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The Economics of Ecosystems and Biodiversity
TEEB for Agriculture & Food
Global Symposium, February 2019

Traditional livestock systems in Tanzania

27 February 2019, Nairobi

Pietro Galgani - True Price/Impact Institute

Traditional livestock systems in Tanzania - An Application of the TEEB AgFood Framework (2019). W. Baltussen, S. van Berkum, Y. Dijkxhoorn, R. Helmes, S. Ozkan-Gulzari, G.D. Massawe, P. Galgani, F. v.d. Elzen and T. Smith

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Content

- Study setup
- System descriptions
- Potential technical improvements
- Policy implications

Study setup

Objective

- Assess traditional livestock systems in Tanzania using the TEEB AgriFood Framework
    1. Systems as they are today
    2. Technical improvements
    3. Livestock policy

Scope: focus on three systems as they are now and potential technical improvements

Smallholder dairy in the Southern Highlands

97% of national milk supply

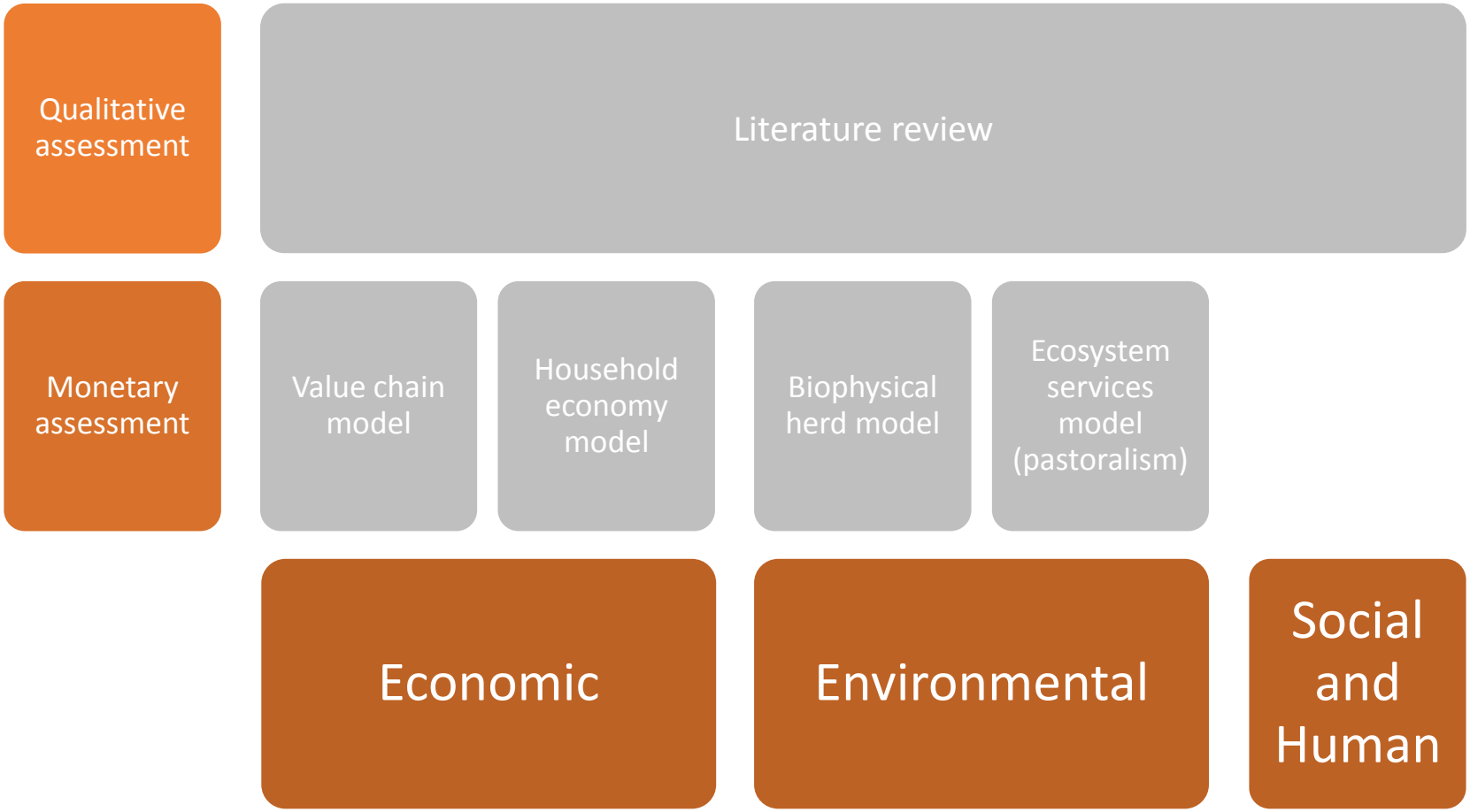
Backyard poultry in rural Tanzania

70% of rural supply, 20% of urban supply

Pastoralist livestock systems Maasai steppe

90% of country's cattle herds

Methods


Qualitative assessment
Literature review
Monetary assessment
Value chain model
Household economy model
Biophysical herd model
Ecosystem services model (pastoralism)
Economic
Environmental
Social and Human

System descriptions

Smallholder dairy system

- Traditional smallholder dairy farms are the backbone of the dairy industry.
  - Commercial dairy activities in the country are at an infancy stage with 3% of the milk to the formal markets
  - Artificial Insemination (AI) is practiced by only by few farmers
  - Use of inputs is minimal
- The Zebu is the most widespread cattle breed in the nation and dominates milk production.
- Diary is mainly located in the highlands
- Milk is sold raw in local market via middlemen
- Crop production is an integral part in the dairy system as animals feed on crop residues

Backyard poultry system

- Most common poultry system in the country
- Generally kept by the rural poor and managed by women and children
  - Average 30 birds per household
- Important for the rural household economy, supplying high quality nutrition, and financial income
  - Eggs are usually hatched or sometimes eaten
  - Meat is sold via middlemen to markets in rural centres
- Feed exclusively on food scraps
  - No costs
  - No environmental impacts for feed production
- Contribution to woman empowerment
- Chicken consumption is lower than other African countries.
- Risks for human health are not well understood

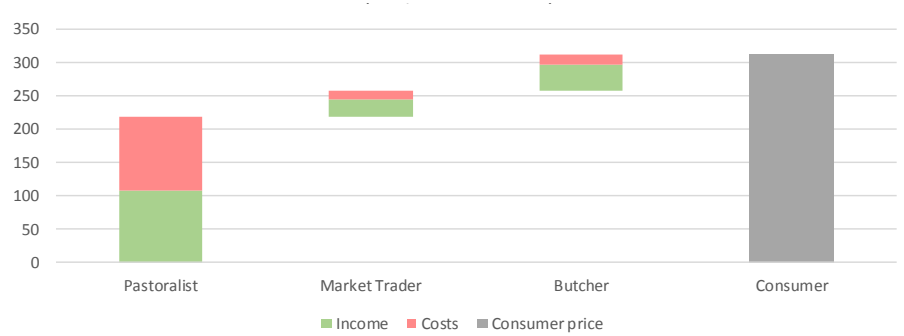
Pastoralist cattle system

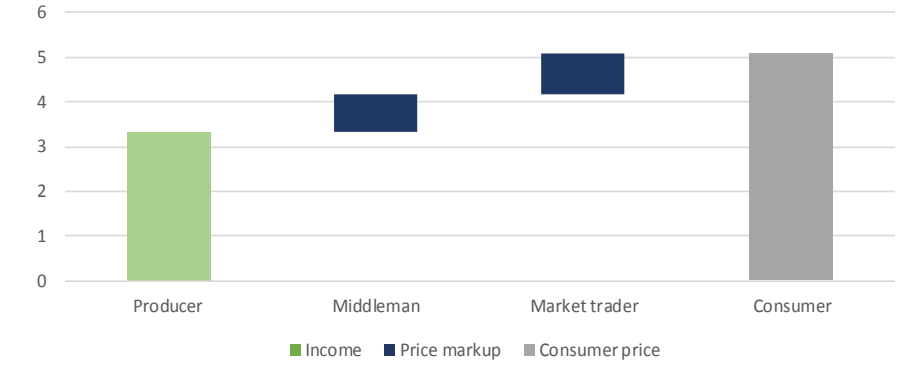
- Tanzania has the third largest cattle population in Africa
- Located in North of the country
- Cattle is dominant, also goats, sheep
- Livestock are mainly kept for subsistence, storage of wealth and cash earnings.
- Fed almost exclusively on grassland grazing
- Traditional roles and labour division
- Potential to improve animal health to increase yield and climate impact
- Practiced in areas characterized by poor soils and insufficient rainfall
- Competing for space with sedentary farming
  - Land degradation
  - Closure of wildlife corridors

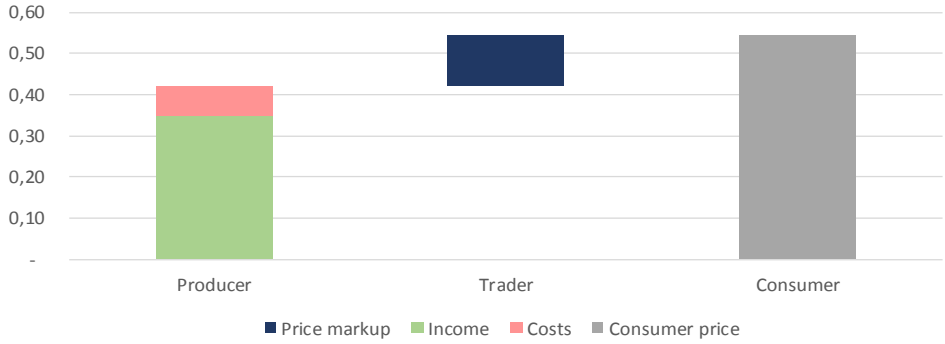
Short value chains

- Few and local inputs
- Final markets are local

- Low natural capital impacts in chains, besides GHG
- Relatively high margin for households







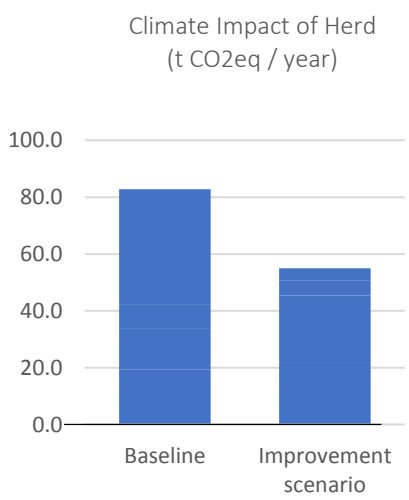
Potential technical improvements

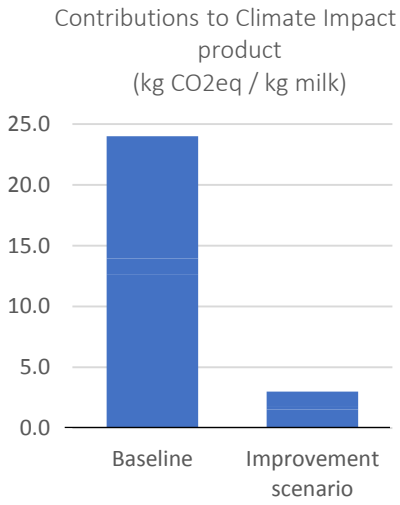
Improvements choice: feasibility and sustainability

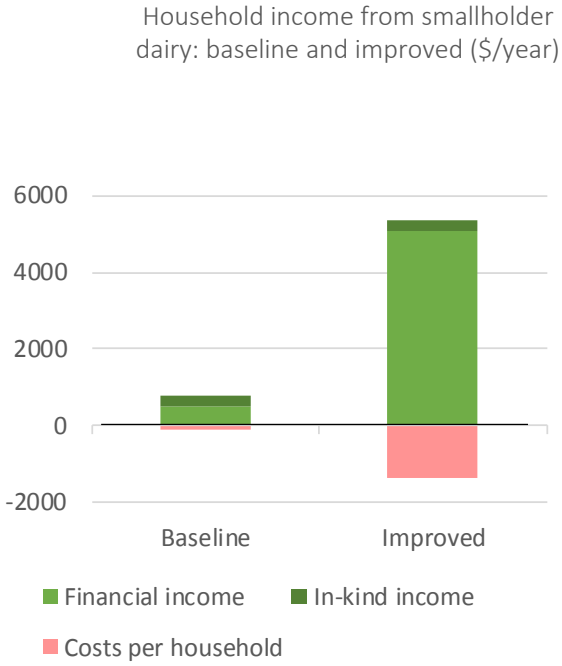
- Same scale
- Higher yield
- Increased use of inputs
- Improved breeds
- Improved access to knowledge

Smallholder dairy: Transition to commercial system promises high positive impact on climate and income

- The same herd of 5 cows can potentially increase yield 10-fold
- Increased feed and water rations and medicines
- Artificial insemination

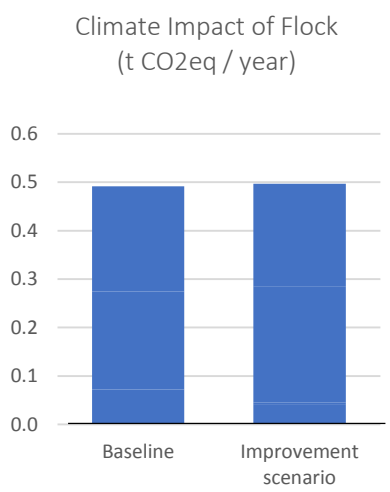


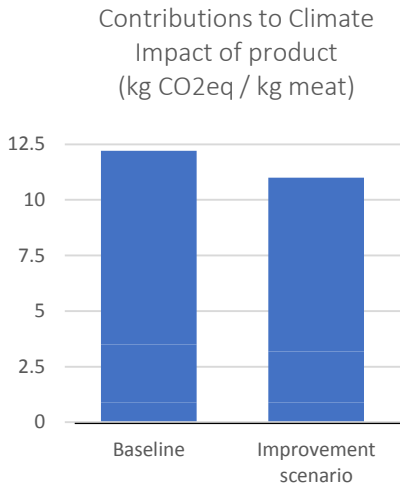


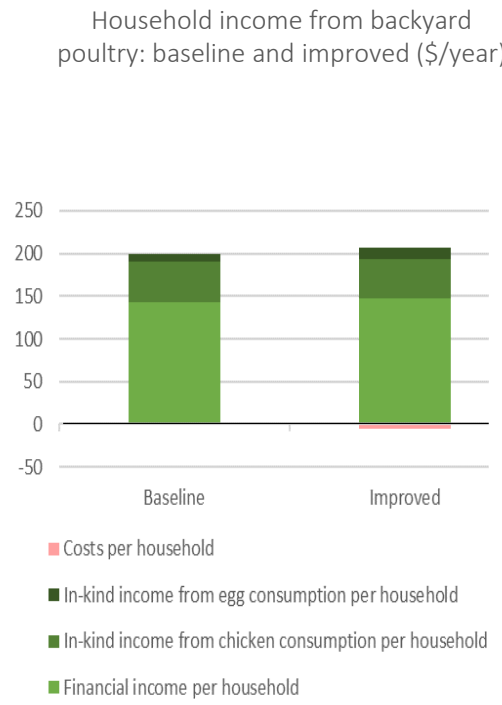


Backyard poultry: Potential impact of technical improvements is small but positive

- Small addition of purchased feed improves slaughter weight
- Fences to improve health conditions

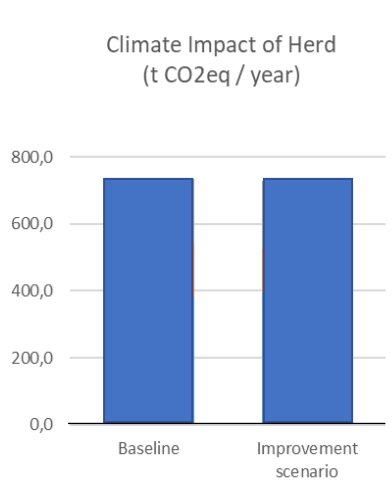


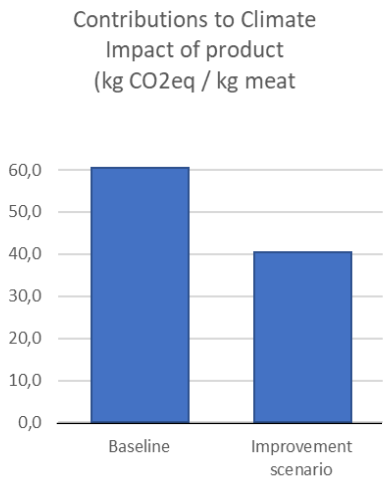




Pastoralist cattle system: Technical improvements can improve both climate impact and income

- Less feed of better quality
- Improved animal health through use of medicine
- More animals slaughtered with the same herd size





Policy implications

Policy focus areas for improvement of traditional livestock systems

- Make inputs and infrastructures available
  - Feed quality
  - Artificial insemination
  - Animal health
  - Fodder for dry season
  - Milk processing and distribution
  - Cooperatives
- Strengthen knowledge services
  - Increase resources for extension services
  - Create awareness of good practices related to input use
  - Prevent intensification beyond carrying capacity of ecosystems

The framework allows to identify the potential pitfalls of livestock development policy

- Risk of losing local side-benefits with commercial scale only
  - Income of the poor, women empowerment, waste , tourism
- Overuse of inputs
  - Increase both access and knowledge
  - Link agri-subsidies to environmental requirements
- Overgrazing
  - If it becomes profitable everybody starts doing it
  - Sustainable intensification to protect water and ecosystem quality
- Incentives: Short- vs long-term, local vs global
  - Yields *vs* Local benefits for poor households, ecosystem services
  - Local chains for agri-inputs
  - Payments for Ecosystem Service
- Institutional barriers to pastoralism development
  - Link livestock policy with land policy
  - Link livestock policy and education policy

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Thank you

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