One Health and EcoHealth in Asia

Hung Nguyen-Viet, ILRI and HUPH
11 September 2018, Bologna
Good environment to practice Ecohealth and One Health!

Hanoi University of Public Health (www.huph.edu.vn)

Swiss TPH
Swiss Tropical and Public Health Institute
Schweizerisches Tropen- und Public Health-Institut
Institut Tropical et de Santé Publique Suisse

Associated Institute of the University of Basel
Analysis of interrelations between environmental sanitation systems, health status and well-being

**Health status (Water and Sanitation)**
- Exposure to pathogens (viruses, bacteria, protozoa, helminths)
- Health related and help seeking behavior

**Physical environment**
- Food chain
- Excreta, Wastewater, Water
- Nutrients: N, P
- Chemical pollutants

**Social, cultural and economic environment**
- Structure of society
- Empowerment
- Economic status

Ecological risks and use of resources
Vulnerability, resilience and equity patterns

**Critical control points:** comprehensive biomedical, epidemiological, ecological, social, cultural and economic assessment

**Interventions** (biomedical, systems, engineering, behavioral or in combination): Efficacy, effectiveness and equity studies measured in relation to risks

Nguyen-Viet – Ecohealth, 2009
Outline

1. Context in Asia
2. Major OH/EH programs in (SE) Asia
3. Some evaluations and impacts
4. Reflections and conclusions
Challenges in Asia

- Population and economic growth, environmental issues, intensive agriculture and livestock, food security, nutrition, politics...
- Complex health issues (EID, AMR, NCD...) need innovative, integrated approaches.
- Strengthening the capacity of professionals working in the human, animal and environmental health sectors to respond to, control and prevent outbreaks of EID is vital.
- Need to widen scope: Looking beyond HPAI, “Systems” approach vs. focus on specific diseases, animal health / human health
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Ecohealth research in Southeast Asia: past, present and the way forward

Hung Nguyen-Viet¹,²,³,⁴*, Siobhan Doria¹, Dinh Xuan Tung⁵, Hein Mallee⁶, Bruce A Wilcox⁷,⁸ and Delia Grace⁹

Toward Operational Criteria for Ecosystem Approaches to Health

Carsten H. Richter,¹,² Jennifer A. Steele,³ Hung Nguyen-Viet,⁴,⁵ Jianchu Xu,⁶ and Bruce A. Wilcox⁷
One Health and Ecohealth programs in SEA

EHRCs

GHI

Emerging Pandemic Threats Program

IDRC, CRDI, Canada

USAID, From the American People

Emerging Pandemic Threats Program

PREDICT • RESPOND • PREVENT • IDENTIFY

Australian Government
Australian Centre for International Agricultural Research

Emerging Pandemic Threats Program

PREDICT • RESPOND • PREVENT • IDENTIFY

World Health Organization

FAO, World Organisation for Animal Health

ECATD, Emergency Centre for Transboundary Animal Diseases
Main ecohealth projects in South East Asia, December 2017
<table>
<thead>
<tr>
<th>Project name</th>
<th>Countries involved</th>
<th>Field</th>
<th>Donor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Partnership on Emerging Infectious Diseases Research (APEIR)</td>
<td>Thailand, Vietnam, Indonesia, China, Laos, Malaysia</td>
<td>EIDs</td>
<td>IDRC</td>
</tr>
<tr>
<td>Ecohealth Emerging Infectious Diseases Research Initiative (EcoEID)</td>
<td>Thailand, Vietnam, Indonesia, China, Laos, Philippines</td>
<td>EIDs</td>
<td>IDRC/DFATD/AUSAID</td>
</tr>
<tr>
<td>Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in the Southeast Asia Region (EcoZD)</td>
<td>Vietnam, Laos, Cambodia, Indonesia, China, Thailand</td>
<td>EIDs</td>
<td>IDRC</td>
</tr>
<tr>
<td>Eco-Bio-Social dengue control programmes</td>
<td>Thailand, Vietnam, Indonesia, China, Laos, Philippines</td>
<td>Dengue</td>
<td>IDRC/WHO</td>
</tr>
<tr>
<td>Lawa Model: Integrated Opisthorchiasis Control in Northeast Thailand</td>
<td>Thailand</td>
<td>O. viverrini</td>
<td>IDRC</td>
</tr>
<tr>
<td>The Research Institute for Humanity and Nature (RIHN) project</td>
<td>Lao PDR, Vietnam, Bangladesh, Yunnan China</td>
<td>EIDs</td>
<td>IDRC</td>
</tr>
<tr>
<td>Building Ecohealth Capacity in Asia (BECA)</td>
<td>Thailand, Laos, Cambodia, Vietnam, China</td>
<td>EIDs</td>
<td>RIHN</td>
</tr>
<tr>
<td>The Field Building Leadership Initiative in Southeast Asia (FBLI)</td>
<td>Thailand, Indonesia, Vietnam, China</td>
<td>Ag &amp; Health</td>
<td>IDRC</td>
</tr>
<tr>
<td>Integrated assessment of environmental sanitation and health (NCCR North–south)</td>
<td>Vietnam, Thailand</td>
<td>Ag &amp; Health</td>
<td>SDC</td>
</tr>
<tr>
<td>Land Use Change and Human Health in the Eastern Himalayas: An Adaptive Ecosystem Approach</td>
<td>Nepal, Yunnan Province, Tibetan Autonomous Region of China</td>
<td>Ag &amp; Health</td>
<td>IDRC</td>
</tr>
</tbody>
</table>
Types and areas of Ecohealth projects

Types of projects:

• Research
• Research and capacity building
• Operational research

Areas

• Ecohealth and emerging infectious research and policy
• Ecohealth and agricultural intensification, and environment and climate change
• Network development, capacity building and training
APEIR: Asia Partnership on EIDs Research

- APEIR is a research partnership (>30 institutions in 6 countries...)
- APEIR was initially established in 2007 in response to the spread of HPAI in the region. Since 2009 it has considered a wider range of diseases - EIDs.

In the past....

i. Migratory birds & AI network
ii. Socio-economic impacts of AI
iii. Backyard poultry systems & AI
iv. Policy analysis
v. Effectiveness of AI control measures

In recent years

i. Poultry Production Clusters
ii. Small-Scale Poultry Slaughter Houses
Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in Southeast Asia (EcoZD)
Ecohealth Field Building Leadership Initiative in SEA: FBLI – Agriculture Intensification & Health

“Site based- concept”

- Yuanmou (CN)
- Hanam (VN)
- Chachoengsao (TH)
- Pangalengan, West Java (ID)
EcoHealth prudent use of antimicrobial in SEA
Sustain the control liver-fluke infections in Mekong Region, by packaged strategy (integrated model)

Fig. 1. Map of six study sites along the Mekong River
Mission:
To link and empower leading Universities in Southeast Asia to generate Social and Intellectual Capital on One Health against Infectious and Zoonotic diseases
A consortium of universities that are collaborating to build One Health capacity and academic partnerships with government, national and regional stakeholders in the Southeast Asian region.

Established in 2011

**SEAOHUN**
South East Asia One Health University Network

**IN APRIL 2018, 67 UNIVERSITIES, 120 SCHOOLS/FACULTIES**

- **indohun**
  - 20 universities,
  - 34 schools/faculties

- **MyOHUN**
  - 17 universities,
  - 23 schools/faculties

- **THOHUN**
  - 10 universities,
  - 42 schools/faculties

- **VOHUN**
  - 20 universities,
  - 21 schools/faculties

Conduct OH activities in Cambodia, Myanmar, and Lao PDR but with no formal network.
Collective results as of 2017

Multi-Sectoral Engagement

- 49 Community Outreach Activities
- 2 One Health Policy Papers
- 37 Multi-Sectoral & Multi-Lateral Events Coordinated
- 15 Evidence-Based Materials Created

Institutional Strengthening

- Over 1,700 faculty have attended trainings and professional development
- 115 schools are members in the One Health University Networks
- 6 operations manuals & implementation tools created

Education & Training

- Over 6,000 students, current professionals, and faculty members have attended trainings
- 24 One Health Fellows have been placed in organizations
Hanoi:
- Hanoi School of Public Health
- Hanoi Medical University
- Hanoi University of Agriculture

Thai Nguyen University of Medicine & Pharmacy
Thai Nguyen University of Agriculture & Forestry

Thai Binh University of Medicine

Hai Phong Medical University

Nam Dinh University of Nursing

Vinh Medical University

Tay Nguyen University:
- Faculty of Medicine
- Faculty of Animal Husbandry & Veterinary Medicine

Bac Giang Agriculture and Forestry University

Hue University of Medicine & Pharmacy
Hue University of Agriculture & Forestry

Can Tho University:
- College of Agriculture & Applied Biology
- Can Tho University of Medicine & Pharmacy

Hochiminh City Agriculture & Forestry University
Hochiminh City Medicine & Pharmacy University

VOHUN
20 Universities and 21 Faculties
Overall Goal
• To enhance the capacity of Vietnam to address zoonotic infectious diseases threats at the human-animal ecosystem interface (*including livestock, wildlife and other animal species)

Viet Nam One Health Partnership for Zoonoses

• Launched in March 2016, built on Partnership on Avian and Human Influenza (PAHI) established in 2006
• 27 members

Similar structure in other countries: Indonesia, Laos, Thailand, Mongolia... with variable levels of efforts and commitments
Several One Health and Ecohealth projects (India, Bangladesh, Nepal, Bhutan...)

- AMR, zoonoses, dairy, ruminants
- South Asia One Health degree training (MSc) with NZ
- PHFI, ICAR, ICMR – adoption of transdisciplinary approach
1. Context in Asia
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Evaluation of IDRC’s funded ecohealth research in Southeast Asia and China from 2005 to 2017

➢ Principle investigators and research implementers are the “next-user” group of the IDRC’s funding

➢ Over the last 12 years (2005 – 2017), the IDRC’s funding has increased the capacity of the group of principle investigators and research implementers.

➢ This would ensure the sustainability of the integrated approach projects in the region.

➢ The challenges implies a more local and flexible adaptation of holistic approach

Change of PI and researchers
In-depth interviews with 22 PI and others
Interviews i) past experiences of participant with ecohealth research and ii) participant’s current projects/programs and how ecohealth research have influenced participant’s career pathway.
Researchers’ social capital and networking activities

“I have submitted two proposals on anti-microbial resistances with partners from Vietnam and China to two different sources of funding. I knew them from the time we collaborated with each other in the ecohealth programs. Although, I got only one funded, I found this way of work effective because international donors, now, look for solutions for issues at regional scale.” (Participants from Laos)
Capacity building, training, university ‘changes’

- Ecohealth Resource Centres (EHRCs) in CMU and UGM
- Short courses
- Degree training
- Future leaders training
- Curricula development at university
Good practice pig-farm

- Saving time, water, electricity, money
- More gas for cooking
- Less smell, flies
- Improving personal hygiene practice
- More friendly
- Increasing productivity
Major conference and policy advocacy
EcoHealth and EIDs - Dynamics between environmental change, development, and EIDs in Asia

Edited by: Dr. Delia Grace, Dr. Fred Unger, Prof. Xiao-Nong Zhou
Collection published: 7 May 2014

Emerging infectious diseases (EIDs), such as avian influenza (H7N9), severe acute respiratory syndrome (SARS), and dengue have potential to cause epidemics and pandemics. Southeast Asia and China, where some of these diseases were first recognized, are considered as global “hot spots” for disease emergence. Increases in the rate of emergence of diseases in this region imply conventional approaches to disease emergence are not working. New approaches, such as EcoHealth, that shift from silo thinking to transdisciplinarity, aim for more effective prevention and control of EIDs. The last decade has seen major initiatives to implement EcoHealth in the region.
Research and training partnership to assist policy and capacity building in improving food safety in Vietnam

- Vietnam National University of Agriculture
- Hanoi University of Public Health
- Local authorities in Hung Yen and Nghe An
- Involved various Value chain actors and groups
Interactions with policy makers: Policy translation: food safety

2011  Meeting with VFA  
Photo: CENPHER

2012  Meeting with DAH  
Photo: CENPHER

2016  Meeting with DPM Vietnam, 2 Dec 2016  
Photo: Tuyet Hanh

2018  Meeting with DPM Vietnam, 18 April 2018  
Photo: World Bank
Policy impact: translational research for interventions in modernizing food system

- CGIAR/ILRI niche - risk assessment and policy / regulatory analysis for fresh foods in domestic markets
- World Bank convenes overall support to government: ILRI led technical works
- Upcoming projects based on WB report we led will improve food safety for 20 million people in 3 major cities of Vietnam
Safe Food, Fair Food for Cambodia

Taskforce – December 2017

1. Risk profiling
2. Scoping visits
3. Systematic literature review
4. Risk profiles
5. Training in risk ranking
6. Stakeholder prioritisation

1. Develop & test solutions for wet markets
2. Generate evidence on FBD
3. Five Urban Survey Study
4. RCT intervention
5. Taskforce

Impact

Gender

TOC

Nutrition

Markets

Household

QMRA

Cost of Illness

Nutrition

Taskforce
Savanakhet, Laos
Foodborne parasitic disease research Oct 2017

Decision makers
Public health (MD, army health)
Scientists
Vets
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Paradigm shift: from proactive support of donors to competitive process for funding

• Ecohealth projects in SEA: financially supported by IDRC, and AusAID, the WHO and the SDC.
• The sustainability is questionable
• A pragmatic response by partners has been to brand themselves as both Ecohealth and One Health.
• Making grant modes from donors: non competitive vs. competitive
• Funding mobilization from other donors including national funding is needed
Reflections on Ecohealth/ One Health implementation in SE Asia

• “Competitive” networks of Ecohealth and One Health in SEA and donor driven and weak sustainability
• Complementarity: EIDs vs. non EIDs
• How much OH/ecohealth in OH/EH projects: integrative research → operating criteria of Ecohealth/OH
• Improving the translation of evidence and research into policy, more cases to show added values of One Health/Ecohealth
• How best to share credit among OH/EH team members
• Deeper coordination between sectors on human and animal (and wildlife) health and the environmental agencies (also plant health)
References


EcoHealth = Ecosystem approaches to health

www.ecohealthinternational.org
Acknowledgement