

Backyard and Smallholder Poultry

A Sustainable Model for Livelihoods, Biodiversity, and Climate Resilience

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AAETI National Conclave on Sustainable Food Systems



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The New Livestock Conversation: Balancing Productivity, Nutrition, and Ecology

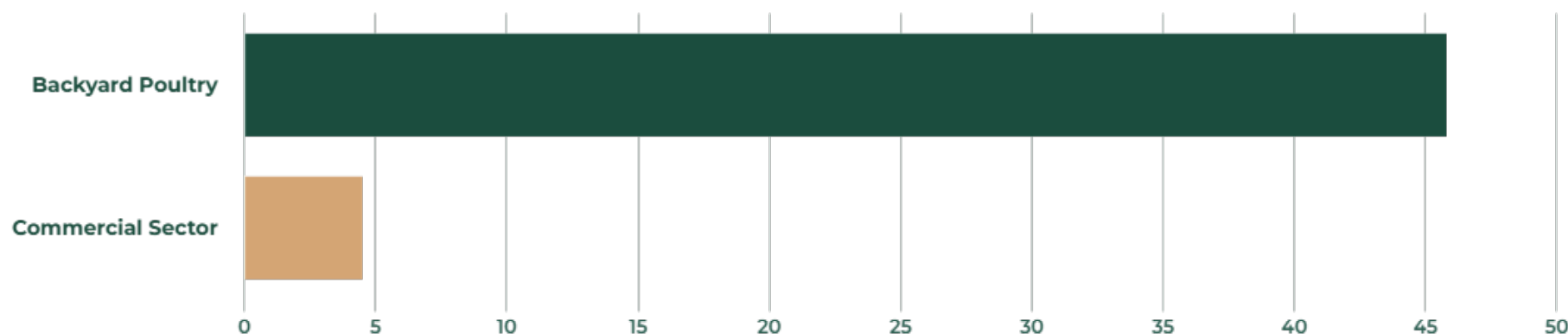
Across India's food systems, we are searching for approaches that are productive yet regenerative—that deliver income, nutrition, and ecological stability together.

In livestock, this balance often seems difficult. But there is one segment where it is naturally built-in: backyard and smallholder poultry.

This is no longer a marginal activity—it is emerging as a major livelihood and sustainability engine in rural India.



Rapid Growth Driven by Smallholder Systems: 45.8% Expansion in Backyard Poultry (2012–2019)



20th Livestock Census Data

Backyard Poultry: **217M → 317M birds (+45.8%)**

Commercial Sector: **+4–5% growth only**

Total Poultry: **851.81M birds (+16.8%)**

Source: 20th Livestock Census (DAHD, 2019); DAHD Annual Report 2022–23; ICAR-DPR Poultry Statistics 2023.

Regional Growth Hotspots

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Strongest expansion observed in **Bihar, Odisha, Himachal Pradesh, and Meghalaya**. Backyard systems now form over one-third (~37%) of India's poultry population, contributing ~18–20% of national egg output

Government Support & Policy Recognition

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Backyard poultry is prioritized under the National Livestock Mission (NLM) and National Rural Livelihoods Mission (NRLM). Policies emphasize its role in inclusive growth, household nutrition security, and climate-resilient rural livelihoods.



Global Context: India's Position in the Poultry Revolution

3rd

Egg Producer

Globally, with 7% of world production

138B

Eggs Annually

Produced across all poultry systems

5th

Broiler Producer

5.2 million tonnes annually

Backyard Poultry's Contribution

Although backyard systems represent ~37% of India's poultry population, they contribute approximately 17–18% of national egg production.

This demonstrates high efficiency and productivity relative to their scale, especially in low-input, women-led rural system

"Traditional small-scale, rural, family-based poultry systems continue to play a crucial role in sustaining livelihoods in developing countries, supplying poultry products in rural areas, and providing important support to women farmers." — FAO (2023)



Four Pillars of Success: Economic Access, Nutrition, Women's Leadership, and Ecological Fit

1

Economic Access

Small flock sizes, fast cash cycles, low capital investment with quick returns

2

Nutritional Impact

Eggs and meat strengthen household diets, improving family health outcomes

3

Women's Leadership

Over 80% of backyard poultry managed by women, providing financial agency

4

Ecological Fit

Birds thrive on crop residues and kitchen waste, turning by-products into high-value food



Institutional Transformation: From Informal Practice to Structured Livelihood System

Government

State Animal Husbandry departments ensuring vaccination and advisory support reach rural households

Research

ICAR and research institutions developing and validating improved breeds suited to local conditions

Private Breeders

Quality germplasm production and supply through organized networks and mother units



Outcome:

Improved rural specific birds like **KUROILER®** and **SAURANGI®** supplied through Government projects have strengthened both productivity and resilience across 1.4M+ households in India



Comparative Systems: Why Backyard Poultry Outperforms on Sustainability Metrics

Sustainability Metric	Backyard System	Commercial System	Industrial System
GHG Emissions	3.4 kgCO ₂ e/kg eggs (low)	Higher than backyard	>8 kg CO ₂ e/kg Highest emissions intensity
Antibiotic Use	Minimal/None (antibiotic-light)	Moderate use	Intensive use (growth promotion)
Women's Participation	85–90% (high)	20–30% (limited)	<10% (minimal)
Capital Investment	₹500–1,000 per household	₹5,000–10,000 per unit	₹50,000+ per unit
Feed Efficiency	Kitchen waste + scavenging (zero feed miles)	Commercial feed (partial waste use)	100% commercial feed (high input)
Climate Resilience	High (diverse feed sources, open-range)	Moderate (dependent on feed supply)	Low (fully dependent on inputs)

Values are representative averages from FAO, IFPRI, and NABARD studies; may vary by region and production scale.

INTEGRATED ADVANTAGE

Backyard poultry uniquely integrates **low environmental impact, high social inclusion, minimal antibiotic dependence, and strong climate resilience**. Its multidimensional sustainability makes it an **optimal model for achieving SDG-linked rural livelihoods**, offering both ecological and economic stability while empowering women and utilizing locally available resources efficiently.



Field Insights from Keggfarms: Merging Science with Village Ecology Since 1967

Performance Under Low-Input Conditions

Scientifically bred birds for scavenging systems produce **150–170 eggs per year** under backyard management — a benchmark for productivity in low-input environments.

Early Maturity & Dual-Purpose Growth

First lay begins at **22–24 weeks** (compared to ~32 weeks for local breeds).
Average mature weights: **females ≈ 2 kg, males ≈ 3–4 kg**, ensuring steady household income from both eggs and meat.

Decentralized Supply Networks & Scale

Through **1,500+ dealers, 5,000 mother units, and 7,500 rural vendors**, Keggfarms' model reaches **1.4 million+ households across 16 states**, illustrating how **scientific breeding and village ecology** can scale sustainably.







Measurable Impact: ₹6,000–7,000 Bimonthly Income, 85% Women Participation, Improved Nutrition

₹6–7K

Average Household Income
Every 2 Months

85%

Women Participation
& Financial Agency

10–20

Typical Flock Size
per Household

27–61%

Income Increase
for Women rearers

Data derived from Keggfarms field reports (2021–23) and NABARD livelihood assessments.

Voices from the Field: Transformative Impact on Women & Families

"I get 15 chicks every 2 months. I keep hens and sell roosters. Each egg is sold for Rs 10 in the village. I earn approximately Rs 6,000 every 2 months."

— Tara Devi, Matihani, Gaya, Bihar

"Kuroiler nahi to jeevan nahi (No Kuroiler – No life). The birds have transformed our village economy and given women like me financial independence."

— Anjali Maiti, West Bengal

"I am happiest when Kuroiler money comes into my hands. It has given me respect in my family and community."

— Shantana Purkiat, West Bengal



Environmental and Climate Logic: Waste Conversion, Low Emissions, and Natural Resilience



Feed from Waste

Converting kitchen and farm residues into high-value protein. Zero feed miles.



Low Emissions

Open-range rearing with minimal greenhouse emissions compared to intensive systems.



Biodiversity Benefits

Pest control, soil enrichment, and natural nutrient cycling in village ecosystems.



Antibiotic-Light

Minimal reliance on antibiotics, supporting One-Health and AMR objectives.



Sustainable Development Goals: Backyard Poultry as an Integrated Solution



Integrated Multiplier Effect

Backyard poultry drives **simultaneous progress across seven SDGs** through interlinked social, economic, and ecological benefits. Economic gains enhance nutrition, **women's income strengthens household food security**, and **resource recycling supports climate action and biodiversity**. This integrated approach **maximizes development impact per unit of investment** and builds **resilient, inclusive rural food systems**.



Evidence Base: Global Studies Supporting Backyard Poultry's SDG Impact

1. Poverty Reduction & Livelihood Security (SDG 1)

- FAO (2021): Smallholder Poultry Production: A Key Tool for Poverty Alleviation.
- World Bank (2020): Livestock and Livelihoods in South Asia.

2. Food & Nutrition Security (SDG 2, 3)

- IFPRI (2019): Poultry and Egg Consumption in Rural Asia.
- UNICEF & FAO (2022): Eggs for Nutrition Security Initiative.

3. Gender Equality (SDG 5)

- ILRI & FAO (2018): Livestock and Women's Empowerment Framework.
- IFAD (2021): Gender-Inclusive Livestock Systems for Rural Transformation.

4. Climate & Environmental Resilience (SDG 12, 13, 15)

- FAO (2013): Tackling Climate Change Through Livestock.
- UNEP (2022): Circular Food Systems Report.

Summary:

Recognized by FAO, IFPRI, ILRI, IFAD, and the World Bank as a multi-SDG lever addressing poverty, nutrition, gender equity, and environmental sustainability with high resilience and low ecological footprint.



Circular Economy Logic: From Waste to Nutrition Without Environmental Harm

Natural Manure Recycling

Backyard flocks produce nutrient-rich manure that improves soil health and closes agricultural nutrient loops. This reduces dependence on synthetic fertilizers and builds soil carbon.

Soil Health & Nutrient Cycling

Free-ranging birds enrich soil through natural foraging and manure deposition, supporting long-term soil productivity and ecosystem resilience within village systems

One-Health Integration

Each backyard flock acts as a climate-adaptive, One Health unit within the local ecosystem. Minimal antibiotic use mitigates antimicrobial resistance (AMR) risks while improving both animal and human health outcomes.

Integrated Systems Thinking

The model illustrates how waste becomes resource—enhancing household nutrition, improving soil quality, and strengthening climate resilience within a decentralized, low-input framework.

"Raised in open range, KUROILO and SAURANGI enable household, agricultural and natural waste to be converted into highly nutritious food without causing environmental harm."



Policy Directions: Recognizing Smallholder Poultry as Climate-Resilient Rural Infrastructure

1

Recognize as Climate-Resilient Infrastructure

Position smallholder poultry within national adaptation and biodiversity frameworks as a key rural livelihood and climate resilience mechanism.

Integrate into climate action plans and rural development strategies

2

Invest in Decentralized Networks

Strengthen women-led mother units, hatcheries, and community-based delivery systems to ensure quality germplasm and technical support reach rural households.

Fund FPOs, SHGs, and market linkages for sustainable scale

3

Integrate Sustainability Metrics

Measure and monitor success through comprehensive indicators: GHG intensity, women's income share, antibiotic use, and nutrition outcomes.

Evidence-based program design and adaptive management

A Unified Approach to Sustainable Livelihoods

These policy actions together create an enabling ecosystem where **smallholder poultry functions as rural climate-resilient infrastructure**.

By embedding the model within national climate and livelihood strategies, governments can **amplify inclusive growth, resilience, and nutrition outcomes at scale**.



"When science works with nature and policy empowers people, livelihoods, biodiversity, and climate goals reinforce each other."

Sustainable Food Systems Emerge from Models that Respect Land, People, and Life

The backyard poultry story is a reminder that innovation need not be industrial. Field experiences across India show that sustainability and scale can coexist. When we invest in people, respect ecological principles, and strengthen decentralized systems, livelihoods, biodiversity, and climate resilience thrive together.

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Thank You

