



CGIAR

Science for a food-secure future

Protecting human health through a One Health approach 2022-2024

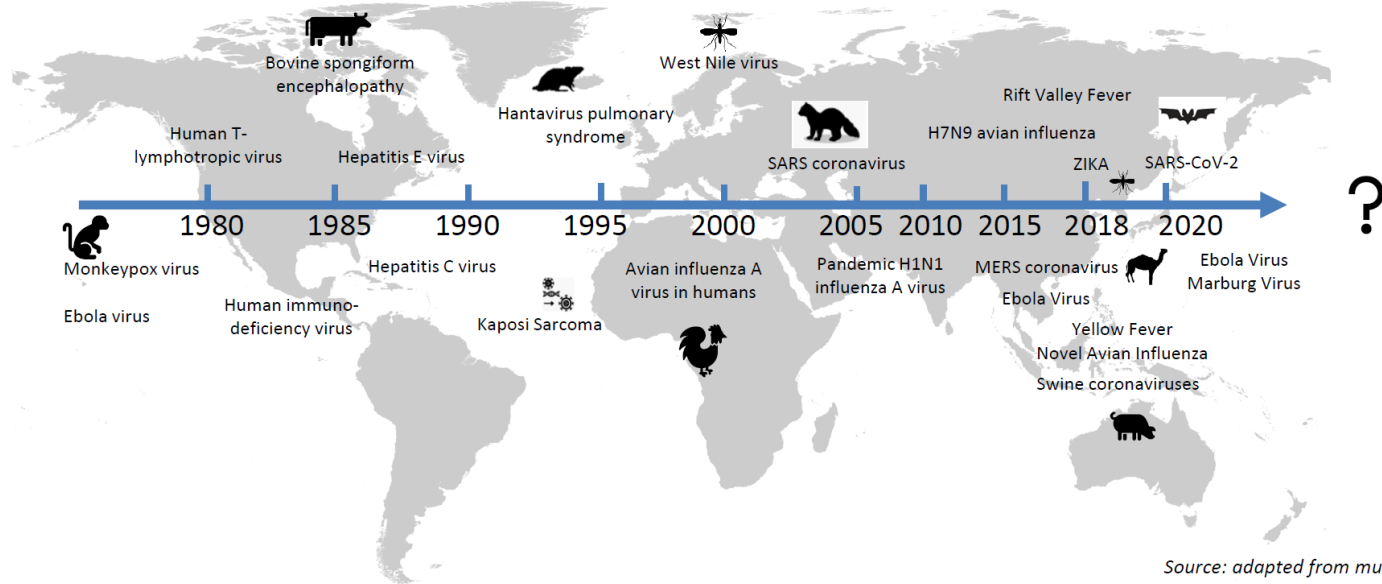
Hung Nguyen (ILRI) and Vivian Hoffmann (IFPRI)

Presented by Fred Unger (ILRI)

15 June 2022



Why do we need an initiative for One Health? - The challenges



Human health, animal health and the state of ecosystems are inextricably linked with 70-80% of emerging and re-emerging infectious diseases known to be of zoonotic origin

Source: adapted from multiple sources



Today

1.2 million deaths
each year
from AMR



occur
in low- and
middle-income
countries

2050

10 million deaths
each year
from AMR



worldwide

DEATHS

409,000
malaria

USD 2.7 bn

475,000
foodborne
illnesses

USD 40 m

GLOBAL INVESTMENT IN CONTROL

Food safety: large burden comparable to tuberculosis, malaria, and HIV/AIDS, but small investment

Antimicrobial Resistance (AMR) is a growing problem

Resilient AgriFood Systems (RAFS)

One CGIAR initiative on One Health 2022-2024

Objective is to **protect human health** by improving **detection, prevention, and control** of zoonoses, foodborne diseases and AMR in LMICs

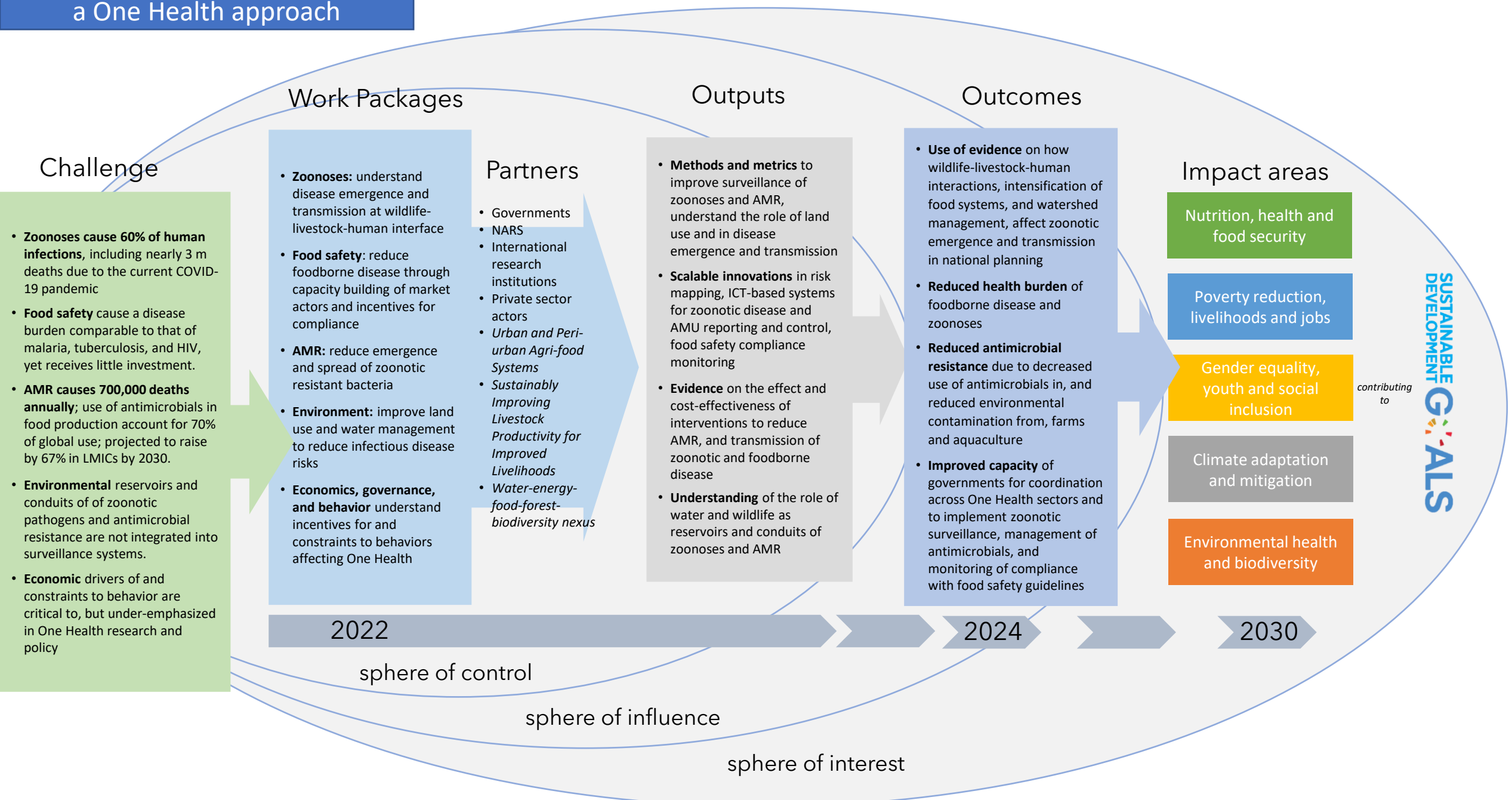
How do we do?

- **Generate evidence** on risks and public and private returns to action
- Evaluate impacts of **technologies, tools, and approaches** on health risks and economic outcomes
- Integrating **innovations into policies and programs**



Protecting human health through a One Health approach

Theory of change



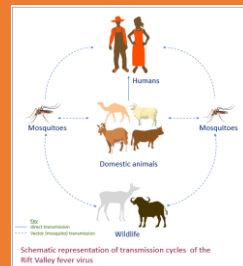
Proposed work packages, scope of work and outcomes

WP4: Environment (Water)
improve water management to reduce infectious disease risks



WP1: Zoonoses

reduce disease emergence and transmission at wildlife-livestock-human interfaces



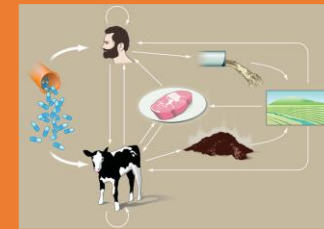
WP2: Food Safety

reduce foodborne disease through capacity building of market actors and incentives for compliance



WP3: AMR

reduce emergence and spread of antimicrobial-resistant zoonotic pathogens

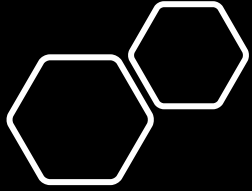


WP5: Economics, governance, and behavior
understand incentives for and constraints to behaviors affecting One Health



Selected Innovations





Where we will work & Prioritization process

Research contexts:

- Intensifying food systems
- Informal food systems
- Wildlife-livestock-human interfaces

Themes/Research questions/Innovations
selected based on potential for long-term
impact on human infectious disease
burden



High priority country and work packages

Country	Key Work Package	Partners in countries
Vietnam	WP1, WP2, WP5* WP3, WP4	Ministry of Agriculture and Rural Development, OHP, NIVR, HUPH, TUAJ, CTU, NLU & Wildlife NGO's ...
Bangladesh	WP3	Food Safety Authority, Ministry of Livestock and Fisheries, Bangladesh Livestock Research Institute
India	WP4 WP2	ICAR, Food Safety and Standards Authority of India; Office of the Commissioner of Food Safety – Odisha and Assam
Kenya	WP1, WP3, WP5 WP2	National and country departments of veterinary services and public health
Ethiopia	WP2, WP4, WP5	One Health National Platform, Ministry of Agriculture (Livestock), Universities of Addis Ababa
Cote d'Ivoire	WP1 WP2	One Health National Platform, Centre Suisse de Recherche en Cote d'Ivoire
Uganda	Leverage from other One Health projects in Uganda	Ministry of Agriculture, Animal Industry and Fisheries, Inter-University Council for East Africa (IUCEA)

*WP in **bold**: focus WP in the country, other: light activities in the country

Impact Forecast

Medium to high certainty impacts by 2030

Female food vendors served by innovations



157,000

People with 10-50% of annual income benefit



135,000

Women prevented from entering poverty



322,000

People prevented from entering poverty



645,000

DALYS saved



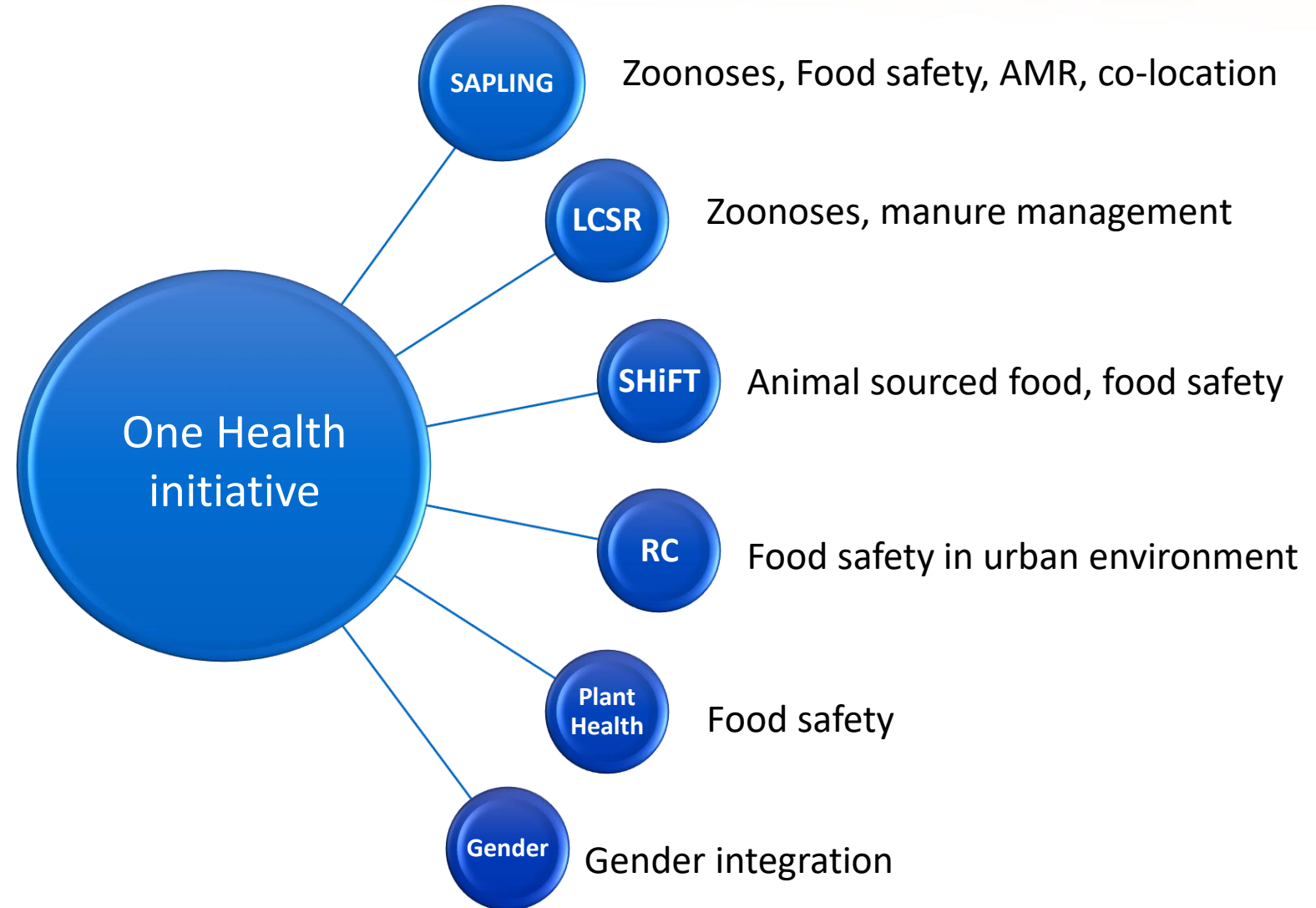
370,000

Women benefiting from better zoonoses control



5.9 million

Linkages with other Initiatives/ synergies



One Health Vietnam – WP 2 Food safety component

Challenge:

Foodborne disease (FBD) is a major public health problem and presents a barrier to smallholder farmers who wish to sell in high value domestic and export markets

Objective:

Reduce the burden of FBD focusing on high-risk livestock derived foods (pork), including traditional food systems, through enabling, capacitating and motivating food value chain actors (farm to fork)

Innovation and activity:

We will use the gender sensitive ECM (Enabling, Capacitating, Motivating) intervention innovation:

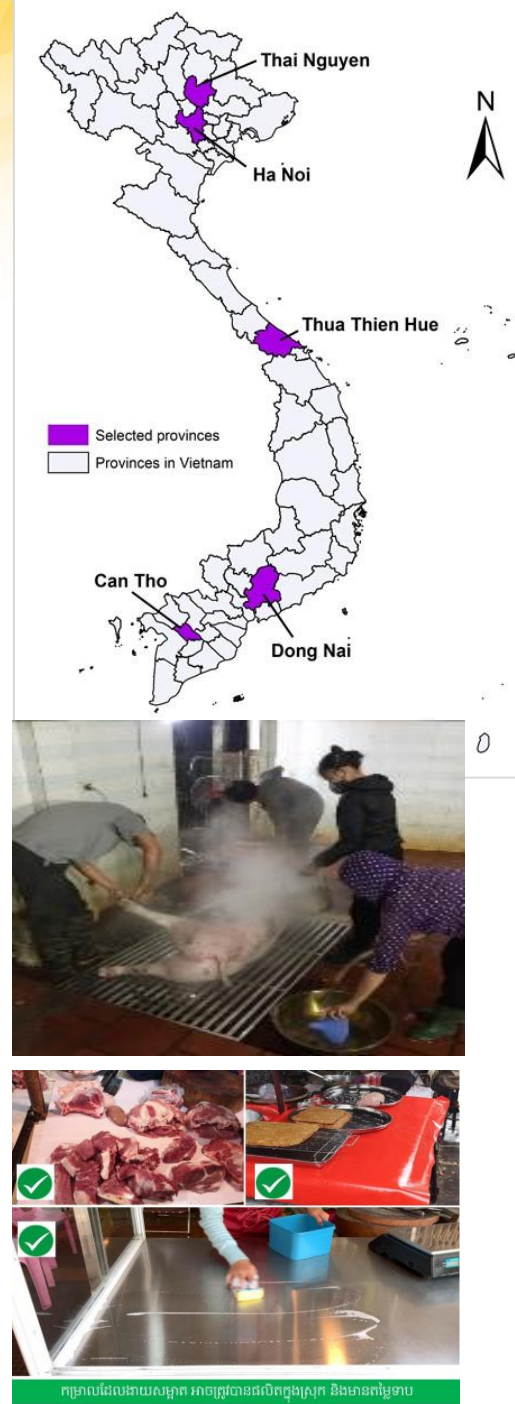
Enabling environment e.g., non-punitive co-regulation, support by local authorities

Capacitating through training & provision of cheap equipment (retail: easy to clean surface, separation trays, cutting board; slaughter: inox grid, separation of clean and dirty zones) & nudges

Motivating e.g., incentives for behavior change (scoring system for better practice, logo, awards)

Study design (similar across 5 provinces):

- Randomized control trial (> 300 retailers) & base line/endline (30 slaughterhouses)
- Behavior/practice change monitoring & social marketing campaigns



One Health Vietnam – WP 1 zoonoses component

Challenge:

Wildlife farming has become a major socioeconomic activity in Vietnam, it is estimated that there are more than 14,000 wildlife farms with more than 70 species of animals and birds

Wild animals harbor various pathogens, many of which can infect humans and livestock. Wildlife farms or markets can therefore serve as critical interfaces where pathogen spillovers can occur.

Objective:

Minimize the health risks associated with wildlife farming through applied research and capacity building targeting wildlife farms and their value chains.

Innovation and activity:

- (i) Improve knowledge, attitude and practices on zoonotic risks associated with wildlife farming/trade
- (ii) Improve surveillance and response to disease outbreaks in wildlife VC using a risk assessment framework and strengthened One Health partnerships. Risk assessments data will be used to determine zoonoses hotspots for potential interventions.

Study design:

- Literature review and development of risk assessment framework
- Epidemiological investigations (cross-sectional and syndromic surveillance)



Picture source ILRI 2021 (COVID HUB)

One Health Vietnam – other components

WP 3 Water management

Improve water management to reduce infectious disease risks

- Focus on water management at slaughter and retail
- Fully integrated in food safety component (WP 2)

WP 4 AMR

- Reduce emergence and spread of antimicrobial-resistant zoonotic pathogens
- Focus on interventions targeting pig or chicken producer
- Currently 3 innovations discussed:
 - ✓ Use of vaccination in sows to improve weaners health and reduce the use of Colistin*
 - ✓ Reducing Colistin by alternative AM in pig fattening*
 - ✓ Replacement of AM by alternative feed supplements (e.g., probiotics) in chicken fattening (Thai Nguyen One Health side)

WP 5 Economics, governance, and behavior

- Integrated in WP 1-4



More information on the One Health initiative:

[Protecting Human Health Through a One Health Approach](#)

[How to Stop Food Systems from Feeding Pandemics: Embrace One Health](#)



@OneHealth_initiative