Dairy development pathways: ILRI's experience

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CGIAR Research Centres



ILRI's mandate



ILRI's mission is to improve food and nutritional security and to reduce poverty in developing countries through research for efficient, safe and sustainable use of livestock ensuring better lives through livestock.



Global Agenda for Sustainable Livestock: Livestock and the SDGs

17 Partnership for the goals

 Stakeholders of the livestock sector have come together to form the Global Agenda for Sustainable Livestock and recognize the UN SDGs in their strategy

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16 Peace, justice & strong institutions

- Numerous conflicts in areas where access to land creates tensions.
- between communities (e.g. pastoralists)
- Livestock can also be a threat to biosecurity

15 Life on land

- The major part of land is used for livestock.
- Livestock contribute to biodiversity losses through impacts on habitats, LUC,water & soil pollution, grassland species etc.
- They also contribute to preserve biodiversity and domestic animals are part of biodiversity

14 Life below water

- Livestock use large amounts of fishmeal, which leads to
- overexploitation of marine resources and losses of biodiversity
- Eutrophication and hypoxic water conditions

13 Climate action

- Poor livestock keepers are among the most vulnerable to climate change.
- Livestock are responsible for a significant share of GHG emissions but have a large mitigation potential, including through soil carbon sequestration in grasslands

12 Responsible consumption & production

- Wastes and losses along livestock supply chains are high
- Rebalancing diets and the share of animal products can contribute to sustainability and health

11 Sustainable cities & communities

- Hundreds of million of people in cities keep livestock.
- Benefits for food security, nutrition, jobs creation
- Potential threat to health and sanitation
- Supports rural-urban linkages

10 Reduced inequalities

 Livestock are a source of income, create employment. opportunities and provide market participation to poor rural households

1 No poverty

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- Many rural poor rely on livestock
- Livestock provide 3 major pathways out of poverty; (1) securing assets. (2) improving productivity and (3) increasing market participation

2 Zero hunger

- Food (energy and high value protein)
- Traction and fertilizer for crop production
- Income

3 Good health & well being

- Essential micronutrients, especially for children, women and the elderly
- Majority of animal diseases could cause human pandemics
- Use of antimicrobial expected to rise in livestock.
- Diseases limit livestock productivity

4 Quality education

- A healthy diet is key to learning capacities (e.g. school milk programs)
- Livestock provides income which supports education

5 Gender equality

- Majority of poor livestock keepers are women, especially with small ruminants and poultry
- Women have less access to resources (land and capital)

6 Clean water & sanitation

- Livestock use large amount of water
- They are a source of water pollution (e.g. nitrates)
- Water contaminated water by livestock causes hygiene problems
- Livestock can contribute to protect water quality

7 Affordable & clean energy

- Livestock are an energy sink and source
- Recycling animal manure (e.g. biogas) provides an alternative to fossil fuels or wood

8 Decent work & economic growth

- 40% of agricultural GDP is provided by livestock.
- The sector is growing at a fast rate
- High rate of child labour and occupational hazards







 Many depend on livestock, including from jobs provided in the value chain (feed, processing, retailing) Small scale livestock keepers lack market access and inclusion

Livestock products are mainly consumed locally and marketed informally



Image courtesy of Henning Steinfeld, FAO













Increase in demand for livestock products (including milk)

- Three of the five highest-valued agricultural products in the world are livestock products
- The 'Livestock Revolution': demand for livestock products is on a rapid rise, following globalization, population and income growth, urbanization
- Sector growth to continue, backed by demand for animal-sourced foods.





Projections of Livestock Production to 2050



Sources: ILRI computations, based on FAO data

Demand for livestock commodities in developing economies will be met

Scenario #1 Meeting livestock demand by *importing livestock products*



Scenario #2 Meeting livestock demand by

importing livestock industrial production know-how

Scenario #3

Meeting livestock demand by *transforming smallholder livestock systems*

Characteristics of dairy value chains in Developing Countries



Milk matters: For income



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- In India, more than 70 million farm families rely directly on micro level dairying for income and employment
- In Kenya, more than 30 percent of household income among smallholders comes from milk
- Over 70% of livestock products are sold
 'informally'

ILRI work:

 How to improve farmers' access to market, or the 'last mile delivery' challenge?



Milk matters for income- ILRI work

- The dairy business hub approach supported by the East Africa Dairy Development (EADD) project, led by Heifer International, ILRI as 'knowledge partner'
- Kenya, Uganda, Rwanda (till 2014), Tanzania (from 2014)



Does the difference in linkages:

- influence revenues and access to inputs
- impact income and farm performance?





Milk matters for income- ILRI work

Results from studies in Kenya and Uganda reveal that:

- Participation in hubs leads to higher dairy revenues and total household income, *ceteris paribus*
- Higher effects for households participating in "pure processor" hubs
- But no significant influence on productivity from processor linkages

Implication: Linking farmers to processors produces positive impact on income

- But it's not translated to increased productivity and input use
- Hence other interventions are necessary to spur growth in

🔬 productivity

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Milk matters: For food and nutrition



- Despite progress in recent years, malnutrition continues to be a significant concern in many developing countries, particularly for young children and women of reproductive age
- The inclusion of milk in the diet has been shown to promote growth in children
- Livestock raised by pastoralists on rangelands produce meat and milk from land that cannot directly grow crops

ILRI work:

 What value chains and system modalities to promote cost-effective nutritionsensitive livestock-related interventions ?



Milk matters: For gender equity



- Women account for two-thirds of the world's 600 million poor livestock keepers
- Although the role of women in livestock production is at least equal to that of men, their contribution has remained underestimated
- Women tend to dominate the daily, homesteadbased labour with limited control over benefits
- Women are better able to control income from milk sale in short, informal, markets but less so in organized/ formal value chains
- Gender norms play a key role in reducing women's involvement in the revenue-generating nodes of the milk value chain

ILRI work:

• Integrating gender in livestock 'technical' work



Milk matters for gender- ILRI work

Ololili is a traditional Maasai forage conservation system used by families to feed their cows during the dry months

- In these months, men take the herd on transhumance and women stay at the homestead to manage and feed the family, including on cow milk
- It is a viable option for enhancing dairy productivity by improving forage availability
- The gender dimensions of ololili have not been studied





Milk matters for gender: Ololili study

Findings:

- Ololili are key for women to feed the family during the dry season
- Men take decisions about ololili management and women use ololili based on these decisions
- Collapse of an ololili leads households into a spiral of poverty
- Building or restoration of ololili are hindered by community power and gender dynamics, particularly for those with low social status and poorer women and widows

Therefore:

- Gender-responsive forage improvement initiatives through ololili can help women secure food for their families
- The introduction on a forage technology may only be successful if there's equitable governance of ololili



Milk matters: For employment, including for youth



Over 2 million people supported by milkbased enterprises in Kenya (12% of adult workforce)- farm, input and service provision including milk traders





Milk (cattle) matters: For non-monetary benefits



- Cattle for manure and traction- to improve overall farm productivity
 - In the poorest countries, livestock manure comprises over 70% of soil fertility amendments
- Cattle fed using crop residuesincluding for feed conservation
- Prestige
- Cattle as assets (store of wealth)

ILRI work:

• Estimation of non monetary benefits in Kenya: about 20% of the animals total value across different livestock systems Source: Ouma et al, 2003



Opportunities and challenges in dairy development: concluding remarks

- Last mile delivery: what are effective and efficient mechanisms for farmers to access inputs and services?
 - Cooperatives, hubs, contract farming, traders
- Gender and dairy value chain: moving from value chain transformation to gender transformative approaches, or how to promote gender inclusive value chains?
- Dual path towards transformation of milk markets, given current importance of raw milk marketing in Developing Countries
 - Gradual transition, through e.g. training and certification of milk traders- serving poorer consumers and providing employment (milk traders)
 - Direct move to processed/ capital intensive systems- serving better off consumers



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