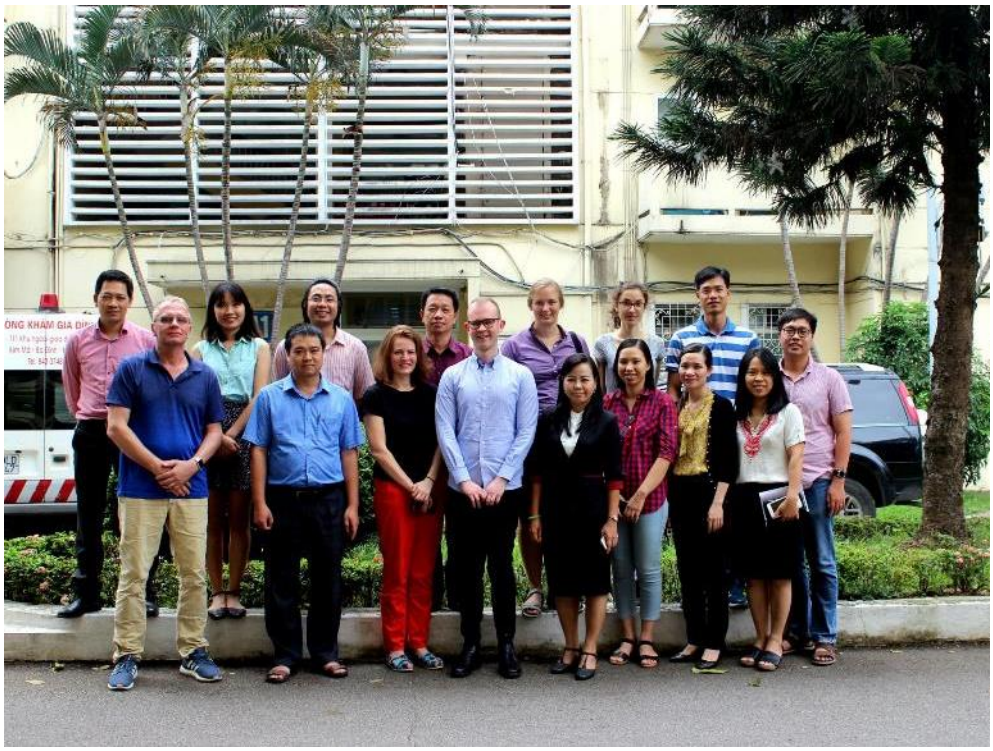
International Livestock Research Institute

Training course report

Training on system effects modelling

21-23 May 2019



ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE CGIAR UNSW CANBERRA Freie Universität Berlin CGIAR RESEARCH PROGRAM ON Agriculture for Nutrition and Health Led by IFPRI

ILRI thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust Fund.

Written by Kristina Roesel and Luke Craven

Citation

ILRI (International Livestock Research Institute). 2019. *Training on system effects modelling*. Report of a training course held on 21-23 May 2019. Nairobi, Kenya: ILRI.

Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

ILRI has offices in East Africa • South Asia • Southeast and East Asia • Southern Africa • West Africa

Contents

Project background

Cambodia has a rich tradition of tasty and nutritious foods. Animal-source foods are an important part of the cuisine with pork, fish, and poultry products widely consumed. The great majority of livestock products are produced by smallholders, many of them women, and sold in traditional wet markets where women also predominate as retailers.

In recent years, Cambodia has seen growing food safety concerns. Development is accompanied by urbanization, rapid increases in demand for livestock products and, consequently, rapid changes in supply chains, which become longer, more complex, and less transparent. Trust in food goes down, often with good reason as the food system develops in a way that provides little rewards for those with good practices, but high rewards for those who carry out bad and unsafe practices.

The project has two major research areas to tackle the above-mentioned issues: (i) to generate evidence on the health and economic burden of foodborne diseases in animal-source food value chains that are important to the poor and women and (ii) to pilot a market-based approach to improving food safety that builds on successfully implemented projects in Africa and India.

Objectives

- To generate actionable evidence on the health and economic burden (gender-disaggregated) of foodborne diseases associated with animal-source foods in Cambodia.
- To develop, pilot and test a new approach to food safety, which relies on incentives (rewards) and light-touch interventions in close partnership with the private sector.
- With stakeholders, to describe, plan, and monitor how evidence-based recommendations and the tested approach could contribute to the Feed the Future Innovation Lab for Livestock Systems (LSIL) theory of change.
- To make recommendations for enhanced engagement and benefit sharing for men and women in animal-source food value chains through improving understanding of gender aspects and the gender appropriateness of interventions and by integrating nutrition and food safety.
- To develop capacity in understanding food safety risk, its management, and effective communication among stakeholders including the government, private sector, academia, donors, and media.

Expected outcomes

- Greater understanding among policymakers, donors, and the private sector of the multiple burden of foodborne diseases and their implications for nutrition security.
- Increased openness to promising approaches to improve food safety equitably and sustainably.
- Agreement by Cambodian food safety stakeholders on what will be needed to take evidence and innovative approaches to greater scale guided by the LSIL theory of change.
- Improved knowledge and understanding of nutrition-gender dynamics in foodborne disease risks and viable options identified for increased gender equity in foodborne disease risk management.
- Improved understanding and communication of risks among academics, policymakers, private sector and media.
- Improved capacity in researchers, students, government, and non-governmental organization partners and value chain actors.

Training summary

Organizer/co-organizers: Kristina Roesel, Thanh Nguyen

Lecturers/facilitators: Luke Craven, Kristina Roesel

In this three-day workshop we explored how to use complex systems approaches to understand and engage with complex policy problems, such as food-borne illness and antimicrobial resistance.

The workshop began with an overview of complexity theory and its implications for the social sciences. This included a discussion of how complexity theory can enrich existing research being done by ILRI. We then covered a range of practical tools to assist researchers and practitioners in operationalising complexity, drawing on Luke Craven's work System Effects. Participants were able to see a new System Effects software that can assist in data collection and analysis. Finally, workshop participants discussed their ongoing work, and engage in a discussion about they could effectively incorporate systems thinking and System Effects into their own projects.

By the end of the workshop, participants were able to:

- describe a number of different theoretical concepts relating to complexity and systems thinking;
- recognize how those theories relate to different social science methodologies and how they may be applied;
- think about how to use System Effects in their own research projects;
- understand how systems thinking can support the design, implementation and evaluation of interventions and programs;

Luke Craven is known for developing the System Effects methodology, which is widely used to analyse complex causal relationships in participatory and qualitative data. He is also involved in number of collaborative projects that are developing innovative solutions to complex policy challenges, which includes work focused on food insecurity, health inequality, and climate resilience. One of the projects is the ILRI-led Safe Food, Fair Food for Cambodia project where we applied the methodology to better understand the impact of foodborne diseases and barriers for accessing safer food (https://hdl.handle.net/10568/98397). The knowledge will help designing intervention strategies. Using the example of the Cambodia work, we held a training/workshop with the ILRI Asia team to discuss findings and further application of the method in ongoing and future projects in CGIAR Research Program on Agriculture for Nutrition and Health (A4NH).

Potential to use the method in other projects:

- Pig zoonoses in Laos
- Pork tapeworm in East Africa
    - The different stakeholders in Uganda do not seem to be taking up the control options (i.e. vaccine, latrine use, meat inspection) that are well-known to biomedical sciences. The System Effects method could help evaluating the barriers and enablers for uptake.
- Using it as part of a participatory diagnostic process
    - Barriers and enablers to the implementation of interventions that have already been designed. For example, what are the barriers to avoiding floor slaughter in slaughterhouse?
- Using it to engage with policymakers about the barriers they perceive to be present in a particular context, e.g. food safety, to compare to the perceived barriers by other stakeholders (i.e. consumers)
- Urban livestock keeping and risk of mosquito borne infections
    - Who are the stakeholders involved in urban livestock.?
    - What they think are the risks (consequences) associated with urban livestock keeping?
    - Why are people keeping urban livestock?
- Developing an online survey for people in Hanoi for why they are not protecting themselves / using vaccines against preventable diseases (i.e. vaccination prior to vacation)?

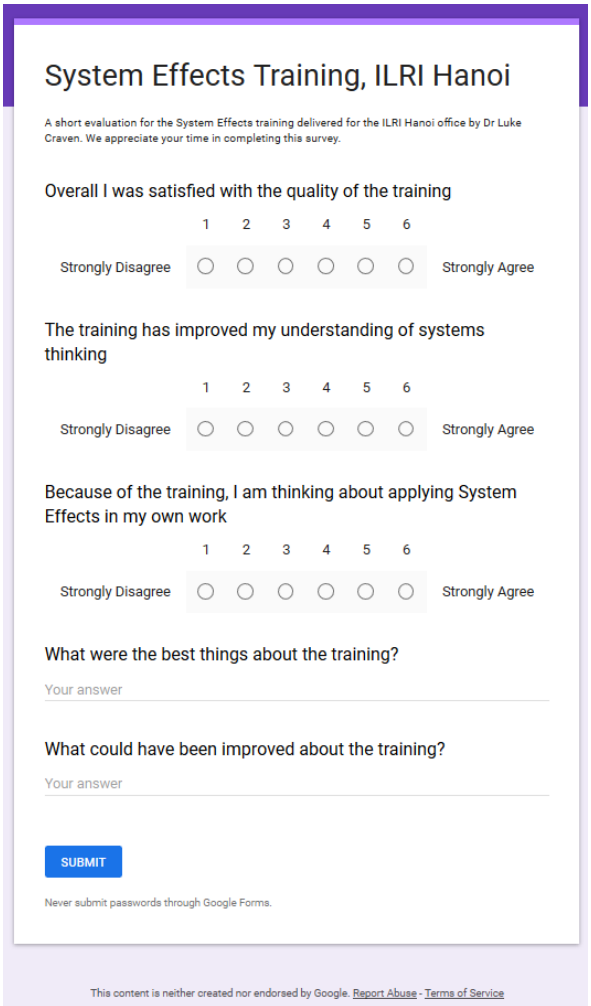
    - Connecting in with a broader survey (how to build demographic data collection into the System Effects survey tool?)
    - Foreigners visiting, but also locals
- Using it for the evaluation of food safety intervention feasibility and accessibility
    - Before the intervention: discuss candidate interventions with the potential end users (Safe Food, Fair Food for Cambodia, Pull-push project)
    - After the intervention: Asking a group that did not take up the intervention "why didn't you use the new intervention?" (barriers)
    - Asking the group that did take it up "why did you take it up?" (enablers)
- Motivations for using antimicrobials
    - Existing tool assesses the motivations and practices (KAP AMUSE)
    - Understanding the motivation of drug use better (examples: enablers/barriers to access antimicrobials compared to other animal health interventions; perceived consequences of antimicrobial use – especially with different stakeholders)
    - Reflect on feasibility of particular interventions (barriers and enablers)
- African swine fever
    - Evaluate the impact of African swine fever in Vietnam (System Effects can be used to identify consequences – potential variables for cost-of-illness study?)

Follow up: At the end of the workshop the group participants were invited to join the Slack-based community of practice where they can easily ask questions in the future as they start using the method in their own projects (Luke Craven and other users are part of this forum).

Training material

The lecture notes were shared with all participants during the training.

Training evaluation



System Effects Training, ILRI Hanoi

A short evaluation for the System Effects training delivered for the ILRI Hanoi office by Dr Luke Craven. We appreciate your time in completing this survey.

Overall I was satisfied with the quality of the training

	1	2	3	4	5	6	
Strongly Disagree	○	○	○	○	○	○	Strongly Agree

The training has improved my understanding of systems thinking

	1	2	3	4	5	6	
Strongly Disagree	○	○	○	○	○	○	Strongly Agree

Because of the training, I am thinking about applying System Effects in my own work

	1	2	3	4	5	6	
Strongly Disagree	○	○	○	○	○	○	Strongly Agree

What were the best things about the training?

Your answer

What could have been improved about the training?

Your answer

SUBMIT

Never submit passwords through Google Forms.

This content is neither created nor endorsed by Google. Report Abuse - Terms of Service

Results of the evaluation

What participants liked best about the training:

- Understanding the "complexity" in system thinking, the way to quantify in aggregated table and visualize them in the diagrams (thickness and connections)
- The software to help visualize the system work.
- The training introduced me new model for data collection and analysis.
- Illustration of system modelling through various examples really helped the understanding.
- Discuss and study a new approach to collect information during an active workshop.
- The practical examples and exercises.
- Understanding finally the concept of SE modelling and software.
- The complex modelling and using programme to analyse info.
- Visualising the links between the nodes / learning about the software.

What participants thought could have been improved about the training?

- Provide more time for participant to practice with the System Effects software, and understand statistic parameters of the result.
- More time for practices regarding developing individual/group maps, using software.
- System thinking and the new in-sign to apply to my work.
- The practical on Thursday morning was a little bit too long, as we took little part in cleaning the data after submitting our maps.
- Have more example to compare the different outcome from each group.
- More working on setting up our own study and discuss the suitability.
- Take one more example to practice (like health service access). The first session would need some more illustrations.
- More time to do the practice.

Appendix 1: Agenda

Time	Topic	Facilitator
Tuesday, 21 May 2019		
9:00	Welcome and introduction of meeting participants	Hung Nguyen
9:15	Session 1: Introduction to complex systems • Why traditional social science methodologies struggle to engage with complexity	Luke Craven
10:30	Coffee break	
10:45	Session 2: Introduction to system effects modelling • Understanding the background to the approach • Different applications • Worked example of Norway	Luke Craven
12:30	Lunch	
13:30	Session 3: From understanding to action: using system effects modelling for intervention design • Linking in behavioural economics and nudging • Developing costing models	Luke Craven
15:00	Coffee break	
15:15	Session 3 continued	Luke Craven
17:30	Closing of the day	
Wednesday, 22 May 2019		
9:00	Session 4: Using the example of Safe Food, Fair Food Cambodia as a practical example from data collection to analysis and discuss the findings • Overview of the project activity and its rationale • Discussing data collection	Kristina Roesel
10:30	Coffee break	
10:45	Session 4 continued: • Overall results and presentation of the poster • Break down results by different demographics • Feedback from the group	Kristina Roesel Luke Craven
12:30	Lunch	
13:30	Session 5: Discussing the use of this research for intervention design in Safe Food, Fair Food Cambodia	Luke Craven
15:30	Coffee and closing for the day	
18:30	Session 6: How to move from here: Discussion on the application of SE modelling in ongoing or new ILRI projects	Luke Craven Kristina Roesel
Thursday, 23 May 2019		
9:00	Session 6: New (automated) ways of collecting and analysing data and discussion of pros and cons (online vs paper-based)	Luke Craven
10:15	Coffee break	
10:30	Session 6 continued: Worked example of data collection and analysis	Luke Craven
12:30	Lunch	

Appendix 2: List of participants

Name	Email contact	Affiliation	Sex (M/F)	Country of origin
Chhay Ty	chhayty@celagrid.org	CelAgrid	Male	Cambodia
Dang Xuan Sinh	xuansinhck@gmail.com	ILRI	Male	Vietnam
Fred Unger	f.unger@cgiar.org	ILRI	Male	Germany
Johanna Lindahl	j.lindahl@cgiar.org	ILRI	Female	Sweden
Kristina Roesel	k.roesel@cgiar.org	ILRI	Female	Germany
Le Trang	tranglht.hsph@gmail.com	ILRI	Female	Vietnam
Lorraine Chapot	LChapot18@rvc.ac.uk	ILRI intern/ Royal Veterinary College	Female	France
Luke Craven	l.craven@unsw.edu.au	University of Sydney	Male	New Zealand
Marion Bordier	marion.bordier@cirad.fr	CIRAD	Female	France
Marisa Mitchell	M.Mitchell@cgiar.org	ILRI/ AVI volunteer	Female	Australia
Ngo Hai	nhth@huph.edu.vn	Hanoi University of Public Health	Male	Vietnam
Nguyen Thanh	T.L.Nguyen@cgiar.org	ILRI	Female	Vietnam
Nguyen Thinh	T.T.Nguyen@cgiar.org	ILRI	Female	Vietnam
Nguyen Tien Thang	Thang.T.Nguyen@cgiar.org	ILRI	Male	Vietnam
Nguyen Viet Hung	H.Nguyen@cgiar.org	ILRI	Male	Vietnam
Pham Thanh Long	ptlong.vndah@gmail.com	ILRI/Department of Animal Health	Male	Vietnam
Teng Srey	tengsrey72@gmail.com	CDC/MOH Cambodia	Female	Cambodia
Vu Hue	kimhue300887@gmail.com	National Institute of Veterinary Research	Female	Vietnam