

# outcome HIGHLIGHTS

Handling meat at a wet market in Ha Nam, Vietnam. Students of the risk assessment course learn how certain hygienic practices – such as wearing gloves and keeping butchering areas clean – can significantly reduce health risks. They also learn how “from farm to table” works, an increasingly widespread approach to promote food safety throughout the food chain.



Photo: Nguyen Hong Nhung

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## Microbial risk assessment in Vietnam

Water, sanitation, and food safety: from training to policy

### In brief

- This project developed a training course on microbial risk assessment (MRA) in Vietnam
- The MRA training course tackled issues of water, sanitation, and food safety, and helped relevant groups in Vietnam to work in partnership
- It led to a larger training programme, more research, and a network on health risk assessment in Vietnam, and provided important inputs to Vietnam's Ministry of Health and the WHO office in Hanoi to establish MRA guidelines for food safety



Research featured here was conducted in Vietnam

### Need for better risk assessment

Environmental health risk assessment in general and microbial risk assessment (MRA) in water and food in particular are still at a very early stage of development in Vietnam. A survey done by the Hanoi School of Public Health in 2007 showed that staff working in the field of environmental health, preventive medicine, and public health in 17 Vietnamese provinces had very limited or no official training in environmental health risk assessment. With rapid urbanisation, industrialisation, agricultural development, and a high population growth rate, Vietnam faces many “traditional” and “modern” environmental health risks. These risks – caused by pathogens (virus, bacteria, and protozoa) in water and foods – include waterborne and food-borne diseases such as diarrhoea and food poisoning.

### Curriculum development

This PAMS (see back) project aimed to supply tools to ensure that risk management is evidence-based and as effective as possible. Its main implementer was the Hanoi School of Public Health, which teamed up with the National Institute of Nutrition, the National Institute of Hygiene

and Epidemiology, and the Preventive Medicine Centre of Ha Nam Province to develop an MRA training course. NCCR North-South researchers continuously assisted the team and were involved in the entire process of project development. Experts from the International Livestock Research Institute (ILRI) provided the team with technical support to ensure the quality of the course. The team also met with a number of other experts and related stakeholders to obtain advice and feedback on the course design and training-package content. Concepts, application, and uses of MRA were further discussed with policymakers from Vietnam's Ministry of Health.

Students of the training course learn to carry out MRA in four steps: 1) hazard identification; 2) dose-response assessment (what level of pathogens will pose a risk?); 3) exposure assessment (how many pathogens are people exposed to/do they ingest and how many people are affected?); and 4) risk characterisation (using the information obtained, students calculate the health risk prevalence in terms of infection or disease).



During the PAMS project, the team regularly met with senior members of the Vietnam Food Administration (VFA) in Hanoi. Here, researchers discuss the book they are writing on microbial risk assessment, with Prof. Nguyen Cong Khan, Director General of the VFA (centre).

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Using this method, students calculate the level of, say, *Salmonella* spp. in the pork that people eat, and the risk of diarrhoea. A completed MRA can then be used by policymakers to implement preventive measures.

### Training, research, and networking

In August 2010, project organisers held a one-week national training course for 40 participants (selected from 77 applicants) with jobs in the field of risk assessment and management. The course included theory, field-based, and laboratory sessions on how to perform risk assessments using two concrete examples: wastewater reuse in agriculture, and pork meat consumption. Two course participants eventually launched MSc-level research projects on related topics. In addition, two new research proposals on MRA and food safety grew out of the workshop.

The final MRA training workshop was held in January 2011. It was attended by members of research institutions, ministries, and universities. It enabled them to discuss future collaboration in risk-assessment research and training, as well as establishment of a risk-assessment network in Vietnam. The final version of the training package – in English or Vietnamese – is available on request from the researchers.

### Policy impact

Since its introduction in early 2010, the MRA training course has been recognised by health staff, lecturers, researchers, and policymakers at the Ministry of Health and the World Health Organization (WHO) office in Hanoi as a useful tool that provides scientific evidence for decision-making and risk management. Both participants and policymakers – including directors of the Health Environment Management Agency and the Vietnam Food Administration at the Ministry of Health – rated the training course highly, and acknowledged the importance of MRA in food safety management in Vietnam. As MRA is a new approach in Vietnam, raising awareness in this field was an important outcome of the project.

Building on the project, the Vietnam Food Administration and WHO offices in Hanoi have supported creation of a book-length Vietnamese-language manual on MRA for food safety in Vietnam. In addition, the Hanoi School of Public Health has adapted its environmental health risk assessment course for undergraduate and graduate public health students to include MRA, based on the PAMS training course contents. Finally, the NCCR North-South researchers who helped launch and guide this training-to-policy project see good potential for reproducing it in neighbouring Laos and Cambodia.

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### Select partners

- Hanoi School of Public Health, Vietnam
- International Livestock Research Institute, Kenya
- National Institute of Hygiene and Epidemiology, Vietnam
- National Institute of Nutrition, Vietnam
- Preventive Medicine Centre of Ha Nam Province, Vietnam
- Swiss Tropical and Public Health Institute, Switzerland
- Vietnam Food Administration and Health Environment Management Agency, Ministry of Health, Vietnam

### Further reading

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Outcome Highlights feature effective collaborations between researchers, policymakers, practitioners, and local communities in the NCCR North-South network.

### Partnership Actions for Mitigating Syndromes (PAMS)

are pilot projects designed to test NCCR North-South research in real-world settings. Developed jointly by researchers and local stakeholders, they aim to promote mutual learning and reveal paths to sustainability.

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