Ecohealth and One Health research in Southeast Asia: Examples, challenges, successes and outlook

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Theme: One Health Approach in Zoonotic Disease Control Strategy
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Presentation outline

• Ecohealth versus One Health and history in SE Asia
• Review of selected Eco Health & One Health initiatives
• Case study, learning by doing
• Final reflections, conclusions & way forward
There is no single universally accepted definition of either “One Health” or “EcoHealth.” (Even the spelling of the terms is not yet standardized: some prefer to write ecohealth without any capitalization.)
Eco Health

Originated in biological Ecology/land conversation
Complexity focus/systems
Communicable/non communicable diseases
Pioneered from IDRC and outside traditional health (heavy metal toxicity in communities and related to mining)
‘Bottom Up’
Vets, medicals, epidemiologists, ecologists, social scientists, philosophers, indigenous perspectives, etc.

One Health

Schwabe’s One Medicine
One world/One Medicine (Zinsstag)
More quantitative focus (animal/human/wildlife)
Communicable diseases, zoonoses
Vets, medicals, some ecologist
Currently institutionalized (FAO, OIE, WHO)

Integrated approach

Modified after IAEA 2014
OneHealth/EcoHealth in SE Asia

• One-Health
  – Various initiatives started in late 2000\textsuperscript{th} in a response to HPAI International Ministerial Conference on Avian and Pandemic Influenza, New Delhi, Dec 2007, FAO, OIE, and WHO – to develop a joint strategic \textit{One World, One Health} framework
  – IMCAPI, 2008 & 2010; Stone Mountain, 2010
  – Meanwhile wide range of initiatives emerged

• Eco-Health
  – Introduced by IDRC to SE Asia mid of the 2000
  – Initial approach through existing informal researcher networks
  – IDRC funded various projects: APAIR/APEIR, EcoEID, FBLI, BECA and EcoZD
Review of selected EH and OH initiatives

Initiatives were reviewed in terms of certain characteristics:

• Capacity building
• Action research component
• Focus on EH and or OH
• Networking demonstrated
• Funding dependency
• M & E tool and Impact assessment
• Research evidence in terms of peer reviewed papers
• Scaling out
• Policy engagement
Selected **EH/OH** initiatives in South East Asia (since 2006)
### Summary on initiatives focus and characteristics

<table>
<thead>
<tr>
<th>Focus &amp; characteristics/ initiatives</th>
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<tr>
<td>Capacity building (general)</td>
<td>X</td>
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<td>One Health</td>
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<td>X</td>
<td>(x)</td>
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<td>Strong networking</td>
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<td>M &amp; E tool</td>
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<td>X</td>
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<td>Impact assessment</td>
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<td>(x)</td>
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<tr>
<td>Scaling out</td>
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<td>Peer reviewed publication</td>
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<td>Policy engagement</td>
<td>X</td>
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Review of EH/OH initiatives – lessons learned

- Most of initiatives focused on capacity building, others mainly on research or both
- Research results generated using an OH/EH approach in the field of EIDs or ZEIDs, but quality varying
- Limited peer reviewed papers, but high number of “locally” published papers
- Several networks established
Review of EH/OH initiatives – lessons learned

• Impact assessments on the OH & EH still limited
  – What has really changed and how
  – How this changes have been documented
  – How sustainable are these changes
  – Recognition of the value added (e.g. research trials)

• Initiatives need to operate more coordinated
• More policy engagement needed
• High donor dependency
• Private sector involvement is often missing
• Scaling out needs to be better shown
3. Specific case studies “learning by doing”

- From previous or ongoing ILRI projects in SE Asia
  - EcoZD, project highlights and 2 case stud
  - Pig RISK (Vietnam)

- Com Across
  - Laos case study, parasitic foodborne zoonoses
Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in Southeast Asia (EcoZD)

2007 – 2013 (++)

6 countries:
- Thailand
- Vietnam
- Cambodia
- Indonesia
- Laos
- China (Yunnan)

ZEID: Brucellosis, Salmonella, Rabies, Leptospiroses…
ILRI EcoZD - general reflections

- **Learning by doing** EcoHealth approach
- Emphasis on capacity building - an approach where teams made key research decisions and were supported in implementation
- **Amendments** made based on own but also reflections of partners – 2 EHRC established
- **Outcome mapping** used for evaluation of EH uptake
Challenges across all teams

- Various definitions (EcoHealth and OneHealth)
- Identification of a common research interest
- Budget sharing
- Social science vs. biometric science expertise
- Qualitative vs. quantitative research – synthesis of both
- Basic research skills limitations (study design and sampling)
  - Two-dimensional capacity-building requirement (EH and technical)
- EH incorporation in the case studies – reality check –
  - often more Vet PH than EH
EcoHealth case study 1: Yunnan/China

Ecosystem approaches to better manage brucellosis and toxoplasmosis in Yunnan, China

Problem: Brucellosis emerging in Southern China
1. Identification of a common research topic
   • Four different institutions with different locations, priorities and interests
   Approach: Consensus building and trust, allocate sufficient time (> 1 year)

2. No experience with an EH approach
   • Strong silo-thinking and biometric driven research team, resulted in an continued demand for biological sampling
   Approach: EH training and national EH champion

3. Perception on qualitative research tools
   • Some team members had perception that qualitative research is less valid or scientific and therefore not useful
   Approach: EH champion & learning by doing experience
<table>
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<tr>
<th>EH principles</th>
<th>+</th>
<th>-</th>
<th>Evaluation</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Transdisciplinary research</td>
<td>Some changes within the research team</td>
<td>Still biometric, PH driven</td>
<td>**</td>
<td></td>
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<tr>
<td>Participation</td>
<td>Various actors, groups &amp; tools</td>
<td></td>
<td>**</td>
<td>EH champion, team highly motivated</td>
</tr>
<tr>
<td>Equity/gender</td>
<td>Ethnic minorities</td>
<td>Gender perspective weak</td>
<td>*</td>
<td>In all EcoZD team poor</td>
</tr>
<tr>
<td>Knowledge to action</td>
<td>Policy brief, Policy meetings</td>
<td></td>
<td>**</td>
<td>Sometimes lost track as in Chinese</td>
</tr>
<tr>
<td>System thinking</td>
<td>EH framework</td>
<td>Not fully applied</td>
<td>*</td>
<td>Continuous challenge</td>
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<tr>
<td>Sustainability</td>
<td>Enhanced exchange at village level (Vet, PH, village heads, party committee) Networking</td>
<td></td>
<td>**</td>
<td>Positive side effects (village toilets)</td>
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Final reflections

Team initial sceptical but then excited about use of qualitative tools
Younger team members more open to EH approach
Finally one of the best teams
Incentive: Invited by FAO to Beijing to present results
Extended networking (e.g. EHRC, VPHCAP and PENAPH)
Case study 2:
Optimizing rabies control in Bali: An ecohealth approach
The problem:
- Rabies was an emerging zoonoses since its introduction
- Conventional control measures show limited success
- Prominent role of dogs in Bali society
  - Initial mass culling (Strychnine) faced strong obligations (local and international)
  - Obligations against general population control measures

Classical vet approach:
Vaccination in dogs and sterilisation if applicable
Case studies 2: Optimizing rabies control in Bali: An ecohealth approach

Eco Health perspective:

Better understand:

• Social cultural relationship between dogs and the Balinese community
• Dog population in Bali and its dynamics.
• Dog ecology in Bali and measure its contact intensity with other animals and human.

**Aim:** Develop a model for sustainable Rabies prevention and control at *banjar* level through community empowerment.
Aligned with vaccination campaigns in dogs (FAO, LS services)
Ecohealth pillars

**Review**
Dog ecology Study (Behaviour, fecundity and demography of dog)
Social Culture Study

**Dissemination:**
Pilot Village (A community-based approach) +
Awareness in Elementary School

**System Thinking** (ecohealth principle (EP) #1)

**Knowledge to Action** (EP # 2) (Governor of Bali)

**Trans-disciplinary Approach** (EP# 3), e.g. research from various backgrounds

**Participation** (EP # 4)

**Equity** (EP # 5), e.g. male more responsibly in dog raising

**Sustainability** (EP# 6) e.g. village cadre’s trained
Challenges and approaches to address them

Huge team
- Clear role for each member needed

Publications
- Who publishes what in a (huge) transdisciplinary team
- Publications demanded for almost all team members
- Use of double lead authorships - some journals support this
  Various peer reviewed papers in international journals (last Feb 2017)

Final evaluation
• Scientifically strong team members of various backgrounds
• Most of team members have EH experience from other IDRC studies
Case study 3: PigRISK project (2012-2017)

To assess impacts of pork-borne diseases on human health and the livestock and identify control points for risk management

Integrated approach

- Interdisciplinary team: vets, public health specialists, economists, animal scientists, modellers
- Data collected along entire pork value chain

Study sites

Two provinces
Farm-to-fork approach

Problem:
Food safety ranked by Vietnamese equal or higher than education and health
PigRISK project (2012-2017)

Challenges

• Joint surveys and analyses
e.g. Socio-economic aspects and biological surveys and cross-sectoral papers

Achievements

• Strong and sustainable interdisciplinary team
even not primary One Health project

What makes it work

• Trust and confidence between team members
• Teams involved since the project design
• All activities jointly planned but still specific expertise kept by each team (also papers)
• Recognition as expert team by third party (other universities, Vietnamese food safety taskforce)
The problem

- **Parasitic zoonoses** are often neglected disease but endemic in the Laos e.g. trichinellosis, cysticercosis and liver fluke
- Some characteristics of animal production and food consumption habits in Laos likely promote zoonoses spread:
  - both human and animal populations live in in close proximity
  - a smallholder production systems with mixed species and no biosecurity
  - abattoirs and wet markets operating with rudimentary hygiene
  - widespread consumption of raw meat/fish
Case study 4:
Lao long-term study on parasitic foodborne zoonoses

Team include expertise from:
• Animal science, public health, social science, later communication & environment added

Start up challenges:
• Identification of the research topic
  – Disease focus, tendency to narrow it down to a specific disease
• Research objectives, activities and expected outputs disconnected
  – Tendency to narrow down groups involved e.g. only farmers initially involved
• Strong preference on the use of biometric approaches
  – Biological sampling, expressed repeatedly by team members
• Limited understanding of OH/EH principles

Action: OH/EH expert, sufficient time allocation, ComModel approach
Overall reflections from case studies

- OH and EH well perceived by teams
- Trust building & team consensus is key and takes time
- Continued reality check needed to keep track on OH/EH
- Easier to achieve early success with partners already experienced in EH e.g. Indonesia. More difficult but perhaps more significant, with teams with no previous exposure to multi-disciplinary approaches (e.g. China)
- Identifying of common vision and sharing of credits among team members and groups is key for success e.g. publications in a multidisciplinary team
Final reflections, conclusions & outlook
Research: “learning by doing“ for OH/EH case studies

Training: Various levels and modules to be offered (short courses – degree) to address a wide audience
- from grass root level practitioners to policy makers
- from project design to system thinking

M&E: Focus on monitoring behaviour change of partners

Sustainability: Increase own funding and interest from policy makers
Explore private sector involvement

Policy translation: ongoing efforts needed (policy briefs ect.)

Dissemination and policy translation (national/regional)
regular roundtable discussions/fora
aligned to regional/national decision bodies (e.g. ASEAN)
Special thanks to:

- EcoZD team (former) and its coordinator Jeffrey Gilbert
- ComAcross team, Laos and its coordinator Aurelie Binot

better lives through livestock

Ecohealth Research in Practice: Innovative applications of an ecosystem approach to health