



Better lives through livestock

# Understanding the importance of the social and economic impact of PPR

*Nicoline de Haan, Pacem Kotchofa and Karl Rich  
International Livestock Research Institute (ILRI)  
Nairobi, Kenya and Dakar, Senegal  
AGA presentation*

22/05/20



# Why is impact important

2 main reasons

*Classic approach*

- To understand the extent of the problem

*New approach*

- To build back better

Need both!

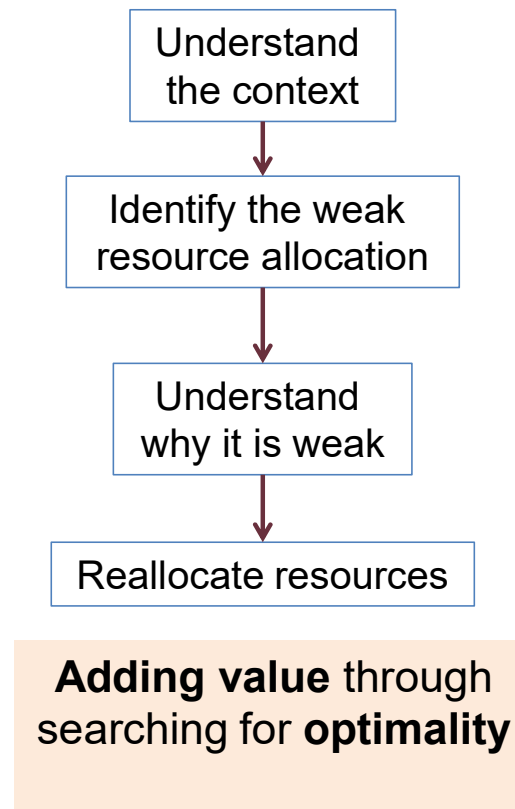


## SOCIAL and ECONOMIC impact

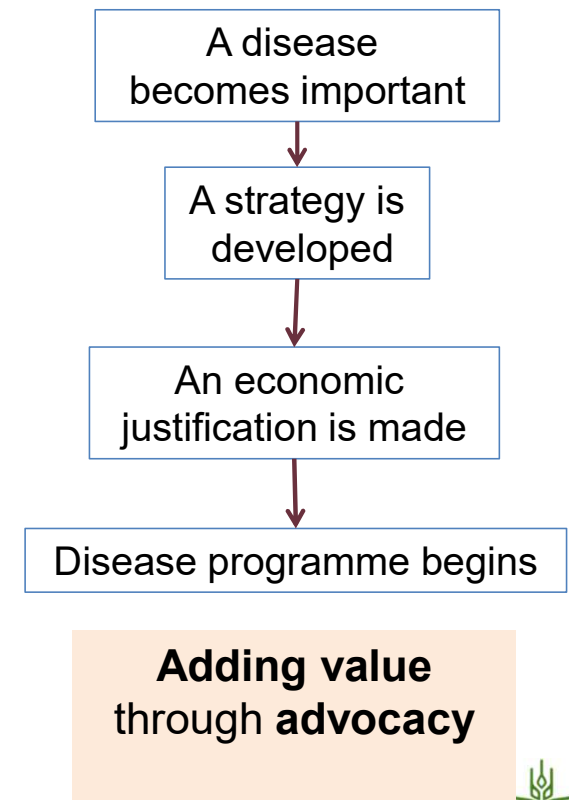
Understanding the extent of the problem better:

- To inform decision making on funding
- To create awareness and get funding
- To improve resource allocation

### An economic approach



### A health approach



Adapted from Rushton, 2017

ILRI



## SOCIAL and ECONOMIC impact

To **BUILD BACK** better:

- To get a sense on who is affected
- How they are affected by the disease
- Why they are affected
- Understanding incentives
- Targeting interventions



## Slide 4

---

**NdH1** de Haan, Nicoline (ILRI), 22/05/2020

# Understanding the importance of people in PPR

## THE PEOPLE

their decisions and trade offs

how do we align the decision for PPR control

## Understanding the importance of the people in PPR

- PEOPLE in PPR – not stakeholders or actors but people who make DECISIONS in any PPR disease control strategy

### PPR ECOSYSTEM

- International community: PPR GEP and GREN, FAO DG, research organizations
- Governments: notifiable or not, who can vaccinate, or make it compulsory
- Livestock owners: pay for vaccine or comply to take their animals to be vaccinated
- Producers and suppliers of vaccines
- Others: development agencies/aggregate companies

# Approaches to IMPACT Assessments

## Nested approach

(part of the PPR ecosystem)

Production and Household level

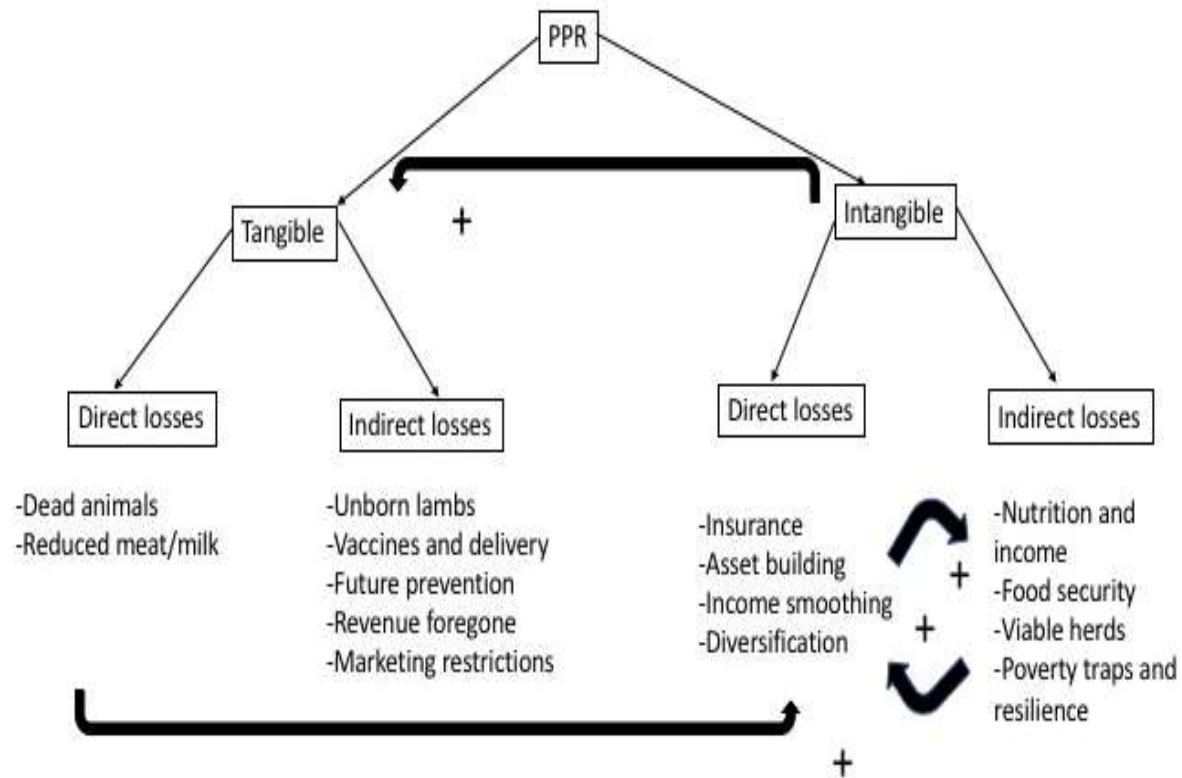
Value chains

National level



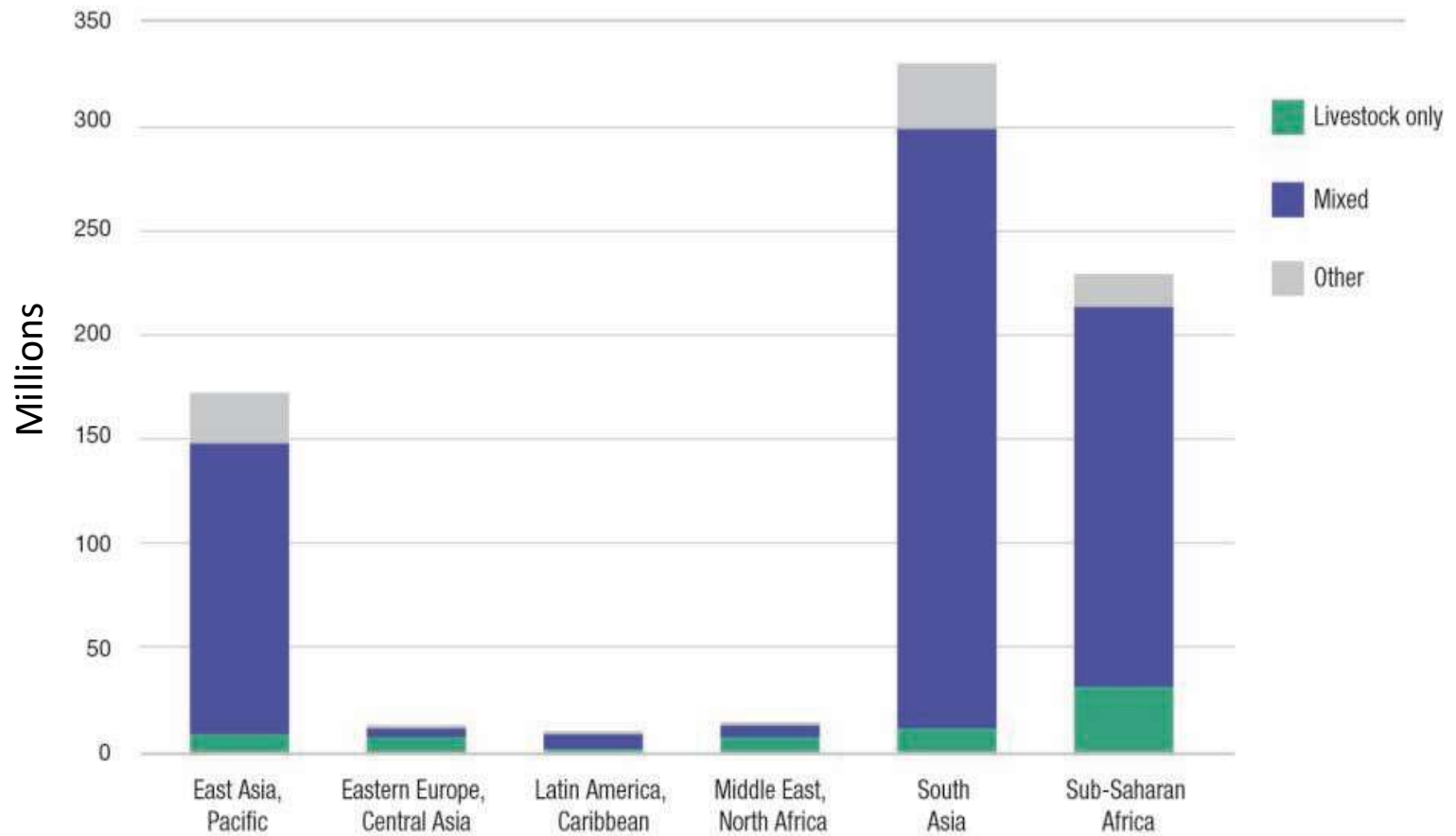


# Framework on IMPACT OF DISEASE at HOUSEHOLD LEVEL



Adapted from de Haan et al. 2015

# LIVELIHOOD PORTFOLIO

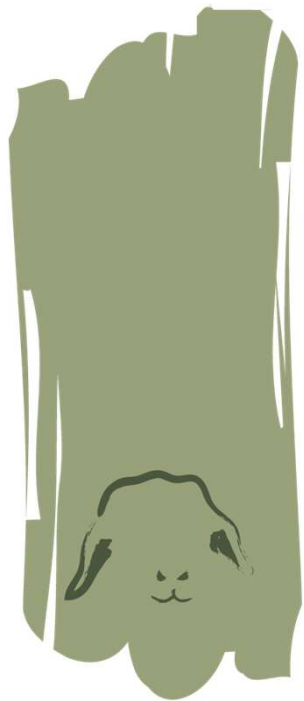


Number of rural poor livestock keepers (living below \$2 income per day) in 2010

Source: WEF 2019 Meat: options for the livestock sector development in development and emerging economies to 2050 and beyond



# FUNCTIONS OF KEEPING LIVESTOCK IN ETHIOPIA



	Farming systems					
	Smallholder (n=178)			Pastoral/extensive (n=198)		
	Hsh a	Hsh b	Ranking	Hsh a	Hsh b	Ranking
<i>Regular cash income</i>	107	69	0.20	149	80	0.22
<i>Meat</i>	138	16	0.19	156	22	0.16
<i>Insurance/emergency</i>	104	62	0.18	128	59	0.17
<i>Manure</i>	146	6	0.17	106	1	0.09
<i>Planned investment</i>	52	14	0.07	71	6	0.05
<i>Ceremonies/Celebration</i>	73	1	0.07	141	3	0.10
<i>Wool</i>	21	7	0.03	44	13	0.05
<i>Dowry</i>	39	1	0.03	79	0	0.04
<i>Cultural rites</i>	12	0	0.01	62	2	0.04
<i>Milk</i>	8	1	0.01	29	11	0.03
<i>Skin</i>	35	0	0.02	30	0	0.01
<i>Breeding</i>	10	0	0.01	15	0	0.01
<i>Other</i>	24	1	0.01	46	1	0.04

Purpose of keeping sheep and the ranking of the importance of these purposes by farming systems in Kenya (Kosgey 2008)

# Multifunctionality of small holder systems

---

Multifunctionality

Of the animal

Of the herd composition

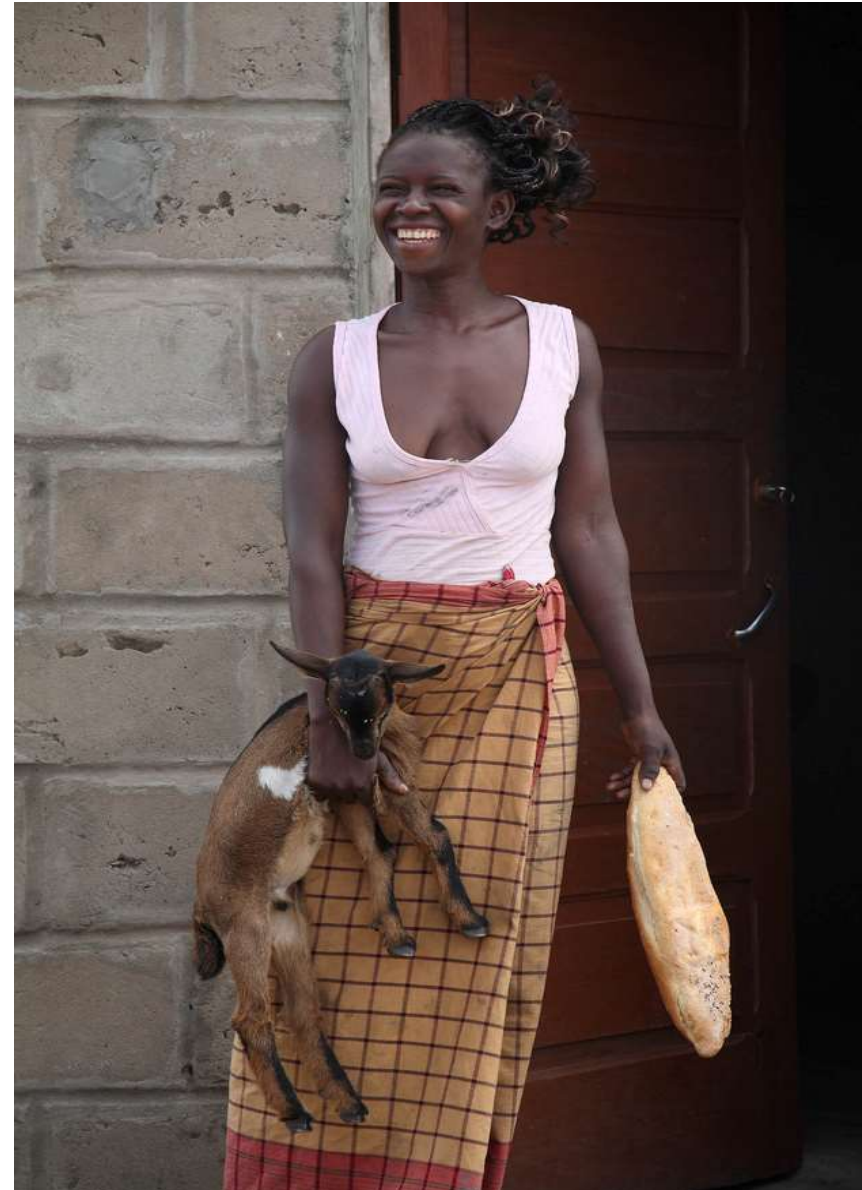
Of farming

determines extent of impact and approach to building back better through incentives and targeting



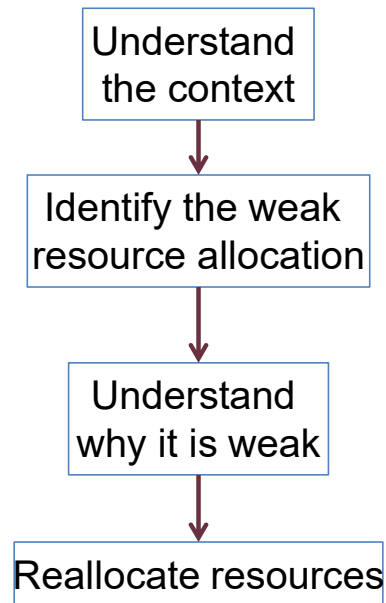
## The OWNER

- Why is this important for PPR disease management and build back better?
  - Smaller animal
  - Limited political power
  - Often a woman



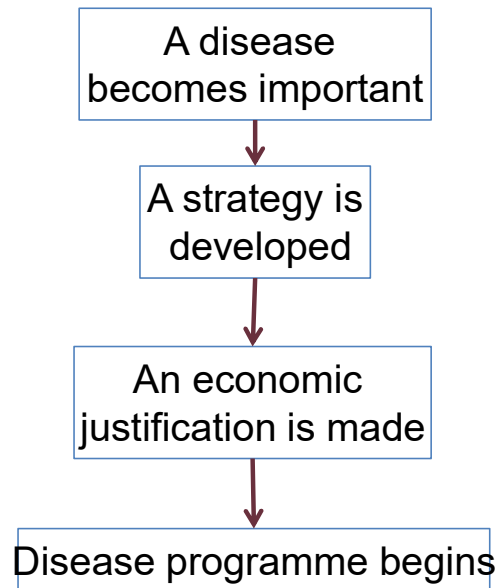
# Differences in the approach

## An economic approach



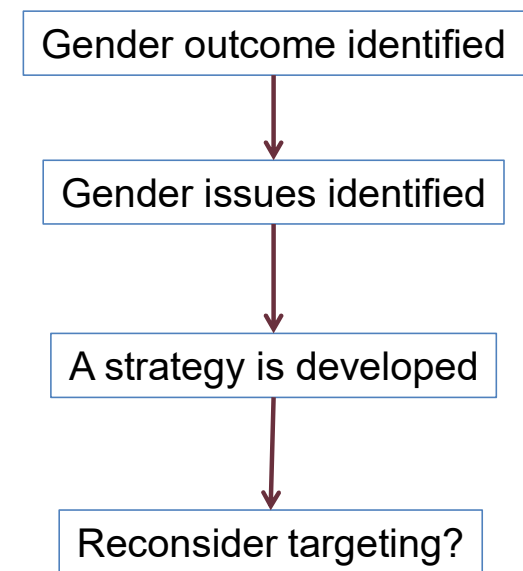
**Adding value**  
through searching for  
**optimality**

## A health approach



**Adding value**  
through  
**advocacy**

## A gender approach



**Adding value**  
through **targeting**  
and  
**inclusion/equity**

Adapted from Rushton, 2017

## GENDER: MAKING THE INVISIBLE/VISIBLE

---

- Of the >750 million poor livestock keepers in the world, about **two-thirds are rural women**.
- **Women provide labor** (20-60%) in livestock production. Men sell the livestock and are in control of the returns. Women often do not get a fair return for the labor they have provided.
- Women also **do not have same access** to information, credit, land, water, animal health care to ensure productive animals.
- Women already manage the animals, give them the tools to do it better

## ALLIES IN animal health management?

---

### Small ruminant for (economic) empowerment of women

- Women can own small ruminants easily – unlike land, which needs a title deed
- Goats are an “ATM” – providing constant income: for household nutrition and education; for start up investments.
- Small ruminants self-propagate so can multiply easily, no new investments required.
- Women can take their small ruminants with them in case of divorce or conflict.
- Small ruminants provides opportunities and approaches to move women up on either the livestock or livelihoods ladder.

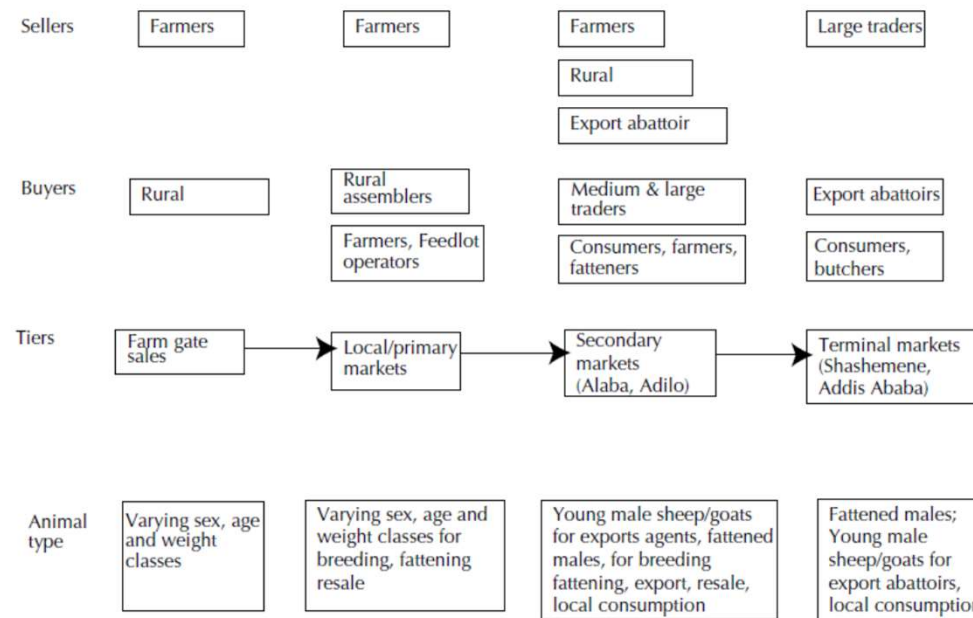


## GENDER AND PPR projects

---

- IDRC: (\$6.3 million investment – 300K for ILRI)
  - Transforming the vaccine delivery system for chickens and goats in Ghana: what approaches and what benefits for women? Women as consumers and entrepreneurs in vaccine value chains
- PRAPS: gender audit (gender projects in 6 countries)
- ECO- PPR: gender post doc – EU IFAD

# IMPACT OF DISEASE at VALUE CHAIN LEVEL

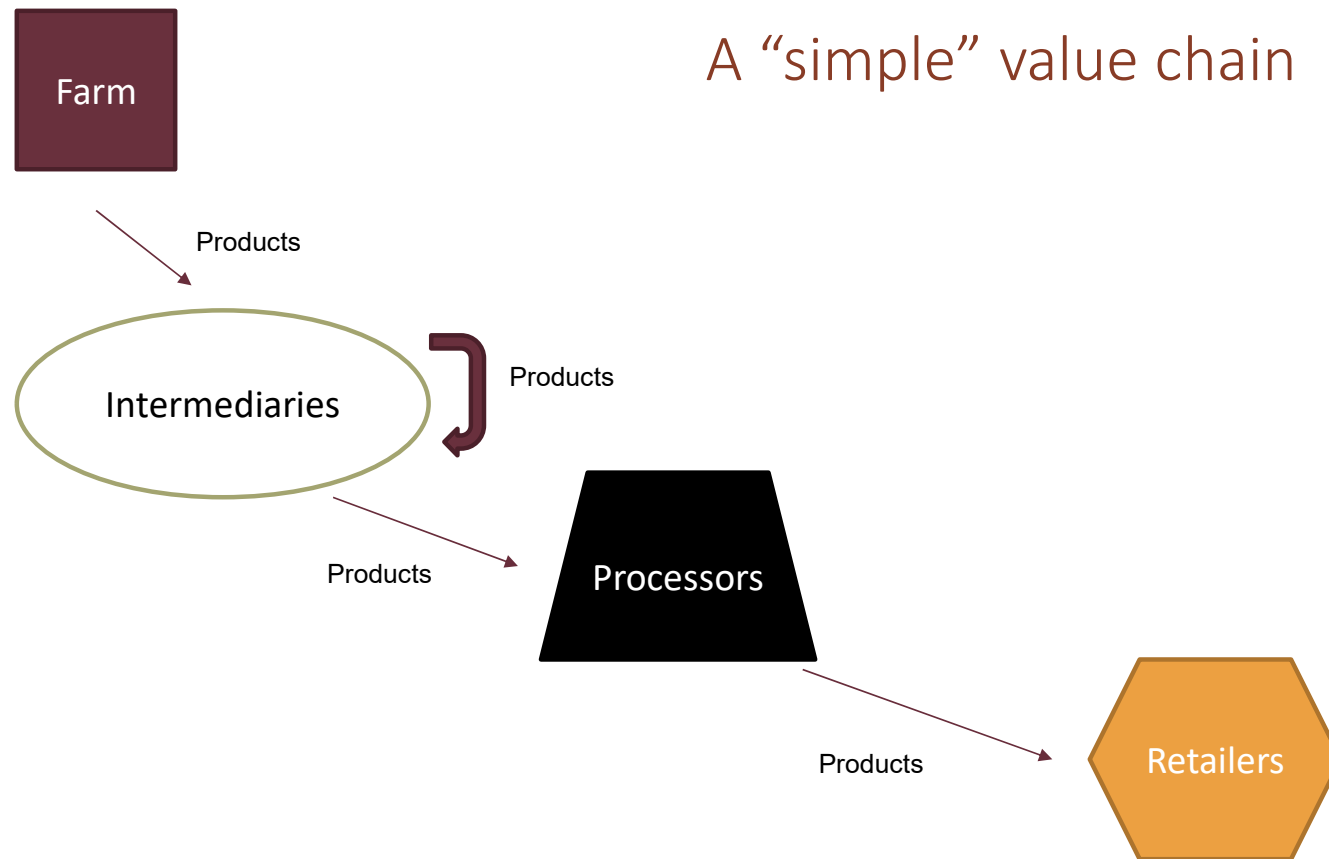


Ancillary services

Sources: Based on Ayele et al. (2003) and Tsedek (2007).

A typical goat and sheep marketing value chain in Ethiopia

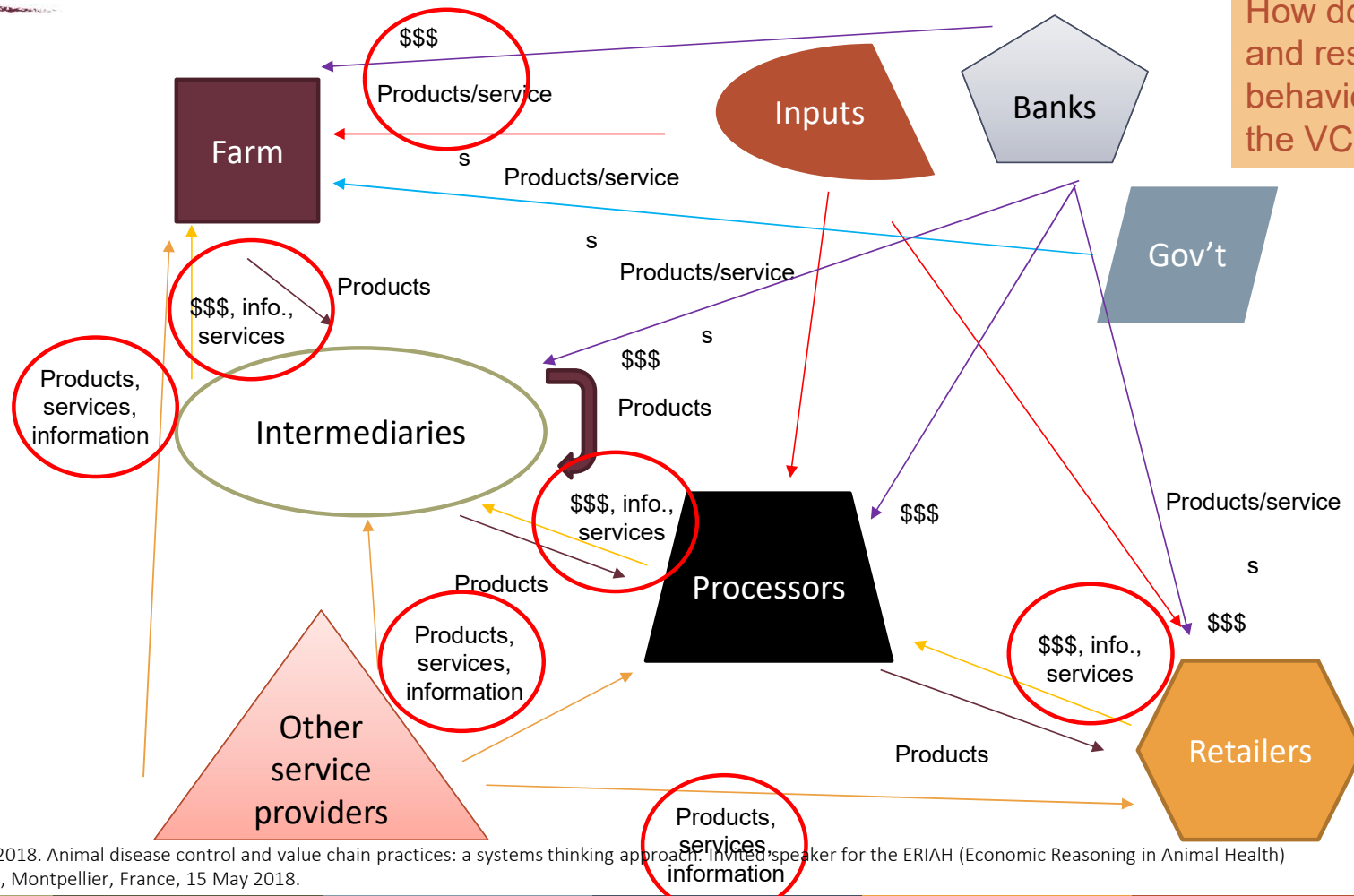
# IMPACT OF DISEASE at VALUE CHAIN LEVEL



Rich, K.M. 2018. Animal disease control and value chain practices: a systems thinking approach. Invited speaker for the ERIAH (Economic Reasoning in Animal Health) conference, Montpellier, France, 15 May 2018.

# IMPACT OF DISEASE at VALUE CHAIN LEVEL

Disease affects a multitude of people. How do diseases and resulting behaviors influence the VC?



Rich, K.M. 2018. Animal disease control and value chain practices: a systems thinking approach. Invited speaker for the ERIAH (Economic Reasoning in Animal Health) conference, Montpellier, France, 15 May 2018.

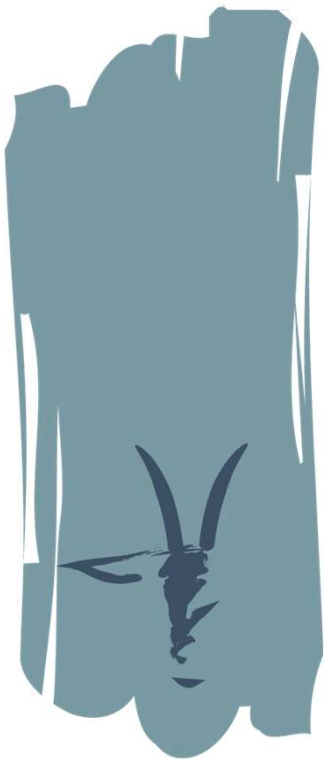
# Framework on IMPACT OF DISEASE at NATIONAL LEVEL

Use of a *social accounting matrix (SAM)* to quantify economywide effects of PPR-induced supply shocks (case studies of Ethiopia and Burkina Faso)

Basic structure of a SAM

		Expenditure columns							Total
		Activities C1	Commod's C2	Factors C3	Households C4	Government C5	Investment C6	Rest of world C7	
Income rows	Activities R1		Domestic supply						Activit income
	Commodities R2	Intermediate demand			Consumption spending (C)	Recurrent spending (G)	Investment demand (I)	Export earnings (E)	Total demand
	Factors R3	Value-added							Total factor income
	Households R4			Factor payments to households		Social transfers		Foreign remittances	Total household income
	Government R5		Sales taxes and import tariffs		Direct taxes			Foreign grants and loans	Government income
	Savings R6				Private savings	Fiscal surplus		Current account balance	Total savings
	Rest of world R7		Import payments (M)						Foreign exchange outflow
Total	Gross output	Total supply	Total factor spending	Total household spending	Government expenditure	Total investment spending	Foreign exchange inflow		

Source: Breisinger et al., 2010, Social accounting matrices and multiplier analysis, An Introduction with Exercises. [www.ifpri.org](http://www.ifpri.org)



# Framework on IMPACT OF DISEASE at NATIONAL LEVEL

---

Recent SAMs allow for greater disaggregation of livestock (sheep and goats as separate economic sectors)

Jones et al. (2016) – application in quantifying benefits to PPR eradication

Types of impacts (based on a shock to animals killed by PPR):

- Sectoral impacts (change in economic output)
- Employment impacts (change in # of jobs)
- GDP impacts
- Livelihoods impacts (change in income by quartile/rural vs. urban)

## SAM Results – Ethiopia (1)

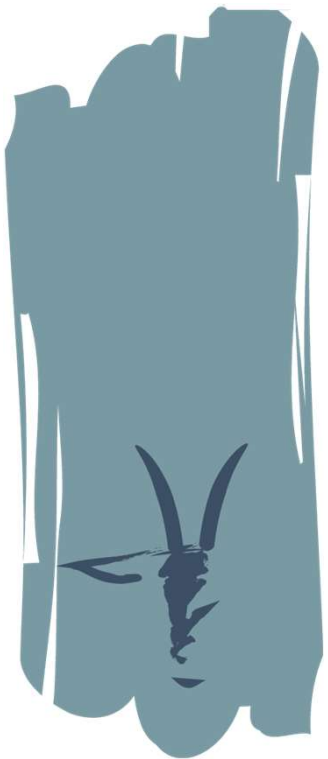
*Based on a 5% negative shock to the volume of sheep and goats due to PPR:*

A reduction in GDP at factor cost (before taxes) of 0.34% and a reduction in agricultural GDP of 0.47%

Output losses (% change in value terms)

- Goats: -3.8%
- Sheep: -3.3%
- Feed: -1.3%
- Sorghum: -0.44%
- Maize: -0.40%
- Wheat: -0.40%

Downstream effects on non-agricultural sectors (services, transport, etc.) range from -0.01% (public administration) to -0.32% (other services)

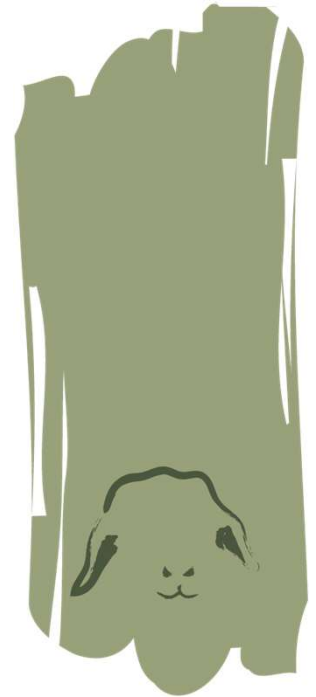


## SAM results – Ethiopia (2)

*Based on a 5% negative shock to the volume of sheep and goats due to PPR:*

A reduction in jobs of **nearly 220,000 (-0.5%)**, concentrated in the sheep (38,575 jobs lost, -4.7%) and goats (36,435 jobs lost, -4.8%) sectors, plus losses in the cereals, feeds, and livestock sectors:

- Enset (-12,084 jobs, -1%);
- Maize (-14,657 jobs, -0.6%);
- Sorghum (-19,735 jobs, -0.6%);
- Milk (-2,547 jobs, -0.82%);
- Feed (-1,042 jobs, -0.9%)



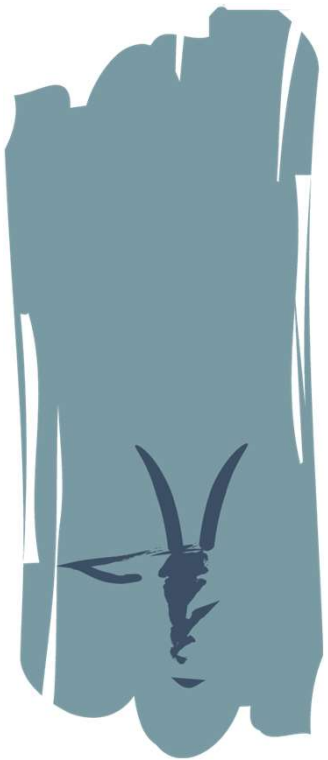


## SAM results – Ethiopia (3)

*Based on a 5% negative shock to the volume of sheep and goats due to PPR:*

Livelihoods impacts (% change in income)

Household category	Rural farm households	Rural non-farm households	Urban households
Poorest quintile	-0.45%	-0.29%	-0.36%
Quintile 2	-0.42%	-0.24%	-0.31%
Quintile 3	-0.39%	-0.21%	-0.26%
Quintile 4	-0.36%	-0.19%	-0.23%
Quintile 5	-0.27%	-0.16%	-0.17%

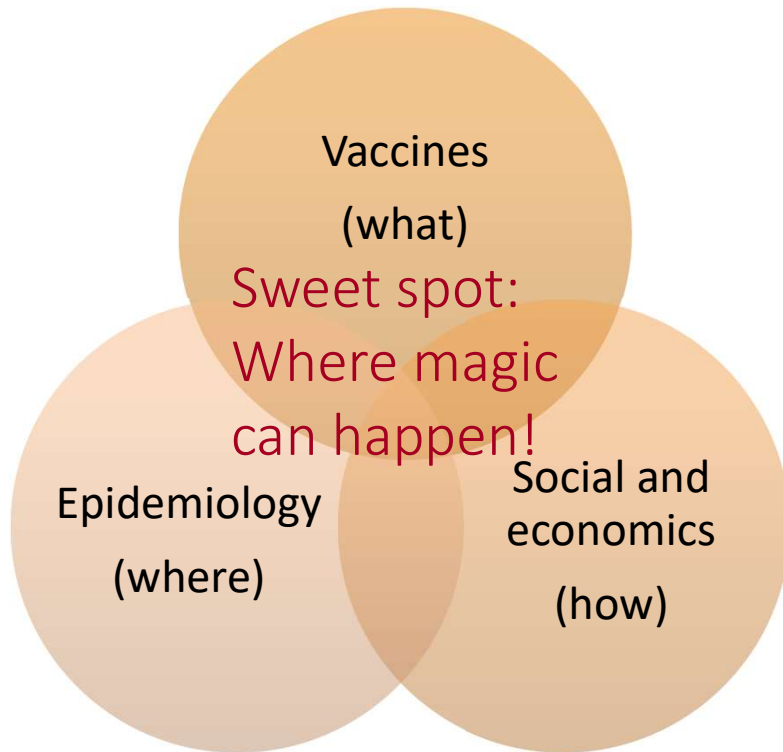


## Extent of impact and ability to build back better

---

- Impact and smallholder NOT homogenous
- Targeting
- Incentives
- Need a mosaic approach and closer approach with epidemiologists and vets





## Final thoughts

---

- Need to understand impact – as a tool to do the job better
- Better impact of disease studies
  - Comparable studies
  - Different levels
  - Linking with advocacy
  - Link with better approaches
- Owner and a whole package to improve their system
- Link with policy makers: what data do they need
- Social factors leading to emergence/endemic of the disease
- Surveillance and transboundary

## ACKNOWLEDGEMENTS GO TO:

---

Barbara Wieland, Michel Dione, Bernard Bett, Henry Kiara, Delia Randolph, Mireille Ferrari, Jonathan Rushton, Anni McLeod

For the invitation and to you for listening!



Nicoline de Haan:  
[n.dehaan@cgiar.org](mailto:n.dehaan@cgiar.org)

Pacem Kotchofa  
[P.Kotchofa@cgiar.org](mailto:P.Kotchofa@cgiar.org)

Karl Rich  
[k.rich@cgiar.org](mailto:k.rich@cgiar.org)



About 620 ILRI staff work in Africa and Asia to enhance incomes and livelihoods, improve food security, and reduce disease and environmental degradation. Australian animal scientist and Nobel Prize laureate Peter Doherty serves as ILRI's patron. Organizations that fund ILRI through their contributions to CGIAR make ILRI's work possible. Organizations that partner ILRI in its mission make livestock research for development a reality.



Contact us: [www.ilri.org](http://www.ilri.org) • [info@ilri.org](mailto:info@ilri.org)

**BETTER LIVES  
THROUGH  
LIVESTOCK**