academicJournals

Vol. 5(8), pp. 336-340, August 2013
DOI: 10.5897/JPHE12.009
ISSN 2006-9723 ©2013 Academic Journals
http://www.academicjournals.org/JPHE

Journal of Public Health and Epidemiology

Full Length Research Paper

Improving food safety in Asia through increased capacity in ecohealth

David C. Hall[1]*, Hung Nguyen-Viet[2], Iwan Willyanto[3], Dinh Xuan Tung[4] and Suwit Chotinun[5]

[1]Department of Ecosystem and Public Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, Alberta, Canada.
[2]Department of Environmental Health, Hanoi School of Public Health, Hanoi, Vietnam.
[3]Iwan Wilyanto, Animal Health Consultant, Surabaya, Indonesia.
[4]Department of Economy, Environment and Farming Systems, National Institute of Animal Science, Hanoi, Vietnam.
[5]Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand.

Accepted 26 June, 2013

Interest has increased considerably in the last five years in transdisciplinary approaches to addressing the precipitating factors of emerging infectious and zoonotic diseases. During this time, several One Health and ecohealth initiatives have begun in Asia. This paper reports on recommendations coming out of one such initiative (the Building Ecohealth Capacity in Asia project) and outlines a strategy for promoting an ecohealth approach in research and in practice relevant to prioritized concerns relating to reducing zoonotic disease in Asia. The three main aspects of the strategy that are presented and discussed include: (1) Promote transdisciplinary approaches to understanding the complexity of zoonotic disease that compromise food safety; (2) increase teaching and application of ecohealth in medical sciences and other subjects relevant to food safety; and (3) bring ecohealth and One Health approaches into health policy discussions, particularly where these discussions influence policy formulation. Main constraints to applying such a strategy include limited awareness and knowledge of ecohealth and One Health, lack of willingness to engage in a transdisciplinary setting, restricted capacity to change academic curricula, rigid institutional frameworks for problem solving, and availability of funding. Suggestions for reducing these constraints are addressed.

Key words: Ecohealth, one health, food safety, zoonoses, medical education, Asia.

INTRODUCTION

Considerable interest has been generated in the last decade in transdisciplinary approaches (crossing of disciplines to generate a holistic approach) to address the precipitating factors of emerging infectious and zoonotic diseases (Charron, 2012; Hall et al., 2011). This has been punctuated by a rapid growth of interest in One Health and related philosophies, formation of several One Health and ecohealth (Ecohealth is the participatory transdisciplinary approach to understanding and promoting health, including social-ecological interactions, in the context of complexity of the interactions of animals, humans, and the environment) initiatives in Asia,

*Corresponding author. E-mail: dchall@ucalgary.ca. Tel: 1-403-210-7589. Fax: 1-403-210-9740.

development of related networks, launching of workshops, and creation of centres of excellence. Most, if not all of these networks and collaborations recognize that a joint approach to preventing and responding to zoonotic disease requires improved communication, sharing of knowledge and resources, agreement to work together, and building capacity in skills and institutional response to hazards and outbreaks.

Many of the hazards addressed by these One Health and ecohealth initiatives are linked to food safety issues. For example, microbial contamination of livestock products, socio-economic factors related to marketplace structure and producer involvement in participatory surveillance programs. This paper offers suggestions for the role of ecohealth in improving food safety in Asia, based on discussions and other activities that have taken place within the framework of one of the new ecohealth initiatives in the region, the Building Ecohealth Capacity in Asia (BECA) project. The BECA project, funded by the International Development Research Centre (IDRC) and AusAID, aims to build capacity for ecohealth research and application through partnering with six Asian countries (Cambodia, PR China, Indonesia, Lao PDR, Thailand, and Vietnam). International trade in food products, both imports and exports, will be an increasingly important element of Asian economies over the next decade (Hertel et al., 2007); building capacity in ecohealth will support this growth while contributing to national and regional ability to develop and comply with food safety standards of local, regional, and international stakeholders, improving food safety for Asian consumers.

MATERIALS AND METHODS

Workshops and discussions

One of the main sources of motivation for the recommendations in this paper is observation by the author during a series of workshops held by the BECA project from 2010 to 2012 as part of training in ecohealth. The ongoing workshops are designed to increase knowledge in ecohealth and to generate interest in applying ecohealth to local problems. Presentations from regional participants emphasize application of principals to solving problems that may engage participants in their respective agencies and countries. Three workshops have been conducted (Fundamentals of Ecohealth, Research Issues in Ecohealth, and Ecohealth Influencing Policy) and the general stream of discussion during these workshops added to some of the basis of this paper. More than 100 participants have attended the workshops, and several participants have attended more than once. Discussions during workshops have been stimulated by task oriented problem solving and break-out sessions, usually directed at applying some component of an ecohealth approach to a particular health problem. It is worth noting at this point the five pillars of ecohealth: (i) transdisciplinarity; (ii) gender and socioeconomic equity; (iii) engaging in a participatory process; (iv) recognition of complexity; and (v) sustainability (Lebel, 2003).

Questionnaire and follow-up

Questionnaires handed out to workshop participants were also used to gather data regarding views on the general usefulness of the ecohealth approach, expected application, consideration of working with other health and related disciplines other than one's own, and demographic data. At each of the first two workshops, 35 questionnaires were returned anonymously. Participants were free to provide open comments. Follow-up with key participants was also conducted on an email or personal communication basis to solicit opinions regarding the potential applications of an ecohealth approach. These data and observations were valuable to developing some of the recommendations in this paper. As well, an evaluation of the impact of the training and information received by Vietnamese participants was conducted. The results of that evaluation were also used for this paper.

RESULTS

From questionnaire results gathered at the BECA Researchable Issues workshop, the three most important researchable ecohealth issues identified are: (i) prevention and control of emerging infectious diseases; (ii) zoonotic disease including food borne disease; and (iii) better understanding of the epidemiology of infectious diseases. All of these researchable issues have clear relevance to controlling food borne disease and to improving food safety in Asia. Nevertheless, if research and application in ecohealth in Asia is to be effective in improving food safety, a number of additional issues need to be addressed.

Institutions, complexity, and transdisciplinarity

A factor that complicates the application of an ecohealth approach to food safety management is the level of interaction that should occur within and between institutions. This will not be news to anyone who has worked with public health issues. It is not uncommon that a single major public health concern, food safety for example, is the charge of numerous agencies, ministries, academic institutions, and industry representations. Considering food safety, there are easily at least two ministries involved in each of the Asian countries in this study, and usually more (Table 1). The Government of Vietnam cites more than seven major ministries/directorates involved in food safety for example (ASEAN, 2006) while the Government of China reports ten (Government of PR China, 2011). Within each, there are again several agencies responsible for various tasks and duties related to food safety. This was the basis for a common observation and main complaint of participants; communication and knowledge sharing within and across institutions is difficult, sometimes seemingly impossible. Major reasons for this include: (i) lack of knowledge of

Table 1. Government agencies in six Asian countries with significant roles in food safety legislation and inspection.

Country	Agency	Ministry or Directorate
Cambodia	Department of Public Health, Department of Animal Health and Protection	Ministry of Health, Ministry of Agriculture, Forestry, and Fisheries
PR China	Institute of Food Safety Control and Inspection, State Food and Drug Administration of China Veterinary Bureau, Bureau for Agricultural Food Quality and Safety	Ministry of Health, State Council of PR China, Ministry of Agriculture, Ministry of Agriculture
Indonesia	National Agency of Drug And Food Control, Directorate of Veterinary Public Health, Directorate of Animal Health	Ministry of Health, Ministry of Agriculture, Ministry of Agriculture
Lao PDR*	Food and Drug Department, Department of Livestock and Fisheries, Lab of X	Ministry of Health, Ministry of Agriculture & Forestry
Thailand	Food and Drug Administration, National Bureau of Agriculture Commodities and Food Standards, Department of Livestock Development	Ministry of Public Health, Ministry of Agriculture and Cooperatives, Ministry of Agriculture and Cooperatives
Vietnam	Food Administration, Department of Animal Health	Ministry of Health, Ministry of Agriculture and Rural Development

*Not a WTO member, thus not signatory to the WTO SPS agreement, but developing a framework (April 27, 2011).

institutional structure; (ii) weak access to other agencies; (iii) the chain of authority hampers communication; and (iv) cultural barriers (for example, low respect for other disciplines) constrain willingness to communicate.

Part of the difficulty is unwillingness to admit a lack of knowledge, revealed during problem solving when one requests the assistance of an alternate discipline. But of course it is quite unreasonable to expect, for example, that a veterinarian would be expert in all matters related to toxicology, just as a physician cannot be expected to understand all the socio-economic reasons behind willingness to change behaviour. Food safety issues are no less complex than other ecohealth problems and require transdisciplinary approaches. This leads to the first recommendation of this paper in developing an ecohealth approach to food safety: food safety experts need to promote and accept transdisciplinary approaches to understanding the complexity of zoonotic diseases that compromise food safety. There are good examples where this is already happening to a degree, but there is still much work ahead to forge transdisciplinary working relationships.

Increased training and knowledge in ecohealth

A second major point (an expression of interest rather than a concern) was for increased knowledge and training in ecohealth and related topics. For each of the BECA workshops, there were up to four times the number of formal requests to participate than could be accommodated. Other ecohealth initiatives are experiencing a similar high level of interest in training in ecohealth. This is also the case with the many One Health initiatives; at the recent 1st International One Health Conference, Melbourne, February 2011, there were more than 600 delegates, many of whom were attending a One Health or ecohealth related meeting for the first time. From a Southeast Asian perspective, One Health University Network in Southeast Asia has been initiated by USAID in May, 2011 and committed by 16 faculties of public health, medicine and veterinary medicine in four countries Indonesia, Malaysia, Thailand and Vietnam.

When the BECA project leaders consulted participants who represented academic or related Asian institutions involved in training health professionals, they learned that none were teaching a formal course in which understanding of ecohealth or One Health was part of the curriculum. Differences of opinion may exist on how this should be addressed, but if ecohealth is to be applied to food safety, there must be training beyond the introductory level. This would include extended field exercises, graduate education, training of field practitioners, research activities, and engagement with industry, government, and communities in solving real life problems. The response from participants as well as persons outside the project has been enthusiastic in terms of developing course and programme options for ecohealth courses (academic, industry training, research institutions, etc.) but of course the reality of bringing this to fruition is dependent on funding, leadership approval, and teaching capacity. One of the proposals that came out from different regional discussions was to gradually integrate ecohealth or One Health concepts and practices in the existing teaching modules that could be more easily accommodated, such as environmental health, epidemiology, nutrition, and food safety. This is the basis

for the second recommendation of this report: for ecohealth to contribute to improvements in food safety in Asia there needs to be increased teaching and application of ecohealth in medical sciences and other subjects relevant to food safety.

Incorporating ecohealth in the policy process

A third area of high need and concern relative to food safety in Asia is that of policy. From discussions with numerous stakeholders including BECA workshop participants, agency and ministry representatives, persons working in food industries, and academics, several general observations can be drawn. There is a false impression among many stakeholders that the process of policy formulation rests solely in the domain of government. When asked who is responsible for policy, most stakeholders will indicate some branch or agent of government, from local to national and regional levels. In fact, all stakeholders have a role to play in the policy process, from identification and agenda setting, to formulation and adoption, and implementation and evaluation. This is particularly true of engaging in dialogue with those who are executors or legislators of policy; they may not be government representatives, but they probably do hold some authority in governance (from community to provincial to national levels).

Comments from participants, questionnaire respondents, and results of semi-structured interviews indicate that even for those stakeholders who have better understanding of the policy process, there is a feeling that community members are somehow too far removed from the policy process to have opportunities for engagement. For an ecohealth approach to food safety to be of value, it is essential that stakeholders recognize the importance of engaging with the policy process, at all stages, at all opportunities, and with wide representation from community members (that is, usually the persons who ultimately are affected by policy).

The third recommendation of this paper is to bring ecohealth and One Health approaches into health policy discussions, particularly where these discussions have influence on the policy formulation stage of the process. Food safety policy formulation should be based on sound science-based decision making, but for this to have relevance input from members of the non-scientist community is equally important, particularly as it relates to preferences and choices.

DISCUSSION

The complexity of the issues surrounding food safety in Asia demands systems of prevention and control that embrace a wide number of disciplines, are founded and applied by those with sound competence (knowledge, attitudes, skills, and awareness), and incorporate ecohealth in the policy process to support their effectiveness. These are broad-sweeping recommendations. They will require examination of the requirements and resources needed for change as well as the distribution of benefits, from the level of village communities up to international trading partners.

Of these proposed changes, the third may be the most neglected. The latter is important because of the strong influence preferences and choices (including willingness to examine and change their rankings) have on behaviour change. This is just as true for behaviour affecting food safety as it is for any other health issue in which policy can have an influence. For these recommendations to be considered regarding the role of ecohealth in improving food safety programmes in Asia, we must consider the constraints. It is not difficult to understand the value of transdisciplinarity, for example, but genuine engagement requires institutional investment and cultural change that may be constrained by rigid organizational communication policies, agency ideology, or simply mistaken perceptions of the value of the opinions of others.

With respect to applying these recommendations for the role of ecohealth in improving food safety in Asia, probably the most important constraint is limited acceptance for application of ecohealth to the many opportunities that exist. Following BECA workshop attendance, some participants have noted that while their community, supervisor, or institution may support ecohealth in concept, supervisors or directors are constrained from making this decision by the complicated and time consuming process of approval required from high levels of authority. Where it has been successful in application, transdisciplinarity has either benefitted from a starting point of previously existing good relations and communications between individuals across disciplines or agencies (for example, the Government of Vietnam-UN Joint Programme to Fight HPAI), or it has been the product of a long and carefully cultured relationship for the benefit of all stakeholders, such as the collaborative work in food safety between Thai ministries, industry, and producers (for a recent example of this collaboration see Bangkok Post, 2011).

To encourage transdisciplinarity, it may be helpful to start simply. For example, sharing knowledge with colleagues in other disciplines through programme briefs, including leaders or supervisors in post-training information sessions, or inviting ecohealth practitioners outside one's area of expertise to meetings to share experiences or approaches to food safety. The importance of including producers and industry in such activities should be emphasized. Discussions with

academic leaders indicate that main constraints to incorporating ecohealth education into a health science curriculum are usually based on funding or availability of knowledgeable instructors. Interest in ecohealth instruction is high and administrators seem willing to consider such changes, but unless the identified constraints are addressed this is unlikely to change soon. For this reason, workshops and related training programs may be of high value until regular programmes are established.

To increase engagement in the policy process, there must be existence and awareness of opportunity. For example, preparation and promotion of gatherings to discuss food safety related topics (for example, village discussions, town hall meetings) that will influence policy decisions complete with a plan for dissemination of meeting conclusions. Finally, ecohealth and One Health are now on the interest lists of donors and implementing agencies. It is timely to pressure donors to fund collaboration, transdisciplinary approaches to food safety, training in ecohealth, and dialogue with individuals and institutions influential in policy formulation.

ACKNOWLEDGEMENT

The BECA project is funded by the Canadian International Development Research Centre (IDRC) and the Australian Agency for International Development (AusAID). The grant holder and implementing agency is Veterinarians without Borders/Vétérinaires Sans Frontières–Canada. Project focal points who contributed to workshop activities include Ly Khunbun Narann (Cambodia), Boualam Khamlone (Lao PDR), and Fang Jing (PR China). Contributions during meetings from workshop participants are gratefully acknowledged.

REFERENCES

ASEAN (2006). ASEAN Australia Project, Strengthening ASEAN Risk Assessment Capability to Support Food Safety Measures: VietNam Country Food Safety Framework. ASEAN, Jakarta, Indonesia.

Bangkok Post (2011). Tainted fowl meat traced to chicken sales outlets, viewed June 14, 2011. <http://www.bangkokpost.com/news/local/242057/tainted-fowl-meat-traced-to-chicken-sales-outlets>

Charron DF (2012). Ecohealth Research In Practice. In: Charron (ed) Ecohealth Research In Practice: Innovative Applications of an Ecosystem Approach to Health, Springer, New York, pp. 255-271.

Government of PR China (2011). China Laws and Regulations of Foods, Drugs, and Cosmetics. "Food – Departmental", viewed June 11, 2011, <http://www.chinafdc-law.com/laws/list_1-0_5-119_1.html>.

Hall D, Le QB, Waltner-Toews D, Davidson J (2011). Building Capacity for Ecohealth Research in Asia. EcoHealth. 7:S81-S82.

Hertel TW, Ludena AG, Rae A (2007). 'Food and agricultural trade and productivity growth in Asia: Baseline projections to 2025', IATRC Summer Meeting, Beijing, 8-9 July 2007.

Lebel J (2003). HEALTH: An Ecosystem Approach. International Development Research Centre. Ottawa, Canada.