

Tierische Lebensmittel & informelle Märkte in sub-Sahara Afrika

Kristina Roesel & Delia Grace

GIZ Fachgespräch am 20. Juli 2016 in Bonn



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty
Supported by the CGIAR



RESEARCH
PROGRAM ON
Agriculture for
Nutrition
and Health
Led by IFPRI



Research
Program on
Livestock
and Fish

Gliederung

1. Tierische Lebensmittel (ASF) in sub-Sahara Afrika (SSA) und ihr Beitrag zur Nahrungssicherung
2. Lebensmittellosoziierte Krankheiten (LAK)
3. Die Rolle der informellen Märkte
4. (Evidenzbasierte) Herausforderungen und Chancen: Safe Food, Fair Food Projekt

Tierische Lebensmittel in SSA und ihr Beitrag zur Nahrungssicherung

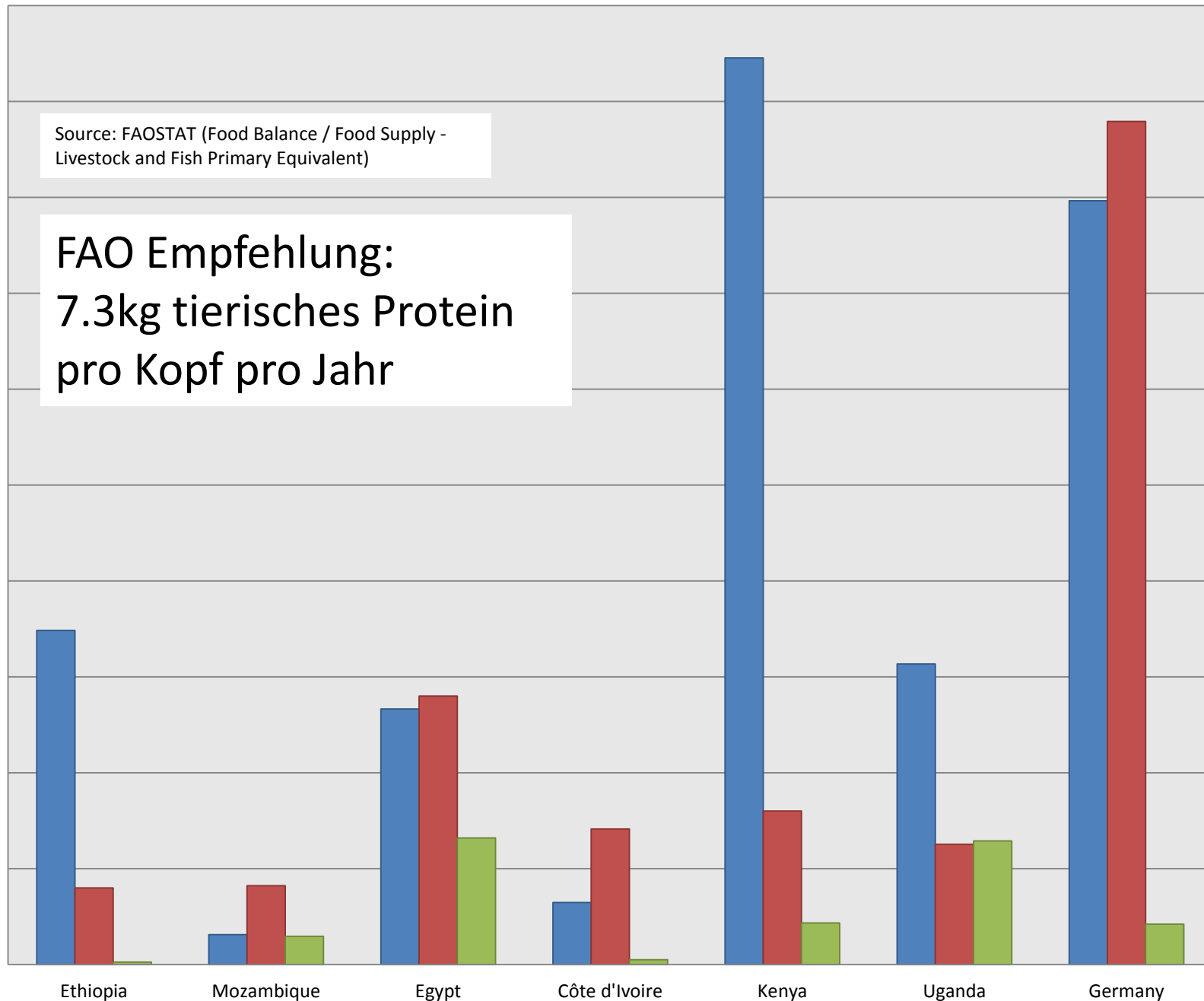
- Milk and meat contain high levels of energy, readily-digestible protein and bioavailable micronutrients such as zinc, iron, calcium, Vit B12, Vit B2 (riboflavin) and Vit A [Neumann C, Harris D, Rogers L, 2002. Contribution of animal source foods in improving diet quality and function in children in the developing world. Nutrition Research 222:193-220]
- Inadequate intake may ASF may be a major contributing factor to high infant mortality rates, delayed growth and development, and other broad-based nutritional problems. [Speedy W, 2003. Global production and consumption of animal source foods. J Nutr 133:4048S-4053S]
- Typically, ASF make up only 5-10% of the total daily energy intake in SSA (vs. 25% in industrialized countries). [Dror DA, Allen LH, 2011. The importance of milk and other animal-source foods for children in low-income countries. Food and Nutrition 32:227-243.]

Tierische Lebensmittel: Pro-Kopf-Verzehr 2011 [kg/capita/yr]

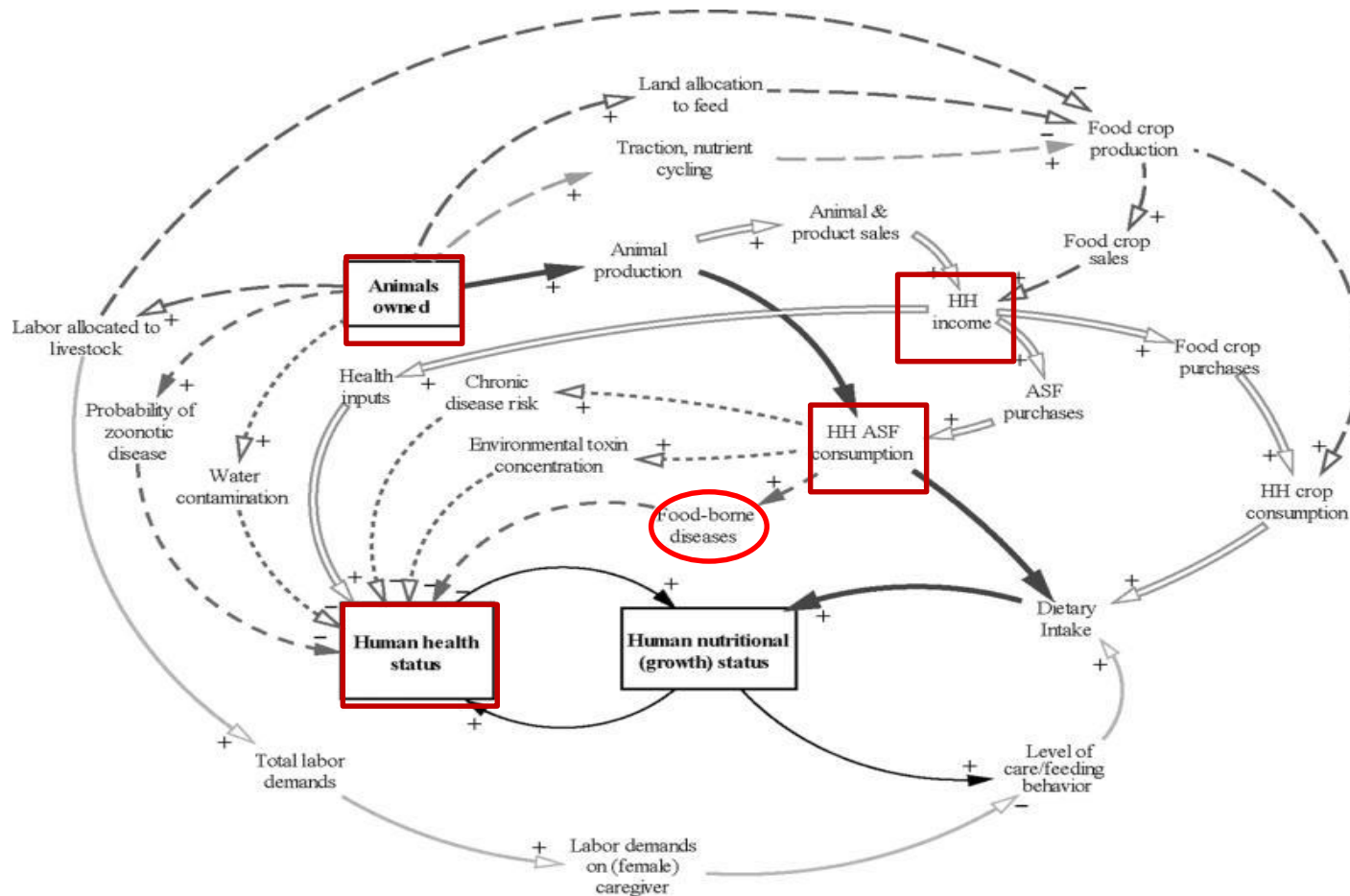
Source: FAOSTAT (Food Balance / Food Supply -
Livestock and Fish Primary Equivalent)

FAO Empfehlung:
7.3kg tierisches Protein
pro Kopf pro Jahr

■ whole milk
■ meat
■ freshwater fish



Postulierte Kausalzusammenhänge zwischen Nutztierhaltung, menschlicher Ernährung und Gesundheit der Armen (adaptiert von Nicholson et al., 2003).



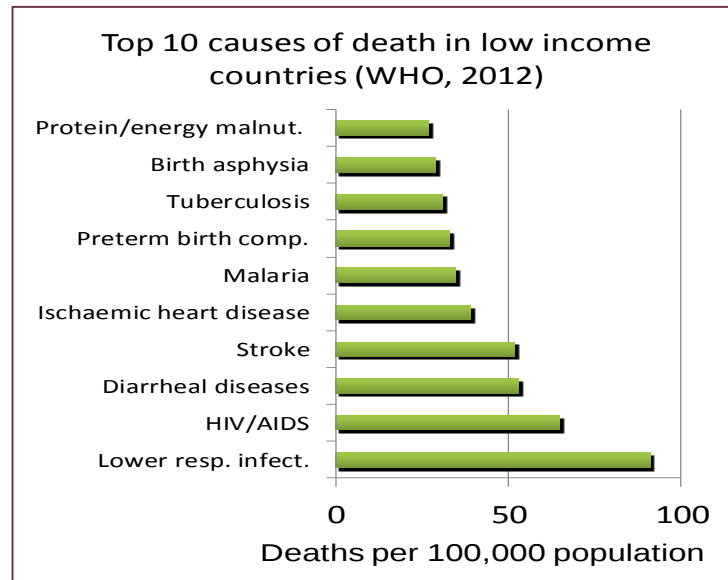
Lebensmittelassoziierte Krankheiten (LAK)



Distribution of wealth based on international purchasing power. Retrieved from:
<http://rachelstrohm.com/2011/05/11/a-different-look-at-global-income-inequality/>

Industrieländer

- 70% Todesfälle >70 Jahre
- Nicht-infektiöse Erkrankungen
- Ca. 15% LAK verursacht durch 4 Pathogene



Entwicklungsländer

- 40% Todesfälle <15 Jahre
- Infektionskrankheiten
- Durchfall als „top 10 killer“

Lebensmittelassoziierte Krankheiten



COLLECTION REVIEW

World Health Organization Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010

- Gemeinkosten (Tod, Behandlung, Arbeitsausfall) = HIV/Aids, Malaria, TB
- 40% Betroffenen sind Kinder < 5 Jahre (Afrika > Südostasien > Östl. Mittelmeer)
- 2010: 31 Pathogene → 600 Mio Krankheitsfälle → 420,000 Todesfälle (Dunkelziffer!)
- > 200 Krankheitsbilder: akut → chronisch

Lebensmittelvermarktung in Industrieländern

Harmonisierung, Regulierung, Überwachung,
Kontrolle, Transparenz, Rückverfolgbarkeit, Effizienz,
Kennzeichnung, Verbraucherschutz... DATEN --- DATEN --- DATEN



© AP / David Goldman



© alliance/KUNZ/Augenk



© www.healthnews.de

Food Standards Agency

FSA in Wales | FSA in Northern Ireland

Search

Stay updated Keep up

Home News & updates Business & industry Enforcement & regulation Science & policy About us

Home » Business & industry » Guidance notes » Meat and livestock guidance

Home slaughter of livestock: a guide to the law

Business and industry

- ▶ Starting a food business
- ▶ Safer food, better business
- ▶ Food hygiene rating schemes
- ▶ Food hygiene for businesses
- ▶ Farming
- ▶ Food allergy and intolerance
- ▶ Meat
- ▶ Fish and shellfish

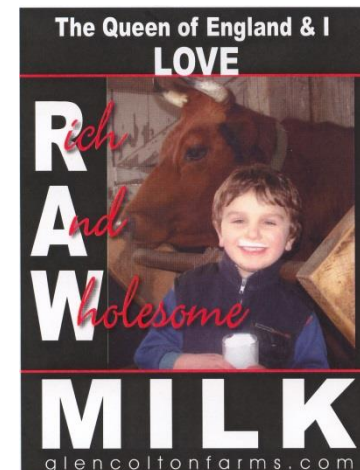
Home slaughter of livestock: a guide to the law

Guidance providing information on the law covering the home slaughter of livestock.

Intended audience

This guidance is applicable to:

- Farmers and growers
- Manufacturers and processors



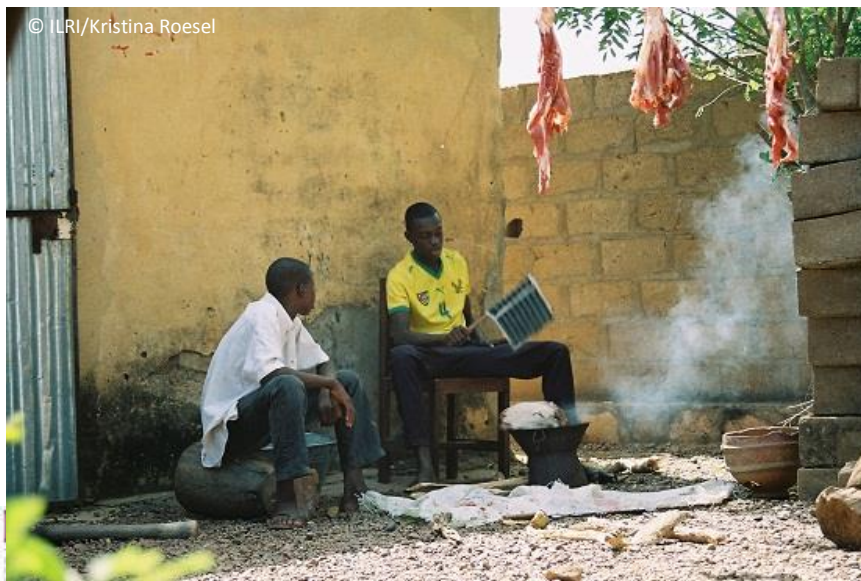
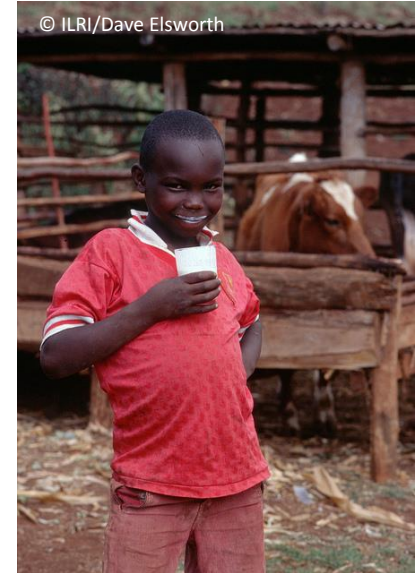
Informelle Märkte in sub-Sahara Afrika

- Viele Akteure nicht lizenziert/ registriert, zahlen keine Steuern
- Traditionelle Produkte und Preise, Verarbeitungsmethoden und Vermarktungswege



Informelle Märkte in sub-Sahara Afrika

- $\geq 80\%$ tierischer Lebensmittel
- In SSA ca. 55% BIP (AfDB, 2013)
- „Informelle Märkte sind integraler Bestandteil Afrikanischer Volkswirtschaften“



Informelle Märkte in sub-Sahara Afrika

Vorteile

günstig,
frisch,
lokal,
zugänglich,
Kleine Mengen (kidogo)
Vertrauen in Verkäufer,
Möglichkeit Kreditkauf

*(PRAs with consumers in Safe
Food, Fair Food project)*

	Straßenmarkt	Supermarkt
Durchschnittspreis pro Liter	0.56 US\$	1 US\$
Tägl. Verzehr Kleinkinder	67%	65%
Milch abgekocht	99%	79%

Survey in supermarkets and wet markets in Nairobi in 2014



“Safe Food, Fair Food” Projekt (2008-2011): 8 Länder, 10 Partner, 24 Studien

CSRS
Centre Suisse de Recherches
Scientifiques en Côte d'Ivoire



Mali

Côte d'Ivoire

Ghana

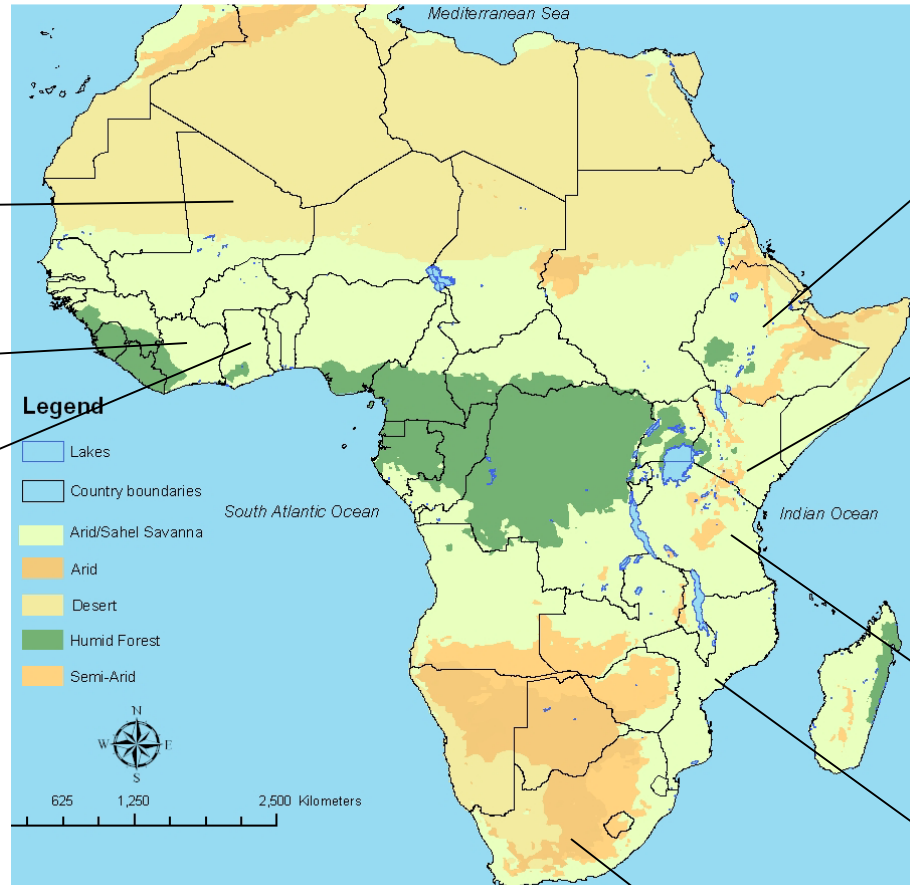


Freie Universität Berlin



BfR
Bundesinstitut für Risikobewertung

Rakuno Gakuen University
酪農学園大学



Ethiopia



Kenya



Tanzania



Mozambique

South Africa



IIAM
Instituto de Investigação Agrária de Moçambique

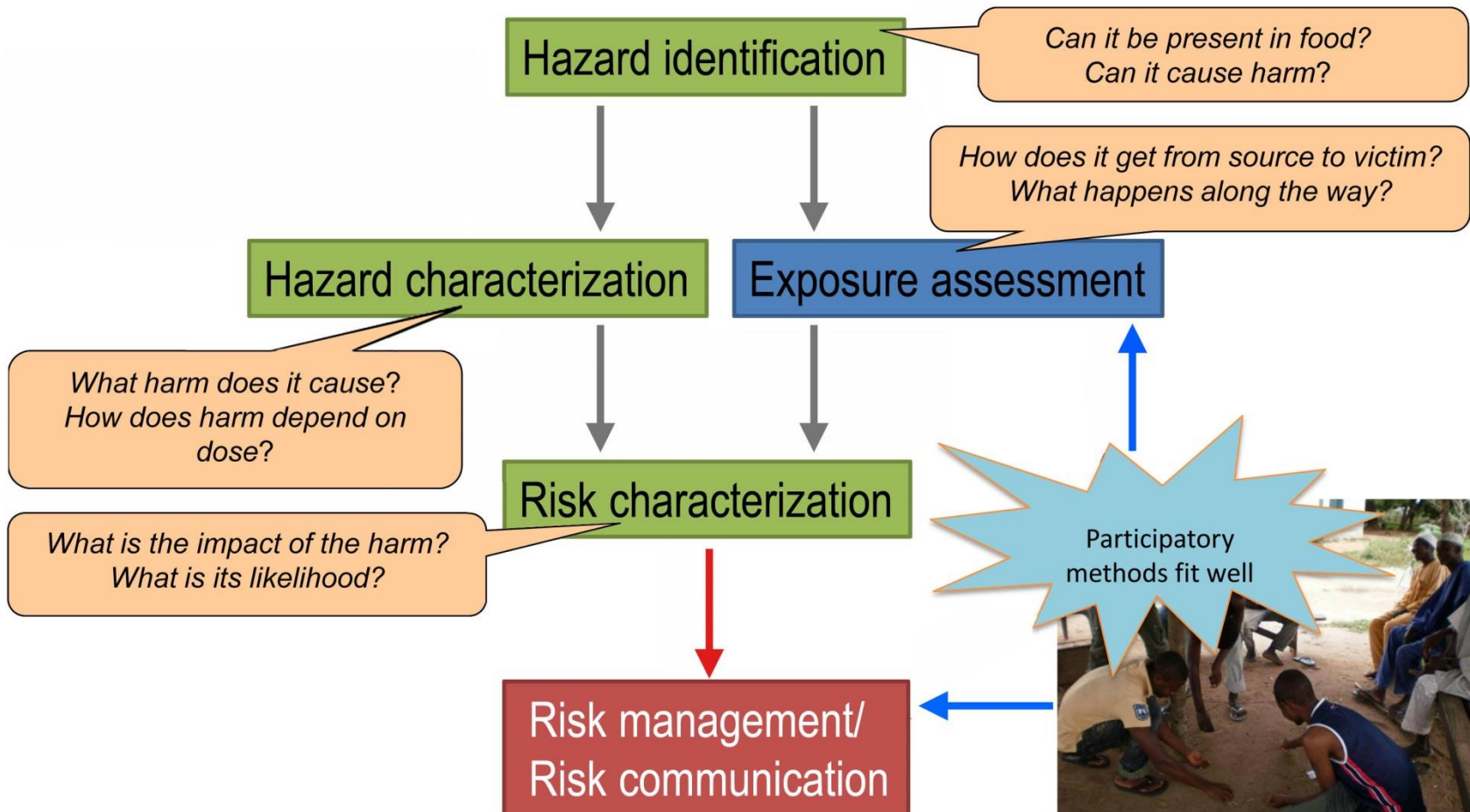
giz

ILRI
INTERNATIONAL
LIVESTOCK RESEARCH
INSTITUTE

Methodik: Partizipative Risikobewertung (adaptiert von CAC)

Gefahr = jegliches Agenz, das Schaden verursachen kann

Risiko = Wahrscheinlichkeit, daß die Gefahr eintritt + mögliche Konsequenzen



Situational Analysis

- Veraltete Gesetzgebung
- Fragmentierte und ineffektive Zuständigkeiten
- Unangemessene Standards (oft orientiert an Industrieländern)
- nur selten Umsetzung/ Vollstreckung
- Gefahren-orientiert, nicht Risiko-orientiert
- Trivialisierung von Risiken und damit Stigmatisierung
- Zivilgesellschaft kaum/wenig einbezogen



Mapping

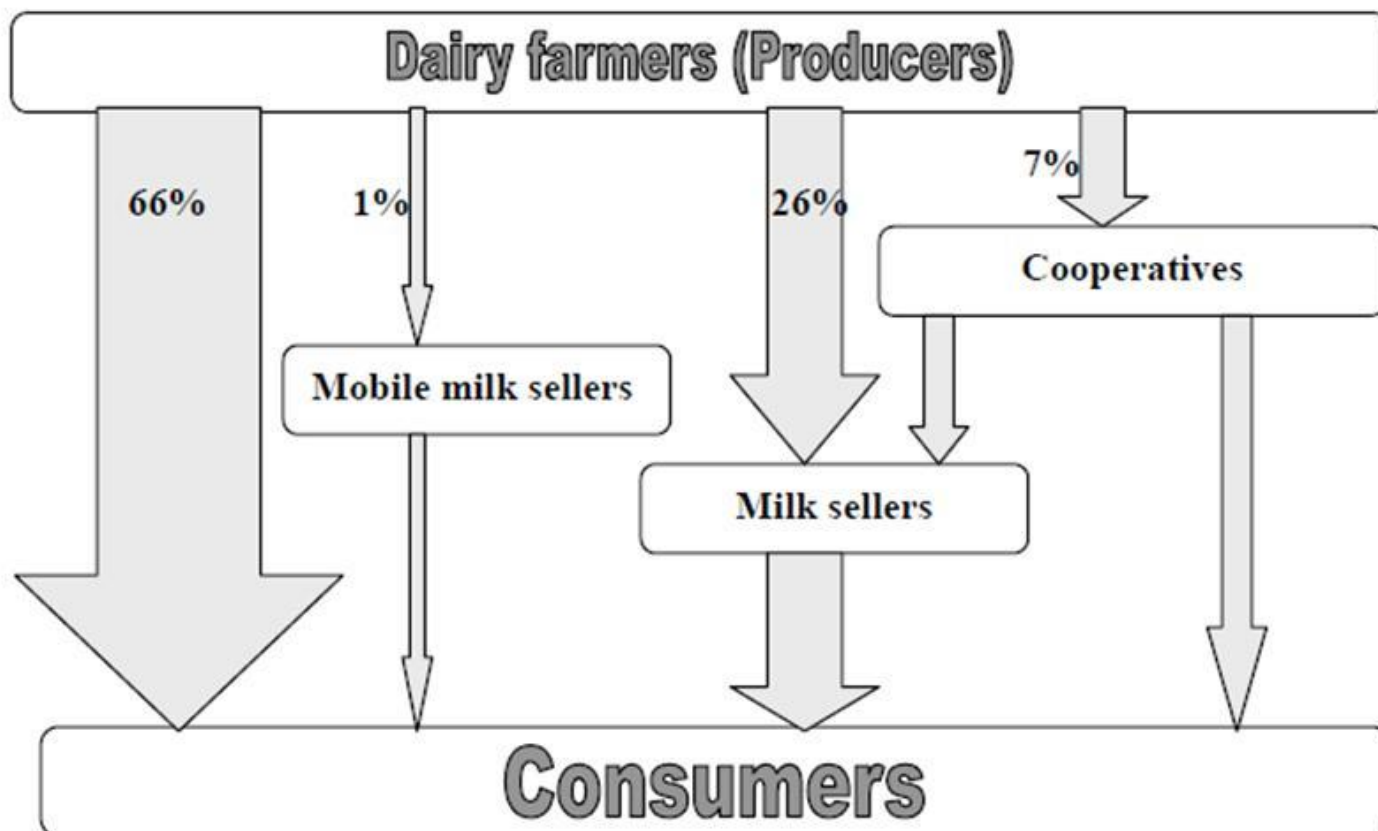
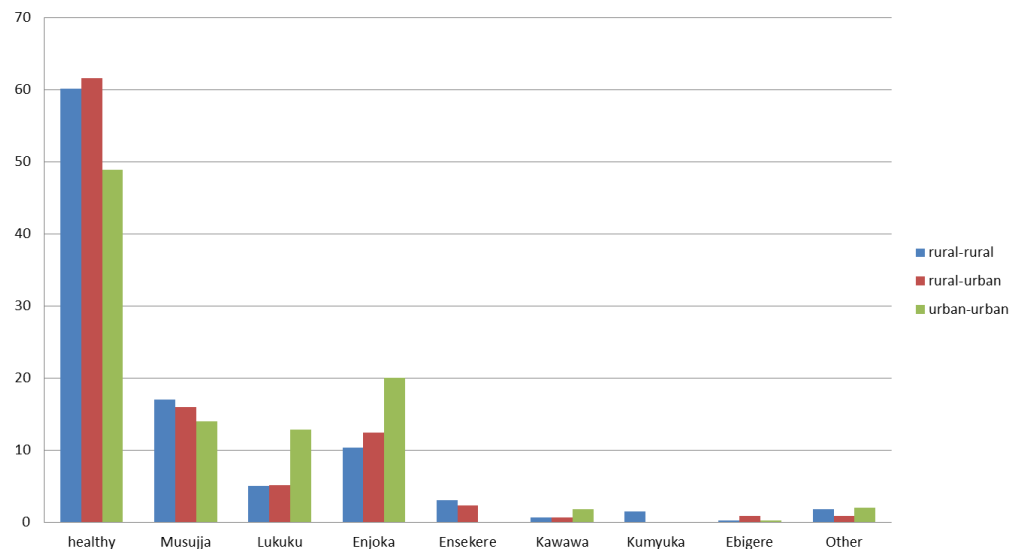


Figure 7: Milk marketing channels in Kasarani.

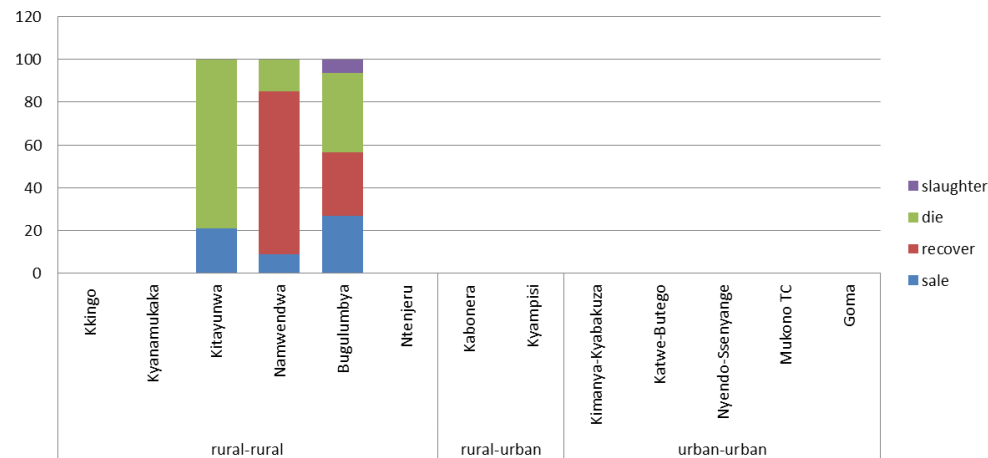
Proportional piling



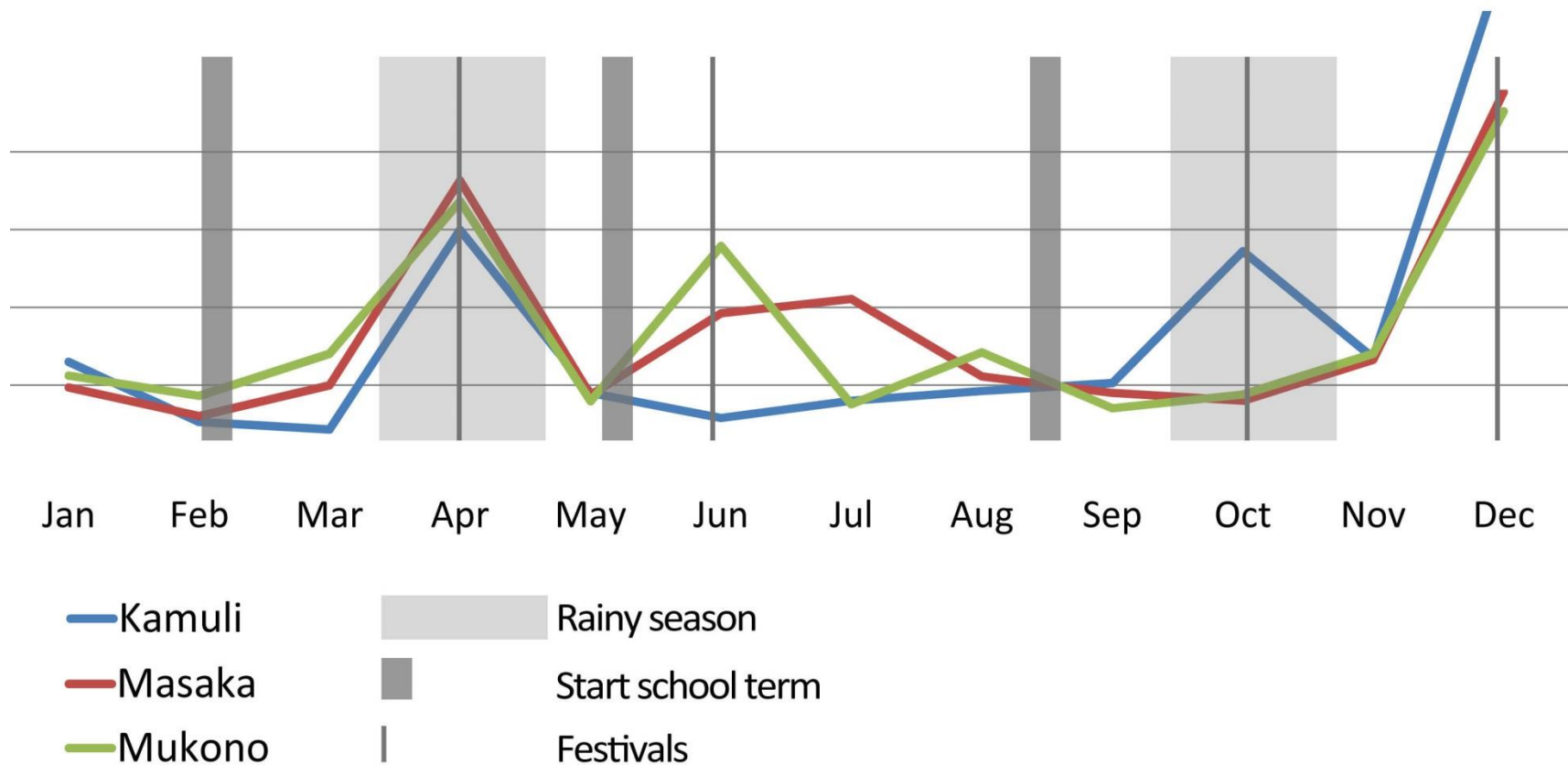
Disease incidence (n=24 villages)



fate of pigs diseased with diamond skin disease (by value chain)

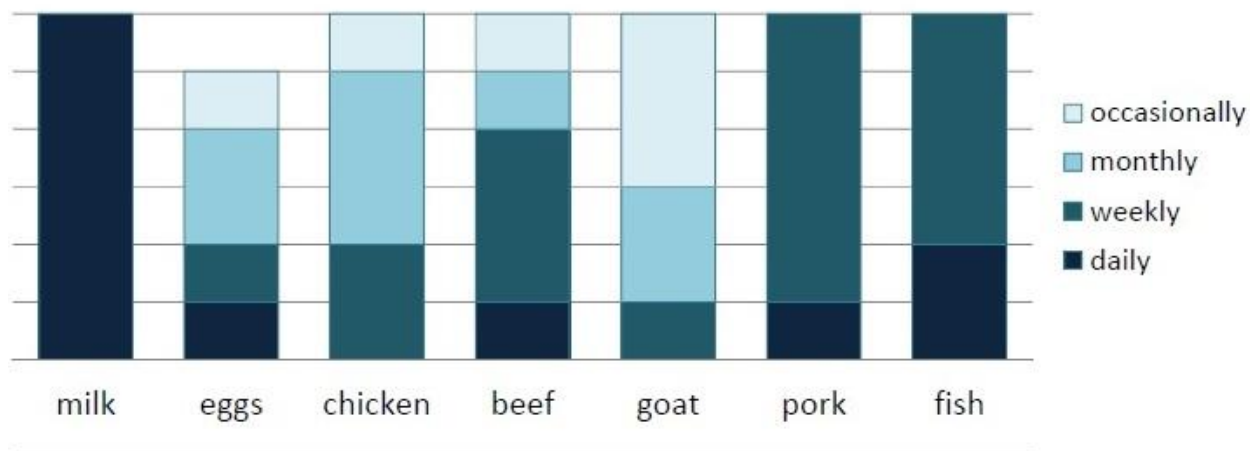


Seasonal calendar

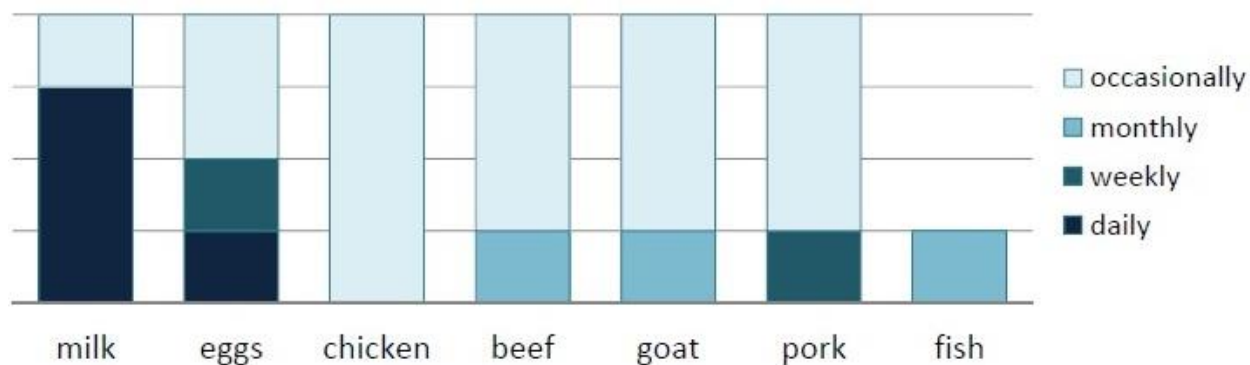


Ranking and scoring

Frequency
consumption of ASF
in urban areas



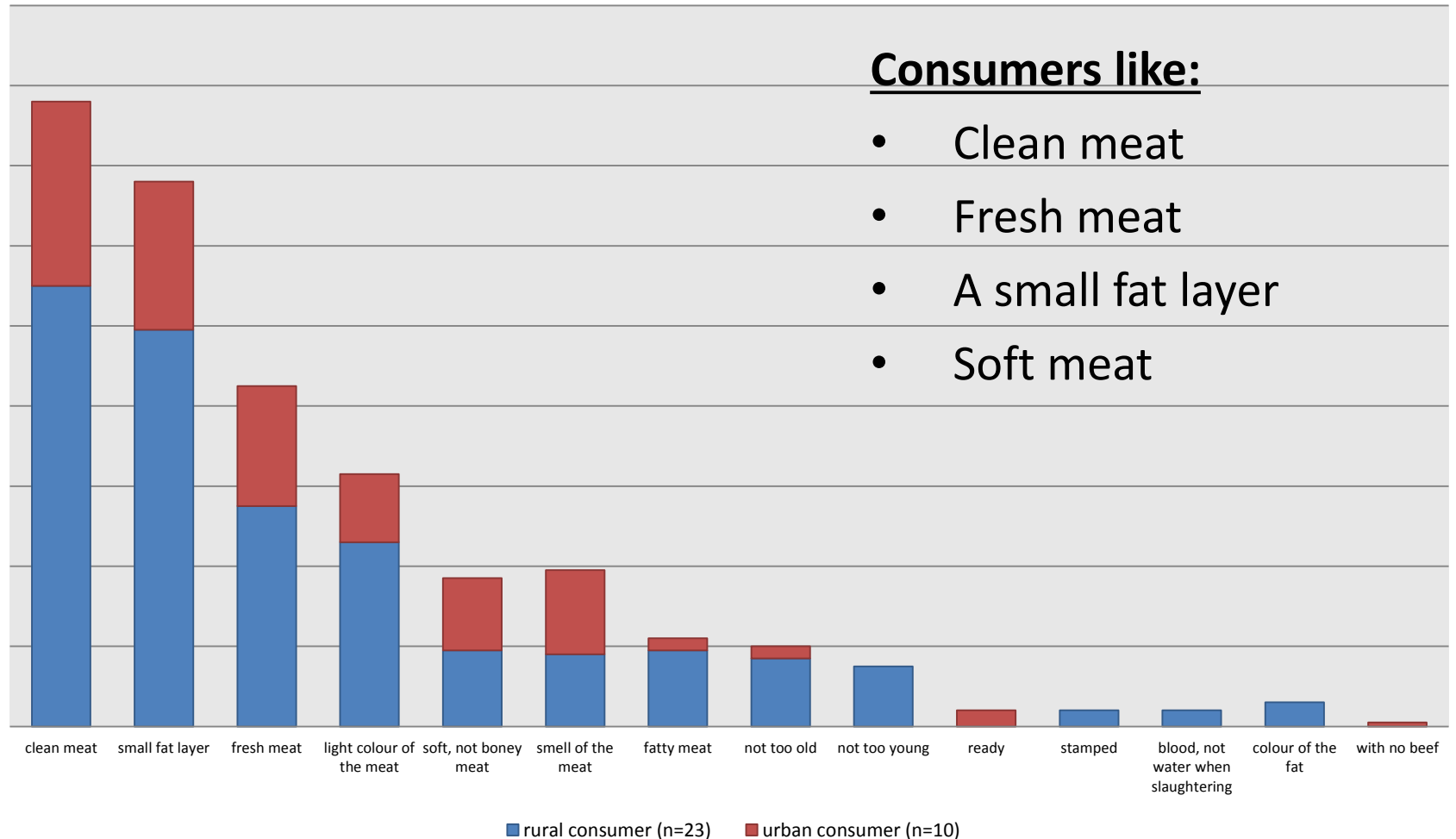
Frequency
consumption of ASF
in rural areas



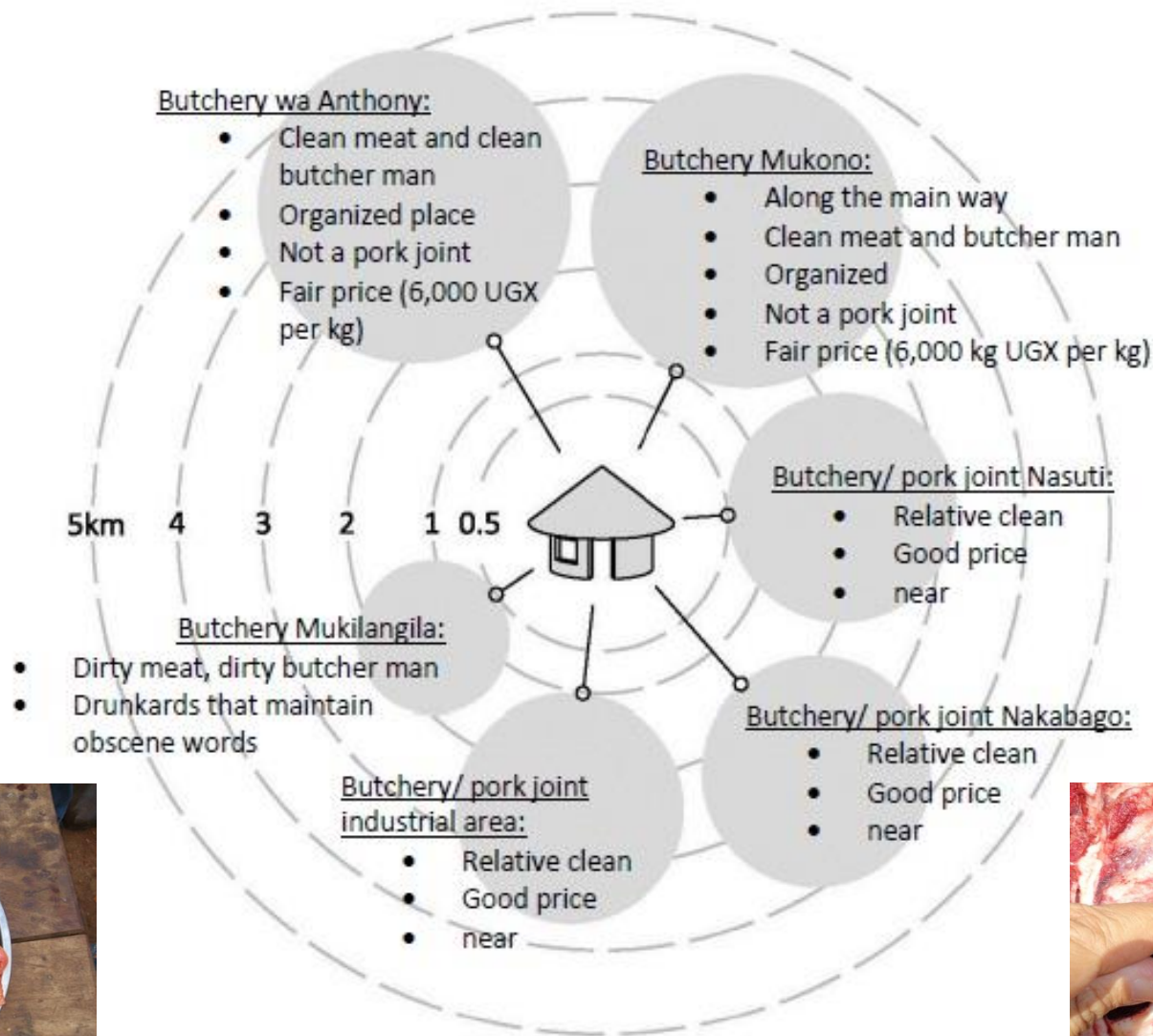
Quality attributes for pork (consumer)

Consumers like:

- Clean meat
- Fresh meat
- A small fat layer
- Soft meat



Venn diagram (syn. Chapati/Enjera diagram)



Quantifizierung

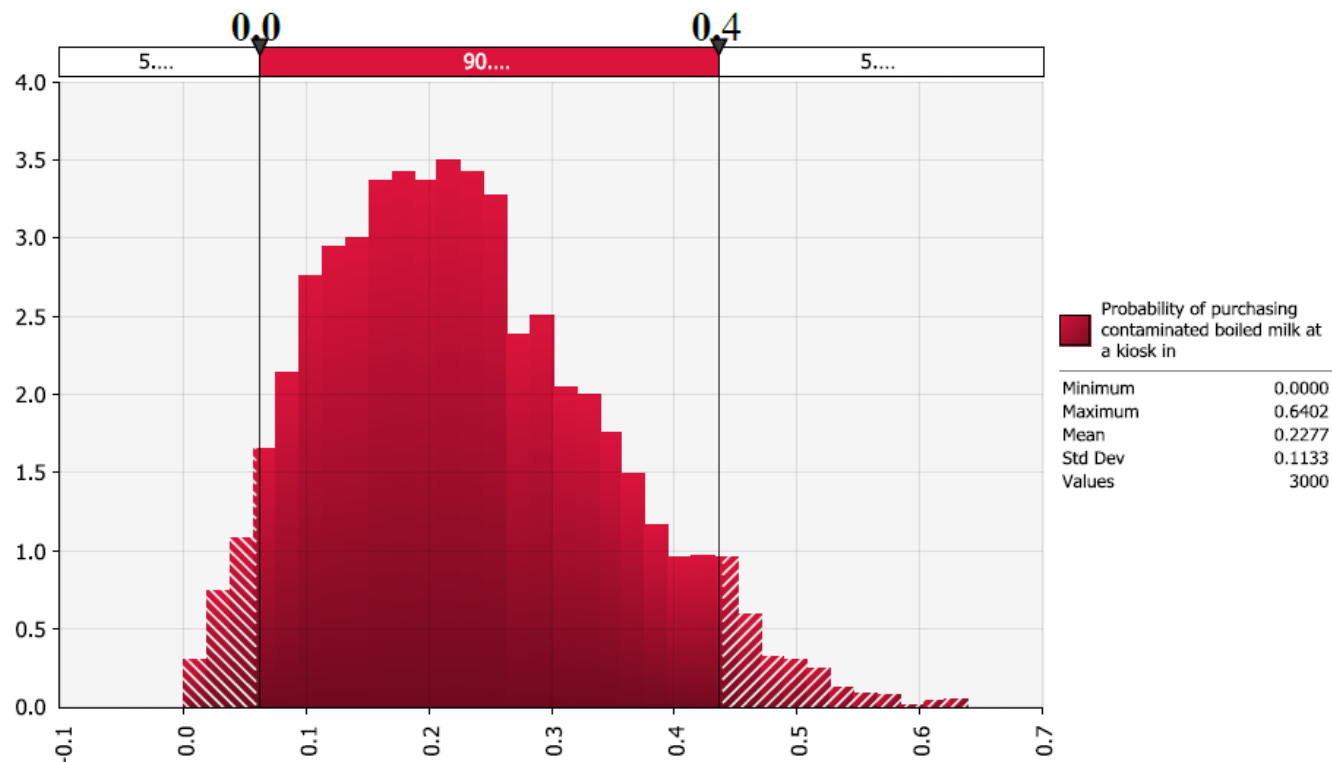
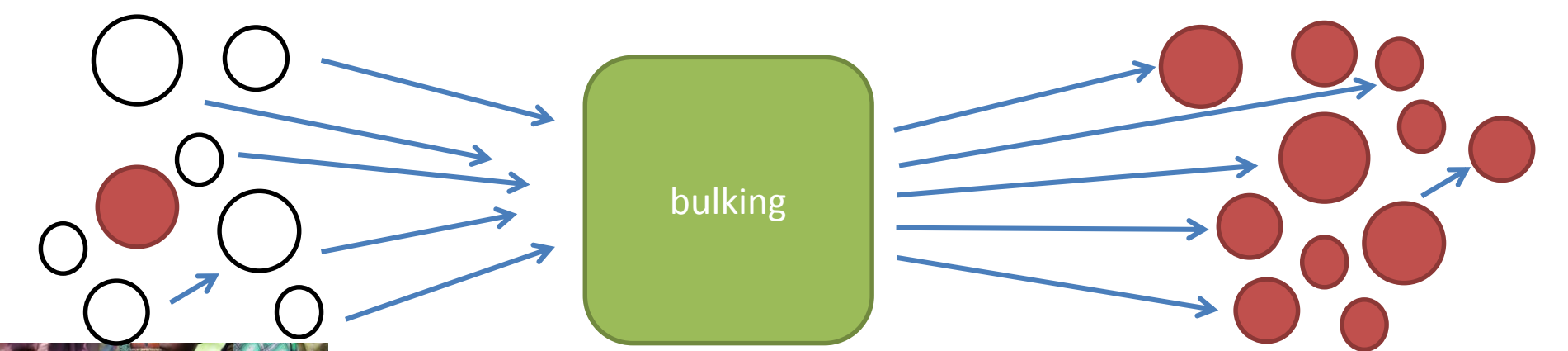
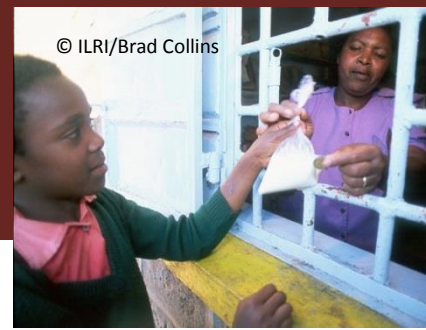
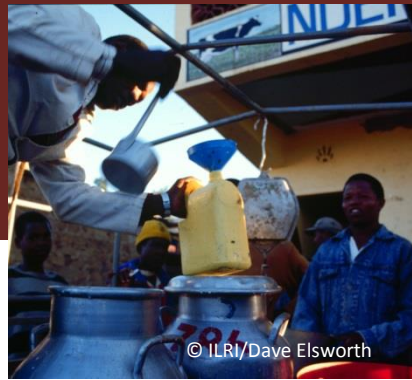


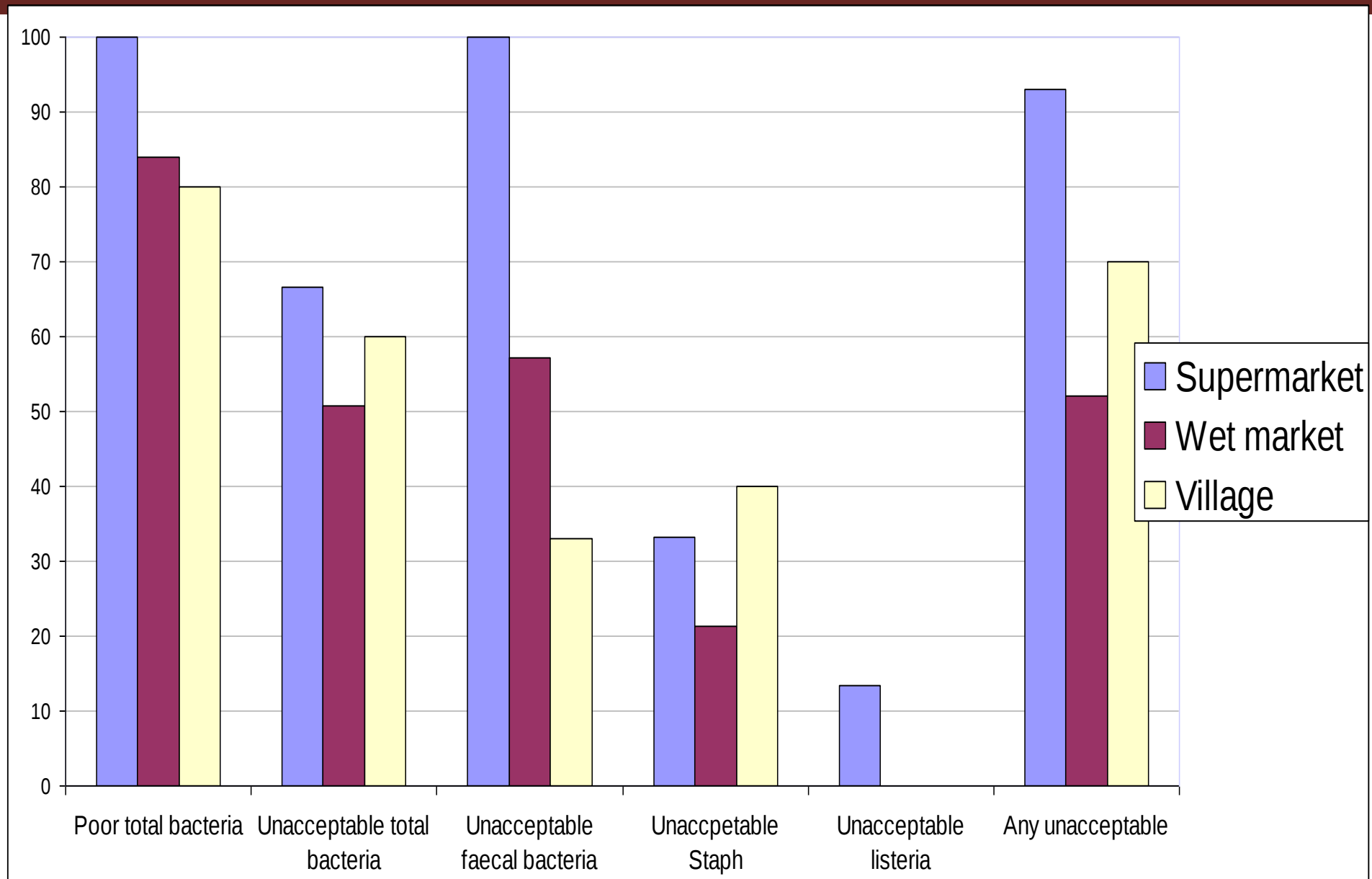
Figure 6: Monte Carlo simulation of Probability of purchasing contaminated milk with *S. aureus* from a kiosk in peri-urban Temeke

Informelle Märkte nicht per se riskant, formelle Märkte nicht per se sicher

- Informelle Märkte oft sicher
- Größte Herausforderungen:
harvest und post-harvest
- “Geschäftsorientierte” Einstellungen sehr riskant



Formell teilweise kontaminierter als informell



Einige der Risiken in beiden Märkten unterschätzt, da nicht unmittelbare Folgen (AMR, Aflatoxine, PAKs)



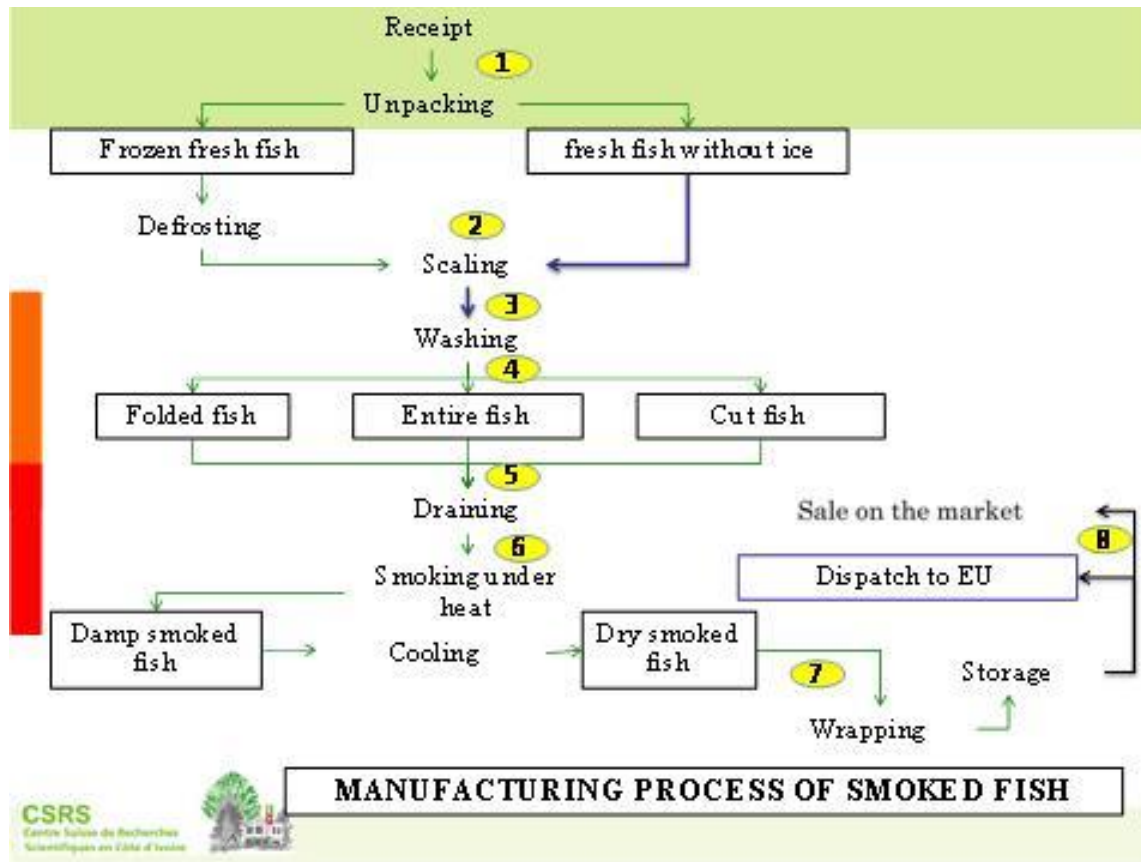
Systematic Review

Where literature is scarce: observations and lessons learnt from four systematic reviews of zoonoses in African countries

Silvia Alonso^{1*}, Johanna Lindahl^{1,2}, Kristina Roesel^{1,3}, Sylvain Gnamien Traore^{4,5}, Bassa Antoine Yobouet^{5,6}, Andrée Prisca Ndjoug Ndour⁷, Maud Carron^{8,9} and Delia Grace¹

Viele Pathogene noch nie untersucht!

Alle Akteure sind Risiko-Manager



- Kontaminierung jederzeit möglich
- Je länger/komplexer die LK, desto mehr mgl. Eintragsstellen
- Risikopfade → CCPs
- Interventionen oft einfach, aber es fehlt an Grundvoraussetzungen und Anreizen

Cow

Farm

Path

Consumer

T=2	C=0
F=1.8	S=8.6
W=0	

Tara



Farm 1
84 litres



Other cows (7)

90	0
3.6	7.8
6	

105	0
3.6	8.0
6	

Vendor 1
20 litres



Co-operative
50 litres

Self
4 litres

410	0
3.0	5.9
30	



Near HH BC
1 litre

Near HH NKD
0.5 litres

Far HH YA
1 litre

Far HH B
0.75 litres

25 other households
16.75 litres

Households- 5/6
10 litres

311	0
3.8	7.5
10	

450	21
2.4	4.3
35	

324	25
3.3	5.4
24	

KEY

Total plate count Standard: < 5,000	Coliform count Standard: <0.1
Fat Standard: 3.5	Solids not fat: Standard: 8.5
Added water	

HH

Household



Water added

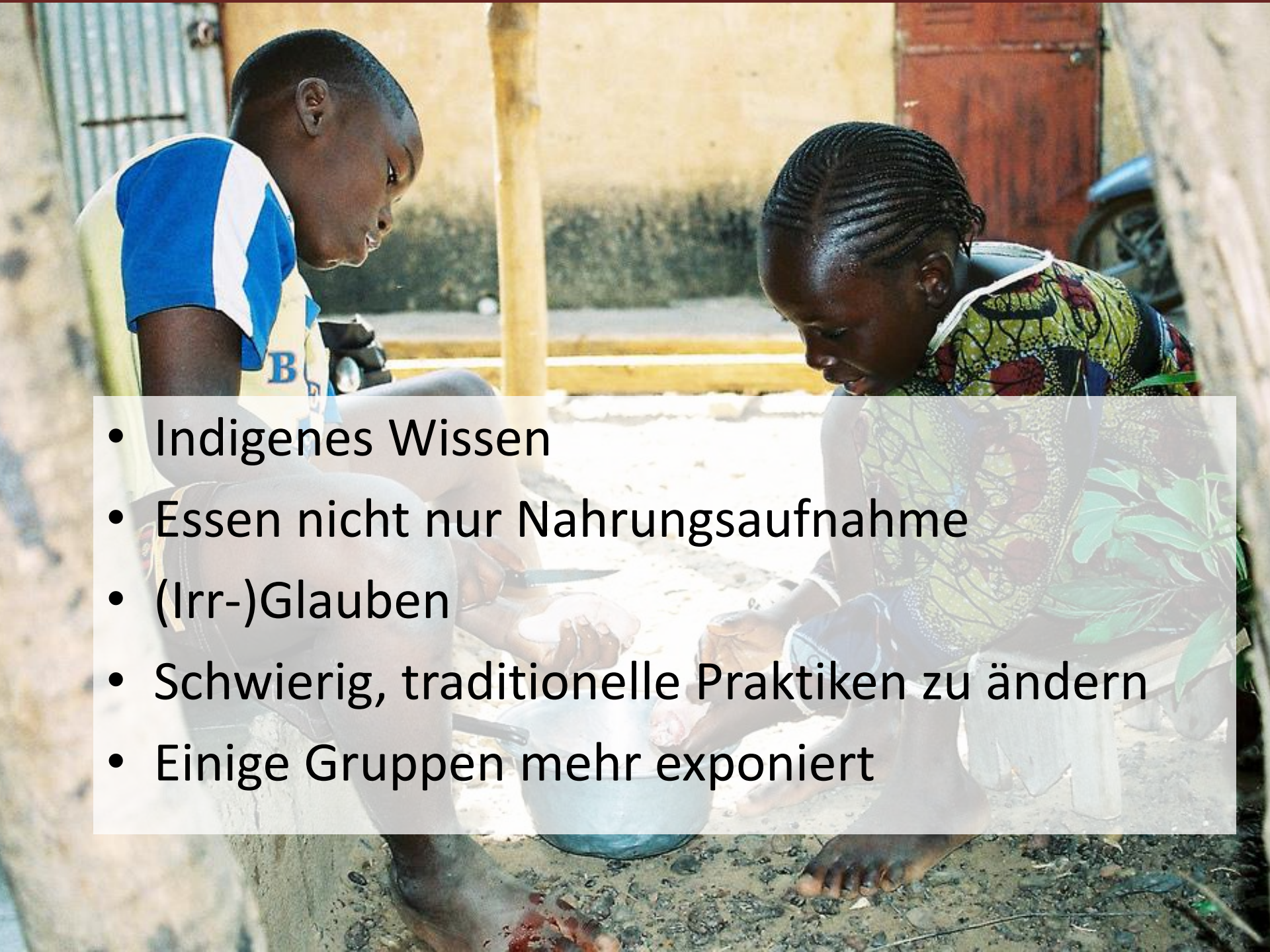


Possible Critical Control Point



Kulturverständnis & Lebensmittelhygiene in informellen Märkten



- 
- A photograph of two young children in a rural setting. The child on the left, wearing a blue and white striped shirt, is sitting and looking down at a piece of meat being cut. The child on the right, wearing a colorful patterned shirt, is also sitting and looking down at the same piece of meat. They are both barefoot. A blue bowl is on the ground between them. In the background, there is a red door and a motorcycle. A semi-transparent text box is overlaid on the image, containing a list of bullet points.
- Indigenes Wissen
 - Essen nicht nur Nahrungsaufnahme
 - (Irr-)Glauben
 - Schwierig, traditionelle Praktiken zu ändern
 - Einige Gruppen mehr exponiert



Lebensmittelhygiene aus der Gender-Perspektive



Table 3.1 Activities of women and men at different stages of 16 livestock and fish value chains in Africa and Asia

Category	Value chain	Production/ capture	Slaughter/ collection	Processing	Marketing
Fish	Fish: Urban Côte d'Ivoire	Men catch fish	Women	Women smoke fish	Women
	Fish: Urban Ghana	Men catch fish	Women	Women dry fish	Women
Milk	Milk: Peri-urban Kenya	Women feed and milk	n/a	Women ferment milk	Women
	Milk: Rural Mali	Men feed and milk	n/a	Women ferment milk	Women
	Milk: Rural Ghana	Men feed and milk	n/a	Women	Women
	Milk: Urban Côte d'Ivoire	Men feed and milk	Men	n/a	Men
Poultry	Broilers: Mozambique	Men	Men	n/a	Men and women
	Poultry: Rural Mozambique	Women	Women	n/a	Men and women
	Poultry: Urban South Africa	Men work in commercial farms	Men	n/a	Women sell informally
Livestock	Pork: Rural and urban Vietnam	Men and women	Men	Men and women	Mainly women
	Goats: Rural South Africa	Men and women	Men	Women cook	n/a
	Beef: Urban Tanzania	Men	Men	Women cook	Men run pubs
	Beef: Urban Kenya	Men	Men	n/a	Men
	Beef: Urban Nigeria	Men	Men	Men and women	Men, some women
	Game: Rural South Africa	Men hunt game	Men	Men and women	Men and women
	Biltong: Urban South Africa	n/o	n/o	Men and women	Men and women

Grace, Delia; Roesel, Kristina; Kang'ethe, Erastus; Bonfoh, Bassirou; and Theis, Sophie. 2015. Gender roles and food safety in 20 informal livestock and fish value chains. IFPRI Discussion Paper 1489. Washington, D.C.: International Food Policy Research Institute (IFPRI).

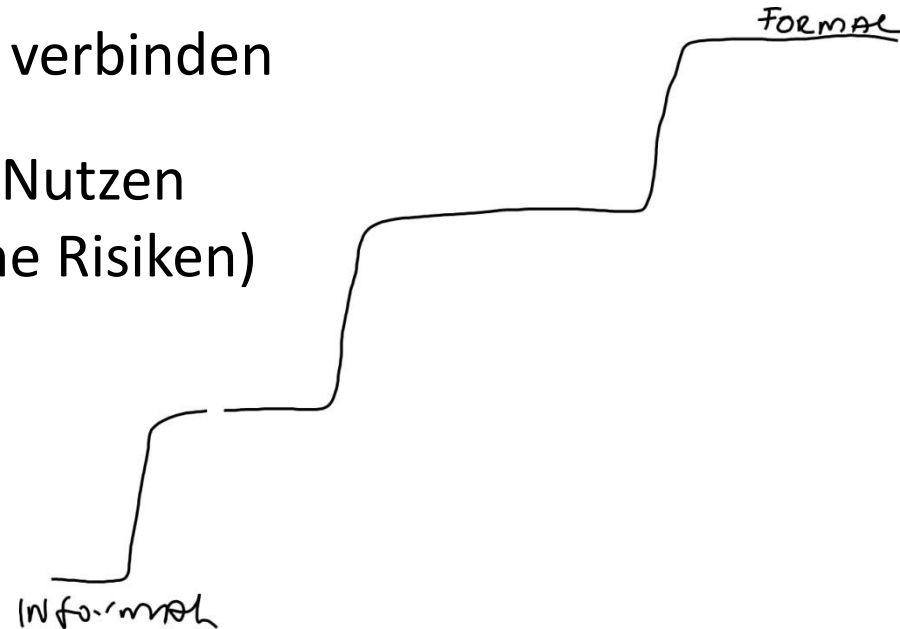
<http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129860>

Wie sollen wir mit informellen Märkten umgehen?

- Verboten oder verbessern?
- Nullrisiko-Policy?
- Gibt es tolerierbare Risiken?
- Wie kann Partizipation zur Verbesserung der Lebensmittelhygiene beitragen?

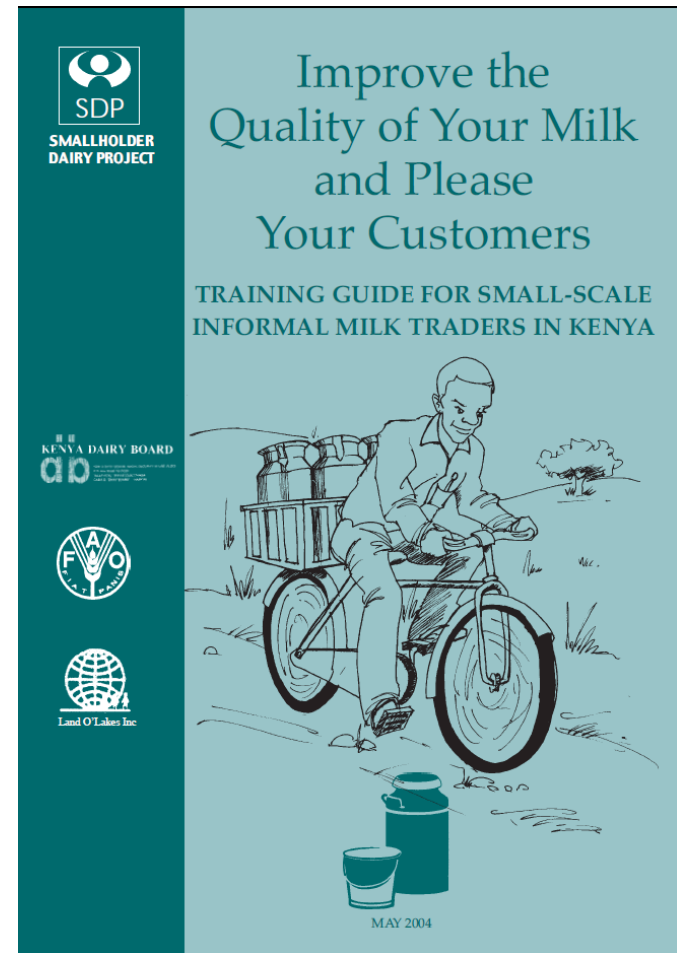
Interventionen müssen pro-poor sein

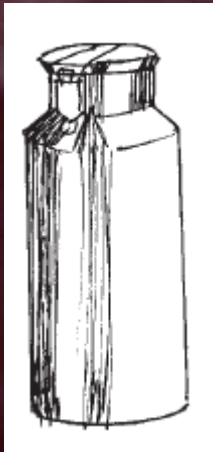
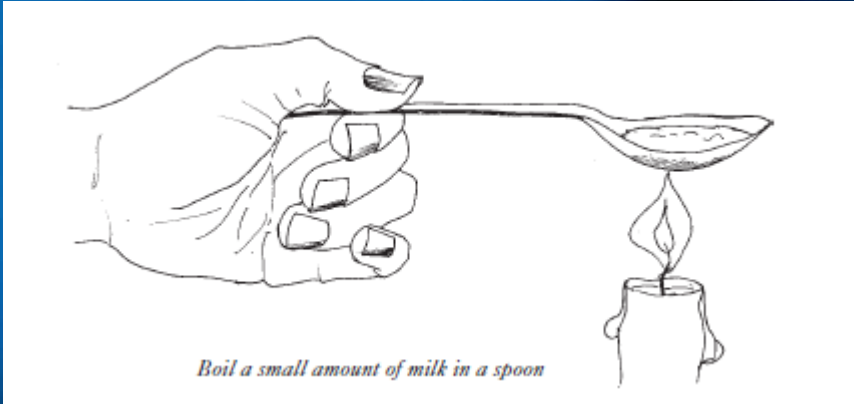
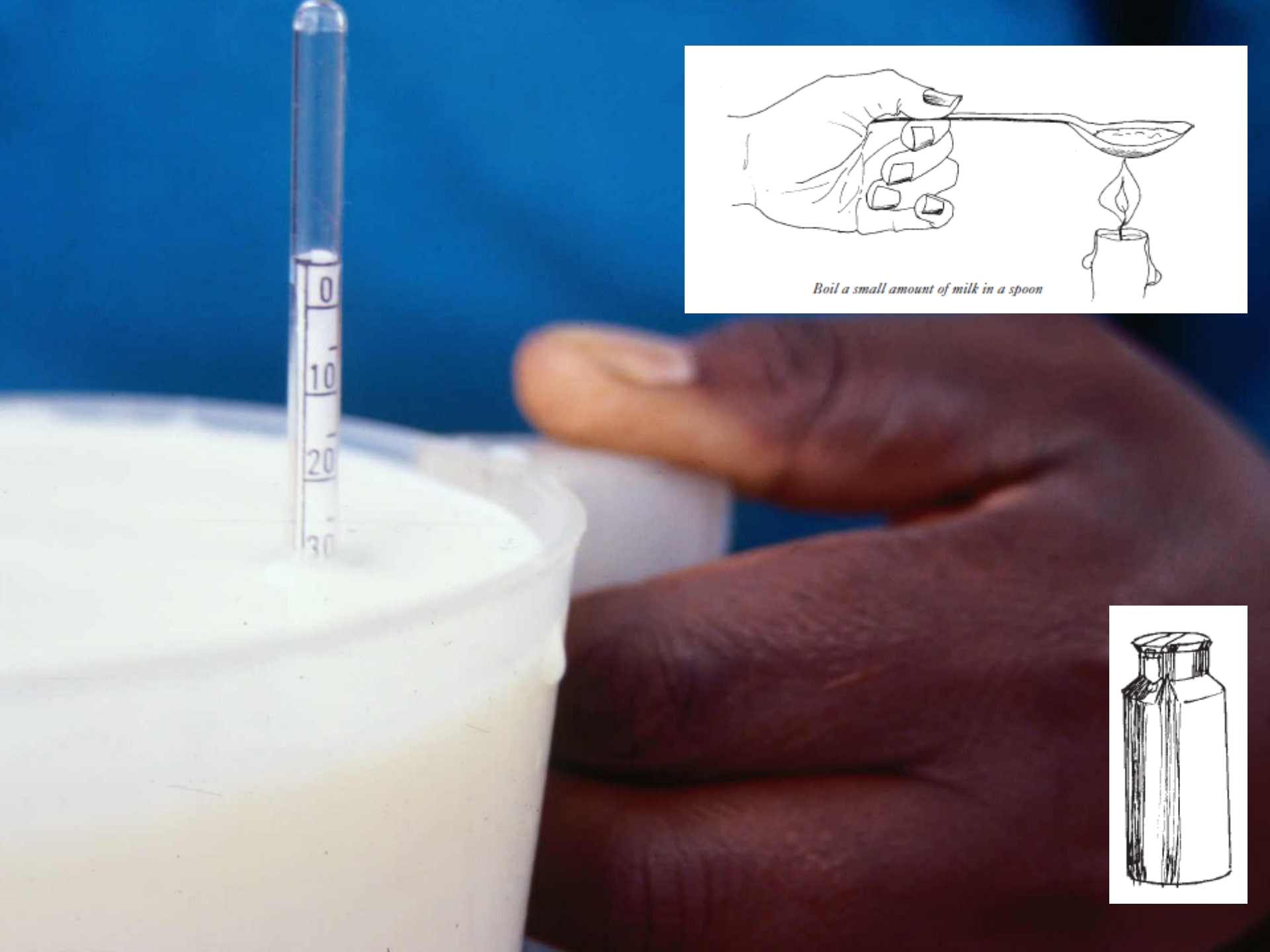
- Die Armen sind stärker exponiert, aber können sich Krankheit nicht leisten
- Informelle Märkte brauchen Ausbildung, Entrepreneurial skills development und Grundvoraussetzungen für gutes hygienisches Arbeiten
- Formelle und informelle Märkte verbinden
- Quantifizierung von Kosten und Nutzen (gesundheitliche vs. ökonomische Risiken)



Training, certification, branding

- Trainingshandbuch und –curriculum für Milchproduzenten und -händler
- Verbesserte Metallbehälter
- Einfache Qualitätstests für Rohmilch
- 2002 Pilottraining
- 2004 neue Gesetzgebung erkennt informelle Milchhändler an
- KDB **Training** durch akkreditiertes Komitee, **Zertifikat**, Lizenz gegen Gebühr
- **Branding**: weiße Kittel, Gummistiefel





Nachhaltig?

- 2009 15% der Händler registriert
- Sich ändernde Praktiken
- Wirtschaftlicher Mehrwert der Gesetzesänderung (US\$28m/year)
- Maßnahme läuft, aber braucht Nachbetreuung durch Politik (Lobby formeller Markt)
- <http://pubs.iied.org/17316IIED.html>

Briefing

Green economy, sustainable markets

Keywords:
Food and agriculture policies, informal sector, livelihoods, certification, training

iied **SHAPING SUSTAINABLE MARKETS** **ILRI** INTERNATIONAL INSTITUTE FOR LAND-USE RESEARCH

Issue date
October 2015

Policy pointers

Government players need to better understand food systems: food sold in the informal sector is not necessarily risky and food in the formal sector is not necessarily safe.

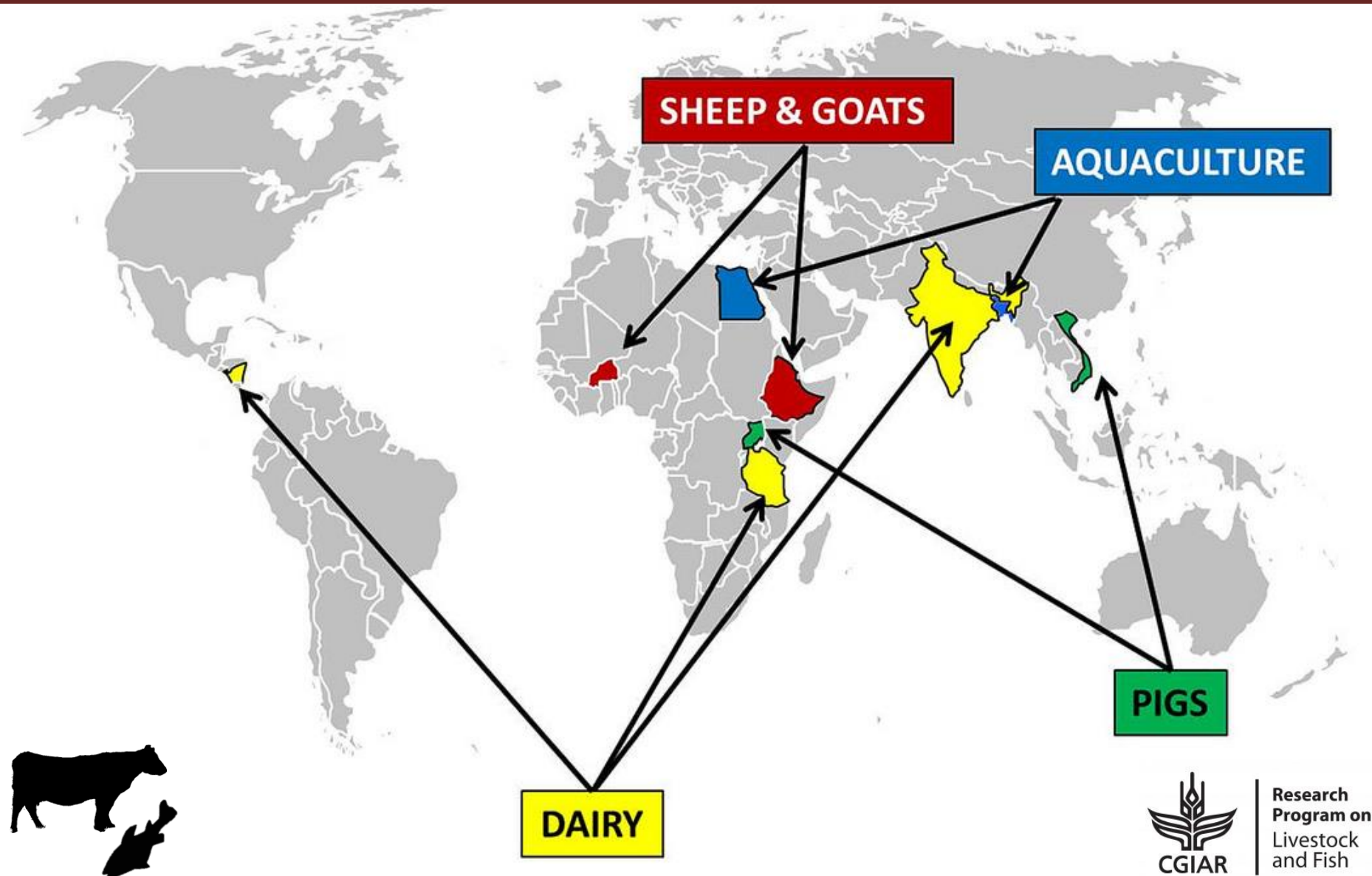
The tendency to ratchet up regulations and solve problems by increasing bureaucracy places a burden on industry and is often ineffective. A light-touch approach can be more effective than heavy-handed inspect-and-punish interventions.

Working with actors from the informal sector towards inclusive

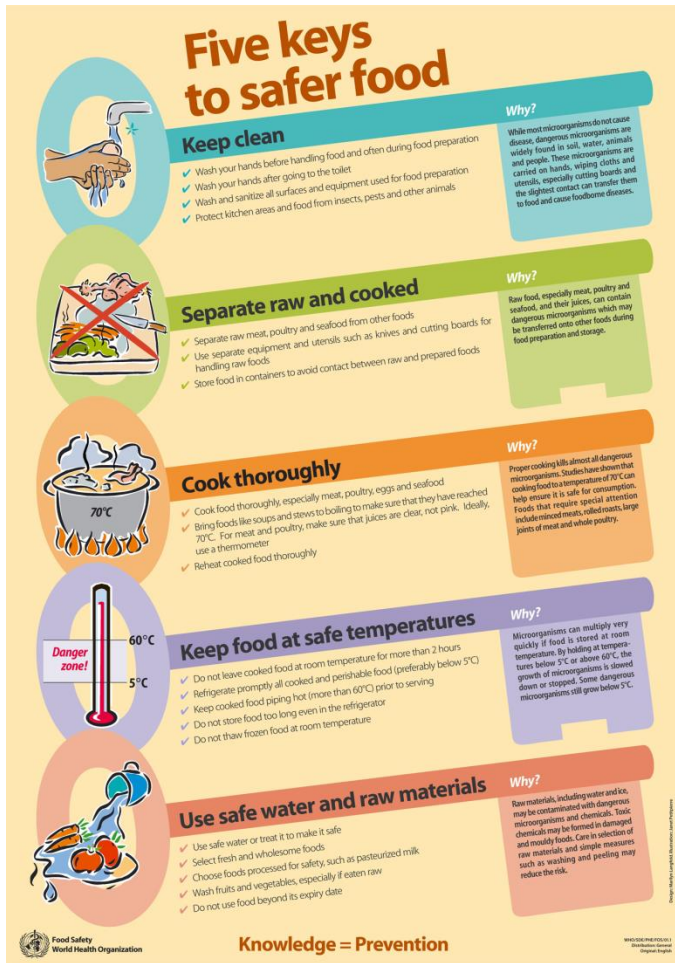
Legitimising informal markets: a case study of the dairy sector in Kenya

When five per cent of milk fails to meet standards, you have a problem with milk. When 50 per cent does not meet standards, you have a problem with standards. In developing countries, perishable food is mostly sold in informal markets and often does not meet national food safety standards. Government regulation in informal markets has not improved food safety in the past and formalisation does not guarantee safe food. New approaches, based on gradual improvements and an inclusive path to formalisation, show greater promise. A scheme to train and legitimise dairy traders in Kenya has revealed benefits for public health, farmers, vendors and consumers. But governments must withstand pressure from vested interests and show genuine commitment to supporting progressive, effective and inclusive policies if these are to be successful.

9 target livestock & fish value chains



Many trainings tools available...



WHO „5 keys to safer food“

- Konzepte vs. Detailwissen (i.e. *E. coli* Bohnen)
- Einfach formuliert
- Günstige Alternativen (z.B. Asche statt Seife)
- Kurzes Training
- In vielen Lokalsprachen

LET'S BREAK THE POR
with these 6 easy steps ➡

6. Cook meat well.

It is better to be safe than sorry. Pork must be cooked thoroughly so that there is no pink meat and no blood running out. This will kill any tapeworm cysts and prevent infection.



People get tapeworms when they eat the cysts

Ketijioto icida kwanata

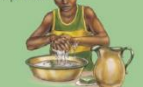
1. Kitoswamainene ecoloni nginpaaran

Kitoswam ecoloni tetem ipengi ka ico itunga mam adumutse abeezi mu icida.



2. Kilot akon akanin ejok kede esabuni akaulo na alosit ocoloni keda eroko atiror inyamat

Kidol afaifo keda eboya
da, Kidol akipi na matan.



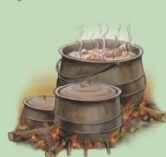
3. Kolot adekis kodum
amukian katipet arai ijabatara
keda icida

Ekia lo ikur eyari
icida tere ijo mam
ikopakiri icida ne
ejansi ipengi
ka ice ituroni da.



6. Kipo arai kope akiring na epege ejok noi

Akiring na epege ekot aipo cut ejek kodaun arengis ka aokot d Kwangin etwakete icida.



5. Kirere arai ejok akiring na epege

Kirere akiring ejok kowanyu ebe emamete icida. Marn
ipweli arai amam akiring na eiatatar keda icida.



4. Mam ilakakini ipegei

Kidar ikon pegel ka aujo, arabot alobwakit
kes, teteme mam emyame ehar.



 This document is licensed for use under a Creative Commons Attribution-NonCommercial-Share Alike 3.0 Unported License

This is an open access article distributed under the terms of the [Creative Commons Attribution License](http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Tukutule Olujegere Lw'enfaana Y'omu Nnyama Y'embizzi
n'emitendera gino 6 emyangu

6. Ennyama gifumbe eggye bulungi

Kirungu obutatuukako kabi okusinga okwejjusa. Ennyama y'embbizi eteekw okufumbibwa n'eggwiira ddala n'eba nga



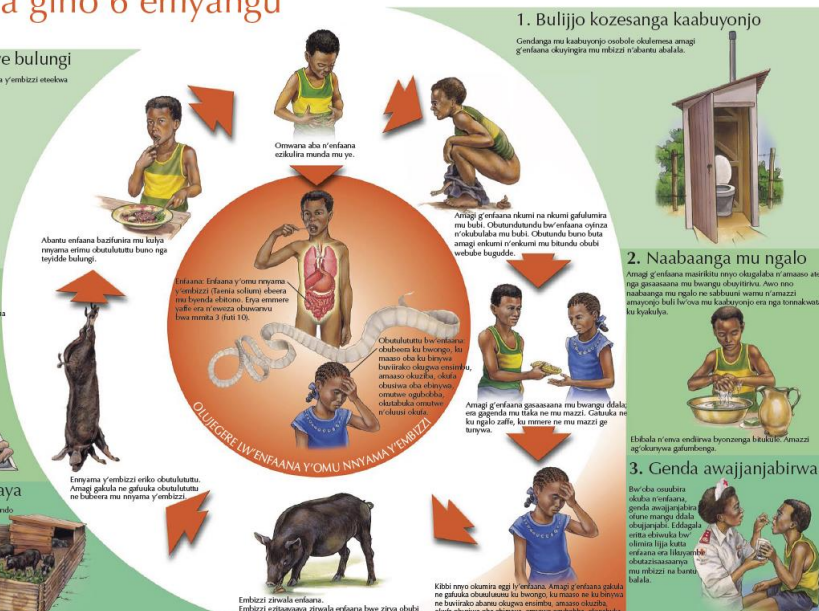
5. Ennyama gikebere oba teriimu kabi

Ennyama gyokebeje olakase nga seriko burukuseu. Ennyama seriko obufunaga asomika kuliha wadda olakasebwa.



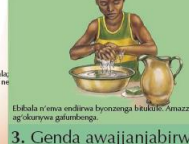
4. Toleka mbizzi kutaayaaya

Embizzi zo zikuumire mu kisibo oba ng'ozisibye ku nkola zireme kulya bubi bwa bantu obulinu amagi g'erifaana.

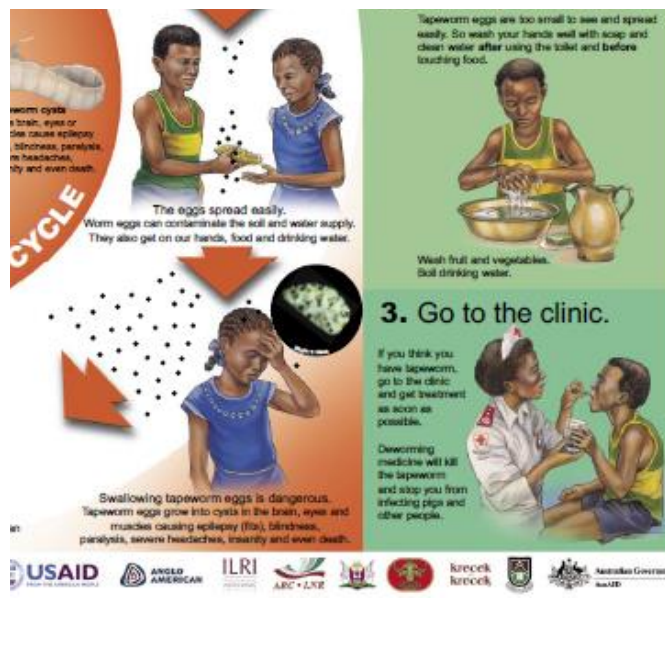


2. Naabaanga mu ngalo

Amagi g'enisana masirikutu ninyo okugalaba n'amaaso ate
nga gasaasana mu bwangu obuyitirwa. Awo nno
naabaanga mu ngalo ne sabbuuni wamu n'amazzi
amayonjo buli lw'ova mu kaabuyonjo era nga tonnakwata
ku kyakulya.



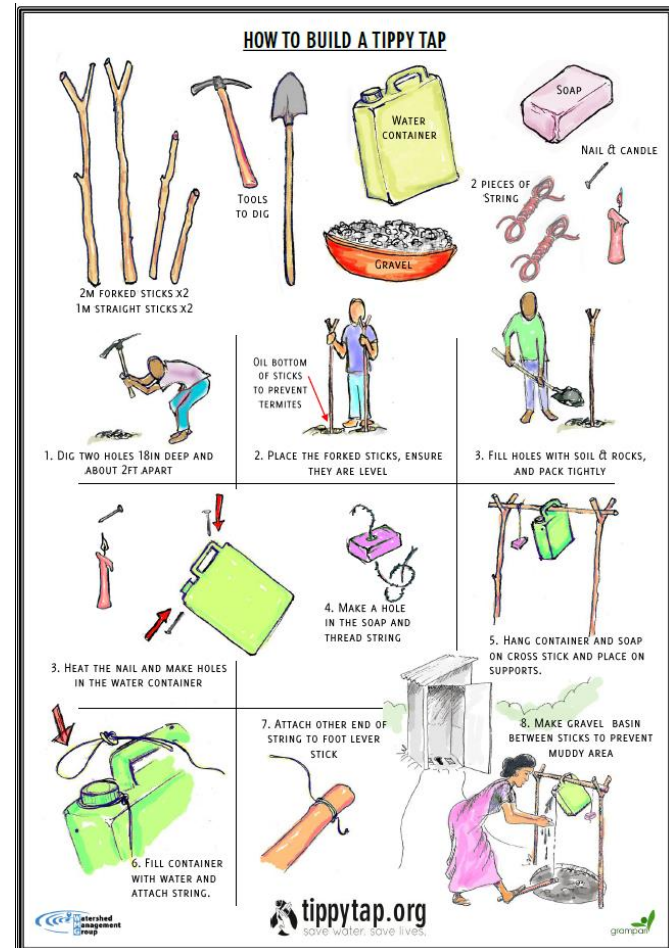
3. Genda awajjanjabirwa



This document is licensed for use under a Creative Commons Attribution-NonCommercial-Share Alike 3.0 Unported License August 2014

- Weiße Gummistiefel (6US\$)
- Tippy tap (1US\$)
- Riegel Seife (0.50US\$)
- 250mL Chlorbleiche (0.70US\$)
- Laminierter Poster und Zertifikat (6 US\$)

= ca. 15 US\$ pro Kit



Technische Innovationen & Training: insektizidbehandelte Netze



Effektivität vs Attraktivität

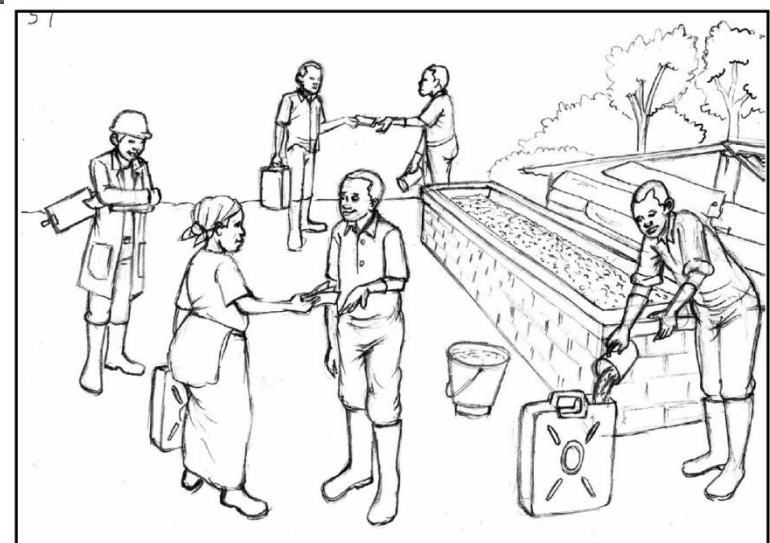
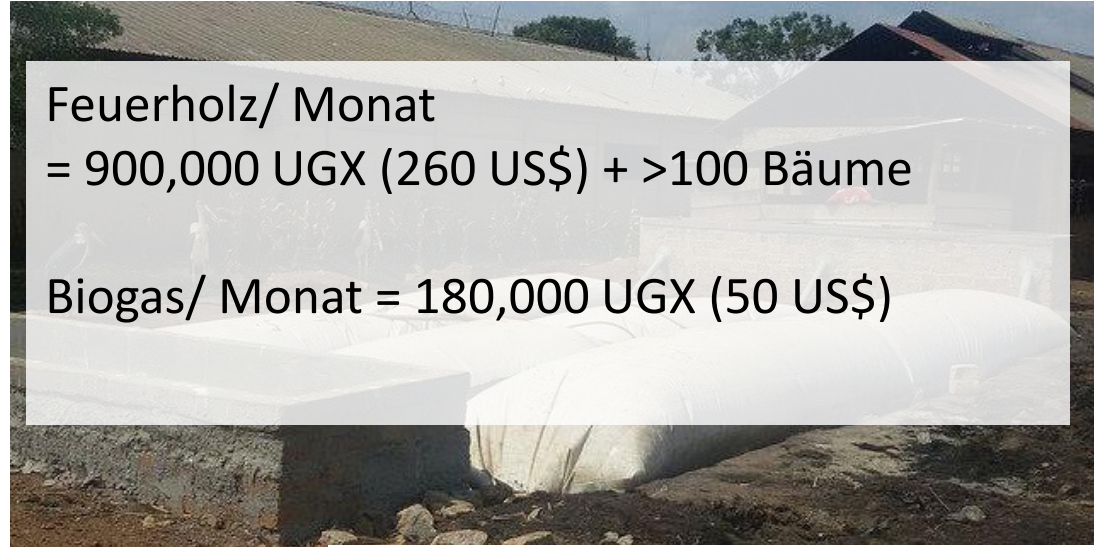
GIZ-funded Safe Food, Fair Food project / DAAD

Technische Innovationen & Training: Biogas in Schweineschlachthof Kampala



Feuerholz/ Monat
= 900,000 UGX (260 US\$) + >100 Bäume

Biogas/ Monat = 180,000 UGX (50 US\$)



GLZ-funded Safe Food, Fair Food project
IrishAid-funded MorePork project

Mobile SMS learning for pigs (mPig)

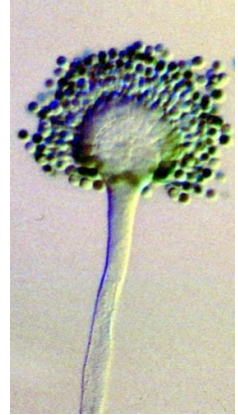
Research into use: 1,000 rural smallholders



© Flickr/Jeff Haskins

MyDairy: measuring and mitigating risk of mycotoxins in maize and dairy

- Fokus: Aflatoxine in Mais und Milch
- Hohe Werte in Tierfutter und Kuhmilch in Kenia
- Verursachen akute und chronische Erkrankungen in Menschen (Leber-Karzinome), aber auch Tieren (Reproduktionsstörungen)
- Wirtschaftliche Verluste



MyDairy

1. Risikobewertung und ökonomische Bewertung der Milchvieh-Futtermittelkette in Kenia
2. Entwicklung von Technologien & Praktiken zur Diagnostik und Neutralisierung von Mykotoxinen im Futter
3. Randomisierte Kontrollstudien für günstige post-harvest Technologien zur Reduktion von Aflatoxinen in Mais



RESEARCH
PROGRAM ON
Agriculture for
Nutrition
and Health
Led by IFPRI



JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
Setting Trends in Higher Education, Research and Innovation



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty
Supported by the CGIAR

THANK YOU!

Kristina Roesel
Projektkoordinator “Safe Food, Fair Food”
Freie Universität Berlin/ILRI
k.roesel@cgiar.org

<https://safefoodfairfood.wordpress.com/>

Better lives through livestock
www.ilri.org

FOOD SAFETY AND INFORMAL MARKETS

Animal products in sub-Saharan Africa



Edited by
Kristina Roesel and Delia Grace

earthscan
from Routledge

ilri.org

P O Box 30709, Nairobi 00100, Kenya
Phone: + 254 20 422 3000
Fax: +254 20 422 3001
Email: ILRI-Kenya@cgiar.org

P O Box 5689, Addis Ababa, Ethiopia
Phone: +251 11 617 2000
Fax: +251 11 617 2001
Email: ILRI-Ethiopia@cgiar.org

Offices in:
Bamako . Beijing . Delhi .
Hanoi . Hyderabad . Ibadan .
Kampala . Maputo .

‘Better lives through livestock’
ILRI is a member of the CGIAR Consortium



The presentation has a Creative Commons licence. You are free to re-use or distribute this work, provided credit is given to ILRI.