

Scaling up animal source food production to sustainably meet growing demand in developing countries

“Aligning the Food Systems for Improved Nutrition in Animal Source Foods”, UC-Davis May 13-14, 2019

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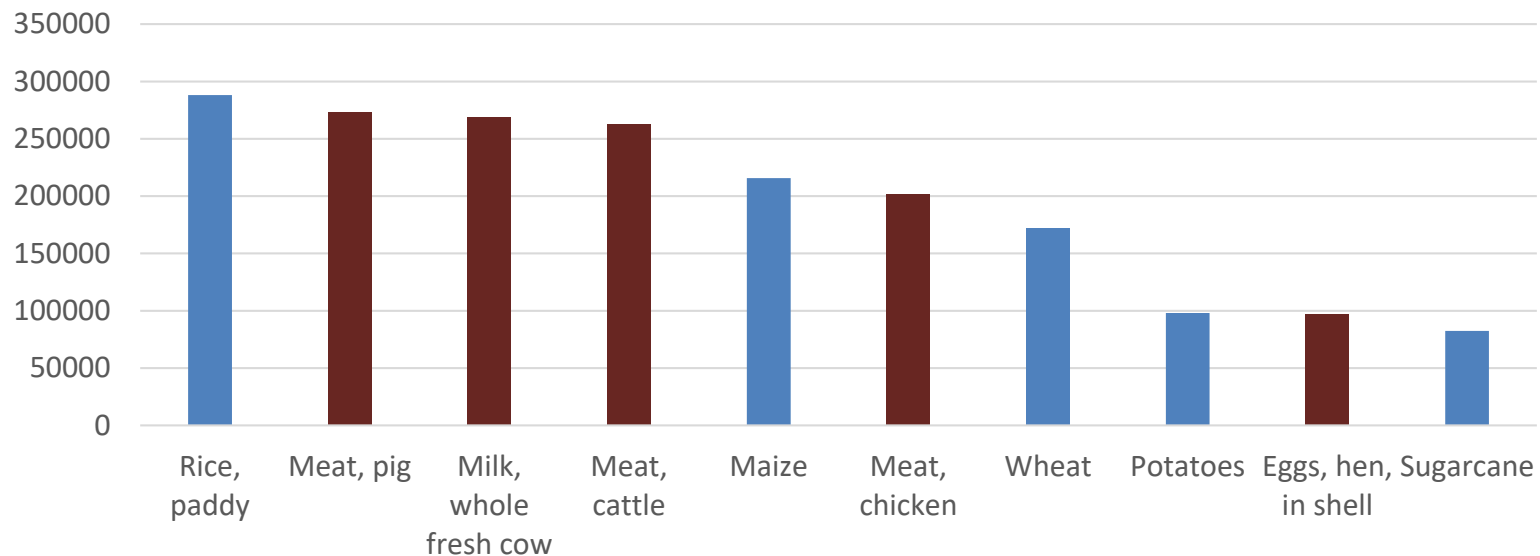
Outline

- Growing demand = more production in LMICs
- The role of smallholders
- Informal markets for livestock products
- Facilitating increased smallholder production and market access - examples
- Risks of a food-systems approach?

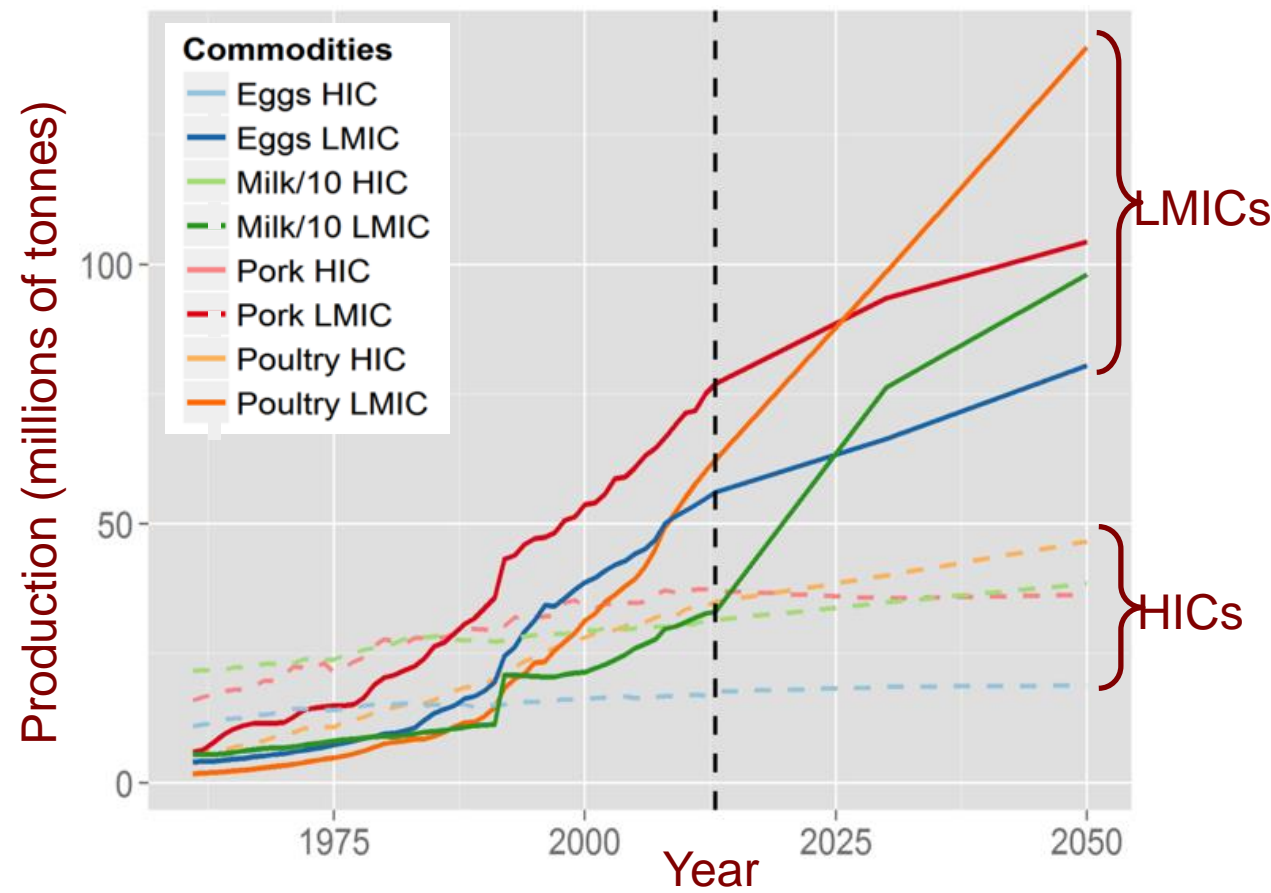


Global commodity values: on average animal source foods, five of the top ten

Current million USD
(average annual values 2007-2016; animal
source foods: USD 830 billion)



Projections of Livestock Production to 2050



- Sector growth is huge in the LMICs
- How, where and who will produce such amounts of livestock produce?
- Answer= mostly in LMICs themselves. Only 10% of ASFs are traded

Smallholders still dominate livestock production in many countries

Region (definition of 'smallholder')	% production by smallholder livestock farms					
	Beef	Chicken meat	Sheep/goat meat	Milk	Pork	Eggs
East Africa				60-90 (≤ 6 milking animals)		
Bangladesh (< 3 ha land)	65	77	78	65	96	77
India (< 2 ha land)	75	92	92	69	most	71
Vietnam (small scale)	90	65			80	70
Philippines (backyard)	85	41	99	44	64	25

Various sources: BMGF, FAO, ILRI

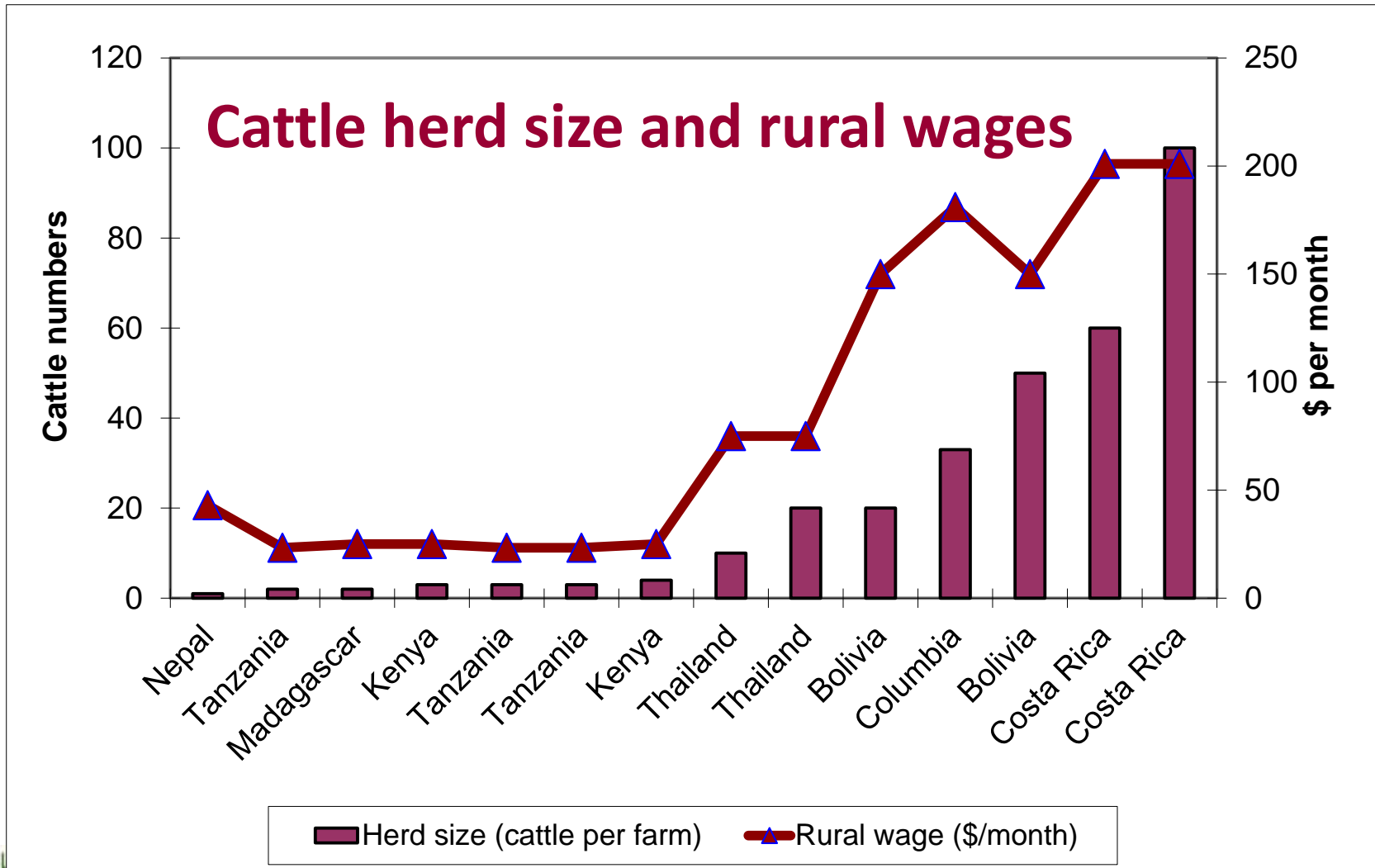
Smallholder competitiveness



- The “household model” of production (multiple objectives, multiple benefits).
 - Multiple benefits, maximum use of low cost resources and farm synergies, not completely dependent on profits, up to 40% non-market “return”
- The large scale “enterprise model” of production (1 objective and benefit=profit)
 - Capital intensive , mechanization and economies of scale advantages only work when labor costs are high
- Multiple studies across continents demonstrates reasons for underlying competitiveness
 - limited economies of scale in production
 - Often comparable unit costs of production, small vs large
 - Fresh product markets also buffer import competition



Opportunity costs of labor determine scale of production



Source: Project on Transregional Analysis of Crop-Livestock intensification, ILRI 2002

Smallholder investment rationale

- Does not require sentimental belief in “small is beautiful”
- Is simply based on the evidence and objective
 - increasing ASF supply to consumers
 - they produce the bulk of supply so have to include
 - does not detract from investing in larger commercial systems
- But also
 - Strong vehicle for empowering women and vulnerable communities
 - More ASF production in rural communities = more ASF consumption



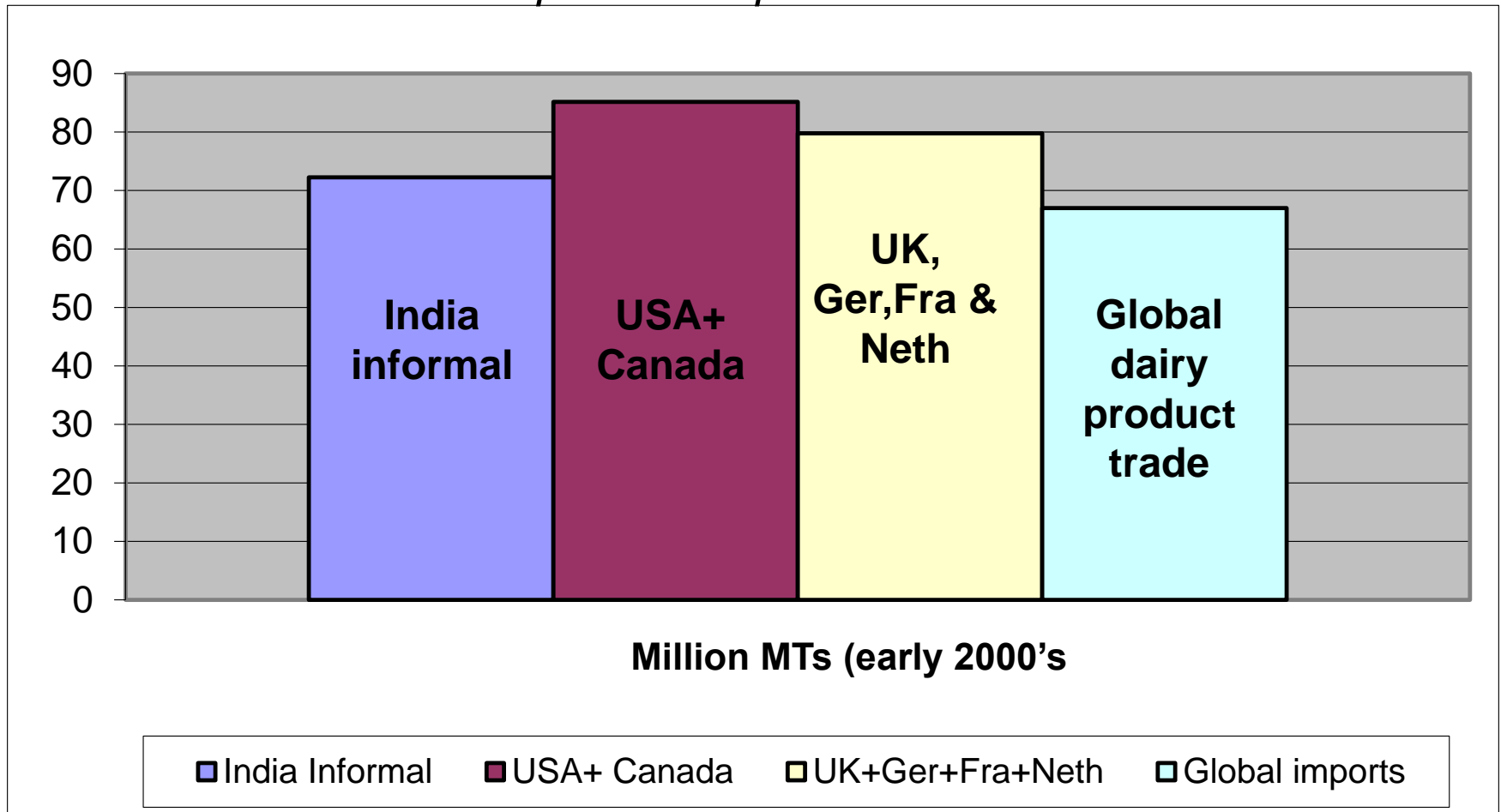
Growing local markets but mostly informal

- Large share of developing country livestock product markets are traditional/informal (80–90%).
- Domestic markets dominate: Opportunities for exports are limited by SPS and quality standards, but also price.
- *‘Supermarketization’* threatens smallholder market participation, although smaller impact on fresh foods.



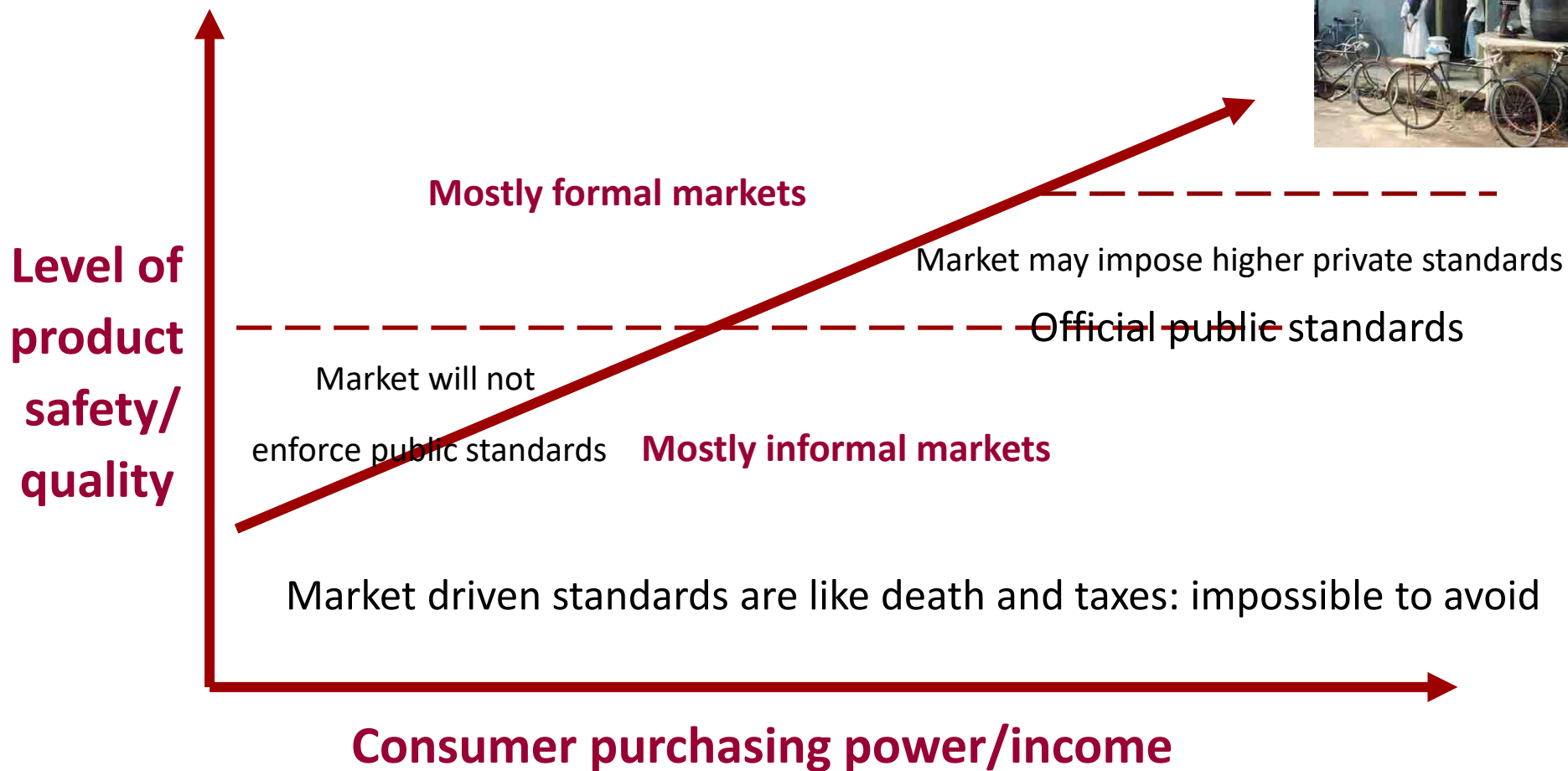
Dairy sector comparisons

Liquid milk equivalents



Informal/traditional markets are not small

Demand for safety & quality drives formal and informal markets



- Raising awareness and social marketing can raise demand for safety

Training and Certification - upgrading informal milk markets



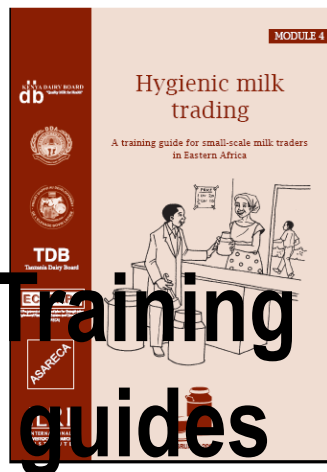
Milk Trader

Certification/Licensing

Cess fee

Training & certification of competence

Fee



Training guides



Hygienic cans

Regulatory Authority

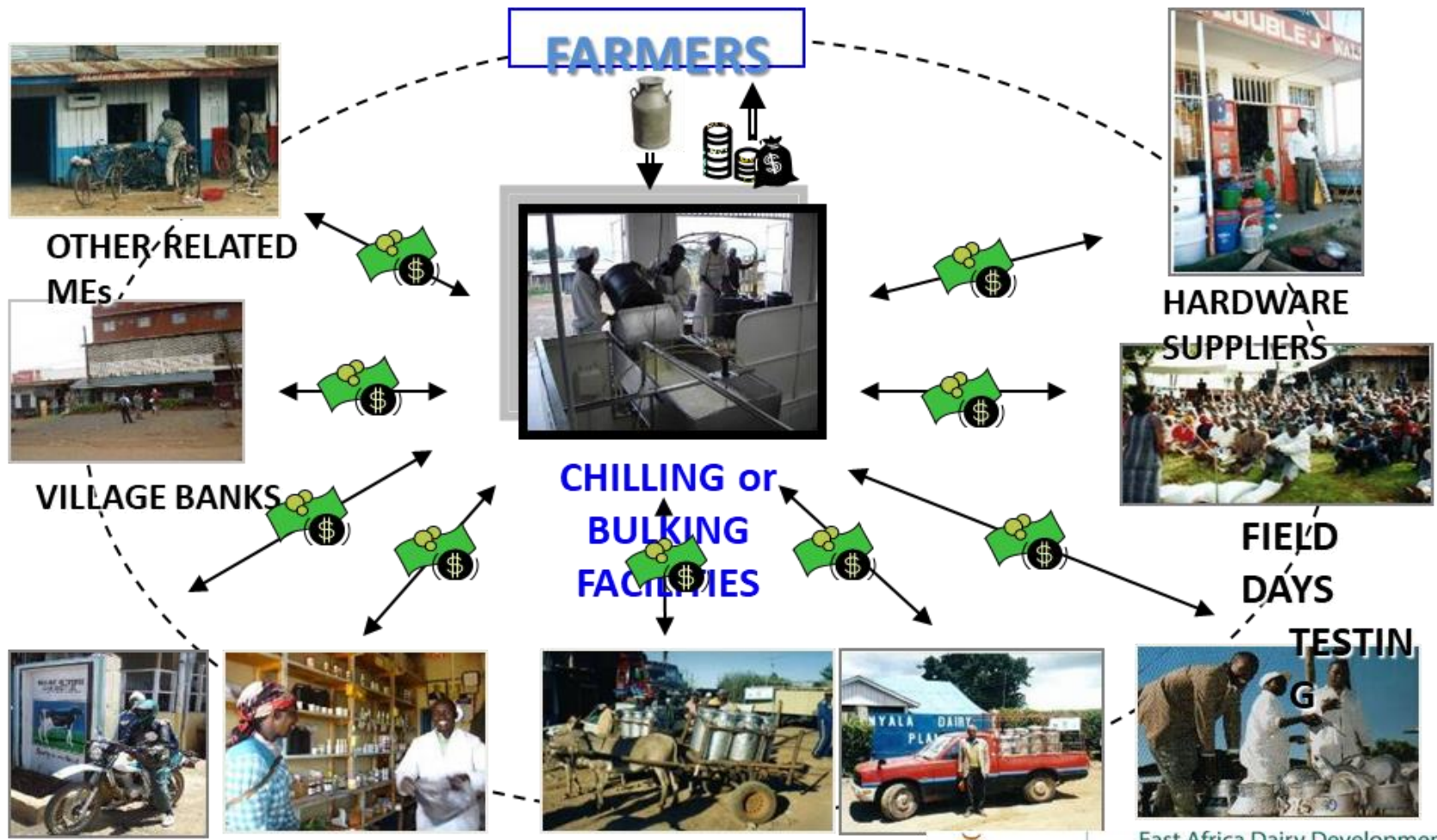
Accreditation & monitoring

Reporting

Training Service Providers (BDS)

Analysis found over \$30M annual benefits to farmers and consumers

Dairy hubs – business oriented collective action



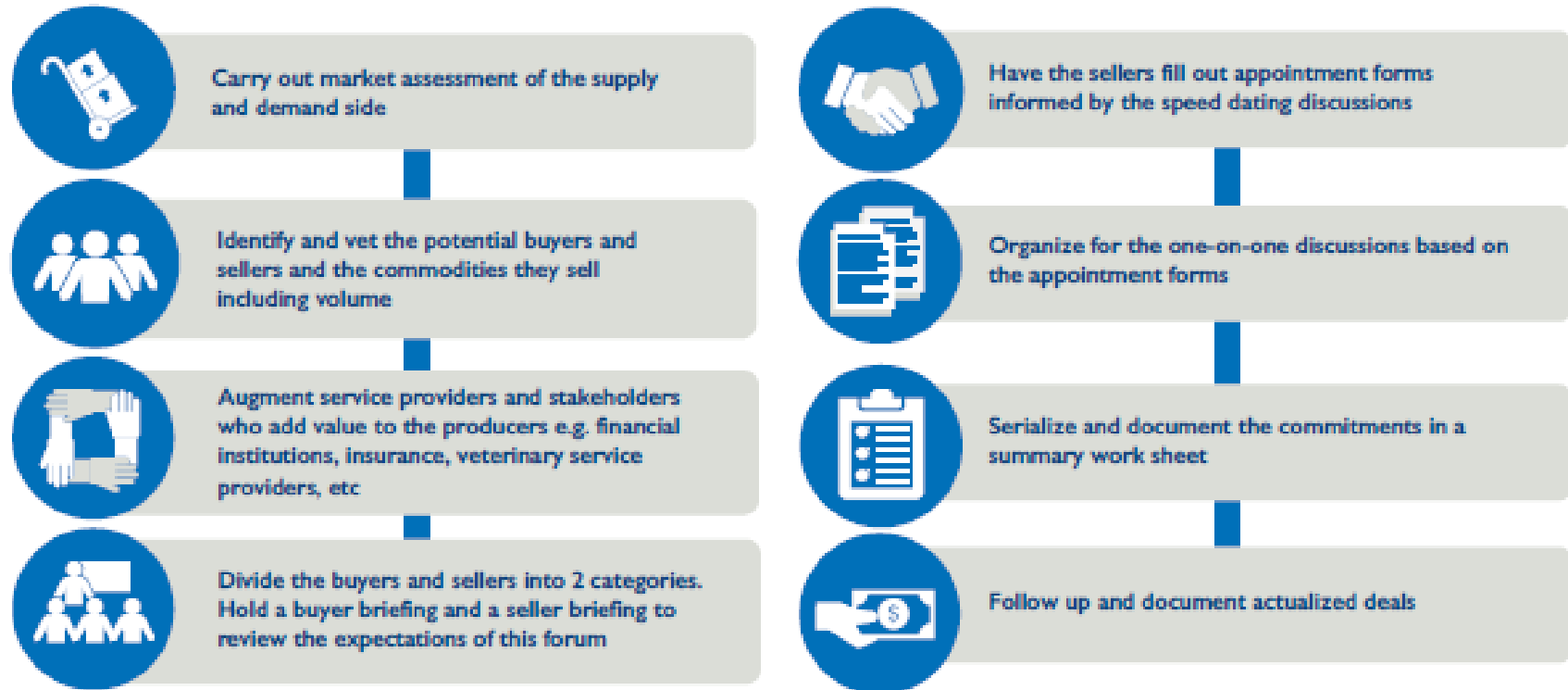
AI & EXTENSION

FEED SUPPLY

TRANSPORTER

East Africa Dairy Development
In partnership with

Livestock Business to Business (B2B) and Innovation Platforms



Various forms of multi-stakeholder platforms, eg innovation platforms

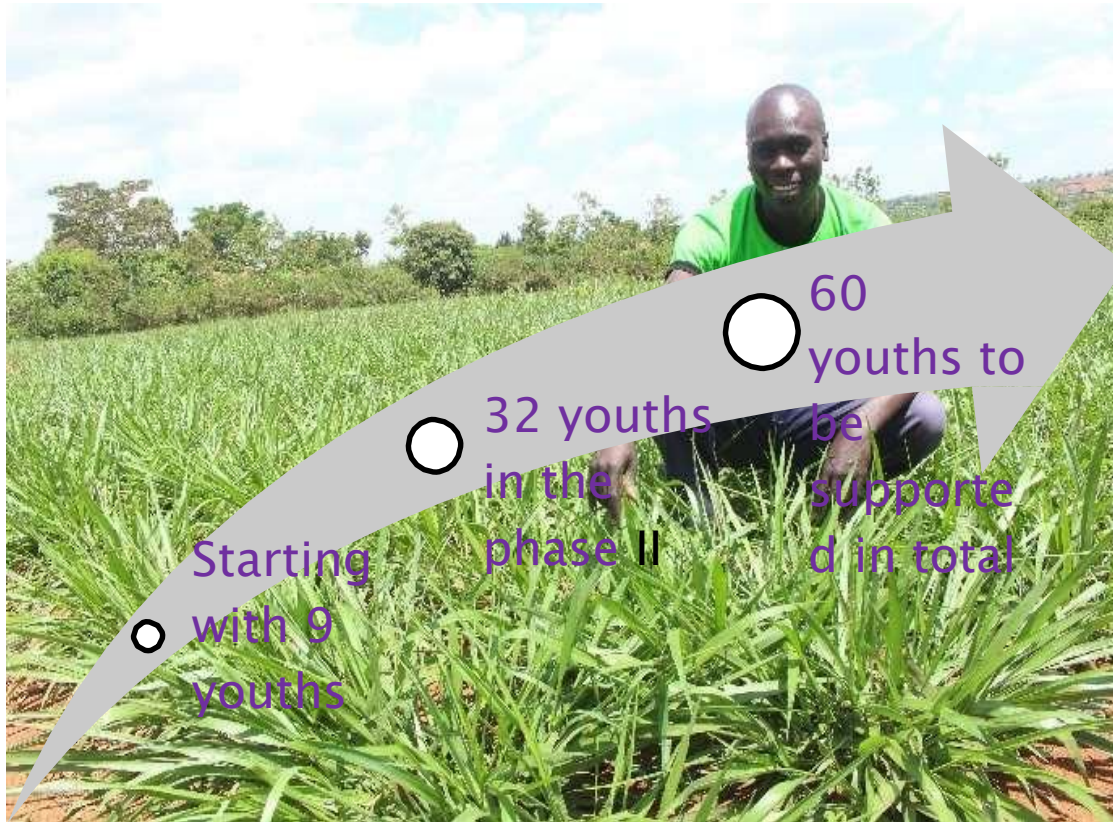
- Aiming to bring together actors for new synergies, joint learning, business linkages
- Aim to overcome market failure
- However, benefit/cost and sustainability uncertain

Opportunities through FOOD-FEED CROPS

- Genetic tools can be used to develop crop varieties with improved residue quality
 - 3% increase in digestibility = 7% increase in milk productivity (sorghum)
- Rice straw next target
 - Huge potential impact across large parts of Asia
- Potential environmental ‘win-win’
 - Fewer GHG emissions compared to burning or decomposition



Forages, youth, women



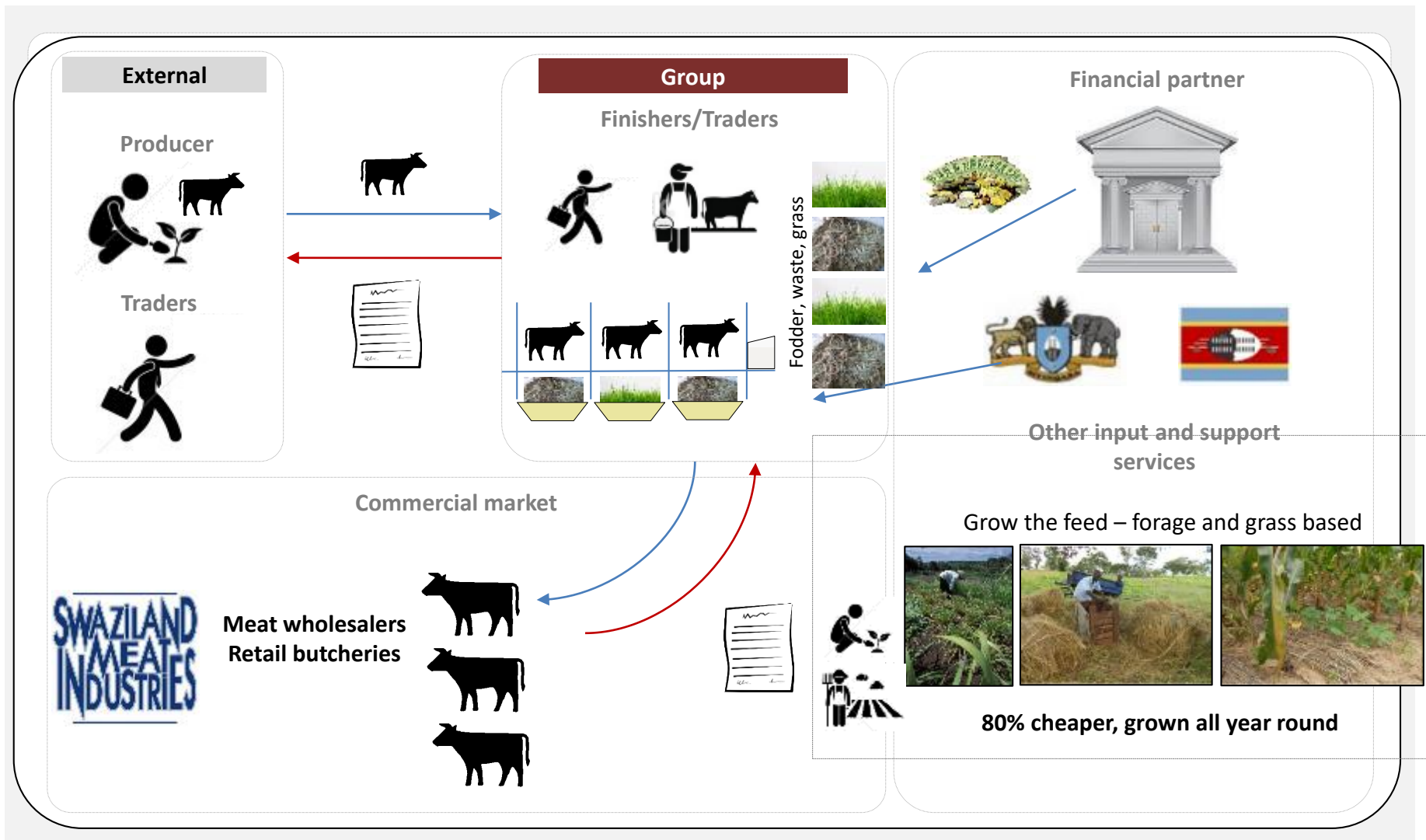
Opportunity for Inclusion

- **Youth** as direct producers:
- **Women** as direct producers
 - Women groups allocating land to fodder production
 - Aggregating and marketing

Further Opportunities

- Equipment services by youth
- **Commercial aggregators**

Financing innovation for beef fattening (Swaziland)



Adopting a “food systems” approach to livestock R&D – risks?



- In rural communities across LMICs, livestock represent much more than ASFs and food
 - Other products and benefits like hides/fiber, draft power, and important soil amendments
 - Livestock products inherently resource-dense so more market oriented = income
 - Livestock assets are unique: inflation proof, provide both insurance and financing mechanisms simultaneously
 - Livestock assets are often the main assets for rural women
 - Livestock assets invested in education and remunerable enterprises, facilitating generation exit from agriculture
- At least “agri-food systems” – maybe people and communities first, food second



WHY LIVESTOCK MATTER

Nutrition

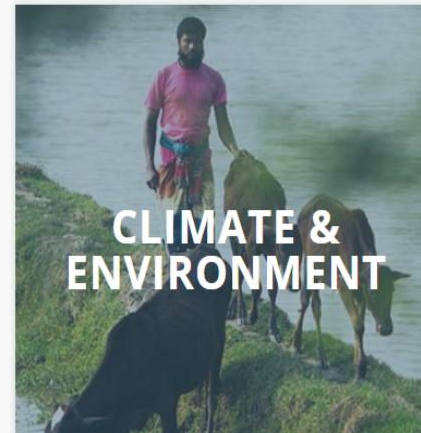
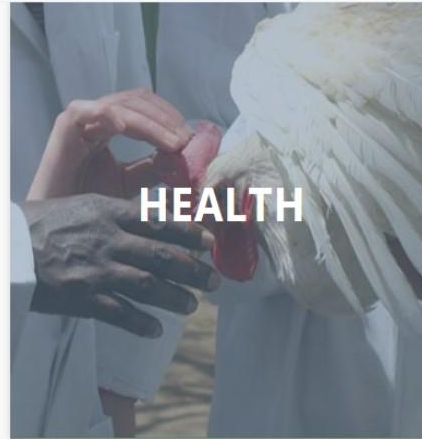
Health

Economic Opportunity

Gender

Climate & Environment

Stories



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Patron: Professor Peter C Doherty AC, FAA, FRS

Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

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