



Outcomes in building capacity and strengthening networks: Ecohealth in Southeast Asia

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Zoonotic diseases pose challenging public health and economic burdens in our modern world. Pandemics due to old or new zoonoses can cripple tourism, halt international travel, overwhelm health systems, and cause significant economic loss to individual households and national economies. Less sensational, but just as important, are neglected zoonotic diseases, such as rabies, brucellosis, bovine tuberculosis, toxoplasmosis, leptospirosis and cysticercosis. Some of these are also emerging as they increase their prevalence or broaden geographical scope.

The true burden of these diseases in Southeast Asia is unknown, but the rapidly changing context of the region has created situations ripe for disease emergence. For example, in the case of Japanese encephalitis, increased irrigated rice production and pig keeping in the region have created conditions that increase the risk of exposure to humans. In Vietnam alone, scientists estimate that more than 18.5 million people have been exposed to Japanese encephalitis.

Information gaps have meant that many of these diseases are underreported, underestimated, and therefore go largely unrecognized by communities and stakeholders. Lack of knowledge, weak surveillance and control networks, and limited financial resources are all part of the challenges faced by veterinary and human health services to understand, prevent and treat such diseases in Southeast Asia. Ecohealth (see definitions) is an approach that can increase the capacity of animal, human and environmental health entities to work together to improve zoonotic disease prevention and control.

For the past five years, an action research project on zoonotic diseases has been working in six countries in Southeast Asia. The project, known as EcoZD (see definitions), aimed to build Ecohealth capacity by identifying and engaging new partners in the region to expand the range of individuals and institutions that were knowledgeable about Ecohealth and willing to use the approach. Specifically, the project was designed to build capacity through 'learning by doing' and strengthen networks of stakeholders representing multiple disciplines working in zoonotic disease research. This brief highlights some of the key outcomes in these areas to date.

Introducing the approach

EcoZD was unique in that it did not come packaged with a set of research questions for the teams to explore. Selecting research questions, collecting data, conducting analysis, and writing and presenting results was led by local teams, meaning that Ecohealth research capacity was built by a true, learning by doing approach. As the project came to a close, research teams planned strategic knowledge translation activities – writing briefs and conducting stakeholder workshops – to communicate research findings to stakeholders. Training and experience in this area met a need requested by many researchers for opportunities to improve their ability to effectively reach key decision-makers.

In order to assess and document the teams' changes in knowledge, attitudes and practices of Ecohealth, the project used a tool called outcome mapping. Much has been written about outcome mapping, but in this approach, ILRI facilitators led sessions with the teams where they reflected on the process of team development and organizational learning. Teams then ranked their progress – low, medium, high – on each of the progress markers. Most teams conducted two outcome mapping sessions, so changes in knowledge, attitudes and practices could be compared.

Outcomes to date

Communicating and disseminating the Ecohealth approach to stakeholders

Over the course of their participation in EcoZD the team in **Cambodia** reached out to new collaborators. The lead institution for this team was a research NGO that served as a bridge between stakeholders in ministries of animal health and human health, bringing them together to explore zoonotic causes of acute diarrhoea in rural areas of Cambodia. The team observed that this bridging role improved learning and exchange during the research project and improved communication around other issues of concern to local communities and the different ministries. The team successfully demonstrated the value of trans-disciplinarity, one of the pillars of Ecohealth, in their work with animal and human health workers.

Many teams started without any explicit process of linking research to policy. When asked to consider research engagement with policy, this was initially thought of only in terms of national level policy engagement. By the end of EcoZD, many teams had shifted their perspective and activities to target engagement at more local levels. At the same time, the reach of research results spread to higher levels of government.

In the case of the team in southern **Vietnam**, The People's Committee of Binh Phuoc province agreed to fund similar studies in their province on leptospirosis (planned for 2014–2015) after seeing commune-level research results at a policy meeting organized by the team for stakeholders. The team showed the benefits of systems thinking, another pillar of Ecohealth, in their research and in their policy communication to government officials.

Two Ecohealth Resource Centres (EHRCs) were established at **Gadjah Mada University in Indonesia** and **Chiang Mai University in Thailand**. Faculty members affiliated with the EHRC at Chiang Mai University developed the first Thai-language Ecohealth manual that will be a valuable resource for introducing the approach to students and frontline health workers. The EHRC at Chiang Mai University also developed and implemented an Ecohealth course for undergraduate students. The number of students registered for the course increased significantly in the second year the course was offered, suggesting growing interest in the topic among students. Both universities conducted action research projects through the EHRCs, which provided first-hand field experiences in the application of Ecohealth for students and faculty.

Sharing research findings to more and diverse audiences

With support, teams were active in sharing research findings to local, national, regional and international audiences. Articles from EcoZD research teams have been published in scientific journals and a number of presentations were made at international and national conferences. Thinking beyond communication to their disciplinary-specific, scientific communities, teams identified partners that would be key to engage throughout the research cycle and included them. In the end, their efforts paid off.

The **China** team was particularly active in sharing their results with a variety of stakeholders. In their research, they recognized low awareness of zoonotic diseases as a constraint, so the team designed and distributed health education materials about zoonotic diseases for village doctors, village veterinarians and village heads. Members of the team took part in helping draft national anthrax guidelines, an opportunity that they saw as a direct result of their engagement with stakeholders throughout their EcoZD project. In addition, the team was invited to participate in a major OneHealth/Ecohealth conference organized by the Food and Agriculture Organisation of the United Nations in Beijing.

Other teams saw positive results from strategically sharing research results with stakeholders. Consistent engagement with provincial-level decision-makers resulted in an opportunity for the **Indonesia** team to scale out its model of community-based rabies management in villages across Bali. The team reported that the EcoZD project also strengthened their relationship with the Veterinary Public Health Directorate. The team in southern **Vietnam** conducted outreach activities that allowed the researchers to engage directly with local paraveterinarians, health station workers and local communities, a new opportunity for many team members with traditional, lab-based backgrounds. After submitting a policy brief for publication in a Department of Livestock Development journal, the lead researcher of the **Thailand** team was provided an opportunity to give a presentation to livestock officers on the hygiene issues and challenges small-scale slaughterhouse owners faced in getting licensed.



Engaging in networks

Another objective of EcoZD was to strengthen networks that support the adoption of Ecohealth in the region. Over the course of the project, the teams joined several new networks, which in many cases has opened up opportunities for them to present research findings, provide training in Ecohealth and join new research projects and initiatives.

Actively participating in Ecohealth networks can be an important sign that capacity will be further strengthened and sustained beyond the life of a particular project. Involvement in Ecohealth networks can also be interpreted as an indication that individuals or institutes have accepted the approach and/or understand the value of it in their work. Furthermore, the number of networks devoted to a particular field can be a sign that a field is growing and meeting the practical needs of those involved. Our observations at the end of EcoZD suggest that this looks to be the case with Ecohealth in Southeast Asia.

The **Indonesia** team's extensive experience with rabies research, management and control in Bali positioned them well for involvement in the Global Alliance for Rabies Control and partnerships with other Southeast Asian countries, Vietnam in particular. The lead institute of the research team in **Cambodia** gained additional experience in systems thinking and applying participatory approaches. Since the start of EcoZD, the institute has joined the Mekong Agriculture Research Network and like the members of the teams in **China, Indonesia, and Thailand**, they have engaged in research opportunities on anti microbial resistance with the International Development Research Centre and the Asian Partnership on Emerging Infectious Disease Research. Members of the China team also established new collaborative relationships with other people who promote and practice Ecohealth in China.

The establishment of links within and between academic institutions was another key outcome from the two EHRCs established at **Chiang Mai University** and **Gadjah Mada University**. Student exchanges between the two universities fostered knowledge-exchange, transdisciplinary collaboration and networking between students and faculty leaders. Within each academic institution, faculty champions of Ecohealth have provided Ecohealth-related lectures to universities in the region, including in Indonesia, Laos, Thailand, and Vietnam.

With the support of their academic institutions, the EHRCs will serve an important role in building national and regional Ecohealth research capacity and networks for current and future professionals who can apply Ecohealth principles in zoonotic disease prevention, management and control.



EcoZD, also known as the Ecosystem Approaches to the Better Management of Zoonotic Emerging Infectious Diseases in Southeast Asia project was an initiative funded by the International Development Research Centre (IDRC) and coordinated by the International Livestock Research Institute (ILRI). The project worked in Cambodia, China, Indonesia, Laos, Thailand and Vietnam.

Ecohealth is an approach that recognizes there are links between humans and their biophysical, social, and economic environments that are reflected in an individual's health. Ecohealth brings together physicians, veterinarians, ecologists, economists, social scientists, planners and others to understand how ecosystem changes are negatively impacting human health and to provide practical solutions to reduce the negative health impacts of ecosystem change.

Outcome mapping is a participatory and actor-centered monitoring and evaluation framework used to capture changes in knowledge, attitudes and behaviours among populations and to assist research teams in learning from outreach experiences.



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