

What is value chain analysis? The case of livestock

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Link between value chain and demand in livestock products

- Livestock contributes to the livelihoods and food security of about 1 billion people around the world, particularly the rural poor in developing countries.
- Livestock accounts for more than 30% of the agricultural GDP of developing countries and for between 2 and more than 33 per cent of household income.
- There is increased demand for edible livestock products, has a result of increased growth in domestic consumption and exports
- **With the right approach, supplying this growing demand can be a pathway out of poverty, especially for small-scale livestock keepers, provided that they are organized and have access to the necessary inputs, services and finance**



What is a Value Chain (VC)

A VC is the **pathway of processes** that a **product** follows as it moves from the **primary producer** to the **final consumer**.

In principle at least, **value is added at each stage of the chain**, hence the term “value chain” (IFAD).



Characteristics of a VC

- A thriving livestock VC supports other agricultural VCs, as it “pulls” demand from the small-scale crop producers who grow fodder crops or supply crop residues to livestock producers
- VCs are “**meso-level**” structures in that they fall between the **macro-level** of the economy and the **microlevel** of individual livestock producers
- Livestock VCs can be short and quite simple or they can be quite long and complex



Value chain map

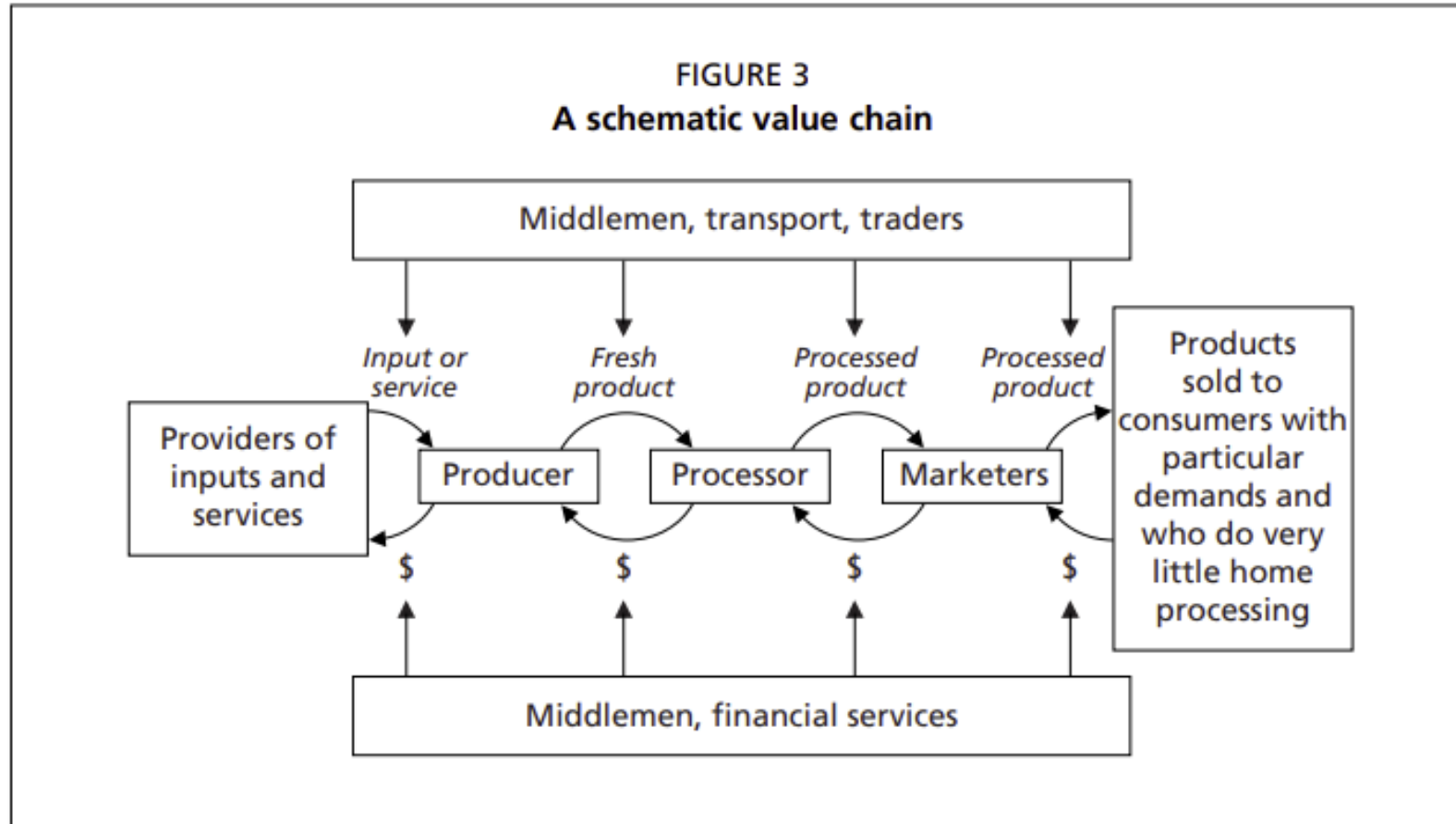
- A VC map is a simplified representation of a complex and dynamic reality
- The inputs and services that go into each step of the VC, and the enabling environment that affects the VC, cannot easily be shown on a VC map but are vitally important.



What are the components of a Value chain map

- **Actors** (producers, collectors/traders, consumers)
- **Inputs and services** (feed, veterinary drugs and services, extension advice, market information and finance)
- **Enabling environment**
 - the institutional, policy, legal and business environment - access to grazing land, licensing restrictions on para-veterinarians, etc.
 - cultural, social, religious and gender-based systems and practices - control of cash from animal products, etc.
 - rural infrastructure - delineated stock routes, watering holes, etc.

Generic livestock value chain map





Characteristics of an inclusive and pro-poor value chains

- They seek to **upgrade** and improve the **efficiency** of VCs primarily to benefit target groups - small-scale livestock keepers and the rural poor.
- Through successful VC projects, these target groups become **more dynamic actors** in the VC and **benefit** from: higher income levels, more stable income streams throughout the year and greater resilience to shocks induced by weather, disease or market fluctuations.



How to upgrade a value chain?

Upgrading should be in response to a clearly identified market opportunity that promises a positive return on investment,

Product and process upgrading: aims at “doing things better and/or bigger” and includes enhancing the efficiency of production processes and the quality of products to comply with buyers’ requirements.

For example, a poultry keeper may use improved feed formulation and vaccinate her birds to produce more eggs per bird.

A dairy farmer can avoid adulteration practices or can chill milk immediately after milking to produce a higher-grade product.

These interventions focus on the production stage.



How to upgrade a value chain?

Functional upgrading : involves producing new goods or services either upstream or downstream in the VC.

Examples of upstream interventions include livestock keepers producing high-quality lucerne as fodder for their animals or for sale.

Downstream, farmers may make yogurt from the raw milk. Another form of functional upgrading occurs when farmers involved in a VC enter another closely related one, such as when egg producers expand their activities to produce broilers



How to upgrade a value chain?

Upgrading of coordination and business models: often implies helping to formalize and make more transparent (through contracts) both the **horizontal relationships** among livestock farmers in the same VC segment, such as among the different groups of dairy farmers who sell to a single cooperative, and the **vertical relationships** between actors in different VC segments, such as between dairy farmers and a milk processor.



A step-by-step approach to value chain analysis

Step 1: Preliminary assessment of livestock systems

- ▶ Develop a shortlist of priority subsectors (cattle, poultry, goats, etc.) and commodities (meat, milk, eggs, fibre, etc.) for VC analysis
- ▶ Assess the conditions under which each VC operates
- ▶ Identify how rural communities could participate in each VC, focusing on the opportunities and constraints for women, women-headed households and landless people.
- ▶ overview of the livestock sector/subsector(s), including the production system and productivity,
- ▶ Characterization, structure and size of livestock holdings on smallholder farms and in rural households



A step-by-step approach to value chain analysis

Step 2: Analysis of target groups

- The target population's strengths, weaknesses, opportunities and threats (Infrastructure, human capital, social capital, access to finance, inputs, etc...)
- The target population's aspirations (livestock as a productive asset versus as a sign of wealth or prestige, risk reduction, better productivity or markets, job security)
- Assessment of the nutrition/food security status of the community will help determine how important a criterion this consumption should be in VC selection, taking into account alternative means of addressing nutrition/food security, such as crops or non-farm livelihoods.



A step-by-step approach to value chain analysis

Step 3: Preliminary market assessment

- ▶ Market requirements in terms of quality, quantity, pricing, timing and marketing points
- ▶ Core market actors and their roles in getting the product from farms to customers



A step-by-step approach to value chain analysis

Step 4: Selection of value chains for analysis

- VC growth potential
- Inclusiveness
- Complementarity/competition with existing or potential alternative VCs/livelihood activities
- Environment, natural resources, climate resilience
- Regulatory, policy and business environment
- Nutrition



A step-by-step approach to value chain analysis

Step 5: Value chain analysis

Step 5.1: End-market analysis

Step 5.2: Value chain map, marketing channels and points of leverage

Step 5.3: Production

Livestock producers

Traders/collectors/brokers

Step 5.5: Processing

Processors

Step 5.6: Distribution

Importers, retailers and wholesalers.



A step-by-step approach to value chain analysis

Step 6: Inputs, services and systemic issues

Step 6.1: Inputs

Input and equipment suppliers

Step 6.2: Services

Livestock service providers.

Step 6.3: Finance

Financial service providers.

Step 6.4: Enabling environment

Step 6.5: Governance

Livestock keepers' organizations

National associations.



A step-by-step approach to value chain analysis

Step 7: Strategic analysis and recommendations

Step 7.1: Partnerships

Step 7.2: Policy advocacy

Step 8: Validation of the value chain analysis and development of a stakeholder vision

Step 9: Finalization of project activities and partner selection

Step 10: Monitoring and evaluation

Value chain analysis and disease control : case of African swine fever in Uganda

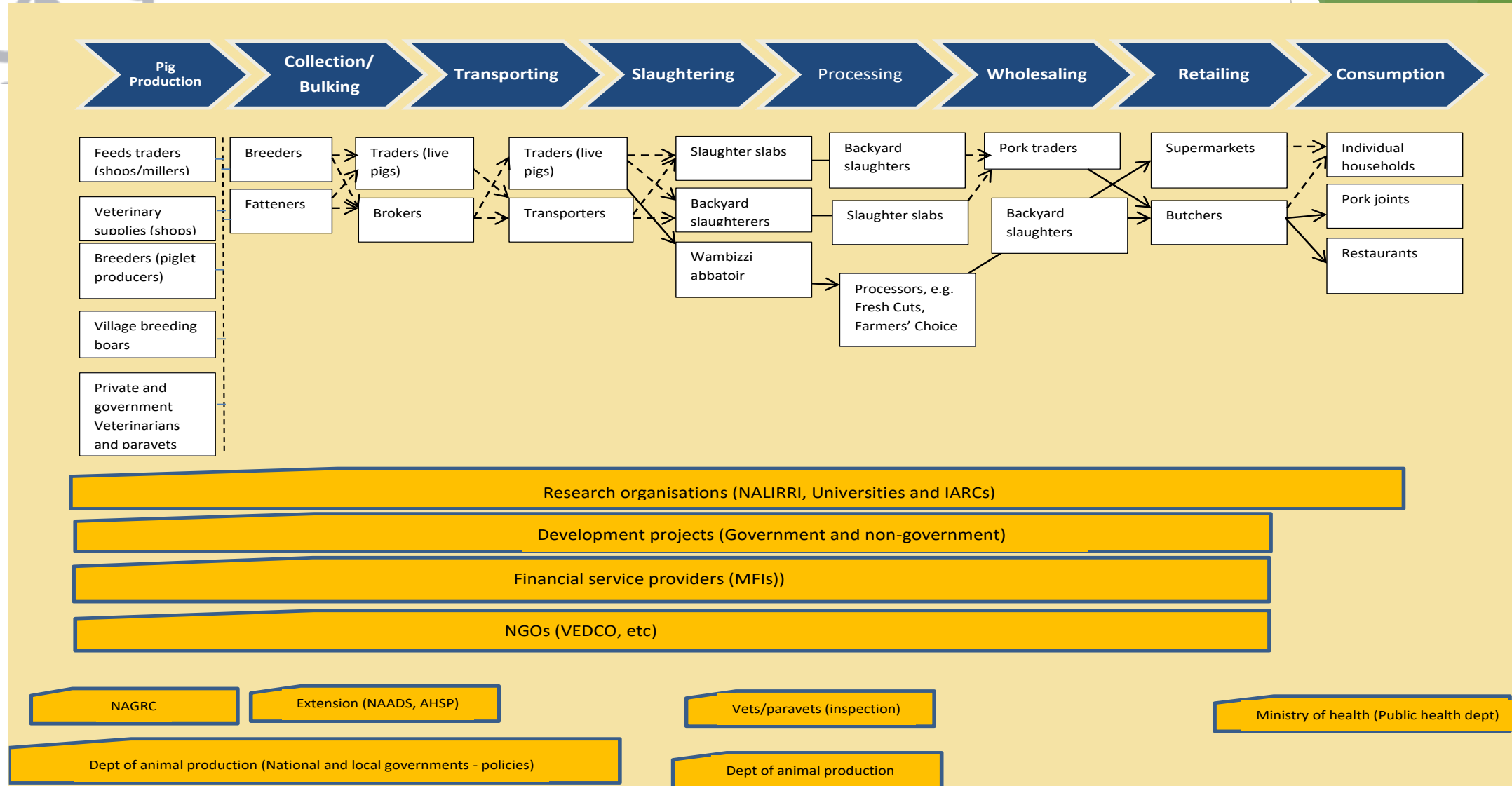


The purpose of applying the combination of value chain and risk analyses is to address the problem of disease risk and contribute to disease control planning.

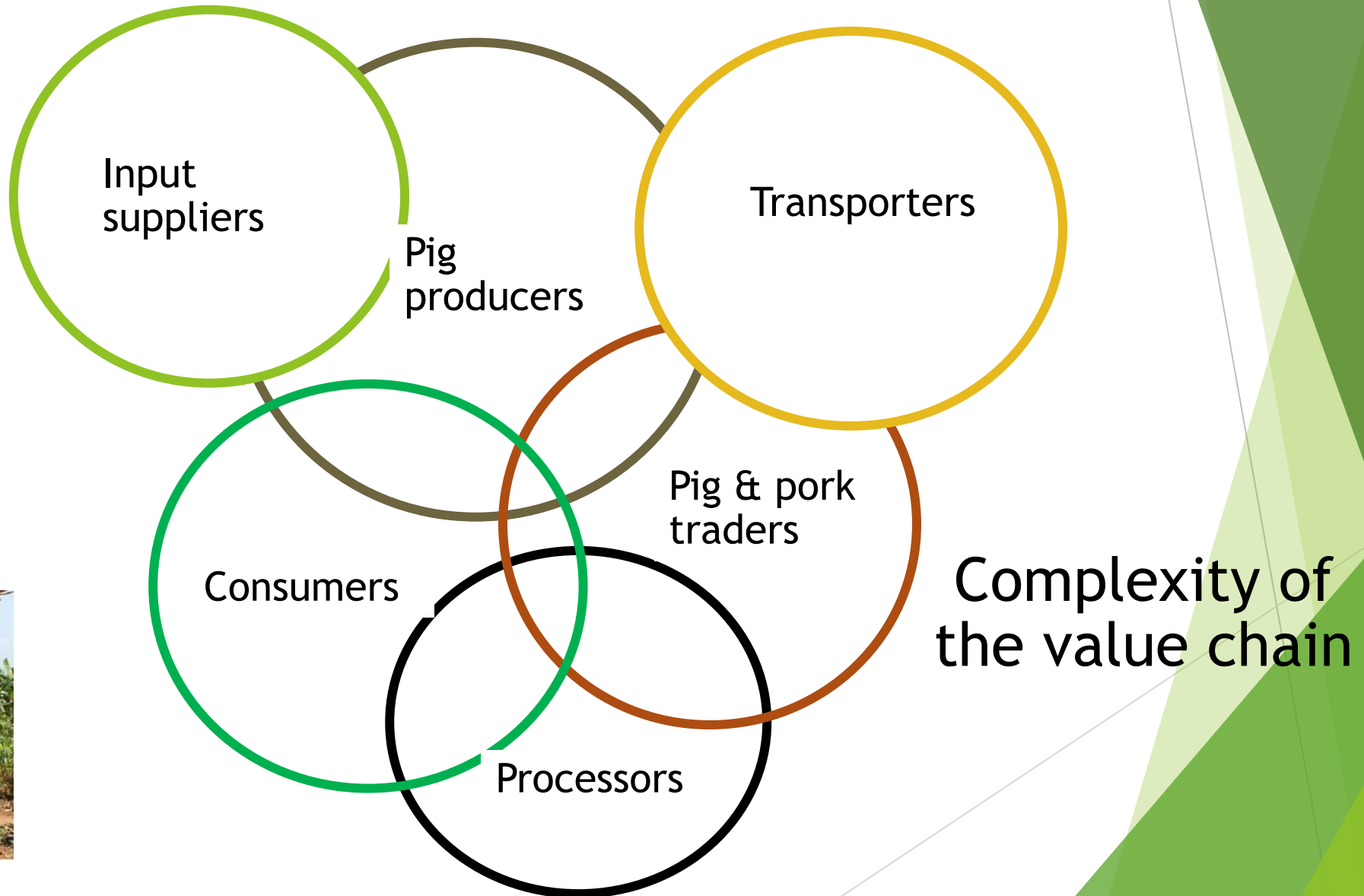
Therefore, the value chain analysis needs to focus specifically on elements that either increase disease risk or that are critical in disease risk management, thus avoiding the need for a complete value chain analysis;

The best way to achieve this is to ensure that veterinary epidemiologists and social scientists work together throughout the process at all levels

The Small Holder Pig Value Chain in Uganda



Interconnectedness of the VC nodes



Value Chain Assessment the team

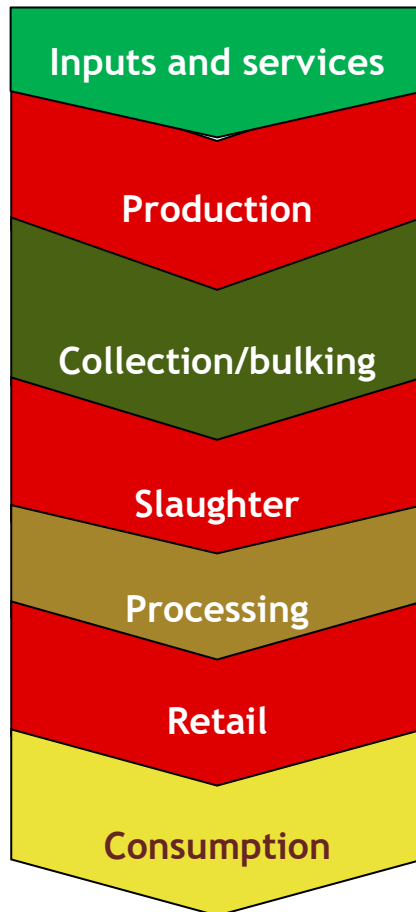
Multidisciplinary -fuller understanding of value chain issues

- Animal Nutritionist
- Animal health/epidemiologist
- Agricultural Economist
- Public health - food safety aspects
- Communications staff
- Livestock geneticist
- Gender scientist



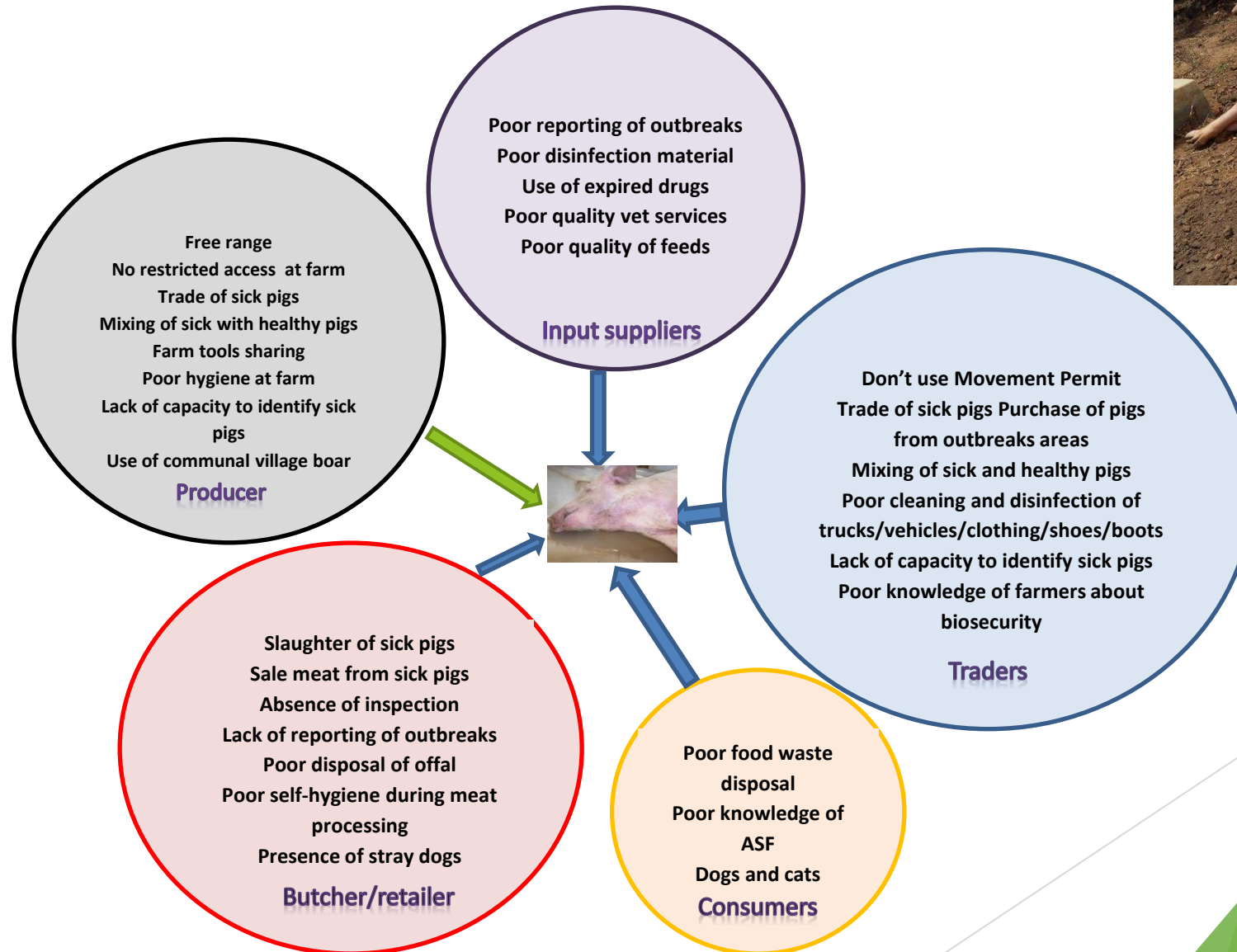


Key constraints along the pig value chains in Uganda



- Expensive, and of poor quality feeds (adulterated)
- Weak implementation of quality assurance systems
- **High disease burden - especially ASF, ecto and endo parasites**
- Low bargaining power (farmers operate individually)/pig weight estimation
- Lack of capacity on low cost locally prepared feed rations
- High transaction costs (especially transport),
- **Poor biosecurity measures resulting in disease spread**
- Poor handling of pigs during transportation - affects pork quality
- **Lack of designated areas for centralised slaughtering/ no meat inspection**
- **Poor waste management**
- Few formal processors despite high demand for pork/pork products
- Low supply of quality pigs
- **Lack of prerequisites for pork storage (lack of cold chain)**
- **Poor pork handling and hygiene practices**
- **Lack of awareness on pork zoonoses**
- **Evidence for presence of pathogens causing zoonotic diseases**

Value chain actors' practices in the spread of ASF



Participatory risk assessment of ASF along the pig value chain



Value chain nodes	Average overall score of FGDs	Rank	Value chain actors (ranking)
Input supply and services	4.9	5	Boar service (1); Para-veterinarians and Village veterinarians (2); Feed suppliers (3); Drug stockists (4); Private and Government veterinarians (5)
Pig Production	5.2	4	Piglet producers (1); Growers (2)
Pig trading	6.8	1	Live pig collectors (1); Brokers (2); Transporters (3)
Slaughtering	5.5	2	Backyard slaughters (1.); Slaughter slabs (2); Wambizzi abattoir (3)
Retailing	5.4	3	Butchers (1); Supermarkets (2)
Consumption	3.7	6	Individual households (1); Pork joints (1); Restaurants (2)

Contents lists available at ScienceDirect

Preventive Veterinary Medicine

Journal homepage: www.elsevier.com/locate/prevetmed

Qualitative analysis of the risks and practices associated with the spread of African swine fever within the smallholder pig value chains in Uganda

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Ex-ante assessment of pig biosecurity interventions

- Application of System Dynamics model to assess the impact of biosecurity interventions on margins to value chain actors
- Average annual % change of value chain actors' cumulative profit relative to baseline



Scenario	Pig value chain actors				
	Producers	Butchers	Traders	Collectors	Wholesalers
ASF biosecurity Vs baseline	-6.2	8.1	10.3	8.6	8.0
Pig business hub Vs baseline	11.3	5.3	8.8	7.3	4.0
Combined ASF biosecurity and pig business hub	6.5	13.1	21.2	17.4	10.4

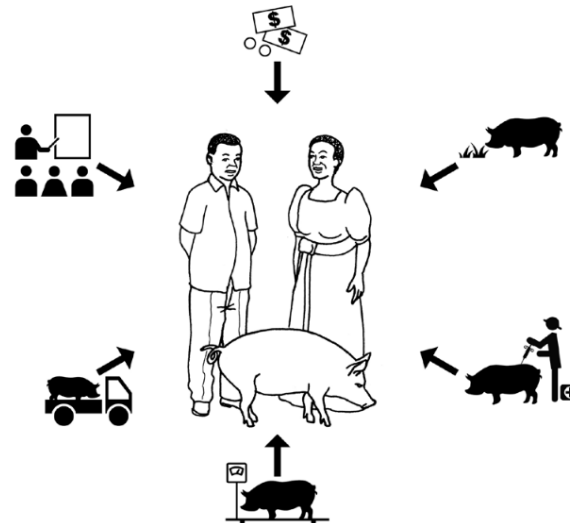
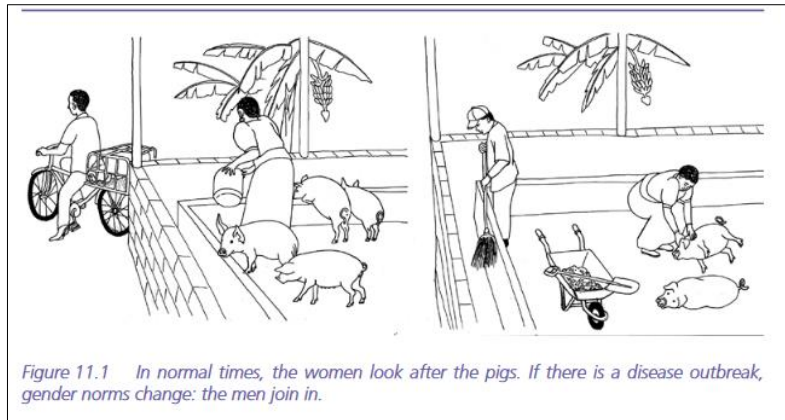
Gender issues

Part 2 Gender-integrated health, genetics, and feed and forages research

11 THE GENDER DIMENSIONS OF A PIG DISEASE: AFRICAN SWINE FEVER IN UGANDA

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Gendered perceptions of biosecurity and the gender division of labor in pig farming in Uganda

Author: Michel Dione^{1*}, Robert Ochago^{2,3}, Emily Ouma⁴, Peter Lule⁴, Mary Jo Kakinda⁵, Robinah Nyapendi⁵, Rosemirta Birungi⁴, and Rhiannon Pyburn⁶

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18 GENDER-EQUITABLE PIG BUSINESS HUBS IN UGANDA

Emily Ouma,¹ Robert Ochago,^{1,2} Michel Dione,¹ Rosemirta Birungi^{1,3} and Peter Lule¹

¹ International Livestock Research Institute, ² Sasakawa Global 2000 Uganda, ³ Agency for Inter-regional Development (AFID)

What did we do to upgrade
the value chain to improve
performance and reduce
risk to African swine fever

Capacity building of farmers on improved husbandry and biosecurity practices

- 960 farmers involved in the study
- Improved knowledge of pig farmers on biosecurity
- Reduced outbreaks in some areas following training
- Farmers are willing to take preventive action as they have observed the positive outcomes.



Transboundary and
Emerging Diseases

ORIGINAL ARTICLE | [Open Access](#) |

Impact of participatory training of smallholder pig farmers on knowledge, attitudes and practices regarding biosecurity for the control of African swine fever in Uganda

Michel Mainack Dione , Ian Dohoo, Nicholas Ndiwa, Jane Poole, Emily Ouma, Winfred Christine Amia, Barbara Wieland

**Improvement of
farmer's business
performance and
enforcement of disease
control regulations**

Capacity building of butchers on appropriate pork slaughter and pork handling

- Participatory training for butchers (47) has enhanced hygiene, carcass handling and biosecurity practices in Mukono Municipality.
- Improved knowledge on good hygiene and sanitation, personal hygiene, and management of sick pigs and “abnormal pork”
- Some butchers have reported an increase in sales of pork as a result of adoption of best practices



Meat inspection and hygiene regulations are instrumental to sustain outcomes

Capacity building of farmers on improved feeding

- Developed training materials
 - A training manual (English & Luganda) and a brochure on how to make silage
 - Brochure on feeding pigs on supplemented silage
 - Extension brief on local formulated rations
- Trainings on sweetpotato silage making and feed rations
 - Extension staff of local governments (Masaka & Kamuli), MUZARDI, NALIRRI
 - Smallholder farmers (280 youth, 1,458 female and 402 male) trained
 - Two silage open days held in Kamuli and Masaka
 - Two sweetpotato silage business centers opened in Masaka and Kamuli



Improving business performance

- Developing equations for predicting pig live weight using body measurements in pigs
- Pig business hub model developed and tested for feeds supply - Masaka district (Kabonera-Kyanamukaaka pig cooperative).
- 135 members of pig farmer groups trained in business and governance issues.
- Business plan developed for centralised pig slaughter facility in Masaka district. *Target outcomes:* improved food safety, better pricing, and improved biosecurity
- Multi-stakeholder Platforms (MSPs) developed for visibility of pig value chain and knowledge sharing for stakeholders



Improving enabling environment

- National Feeds policy in place to promote animal production and productivity **but** lacks a legal framework for implementation.
- Feed Bill drafted **but** not enacted
- Meat policy in place **but** lacks articulation and implementation of pork quality assurance and standards
- Issues on transport of animals and heat stress



Acknowledgments

The Small Holder Pig Value Chain Development Project (SPVCD) Research Team in Uganda led by Dr Emily Ouma at the International Livestock Research

IFAD Manual
How to do livestock
value chain analysis
and project
development

