



PILOT EVALUATION REPORT

Phnom Samkos Sheep Pilot

*Comparative Livestock Assessment for Elderly Caregivers and Land-Limited Households, Phnom Samkos
Wildlife Sanctuary*

Prepared for

GLOBAL STUDENT OUTREACH

*Food Security • Sustainable Livelihoods • Forest & Wildlife Protection • Climate Resilience — Rural
Cambodia*

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Status: Evaluation Complete | Impact: 10 Families, 1 Village

1. Executive Summary

Global Student Outreach (GSO) piloted sheep as an alternative small-livestock option with 10 families in a single village inside the Phnom Samkos Wildlife Sanctuary, alongside its existing goat, cattle, and aquaculture programs. The pilot's purpose was not to replace goats — GSO's largest and most established livestock program — but to test whether sheep fill a gap the goat model does not: a lower-maintenance, lower-land, lower-physical-demand option for households that goats and cattle do not fit well, particularly elderly caregivers and land-limited families.

The pilot is now complete and evaluated. Results support a targeted, not general, rollout: sheep outperformed goats specifically on grazing-space efficiency, ease of handling for elderly or disabled caregivers, and the addition of a wool income stream goats cannot provide. Sheep underperformed goats on reproduction rate and underperformed cattle on dairy output and offspring size. Read together, the results point to sheep as the right fit for a specific household profile — not a general goat replacement — and this report recommends GSO adopt sheep as a formal fourth livestock track, targeted using the same UN SDG-aligned vulnerability criteria GSO already applies across its livelihood programs.

Village name, exact pilot start date, and site coordinates are not yet included in this report — see Section 11 (Revision & Contact) for the specific fields GSO should supply to finalize this document for the permanent program record.

2. Pilot Overview

Parameter	Detail
Location	Phnom Samkos Wildlife Sanctuary, Cardamom Mountains — village name pending confirmation for the final record
Impact	10 families, 1 village
Status	Evaluation Complete
Comparison basis	Evaluated against GSO's existing goat, cattle, and aquaculture livelihood programs
Primary objective	Determine whether sheep are a viable alternative livestock option, and if so, for which household profile
Secondary objective	Test whether sheep reduce overgrazing pressure in areas already carrying goat herds

2.1 Why Sheep Were Tested

GSO's goat program (see the Chankiek and Arai village goat specifications) is well established, but goats have real physical and land-use demands: daily supervised grazing, active herding across dike, forest-edge, or hillside terrain, and enough browse-able land to avoid overgrazing. Two gaps in the existing livestock portfolio prompted this pilot: households — often elderly women caring for grandchildren — who cannot manage the daily physical demands of goat herding, and community areas where existing goat herds were already showing overgrazing pressure on limited browse land. Sheep were selected as the test option for both gaps because sheep graze more selectively at lower density than goats and are generally easier to contain and handle for physically limited caregivers.

3. Methodology — How the Pilot Worked

Sheep were placed with 10 families in the pilot village as a direct alternative livestock option, run in

parallel with — not as a replacement for — the village's existing goat, cattle, and aquaculture activity. Family selection used the same vulnerability-first criteria GSO applies across its livelihood programs (Section 6), prioritizing households where goats or cattle were a poor physical or land-use fit.

3.1 Breed & Husbandry Approach

Tropical small-ruminant husbandry research consistently shows that hair sheep breeds — evolved in warm, humid climates — carry substantially better resistance to *Haemonchus contortus* (barber pole worm) than wool-type breeds bred for temperate climates, where parasite resistance was never a selection pressure. GSO's pilot used a regionally sourced hair-and-coarse-fleece dual-coat sheep line rather than a fine-wool temperate breed, prioritizing tropical hardiness and parasite resistance over fleece quality. This is a meaningful design choice: a fine-wool temperate breed would likely have struggled with both heat stress and parasite load in the Phnom Samkos climate, undermining the pilot before the household-fit question could even be tested.

Shelter and daily management followed the same elevated-pen, rotational-browse model GSO uses for goats, adapted for sheep's flocking (rather than more independent goat) behavior — sheep tolerate closer stocking in a single pen and are generally calmer to move as a group, which the pilot's family feedback specifically credited as easier for elderly or physically limited handlers.

3.2 Evaluation Design

Over the pilot period, GSO tracked the same core indicators across all four livestock options present in the village — sheep, goats, cattle, and aquaculture — allowing a like-for-like comparison rather than an isolated sheep-only assessment: labor demand per household, land/browse area required, offspring/production rate, income streams generated, and caregiver-reported ease of management.

4. Comparative Evaluation — Sheep vs. Goats vs. Cattle vs. Aquaculture

Factor	Sheep	Goats	Cattle	Aquaculture
Grazing/land demand	Lower — more selective grazers, tolerate closer stocking	Moderate-High — active browsers, need more land or rotation to avoid strip-out	High — largest land and feed demand	Low land, but requires a pond/water body
Physical handling demand	Lower — calmer, flock together, easier to move as a group	Higher — independent-minded, more active daily herding	Highest — size and strength make handling harder for elderly/disabled caregivers	Low daily physical demand once established
Reproduction rate	Slower than goats	Faster — twice-yearly kidding possible	Slowest — single calf, long gestation	Fast, but production cycle is very different (batch harvest, not continuous offspring)
Income streams	Meat (mutton) + wool/fleece	Meat + milk + manure	Meat + dairy + manure, highest per-animal value	Fish/aquatic product sales only
Best suited to	Elderly caregivers, land-limited	Active households with more available	Households with the most land,	Households with pond access and

Factor	Sheep	Goats	Cattle	Aquaculture
	households, areas with existing overgrazing pressure	land and physical capacity	labor, and capital	interest in a different production cycle

4.1 Sheep vs. Goats — Direct Comparison

- **Sheep advantage:** require less grazing space per animal, produce wool as an income stream goats cannot provide, and were consistently reported as easier to manage by elderly or physically limited caregivers.
- **Goat advantage:** faster reproduction rate — goats can kid twice yearly with 1–2 kids per birth, giving a materially faster herd growth and income-turnover curve than sheep achieve.

4.2 Sheep vs. Cattle — Direct Comparison

- **Sheep advantage:** lower cost of entry, easier day-to-day management, and a far better physical fit for elderly or disabled household members than cattle.
- **Cattle advantage:** larger dairy output and larger, higher-value calves — cattle remain the higher-ceiling option for households with the land, labor, and capital to manage them.

5. Results & Findings

- **Overgrazing relief:** sheep thrived when placed in areas where existing goat herds had begun to show overgrazing pressure — their more selective grazing pattern and tolerance for closer stocking eased pressure on limited browse land without requiring a reduction in the village's existing goat numbers.
- **Accessibility for elderly and disabled caregivers:** sheep's flocking behavior and calmer temperament were repeatedly cited by participating families as easier to manage than goats, which require more active, independent-minded daily herding.
- **New income stream:** wool/fleece sales gave participating households an income source with no goat equivalent, diversifying household income beyond the meat-and-manure model common to GSO's other livestock programs.

5.1 Net Assessment

The pilot's core finding is not that sheep are superior to goats, but that sheep and goats serve different household profiles well. Sheep's slower reproduction rate makes them a weaker fit than goats for households prioritizing fast herd growth and income turnover, but a stronger fit for households prioritizing low physical demand and grazing efficiency. This is consistent with GSO's broader model of matching livestock type to household capacity rather than defaulting every household to the same program.

6. Who Benefits — Beneficiary Profile & Selection Criteria

Sheep placements target elderly caregivers and families with limited land — particularly women caring for grandchildren — for whom sheep provide a low-maintenance livestock option unavailable through GSO's existing goat or cattle programs. As with all GSO livelihood placements, needs are assessed as they become known to GSO field staff and prioritized using UN Sustainable Development Goal (SDG) criteria.

Priority Tag	Application to This Pilot
Women Priority	Program is explicitly designed around female caregivers, particularly grandmothers raising grandchildren without other household income support
Rural Poor	Selection prioritizes households facing the greatest economic pressure, consistent with GSO's poverty-reduction and forest-encroachment-prevention goals
Environment	Sheep placement in overgrazed areas directly supports sustainable land-use pressure management alongside GSO's forest and wildlife protection mission

6.1 Priority Criteria

- Single mothers
- Elderly women caring for grandchildren abandoned with them
- Families most vulnerable to the economic pressure that drives forest encroachment

This pilot's selection approach is consistent with GSO's UN SDG-aligned prioritization framework applied across its other livestock and livelihood programs, including the goat programs at Chankiek and Arai villages.

7. Market Demand & Economics

Product	Market Value	Notes
Mutton	\$8–\$12/kg	One of the highest-priced meats in Cambodian markets — a meaningfully higher per-kg price point than goat meat in most local markets
Wool / fleece	Local sale or textile processing	Limited existing rural supply means early entrants to this pilot capture premium pricing before the market broadens

The combination of a high-value meat product and a secondary fleece income stream gives sheep a distinct economic profile from goats: a smaller number of animals can generate a comparable or better income floor for a household that cannot manage a larger herd, which is precisely the household profile this pilot targeted.

Sale prices reflect market conditions at the time of pilot evaluation and should be re-verified locally before use in future program budgeting, consistent with the price-validation caveats carried in GSO's other livestock specifications.

8. Threats Addressed

Threat	How This Pilot Addresses It
Limited livelihood options for elderly	Provides a livestock option physically manageable by elderly or disabled caregivers, where goats and cattle were previously the only options offered
Overgrazing from existing livestock	Sheep's grazing pattern and stocking tolerance relieve pressure on browse land already carrying goat herds, without requiring existing goat households to reduce their herds
Household poverty	Adds a second income stream (wool) on top of a high-value meat product (mutton), improving income resilience for the household beyond what a single-product livestock option provides

9. Recommendations & Next Steps

- **Adopt sheep as a formal fourth livestock track:** alongside goats, cattle, and aquaculture, targeted specifically at the elderly-caregiver and land-limited household profile identified in this

pilot, not offered as a general-purpose goat substitute.

- **Do not use sheep to replace existing goat programs:** the reproduction-rate and income-turnover gap versus goats means sheep should supplement, not substitute for, goat placements for households that can manage active goat herding.
- **Prioritize overgrazed sites for the next placement round:** villages or households already showing goat-driven browse pressure are strong candidates for a second sheep cohort, based on this pilot's overgrazing-relief finding.
- **Develop a wool/fleece processing or sale pathway:** the pilot confirmed wool as a viable income stream, but GSO should assess local processing options or buyer relationships to ensure the market advantage holds as more households enter sheep production.
- **Carry forward the hair-sheep breed selection:** the pilot's breed choice — prioritizing tropical hardiness and parasite resistance over fleece quality — should remain the standard for future placements rather than substituting a higher-fleece-quality but less climate-adapted breed.
- **Complete the program record:** add village name, exact family count verification, pilot start/end dates, and site coordinates per Section 11 before this report is finalized for permanent GSO program documentation.

10. Safety & Ecosystem Alignment

- **Grazing pressure management:** sheep placement in already-browsed areas is a direct land-management tool, reducing the risk of vegetation strip-out and associated erosion on community-zone land shared with existing goat herds.
- **No new forest clearance:** sheep grazing areas are drawn from existing community-zone and household land already in use for the village's goat program, not new sanctuary land.
- **SDG alignment:** beneficiary selection criteria (Section 6) are explicitly aligned with UN Sustainable Development Goals, consistent with GSO's cross-program prioritization framework.
- **Predator and health protocols:** shelter and health monitoring inherit the same elevated-housing, FAMACHA-based parasite monitoring, and predator-proofing principles established in GSO's goat program specifications, adapted for sheep flocking behavior.

11. Revision & Contact

This report synthesizes the Phnom Samkos Sheep Pilot's reported impact, results, and comparative evaluation data into GSO's standard technical document format (Rev. 1.0). The following fields were not included in the source material provided and should be added before this document is treated as a finalized permanent program record:

- Pilot village name and site coordinates
- Exact pilot start and end dates
- Sheep breed/source name and supplier
- Herd size (number of sheep per household) and starter cost per animal
- Shelter design specification and per-household construction cost, if a dedicated sheep shelter tier is to be formalized alongside GSO's goat shelter tiers

Global Student Outreach — Food Security, Sustainable Livelihoods, Forest & Wildlife Protection, and Climate Resilience in Rural Cambodia.