through discussion for each SCALAGRO pilots.

Pilot Intervention	Proposed Institutional Form	Financial Sustainability Mechanism	Accountability and Oversight
Bio-input Resource Centres	Village cluster enterprise; Sangam collective or registered youth enterprise	Product sales revenue, PGS certification premium, and collective input procurement	Monthly production and sales accounts at the cluster level; KVK technical quality audit
Indigenous Poultry Systems	Individual women beneficiaries linked to the KVK brooding centre	Pay-forward model (2 eggs submitted = 1 chick received); community revolving fund	Monthly chick and egg exchange records at the brooding centre; DDS field monitoring
Large Livestock Support	Registered household beneficiaries under the DDS programme umbrella	75:25 co-investment with pooled repayment fund for next-cohort distribution	Government livestock tagging and insurance registration; mandatory training completion log
Community Revolving Fund	DDS-facilitated village-level corpus; Sangam managed	Interest-free or low-interest credit (0.5-1 Rs/ month) from Rang De or cooperative banks	Sangam-level loan register; quarterly DDS-KVK review meetings
Bio-Village and Water Management	Gram Panchayat and Sangam co-management committee (minimum 50% women)	Government convergence funds; community labour contribution; MGNREGS linkage	Gram Panchayat resolution; community water committee with quarterly reporting

Table 6. Proposed governance frameworks for SCALAGRO pilot interventions.

5.3 Revolving and Pay-Forward Models: Evidence and Design

Participants strongly endorsed revolving asset models over one-time distributions, citing accumulated regional evidence that the latter generate short-term benefit without creating self-sustaining community capital. Three specific mechanisms were validated and formally proposed:

1. The Poultry Revolving Model requires each of the ten initial beneficiary households (25 hens each) to return 50 fertilised eggs to the KVK brooding centre after six months. Re-entry of these eggs into the incubation cycle enables the centre to supply chicks to approximately 30-40 additional households per month at current infrastructure capacity, thereby expanding the network of beneficiaries without requiring a proportional increase in external investment.
2. The Dairy Revolving Model proposes the interest-free loan-based distribution of ten cows, with loan repayments pooled into a community fund for successive rounds of distribution. Milk collection centres with a capacity of 300 litres per day, managed by unemployed youth, are to be established at a ratio of 1 per 5 villages, creating both market infrastructure and rural employment opportunities.
3. The Goat Bank Model, already partially operationalised by DDS, provides one goat per beneficiary (prioritising single women) with the expectation that a proportion of offspring income is reinvested into the bank fund to finance distribution to subsequent beneficiaries. With typical parturition rates yielding two kids per six-month cycle and each kid valued at approximately ₹ 15,000 at nine months, the model generates meaningful income while building community-level genetic capital in improved goat breeds.

6. Youth and Women’s Livelihood Pathways

6.1 Gender as a Structural Dimension of Agroecological Transition

A growing body of evidence in feminist political ecology and agrarian studies has established that gender relations constitute a structural determinant of agricultural technology adoption, resource access, and the distribution of benefits from the agroecological transition (Agarwal, 2014; Rocheleau et al., 1996). In the study region, women’s labour is disproportionately engaged in livestock care, homestead food production, and the management of non-timber forest resources, precisely the domains targeted by SCALAGRO’s pilot interventions. The writeshop confirmed that single-woman and women-headed households face compounded vulnerability, combining reduced asset ownership with elevated exposure to health risks associated with agrochemical use.

> *“The removal of the uterus is not a traditional practice in this community, but because of pesticide exposure and changes in dietary patterns, many women have undergone hysterectomy in recent years.” — Community Karyakartha, as recorded during writeshop proceedings*

This observation, documented by multiple participants, situates agroecological transition as a public health imperative alongside its ecological and economic dimensions. The gynaecological health impacts of organochlorine and organophosphate pesticide exposure among agricultural women have been documented in comparable Indian farming contexts (Srivastava et al., 2017), lending scientific weight to this community-articulated concern. BRC establishment, indigenous poultry rearing, and goat distribution to women are therefore not merely livelihood interventions; they constitute harm-reduction measures with direct implications for women’s health and reproductive rights.

6.2 Characterising Youth Disengagement and Re-engagement

Rural youth disengagement from agriculture in the study region reflects a structural misalignment between educational attainment and available employment opportunities. Writeshop participants documented that a significant proportion of educated rural youth in the Zaheerabad area hold post-secondary qualifications in fields offering few local employment prospects, leading to engagement in low-wage peri-urban informal work, including platform-based food delivery and unskilled construction, or reliance on government wage employment schemes such as MGNREGS. Estimates from the writeshop suggest that only 20-30% of rural youth are currently engaged in agriculture as a primary or secondary livelihood.

However, a countervailing trend was documented: a subset of educated youth is demonstrating active interest in ecologically oriented, commercially structured agricultural enterprises, particularly in response to the growing consumer and policy discourse on organic food, natural farming, and rural entrepreneurship. This cohort represents a strategic target for SCALAGRO's next phase, as they bring literate, tech-capable human capital to agroecological enterprise management while being rooted in farming communities with the social networks necessary for effective community mobilisation.

6.3 Youth Enterprise Models: Design Parameters

Table 7 presents the enterprise models identified as best suited to youth engagement, with associated investment requirements and projected revenue streams.

Enterprise Model	Capital and Skill Requirements	Revenue Structure and Projected Returns
BRC Cluster Management	Technical training in microbial production protocols, quality management skills, village and demand mapping capability, and minimal fixed capital	Revenue from bio-input sales to local farmers; potential for PGS-premium market linkage; estimated to offset 50% of conventional input costs for adopting farmers
Commercial Poultry Enterprise (250 hens)	~₹ 50,000 for incubator and shed; institutional credit access at low interest; training in feed management, disease prevention, and breed selection	Meat revenue: ~₹ 300 net profit per bird over a 6-month cycle (Broilers); Layer income: ~200 eggs per hen at market rate; diversified income stream reduces revenue risk
Milk Collection Centre (dairy hub)	Cold storage and milk handling infrastructure; coordination with 5-village supplier cluster; basic financial literacy for centre management	Centre manager income from service fees and milk margin; community dairy revenue distributed to livestock suppliers; BRC benefits from a guaranteed manure supply
Commercial Goat Rearing (20-25 goats)	Access to Boer or Osmanabadi breeding stock (Narayankhed / Mailaram markets); adequate housing; access to institutional credit	Kid sales at 9 months post-weaning at ~₹ 15,000 each; 2 kids per doe per cycle; annual income potential of ₹ 3–4 lakh for a 20-goat enterprise; manure sold to BRC

7. Priority Recommendations

The following recommendations are the outputs of the writeshop discussions, organised by strategic domain. They are intended to guide the design of SCALAGRO's next operational phase.

Domain	Recommendation	Responsible Actor(s)
BRC and Natural Farming	Conduct systematic village and Sangam mapping within 10-kilometre clusters across the ~47 identified villages; establish BRC units (200-1,000 L capacity) before the Kharif 2026 season.	DDS Team
	Register all transitioning farmer households with the CSA-supported PGS certification system during the current season; establish one non-chemical demonstration village per mandal.	CSA PGS Coordination Team
	Train at least one to two technically proficient resource persons per village cluster in microbial production, quality assurance, and agronomic application; include entomological pest management training.	KVK Plant Protection Scientists
	Advocate through appropriate policy channels for minimum support price (MSP) coverage for organically produced millets in Telangana, replicating the Odisha Millet Mission policy architecture.	CSA Research Team

Livestock Systems	Operationalise the 75:25 co-investment model for large ruminant distribution across ten identified villages; complete animal registration and government insurance enrolment for all programme livestock.	DDS; KVK (Veterinary Scientist)
	Expand DDS-KVK brooding centre capacity; formalise and document the egg pay-forward protocol; target a minimum of 30-40 new poultry beneficiary households per month.	DDS; KVK (Veterinary Scientist)
	Prioritise goat distribution from the Goat Bank to single-woman and women-headed households; establish a formal goat bank fund accounting managed by DDS with Sangam oversight.	DDS; Women's Sangam Networks
	Establish at least one milk collection centre (with a 300 L/day capacity) per five-village cluster; appoint unemployed youth as centre managers, with institutional credit support.	KVK; Rang De or Partner Bank
Community Governance	Develop standardised governance and financial management templates (account books, role descriptions, reporting formats, review cycles) for each pilot enterprise type; pilot in three villages before scaling.	CSA Research and Knowledge Management Teams
	Constitute a community monitoring committee (minimum 50% women representation) for each pilot, with quarterly DDS-KVK review meetings and annual external evaluation.	DDS Community Mobilisation Team
	Secure Gram Panchayat resolutions and formal land-allocation agreements for the BRC establishment in priority villages; use the Jadimalkapur model as a replicable template.	DDS; Gram Panchayat Leadership
Youth and Women	Design and deliver a structured rural enterprise development programme for identified youth, combining technical training (BRC, poultry, dairy management) with financial literacy and market linkage facilitation.	CSA; KVK; DDS Teams

Table 8. Priority recommendations by strategic domain, with responsible actors.

8. Conclusion

The SCALAGRO Writeshop in February 2026 generated substantive empirical and analytical outputs that extend beyond documenting pilot performance to constitute a community-validated evidence base for the next phase of the project's design. The proceedings confirmed that agroecological transition in semi-arid Telangana is grounded in a material and groundwork that decades of chemical-input agriculture have worn but not destroyed: farmers retain indigenous ecological knowledge, communities retain institutional memory of collective resource management, and a new generation of educated youth is beginning to re-engage with agriculture when presented with commercially viable and ecologically meaningful enterprise models.

Three cross-cutting findings merit particular attention from donors and implementing partners. First, the integrity of nutrient cycles, specifically, the flow of organic amendments from livestock systems through BRCs to soils and crops, is the biophysical foundation upon which all other agroecological interventions depend. Investment in livestock systems is therefore not peripheral to BRC and natural farming objectives but constitutive of them. Second, the sustainability of pilot enterprises centres less on the difficulty of technical solutions than on the robustness of governance arrangements: revolving asset models, community ownership structures, and transparent accountability mechanisms are the decisive variables determining whether community capital accumulates or dissolves. Third, women and youth are not merely target beneficiaries in a distributive sense; they are the primary institutional agents through whose organised action agroecological transition can be scaled. Investments that strengthen their agency, assets, and market access will yield returns across all intervention domains.

The writeshop methodology itself demonstrated its value as a knowledge synthesis instrument: the structured integration of scientific expertise and community practitioner knowledge produced recommendations of a specificity and contextual grounding that neither community's knowledge could have achieved independently. This is consistent with the theoretical premises of transdisciplinary research and with the practical imperatives of designing interventions that are technically sound and socially legitimate.

References

Agarwal, B. (2014). *Gender and green governance: The political economy of women's presence within and beyond community forestry*. Oxford University Press.

Barrios, E. (2007). Soil biota, ecosystem services and land productivity. *Ecological Economics, 64*(2), 269–285. https://doi.org/10.1016/j.ecolecon.2007.03.004

Gliessman, S. R. (2015). *Agroecology: The ecology of sustainable food systems* (3rd ed.). CRC Press.

Lang, D. J., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., Swilling, M., & Thomas, C. J. (2012). Transdisciplinary research in sustainability science: Practice, principles, and challenges. *Sustainability Science, 7*(Suppl. 1), 25–43. https://doi.org/10.1007/s11625-011-0149-x

Milestad, R., &Dämmrich, I. (2003). Can organic certification be trusted? Consumers' and producers' perceptions. *Ecological Economics, 46*(3), 377–389. https://doi.org/10.1016/S0921-8009(03)00197-8

Nelson, E., Tovar, L. G., Rindermann, R. S., & Cruz, M. A. (2010). Participatory organic certification in Mexico: An alternative approach to maintaining the integrity of the organic label. *Agriculture and Human Values, 27*(2), 227–237. https://doi.org/10.1007/s10460-009-9205-x

Pretty, J. (2003). Social capital and the collective management of resources. *Science, 302*(5652), 1912–1914. https://doi.org/10.1126/science.1090847

Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (Eds.). (1996). *Feminist political ecology: Global issues and local experiences*. Routledge.

Srivastava, A. K., et al. (2017). Pesticide exposure and reproductive health of female agricultural workers in India: A review. *Environmental Research, 155*, 243–253. https://doi.org/10.1016/j.envres.2017.02.012

Uphoff, N. (2000). Understanding social capital: Learning from the analysis and experience of participation. In P. Dasgupta & I. Serageldin (Eds.), *Social capital: A multifaceted perspective* (pp. 215–249). World Bank.

Vernooy, R., Devaux, A., Najjar, D., & Thomann, A. (2010). *Writeshops: A means to produce practical knowledge through collaborative learning*. International Potato Centre.

Wall, D. H., Nielsen, U. N., & Six, J. (2015). Soil biodiversity and human health. *Nature, 528*, 69–76. https://doi.org/10.1038/nature15744

Wezel, A., Casagrande, M., Côté, F., Legrève, A., & Olivier, A. (2014). Agroecological practices for sustainable agriculture: A review. *Agronomy for Sustainable Development, 34*(1), 1–20. https://doi.org/10.1007/s13593-013-0180-7

Emerged Stories from the Writeshop

Story from the "Bio-Inputs and Non-Chemical Farming" Team

Title: Siri Sampadha (Prosperity through Cultivation)

The discussion began with a reflection on agricultural practices from about 20 years ago. During that time, farmers mainly cultivated millets and pulses. Most families were large and depended on three to four different livelihood activities. Livestock played an important role in the farming system, as farmers used the manure generated from their animals. They did not depend on chemical pesticides or fertilisers. Whatever they cultivated was primarily meant for household consumption.

Over time, changes began to take place. The government promoted residential hostels and education, and children started moving out of villages for schooling. As a result, fewer family members were available to care for livestock. This marked the beginning of the transition away from traditional farming systems. At the same time, the government introduced subsidies for chemical fertilisers such as urea and DAP. Initially, farmers were not aware of how to use these fertilisers properly, but gradually they adopted chemical-based cultivation practices.

In the last 15 years, health issues have become more visible, particularly among women. Problems such as body pains and hysterectomy (removal of the uterus) have increased. These concerns were highlighted as part of the broader impact of chemical-based agriculture.

During the COVID-19 period, many farmers returned to their villages and resumed agricultural activities. They began cultivating millets again, at least for household consumption. There was renewed awareness about the importance of millets. However, farmers did not receive adequate government support, and supply chain systems were weak. As a result, although interest increased, structured support was lacking.

Farmers are now looking for alternatives. With the establishment of Bio-Resource Centres (BRCs), they are beginning to see change. Community members are getting involved, and youth are coming forward. Efforts are being made to address farmers' problems collectively. There is significant potential to establish community-managed BRCs.

Story from the "Livestock and Animal Husbandry" Team

Title: Prakruthi Vyavasayaniki Padi PashuvulaPramukyatha(Promotion of Natural Farming Calls for More Livestock)

The discussion highlighted that promoting natural farming requires a strong livestock base. Over the years, significant changes in cropping patterns have affected livestock populations. When farmers from Andhra Pradesh introduced cotton cultivation into Telangana, mechanisation increased, and cropping patterns began to change. With the expansion of cotton and other commercial crops, fodder availability declined, which led to a reduction in livestock numbers. As crop choices changed, animals had less access to food, resulting in a gradual decline in the livestock population.

In the Thandas, cows are more common. They require relatively low maintenance, and families mainly use ghee for household consumption. Among the Yadav communities, goats are more prevalent. Earlier, almost every household owned at least two goats. However, now only a few households maintain goats, usually in small numbers.

Regarding cropping patterns, soybeans are cultivated in November. From January onward, the available fodder is used collectively for livestock feeding. The integration of crop residues and fodder is important for sustaining animals.

The discussion also noted that educated youth are coming forward and showing interest in livestock-based commercial activities. For example, one farmer from Nagavalli owns 12 buffaloes and 2 cows and has good knowledge of milk marketing. This example shows that livestock can become a viable enterprise when properly linked to markets.

Several initiatives have been undertaken to promote livestock. Poultry promotion models have been introduced, and a Goat Bank has been established, both aimed at supporting single women. Each beneficiary receives one goat, which helps generate manure for agriculture (around three quintals) and contributes to income. Typically, two kids are born within six months, and after nine months, each goat may be valued at approximately ₹ 15,000.

Buffaloes provide milk for about eight months, ensuring a regular income. Oxen are also used during the agricultural season and can work around 20 days a month, generating additional earnings. For unemployed youth, a poultry model has been proposed. This includes distributing small incubators costing around ₹ 50,000. Chicks will not be distributed free of cost; instead, they will be provided at approximately ₹ 120 each. The focus will be on promoting native poultry varieties (Natu Kodi). To sustain these initiatives, low-interest or interest-free financial support is essential.

Livestock also plays a crucial role in agriculture by supplying manure, which strengthens natural farming practices and reduces dependence on external chemical inputs.

About the SCALAGRO Project

SCALAGRO (Scaling Agroecology) is a collaborative international research project operating across India, Bolivia, and Burkina Faso. In India, the project is implemented in partnership with the Centre for Sustainable Agriculture (CSA). Phase 1 focused on baseline qualitative research to understand existing agroecological knowledge systems and the structural conditions shaping transitions.

If you would like more information[*https://www.graduateinstitute.ch/scalagro*](https://www.graduateinstitute.ch/scalagro)

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