Developing an Eco-health Research Program to Improve Health Related to Agricultural Intensification in Vietnam

Pham Duc Phuc[1], Le Thi Phuong Hong[1], Nguyen Mai Huong[1], Tran Thi Tuyet Hanh[1], Tran Minh Hang[2], Dinh Xuan Tung[3], Nguyen Viet Hung[1,4]

1 Center for Public Health and Ecosystem Research (CENPHER), Hanoi School of Public Health (HSPH), 138 Giang Vo, Ba Dinh, Hanoi, Vietnam.
2 Institute of Anthropology (IOA), Vietnam Academy of Social Sciences (VASS), 1 Lieu Giai, Ba Dinh, Hanoi, Vietnam.
3 National Institute of Animal Sciences (NIAS), Thuy Phuong, Tu Liem, Hanoi, Vietnam.
4 ILRI, Hanoi, Vietnam and SwissTPH, Basel, Switzerland

Introduction

Vietnam has undergone rapid agricultural intensification, which has affected the production of crops, livestock, and fish. There are other negative impacts on health and the environment from agricultural activities. Using an Eco-health approach to comprehensively tackle complex issues requires both scientific and non-scientific stakeholders, as well as individual and organizational involvement at all levels, especially community participation. The Vietnamese research team of the Field Building Leadership Initiative (FBLI) program has been developing an Eco-health research program to address the human health impacts related to agricultural intensification with the local leaders and community members in Ha Nam province.

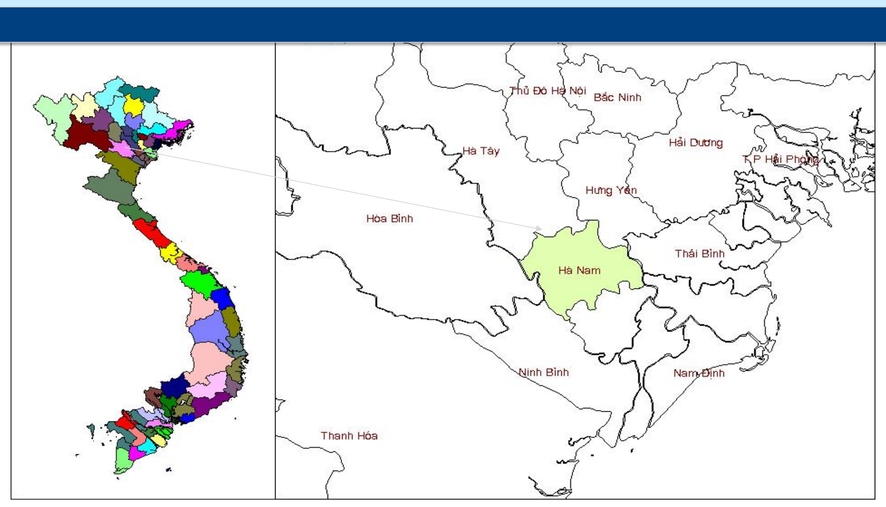

Figure 1. Map of the study sites in Hanam province, Northern Vietnam

Methods

This study took place in Hoang Tay, Le Ho, and Chuyen Ngoai communes of Hanam province (Figure 1). The research team conducted a deep exploration of the issues at the community level by re-visiting the study sites and spending more time with the community to identify their prioritized needs. The tools used to collect information included structured questionnaires, in-depth interviews, observation, and focus group discussions with the local leaders and community members. The process of community-based assessment is described in Figure 2&3.

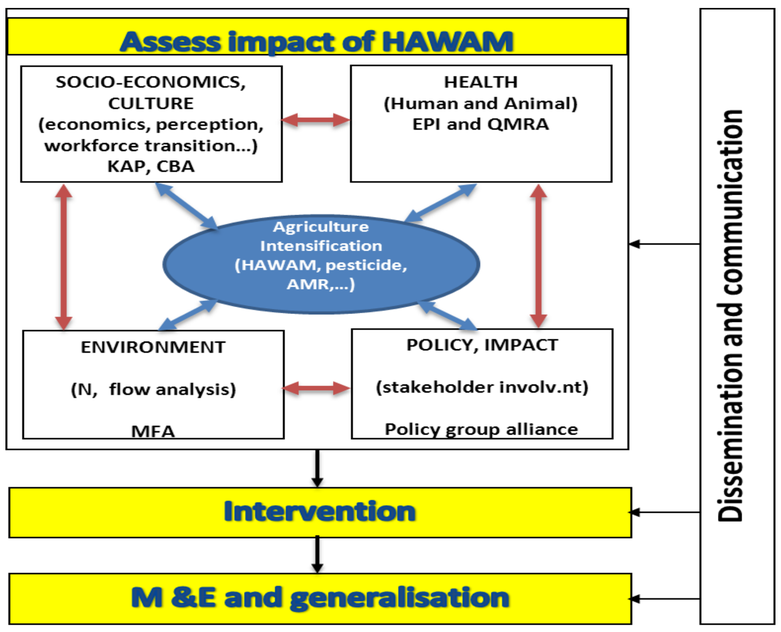

Figure 2. The research framework of FBLI project in Vietnam.
(Notes: HAWAM: Human and Animal Waste Management; KAP: Knowledge, Attitude, Practice; CBA: Community-Based Assessment; EPI: Epidemiology; QMRA: Quantitative Microbial Risk Assessment; AMR: Antimicrobial Resistance; MFA: Material Flow Analysis; M & E: Monitoring and Evaluation).

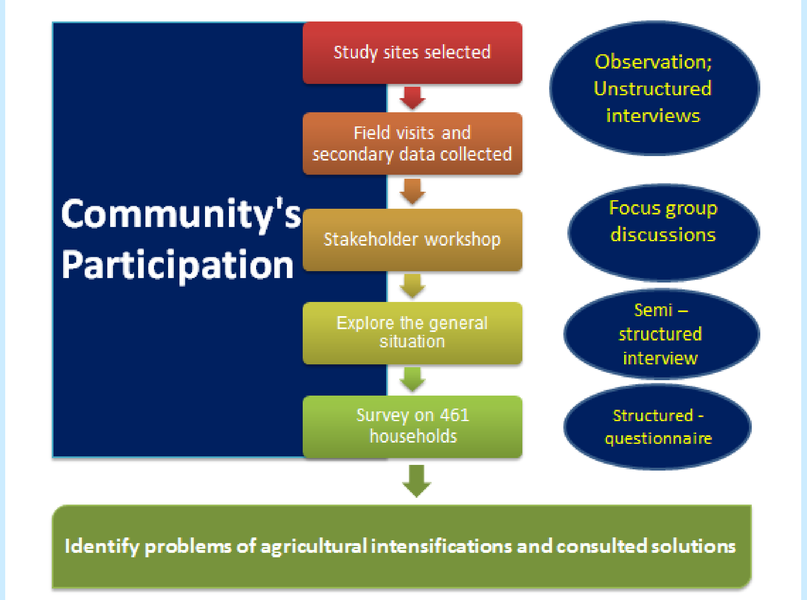

Figure 3. The process of community-based assessment

Main findings

- Most households have intensified cropping by 90% and livestock by 40,1%;
- The common management measure for animal waste was biogas, as it was perceived to be clean and beneficial for the household (used for cooking);
- Increase of chemical fertilizer use in agriculture because manure was fed into biogas.

Photo 1. Livestock intensification is becoming a trend in Hanam province

Human health issues

- The number of people who died of cancer increased rapidly from 11 people in 2010 to 23 people in 2012 in our study sites, notably from lung cancer and liver cancer (Mortality reports 2010, 2011, 2012)
- The most common reported health complaints of the surveyed households in the last 3 years were headaches (23.2%), followed by flu (19.7%), and sore throats (15.4%) (survey on 461 households in 2013)

Photo 2. Checking respiratory disease for local people in health station

Animal health issues

- Despite vaccination, the increased rates of diarrhoea, Porcine Reproductive and Respiratory Syndromes (PRRS), and Foot and Mouth Diseases (FMD) has caused great economics losses for the communities.

Livestock waste management is the main concern of the locals people

- Decreasing trend of households in using animal manure for agricultural production from 64.8% in 2008 to 55.2% in 2013. However, the number of households using biogas rose from 18.3% in 2008 to 28.9% in 2013 (Survey on 461 households in 2013).

Photo 3. Biogas is used commonly in Hanam

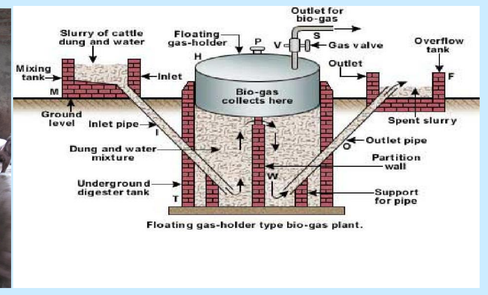

Photo 4. The diagram of Biogas system (source:)

Conclusions

We used the participatory and trans-disciplinary principles of the Eco-health approach during the research process with the engagement of all stakeholders, including the local authorities, farmers, community members and researchers. In the first phase of the research, stakeholders' participation allowed us to identify their concerns and expectations. That would help to tackle public health issues related to livestock waste management, identify information and knowledge gaps, and provide means to negotiate concrete steps for moving forward.

Next steps

- Conduct a survey on the public health effects of sewage biogas in the households that used biogas in previous survey.
- Design a waste water sampling technique in the biogas and drainage system.

Acknowledgments

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TRUNG TÂM Y TẾ CÔNG CỘNG VÀ HỆ SINH THÁI
CENTER FOR PUBLIC HEALTH AND ECOSYSTEM RESEARCH

Center for Public Health and Ecosystem Research (CENPHER)
Hanoi School of Public Health
138 Giang Vo, Ba Dinh, Ha Noi
Tel: (+84) 4.62733162, Fax: (+84) 4.62733172
Email: cenpher@hsph.edu.vn
Website: http://cenpher.hsph.edu.vn/english/research/fbli

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