

ILRI and partners One Health work in Southeast Asia



Presenter: Fred Unger on behalf of ILRI team and partners

3:00-5:00pm UTC+7, 22 April 2021 at ILRI Vietnam office and virtually for remote participants



Webinar on One Health activities in South East Asia implemented by the International Livestock Research Institute and partners

Contents

- Eco Health and One Health in SE Asia – a brief History
- Previous initiatives/projects
- Current projects using an integrated approach
- Synthesis and way forward

History of One Health and Eco Health in SE Asia

Eco-Health

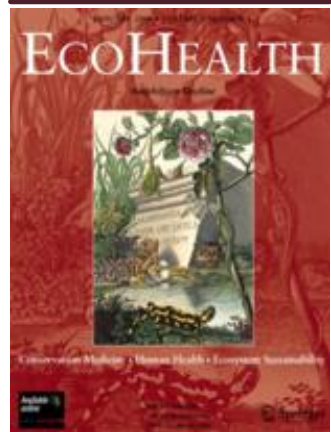
- Pioneered outside 'traditional' health e.g., on environment health aspects
- Communicable and non communicable diseases
- Introduced by IDRC to SE Asia mid of the 2000 through existing informal researcher network (APEIR) and/or projects: e.g., FBLLI, BECA and EcoZD

One-Health

- Biomedical focus: human + animal + wildlife, communicable diseases
- Various initiatives started in late 2000th in a response to HPAI emergence
 - Ministerial Conference on Avian and Pandemic Influenza, New Delhi, Dec 2007
 - Stone Mountain, 2010
- Institutionalized (FAO, WHO, OIE)



Integrated approach



Selected previous OH activities: 2008 - 2018

- Eco ZD
- Pest Forecast
- OH platform & control of Parasitic Food Borne diseases in rural communities of Laos (Partner)
- Safer indigenous Pork for ethnic minorities in Vietnam (Partner)

Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in Southeast Asia (EcoZD)



- **2008 – 2013**
- **6 countries**
- > 30 partners (Academia, NGO's ...)
- Capacity building & case studies
 - Zoonoses (Bali and Java, China, Vietnam, Laos)
 - Diarrhoea (Cambodia & Thailand)



Reflections and impact

- **Project did not come with pre-determined research questions**, there was plenty room for adaptation in the proposal
 - Emphasis on **capacity building** - an approach where **teams made key research decisions** and were supported in implementation
 - Integrated approach - **New for most of the team members** (e.g., China – presented)
 - **Multi-year process of inter-personal relationship/trust-building**
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- ✓ EH/OH Resource Centres (will be presented)
 - ✓ Long term networks established
 - ✓ EH/OH champions (e.g., China, Thailand, Indonesia)
 - ✓ Peer reviewed publications & > 100 short term trainees on integrated approaches



Pest Forecast

Surveillance and early warning systems for climate sensitive diseases in **Vietnam, 2015-2018**

Objectives

To develop and disseminate maps of hotspots of climate-sensitive diseases (CSDs)

Develop a real-time prediction system for CSDs

Selected achievements

Prediction model associated with climate factors developed e.g., dengue

Risk maps for vector borne diseases develop, e.g., Japanese Encephalitis

Partners

- MARD (DAH and PPD) & MOH (GDPM)
- NIVR (veterinary institute)
- Hanoi University of Public health and NIHE (medical institute)
- PPRI (plant protection institute)
- IMHEN (MONRE, environment)
- Provincial DARDs and DOHs



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



Ongoing activities: since 2012

➤ Safer Animal Sourced Food from traditional slaughter and retail

Safer Pork - Pig RISK and Safe PORK (Slaughter and retail), Vietnam

SFFF Cambodia (retail) Cambodia

➤ AMR

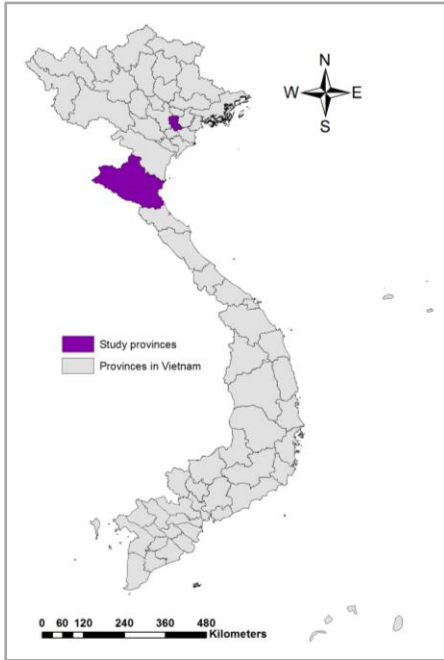
➤ Mosquito Metropolitan Project

➤ Wildlife trade & COVID 19 related studies, Vietnam (Partner)

➤ Parasitic Pork Borne Diseases, Vietnam



Safer pork for Vietnamese consumers

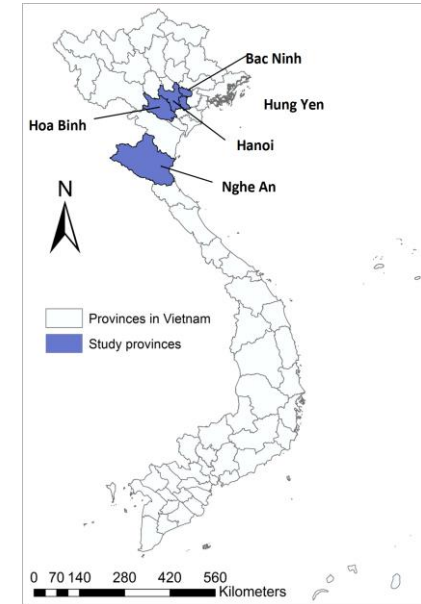


Background

- Pork is most important meat diet in Vietnam
- Traditional value chain most important (producer, slaughtered and retail)
- Food safety important concern of consumer

Interdisciplinary team

Vets, PH, animal science, agriculture economics, social science, com experts, behavioural economist & private sector



Research questions Pig Risk project (2012-2017)

Is pork safe in Vietnam?

Key findings:

1 – 2 person out of 10 (17%) estimated to suffer Salmonella caused food borne disease/year

Hospitalization costs of foodborne diarrhoea per treatment episode: **USD 107**

Microbiological hazard most important

Research questions (Safe Pork project 2017-2022)

What are feasible options for safer Pork?

Methods:

Food safety (FS) performance of key pork value chain

Low-costs FS interventions (retail & slaughter)

Behavioural nudges

Cost benefit

Risk communication

Safe PORK

3 S Food Safety Performance Tool developed and applied for key pork value chains (7)

➤ 3 pillars: **Safety** (risk assessment), **Scalability** (potential of VC to scale) and **Societal norms** (gender)

Key results: Safety - **Poor food safety outcomes** across all retail types (modern and traditional)
Scalability - **Traditional** markets and slaughter **will continue to provide most pork**
Societal - **Women also worry more about foodborne disease** more frequently than men.
Man more in **favour of purely technical interventions** than woman

Food Safety (FS) Interventions (low cost)

➤ Slaughter



Sustained hygienic improvement



➤ Retail



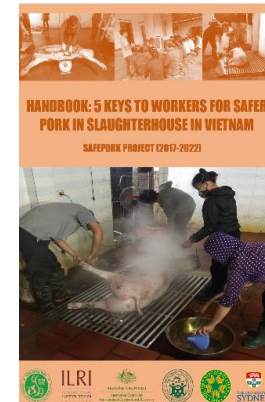
Improvement challenges

Risk communication

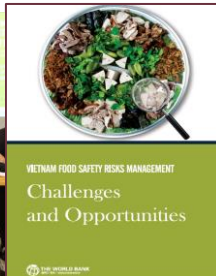
Manuals, poster (nudges)

Training

- all VC actors, school canteen, TOT
- Media, academia and risk accessors



Policy and impact: Through larger FS initiatives (AgroSafe & SafeGro) – 2021 onwards
WB report FS risk management & FS recognised by high level (DPM)
Peer reviewed papers (15), briefs (10) and videos (7)



Safe Food, Fair Food for Cambodia (2017-2021)

Objective: Develop and test evidence-based solution for hygienic improvement at wet markets

Methods: Risk assessment, Nutrition survey, RCT to test interventions

Partner & groups involved: Animal Science, Academia, NGO and market authorities

Selected achievements:

- ✓ QMRA (**1/10 consumers** may get sick annual due to Salmonella from chicken salad) and **COI (63 US\$/case)**, both FIRST for Cambodia (Salmonella cost FBD in Animal sourced food)
- ✓ Nutrition survey: Mothers concerned of chemical contamination
- ✓ Policy: FS Taskforce established
- ✓ Large RCT to **test low-cost interventions (25 US\$)**
 - 24 markets across 6 province, 12 markets (interventions or control), each market 15 retailers, overall, 360 (180+180)
 - Log CFU (**hygienic indicator**) and **Salmonella** (51 to 26%) **significantly reduced**
 - Success enabler: Strong commitment of involved local veterinary and market manager boards
- ✓ Scientific and com outputs:
 - Manuals, videos, publications (submitted)



AMR related OH research

Issues:

- ✓ 90% AB sold without prescription, dispensed by inexperienced staff, 25% of sales is AB sales
- ✓ Farmers but also humans have easy access to vet drugs
- ✓ Regulations on use of antibiotics in place but not worked effectively yet.



Selected research:

- ✓ **Mapping drivers for AMU and AMR** patterns (VIDA-PIG), University of Copenhagen, NIVR, NIN, ILRI
- ✓ **Antimicrobial stewardship** in Thai Nguyen and Hung Yen province (AMS), TNU – ILRI – Queensland Univ.
- ✓ Challenges in implementing a **AMR One Health Surveillance** system, USYD, ILRI, PH & Vet
- ✓ **AMR transmission dynamics** (pork from “organic” shops, Hanoi), LSHTM, ILRI, NIVR
- ✓ **Test interventions** and cost benefit to **reduce antimicrobials in pig farms** (probiotic) USYD, ILRI, PH & Vet

CGIAR Antimicrobial Resistance Hub, launched in 2019 led by ILRI

Aim: Support the efforts of low- and middle-income countries (LMICs) in controlling agriculture-associated AMR risks, through promoting and facilitating transdisciplinary partnerships.



CGIAR COVID HUB & aligned activities in Vietnam

CGIAR COVID-19 Hub (founded in Jun 2020) focuses on four primary work areas:

1. Addressing value chain fractures
2. Integrating a One Health approach to COVID-19 responses
3. Supporting country COVID-19 responses
4. Addressing food system' fragility and building back better

Wildlife and COVID-19 studies (Vietnam):

- Coronavirus transmission at wildlife-livestock-human interface in Vietnam (presented by partner)
- A case study of wildlife value chains in Vietnam

Objectives: Identify actors involved trading wildlife & identify economic, cultural drivers and potential leverage points for change e.g., alternative livelihood activities

Partners: Forestry (CIFOR), Livestock (ILRI) & LNU (Agric Science)

COVID-19 studies (in the region, but not “per se” OH):

- COVID 19 impact on traditional retailers and consumers in the region (THL, Laos, Cambodia and Vietnam)

Metropolitan mosquitoes: Understanding urban livestock keeping and vector-borne disease (VBD) in growing tropical cities (2018-2021)

Overall aim: **To map urban Livestock keeping and understand association with VBD**

Partners: Public Health (NIHE, HUPH) and Animal Science (NIVR, DAH)

Donor: Swedish Research Link

Key achievements: Mapping of urban livestock systems

Increased understanding of the Dengui situation and the vector presence in Hanoi province



Other OH related initiatives & planned research

Region

- A cross-border transdisciplinary One Health approach to rabies control in dogs in Southeast Asia (2018–20, Cambodia, Laos and Vietnam) Swedish Research Link

Vietnam

- Parasitic Food borne research expanded to other provinces
- Support of Vietnam Task Force for Risk Assessment, since 2013
- Support of Food Safety Working Group
- One Health side at Thai Nguyen University, TUAU (various case studies e.g., AMR)

Currently developed/planned research

Title: Improving human health through sustainable value chains in human-animal-environmental interactions using ICT in Vietnam”, submitted to MAFRA KOREA

Working title: Safer traditional markets through rapid FS performance assessment and improved food safety (Vietnam and region)

3pager Key issues on wet market shared with ACIAR and Concept note currently developed

Synthesis and way forward

Synthesis and way forward:

From ILRI and partner research perspective

- Interdisciplinary approaches integrated in various research projects/initiatives – only one “per se” was an Eco Health (EH)/One Health (OH) project
- > 50 OH related peer reviewed papers (only few with pure focus on EH or OH)
- Various trainings supported (Vietnam and region)
- To establish a OH team requires time and trust (team members)

Wider perspective

- OH has been widely recognized and plenty of activities are ongoing
- OH networks have been emerged in the region or country (e.g., capacity building or food safety/zoonoses)
- A range of universities have incorporated OH in their curricula (even OH MSc)

Way forward:

- Continue capacity building & create perspective for young OH researchers
- Further strengthen collaboration (national and regional)
- COVID 19 & traditional wet markets including wildlife - an opportunity

Selected partners, donors and networks of ILRI on One Health



Further readings

[Ecohealth research in Southeast Asia: past, present and the way forward | Infectious Diseases of Poverty | Full Text \(biomedcentral.com\).](#)

[Frontiers | International. Transdisciplinary, and Ecohealth Action for Sustainable Agriculture in Asia | Public Health \(frontiersin.org\)..](#)