

Public Health Foundation of India (PHFI)/International Livestock Research Institute (ILRI)  
India Research Initiative on Peri-urban Human-Animal-Environment Interface  
Research Capacity Building Program

## Conducting ecohealth research: Basic skills


Workshop report

Hotel Ramada, Gurgaon, India  
26–27 September 2016

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## Background

EcoHealth (EH) approach has emerged over the last decade as a key concept guiding collaborative and transdisciplinary research to examine changes in the biological, physical, social, and economic environments and how these changes impact human health. EH stresses on the importance of taking an intersectoral and collaborative approach to identify the epidemiological phenomena at the Human-Animal-Environment interface especially in the neglected peri-urban landscapes that are emerging as hotspots of infectious diseases and build resilience of the vulnerable populations, structures and systems through regional, national and localized efforts undertaken by development agencies, governments, communities, and other partners. EcoHealth (EH) with its multi-sectoral approach provide an ideal platform to identify and prepare these sectors to nullify some of the risk drivers. Further, to make EH approaches more locally relevant, sustainable, and inclusive, development of local capacities is essential.

The Public Health Foundation of India (PHFI) and the International Livestock Research Institute (ILRI) supported 4-year applied research program (2013–17): the “India Research Initiative on the Peri-Urban Human-Animal-Environment Interface” established a Research Capacity Building Program (RCBP) that promotes EcoHealth research through doctoral and post graduate fellowships. The initiative has been set up to select and build capacities of researchers and faculty members and to train them in transdisciplinary research methods. It is an attempt to bring together various disciplines and sectors to provide an informed view of the research studies being undertaken so as to develop a rich body of researchers, encourage problem solving mindset and draw focus to neglected peri-urban interface.

The long-term goal is to contribute towards the creation of a vibrant and dynamic platform for EcoHealth in Asia. RCBP has developed a systematic process to select, groom and build a cohort of researchers who will work on research projects on an ongoing year-on-year basis. The selection process of research topics is guided by an in-depth understanding of how systems interact and affect each other in the peri-urban fringes. These research themes are constantly emerging as a result of constant mentorship. However, the challenge has been the limited understanding of the EH approach in junior researchers which is reflected in the proposal applications received so far. Though EcoHealth is a popular buzzword in veterinary health circles, the response from other sectors such as medical science and social sciences was very weak.

Against this backdrop, as part of PHFI/ILRI India Research Initiative on Peri-urban Human-Animal-Environment Interface organized a two-day training workshop was on “Conducting EcoHealth Research: Basic Skills workshop for RCBP Scholars.” The objectives of the training workshop was to develop basic research skills for conducting EcoHealth research by bringing together multidisciplinary experts and junior researchers to expand the horizons of these young researchers through expert guidance. In turn, RCBP aims to develop a network of future leaders in this domain.

## Introduction to the workshop

The two day training workshop introduced the research scholars to the concepts necessary to conduct an EH research that can help contribute towards developing strong evidence by undertaking interdisciplinary and transdisciplinary research through a collaborative approach. In the long run, it is an effort to build local capacities that can help integrate public /animal/livestock health, urban planning, local food production and social development in Peri urban settings of India.

The consultation brought together research scholars selected under the RCBP, associated faculty members and multidisciplinary experts from the streams of veterinary public health, public health, veterinary epidemiology, remote sensing and geoinformatics and anthropology. A total of 23 participants attended the workshop, comprising of eight (08) young researchers and eight (08) academicians along with RCZI/PHFI team, representatives from ILRI and University College of Medical Sciences.

The two-day session provided an opportunity to the research scholars to develop research skills through participative learning, group exercises and hands-on training in basic research methodology. The topics covered were:

- India Research Initiative and Perimilk study: Overview
- EcoHealth research approach: Introduction
- Planning a research study and ethics in research
- Proposal Presentation and Feedback
- Proposal discussions with mentors
- Writing Research
- Literature Search
- Reference Management

## Context setting

### *India Research Initiative and Perimilk study: Overview*

**Dr Jessy Joseph, Senior Research Associate, RCZI/PHFI** provided an overview of the India Research Initiative on peri-urban human-animal-environment interface and the role of Research Capacity Building Program (RCBP) within the initiative to provide a platform for transdisciplinary research. The session provided an understanding of the complexities at the peri-urban human-animal environment interface that would help the young researchers identify challenges of small holder dairy farms and list key research themes in line with the India Research Initiative. The overarching objective was to understand the relevance and need of EcoHealth approach in addressing challenges at the human-animal environment interface.

While providing a brief overview of the Perimilk study under the India Research Initiative on the peri-urban human-animal-environment Interface, Dr Jessy stated that the aim of the study is to produce a resource-efficient, multi-stakeholder platform for research that will help sustain a community of researchers and practitioners to promote evidence-based coordinated policy and practice related to healthy food production, livestock, and prevention and control of zoonotic diseases. Over the last few years, Indian cities have witnessed a rapid and unsystematic mushrooming of peri-urban areas. In response to increased demand for food, traditional agricultural practices have been supplemented by highly intensified, industrial-style production units. In addition to this, small holder dairy farming, typical of peri-urban ecosystems, suffer from lack of support and quality control. The absence of an organized system of farm inspection and screening of animals for disease make these dairy farms susceptible to zoonotic infections. These spaces are usually excluded from the vision

and priority of civic authorities. Adding to their vulnerability is systemic lacunae and limited evidence to inform policymakers.

A new focus on healthy peri-urban ecosystems is urgently needed to provide momentum and mechanisms to guide policy and build local capacity in integrating public health and livestock health within urban planning and social development. So far, interventions have been mostly designed and targeted towards one sector in isolation. This complexity requires a more in-depth understanding from both human and animal health perspective, while recognizing the EcoHealth context of both.

The Research Capacity Building Program was formed with a few objectives to facilitate understanding of EcoHealth approach and address the key knowledge gaps. The initiative is an attempt to bring together various disciplines and sectors to provide an informed view of the research studies being undertaken. She stated that the activities under the initiative are aligned around the three strategies i.e. research capacity building strategy; gap analysis for agenda setting; and developing partnerships, with an aim to develop a rich body of researchers, encourage problem solving mindset and draw focus to neglected peri-urban interface.

## Introduction to ecohealth approach and research basics

### *EcoHealth research approach: Introduction and planning a research study and ethics*

Dr Johanna Lindahl, Scientist, International Livestock Research Institute (ILRI) provided the basic conceptual understanding of Eco Health research to the research scholars and introduced them to the finer nuances of Eco health approach and its applicability and viability in the peri-urban settings. She explained that Eco Health covers the entire spectrum of veterinary medicine, human medicine and environmental science and if followed systematically, there are benefits to be gained by controlling zoonoses in animals and along the value chain. Through the session, the researchers were introduced to the six principles of EcoHealth research vis-a-vis sustainable positive change: transdisciplinarity; participation (different sources of knowledge); equity (everyone's knowledge counts); systems thinking (embrace complexity); sustainability; and research to action. The session outlined the importance of taking an intersectoral and collaborative approach to prevent, detect and control endemic and epidemic diseases among animals and humans by identifying the key drivers that are operating at the human-animal-environment interface. By gaining an understanding of the concepts and principles of EcoHealth approach, the participants would be able to apply some of the concepts to the research study that they will undertake.

### *Planning a research study and ethics in research*

The session provided an opportunity to the research scholars to understand basic concepts of research design and planning, and research ethics. The objective was to provide guidance to refine their research proposals and finalize the protocol of conducting the research on the given topic. The basic concepts of the research design planning, and research ethics were covered while emphasizing the importance of research ethics as it protects human participants and ensure that research is serving interests of individuals, groups and society as a whole. The importance of having a clear understanding of the problems and how research will help in addressing the underlying problems was reiterated.

Dr Lindahl stressed upon the fact that the researchers must be clear about whether the evidence generated through the research will help in making a difference at the micro level. The clarity of the question will help in getting the correct answers as the research question determines what kind of data one need and that determines how to conduct the study? The session also covered the key steps of planning a research study and introduced the researchers to various methods of doing research, sampling strategies, data collection, conducting interviews, analysis of data and writing techniques.

## Protocol presentations by the research scholars

The main focus of this session was protocol presentations by the participants selected under the research capacity building program. A multidisciplinary team of experts presided over the presentations and provided feedback to the research proposals and fine tune the research questions. The protocol presentation format was prefixed and covered the topics i.e. study title, rationale, aim, primary and secondary objectives of their study and other details pertaining to the study site, study design, time frame, population/participants, sample size, methods, outcome measures and statistical analysis.

The session provided an opportunity to the research scholars representing diverse backgrounds such as veterinary microbiology, medicine, public health research, medical law and ethics, remote sensing and geo-informatics to interact and discuss with each other and receive feedback by the multi-disciplinary group on the research protocol for their study. It was a constructive exercise as it provided hands-on experience to the research scholars to apply some of the learnings of the EcoHealth approach, specifically systems thinking, participation and collaborative approach to finalize their protocol.

## Training sessions

### *Data collection and data quality*

**By Dr Jessy Joseph, Senior Research Associate, RCZI/PHFI**

The learning objectives of this session was to provide a basic understanding of selection of a research approach, methods of undertaking research and data collection methods to ensure the quality of the data. The participants were briefed about research design and various procedures of inquiry, the process of data collection, selecting a research approach and what data should be collected, good practices to be followed in data collection management and analysis, the essentials for the integrity of research, and various issues in data collection. The session also covered topics such as quality control and improvement, methods of data entry and quality control measures as the quality of good data is imperative to derive better understanding of a research topic.

### *Writing research*

**By Dr Johanna Lindahl, Scientist, ILRI**

The objective of the session was to orient and train the participants on the basics of writing research. A brief overview of various components of a research publication such as introduction, material and methods, results, discussion, conclusions, abstracts, journals and reviewing was provided. The importance of setting the agenda, describing the issue and providing the necessary data to understand the research study was reiterated. Dr Lindahl reiterated the importance of some of the critical components of research writing vis-à-vis setting the agenda and defining in clear terms the problem statement, description of the whole issue and providing the data necessary to understand, its purpose and what will be the use of research findings. The researcher must answer a few questions before undertaking a research such as: What is the gap in knowledge and why is your work important? Setting of an objective and make people understand why are you doing it is imperative to a good research study. The researchers were also briefed about other important elements of writing research such as plagiarism, correct use of English, use of references to validate, selecting an appropriate topic and correct use of key words.

### *Literature search and reference management*

By Dr Pranab Chatterjee, Senior Research Associate, RCZI/PHFI

The session on literature search and reference management provided a hands-on training to the participants on use of software such as PubMed and Mendeley, the use of Medical Subject Headings (MeSH), Filters and Boolean operators to refine the search, develop research strategy, and download and email citation. The concept of MeSH and how to search on PubMed was provided to the participants through examples.

These tools are immensely helpful in refining the search. The session outlined the importance of having a search strategy as it helps in getting the information one needs. Search strategy tips were provided to the participants such as selection of a search topic, categorizing the topic into concepts, finding key words and subject headings to represent these concepts, refining search to dates, and study groups.

### **Way forward**

The primary objective of the workshop was to build core competencies of the research scholars in planning a research study, identify appropriate data collection methods and quality assurance tools, development of scientific writing skills, and adoption of EcoHealth research approach. However, it was also an opportunity to understand and identify gaps in research capacity and deliberate on how the research capacity can be strengthened in the future. The discussion with the RCBP scholars and their mentors brought to the fore the critical need for more formal training programs to develop and capacitate the future research leaders. Trainings like these are a great way to enhance the skills of the young researchers. To sustain the efforts, there is a need to develop institutional partnerships and create a platform that promotes dialogue amongst the research fraternity.

Going forward, RCBP will continue supporting transdisciplinary research by funding for junior researchers, building core competencies and providing training in transdisciplinary research methods at sub-national level in project states and beyond. The Project will help strengthen advocacy for transdisciplinary research by engaging with national research leadership. It will promote sub-national networks of transdisciplinary researchers through mid-level faculty and researchers from public and animal health and wildlife health. A training module is also in the pipeline that can be used by the research community as a ready reckoner to undertake research following an EcoHealth approach.



## Agenda

26 September 2016		
09:30 – 09:45	Welcome and introduction to the workshop	Dr Jessy Joseph
09:45 – 10:00	India Research Initiative and Perimilk study: Overview	Dr Jessy Joseph
10:00 – 10:30	EcoHealth research approach: Introduction	Dr Johanna Lindahl
10:30 – 11:00	Planning a research study and ethics in research	Dr Johanna Lindahl
11:00 – 11:30	Tea	
11:30 – 13:00	Proposal presentations and feedback	Dr Deepak Kumar Sharma Dr Mahmood Abbas Dr Atul Kumar
13:00 – 14:00	Lunch	
14:00 – 16:00	Proposal presentations and feedback	Dr Chandrani Goswami Dr Pratap Jena Kunj Sachedeva Abhimanyu Singh Chauhan
16:00 – 17:00	Conclusion day 1 Tea	
27 September 2017		
09:00 – 10:00	Follow up: proposal discussions with mentors	
10:00 – 10:15	Data collection and data quality	Dr Jessy Joseph
10:15 – 11:00	Writing research	Dr Johanna Lindahl
11:00 – 11:30	Tea	
11:30 – 13:00	Literature search	Dr Pranab Chatterjee
13:00 – 14:00	Lunch	
14:00 – 15:00	Reference management	Dr Pranab Chatterjee
15:00 – 15:30	Way forward	Dr Jessy Joseph Dr Johanna Lindahl
15:30 – 16:00	Tea	

## List of participants

### Research fellows

1. Dr Pratap Jena
2. Dr Deepak Kumar Sharma
3. Dr Chandrani Goswami
4. Dr Mahmood Abbas
5. Dr Randhir singh
6. Kunj Sachdeva
7. Dr Atul kumar
8. Abhimanyu Singh Chauhan

### Mentors

1. Dr Jasbir Singh Bedi
2. Dr RA Hazarika
3. Dr Mohomed Nadeem Faroiz
4. Dr Bincy Joseph
5. Dr Ramesh pt
6. Dr Sharma
7. Dr SK Satpathy
8. Dr Abhishek Gaurav

### Experts and facilitators

1. Dr Sanjay Chaturvedi
2. Dr Ashok Kumar
3. Dr Johanna Lindahl
4. Dr Pranab chatterjee
5. Dr Jessy Joseph
6. Dr Kanuj Sethi
7. Dr Anjana Tomar