Developing a Sustainable and Resilient Dairy Farming Model in Punjab

The Swaran Sutlej project
Launch 2025



DANONE ecosystem

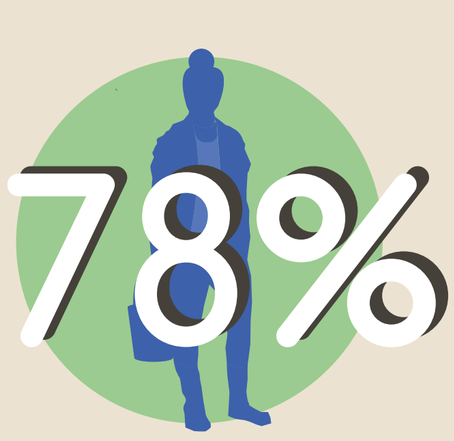
The Indian Milk Market at a Glance



In India, dairying is part of a larger farming system

Most dairy farmers combine both dairy farming and crop growing

78% of dairy farmers are smallholders





1/3 of rural incomes are dependent upon dairying

Dairying activities provide farmers a source of regular income, whereas income from agriculture is seasonal

Dairy is also an important **source of nutrition, a great majority of the population is vegetarian**



plus...

India is one of the world's largest cattle nations, with a population of over 192 million cattle

Appointing Indian dairy smallholders as central when it comes to securing **FOOD AUTONOMY** and **RURAL LIVELIHOODS**



yet...



Dairy smallholders are faced with a range of interwined **environmental**, **economic** and **social challenges**

1

Unique cultural bond with cows creates various challenges for dairy farming, affecting farmers on multiple levels



High production costs

- **Maintenance of cow males:** Male do not produce milk but farmers must continue to feed and maintain them
- **Management of buffaloes:** Estimated ~50% of the milk comes from buffaloes. They are not sacred, yet buffaloes have lower productivity, with only 200 lactating days vs. cows' 300 and a yield of 4-6 liters/day
- **Management of non-productive Cows:** Older or sick cows that no longer produce milk cannot be sold for meat, so farmers keep them and cover the associated costs
- **Abandoned cattle:** Over 5 million abandoned cattle roam India's streets, posing health risks, causing around 5% of traffic accidents, and often suffering from illness, injury, and malnutrition.



Environmental challenges

- **Land degradation:** Overpopulation of cattle can lead to land and natural resource degradation, as pastures may be overexploited
- **Waste management:** Unmanaged manure may pose potential water & soil pollution issue





2

Coping with complex social & economic challenges



Insufficient training on sustainable practices

Knowledge to be reinforced: Few smallholders have received formal training on sustainable farming techniques

Animal welfare: Traditional herd keeping practice have limited regards for animal welfare (freedom restriction)



Difficult access to needed resources

Fodder quality & availability: Farmers often feed their cattle leftover crops. This may reduce the nutritional value of the feed, which affects the milk yield and quality

Water access: Groundwater is expected to become scarce by 2040, which is anticipated to affect feed production [Punjab Region]

Health Stress



Difficult livelihoods

Gender-based barriers: Women are involved in 94% of cattle care and dairy tasks, with 45% performing all core tasks, while only 15% sell milk.

Youth Challenge : Many students migrate for postgraduate studies—about 60% leave after senior secondary school. Nationally, only 13% of youth work in dairy farming, compared to ~58% in agriculture, making youth involvement in dairy especially challenging.



To address these challenges...

... a coalition of public and private partners are joining forces to empower Punjabi smallholder dairy farmers

Key Pillars to Support Smallholder Farmers Activities

Indian smallholder farmers
join the projects and receive a comprehensive support



Livestock Management

- Sex semen artificial insemination allowing farmers to select for female offspring, reducing the need to feed and maintain male animals.
- Deliver breeding innovation through the establishment of Livestock Development Centers (LDCs).



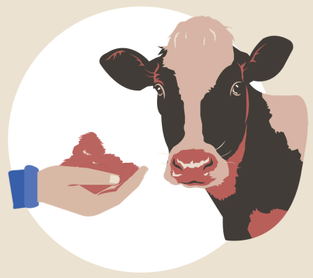
Manure Management

- Introduce biodigesters to convert manure into renewable energy and organic inputs.
- Deploy slurry as a service solutions to optimize agricultural use and nutrient recycling.



Animal Health

- Improve farmers' preventive care and medication practices through targeted training.



Feed & Fodder

- Enable on-farm fodder production through regenerative agricultural practices.
- Support the transition to multi-cut crops to increase fodder autonomy.



Community & Social development

- Strengthen gender-responsive dairy training through Pashu-Sakhi and dedicated sessions for women, including financial training.
- Promote youth engagement in the dairy sector by onboarding high-potential young individuals.

To ensure a successful implementation of the above,
other key success at farm level have been identified:

1

Pashu Sakhi (women community champion)



Capitalizing on their existing relationship with farmers, they can share knowledge with local communities and recruit new farmers to benefit from the project

2 Landscape Approach

Adopt a **landscape approach** as dairying activities are part of a larger farming system



Most dairy farmers **combine both dairy farming and crop growing** - wheat and rice



In the future, the project aims to collaborate with other stakeholders to **encourage farmers adopting Reg-ag practices** also at the crops level through providing **slurry as a service**



This potential collaboration among stakeholders could facilitate a **landscape approach**, enabling the full transition of farmers' land to regenerative agriculture and impacting positively the full Punjab Region

3 Knowledge Dissemination

The ambition is to use digitalization to strengthen field services and improve farmers' access to knowledge and practices.

What it provides

Personalized, AI-enabled dairy advisory services that are:



On-demand access to advisory support

Farmers use a chat to ask questions about dairy farming via voice or text, using their mobile phones.



Context-specific guidance

The system takes into account basic contextual factors to tailor responses to the farmer's actual on-farm situation.



Improvement over time

Usage data is analyzed to refine content and track practice adoption over time.

Ambitions of the Project

Social

5,000+

Farmers trained and empowered

1000 women trained with additional dedicated training & **500** women better involved in dairy related decision

+25%

incomes, leading to 25,000 family members benefiting from it

Environment

300 ha

Regenerative fodder practice: Reduced chemical, water intensity, and straw-burning

-25%

GHG Emission reduction

between 2025 - 2027



Partners & Roles



DANONE ECOSYSTEM
Brings co-creation spirits
Supports, structures, monitors, and challenges the project
Provides expertise & guidance
Brings systemic and sustainable approach
Provides project funding

DANONE
Provides project funding

BAIF
Field coordination and implementation of project activities

SISTEMA BIO
Implementing the biodigester and slurry as a service

DIGITAL GREEN
Deploy the AI chat bot to unlock knowledge dissemination through advisory at scale



FARMERS
Beneficiaries and actors of the transition to agricultural practices to conserve the watershed



MINISTRY OF FOOD PROCESSING INDUSTRIES
Co-financing the project

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Sources:
Livestock Data for Decisions. Global distribution of livestock populations. Available at: https://livestockdata.org/resources/global-distribution-livestock-population
Gautam, A., Yadav, N., Dhandhala, B., & Sreekumar, D. (2024). Humane aspect for controlling the emerging problem of stray cattle on road and trails. Indian Farmer, Vol.11 (08); August-2024.