

One Health, ecohealth and zoonoses research in Southeast Asia by ILRI and partners



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Background

There is an increasing recognition that many public health issues are complex and can be best understood by examining the relationship between the health of people and animals and the ecosystems in which they live. Two approaches, One Health and Ecohealth, that have emerged over the last decade can help us to better understand these intricate and complex relationships, and appear to hold great potential for tackling modern public health issues related to food safety and zoonoses.

Review of Ecohealth and One Health

The research teams reviewed various *Ecohealth programs, initiatives and projects implemented in Southeast Asia over the last 10 years*, gathering information from peer-reviewed literature, to examine the lessons, challenges and ways forward. Activities include projects focused on research and those covering both capacity and research.¹

The business case for One Health was reviewed and identified five potential areas where it can add value and reduce costs. It suggests that one dollar invested in One Health can generate five dollars worth of benefits. A global investment of 25 billion United States dollars (USD) over 10 years could generate benefits worth at least USD 125 billion.²

Projects on zoonoses and One Health

EcoZD project in Southeast Asia (2007-2013)



EcoZD case studies

- Rabies (Bali, Indonesia)
- Leptospirosis (Vietnam)
- Brucellosis (Yunnan, China)
- Toxoplasmosis (Yunnan, China and Java, Indonesia)
- Pig zoonoses (Laos)
- Human diarrhoea (Cambodia, Thailand)
- *Salmonella* in small-scale chicken slaughterhouses (Thailand/Vietnam)

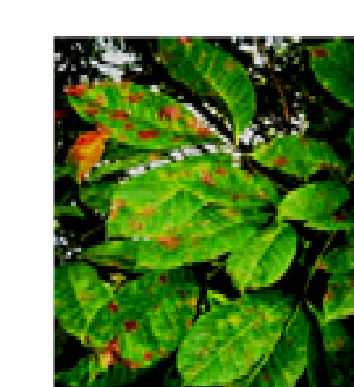
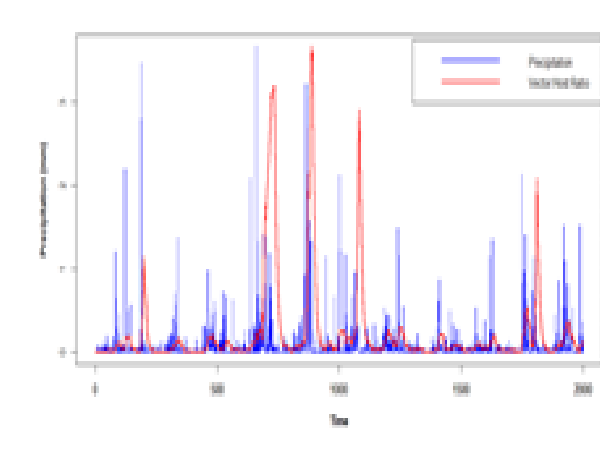
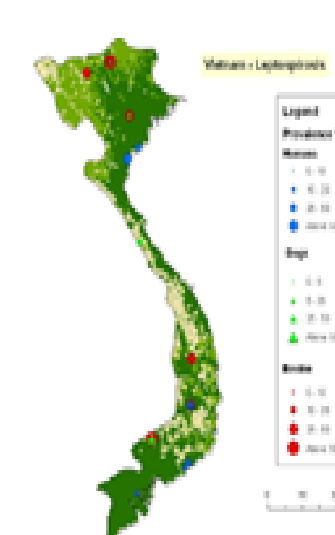
Ecohealth Resource Centres

- Chiang Mai University, Thailand
- Gadjah Mada University, Indonesia

The *Ecosystem approaches to the better management of zoonotic emerging infectious diseases in Southeast Asia (EcoZD)* project was funded by the International Development Research Centre and coordinated by ILRI. It covered six countries: Cambodia, China, Indonesia, Laos, Thailand and Vietnam. A two-way approach was used consisting of EcoHealth (EH) capacity building (workshops, trainings) and *learning by doing* EH case studies. EH has been well perceived by teams. Key challenges included limited understanding of EH, biometric focus of teams and policy engagement.

Pestforecast project (2015-2018)

Surveillance and early warning systems for climate-sensitive diseases in Vietnam and Laos funded by the CGIAR Research Program on Climate Change, Agriculture and Food Security. This project offers a portfolio of climate-based information systems that target critical diseases (Japanese encephalitis, leptospirosis and aflatoxicosis). It proposes action research to adapt these systems for Vietnam and Laos.



Maps of hotspots of zoonotic diseases

Real-time prediction tool (eg., for leptospirosis and JE)

Aflatoxin mitigation in Vietnam

Climate service and EWS for rubber plantations in Laos

-Systematic literature review on CSDs
-Risk maps, maps of hot spots

-Climate-based prediction tool development
-Dynamic models
-Models validation

-Risk-prediction model of toxin accumulation
-Value chain assessment
-Aflatoxins levels survey

-Mapping rubber distribution
-Climatic risk assessment
-Real-time forecasting system



Decision support tools

Activities: Pestforecast has four work packages

Other projects (related to food safety/zoonoses)

PigRISK (2012-2017)

Improve food safety in smallholder pig systems (Hung Yen and Nghe An). Multidisciplinary teams: public health, veterinarians and agricultural economists.

Cross-CGIAR Research Program (2014-2015)

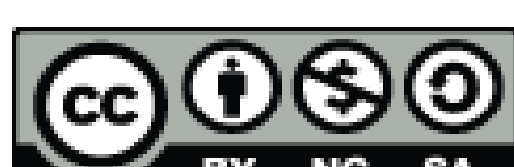
Potential of local pig breeds for livelihoods of ethnic minorities (Daklak). Components: food safety, breed, value chain and gender.



References

- ¹ Hung Nguyen-Viet, Doria, S., Dinh Xuan Tung, Mallee, H., Wilcox, B.A. and Grace, D. 2015. Ecohealth research in Southeast Asia: Past, present and the way forward. *Infectious Diseases of Poverty* 4:5.
² Grace, D. 2014. The business case for One Health. *Onderstepoort Journal of Veterinary Research* 81(2), Art #725.

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