Introduction
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May 2013
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ECOHEALTH TRAINER MANUAL

A Foreword: Why Ecohealth?

David Waltner-Toews, Pierre Horwitz, Sonia Fèvre

Ecohealth represents a new way of understanding and improving health as an outcome of complex relationships among changing social and ecological forces. Yet, as is apparent from this manual, Ecohealth practitioners draw on many conventional investigative techniques, skill sets, and scholarly disciplines. What, then, makes Ecohealth different from conventional research and practise? In brief, what is different is how we see the world, and therefore how we interpret and use the information we have.

Those who work in fields such as health and agriculture are already accustomed to integrating information across disciplines. Agronomists draw on biology, sociology, economics, soil science, and chemistry, as well as their many sub-disciplines. People in health sciences (including those focusing on disease ecology and medicine) draw on various disciplines such as chemistry, biology, and psychology. Manfred Max-Neef (2005) has referred to this mixing of disciplines as pragmatic interdisciplinarity. In such cases, we are trying to answer the question: What can we do? From a technical viewpoint, systems approaches have become core to our ability to achieve this kind of interdisciplinarity.

Policy-makers, politicians, and social planners must further integrate information from across these broader fields to make normative decisions about agriculture, health, and environmental management. At this level, we are seeking to answer the question: What do we (collectively) want to do? It is here that questions of equity, power, and gender emerge as important, and techniques related to participatory action research are relevant.

Ecohealth takes this process of integration to a deeper level. In Ecohealth, we draw on the disciplines and the various pragmatic forms of integration and ask the question, of ourselves, our partners and our politicians: What should we do, or, to phrase it somewhat differently, why do we want to do something in a particular way? This kind of integrated understanding, which transcends disciplines, is rooted in values, ethics, and philosophy. There are different ways to produce food or deliver medical care, but all of them reflect different underlying values and understandings of the world.

It is not simply a matter of bringing together the right team of experts and stakeholders; unless Ecohealth practitioners can articulate and commit to a particular set of values, many disputes will arise that appear to be about facts and techniques, but are really about different ways of knowing — local, traditional, intuitive, expert, and empirical — and different visions of the world. It is no accident that Valerie Brown titled her guide to collective thinking and action “Leonardo’s Vision,” and why she argues that we should begin the process by asking “What should be?” before we move on to the more
practical and technical questions of “What is” and “What could be?” and “What can be?”

This idea is similar to what economist Schumpeter called a “pre-analytic vision,” that is, an understanding of the world that forms the basis for all subsequent study and analysis (see Daly 1993 for a discussion of this by an ecologically minded economist). If this is not clearly articulated or is based on values with which we do not agree, no amount of analysis will enable us to “fix” the problematic situations we are facing. Furthermore, no amount of analysis or study can lead us to this vision. We (and here arises the first challenge – who are “we”?) must make some decisions. In what kind of a world do we wish to live? What are we trying to achieve? Unfortunately, scholars, practitioners and the people we work with rarely articulate their vision, or brush it aside by saying “it goes without saying.”

For scholars, practitioners, and trainers in Ecohealth, being able to articulate that pre-analytic vision, and to refer back to it throughout the courses and research projects, is essential. We need to be able to ask, repeatedly: How does this activity (teaching module, research) contribute to this vision? What might such a visionary statement include?

The vision of Ecohealth – since it is, after all, concerned with health – is one of sustainable health. If we “unpack” this vision, we can see that mutual respect for each person (hence “all people”) now and in future generations, is inherent. Some might argue that we must explicitly extend this respect to “all life” not just people; others will argue that the health of people, if it is to be sustainable, is dependent on the ability of other species being able to achieve their genetic potential, within the complex ecological webs of the biosphere. In this view, the explicit extension is unnecessary. Nevertheless, the linking of the two words “sustainable” and “health” is important. According to the Network for Ecosystem Sustainability and Health (NESH 2012), health “offers an approach to assessing the multi-faceted well-being of organisms, populations, communities, and ecosystems. The combination of health with sustainability brings together the notion of a currently desirable state with that of longevity.” Also, since the original discussions about sustainable development were rooted in concerns about ecological sustainability, the word “sustainable” provides an explicit link to ecology – the “eco” part of Ecohealth. Some would prefer “well-being” to “health”; others will argue that the WHO definitions of health already include “physical, mental, and social well-being, and not merely the absence of disease or infirmity” (WHO 1948) and that they reflect a situation in which all people can realize their aspirations, satisfy their needs, and adapt to changing circumstances (WHO 1986). Still others, recognizing the challenges of rapid and widespread global climate, economic, social, and environmental change, emphasize “resilience,” as in a recent report of the United Nations Secretary-General’s High Level Panel on Global Sustainability, entitled “Resilient People, Resilient Planet: a Future Worth Choosing.”

The point here is not to argue about the specifics of language, but to recognize that all the activities of Ecohealth, insofar as they are Ecohealth,
must somehow relate back to broad ideas of health and sustainability, and that these are predicated on an underlying understanding of the world as a complex social-ecological system, with people embedded in it. What Dominique Charron of Canada’s International Development Research Centre has called the principles of Ecohealth, and which have informed the structure and content of this manual, are rooted in this vision: systems thinking, transdisciplinarity, participation, sustainability, gender and social equity, and linking knowledge to action.

This is our “what should be,” our “pre-analytic vision,” the motivation for our work. As Ecohealth trainers, researchers, and practitioners, as users of this manual, together with course participants, we should be repeatedly asking ourselves: How does the work we are doing relate to this vision?

READINGS


Editors’ Note

This training manual, and the Field Building Leadership Initiative (FBLI) of which it is one component, is part of a global initiative to build capacity in ecosystem approaches to health. Although several books and journals provide materials for learners about Ecohealth, the FBLI Ecohealth Trainer Manual is intended primarily for lecturers, teachers, and trainers. The focus here is on how to teach Ecohealth, providing teachers and trainers with a starting point from which to explore, improvise, adapt, and develop diverse educational Ecohealth learning experiences for and with their participants.

Ecohealth workers globally share a common set of principles and are grounded in a common pre-analytic vision (see Preface). However, the actual applications and techniques, growing out of local experiences, often differ from region to region, rooted as they are in different cultural and ecological contexts. Thus, complementary training materials are being created in Canada, Latin America, and West Africa, led by Communities of Practice in Ecohealth in each of those regions. As editors, we have attempted to explicitly link the initiatives in Asia with others globally, while enabling the regionally-based authors to remain true to their own experiences.

In keeping with the participatory, transdisciplinary, and systemic nature of Ecohealth, these training manuals are works in progress, open to new insights and evidence, as we work together to better understand – and more effectively promote – the health of people and the planet we share with all other life.

David Waltner-Toews and Pierre Horwitz, Executive editors
Preface: The Field Building Leadership Initiative (FLBI)

The FBLI is a 5-year initiative launched in October 2011 to build the field of Ecohealth in Southeast Asia. Its long-term vision is to build a well-established field of Ecohealth that is sustainable, rooted in local experiences, influential in global processes that drive environmental and health policy and practice, and supported by a strong community of practice. This initiative includes research, capacity building, knowledge translation, and networking in China, Indonesia, Thailand, and Vietnam. Underpinning the emergence and consolidation of the Ecohealth field in Southeast Asia is the need for capacity building for research, teaching, and policy influence. The FBLI complements other regional initiatives such as the EcoZD project of the International Livestock Research Institute, which is focused on ecosystem approaches to better management of zoonotic emerging infectious diseases.

Although the Ecohealth Trainer Manual can be used as a stand-alone resource, it is best embedded within an institutional framework where participants (teachers, trainers, participants, researchers) are encouraged to experiment and adapt Ecohealth teaching and practice to the geographical and intellectual contexts of Southeast Asia.

VWB/VSF-Canada has been privileged to work with numerous partners and contributors to help facilitate the development of this manual and we hope that it will continue to serve over time. The FBLI was originally set up because its members believed that Ecohealth research and development can contribute to more sustainable agricultural practices and livelihoods, and lead to healthier populations and environments. We hope that this spirit of endeavour and optimism will continue as Ecohealth communities emerge and develop.

*Sonia Fèvre, Manual Coordinator, VWB/VSF-Canada*
INTRODUCTION TO THE FBLI ECOHEALTH TRAINER MANUAL

By Sonia Fèvre, MSc

Background

The FBLI Trainer Manual has been developed as an iterative, collaborative process between the FBLI core members, authors and contributors, end-users, and other stakeholders. Existing Ecohealth materials were consulted and needs assessments carried out to tailor the structure, content, and approach of this manual to respond to the perceived needs of audiences in Southeast Asia. These needs will change over time and we anticipate that users will adapt and update these materials to allow them to continue to be effective.

The initiative has tried to incorporate stakeholders in the development of these materials. Significant progress was made to improve the quality and relevance of these materials at the FBLI Trainer Manual Review Writeshop convened on 29-31 March 2012, at the Ramada Riverside Hotel, Bangkok. The Pilot FBLI Trainer Manual version 1.0 distributed at the Training of Trainers workshop in Bangkok on 30 June, 2012 was used as the basis for training a cohort of future instructors of Ecohealth. Feedback was provided by these instructors both at the workshop and a few months afterwards, based on their experience of the manual up to that point. The revised and completed manual is being launched for wider dissemination in 2013.

Purpose and Scope of the Manual

This manual is intended to act as a starting point and guide for teachers and trainers to design and deliver courses in Ecohealth. It aims to bring together critical thinking from different regions and disciplines to build the field of Ecohealth.

The development of the manual has been an experimental and evolving project and has broken new ground, by attempting to bring together recent thinking in Ecohealth teaching to develop a stand-alone course in Ecohealth. It is not, however, the only resource available and other teachers, innovators, and researchers have developed a range of tools and courses related to Ecohealth and One Health in the region. It is hoped that users of this manual will refer to the range of other available resources to build their repertoire of instruction tools and approaches.

In light of its many possible applications, the manual has been structured to allow trainers different levels of engagement. At the most basic level, the courses allow participant learners to gain an awareness of Ecohealth as an emerging field; at a deeper level, trainers can encourage participants to process these ideas and apply them in their study and research; and finally, participants can be encouraged to develop Ecohealth frameworks for research using these ideas critically. More detail on using the manual is provided in the section “How to use this manual.” We emphasize that teaching Ecohealth in isolation
can only have a limited impact and, ideally, learners should have opportunities to practise what they have learned, to take risks, and to build their skills.

Given the breadth of the field, we could not possibly address all relevant topics and issues in this manual. The module topics were developed based on the perceived priority needs of the primary target audience and for Ecohealth field building in Southeast Asia. The recent publications Ecohealth Research in Practice: Innovative Applications of an Ecosystem Approach to Health (Charron 2012), and Ecohealth: A Primer (Waltner-Toews 2011) serve as companion texts to this manual and the ideas and definitions around Ecohealth cross-reference these texts. Manual authors recognize that other definitions and approaches to the field exist and it will be the role of the trainers to make informed judgements about their sources and epistemological positions, and how they relate to the pre-analytic vision and principles of Ecohealth.

**Manual Aims**

Each manual chapter, or module, addresses different issues and themes of Ecohealth and has specific aims and learning objectives. Overall, the aim of the manual is to provide the educational foundation and depth to allow future trainers to:

- Be able to design a course on Ecohealth for their particular target audience, and
- Know how best to use further resources for teaching and learning in Ecohealth.

**Trainer Competencies**

It is expected that trainers who use this manual to design courses in Ecohealth will have an understanding of, and commitment to, the fundamental vision and principles of Ecohealth. They would also have experience teaching or lecturing in their own subject areas.

To successfully deliver Ecohealth courses based on the modules proposed here, trainers need to have a common set of competencies about teaching Ecohealth. Competencies refer to the applied skills and knowledge that people require to successfully perform in their role. The competencies described here can refer to the collective attributes of a group of trainers if they are delivering an Ecohealth course together, or their individual attributes if they are instructing on their own.
## Trainer Competencies

To successfully teach the course outlined in this manual, a trainer (or collectively, the group of trainers) needs to be able to:

1. Explain the vision, concept, and principles of Ecohealth and why they are important for research and practice.
2. Design and facilitate the delivery of the Ecohealth course as a whole while engaging experts from other fields.
3. Model Ecohealth principles in their teaching in ways that reflect openness to new ideas and experiences, collegial and collaborative attitudes, and humility in the face of uncertainty.
4. Deliver *Module 2: Introduction to Ecohealth* and at least one other module.
5. Show a commitment to, and experience in, the application of learner-centred approaches and learning by doing.

## Participant/Learner Competencies

The attributes, skills, and knowledge expected of participants who complete a course based on this manual will vary depending on the depth and breadth covered by the trainer and their intentions in delivering the course.

<table>
<thead>
<tr>
<th>Learner Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is intended that at minimum all participants who complete an Ecohealth course based on these resources should achieve the following competencies:</td>
</tr>
<tr>
<td>1. Explain the concept and principles of Ecohealth and why they are important for his/her own area of work and to other areas of work.</td>
</tr>
<tr>
<td>2. Formulate problem statements that can be explored using an Ecohealth approach.</td>
</tr>
<tr>
<td>3. Determine where, and how, Ecohealth principles can be used to reconsider research and interventions already undertaken.</td>
</tr>
<tr>
<td>4. Apply Ecohealth principles to the analysis or planning of new research and interventions, including being able to identify the skill sets and knowledge bases needed to address specific questions.</td>
</tr>
<tr>
<td>More generally, participants may be able to:</td>
</tr>
<tr>
<td>- Have the capacity to reflect on the values and assumptions they bring to their research, as well as the assumptions underlying other research approaches.</td>
</tr>
<tr>
<td>- Understand the place of Ecohealth in the broader landscape of research and policy questions, as well as the relationship of research to policy and action.</td>
</tr>
</tbody>
</table>
• Be inspired by a shared vision of how Ecohealth can help make research more responsive and grounded to “real-world” problems
• Understand the strengths, limitations, and implications of different research methods, and when, and how, to mix those methods in the service of stronger transdisciplinarity
• Develop basic capacities to think in terms of systems, use systemic concepts to bridge disciplinary, organizational, and governance boundaries, and engage in inter-/trans-disciplinary collaboration for achieving health outcomes
• Develop a greater understanding of the socio-political, cultural, ethical, and historical dimensions and meanings of health
• Respect and learn to work with people from different perspectives and worldviews (including other disciplines)
• Be able to critically review the emerging literature on Ecohealth
• Improve their ability to work across disciplines and sectors, including the ability to develop conceptual frameworks and research questions that facilitate such collaboration.

Manual Users and Audience

This manual is intended as a resource for lecturers, teachers, and trainers who want to integrate Ecohealth principles into their teaching, or run courses specifically in Ecohealth.

Expected users of this manual include trainers who might be responsible for:
• Integrating lectures or classes about Ecohealth into another course program
• Designing and/or delivering stand-alone Ecohealth short courses
• Designing and/or delivering Ecohealth graduate courses.

This is a manual for trainers, providing guidance on learning and teaching principles, objectives, and activities on a number of topics of critical importance to Ecohealth. These topics, or modules, are divided into sections: much of the text is directed at trainers, providing background, objectives, and information about teaching the subject. In addition, specific sections are written as instructions for participant learners followed by handouts for participants. These can be modified and adapted according to trainers’ needs. Each trainer using this manual will be expected to adapt, add, and research these topics to provide suitable examples for their learners.

The terms trainer and teacher are used interchangeably, as are the terms learner and participant.
How to Use this Manual

The full course outlined in this manual can be used to design a comprehensive course on Ecohealth, to be adapted to local conditions and case studies. Alternatively, individual modules, or sections from different modules, can be used to design classes on Ecohealth or integrated into other courses. Please refer to the Creative Commons license agreement for dissemination of materials.

Based on the experience of authors and other Ecohealth teachers, we recommend that courses on Ecohealth are most successful when delivered by a team of teachers/trainers who, while perhaps differing in perspectives and experience, nevertheless share a common vision and are able to collaborate in the planning and design of the overall course, as well as being able to co-teach some of the classes. Co-teaching can be most effective when trainers have different and complementary backgrounds and approach Ecohealth teaching with critical thinking and open minds. Module 1: Approaches to Designing and Teaching Ecohealth Courses discusses some of this in more detail. The level of experience of the trainer, context, and other factors will determine to what extent the trainer uses interactive, learner-centred approaches to engage learners and encourage self-discovery, and to what extent more traditional, teacher-led classes are appropriate.

Much Ecohealth education uses problem-based learning, and field visits and case studies are an important part of this approach. It is valuable for any course in Ecohealth that runs for more than a few days to integrate a field visit to allow more practical learning and engagement with non-academic stakeholders. A field visit can also provide material for a cross-cutting case study that can be integrated across modules.
The manual consists of the following parts and modules:

**Part A: Introduction and Approaches to Ecohealth Training**

Introduction
1. Approaches to Designing and Teaching Ecohealth Courses

**Part B: Introduction to and Six Principles of Ecohealth**

2. Introduction to Ecohealth
3. Participation
5. Collaboration and Transdisciplinarity
6. Equity and Gender
7. Sustainability
8. Knowledge to action

**Part C: Two Application Modules**

9. Disease Ecology and Epidemiology
10. Agriculture and Health

*Module 1: Approaches to Designing and Teaching Ecohealth Courses*, differs from the other modules in that it is intended as a background reference for trainers and is not intended to be taught directly to participants. However, it does contain suggestions and examples of how activities in other modules can be designed, and trainers are encouraged to refer to it as they design and plan their courses.

Modules 2 to 10 are all topics that the trainer can teach directly to participants. The modules reflect different scales of transdisciplinarity and integration, as identified in the Preface. Modules 9 and 10, in particular, represent areas of investigation and practice in which Ecohealth has been applied in Asia.
## Module Outline

Each module is structured according to the following outline:

<table>
<thead>
<tr>
<th>Overview</th>
<th>Defines the topic, provides a summary of the aims and approach of the module and its relevance in an Ecohealth course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Map</td>
<td>Visual summary of the module learning objectives and activities.</td>
</tr>
<tr>
<td>Module Aims</td>
<td>Explains the scope of the module and what can be achieved in teaching it.</td>
</tr>
<tr>
<td>Why is this topic important?</td>
<td>Explains why this topic is part of the Ecohealth course.</td>
</tr>
<tr>
<td>Key Concepts</td>
<td>Provides themes for participants to reflect on during the course.</td>
</tr>
<tr>
<td>Guiding Questions</td>
<td>Provides questions for participants to explore during the course.</td>
</tr>
<tr>
<td>Basic Learning Objectives</td>
<td>Learning objectives for learners engaging with this topic for the first time or who come from different disciplinary backgrounds. These objectives are specific to each module and will reinforce the competencies learners should develop over a full course.</td>
</tr>
<tr>
<td>Advanced Learning Objectives</td>
<td>Learning objectives for learners with pre-existing experience in this topic who seek to reach a more advanced level of learning and ability.</td>
</tr>
<tr>
<td>Practical Notes</td>
<td>Provide preparatory information for the trainer to be able to effectively deliver the module.</td>
</tr>
<tr>
<td>Background Information</td>
<td>Provides information that may help the trainer understand the topic in more depth and become more familiar with relevant literature.</td>
</tr>
</tbody>
</table>
### Activities

The core of the module includes instructions for the trainer and handouts for learners. Activities should be linked to learning objectives. (Handouts, when required, are provided at the end of each module to allow for easy printing/photocopying.)

<table>
<thead>
<tr>
<th>Sample Timetable</th>
<th>Provides an outline of how the activities could fit together in a one day course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Suggestions for learner assessment and module evaluation.</td>
</tr>
<tr>
<td>Terminology</td>
<td>Glossary of terms used in the module.</td>
</tr>
<tr>
<td>Key References</td>
<td>Essential references for trainers and learners.</td>
</tr>
<tr>
<td>Additional References</td>
<td>References for further, in-depth engagement and references made throughout module.</td>
</tr>
</tbody>
</table>

### Companion Texts

The manual is designed to provide guidance to trainers, but cannot serve as a complete textbook on Ecohealth. Numerous books, articles, and free online resources are available to complement this resource.

Two Companion Texts have been chosen to complement the material in this manual. All trainers should be very familiar with these texts and they can be used as resources: as background on Ecohealth, its history, approach, and methods, and as a source of case studies. They are available free online and will be referred to often in the manual:


Duration of Course

The minimum time needed to teach each section is stated in each module. Overall, it is estimated that a minimum of five days is needed to cover the core essentials of the whole manual but this could be extended to a longer, more in-depth course and combined with other material. Each module can also be split into sections and could be taught over a series of classes.

Practical Notes

To deliver many of the activities described in this manual, particularly the ones that include small group work and interactive activities, the trainer will require the following:

- A training room that can accommodate 25 to 30 people and allow small group work, with chairs and tables easily moved
- An overhead projector
- Flipcharts, white paper, and marker pens
- Handouts of case study materials and presentations.

Guiding Questions

In addition to the Guiding Questions included in each module, the following questions provide advanced trainers and participants with cross-cutting questions to consider throughout the Ecohealth course:

1. What are the implications of defining health in different ways? For example, is health about doing good (if so, for whom?), or about empowering people, or about preventing disease? How can these questions be decided? Is there a fair way?

2. How can we manage the different agendas of scientists (who are looking for generalizable knowledge) and local communities (who want improvements in their lives)?

3. How do Ecohealth practitioners and scholars interact with people in positions of authority (government, financial) and differences in power and opinion? For example, what if a few people own all the land, or the factories, or run the government? What if women are not allowed to do certain kinds of work?

4. How can Ecohealth researchers negotiate situations where participation creates unrealistic expectations in the community? How can researchers determine who in a community is a legitimate representative?

5. What are the ethical implications of drawing systems boundaries in different ways? For example, if we draw a boundary around a community, how do we deal with people, resources, animals, etc. that come and go (migratory workers, animals, etc.) and their influences on the other places they dwell?
Assessment and Evaluation

Some suggestions for assessment are included in each module. Due to the varied nature of how trainers will deliver Ecohealth courses, there is no one prescribed set of evaluation tools. However, as with any course, evaluation can be helpful to assess participant learning and determine what further learning needs they may have. It would be especially interesting to track participant learning and recall over time, for example by assessing their learning and competencies during, immediately after, and sometime after the course.

A variety of evaluation instruments for teaching courses and projects have been, and are being, developed in different parts of the world. These include various combinations of such approaches as outcome mapping, quantitative and qualitative surveys, Most Significant Change techniques, and conventional examinations. Trainers using this manual can play an important role in developing standards and methods of evaluation.

Evaluation of the trainer and the course by learners is also recommended, to provide trainers with feedback on the structure, format, content, and delivery style of their teaching. Sharing feedback on participant preferences around Ecohealth course structure, format, content, and delivery style would also be valuable for the wider Ecohealth teaching community.

Acknowledgements and Authorship

This manual is a result of the collaborative efforts of a large number of people. The initiative was funded in large part by the International Development Research Centre (IDRC) through the Field Building Leadership Initiative.

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Craig Stephen DVM PhD, lead author and Iwan Willyanto DVM PhD, co-author, *Module 9: Disease Ecology and Epidemiology*.

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Thanks to the following Contributors who, in addition to the authors, provided their valuable time and insights to the manual development at the Manual Review Writeshop, 29-31 March 2011:


Thanks also to CoPEH-Canada for sharing their draft versions of the Ecosystem Approaches to Health Teaching Manual, 2011, during the preparation and writing phase of the FBLI manual. The CoPEH-Canada manual is the result of four years of collective teaching experience designing and facilitating and delivering a Short Course in Ecosystem Approaches to Health for graduate students and professionals, and was a collaborative project among core researchers, adjunct Ecohealth researchers from across Canada, and course alumni within CoPEH-Canada:


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**SUGGESTED CITATION**

**Entire manual:**


**Specific module:**
