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Engaging stakeholders to manage emerging zoonotic diseases in Southeast Asia

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More than 6 out of 10 human infectious diseases come from animals (zoonoses)[1], and for those diseases which are new and emerging, as many as three in four have jumped species from animals to people.

Zoonotic diseases occur at the intersection of human and animal health sectors. But in addition, emerging zoonotic diseases have causes and solutions outside of health. Globalization, population growth and climate change are just some of the new factors driving disease emergence; understanding economics and behaviour is important for sustainable management of emerging zoonotic diseases.

Therefore, health problems with many and complex causes and solutions require involvement of many stakeholders representing multiple disciplines, levels of government, organizations and communities. But examples of how researchers have successfully linked with stakeholders to conduct research and improve local zoonotic disease management are rare, particularly in Southeast Asia, which is considered a hotspot for emerging zoonotic diseases.

From 2008 to 2013, an action research project on zoonotic diseases worked in six countries in Southeast Asia. Each country team comprised individuals and institutions with knowledge of Ecohealth (see definitions), representing multiple disciplines carrying out research on zoonotic emerging diseases. The project, known as EcoZD (see definitions) aimed to build Ecohealth capacity and learn about the process of adopting the Ecohealth approach in the country contexts.

This brief focuses on one aspect of this adoption process – engaging stakeholders – and its influence on emerging zoonotic disease awareness, management and control.

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.

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.

1. Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases, Division of High-Consequence Pathogens and Pathology. 2013. About One Health. Available at http://www.cdc.gov/onehealth/about.html

Lessons learned

The project provided six practical lessons learned for stakeholders to consider.

1. Involving stakeholders can increase research relevance and uptake

When it comes to emerging zoonotic diseases, policymakers, the livestock sector and the public often don't have access to the evidence they need to make best choices. A principle of Ecohealth is that policymakers and other stakeholders should be involved in research. This helps ensure that the right research questions are asked. Stakeholder involvement also increases the likelihood that the research findings will be used.

The team in **Thailand** focused on hygiene in small-scale poultry slaughterhouses. Recognizing the complexity of the problem, the team successfully applied the Ecohealth approach to identify research questions and stakeholders. From the design phase, the team consulted with officials from the Department of Livestock Development (DLD) at both provincial and regional levels. When the team presented findings that indicated low awareness among small-scale slaughterhouse owners about slaughterhouse hygienic management and understanding gaps between national-level and provincial-level DLD officials on small-scale slaughterhouse requirements, DLD officials received the findings positively. Furthermore, the collaboration is likely to push forward concerns related to hygiene and food safety without harming the interests of small-scale slaughterhouse owners.

Small-scale slaughterhouse owners were also involved in research. The lead researcher made an effort to build trust with the owners, even giving them his personal telephone number so they could ask questions about animal health and slaughterhouse management. The research team developed a manual for small-scale slaughterhouse owners that described how changes to slaughterhouses could be made to improve hygiene without being too costly for owners. As a result of this good relationship, some owners were receptive to using the manual. Furthermore, the team was able to convince some owners to register their slaughterhouses with the DLD, allowing them to continue to operate without suffering any loss to their livelihoods.

In southern **Vietnam,** the team obtained new funding from the provincial government to expand the research activities beyond the study sites in the same province. This demonstrated government confidence in this novel research approach and findings will add to the understanding of the health burden of leptospirosis in Vietnam.

Similarly, in **Indonesia**, provincial-level leaders came to recognize the value of community-based rabies control as the team shared project activities and findings related to their Villages Rabies Working Group (VRWG) model. As a result, a legal decree was made to adopt the village rabies cadre system by officially appointing two persons to serve in this capacity in each of the 723 villages in Bali. In addition, the EcoZD team partnered with the provincial-level leaders to provide technical training for the rollout of VRWGs in 30 rabies hotspot villages.

2. Many countries lack structures or mechanisms that can facilitate engagement with stakeholders involved in zoonotic disease research

In most countries, different health stakeholders are not used to working together. In all the countries where we worked, there was no existing or effective mechanism to bring together the stakeholders who needed to be involved in emerging zoonoses research or management. Hence, the first task was to identify the partners who had interest in and capacity for working together. The composition of the country teams not only brought different research disciplines together but also reflected the Ecohealth principle of involving policymakers and communities in research. Although the country teams saw a lot of advantages in working together, without a mechanism for bringing stakeholders together, the type of coalition developed remains dependent on external support.

The teams in southern **Vietnam, China,** and **Laos** were led by research institutes and departments under the ministries of health and agriculture. In **Indonesia** and **Cambodia,** non-governmental research organizations had a lead role, but worked in close partnership with individuals from relevant government ministries and institutes, such as involving district veterinarians from the Ministry of Agriculture, Forestry and Fisheries and frontline workers from Ministry of Health in data collection in **Cambodia,** or in **Bali,** consulting with officials from the Disease Investigation Centre.

3. Systematic approaches to prioritisation are important

Selecting a zoonotic disease challenge and agreeing upon a common understanding was the logical first step for the teams. An initial scoping study found that priorities for emerging zoonotic diseases were often set by outsiders and did not reflect either the local burden of disease or the concerns of stakeholders. A key innovation of EcoZD was to introduce systematic and participatory approaches for identifying priorities. Although it required more time in the beginning, we found that the involvement of stakeholders in these discussions through disease prioritisation exercises was worthwhile. Stakeholders had a better understanding of the scope and research objectives of the projects and were able to clearly communicate these within their ministries or communities.

For example, one team in **Vietnam**, which included representatives from animal health, medical science and agriculture, reviewed the surveillance data for human zoonoses and equivalent data from the Department of Animal Health, before they decided to undertake fieldwork in leptospirosis.

4. Focus on the desired changes and how to make them happen

After the teams were formed, one of their first tasks was to develop a list of people and institutions they would need to engage if their research results were to be used to influence decision-makers and change behaviours that would improve the control of emerging zoonotic diseases. Through workshops focusing on desired change, the teams were challenged to think beyond their disciplinary silos and narrow the list down to a few key partners that would be targeted for engagement throughout the project.

The mainly laboratory scientist and academic team in **China** successfully built strong relationships with village doctors, village veterinarians and village heads in Yunnan Province. The team designed health education materials specifically for these partners to use to raise awareness about their target zoonotic diseases (brucellosis and toxoplasmosis) among farmers, workers in commercial farms and the community at large. The team observed increased understanding of brucellosis and toxoplasmosis in these communities and improved collaboration between village doctors and village veterinarians. The local collaboration between animal and human health is likely to extend beyond the life of the project to other emerging zoonotic disease issues.

The team in **Indonesia** focused on rabies. They used information that was being collected by village groups to monitor the birth rates of puppies over the course of one year. They developed a simple formula to estimate changes in the annual dog population at the village level and predict times when more puppies are born. Provincial-level officials adopted this formula to improve their mass vaccination campaigns, specifically to better define vaccination targets, timing for mass vaccination, and needs for intensive puppy vaccination and/or birth control.

5. Build on local capacity

Local health workers and leaders like village veterinarians, village doctors, paraprofessionals and village heads have relationships with local communities that put them in a good position to share disease management messages.

In **Indonesia,** participatory research in two pilot villages in Bali informed the development of a community intervention called the Village Rabies Working Group (VRWG), which built upon the village cadre system and supported the rabies control efforts of the Livestock Service Office. The VRWG was a paraprofessional group equipped to raise awareness about rabies in schools, village meetings and small groups in their own homes using materials like brochures, posters, a film and songs.

General information on rabies and what it means to be a responsible dog owner encouraged communities to register and vaccinate their dogs, two evidence-based ways to control rabies. Moreover, the model encouraged villagers to report dog bite cases, which improved case reporting to the local government, and both human health and livestock services. Not only did the VRWG build local capacity to prevent and control rabies, the education efforts empowered communities in ways that could be applied to addressing other zoonotic diseases in a sustainable way.

6. Be responsive to stakeholder needs

We supported the teams to develop strategic ways to share research results with their stakeholders. The outcome mapping process (see definitions) helped researchers to increase their understanding of the needs and perspectives of their stakeholders. As a result, throughout the research process, the teams were critically examining what they were learning and thinking, and which results and messages would be most effective to communicate to different audiences.

Although their primary research focus was on brucellosis and toxoplasmosis, the **China** team observed poor hygienic conditions during fieldwork in communes in Yunnan Province. The team shared their observations with commune leaders and discussed practical ways the leaders could increase awareness on toilet use and toilet waste systems that did not discharge directly to the river, for example. By making a contribution to other village health priorities, the team improved their relationship with frontline workers who play a very important role in disease control.

Outcome mapping is a participatory and actor-centred 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.

Policy recommendations

Policy makers can:

1. Help ensure that research findings are relevant by getting involved in the design of research projects.
2. Encourage the active participation of all types of stakeholders in the research process.
3. Support research prioritisation which takes into account the importance of zoonotic disease to human health and agriculture.
4. Create demand for research which leads to positive changes in policy and practice that improve zoonotic disease management.
5. Improve the uptake and reduce the costs associated with zoonotic disease management by involving local health workers and leaders.
6. Engage regularly with researchers and stakeholders to facilitate moving zoonotic disease research into action.

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