ACTION BRIEF

Indigenous Backyard Poultry Systems: Nutritional Security, Livelihood Diversification, and Gender-Responsive Agroecological Enterprise in Semi-Arid Telangana

SCALAGRO Project -Centre for Sustainable Agriculture (CSA)
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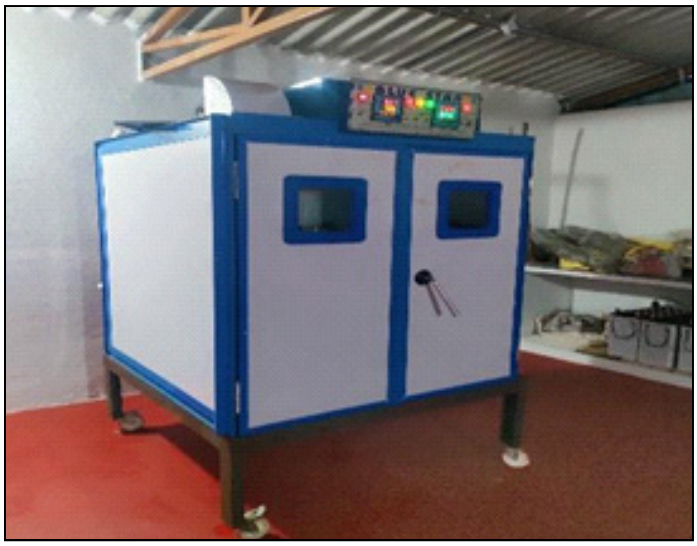
Intervention	Location	Phase	Period
Indigenous Poultry Systems	Zaheerabad cluster, Telangana	SCALAGRO India -Phase 1	2024–2026
~150 Households Supplied	**20-30** Chicks per Household	**₹ 350** Net Profit/Bird (6 months)	**30-40** New HHs/Month (Pay-Forward)

1. Scientific Rationale and Problem Statement

Backyard poultry production using indigenous (Desi) breeds occupies a well-established niche within low-external-input agroecological systems: it converts household food waste and farm biomass residues into high-quality animal protein at near-zero additional land cost, while generating manure that contributes to soil organic matter and nutrient cycling (Mack et al., 2005). Indigenous breeds, characterised by genetic adaptation to local climatic and nutritional conditions, superior foraging behaviour, and enhanced immune competence relative to commercial hybrid lines, represent a low-capital, low-risk livelihood entry point accessible to households at the lower end of the smallholder wealth distribution including single-woman households and women-headed families where male out-migration has concentrated agricultural and domestic labour burdens on women (Guèye, 2000).

Participatory Rural Appraisals (PRAs) and Focus Group Discussions (FGDs) conducted during SCALAGRO's Phase 1 baseline research consistently and explicitly identified backyard poultry revival as a priority livelihood aspiration among women farmers across all six study villages from Telangana and Andhra Pradesh. Despite thiknowledge:d demand, household-level poultry rearing had declined significantly over the preceding decade, driven by four compounding constraints: the near-total absence of locally adapted indigenous breed stock from commercial markets, the lack of controlled incubation facilities capable of maintaining viable chick survival rates, limited access to veterinary services and disease management knowledge, and the absence of predator-proof low-cost housing designs suited to village conditions.



Inauguration of the Indigenous Poultry unit at DDS-KVK, Incubator with a capacity of 1200 eggs

Eggs placed for hatching, 1-day-old chicks

90-day-old chickens, Discussion with the poultry beneficiaries

2. Intervention Design: The Incubation-Centred Model

The SCALAGRO poultry intervention is built around a centralised incubation and brooding facility established at the DDS-KVK campus, Zaheerabad. The facility houses egg incubators with a rated capacity of 1,200 eggs per cycle and maintains breeding stocks of five indigenous varieties selected for superior performance under low-input village management conditions: Aseel, Sonali, Rajshri, Naked Neck, and Kadaknath. These breeds are documented in the Indian poultry science literature as demonstrating higher thermal tolerance, lower feed conversion ratios for maintenance requirements, and greater disease resistance relative to commercial Broiler and Layer strains under free-range village conditions (Rajkumar et al., 2010; Haunshi et al., 2011).

In the initial distribution phase, approximately 150 smallholder households across Zaheerabad villages received 20-30 chicks each, implemented in convergence with DDS-KVK's (Deccan Development Society-Krishi Vignan Kendra) district-level agricultural extension mandate. Each household received a complementary package comprising: (i) vaccination against Newcastle Disease, Marek's Disease, and Infectious Bursal Disease at point of distribution; (ii) on-demand veterinary advisory services through the KVK; and (iii) structured training covering feed management using locally available grain supplements, low-cost predator-proof housing construction, and basic disease recognition and first-response care protocols.

The structural innovation distinguishing this intervention from conventional poultry distribution programmes is the egg exchange mechanism. Participating farmers may bring eggs to the brooding centre for incubation, receiving one chick for every two eggs deposited. This arrangement expands the individual farmer's flock without cash expenditure while simultaneously providing the brooding centre with a continuous egg supply for community-wide distribution. At the current facility capacity, the exchange protocol enables the centre to supply chicks to an additional 30-40 households per month, generating progressive reach without proportional external investment, but as a pay-forward architecture that transforms an initial project investment into a community-owned, self-sustaining asset cycle.

3. Cost-Benefit Analysis

3.1 Household-Scale Backyard Poultry (25 Hens)

Table 1 presents a detailed cost-benefit analysis for a representative household managing 25 indigenous hens over a six-month production cycle, based on field-validated input cost and market price data from the study region. Both meat-bird (broiler) and egg-producing (layer) scenarios are evaluated.

Parameter	Per Bird (₹)	Per 25 Birds (₹)
Chick procurement cost (indigenous breed)	120	3,000
Feed and concentrate (dana) over 6-month cycle	450	11,250
Vaccination and veterinary services	30	750
Miscellaneous (housing materials, sundry costs)	50	1,250
TOTAL PRODUCTION COST	**650**	**16,250**
Market value at harvest - meat bird (1.5 kg live weight @ ₹ 667/kg)	1,000	25,000
Net profit for Meat Birds	**350**	**8,750**
Layer hen: eggs produced (~200 eggs over 6-month cycle)	200 eggs	-
Layer income (200 eggs × ₹ 5 average farm-gate price)	1,000	25,000 (25 layers)
Net profit per layer hen over 6-month cycle	350-400	8,750-10,000
Return on Investment (ROI) -meat birds	**~54%**	-
Payback period	**< 6 months**	-

Table 1. Cost-benefit analysis: household-scale backyard poultry, 25 indigenous hens, 6-month production cycle.

3.2 Youth Enterprise Scale (250 Hens with Shed)

During the write-shop, the Veterinary Expert endorsed a 250-hen model combining layer and broiler birds with dedicated shed infrastructure for unemployed rural youth seeking a commercially viable poultry enterprise. Table 2 presents enterprise economics across two annual production cycles.

Parameter	Amount (₹)	Notes
Capital: egg incubator	50,000	One-time
Capital: shed construction	40,000-60,000	One-time
Operating: 250 chicks @ ₹ 120	30,000	Per cycle
Operating: feed (250 birds × ₹ 450)	1,12,500	Per cycle
Vaccination and veterinary	7,500	Per cycle
Miscellaneous	5,000	Per cycle
Total operating cost per cycle	1,55,000	6 months
Revenue: 125 broilers @ ₹ 1,000 market value	1,25,000	Per cycle
Revenue: 125 layers - 200 eggs each @ ₹ 5	1,25,000	Per cycle
Total revenue per cycle	2,50,000	6 months
Net profit per cycle	95,000	~61% margin
ANNUAL NET PROFIT (2 cycles per year)	~1,90,000	Excl. capital
Capital recovery period	< 1 year	With credit access

Table 2. Enterprise economics: youth-scale commercial poultry model, 250 hens (mixed broiler-layer), two annual cycles.

Key Finding - Poultry Cost-Benefit Household-scale backyard poultry (25 indigenous hens) generates a net profit of approximately ₹ 8,750 per six-month cycle, representing a Return on Investment of approximately 54% with full capital recovery within the production period. The youth commercial model (250 hens) yields an estimated annual net profit of [1] 1.9 lakh across two production cycles, with capital recovery achievable within the first-year contingent on access to low-interest credit. These financial returns do not capture the significant non-monetary welfare benefits of regular household consumption of eggs and poultry meat, which constitute a direct nutritional impact pathway for children and women.

4. Nutritional and Health Dimensions

The nutritional impact of indigenous backyard poultry extends well beyond its direct income-generating function. Regular household access to eggs provides a bioavailable source of complete protein, vitamin B12, iron, zinc, and essential fatty acids for households that would otherwise consume animal protein infrequently or not at all. In the context of well-documented micronutrient deficiencies among women and children in rural Telangana including iron-deficiency anaemia and protein-energy undernutrition even modest increases in backyard poultry production can generate measurable improvements in dietary diversity and child nutritional

status (Alders et al., 2010; Guèye, 2000). In the development literature, women's control over backyard poultry income is associated with a higher proportion of earnings directed toward children's food and education expenditures relative to income managed by male household members (World Bank, 2012). Gender-disaggregated monitoring of poultry income and expenditure patterns in SCALAGRO Phase 2 is therefore essential to document this welfare multiplier effect and to strengthen the evidence base for gender-responsive agroecological programme design. A further health consideration raised explicitly by community participants during the writeshop proceedings is the reduction in household dietary exposure to residual agrochemicals through the substitution of home-grown indigenous poultry products for chemically produced market alternatives.

5. Constraints and Mitigation Strategies

The principal technical constraints to programme sustainability are chick mortality during the brooding phase, predation by domestic dogs, crows, raptors, and the recurrent risk of Newcastle Disease outbreaks in inadequately vaccinated flocks. Mitigation measures recommended by the writeshop discussions include mandatory vaccination at the point of chick distribution, structured training in the construction of low-cost predator-proof housing using locally available wire mesh and bamboo, and integration of village-level disease surveillance into the KVK's veterinary extension network. The pay-forward egg exchange model additionally distributes programme risk across a large and growing beneficiary population rather than concentrating it in a single-point production, building resilience against individual household failure events.

Agroecological Principles Addressed *Animal Health • Economic Diversification • Social Values and Diets • Recycling • Human and Social Values*

6. Recommendations

1. Expand DDS-KVK brooding centre capacity to enable supply of chicks to a minimum of 30-40 new households per month; formalise and document the egg pay-forward exchange protocol as a replicable community model.
2. Prioritise chick distribution to single-woman and women-headed households as the primary equity target, track gender-disaggregated income and nutritional outcomes through Phase 2 monitoring.
3. Develop a second programme phase to establish a cage-free egg value chain linking smallholder layer farmers to retail outlets in nearby urban centres, expanding income opportunities and strengthening rural-urban food systems.
4. Train one community-level poultry health worker per village cluster in basic disease surveillance, vaccination administration, and referral protocols to the KVK veterinary service.
5. Provide low-interest institutional credit to youth seeking to establish 250-hen commercial enterprises, using Rang De or a cooperative bank as the financing vehicle.

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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

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