

# ONE HEALTH AND FOOD SAFETY

Erastus Kang'ethe

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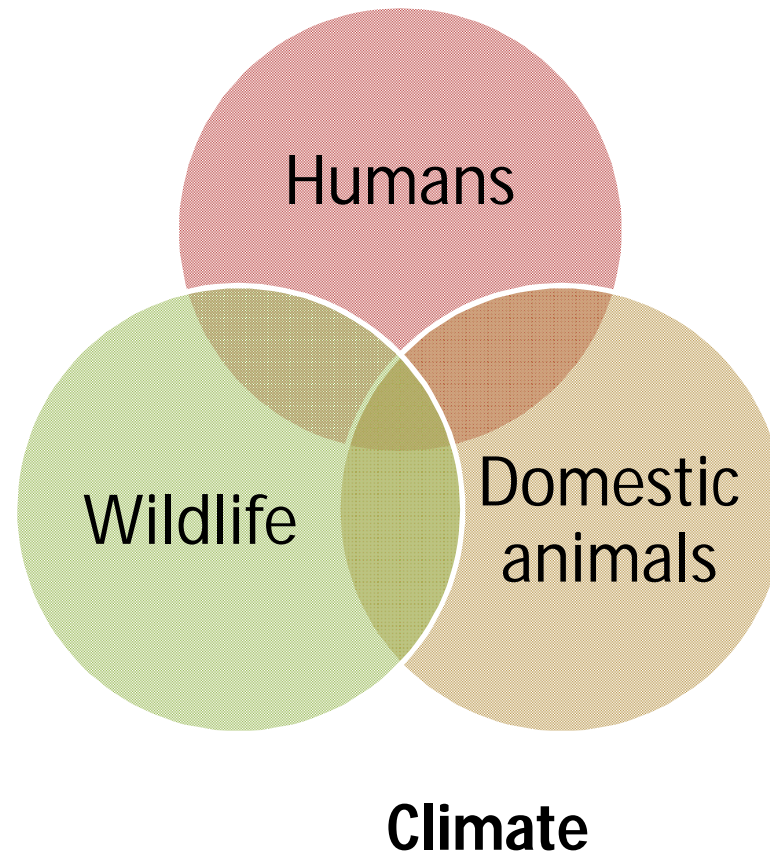
[mburiajudith@gmail.com](mailto:mburiajudith@gmail.com)

# DEFINITIONS

- **One Health** is the collaborative effort of multiple disciplines working locally, nationally, and globally, to address critical challenges and attain optimal health for people, domestic animals, wildlife, and our environment. (One Health Commission (<http://www.onehealthcommission.org/>))
- **The Ecohealth approach** focuses above-all on the place of human beings within their environment. It recognizes that there are inextricable links between humans and their biophysical, social, and economic environments, and that these links are reflected in a population's state of health (IDRC).

# ONE HEALTH

## Ecosystem



# ONE HEALTH

- Concept not new - the phrase is
- Hippocrates 460 - 370 BC in his text "*airs waters and Places*" he promoted the concept that public health depended on a clean environment
- German physician and pathologist Rudolf Virchow (1821–1902) coined the term "zoonosis", and said "...between animal and human medicine there are no dividing lines – nor should there be".
- The phrase "One Medicine" was developed and promoted by Calvin W. Schwabe (1927–2006), in his textbook "Veterinary Medicine and Human Health".

# Health

- a relative state in which one is able to function well physically, mentally, socially, and spiritually in order to express the full range of one's unique potentialities within the environment in which one is living.
- health is more than the absence of disease
- Health is a continuum



# THREAT TO HUMAN HEALTH

- 1918-1919 Spanish flu – 50-100 million people
- 1990-2000s – SARS, HPAI, H1N1 threat of Emergence of infectious diseases – Zoonosis
- 1,415 human pathogens – 62% are of animal origin (Cleaveland et al 2001)
- Jones et al. 2008 – between 1940 and 2008 in the US – 335 emerging infectious diseases – 75% wild species origin.

# Costs of emerging infectious diseases

- Apart from impacts on human health, zoonotic diseases have enormous economic losses
- UK, 1990- 2008 BSE cost the economy \$7 billion (Pearson, 2008)
- SARS outbreak cost Canada and East Asia \$40-50 billion (Naylor et al 2003)
- Kenya outbreak of Rift Valley fever, cost was estimated at \$32 million ( Karl Rich and Wanyoike, 2010)

# Costs of emerging infectious diseases

- WHO (2005) reported that 1.8 million people died from food borne diarrheal diseases – salmonellosis, campylobacteriosis, *Escherichia coli*
- WHO estimated that food borne pathogens cost US economy \$35billion in 1997 (WHO 2007)
- Food safety (microbial, parasitological, chemical contaminants) through food supply chains are a real danger to human health.



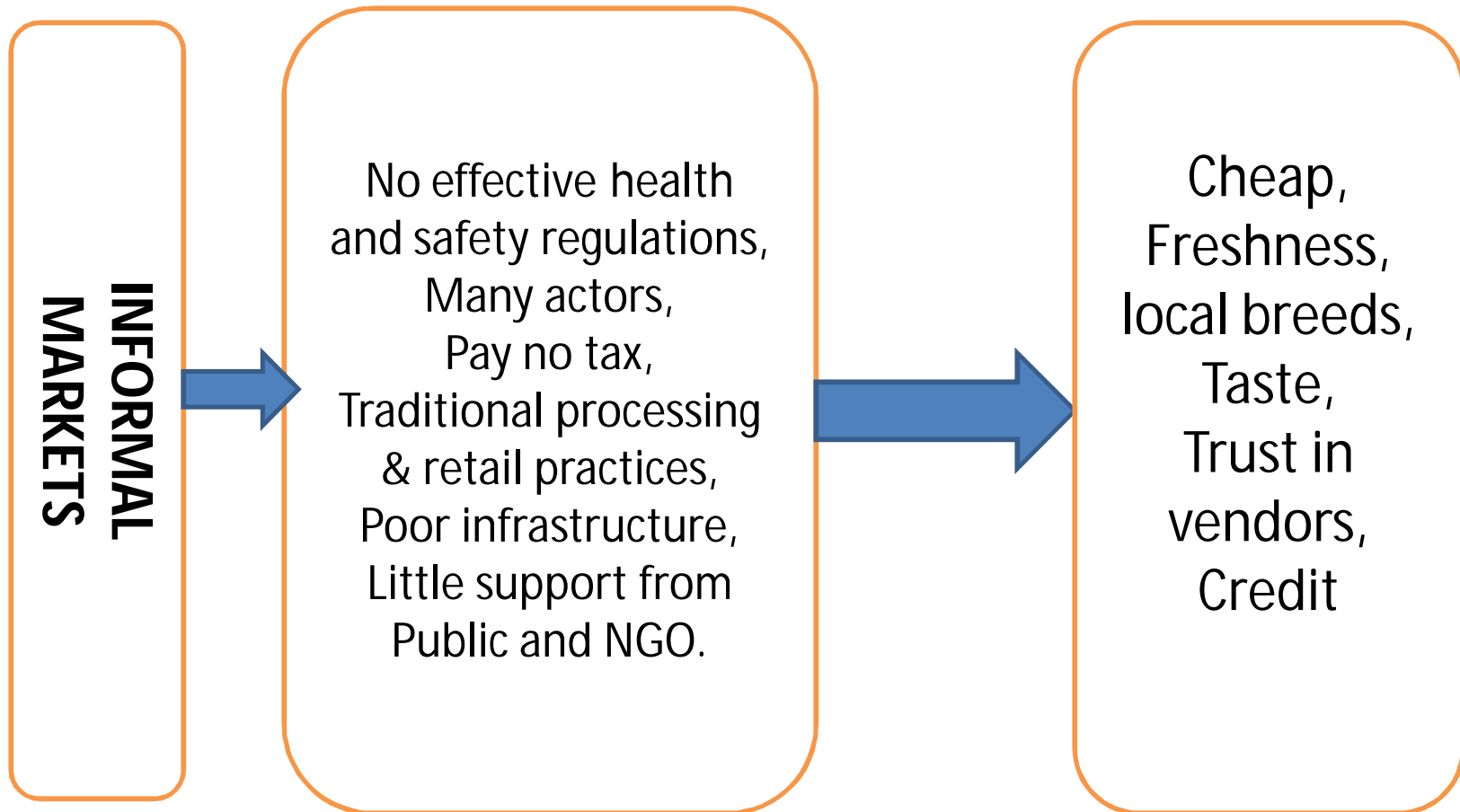
# Food safety

- The emergence, re-emergence and persistence of infectious diseases is linked to the three host health domains:-
  - Human living environments
  - Food and Agricultural Systems
  - Natural environments
- The informal marketing systems predominant in African economies play a great role in the food safety concerns.

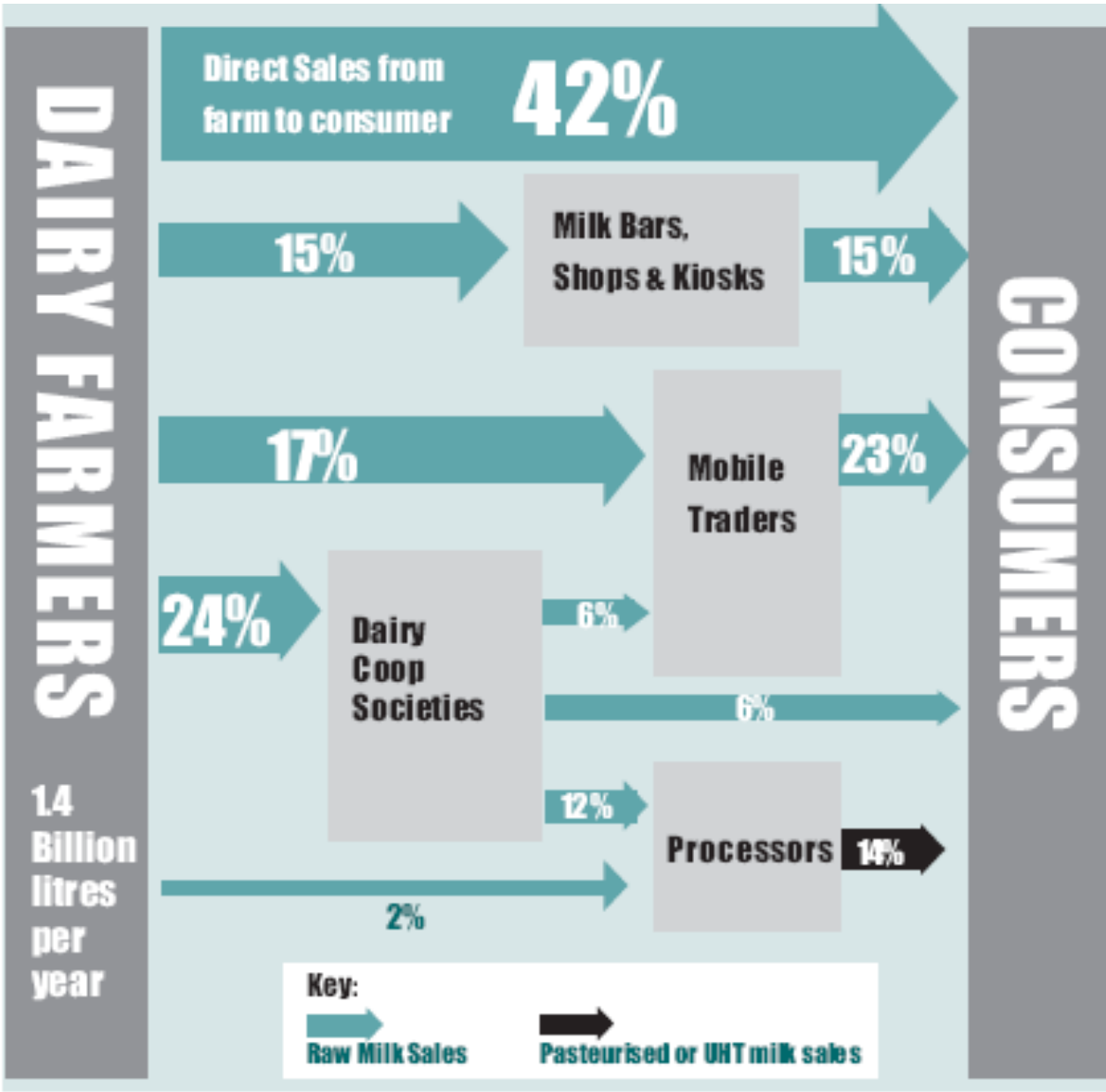
# FOOD SAFETY

## Characteristics

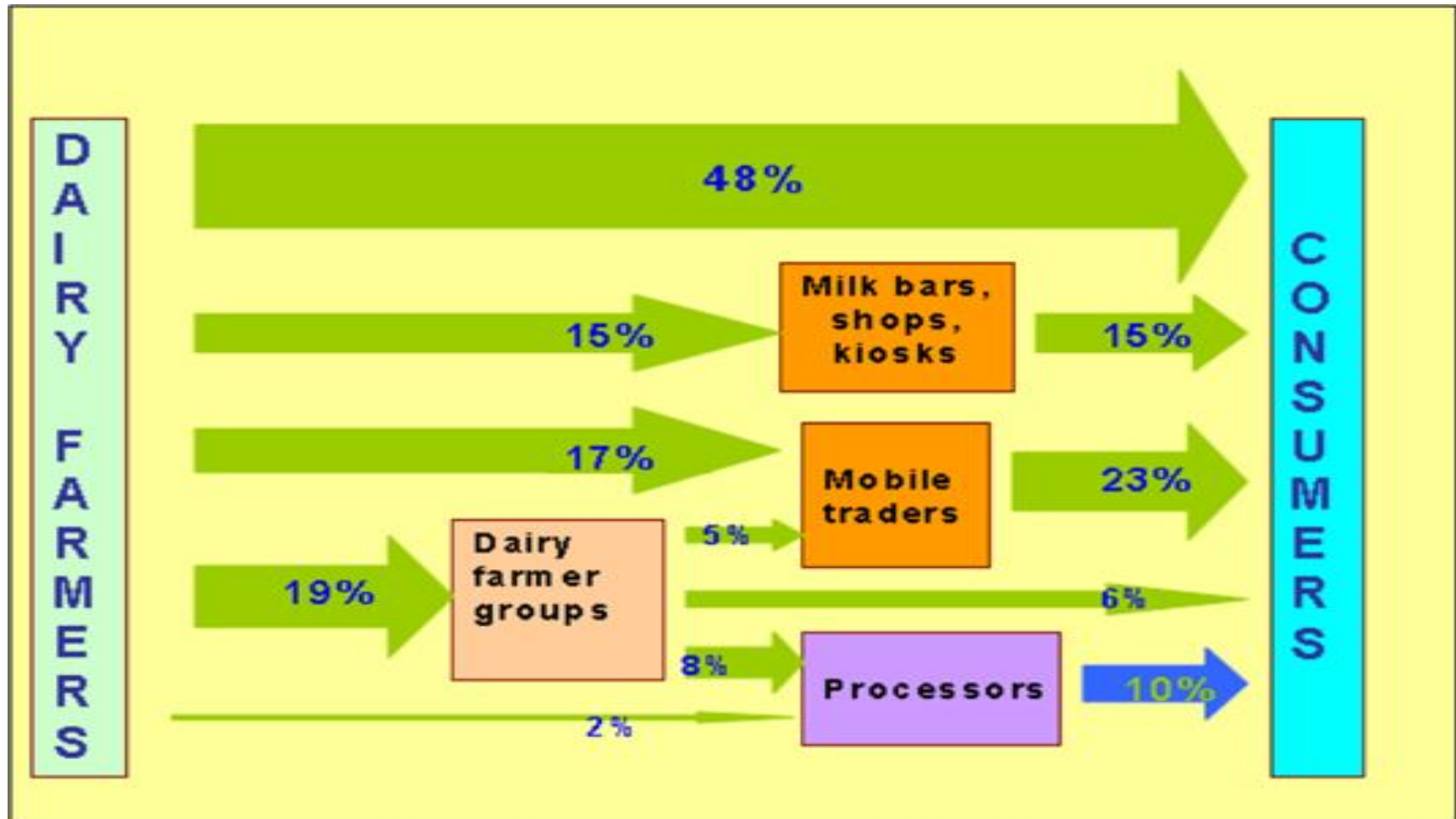
## Benefits



# Milk channels KENYA



# MILK CHANNELS - EAST AFRICA



# SAFE FOOD FAIR FOOD



# SAFE FOOD FAIR FOOD

- The strategy adopted was risk-based approaches that are the gold standard for food safety management in developed countries.
- New risk-based approaches try and find out if there really is a danger to human health and if so how big is it and what can be done about it.

Hazard  $\neq$  Risk

Risk = Hazard  $\times$  Probability

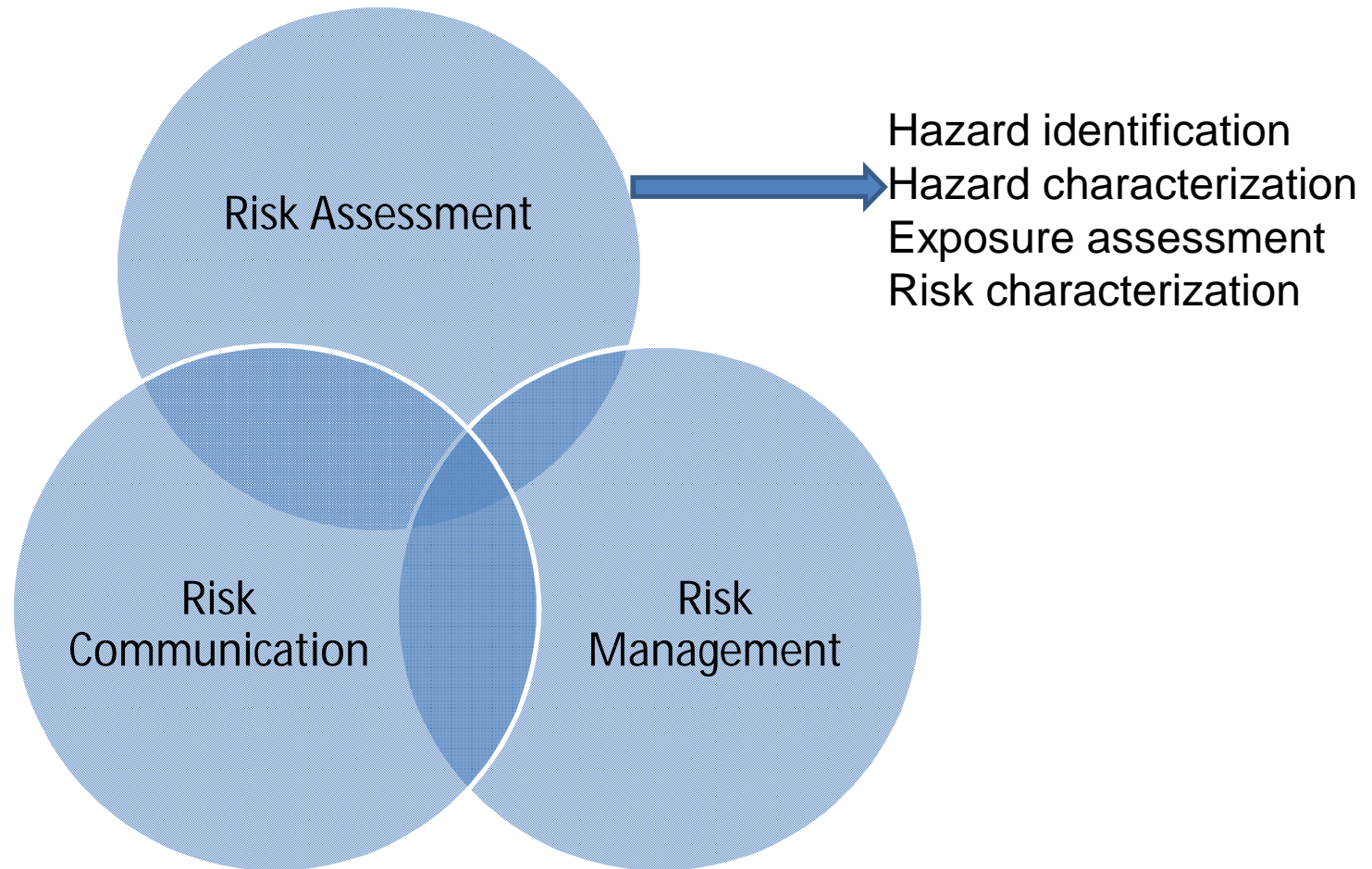
# SAFE FOOD FAIR FOOD

- Brucellosis in milk in East Africa and cultural practice of boiling milk in tea.

Hazard present RISK is NEGLIGIBLE

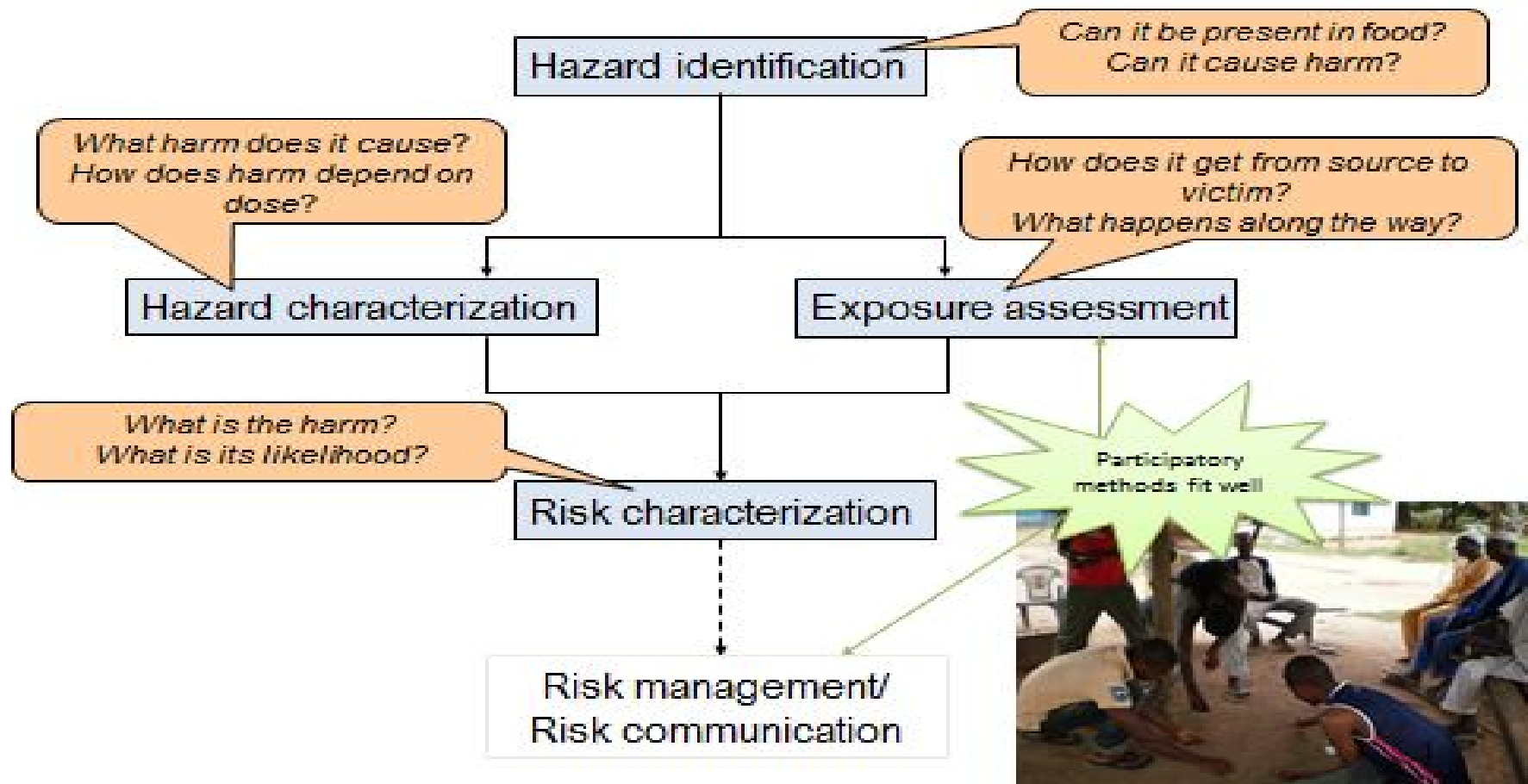
- Project was building capacity in Risk analysis using the Codex Alimentarius model

# Risk Analysis - Codex



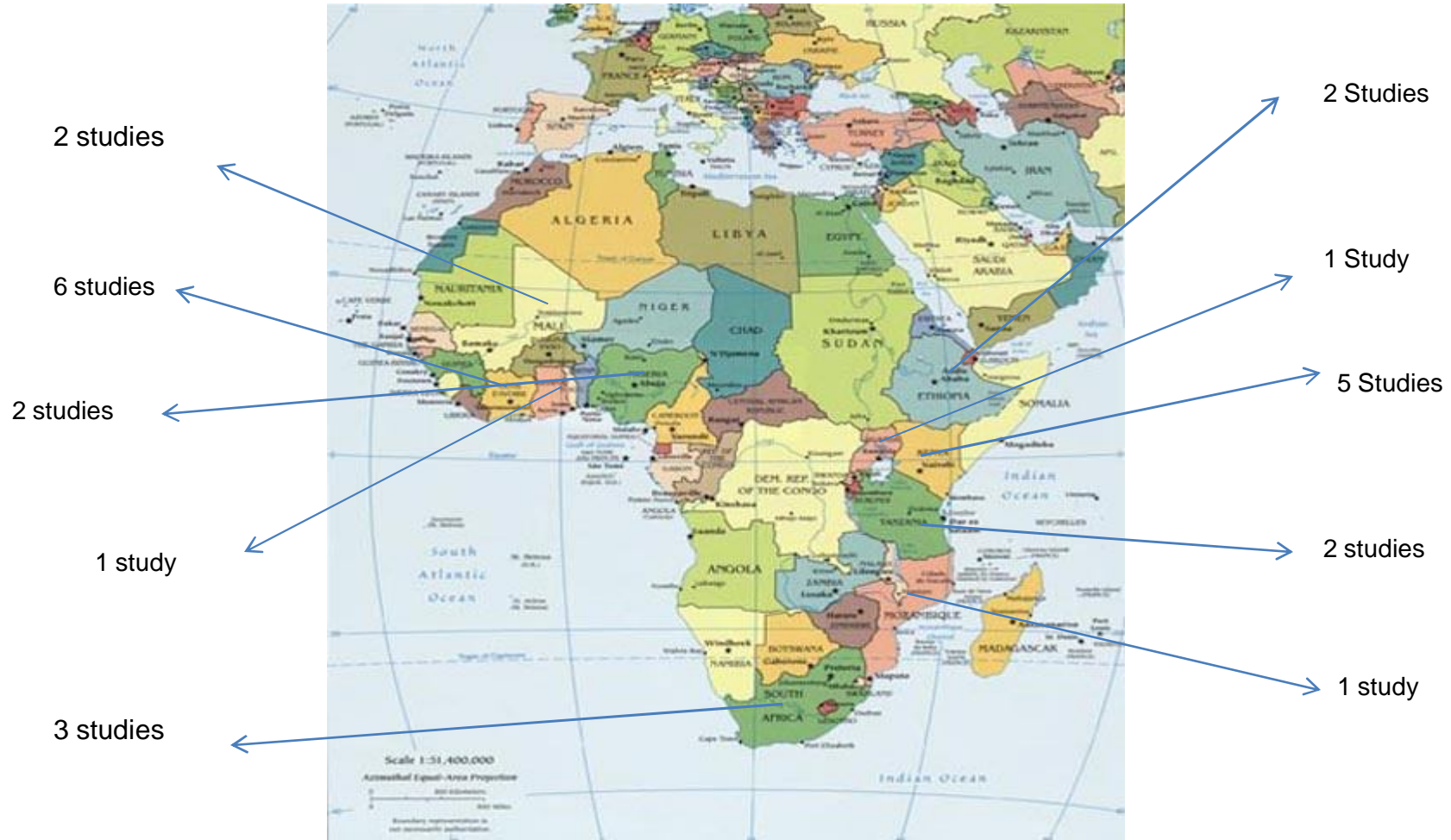


# PARTICIPATORY RISK ANALYSIS



# Proof of Concept Studies

(funded IDRC, GIZ, WB and others)



# Summary of participatory risk analysis studies

- Hazards:
  - Biological: *E. coli*, *S. aureus*, *Campylobacter spp.*, *Vibrio*, *B. cereus*, *L. monocytogenes*, *Brucella sp*, *Paragonimus*, Cysticercosis, mycotoxins
  - Chemical: aromatic polycyclic hydrocarbons, antibiotic residues
- Livestock products:
  - Beef, milk, chicken, venison, crabs and fish
- Diverse focus
  - Risk assessment, HACCP, anthropology, socio-economics, risk management

# Advantage of participatory risk assessment identified



- -Fast
- -Affordable
- -Flexible in application
- -Engages stakeholders
- -Non-obvious solutions
- -Potential to change behavior

# OUTCOME MAPPING - OUTPUTS

What the organisation generates directly through its activities in the short-term – the resulting processes, goods and services.

For example: Workshops, **training manuals, trained personnel, research and assessment reports,** guidelines and action plans, strategies, and technical assistance packages, amongst others.

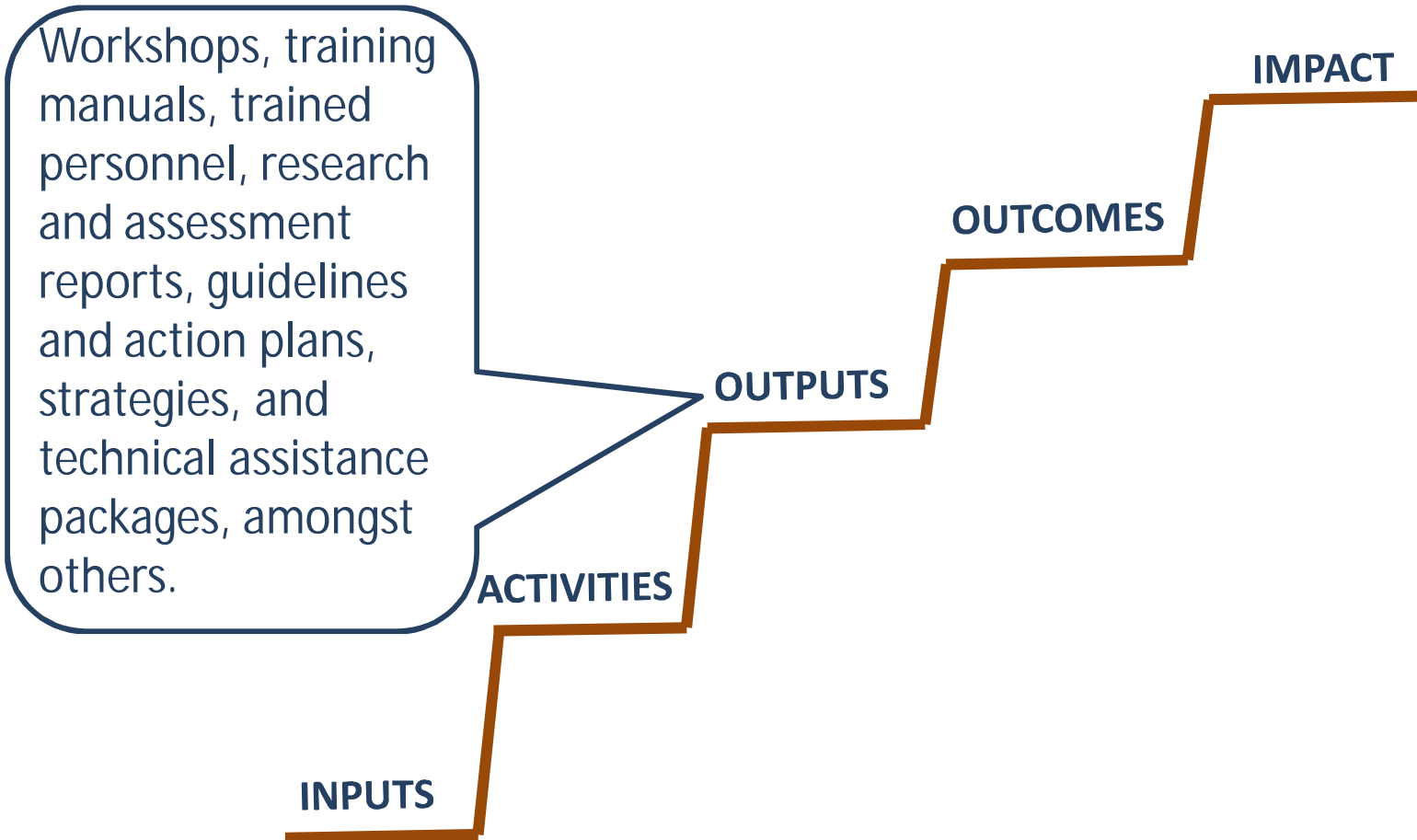
The organisation controls activities and outputs.

# OM - OUTCOMES

**As a result of the Outputs, ... these are the INTENDED observable changes** in partners, stakeholders – individuals, groups, organisations, institutions – **AS A RESULT of the outputs**. The outcomes could **potentially contribute to the long-term, sustainable improvement** in people's lives or the state of the environment envisioned in the vision of the project/organization.



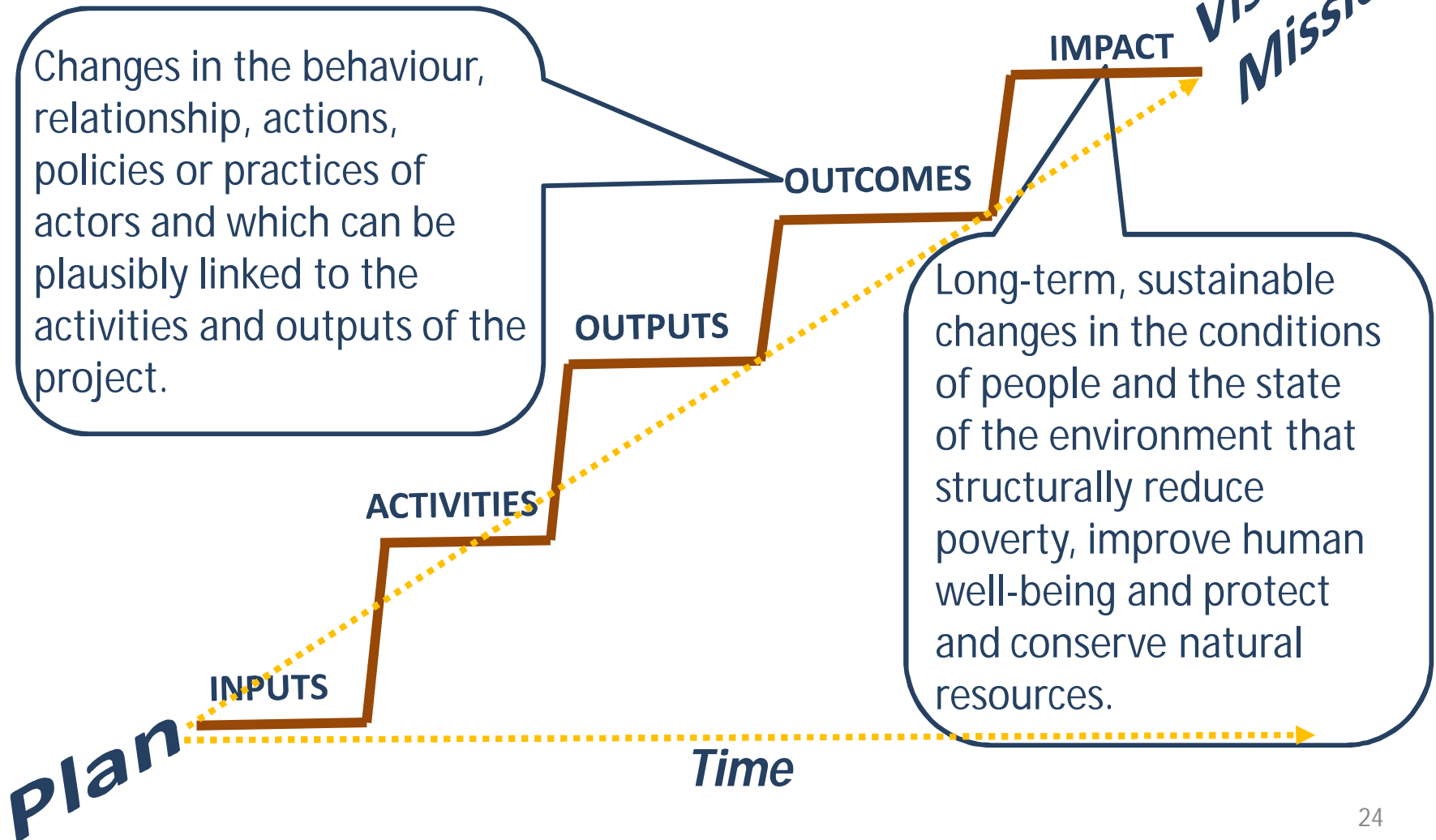
# Conventional logic easily focuses on OUTPUTS...





# And Assumes Outputs and IMPACTS will follow naturally

*Vision and Mission*





# In Outcome mapping we strategically plan for THE outcomes ...

Which actors? ...  
**STAKEHOLDERS,  
BOUNDARY PARTNERS ...**



What changes ...?

program influence decreases

community capacity & ownership increases

Changes that will indicate the project goal is being achieved...

# STAKEHOLDERS, BOUNDARY PARTNERS

- WHY Boundary partners
  - ✓ Development is done by and for people
  - ✓ While a program may be able to influence peoples actions, it cannot control them.
  - ✓ Ultimate responsibility rests with the people affected

# ***Boundary partners***

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## Partners

**'WHO'** the Program team will work with to achieve the Vision

### Stakeholders

### Boundary Partners

ANY individual, group or institution with

...

an interest  
or likely to be affected –  
positively or negatively –  
by Vision or Mission

...

an ability/opportunity  
to support intention  
**BEYOND the Program's**  
**sphere of influence**

# Projects identified boundary Partners

Boundary Partner	Who they are, their current roles	Target outcomes; Outcome challenge
Policy group	Hygiene divisions in MoH, MoLD, Food Safety Authorities, Local authorities <ul style="list-style-type: none"> <li>• Hygiene during production, slaughter, and eating places</li> <li>• Ensuring food safety and surveillance</li> </ul>	<ul style="list-style-type: none"> <li>• Provide infrastructure and services for informally marketed foods</li> </ul>
EAC, Standard Bureaus	Include livestock and health desk, animal foods standard officers <ul style="list-style-type: none"> <li>• Harmonize standards</li> <li>• Develop standards</li> </ul>	<ul style="list-style-type: none"> <li>• Embrace role of informal ASF markets</li> <li>• Develop appropriate standards for informal ASF</li> </ul>
Academia and research Institutions	Deans of veterinary and public health schools, food science, EAIUC, RUFORUM, NARS <ul style="list-style-type: none"> <li>• Train professionals</li> <li>• Carry out research</li> <li>• Quality of university education</li> <li>• Capacity building in tertiary institutions</li> <li>• Develop curricula</li> </ul>	<ul style="list-style-type: none"> <li>• Harmonize food safety curricula</li> <li>• Build capacity to deliver developed and harmonized curricula</li> <li>• Engaged in food safety research and enrich the curricula with emerging knowledge</li> </ul>
Producers, informal marketing and consumer organizations	<ul style="list-style-type: none"> <li>• Organized groups dealing in informal ASF</li> <li>• Advocacy for food safety</li> </ul>	<ul style="list-style-type: none"> <li>• Embrace and implement appropriate food safety standards</li> <li>• Work with policy to improve on hygiene</li> <li>• Active advocacy of food safety issues amongst members</li> </ul>

# How to support the partners

Partner		Cause	<b>PERSUADE</b> <i>What will be done to build interest and capacity in partner</i>	<b>SUPPORT</b> <i>How will you support, guide and mentor the partner</i>
Deans of Public Health and Veterinary Schools, IUCEA and RUFORUM	the Individual Partners		Avail information on benefits of curriculum change to include food safety issues  Provide information on the needs for better quality graduates	Encourage review of the curriculum  Encourage building the capacity of the veterinary and public health schools by higher education bodies of IUCEA and RUFORUM to mount the revised curriculum
	their Environment		Demand by employers for better quality graduates who can holistically address food safety issues of informal markets	Avail information on market needs for food safety and veterinary and Public health science graduates

# WHAT SFFF CAN OFFER OHCEA

- Assist in curricula development of food safety in informal markets
- Capacity building on participatory risk assessment to faculties
- Case studies using participatory risk assessment
- Cost share hosting some of the activities to embed food safety of informal markets in curricula

# Acknowledgements

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  - Mali

BMZ/GIZ FUNDING AGENCY

A S A N T E S A N A