

BOG
2004(03)27

**FINAL
EXTERNAL EVALUATION REPORT**

*Ecosystem Approaches to Human Health
Program Initiative*

November 2003

Rachel A. Nugent, Ph.D.
Fogarty International Center
U.S. National Institutes of Health

Roberto Briceno-Leon, P.D.
LACSO
Venezuela

TABLE OF CONTENTS

I.	Executive Summary	3
2.	Procedures for Evaluation of the EcoHealth Program	5
III.	Review of Performance in Reaching PI Objectives	
	A. Extent to which the program is meeting its objectives and aims	6
	B. Results of the Program	14
	C. Strengths and Weaknesses of Program's Approach and Strategies	34
	References and Documents Consulted	44
Appendix 1:	Description of In-Depth Case Studies Performed for the Evaluation	
	51	
Appendix 2:	List of Persons Interviewed	
	59	

Acknowledgements: Special thanks to the project researchers and stakeholders at the seven in-depth study sites for sharing their time and ideas with the evaluators, to the IDRC PI team for their openness and enthusiasm, and to the IDRC Evaluation Unit for their competent and helpful management of the process.

Rachel A. Nugent, PH.D., is Program Director of Health and Economics Programs at the Fogarty International Center of NIH. Dr. Nugent develops and manages research programs related to health and economic development, health environment and development, and career development, and training programs in population and health, media reporting of health, and nutrition. Dr. Nugent is co-chair of the recently-established NIH International Nutrition Subcommittee. Prior to joining NIH, Dr. Nugent served as an economist at the U.N. Food and Agriculture Organization, where she provided technical economic and policy recommendations to governments about agriculture and food security. Dr. Nugent was faculty member and chair of the Economics Department at Pacific Lutheran University in Tacoma, WA. Her research includes publications on decision analysis and environmental management, stakeholder participation in environmental management, costs and benefits of urban agriculture, and economics of transboundary animal diseases. She received her M.Phil. and Ph.D. degrees in economics from the George Washington University in Washington, DC, USA.

Roberto Briceño-León is a Professor at the Central University of Venezuela, and the Director of the Laboratorio de Ciencias Sociales (Social Science Laboratory – LACSO). He has been President of the Venezuelan Sociological Association, Director of the Latin American Sociological Association, and Global Secretary of the International Forum for Social Science and Health. He has participated in a variety of TDR-WHO Research Committees and he is currently a member of the TDR-WHO Social, Economic, and Behavioral Research Steering Committee; and WHO Expert Advisory Panel on Parasitic Diseases. He has served as an adviser to the International Organizations as PAHO, and served as external evaluator for World Bank AED-USAID, IADB, IDRC. He was a creator and director in Latin America of the World Health Organization's Small Grants Program for young researchers in social sciences and tropical disease. He has published 17 books and more than 100 articles and chapters in academic books.

I. EXECUTIVE SUMMARY

The Ecosystem Approaches to Human Health Program Initiative (PI) (hereafter EcoHealth) relies on the premise that human health is linked to the environment in which people live and improvements in both can be – and often must be – simultaneously achieved. The approach further identifies humans as a part of their own ecosystem and posits that successful interventions must take into account the symbiosis that exists across elements of the ecosystem. The need to develop an integrated understanding of human health within an ecosystem context is demonstrated by the many failed development efforts in which one sector may benefit at the expense of other sectors, or where one outcome is targeted without regard for the impacts on other outcomes. The purpose of the EcoHealth PI is to support research that demonstrates the achievement of sustainable human health gains through an improved understanding of ecosystem functions.

The EcoHealth PI has identified three types of ecosystems in which the research is carried out: agricultural, urbanized, and mining. The rationale for selecting these specific types of locales is that they are places where human and environmental health are simultaneously being degraded in a way that particularly disadvantages the poor and weak and inhibits development. As such, the EcoHealth PI fits very neatly within IDRC's mission by supporting research that informs and promotes the development process. In so doing, it also accomplishes the following specific objectives:

- Enhances the abilities of researchers in the south to address development needs
- Tests, promotes and disseminates the EcoHealth research methods of stakeholder participation, transdisciplinarity, and gender awareness
- Improves human health outcomes in developing countries

Overall, the Program appears to be meeting its objectives more than adequately. In particular, the Program has effectively spread understanding and adoption of the EcoHealth methods to a wide group of users. In so doing, it is developing and testing tools and methods for ecosystem management. The influence of the Program is demonstrated by the increasing numbers of adherents to the EcoHealth approach who are directly involved in testing it as well as a far larger number of people who are aware of EcoHealth and its uses.

It is expected that a program's accomplishments should be greater than the sum of the parts. This occurs because of synergies among the projects, economies of scale in administration, and efficiencies from having a critical mass of researchers with a common mission. As described, the EcoHealth program has met expectations and achieved its objectives. Beyond the project level accomplishments that are the focus of the PI's objectives, program-level accomplishments include the following.

- *Innovative research concept*

The EcoHealth Approach is widely recognized among researchers and development organizations working in health and environment. It is identified with IDRC and viewed as creative and effective. The concept of broad problem definition that includes both health and environment and a research approach that includes local communities is particularly well-suited to the needs of developing country populations who face multiple insults from environmental and health risks and must be involved in finding credible solutions. The concept also builds capacity among developing country researchers to engage in research of immediate relevance to their communities as well as with potentially significant scientific findings.

- *Networked researchers*

In the past three years of the EcoHealth PI, roughly 300 developing country researchers have been involved in research projects, more than 100 in applying for research funds, and at least 80 in a training experience.[□] These activities have created opportunities for researchers to develop collaborative teams within and outside their own institutions locally, as well as to form relationships with other researchers and trainees with similar interests globally. Long-term impact is expected from the local, regional, and international networks of researchers created through these activities and likely to be sustained through new efforts to develop a Community of Practice. These contacts and networks will enable EcoHealth researchers to expand their research impact and funding base.

- *Enhanced capacity for research at southern institutions*

In addition, more than 40 southern research institutions have benefited from their researchers' activities on these projects. Institutional benefits include the intangible ones such as a greater diversity of intellectual activity, inclusion in relevant networks, greater cohesion among their faculty, and improved relationships with nearby communities, and tangible benefits such as small amounts of infrastructure and overhead support and access to improved funding streams.

- *Transferable techniques for community participation in research*

The IDRC EcoHealth program is contributing to the development of new techniques and methods for community-based participatory research. These methods have not been widely tested in poor country settings and IDRC is establishing practices that can eventually be adopted by researchers and development agencies and NGOs .

Areas needing additional development include extending the reach of EcoHealth efforts beyond a familiar group of researchers, defining timelines and outcomes more precisely for project researchers, communicating evidence-based results to policy-makers, deepening and broadening the training opportunities about EcoHealth, and institutionalizing EcoHealth in some additional academic settings, particularly in the South.

¹ These numbers represent a lower bound as estimated from the project documents but exact numbers are not known by the evaluators. Figures reported in this document are generally for the 2000-2003 period of the current prospectus only.

Activities warranting reassessment include the approach to co funding partnerships that have not materialized and moving from research as the intervention to implementation of development activities with sustainability, success at which implies moving IDRC from center-stage to the background of some projects. It is recommended that the three thematic areas be abandoned as cross-project generalizations are not being derived from these categories.

II. PROCEDURES FOR EVALUATION OF THE ECOHEALTH PROGRAM

The general objective of the EcoHealth program is to improve human health through supporting trans-disciplinary research and applying knowledge resulting from interventions and formulation of policies. To ascertain the progress of the program, this external evaluation set out with three objectives in mind:

1. Assess the extent to which the program is meeting its objectives and aims, as set out in the prospectus, and identify any evolution in objectives.
2. Documents the results of the program.
3. Offer reflections on the strengths and weaknesses of the program's thematic approach and strategies in relation to the current state of the field in which the program is active.

The external evaluation is intended for the use of the IDRC Board of Directors, the EcoHealth PI team, and partners.

Methodology of Evaluation

The methodology used for the evaluation had a complex design with the use of different information gathering techniques. Information was obtained through bibliographic review of the documents received, through case study technique, through in-person and telephone interviews with relevant persons, and through an original survey distributed by internet to experts who have been involved with the EcoHealth program in various guises. To carry out the case studies, information gathering was done in English, French, Spanish and Portuguese. The questionnaires were translated and distributed in English, French and Spanish.

Seven Case Studies[□]

² For readers interested in specific descriptions of the in-depth case study projects, see Appendix 1: Case Study Descriptions

The evaluation team selected a broad range of projects underway since 2000 for the in-depth case studies to include in the EcoHealth PI evaluation. The purpose of this approach was to allow conclusions about key elements in the current prospectus, namely the focus on three thematic areas (agriculture, urbanization and mining) and the range of project types currently underway in the PI. The evaluation included projects in an advanced phase as well as newer projects that have been selected and managed under newer procedures. Thus, the seven case studies include two each in the thematic areas of mining, agriculture, and urbanization, as well as projects currently in phases one through three. Further, because the PI is geographically focused on Africa and Latin America, five of the seven projects reviewed in-depth are in those regions.

For each project the available written documents were reviewed, semi-structured interviews were conducted and the published results of studies were analyzed. In some case studies group interviews were conducted in order to obtain insights into the interaction between the researchers interviewed and the researchers and community members. People interviewed included: □

- IDRC project officer responsible for the project.
- Investigators: both the principal investigators and the associate investigators and auxiliary personnel.
- Stakeholders, including academic authorities from the universities, functionaries of the national or local governments related to the execution of the project or the application of its results, NGO and private sector participants.
- Beneficiaries: individuals who belong to the “community” where the project has been carried out and in some way have participated in them.

Distribution of Electronic Questionnaire

A questionnaire consisting of 22 close-ended questions with responses on a Likert scale was distributed to 285 current and former project researchers in order to gather quantitative information on the value and importance of components of the PI strategy. This also allowed the evaluators to reach a wider and more diverse group than those reachable through the case studies. The questionnaires were distributed by internet in three languages and an e-mail address was opened in yahoo and the code was provided to the interviewees to enable them to send their answers and comments anonymously. Fifty-five questionnaires were undeliverable and a total of 40 responses were obtained. As in all studies of this type, it is difficult to evaluate what a non-response means, therefore the conclusions drawn from the responses are only indicative and not expected to be unbiased.

Le Jeu Chinois

In order to elicit holistic impressions of the PI as distinct from their own projects, researchers were asked to play the “jeu chinois.” This consisted of a projective technique where the interviewee makes comparisons between the PI and an animal, a tree or flower, or a food, and in a metaphorical way expresses their view of the PI. This technique was not administered to all respondents and interviewees in the case studies.

³ Appendix 2 contains a list of all personnel interviewed in person or by phone for the evaluation.

III. PERFORMANCE OF ECOHEALTH PI IN MEETING ITS OBJECTIVES

Objective 1 Assess the extent to which the program is meeting its objectives and aims, as set out in its prospectus, and identify any evolution in objectives

1.1. Describe the Progress of the Program Towards Reaching its Objectives

The specific objectives of the EcoHealth PI are to:

- (i) Describe, develop, and test new and improved tools and methods for research on ecosystem approaches to human health that incorporate societal needs;
- (ii) Describe, develop, and test the ecosystem approach for assessing causal linkages between human health and the natural and anthropogenic environments;
- (iii) Building on the results of objective ii., support the development and testing of ecosystem management approaches to human health in the context of sustainable ecosystems, with a particular emphasis on the use of participatory methods;
- (iv) Disseminate the concept of improving human health through better ecosystem management that respects human development imperatives.

The EcoHealth PI operationalizes this set of objectives by supporting transdisciplinary research and encouraging its application through interventions and policies. According to the PI prospectus, “The focus is on developing and validating a research approach rather than on exploring a research issue.”⁴ Thus, the measure of success is not any particular project results, but the collective ability of the PI’s projects to affect how various communities (policymakers, researchers, citizens of developing countries, donors, etc.) view the relationship between ecosystems and human health. These views are influenced by the availability and usability of tools and methods, demonstration of causal linkages between human health and the environment, and results obtained from new ecosystem management approaches.

New tools and methods

The review of the case studies shows that there is not characteristically a novelty in the tools that the research projects use. What is novel is placing the tools of different disciplines together to attack the same problem from multiple angles and visions.

The projects do not have theoretical homogeneity, as their approaches are very different. Some are dominated by ecology, others by anthropology, others by the public health perspective, but all manage to be located within the approach of ecosystems for human health. What is common to the projects is the desire to work with a holistic and transdisciplinary perspective rather than a uniform way of doing so.

⁴ Prospectus, p. iv

This pluralism and diversity show the incipient theoretical development of the focus, the maturity that has been achieved in the PI so far, but at the same time the great potentiality of the proposal and its great heuristic value. Progress has occurred in learning how to convene and support transdisciplinary research teams, and different avenues for achieving community participation in research. Among the aspects to continue exploring is the sociology of transdisciplinary teams. EcoHealth projects are in a good position to shed light on this interesting question and share it with those methodologically in need of lessons learned.

Three-fourths of survey respondents agree that they have been able to develop new tools through the use of an ecohealth approach, and only one-fourth is not enthusiastic or disagrees with this idea (Chart 1).

Chart 1 Evaluation of the use of new tools (% of respondents)						
	Total agreement or very satisfied	Agreement or satisfied	Indifferent	Disagreement or dissatisfied	Total disagreement or total dissatisfaction	Did not respond
The ecosystems approach has allowed us to develop new tools for research	30	45	20	2.5	-	2.5

Assessing causal linkages

One of the most innovative aspects of the program is the effort to establish causal linkages between the different aspects of a reality that is normally divided by disciplinary practice. Among these linkages a privileged place is occupied by explanatory bridges or chains that are formulated between the natural environment and the social or well-established historical environment, between the forces of the determinants of nature and social forces. The progress in this category has been centered on improving community's understanding of causal linkages, rather than producing rigorous scientific evidence of new causal relationships. Communities that serve as sites and stakeholders in EcoHealth projects are learning a great deal about the environments they live in and effects on their health (see case studies in Appendix 1 for specific examples.)

Ecosystem management

The intention to be able to apply results to the definition of public policies or the transformations of the behavior of the actors has been an important concern of the program. This is one of the means by which the products of the investigations are connected with the final objective of the program which is to improve the health of the population. But this management proposal has taken different forms in each project. Clear progress has been achieved in some of the late-stage EcoHealth projects (Alternatives to DDT, Goa, Cuba,) while others still search for the appropriate public policy targets.

Dissemination

The EcoHealth program has many audiences and has been very active in disseminating the ideas and results of the program activities. The audience for EcoHealth ranges from

villagers at the project sites to international level policy-makers at global conferences. IDRC has a formal mechanism for dissemination of project results that is supposed to take place upon project completion. This is called “closing-the-loop” (CTL) and often takes the form of a final report or publication and plans for conveying what has been learned to various audiences. In addition, the program has used targeted publications, websites, and presentations. These are described in further detail in the section on outputs.

1.2 Identify any evolution in program objectives, and/or any adaptation that the program is making to changing context, opportunities and constraints

The EcoHealth PI is now seven years old (as of November 2003) and nearing the end of its second prospectus (it appears that the first was three years and the second four years in duration.) Preparations are underway for a third prospectus to be approved in 2004, pending IDRC Board of Directors consideration of this external evaluation report and inputs from other sources. EcoHealth is both a conceptual approach to development research as well as a research funding program. As with all new ideas and programs, it has experienced growing pains and evolved from its initial stages. It can now be said to be in a mature phase.

Maturity in the PI can be defined in several ways. For EcoHealth, it has the characteristic that there appears to be general agreement on the meaning of the EcoHealth Approach among the PI team members, existing and potential institutional partners, and most practitioners. This agreement has led to refinement of the practice of the EcoHealth approach since its early visionaries conceived it in the mid-1990s, prior to adoption of the first prospectus. Maturity is also indicated by a more experienced PI team that is able to weather personnel shifts without dramatic loss of expertise and direction. This has not always been the case for this Program. Another indicator is that it is now possible to cite lessons learned from EcoHealth projects and attempt to make some generalizations across projects. And finally, the PI’s maturity is demonstrated by the existence of a “Community of Practice”⁵ of researchers with experience and/or commitment to the EcoHealth approach. For practical purposes, what this evidence of a mature program means is that EcoHealth is poised to set new sights for itself and focus on what it does best.

The path to this stage has been bumpy for EcoHealth and a brief glance at the history is instructive for understanding the current situation. A lack of clarity about the meaning of the EcoHealth approach slowed its effectiveness in the early years. The EcoHealth PI derived from the remnants of IDRC’s Health Sciences Division portions of which were merged into IDRC’s Natural Resource Management (NRM) Division in 1996. The logic of this merger was that the health projects focused on environmental health and were worth preserving. The attempt was made to convert these environmental health projects into EcoHealth initially by introducing participatory methods. In some cases this was successful and in some cases not, but the experience of transforming some projects and discarding others helped immensely in solidifying the essence of EcoHealth even as it sowed

⁵ First gathered at the EcoHealth Forum, May 20-24, 2003 Montreal Canada. See report “Global Community of Practice, Report on the Design Phase,” April 2003, Kathleen Flynn-Dapiaah, IDRC, Ottawa.

confusion for some people internal and external to the PI.⁶ One project researcher who has been involved with EcoHealth almost since its initial stage said, “The PI team did not define their terms with clarity at the outset. They used health and well-being interchangeably and couldn’t explain what they meant by ecosystem.”⁷

Through the first EcoHealth prospectus and into the implementation of the second, significant questions arose about whether an EcoHealth approach gave primacy to environmental or health interventions or neither, whether each of the three methodological components was necessary for a project to be EcoHealth, and whether other features could qualify.⁸ During the period of the current prospectus, this definitional confusion has diminished substantially and the ambiguity it created has mostly disappeared. The ambiguity led to delays in project starts and may have contributed to extensions of projects that were not prepared to achieve necessary objectives.⁹

Both among the PI staff and project researchers there is reasonable accord on what constitutes an EcoHealth project, and about when new projects are ready to be launched as EcoHealth projects. What is required are the domains of stakeholder participation, transdisciplinarity, and attention to the under-recognized groups in society (often a gender issue but not necessarily.) These essential aspects were echoed confidently by all project researchers with whom the reviewers spoke. More importantly, IDRC PI team members are able to verbalize the necessary elements of an EcoHealth project. This agreement among research practitioners and PI program officers is critical to be able to achieve the reach of impact that the PI aspires to and that IDRC expects. The definitional consensus has certainly been hastened by the synthesis outputs that have emerged from the PI during the past two years.¹⁰

During the process of establishing its home within IDRC, the program has maintained its perspective centered on how changes in the ecosystem affect human health, but broadened its search for solutions to include non-health interventions.¹¹ This change has allowed it to develop a unique perspective and strategy within the abundant investigation in health that is performed in the world. This change in emphasis is a thoughtful and strategic response to the increased attention on health problems of the developing world, and growing awareness of the need to solve problems more holistically.¹²

⁶ IDRC PCR for Project 003157 written in 2001 states “The EcoHealth paradigm has been evolving over a four-year period, and projects established at the beginning may not be considered optimal now.”

⁷ Personal interview with project researcher, August 2003.

⁸ Note that almost all of the PI team members and many of the project researchers interviewed identified these issues as past or current obstacles in achieving the objectives of the EcoHealth approach.

⁹ Out of approximately 70 projects in the current and past PI, a significant number experienced delayed starts and/or extensions of completion deadlines. In many cases this appears to be due to issues over whether the EcoHealth approach was being achieved in design or practice.

¹⁰ E.g. Lebel, J., 2003, Ecosystem Approaches to Human Health; presentations at the Forum on Ecosystem Approaches to Human Health, May 21-24, Montreal; Policy Briefs of EcoHealth projects, April 2003.

¹¹ See Program Prospectus, 2000-2004, p. 4

¹² For example, there has been an increase in professional societies, academic programs and journals devoted to health and environmental issues. E.g. Harvard Medical School’s Quarterly Review of Health and Environment published since 2000 and a new academic program, Journal of Ecosystem Health in its 7th year,

1.3 Comment on how the program is undertaking any action that is proposed in its prospectus to take as a result of comments made in the previous external review

The prospectus identifies four primary lessons learned from the previous phase of the PI that were to be addressed during the current phase: achieving transdisciplinarity in methods; investing significantly in pre-project planning; working towards acceptance of the approach within the scientific community; and improving access to external funds.[□] Substantial progress has been made toward three of these goals, with some progress made on the fourth. In addition, the previous external evaluation emphasized the need to increase the focus on communities, to continue working with CGIAR centers and to take advantage of the focus on the three thematic areas.[□]

One of the signature achievements of the EcoHealth Program has been to demonstrate that transdisciplinary methods can be used by researchers with little or no prior experience in such research methods, and that use of such methods can be transformative to the researchers. It was suggested during the Montreal EcoHealth Forum in May 2003 to further examine the process of transdisciplinary research.[□]

Pre-project planning and capacity-building of research teams have been enhanced through both the Regional Fund use of training workshops and other training opportunities that have been instituted by the PI. Investments in the pre-project planning have increased substantially but at a cost in project delays and staff time. An aspect that was criticized by several interviewees was the slowness of the process for review and approval of the proposals, which can take more than a year.[□] These investigators believe moreover that they are not clear about the criteria used to approve or reject the proposals. This can be explained by the newness of the approach, which makes it difficult for researchers to understand at the beginning what is involved and also by the time that the research teams require for the process to include the other components, other disciplines or involve the different social actors. It can be interpreted that this wait has a “pedagogical” intention to prepare the teams for the use of the new focus, but even so, some believed that the process is tedious and that a more direct manner could be sought to make the conditions explicitly known in regard to which a project can be approved, and the times necessary to obtain a positive or negative response. Clarifying desired outcomes will also help increase scientific acceptance.

The PI must find the right balance of time invested by staff and meeting the needs of researchers new to the Approach. On the whole, researchers cite the workshops as

a health and environment programs at University of California-Berkeley, and an incipient initiative on health and environment from CIHR.

¹³ Program Prospectus 2000-2004, p. 23

¹⁴ Nielsen, Ole and Jean-Pierre Reveret, no date, “IDRC External Review of the PI Ecosystem Approaches to Human Health,” Ottawa.

¹⁵ Carlos Dora, WHO, at EcoHealth Forum, May 2003.

¹⁶ Some examples of projects that incurred long delays include Ethiopian Highlands, Manganese in Mexico, Malawi Soil and Nutrition, and Settati, Morocco.

extremely valuable and often call for additional training time. Perhaps additional formalized training instead of repeated interactions with the project officer to gain project approval would be an efficient way to achieve the objective.

The PI team has also responded very actively to the need to gain scientific acceptance of the methods of EcoHealth by participating in professional conferences and publishing articles in scientific journals. As mentioned above, the awareness of Ecohealth within scientific organizations is high. □

An area of challenge for the PI has been in attracting external funds. There have been notable successes (partnerships with Ford Foundation, UN Foundation, and CIDA,) however, the goal indicated by several project documents have not been fully met (Regional Fund was intended to raise \$1.5 million, Forum was intended to raise \$1.3 million in co funding.) External fund-raising is an area that was recognized in the Program Prospectus as involving heavy demands on staff time with potentially limited returns, given the other tasks put before the team. This view was probably correct and appropriate during the present prospectus, but likely needs to be adjusted for the new demands of the next program phase. Other resource expansion plans do not appear to have materialized. □

The prior evaluation urged continual collaboration with the CGIAR system centers and continued emphasis on the three themes. The PI did not embrace these suggestions during this phase. The prior evaluation also suggested greater use of the techniques of Geographical Information Systems (GIS) and attention to scale issues and this was applied in a limited manner during the current PI. The still limited use of GIS is explained in part by the emphasis on human health, which oriented the methods used in projects toward epidemiological surveillance rather than ecological surveillance, even in the projects dedicated to agriculture. The opinions on whether this approach is appropriate are divided. The consensus has been reached on the centrality of human health in the Program, but consider that “medicalization” of the approach must be avoided while others believe that human health must be given preference because the interests of the program must be oriented by this. □

1.4. Document how the program is undertaking and using evaluation in its work

The Program has availed itself well of both project and program-level evaluations in the past three years. It has actively sought input from evaluators through consultant reports and intensive workshops and discussions with these evaluators. The program-level efforts have included evaluations of both the concept and process undertaken by the PI and by project researchers. In particular, the PI has solicited studies on how well transdisciplinarity and community participation are being implemented within the Program (Bopp), the

¹⁷ An illustrative example is that a recent meeting of the Environmental Health Sciences Roundtable of the U.S. Institute of Medicine in Washington, DC, the IDRC EcoHealth program was mentioned favorably by three different participants.

¹⁸ EcoHealth Workplan, 2002-03, page 6.

¹⁹ Personal interviews with current and former PI staff, May-August, 2003.

effectiveness of interventions and impacts of the program (Bopp), and on the usefulness of concepts such as the urban dimension of the program (Lepage). It has also actively used evaluations as capacity-building tools on specific projects (Bopp.) The PI team has used these evaluation reports to motivate serious introspection and adaptation throughout its recent history.

Project researchers have benefited from evaluation at both program and project levels. They are comfortable with IDRC's insistence on the central role of evaluation and indicate eagerness to learn from it.

In 2000-01, Dr. Michael Bopp performed an evaluation of two fundamental aspects (transdisciplinarity and participation) of the EcoHealth program with in-depth reviews of six projects that included site visits. Among his key conclusions were that a great deal of learning was occurring during the process of developing EcoHealth projects, both on the part of research teams and the EcoHealth PI team. Based on this observation, Dr. Bopp concluded that IDRC is an intellectual partner to the funded projects and should provide support for their development beyond simply the funding. [□] ***The PI response to this recommendation has been to institute proposal development and capacity building workshops and these have been conducted in numerous countries.***

Dr. Bopp made recommendations in the evaluation report concerning how to achieve transdisciplinary approaches through leadership and team building, training of project participants, and sustainability of funding. Some of his recommendations in this area have been rapidly incorporated into program operations. [□] ***Specifically, enhancement of pre-project preparation including problem definition has been stressed by the PI team, regional and global conferences have been used to showcase outcomes, extend reach, and build capacity. Several of the recommendations have not been implemented yet, including establishment of a "research sustainability fund" and additional training in mentoring and leadership.***

Further, Dr. Bopp provided recommendations to the PI team regarding the participatory approach used in the EcoHealth methodology. He focuses these recommendations on skill-building in participatory methods for both the EcoHealth PI team and for project personnel and partners. [□] ***The current evaluators are not aware that these recommendations have been pursued to date by the PI team. Dr. Bopp provided some additional insights into the use of gender analysis in the EcoHealth projects he visited and he made some recommendations in relation to this. The EcoHealth PI team picked up on the issue and held a training session for program officials on gender both within the team and in EcoHealth programming.***

²⁰ Bopp, 2001.

²¹ A specific example is the research project in Mwea, Kenya which was evaluated in 2001 and 2002. In the early stage the project was not working in a transdisciplinary manner. Dr. Bopp's visit included training and advice to the project which successfully addressed the problems and functioned very well subsequently in a transdisciplinary way. See project PCR 21/03/03, and personal interviews, September 2003.

²² Ibid, p. 100

A key recommendation from Dr. Bopp's evaluation was to create a system for EcoHealth projects to learn from each other, and he goes on to suggest specific ways to create that system. The present evaluation would emphasize the potential benefits of such a system, recognizing that many of the activities carried out by the EcoHealth PI do make headway toward that goal (especially the 2003 Forum, the Policy Briefs publications and In Focus monograph,) but more interaction among EcoHealth practitioners is needed.

Dr. Bopp also prepared an evaluation report on EcoHealth's interventions and impacts in 2002. [□] ***He closely evaluated three EcoHealth projects in order to draw conclusions that may apply to the program's effectiveness in carrying out interventions and its impacts. Dr. Bopp defined interventions and impacts as the process of implementing solutions and making change, respectively, in the socio-ecological context that exists where the research is taking place. His recommendations are focused on the challenges of achieving development changes within a research project and are aimed largely at the PI team and their practices.***

Dr. Bopp urged an improved understanding of what impacts can be expected in development research – through a review of literature and practices, discussion with other funders, and greater engagement of other development-oriented organizations in the project locales. He suggests that these and some other efforts will allow the EcoHealth program to move beyond intervention testing to implementation of development strategies. He observed that the existing institutions, apart from the researchers' institutions, do not have strong capabilities in sustaining development activities and that the EcoHealth program should attempt to build that capacity as a means to ensuring longevity of the strategies developed.

Most of these recommendations are not of the sort to be adopted overnight. They require deep consideration of the program's emphasis, and may require a reorientation of the PI's staff time. The main message of the 2002 evaluation was to urge the EcoHealth team to make the transition from the current stage of conceptual development and research team-building through project-driven testing of interventions to an international network of EcoHealth practitioners (researchers, communities, policy-makers) sharing knowledge of what works and transferring that knowledge to improve human health and environment more broadly.

A separate evaluation report by Dr. Michael Bopp was carried out regarding the relationship between EcoHealth and the Consultative Group on International Agricultural Research (CGIAR) system. This report was not made available to the external evaluation team. The EcoHealth team has discussed its relationship with the CGIAR system, and a number of EcoHealth projects have in the past and still involve CGIAR institutions in beneficial ways (IWMI, ISNAR, CIP, ILRI and others.) There seems to remain some conflict within the PI team about how much to encourage involvement of CG centers in

²³ Bopp, M., 2002, Interventions and Impacts: an EcoHealth Evaluation, IDRC, Ottawa.

EcoHealth projects. [□] *This situation has been recognized and clearly acknowledged by the Ecohealth PI team during their 2003 retreat.* [□]

Dr. Laurent Lepage was commissioned by the PI to conduct an evaluation of the urbanization theme of the PI, including two project visits and analysis of the program's approach. Dr. LePage's evaluation was on-going when the external evaluation began and the evaluators have not been provided with a copy of his report if it has been completed.

Objective 2 Document results of the program (i.e. outputs, reach and outcomes)

2.1 Review the program's outputs to date (reports and publications, websites, electronics list produced, conferences, workshops and their proceedings) and comment on their type and quality

The program prospectus lists the specific outputs planned by the PI during the current phase (in Prospectus Annex D.) Table 1 summarizes the program-level outputs with comments on quality of the outputs. The Program has gone through a maturing during the current Prospectus. Substantial tangible outputs have emerged from the program during the past three years, along with improvements in the manner of doing some activities. Beyond the expected outcomes from more advanced projects, the program itself has produced outputs with international scope.

Table 1: EcoHealth Program-Level Outputs

Reports& Pubs	Comment on Quality of Contribution
In Focus monograph on Health: An Ecosystem Approach, Lebel, 2003	A good synthesis of what has been accomplished Reviewed 10/31 in WHO Bulletin, generally favorable review
Scientific papers in refereed journals	India (2+), Kenya (1), WaterTox (2), Mexico City (4), Manganese (1), Dengue (6 pubs), Mercury (19), Peru (3) general (several)
Presentations at professional societies	Kenya (2), Dengue (8), other specifics unknown
In Action series of popular publications to raise visibility of approach	12 policy briefs
ILEIA Supp on EcoHealth, 2002	Based on consultation with UNEP and IDRC at Hull Conference in 1999
Forum publication	Anticipated
Projects, Case Studies and Research Teams	
Projects and case studies using EcoHealth methods	37 research projects and 30 RSP since 2000
Transdisciplinary research teams involving over 300 developing country researchers and 41 institutions	
Training Awards	5 years, 32 Canadian and developing country junior researchers
Conferences	
Ecosystem Approach to Human Health International Forum, May 2003	>300 participants, 35% from developing countries, broad scope of backgrounds, broad agreement on conceptualization
Participation in World Summit on Sustainable Development, South Africa, September 2002	Top quality exhibit with strong interest, 40,000 attendees to Summit Presentation at WHO-sponsored Symposium on Health and SD
Participation in ISEH Conferences, 1999, 2000, 2002	Support student participation
Participation in HEMMAF, HEMA	Fund 4 researchers, O'Neil speech, High-level policy awareness created
International Women's Health meeting	Supported 3 researchers
Indopacific Ecosystem Health conference	Supported 1 researcher
Global Health Council conference, 2003	Supported researchers presentations
Electronic conferences on CoP in 3 languages	
Websites and Media Coverage	
Forum website	

²⁴ Interviews with PI team members, May 2003.

²⁵ Ecohealth PI Retreat Minutes, February 17-21, 2003

Coverage of the Forum, Biodome connection	
Le Devoir coverage	
Project websites	CARUSO
Workshops	
INSP Summer Workshop on EcoHealth, 2002, 2003	26 students each
ME/NA Regional Training Workshop on EcoHealth, November 2000	Invited 3 person-teams from selected institutions in region Introduction to EcoHealth and preparation for proposal submission Small grants provided Good capacity-building but mixed results on success rate and institutional selection
W.Africa Regional Training Workshop on EcoHealth, November 2000	Invited 3 person-teams from selected institutions in region Introduction to EcoHealth and preparation for proposal submission Small grants provided Good capacity-building but mixed results on success rate and institutional selection
SIMA East Africa Regional Training Workshop on EcoHealth, April 2001	Extraordinary institutional capacity-building through support for African-based research funding mechanism
Health Benefits and Risks in Urban Agriculture in SSA, 2003	
Canadian Roundtable meeting	High-level Canadian academics provided input to EcoHealth Programme Important liaison activity
EcoHealth Awards workshop	6 students annually, total 32, most from Canadian institutions Different themes: Ecosystems, gender, local knowledge, health
Misc. project development and cap-bldg workshops	Numerous (Mexican lakes, manganese, dengue, Honduras, dissemination on Aquatox, CIAT in Amazon, Nigeria, RENEWAL, AUB, etc.)

Sources: EcoHealth Project Portfolio Since 2000, Case Studies, Interviews

Note: Data on numbers and topics of workshops, conference presentations and publications are likely to be incomplete. Information was assembled from multiple sources.

Important outputs for audiences of EcoHealth, such as the public, press, and policymakers, have been undertaken by the PI. These include participation in conferences, publications designed for a general audience, and electronic conferences. In particular the PI has been timely and opportunistic in its use of conferences on topics related to EcoHealth, such as the World Summit on Sustainable Development in 2002, and regional conferences in Africa and the Americas on health and environment. The PI leadership has used these venues to elevate awareness of EcoHealth to the highest levels of governments, and has demonstrated its usefulness in the policy discussions on environment and health linkages.

Several of the intended outputs have not yet been demonstrated. One output to assist in objective three is “a series of testable natural resource management interventions to improve human health.” Achievement of this output is only partially demonstrated through a handful of EcoHealth projects that have reached fruition. Most EcoHealth projects have not yet produced replicable and generalizable interventions, although this is due in part to needing additional time rather than weakness in the approach. The Prospectus clearly indicated the intention to have faster progress in this area than has been realized.

Another output not yet fully realized is the generation of co- and parallel funding from partners. This output was intended to support the accomplishment of objective four. The topic of external funding was mentioned above and has been partially fulfilled but not to the level originally hoped-for. A Master Action Plan for resource expansion is the tool needed to stimulate the additional funding but this activity has not been carried out. □

²⁶ This conclusion based on information available to the evaluators up to November, 2003.

2.2 Describe the program's outcomes, reach, strategies and constraints

2.2.0 Overview

In general, the model of Ecosystem Approaches to Human Health is being realized through the interpretation, adoption, testing and dissemination of tools and methods in a process of interaction between the investigators and the program staff.

Research projects are the bread and butter of the EcoHealth PI activities. They come in essentially two sizes as dictated by IDRC procedures: research projects and research support projects. The latter consist of a variety of small activities intended to augment the development or implementation of one or more projects. During the current prospectus, the PI has carried out approximately 37 research projects and 30 research support projects.[□] Research projects do not have a specified duration nor budget but typically are carried out in phases of 2-4 years duration at an average cost of \$330,000 per year.

Research projects have relatively short initial duration in view of the demands of participatory and transdisciplinary research; however, projects deemed to be successful are encouraged by IDRC program officers to apply for renewal into additional phases. Thus, as currently administered, an EcoHealth project could last 9-10 years although none has reached that stage yet due to the relative youth of the program.

Achievements at the project level are more variable than program-level achievements. This variation is related in part to the age of a project, but there are other factors that merit attention by the PI team. Based on comparisons with other environmental health development and research projects, EcoHealth projects are slow to show results (as measured either by changes in behavior or by scientific output.)[□] There is no consistent record of whether standard timelines are being met by EcoHealth projects, but the sample examined by the evaluators suggests that timelines established by the EcoHealth program officers are not always met.

The reasons for Ecohealth projects to take longer to show results are somewhat unavoidable, given the requirements of the approach. The demands of an EcoHealth project are substantially beyond the norm in complexity (transdisciplinary and participatory approaches being unusually challenging); the IDRC project approval process is highly interactive and therefore slow; and the sites of EcoHealth projects often do not have a longstanding research or development assistance infrastructure in place. While recognizing the capacity-building value of strong interaction between the PI team and the project researchers, the evaluators suggest that the PI team explore whether some time can be saved

²⁷ Numbers are approximate as the project printout provided to the evaluators includes only officially designated and numbered projects. Figures include all projects with activities conducted during the 2001-2003 period.

²⁸ Interviews with other funders suggest that tangible behavioral change within a community could be expected within 1 year of funding a project, while changes in health outcomes would take 3-5 years. Phone and personal interviews with funders and managers of interdisciplinary development projects at USAID, U.N. FAO, ISNAR, and interdisciplinary research projects at NIH, July-September, 2003.

in the project application and approval process. A possible cost of delay in achieving results is participant fatigue from both community and researchers.

In addition, evaluators observed a flattening of the project impact curve after 3-4 years of project funding. The reasons for this diminishing impact need to be examined on a project-specific basis but may be related to insufficient funds to scale up, lack of a hypothesis-testing approach that would lead to proven effective interventions, or insufficient expertise or methodology to guide projects through advanced stages.

2.2.1 Dissemination and Utilization

This section provides an overview of the types of dissemination and CTL activities carried out by the EcoHealth program under the current prospectus, and comments on their effectiveness. For expositional purposes, these activities are categorized by audience. The program prospectus identifies the groups that should be reached by the program as community members living in the ecosystems under study, the scientists carrying out studies as well as those interested in the subjects of human health and natural resources, international development agencies and other planners and policymakers, NGOs, the media, and the general public. □

Each of these target groups has been affected in different ways by the EcoHealth program. ***Targets for the PI's outputs can be divided into users who are involved in or could become involved in EcoHealth activities (these users are researchers, local communities, and IDRC and its partners) and those who might be influenced by the results of EcoHealth in various ways (the public, the media, policymakers.) There has been a good balance between the outputs aimed at these two sets of users as EcoHealth's success depends on being well accepted by both.***

Project Stakeholders

EcoHealth projects are participatory by definition and usually involve a wide spectrum of stakeholders. These groups include the population whose health and environment are at risk and other local actors whose decisions affect the population. Projects are designed to include these stakeholders in each step of the process. In addition, it appears that most projects have a final stage where they tell the stakeholders, usually verbally through a workshop or community meeting, what the conclusions and next stages of the project are. In this manner, stakeholders are prepared to move forward on their own or in a next phase with all the knowledge gathered during a project.

Press

²⁹ Program prospectus, pp. 36-39.

The program during the period of time evaluated has made an important effort to disseminate results through the press, radio and the publication of brochures. This aspect is very important because it has produced greater visibility. The publication of brochures with the case studies in three languages (English, French and Spanish) allows disseminating the work performed in a simple but very important manner, because it helps the program and satisfies the investigators themselves, who see their work taken into account and promoted.

Regional and National Decision-Makers

Some of the Ecohealth projects have forged close ties with policy-makers at regional and national levels (e.g. in Goa there is an interest in applying the methods beyond the current project site, in Lebanon the project has directly influenced national fuel and agriculture policies)³⁰ EcoHealth researchers and PI team members have had high visibility at a number of more public forums (see list of program activities, Table 1.)

International Decision-Makers

Participation in high-profile public forums and conferences has brought the EcoHealth program to the attention of a wide range of international and national policy-makers and decision-makers. The program was represented at the World Summit on Sustainable Development in 2002 in Johannesburg, at the Global Health Council meetings in 2003 in Washington, and at several annual meetings of the International Society for Ecosystem Health. Materials such as the Policy Briefs series and the In Focus monograph on Health: An Ecosystem Approach have further expanded knowledge of the program into policy-making and NGO communities.

Research Community

The primary means of dissemination to the research community are conferences and scientific publications. Other means include asking researchers to be peer reviewers of EcoHealth proposals and serving as peer reviewers for other programs, making seminar presentations academic settings, and enlisting researchers as advisors on projects and consultants for the program. These latter activities serve both as dissemination of EcoHealth practice and results to the wider research community, as well as tools of evaluation and capacity-strengthening. If used well, these activities will eventually increase the integration of EcoHealth methods and parallel scientific methods for addressing health-environment interactions.

The program has participated in well-targeted professional scientific conferences across the world to promote the program, its projects and the researchers who execute them in an appropriate manner. A major event was the IDRC-sponsored Forum of Montreal, which managed on one part to join together the scientific community that has been participating in the activities of the program, and on the other demonstrate to policy-makers and others in the research world the advances achieved in the use of the ecosystems approach for human health. The quality of the event and of the participants permitted seeing the diversity of

³⁰ Personal interview with Dr. Ligia Noronha, August 2003. Testimony of Dr. Rami Zurayk, AUB, Forum, May 2003.

approximations that this focus gives rise to and it served as an important base to produce advances in its theoretical definition.

The case studies present an unequal level of scientific publications. Table 1 lists scientific papers and presentations from current EcoHealth projects.³¹ Publications have been both on specific disciplinary topics and on transdisciplinary application. In some projects, such as the one on Mercury in Brazil, an important number of publications in high-quality journals has been produced. The majority are in English or French, very few in Portuguese or written by Brazilians. The project on contamination in the city of Mexico published an institutional book with the results, and has two articles in print and two pending. The project on manganese is only now concluding and still has no publications, the project of Kathmandu has a few, primarily with Canadian authorship but that are not specifically related to the project and do not acknowledge the support of IDRC. The projects in Goa and Mwea have a modest number of peer-reviewed publications, whereas it is too early for the project in Morocco to demonstrate publications.

It would appear that there is a lack of effort to demand and support the publication of the results in journals of international quality and this can be explained by some dilemmas and tensions that occur in the program.

In the first place, there is a tension between the applicability or practical relevance of the research topic and its novel or “frontier” research nature in the scientific domain that is attractive to specialized journals. This does not involve the quality or capacity of the investigators, but rather the way to outline the research topic. Many matters and topics require a holistic and transdisciplinary vision of a problem so that the results can be of utility for public policies, but this approach is not necessarily the most attractive for the journals, although it is very important for its practical effects.

Another tension is due to the presence of senior investigators in the project and the policy of promoting the human resources of the country. The presence in the mercury project of investigators with broad experience, and moreover connected with Canadian universities, facilitated the publication of results in international journals. But, in other cases, there are no notable figures in the investigation, and the pedagogical labor of the project requires building capacity of investigators, but that takes time and meanwhile very little is published in spite of having good material.

Another interpretation is the manner of organizing support to projects, because the team reaches the end of the project in a state of fatigue, devotes itself to presenting the final report, but later does not conclude the effort converting the results into publishable articles.³² The real dynamics of the investigators of developing countries leads them, once they have concluded the project, to having to seek another project, because they do not have available time or resources to dedicate themselves to the final phase of publications. Something different occurs with the investigators from developed countries who have

³¹ Incomplete list assembled from documents provided to evaluators.

³² Most EcoHealth projects included in the external evaluation fit this description.

guaranteed resources and can devote themselves to writing in a less anxiety-producing manner.

The net result of these many forms of dissemination undertaken by EcoHealth is to reach a wide array of interested parties with the concept and results of EcoHealth research. These approaches have been creative and the materials generated have received wide distribution, although the external evaluation team is not aware of the numbers of copies of each publication that have been distributed.

There could be some opportunities for additional dissemination of the EcoHealth approach to some appropriate audiences. The institutions within which EcoHealth researchers are based are aware of the approach to a varying degree. It is clear that not all the institutions understand what the approach is about, or why they might wish to incorporate it more broadly in their operations. One example is in the training arena. EcoHealth’s training efforts are focused largely on individuals with the exception of the INSP training workshop which is institution-based (see above.) Opportunities exist to bring the EcoHealth approach into the curriculum of some of the institutions where EcoHealth researchers are already based. This would require effort devoted to curriculum development and a rationale for university programs to accept it. This topic is discussed more fully in the section on institutional integration.

The survey respondents had a positive view of the program’s achievement at disseminating its results, although the majority (60%) were only moderately enthusiastic. (Chart 2).

Chart 2 Evaluation of Dissemination of the results (% of respondents)						
	Total agreement	Agreement	Indifferent	Disagreement	Total disagreement	Did not respond
The program has fully disseminated the results of the investigations	17.5	60	10	10	-	2.5

2.2.2 Building and Strengthening Capacities

The program has had an important impact on the scientific community working in the fields of health, social sciences and environment. It has effectively built capacity to carry out transdisciplinary team projects and to conduct research in a community setting, especially among researchers in the south. This impact has not only been in terms of direct support for research projects, but also support for the development of an innovative theoretical-methodological approach to problem-solving that has obligated investigators to re-think their research topics, methods, and expected outcomes and formulate them into a distinct perspective.

One key way in which EcoHealth has impacted the actions and behaviors of the scientific community is to obligate them to be more aware of the application of the results of their research. This awareness is generally manifested as a process whereby investigators move through stages of confusion and resistance at the beginning, but then recognize the community impact and experience satisfaction with the possibility of seeing the products of their work used. The expression employed on different occasions was “only with the ecosystems approach can the research results be applied”.³³ This process also refers in an important manner to the inclusion of the social dimension, above all to the inclusion of the different social actors involved in the problem and that could have different and at times even contradictory interests.

Ecohealth builds capacity through workshops in conjunction with an Ecohealth project or funding competition, and a variety of topical workshops. These include the Regional Fund workshops. These workshops, usually involving EcoHealth practitioners as teachers and often lasting about one week, have successfully conveyed the objectives and methods of the

³³ Personal interviews with more than 50 EcoHealth project researchers, May-September, 2003.

EcoHealth approach and served to build capacity to carry out the approach. They also provide an opportunity for networking among Ecohealth practitioners or would-be practitioners. This activity is necessary for EcoHealth to improve understanding of the program, especially among future grantees, but is not sufficient to enable newcomers to the approach to carry out a project. [□] ***Most of the comments about the workshops from all types of participants expressed the need for the learning that takes place, but also indicated that the workshop allowed insufficient time for the material to be fully understood. Some reinforcement and extension of the methodological demands would be useful at different stages in the life of projects.***

Similar outputs are the EcoHealth training awards workshop for students and the Mexico-based INSP workshop on Ecohealth.

EcoHealth Training Award

The Award began in 1997 as a joint effort with CIDA and is currently in its sixth year. Thirty-two graduate students have been recipients the bulk of whom are from developing countries and about one-fifth Canadians. Most are attending Canadian universities for masters and Ph.D. degrees. The Award provides one-year of research support to carry out research using an EcoHealth approach. Main outputs are a required paper submission to a peer-reviewed publication and a completion report to IDRC. Applications for the Award have focused on an important theme or tool important to the conduct of EcoHealth research, such as gender analysis, tools for health assessment, etc. This theme changes each year.

The Awardees take part in a week long workshop on EcoHealth approaches in Ottawa, similar to that provided to research project awardees. This provides them with a common grounding in EcoHealth methods, allows them to network amongst themselves and with EcoHealth practitioners and IDRC staff, and provides a small amount of time for refinement of their research proposals in a mentored setting. The evaluations of the workshops indicate they do achieve these goals, in addition to providing students an opportunity to make presentations on their work, ask questions and generally have a stimulating intellectual experience. Feedback from many participants about the trainee workshop echoes comments expressed about the project grantee workshops that they are extremely valuable but ambitious given the time available. [□]

The training awards appear to be successful in building capacity among young researchers to do EcoHealth research. The range of student disciplines is broad, indicating that the recruitment and selection processes are open and balanced. An intermediate term tracking effort suggested that most former awardees had continued their graduate studies or obtained positions that allowed them to utilize the EcoHealth training experience. Discussions with Awardees who attended the May 2003 Forum in Montreal, and written statements they provided to the evaluators following the Forum, attested to the Award's key role in advancing their professional careers.

Dissemination of the EcoHealth approach through this activity seems less successful. Students raised the concern in Forum discussions and in the evaluations from the Awardee workshop that they felt isolated in their professional milieu, both during and after the Award period. One possibility for strengthening support to the students, and promoting awareness of EcoHealth in the academic world, could be to reach out to students' mentors and advisors. This could be done by requiring a letter from the advisor indicating how the student's Ecohealth work will be related to the research interests of the advisor. Perhaps the student could be encouraged to prepare the publishable paper in co-authorship with their advisor. More costly would be to include the academic advisors in the EcoHealth training workshop in some manner.

Students are also rightfully concerned that the academic world does not yet offer a clear career path for people trained in transdisciplinary fields. IDRC has done a great job of providing internship and fellowship openings at the Centre for some of the training Awardees, but might consider other ways to support students' EcoHealth work after graduation, such as a career establishment grant that would provide partial research support when a former Awardee gets a position. It would be valuable for the EcoHealth team to track the career paths of all the former Awardees and document how many of their papers were indeed published in peer-reviewed journals. These indicators would tell more about whether this activity is meeting its objectives.

EcoHealth-INSP Summer Workshop

For the past two years, the EcoHealth program has sponsored a week-long workshop on EcoHealth as part of a summer institute on Public Health and Epidemiology in cooperation with the Instituto Nacional de Salud Publica (INSP) in Cuernavaca, Mexico. INSP is one of Latin America's premier public health academic centers and the curriculum of the summer workshop offers a profound grounding in EcoHealth approaches taught by top-flight instructors. Approximately 26 students from LAC countries have participated in the workshop. The purpose of the workshop is to combine theories and practical; examples of study cases to stimulate critical ecohealth thinking among

³⁴ Comments from project researchers regarding the pre-project workshops from personal interviews, from recipients of EcoHealth training awardees in workshop evaluations, and from participants (including instructors) found in evaluations of INSP Summer Workshop.

³⁵ Evaluations of participants in the EcoHealth Awards workshops and personal interviews and written statements to external evaluators from students, June 2003.

researchers and research institutions in LAC, develop research capacity, institutionalize, and disseminate the use of the EcoHealth approach.

This workshop is clearly enhancing capacity among southern researchers to carry out EcoHealth research, as well as building networks of like-minded researchers in the Latin America region. The workshop could also be used as an opportunity to explore some of the methodological issues yet to be fully refined by utilizing additional faculty from outside the EcoHealth community. There seems a clear danger that the tried and true EcoHealth trainers who are called upon frequently for workshops around the world may experience fatigue. It would be wise to share this role more widely before that occurs.

The survey results showed that an important methodological strategy of the program are the workshops held for the development of specific projects and the Institute of Public Health summer school in Cuernavaca, Mexico. Those interviewed were satisfied with the workshops, the workshop of the summer school has been seen as very good but fragmentary, in the sense that there is not a complete vision of the ecosystems focus, but rather varied partial views, although all of good quality. In spite of the positive view of the workshops, some of the interviewees believed that the effort in this activity was exaggerated and that the time and money employed here could have been used to reinforce the projects. Although in this a difference can be noted, as the senior investigators tend to have this opinion, while the young ones attribute it to greater benefits.

Project-based Capacity Building

Research projects in the EcoHealth program are increasingly initiated by a capacity-building workshop to which eligible research institutions within a given region are invited. This procedure for identifying potential grantees was begun in 2000 for the North Africa/Middle East region and repeated since then in West Africa, Central America, and East Africa through the SIMA. Following the workshop, a selected number of institutions are provided with a small amount of seed money to further develop their research proposals and submit them for competitive funding. These activities are research support projects that are intended to support the quality and success of the eventual funded research.

This procedure has advantages over the ad hoc or informal method of soliciting and selecting projects that seems to have prevailed in the early stages of the EcoHealth initiative. One advantage is transparency: an open process is followed in identifying eligible institutions and selecting those that progress to the next stages. Second, the process helps build capacity by incorporating support for proposal writing in the selection phase. Third, the research team that succeeds in the two-stage competition is more likely to be strong. Finally, the initial workshop will provide an early indoctrination to the IDRC's requirements so the eventual grantees are likely to be more ready to embark on research with an EcoHealth approach. In theory, this should reduce the probability of slow start-ups or inappropriate design that plagued some of the early EcoHealth projects. The approach comes with the drawback of selection bias based on the judgments or prior knowledge of the PI team. This might result in a misjudgment of quality that makes it difficult to identify qualified research teams, but it is too soon to derive any conclusions about this issue.

All EcoHealth research projects involve students and/or junior researchers. Participation in the research, guided by more experienced researchers, is a great opportunity for these researchers to build their skills and knowledge about the conduct of EcoHealth research. Some of the projects additionally include others in the research as part of the participatory approach. For instance, the Mwea Kenya project recruits project assistants from the villages as facilitators of the community interaction. These assistants improve their skills as they perform these roles.

Among the additional capacity-building activities that could be undertaken by the EcoHealth PI as augmentations of existing project efforts are:

- Additional support for students involved in research projects for conference attendance and article preparation for journal submission
- On-going training opportunities for junior project personnel and former training awardees
- Support for research project personnel to take specialized courses, such as advanced GIS, research methods, impact assessment, communication methods
- Participation for the entire research project team in the initial EcoHealth workshops

Finally, the PI team should track outcomes of all their capacity building efforts.

The EcoHealth PI team has struggled with workload and instituted the Regional Fund approach in part expecting that it would reduce workload. In fact, it was their conclusion in

early 2003 that monitoring and interaction with other institutions had grown. They recognize many benefits of increasing the numbers of partners, but have concerns that they are still reaching individuals and not institutions (Retreat, p. 4) The EcoHealth PI team has carefully analyzed the benefits of using the Regional Fund approach and determined that they should do extensive follow-up with those who attend the workshops but do not receive funding. One consideration is to institute regional summer institutes similar to that taking place in Mexico as a method of enhancing the capacity-building already begun with the initial workshops. □

Capacity-building and strengthening has been focused on existing and would-be research teams and on the development of knowledge and skills to carry out the EcoHealth approach to research. The outcomes of these efforts are evident through the early stages of performing research (identifying a researchable question or problem, forming a transdisciplinary research team, partnering with the community and other relevant actors, conceptualizing and carrying out a research strategy,) but are less evident with regard to later stages of the research-development task. Michael Bopp pointed to additional capacity needs to connect the intervention research to sustainable community development and suggested that NGOs that might play that role often need capacity-building. □ An example of successful long-term capacity-building and strengthening is the CARUSO III project on mercury exposures in the Amazon. Some reasons this project has built impacts with longevity include the multiple funding sources, relationships with numerous local institutions, and strong scientific outputs. This example reinforces the conclusion that scientific outcomes need to be further emphasized and supported by the PI team. □ The main scientific outcomes are acceptance and adoption within the research community of EcoHealth approaches, and sustained funding support and cooperation from research partners.

Institutional Capacity-Building

One of the purposes of the program is to reinforce the research capacity of developing countries through the strengthening of institutions and the formation of human resources. The case studies show that reinforcement has taken distinct forms, in the case of the mercury project a very important effort was directed at forming human resources and strengthening the research capacity of the University of Pará through the installation of laboratories, but the conflicts that arose in the group and the lack of a policy of sustainability by the University have limited their utilization. Personnel has been trained at the master's and doctoral level, but the career opportunities in their home settings are uncertain. □ In the manganese project in Mexico, the organization that carried out the project (ISAT) was dissolved by decision of its directors when that work could not be

³⁶ Retreat notes, p. 4

³⁷ Bopp, 2002, p. 103

³⁸ Personal interviews. This is a minority opinion of a sample of project researchers, but a majority opinion of a sample of researchers interested in Ecohealth but not directly supported by IDRC.

³⁹ This career path issue plagues advanced degree training programs at many funding institutions.

continued, but fortunately they could reach an agreement with the Public Health Institute of Cuernavaca, which assumed the project, its personnel and the responsibility to continue it.

Another issue related to institutional reinforcement is in the continuation of projects beyond the initial IDRC phase(s). In an example of what should not happen, the project “Integrated Assessment of Agricultural Communities” in Kenyan communities (completed in August 2000 so not a specific subject of this evaluation,) there was a decision made to not pursue a new phase of project funding because the project did not fit the EcoHealth model. There were a number of such instances involving projects that were inherited by the EcoHealth PI or instigated in its early stage before the approach was fully developed. In this instance, there was potential to extend the institutional development that had occurred during the three years of the project particularly aimed at the University of Nairobi but this was not pursued. The PI may need to develop an exit strategy that allows for maintenance of some institutional and individual capacity development.

There is a difficulty in institutional reinforcement that lies in the rotation of personnel in the offices of the government or in the universities, which makes sustainability difficult, because the new persons or authorities either are not committed to the prior agreements or demand new support that the program many times is unable to give one more time. □

Several examples illustrate the relatively common concern within the EcoHealth research group that acceptance and credibility of EcoHealth among mainstream academics and academic institutions is still elusive. As part of the discussion at the Forum 2003, commentators spoke about trying to make the work academically respectable to ensure continuity of the approach, efforts to get universities to adopt Ecohealth curriculum more widely to reduce the frustration of EcoHealth researchers who feel isolated, and other similar statements. □ Another example is in a statement provided by one of the Ecohealth student training awardees who said, “Given that this is a relatively new initiative and has not been incorporated into mainstream academic programs, there are challenges of grounding and implementing the broad variety of theoretical and methodological issues associated with the ecohealth approach in one department.” The practical implication of this is that the new researcher practicing EcoHealth faces career limitations. □ Many commentators recommended developing curricula, short-courses, and centers of excellence in EcoHealth to create a critical mass of institutions that over time will emerge a synthesis for doing Ecohealth.

Opinions from the survey respondents regarding institutional capacity are divided, because one-half (50%) agrees and believes that the program helped to strengthen their institution or the formation of human resources (Chart 3). In the case studies, all the authorities that we interviewed recognized the importance of the project in strengthening their institutions, and only in one case (mercury, Brazil) were opinions divided in this respect. This was due to

⁴⁰ An example of potential institutional capacity-building is the plan to institute graduate level programs in EcoHealth in three Amazonian universities, cited in PCR for Project 004322. It is not known whether this plan has been implemented.

⁴¹ EcoHealth Forum, May 2003.

⁴² Crescentia Dakubo, EcoHealth Training Award Recipient in written statement to evaluators, May 2003.

the organization of the project and the university incapacity to guarantee the employment for project, trained personnel. □

Chart 3 Evaluation of institutional reinforcement (% of respondents)						
	Total agreement	Agreement	Indifferent	Disagreement	Total disagreement	Did not respond
The Ecosystems program has made a major contribution to strengthening our institution	17.5	32.5	32.5	10	-	7.5
The Ecosystems program has made a major contribution to human resource training at our institution	12.5	35	30	12.5	-	10.0

2.2.3 Influencing Policies and/or Technologies

Policymakers, planners, and international organizations have been reached by the EcoHealth program at several levels. Perhaps the best example of the broad reach of the program is the scope of organizations participating in the EcoHealth Forum in May 2003 in Montreal. Many of the attendees have been touched by the EcoHealth program in numerous ways and their presence at the Forum is but one indication of their interest in and support for EcoHealth. Within the policy community in Canada, the EcoHealth program has established strong ties to the health and environment leaders. □ The Forum also involved international organizations such as the World Health Organization, UNEP, PAHO, and CGIAR centers such as IWMI and IITA. Among the NGOs at the Forum were global, Canadian, U.S., and developing country organizations. □

The survey results show that almost one-half of those surveyed (40%) believe that the research results have contributed to influencing public policies, while a little more than one-half (52.5%) believe that the other projects of the program have been used efficiently. (Chart 4)

Chart 4 Evaluation of the use of the research results (% of respondents)						
	Total agreement	Agreement	Indifferent	Disagreement	Total disagreement	Did not respond
The results of our project have contributed to influencing public policies	12.5	27.5	45	7.5	-	7.5
The results of the investigations supported by the program have been used very efficiently	12.5	40	37.5	7.5	-	2.5

The applications of the investigations have been diverse, in some cases it has served to develop public policies, with impact on broad sectors of the population (Nepal), in other cases the application is limited to small communities (Brazil). The investigations have permitted a good clarification of the origin of a problem, such as that the contamination of water and fish by mercury has its origin in agriculture and not in mining, and in another, has allowed truly identifying the scope of a problem, such as contamination by manganese, which was over-magnified by the actors in conflict. In Goa, tool and method development have taken primacy in the project, while in Morocco the project aims to serve as a model for national policy development. These examples illustrate the flexibility and local adaptation of the EcoHealth approach. □

Several interviewees suggested that the PI consider the type of evidence being used to demonstrate impacts and choose evidence that enables policy people to make decisions. An example is the concept of DALYs (Disability Adjusted Life Years from WHO). □

⁴³ Interviews with University former and current authorities, July 11th and 12th, 2003.

⁴⁴ Forum speakers included the Environment Minister of Quebec, the Canadian Minister for the Environment and Sustainable Development, and other regional and national leaders. Participation at the Forum included representation from Health Canada, Environment Canada, CIDA, and national and international NGOs.

⁴⁵ Participant list from EcoHealth Forum, May 2003, Montreal.

⁴⁶ A flexibility and local adaptation that is crucial both for investigators and donors, according to interviews with both.

⁴⁷ Phone interviews with Loevinsohn, M. and Klainau, E.

2.2.5 Changes in Relationships, Actions, and Behaviors

The Ecohealth methodology inherently creates relationships and collaborations among key stakeholders such as researchers, local communities, and broader networks of EcoHealth supporters and practitioners. Let us see in detail the outcomes in these areas achieved through each one of the components emphasized by the methodology of the program.

Transdisciplinarity Changes Researcher Behavior Through Collaboration

The program methodology demands the application of a transdisciplinary perspective in the approach to development research. The investigators support this perspective, but its inclusion has surprised them because many are accustomed to a disciplinary investigation. In some cases, they have considered that the transdisciplinary perspective makes the work process more complex and more costly, but there is consensus that their view of the research problem and of the possibilities to apply the results of their investigations has been broadened.

Transdisciplinarity confronts the investigators with a difficult dilemma for their professional career, since they must work in a scientific community that is still notably disciplinary. The results both of the case studies and of the questionnaire show broad acceptance of the idea of transdisciplinarity, although satisfaction with the manner in which they have applied it is much less than their agreement with the idea. Transdisciplinarity has been seen as something imposed by the program, but this has not taken away from the value attributed to it.

For example, in a project on air quality in Mexico City, the research team members worked together but they did not achieve an integration of the results. There was a feeling that, despite a well-coordinated team, the results from different components of the research were not well incorporated. In Morocco, progress in the project is slowed by a struggle between the health team and other researchers over fundamental study design issues. In the study of manganese, transdisciplinarity was seen as something forced, but they managed to develop a common plan.⁴⁸

These difficult experiences were reflected in the discussion at the Ecohealth Forum on the methodological conceptualization where participants agreed that transdisciplinarity still allows for the integrity of each disciplinary contribution, but recognized that this result does not happen painlessly.⁴⁹ One observer commented that a major problem of the transdisciplinary approach is a struggle over who leads the project, and which institution controls the agenda.⁵⁰ What appears to be clear is that while at the beginning it is seen as something artificial, later it is given value and a common language and a broader approach begin to be established which is complemented by the contributions of other disciplines. Therefore the transdisciplinary-ness appears to be more a result that is obtained a posteriori than a condition that exists from the beginning.

Transdisciplinarity moreover presents two practical problems in its implementation: lack of incentives and additional costs. In the first case, there are very few individuals with transdisciplinary training, thus good professionals are employed in each one of the areas of interest, and these individuals usually are highly disciplinary. Beyond the difficulty of transdisciplinary teamwork, these professionals face skepticism from peers and superiors about the value of the work. This is amplified by restricted possibilities to publish, because scientific publications are primarily specialized journals that still do not accept this holistic approach, so that at times investigators must increasingly “discipline” their works to be able to be accepted by the journals.

The second problem refers to the costs that transdisciplinary investigation implies. Put simply, transdisciplinary research teams are bigger and the investigation demands substantial resource investment. Sometimes funds must be sought from other agencies beyond IDRC, which introduces complexity in moving ahead and funding uncertainty. One clear example of this is the Manganese project in Hidalgo State Mexico, where a “food contamination” study was planned with the Nutrition Institute as a supplemental component. The Hidalgo State government did not meet its commitment to fund this part of the work and it was not completed. Further, the “sociological” portion of the team had to “retire” because funds to pay them were not available.⁵¹

However, a counter-example from Goa, India can be considered where the project work is supplemented by a DfID-funded project in the same communities that complements the IDRC mining research. A lesson to take from the examples is that while EcoHealth projects are complex and can require substantial resources, they are also very flexible and can be married to many other development and research interventions. However, as always, reliable funding partners are needed. Suggestions from the EcoHealth Forum were to involve additional funding partners, including the private sector.⁵²

The survey of project researchers shows strong support for the transdisciplinary approach within EcoHealth (100% agreement,) but slightly less confidence that the approach was essential for their own work (90%.) As noted above, this may be interpreted as researchers experiencing some difficulty in using the transdisciplinary approach. (chart 5).

	Total agreement	Agreement or	Indifferent	Disagreement	Total	Did not

⁴⁸ Personal interviews with project researchers.

⁴⁹ Christina Zorowsky presentation, EcoHealth Forum, May 20, 2003, Montreal.

⁵⁰ Gilles Forget, Montreal, May 2003.

⁵¹ Personal interview with project researcher, August 14, Cuernavaca, Mexico.

⁵² Eckhard Kleinau, May Yacoob, May 2003.

	or very satisfied	satisfied		or dissatisfied	disagreement or total dissatisfaction	respond
Transdisciplinarity must be deemed essential for the Ecosystems approach	80	20	-	-	-	-
Transdisciplinarity has been an essential component of our work with the Ecosystems approach	62.5	27.5	5	2.5	-	2.5
How satisfied are you with your use of the transdisciplinary approach	52.5	32.5	5	5	-	5

Participatory Approach Requires Involvement of Stakeholders

EcoHealth enjoys a high degree of acceptance among key user groups. Foremost among the user groups are the communities in which the research methods are applied and tested. Communities are active and committed participants in the research process.⁵³ In some cases, projects are challenged by community desire to be involved beyond what is needed for the research protocol. The EcoHealth PI recognizes that research is itself an intervention and that conscious attention must be focused on how a community is affected by the project.⁵⁴ The projects have typically devised effective ways to build trust within the communities (employing community members as liaisons in Mwea, forming project steering committees that include community members in Morocco, bringing additional grants and needed benefits into the community in Goa, employing undergraduate university students from local universities in the Amazon, etc.)

The dimension of participation has been one of the most challenging to achieve and at the same time, one of the things that has received the greatest acceptance by the investigators. For some investigators, the dimension of community participation represents a complication that they are not fully equipped to manage, while for others (those most socially activist) it has been a very interesting and well received possibility for research. The workshop that all research teams experience before embarking on an EcoHealth project usually provides a good setting to question and confront how to conduct the participatory aspects of their projects. Despite trepidations about the requirement of stakeholder engagement, researchers almost unanimously endorse it after some experience, and some are transformed by the experience. A frequent comment from Ecohealth researchers is that, after carrying out participatory research, they feel their work is more valuable and has potential to change how people live.⁵⁵

Two aspects stood out on the importance of community participation in the interviews that were held: the first was their relevance to achieving adequate interventions and guaranteeing the sustainability of changes; for this a participatory strategy was considered important, which would allow involving communities in the design or execution of the research, as well as in the disclosure or application of the results. The second aspect was the “social encounter” which was produced between different social sectors and in some cases with interests that confronted one another. The investigation gave the opportunity that agreements and differences could be faced and shared. This was clear in the case of the study of manganese where the different actors, workers, community, businessmen and the state government had to meet to discuss the problems and the benefits that the exploitation of the manganese mine brought. It also occurred in the meeting between the different castes in the project of Katmandu, Nepal, which forced them to share and discuss among the butchers who were considered to be untouchable and the public functionaries or businessmen of other castes. Another example is the creation of a dialogue between mining companies in Goa and the villagers who work in the mines but also suffer from environmental and health degradation as a result of the mine operations. Yet one more example is the growing interest between paddy farmers and the National Irrigation Board officers in Mwea District in Kenya to find a compromise to a break-down of the service contract between the NIB and farmers.

The EcoHealth requirement of community participation (and of the gender dimension) converts the research projects into social “interventions” in the different communities. In some cases it would appear that the intervention component dominates and requires greater effort and resources to be used in the community, in others the research component is dominant and the concern is to produce scientific publications. The goal of the EcoHealth approach is to achieve a proper balance of both development and scientific objectives.

The outcomes of the participatory method are also conditioned by the scale of the community to which the project refers. It is not the same to apply participation in a rural zone or small city compared to a large city. In the case of Mexico City, project researchers believed that participation was almost impossible to apply in a city of approximately 18 million persons, but quite possible to apply in two wards of a city of one million inhabitants. Investigators and some of the stakeholders considered that to make an effort of participation in some communities of a large city was something ritual or symbolic without true impact on the changes of behavior or solution of the problem.⁵⁶

⁵³ Community acceptance was demonstrated at the in-depth case study sites and is described in documentation such as the In Focus monograph and case study series.

⁵⁴ Bopp, 2001.

⁵⁵ Carlos Santos Burgoa, Clifford Mutero, and others in personal interviews and reiterated at EcoHealth Forum, May 2003.

⁵⁶ Interviews with researchers at UNAM, Mexico, August, 2003.

This suggests that the manner of the participatory method to be applied in large cities might need to be differentiated from its implementation in rural zones or small cities.

Researcher views of the role of participation in the ecosystems approach and in their own work show that almost all (97.5 percent) respondents believed that participation is essential in EcoHealth projects as a theoretical matter. Most researchers also believed that participation is an essential component of their own work and have been satisfied in using it in their work. (Chart 6).

Chart 6 Evaluation of Community Participation (% of respondents)						
	Total agreement or very satisfied	Agreement or satisfied	Indifferent	Disagreement or dissatisfied	Total disagreement or total dissatisfaction	Did not respond
Community participation must be deemed essential for the Ecosystems approach	82.5	15.0	2.5	-	-	-
Community participation has been an essential component of our work with the Ecosystems approach	55	37.5	2.5	2.5	-	2.5
How satisfied are you with the incorporation of participation in your project	57.5	27.5	10.0	-	-	5

2.2.4 EcoHealth Approaches Include Gender Perspectives

Although it is a required part of the EcoHealth method, the inclusion of the perspective of “gender” in the research has been more difficult to achieve across the range of EcoHealth projects. This conclusion is illustrated in the results of the electronic survey as well as in interviews with project researchers.

The survey results reflect overall acceptance as 87.5 percent view the gender approach as essential to EcoHealth. However, just over a quarter have strong enthusiasm for including the gender approach in their own work, and a far higher number are indifferent to using a gender perspective compared to the support for the other two methodological foundations of the program (Chart 7).

Chart 7 Evaluation of the Gender Perspective (% of respondents)						
	Total agreement or very satisfied	Agreement or satisfied	Indifferent	Disagreement or dissatisfied	Total disagreement or total dissatisfaction	Did not respond
The gender approach must be deemed essential for the Ecosystems approach	52.5	35	7.5		-	5
The gender approach has been an essential component of our work with the Ecosystems approach	27.5	40	22.5	5	-	5
How satisfied are you with the use of gender in your project	27.5	35	30	2.5	-	5

This same mixed sentiment was found in the in-depth interviews. An amalgam of comments from a range of interviews suggests that the gender dimension is sometimes seen as an artificial add-on to the research questions, whereas others find it provides insights that contribute to improved interventions. The gender component is generally seen as benign – researchers do not express disagreement with

its intent – but it creates a conundrum for some projects because it does not arise from the definition of the research projects, but from an externally-imposed demand. Other projects were able and willing to include gender considerations as a natural part of the research objectives. A project researcher commented that the gender perspective and gender-differentiated data are valuable at the local level, but might not be relevant at the national level.⁵⁷

The composition of the research teams interviewed in the case studies show a high level of female participation and there was no apparent or subtle rejection of the issue. The lukewarm reaction to the gender component of the EcoHealth method may be attributed to the additional demands it places on some projects but without contributing added benefits a posteriori. The other methodological innovations of EcoHealth (transdisciplinarity and participation) also require special expertise and a learning curve, but even resistance to these which appears at the initiation of some projects is dissolved as researchers experience the benefits of using those methods. This transformation occurs less frequently in regard to the gender component.

Two interpretations are possible for this situation. One is that the attitudes are due to poor implementation and the other is that they are due to inappropriate inclusion. Poor implementation happens when a research team “added-on” the gender perspective in order to meet a demand of the EcoHealth project officer. In some cases the gender “add-on” was never incorporated into the mainstream project design or team, and this accentuated the sentiment of artificiality of the gender perspective on one hand. In other cases, the “add-on” was successful and the research process and outputs improved because of it.⁵⁸ The other interpretation is that gender issues had not (or have not yet) emerged as an important part of the project “problematique” and were thus a struggle for the research team to include.⁵⁹

In a small number of cases, a third interpretation of the difficulty of incorporating the gender approach is seen. In some projects, this requirement was perceived as something “feminist”, more than from the perspective of gender. And this did not occur because the participants were ignorant of the gender perspective, but because of the “militant” nature of the approach, which was perceived to exclude men from the focus of the work. This approach to gender occurred in some projects where “gender experts” were brought in to provide the perspective but did not have significant research training or interests.

Whichever of the interpretations is correct in most EcoHealth projects, it may be resolved by further emphasizing the social dimensions, including gender, as an integral aspect of all projects and for all the researchers to consider. That is, the social/gender dimension would be mainstreamed within each project rather than sometimes considered as a separate aspect.⁶⁰

Objective 3 Strengths and weaknesses in relation to the current state of the field(s) in which the program is active

3.1 Comment, based on evidence, on the extent to which the thematic focus and strategies of the program are consistent with the development goals and objectives it seek to bring about (strategies including, but not limited to, project modalities (e.g. networks, regional projects, etc) type and size of projects, types of partnerships (e.g. Canadian, other donor etc)

Thematic Focus

The unique strengths of the program are sometimes challenges to its success. The program works with a new area, which is still not defined and in which there is no pattern on which to be able to evaluate the results. But this provides the creativity and flexibility of combining areas and putting into contact professionals of different origins and practices. When seeking the prototypical EcoHealth project, one finds that there is no “model”, and this can slow adoption and understanding of the program’s possibilities and outcomes. But there is also a broad community forging that model, rather than being completely presented by IDRC. It is being formulated by researchers along new lines, multiple orientations that the members of the different teams are constructing with greater or lesser capacity of contribution, with greater or lesser anxiety due to the newness, among some persons or

⁵⁷ Personal interviews with project personnel in Mexico, Brazil, Morocco.

⁵⁸ An example of a positive gender inclusion on a team is Mwea project in Kenya.

⁵⁹ Specific examples are manganese mining and air pollution in Mexico City.

⁶⁰ Relevant comment from project researchers in Morocco said “Women are involved in everything and it is strange to separate the population into gender groups for research,” July 2003.

others. But it is a strength in that a collective effort is being experienced. There are mixed opinions about the value of the three thematic areas.

In the survey four of every five answered that they are satisfied with having used the ecosystems approach and having participated in this IDRC program and one-half (48.5%) said they are very satisfied (Chart 8). Although there were few comments provided by survey respondents to the questions, on this topic one respondent observed that the EcoHealth approach needed to become conceptually stronger in order to survive. It was this person's view that the approach of incorporating the three dimensions would not be sufficient to address society's problems.

	Total agreement	Agreement	Indifferent	Disagreement	Total disagreement	Did not respond
How satisfied are you with having used the ecosystems approach	52.5	32.5	7.5	-	-	7.5
How satisfied are you with having participated in this IDRC program	55	30	7.5	-	-	7.5

Partnerships

The EcoHealth program has established partnerships with a number of national and international organizations. Most of the partnerships are loose collaborations related to one-time activities such as a conference. Examples are IDRC support to bring researchers from USAID's Environmental Health Project to the Montreal Forum, joint organization with the U.S. National Institutes of Health of a symposium at the 2002 World Summit on Sustainable Development, a consultation co-hosted with UNEP at the Canadian Conference on International Health in 1999, and co-funding with WHO Tropical Disease Research (TDR) on a workshop on dengue fever in Brazil in 2003. Some of these partnerships are still in formative stages and need further nurturing to clarify what might emerge.

More developed partnerships are in place with the U.N. Foundation and the Ford Foundation, as well as CIDA. These organizations are all providing co funding to support EcoHealth research projects in different regions. The most developed partnerships are with the U.N. Foundation and Ford Foundation to support the Regional Funds, a geographically-focused RFP and grant-making process that has been established in Middle East/North Africa (MENA), West Africa, East Africa, and Central America.

The institutional partners that EcoHealth has engaged have shown a sincere interest in building a relationship with IDRC on the EcoHealth issue. The evidence suggests that the EcoHealth approach is acceptable and viewed as valuable by other institutions and IDRC is seen as a leader in the field. For instance, the UN Foundation was attracted to working with EcoHealth because of the strong community participation orientation in the PI, and because of the multi-sectoral outlook.⁶¹ The UN Foundation believes that the Ecohealth program has successfully bridged the gap between UN Organizations with responsibilities for health and environment in ways that could not be done on their own. For longer-term involvement with the program, the UN Foundation would like other donors to invest in EcoHealth through the U.N. organizations.

However, perhaps due to limited evidence of impact to date, the adoption of EcoHealth as an approach still seems concentrated among individuals rather than spread widely within institutions. The EcoHealth PI team has identified institutionalization as an objective (see Forum agenda) and is working on finding common mission components with potential partners. As part of this effort, EcoHealth has begun discussions among a wide group of funding institutions to participate in the CoP. One of the challenges faced by the CoP will be to find a common vision. For instance, US AID does share some of the same objectives as EcoHealth and has supported some EcoHealth activities; however, it does not always agree on what research is needed and the programming implications. Specifically, according to a US AID program manager, there is a perception that Ecohealth emphasizes the ecosystem aspects more than human health, which presents conflict for a health-based organization or program. There is also a perception that EcoHealth emphasizes academic research more than applied intervention research. This emphasis appears to be more a matter of perception than reality.⁶²

Type/Size of Projects

It has been mentioned that EcoHealth projects vary in length from 2-4 years plus renewals, depending on the negotiations between EcoHealth project officers and project applicants, and the specific purposes of a project. Occasional one-year projects are used to allow a research team to try out the EcoHealth approach and determine whether they are prepared to follow it in a more in-depth project. The next phase (or first if there was no probationary phase) of a project is devoted to gathering data, developing tools, and doing preliminary analysis that may introduce some simple interventions into the community. It is not until the third (or second) phase of an EcoHealth

⁶¹ Personal interview with Dr. May Yacoob, UN Foundation, November, 2003.

⁶² Phone interview with Dr. Eckhard Kleinau, Environmental Health Project, USAID, October, 2003.

project that research questions begin to be addressed through analysis of the community-level data, policy and other interventions begin to be developed, and change is effected.

This multiple stage approach has the benefit of allowing a research team to become seasoned in the EcoHealth approach before large investments of time and money are made. It also allows the EcoHealth program officer to provide a high level of guidance as a project develops. The drawback is a high level of uncertainty about whether a project will come to fruition. The situation creates some anxiety of project researchers who may experience long periods of uncertainty from the final stages of one phase to the approval stage of the next. The anxiety may be especially acute because of the commitment to communities inherent in the EcoHealth approach and how seriously this is taken by researchers.

In general, some researchers praised the adequacy of support from IDRC whenever requests for justifiable activities were made. The consensus seemed to be that the PI team is extremely generous in terms of both time and other resources when needed.

Tension between Scientific Excellence and Building Capacity

The program proposes to work with the local authorities and with the communities, which is something that is very important, because in this way the social actors are involved who are going to use the results of the investigations, which is a great strength. But, at the same time it creates risk because the processes to reach agreement with the governments and the communities are slow and complex, and many times when the agreement is reached the authorities do not comply with them, or they are substituted in their positions, and it is necessary to begin anew.

The program proposes reinforcing the research capacity and the study of topics that contribute to development, and in that sense it must work with groups that have potential to reach “excellence”, but that still are not there, and this is a very positive aspect of the program, but at the same time it creates its problems, because these people need more support, they do not have experience in publications, it is difficult for them to disseminate results. The program is not formulated as an exclusive program of “excellence”, if it were it would not have some of the difficulties in respect to the publication of results by the investigators, but at the same time many teams would be beyond possible support, and the goals of contribution to development that exists as an overall objective would not be met.

The need for additional training for project researchers was raised frequently in interviews with project personnel. Among the topics suggested for additional training were: more sustained training in EcoHealth methods, research methods for clinical and operational project personnel, advanced GIS methods, impact assessment, and communication methods.⁶³

Discussion of issues raised by research projects

A range of issues common to EcoHealth projects in varying degrees has been mentioned. Several others will be raised in this section. The purpose is to synthesize what has been observed across a number of EcoHealth research projects and offer suggestions of programmatic ways to deal with them.

Preparation: EcoHealth projects start with a 5-day workshop on EcoHealth methods. This activity sets the stage for application of the main tenets of the EcoHealth approach. Its value could be enhanced by expanding the scope to include training in research methodology, especially study design; and by expanding the reach to include more project team members beyond the usual three.

Independent peer review: EcoHealth is not yet mainstreamed within the scientific community. In order to increase awareness and knowledge of EcoHealth approaches, as well as strengthen the credibility and acceptability of EcoHealth research, a standardized independent peer review procedure is needed at project selection. Projects would also benefit significantly from access to mid-stream input from peers, either through establishment of a senior advisory committee (being established by one of the projects) or through submission of papers to reviewers or journals which provide solid scientific feedback.

Scientific method and output: The purpose of research is to answer questions through rigorous and replicable methods. To achieve impact, research should be shared and subjected to scrutiny. In this manner it becomes generalized and applied in multiple settings. This is what distinguishes research from development. However, there is a tension within the EcoHealth PI (as is likely the case across IDRC PIs) between the demands and procedures of research and the needs of communities for development interventions. The EcoHealth PI is somewhat unusual within IDRC in its stated purpose of developing, testing and disseminating a methodology for research. Thus, it carries a burden of being judged by its scientific accomplishments and outputs to a greater degree than most IDRC PIs.

Among the means of addressing these concerns are to move forward with a Community of Practice as currently being considered by the PI team, to organize regional scientific gatherings of EcoHealth practitioners to share their methods and findings and build networks, and to sponsor methodological symposia that includes researchers who have similar objectives but use different approaches to test their hypotheses. All of these steps would increase rigor and reach of the EcoHealth research.

Visionary project leader: A notable proportion of EcoHealth projects are headed by a researcher with high personal impact in addition to exceptional intellectual capability. These project leaders are cutting-edge, interested in advancing the frontiers of their fields and accomplishing multiple impacts. An issue that seems to have been managed well when it has arisen is the potential vulnerability of a project and other team members when this visionary leader moves on, either physically or topically. This has occurred in Mexico City, in Kenya, in Goa, and doubtless at other project sites.

⁶³ Personal interviews with researchers, especially Morocco and from evaluations of INSP and EcoHealth Award workshops.

It is a natural and expected occurrence, but because of the site-specific location of the EcoHealth projects, high identification of the project with the leader, participatory approach, and paucity of experienced EcoHealth researchers, the departure of a visionary project leader can hobble a project. One researcher commented that there is an issue of ownership of the project outcomes and researchers need to have some recognition. Credit is due to the EcoHealth PI team who have met these situations with creativity and flexibility in agreeing to long-distance involvement of key personnel and the involvement of substitutes. Additional actions to ameliorate these situations before they severely damage a project could be to more greatly involve other project team members in the design and management of projects, and in the early training in EcoHealth approaches and interaction with the PI team.

Project Continuity: The result of financing uncertainties could be to discourage some researchers from making heavy investments in EcoHealth projects until such time as they are certain of continuation. It is a serious professional commitment to spend 1-2 years on a project without being certain of obtaining publishable results, or visible improvements in community outcomes. The PI might consider how to accelerate the pace of project development and implementation, including reducing the lag time between project approvals.

3.2 Identify how and to whom the work supported by the program is relevant

The program is very much appreciated by the institutions with which it has worked, the interviews with the authorities of the governments, universities and communities expressed their recognition and appreciation to the program and the IDRC. They believe that the support and comprehension with which the projects were carried out – although slow and at times bothersome – were worth it and have been useful to them.

The program has faced two types of research teams: those that were already being supported by IDRC at the time that the EcoHealth approach was initiated and those who became supported by IDRC de novo with EcoHealth. In the first cases, changes have been made in the projects in progress to become more consistent with EcoHealth approaches. In the latter, they adapted their research design to conform to EcoHealth requirements. The projects selected in this evaluation for in-depth case study were those that accepted and successfully implemented an EcoHealth project with appropriate focus and all its methodological components.

Among this sample of projects that were deemed at the outset to be good examples of EcoHealth projects, and reasonably successful, there were still to be seen several levels of acceptance and implementation of the approach. The best acceptance and welcome to the proposal was on the part of those professionals who because of their formation in ecology, biology and social sciences, previously had a more holistic view of the reality and of the investigation. Also the physicians are here who had a prior social concern or political experiences. The greatest resistance or rejection was from research physicians, who had a much more specialized vision of the investigation and do not clearly see how the ecosystems focus can help them in their inquiry and how they might publish this type of results. In the third place are the pragmatists, who are skeptical about the virtues of the focus, but do not resist it either, as they simply accept the “package” to be able to receive the support and carry out their project.

It is interesting to observe how the mixed acceptance of the EcoHealth concept may be represented in the survey’s results regarding the approach. Respondents fell into three roughly equal groups: those who very much agree, those who agree and those who are indifferent to the superiority of Ecohealth as an approach to research. The group that rejects the proposal is small (Chart 9).

	Total agreement or very satisfied	Agreement or satisfied	Indifferent	Disagreement or dissatisfied	Total disagreement or total dissatisfaction	Did not respond
The ecosystems approach is now the best research approach to improve health	32.5	35	25	5	-	2.5

An issue that has not been faced head-on is the balance between southern and northern country partners and institutions. EcoHealth research activities have been heavily concentrated in developing countries, consistent with IDRC’s mission and strategy. Research has been conducted in southern countries by both northern and southern researchers with an emphasis on the latter. However, as discussed above, the extension and adoption into the research community of EcoHealth approaches has been somewhat limited. One reason is that southern researchers have limited access to widely-available outlets for their work. They often cannot participate in academic conferences taking place in the north, although IDRC has been very supportive with financial resources when opportunities have arisen, and they have difficulty getting published in the top research journals dominated by developed country scientists and topics of interest to the developed world. One possible way to address this limited horizon is to involve as partners a greater number of northern research funders and scientists interested in creating collaborative arrangements with researchers in the south.⁶⁴ Possible partnership institutions are CIHR or the European Union.

The holistic social representation of the program by their partners: Le jeu chinois results

⁶⁴ One IDRC EcoHealth partner suggested better links with other North American conservations through jointly organized events and co-funding. He suggested links with social mobilization organizations, public health institutions, and communication institutions with public health emphases such as the Annenberg School in the U.S.

The results of the projective techniques to characterize the program show some features of appreciation that are held toward the program, but also some of the characteristics of its strategies and mode of work.

In Brazil the program was compared with an armadillo, because it is small, but well oriented in what it wants to do, and it can dig deeply, they said. In the same direction it was compared with a buffalo, that has short legs, but is strong and persistent. To refer to transdisciplinarity it was compared with a butterfly, that has multiple colors and with “caldeirada”, a soup that has a variety of products from the water (fish) and from the land (vegetables). And finally with a hard sweet called “raspadura”, because it is hard to chew, but at the end it is worth the effort.

In Nepal it was compared with a tree with large branches called “papal tree”, which has many branches like the project that reached many parts of the society, and moreover it offers a place for encounters, as the people meet under that tree. It was also compared with a pig, like peasant families have, which if cared for properly is very rewarding, but if not can be a disaster. In terms of food, it was related to a local bean soup called “quati”, which is very nutritional and mixes many types of beans, but one can separate them, since each one has its identity, like the different groups and institutions participating in the project. And finally there was agreement that it was similar to a pizza, that has many components, that if combined well can be very delicious and the same as with the program of the IDRC, it was imported to Nepal, but has become popular and already feels like it belongs.

In Mexico it was compared with the “spider monkey”, because it has to maintain equilibrium all the time and in seeking sustenance must cover many territories and has predators above and below. It was also compared with the new Mexican cuisine, because it is the integration of many cultures, this new cooking was opened to the world to incorporate influences from many parts. Another person considered that it was like a cat, which is flashy, conquers one, but at the end always does what it wants. And finally, without mentioning a specific species it was thought that it was like a recent animal in the evolutionary scale, that still has not won a predominant place in the tropical chain, but that has a strong impact, because it consumes and generates products, but it hides, it is not visible in a palpable manner in spite of its importance.

3.3 Comment on the niche of the program –how does the work of the program relate to the state-of-the-art in the field(s) in which the program is relevant

There is a broad consensus among EcoHealth researchers that the Ecosystem Approaches to Human Health program has many attributes that are appropriate to address the problems of developing countries. These include the three conceptual pillars of transdisciplinarity, participatory approach, and gender inclusion. Researchers feel there is an appropriate balance between the needs of communities for immediate interventions and the needs of researchers for rigorous design and analysis before conclusions are reached. Researchers also believe the approach also allows a significant amount of flexibility and adaptation to local needs. Further, the EcoHealth PI team scores very high marks for creating a

supportive environment for researchers and for being willing to work closely with researchers to achieve a common understanding of project goals and methods.

Some feeling exists that there is not enough evidence of impacts within the EcoHealth paradigm. It is felt that the PI makes a leap of faith that the approach works, without having adequately broad and generalizable evidence. For example, it was felt by some attendees at the May 2003 Forum that the presentations were interesting from a theoretical perspective, but they didn't demonstrate health and environment improvements.⁶⁵ Countering that negative view, others felt that a single program cannot do everything, and there is a great deal of evidence that EcoHealth projects do yield change. However, there may be some confusion or disagreement regarding what outcomes are desired. The suggestion was made that donors interested in EcoHealth should consider reaching some agreements on desired outcomes, and focus on fewer but larger projects than in the current EcoHealth portfolio.⁶⁶ This donor discussion should occur even before successful Ecohealth projects are scaled up.⁶⁷

However, it is worth noting that one of EcoHealth's unique niches is that EcoHealth approaches present the possibility of training a group of African researchers to really do development, not simply imitate what training looks like in the U.K.. This view is expressed by an EcoHealth senior researcher who sees the likelihood of long-term impact through promoting EcoHealth within scientific institutions, publishing credible science, and building new generations of researchers.⁶⁸

Within the broader community, the EcoHealth approach is still seen as a niche product despite a widespread rhetoric advocating the types of methods that EcoHealth promotes. This is not meant to imply that EcoHealth lacks acceptance and endorsement across a wide group of interested observers and partners. It suggests that EcoHealth's niche is quite appropriate and will continue to influence the related fields in which it works, and thereby expand.

However, precisely because EcoHealth works across different fields and sectors, it struggles to achieve the impact and recognition it deserves within each one and collectively. It has likely made greater inroads into the environmental and agro-ecosystem management communities to date than in the public health and disease communities.⁶⁹ EcoHealth also has impact within the participatory research community, the gender approaches literature, and the sustainable development world. Each of these can be counted on to show interest in

⁶⁵ Personal interviews with Forum 2003 attendees.

⁶⁶ Personal interview with Dr. Eckhard Kleinau, May 2003.

⁶⁷ Phone interview with Dr. Michael Loevinsohn, October 2003.

⁶⁸ Personal interview with Dr. Clifford Mutero, September 2003.

⁶⁹ Comments from the Montreal Forum confirm this impression. For example, Carlos Santos Burgoa of Mexico said, "A missing topic here is health systems. We probably have too many epidemiologists and maybe too many environmental people here, Health systems and services people will have to implement what comes out of the EcoHealth approach." Dr. Eckhard Kleinau from the U.S. said, "The population aspect is missing from the program and there is more focus on the environmental side than on health." He noted that there were not enough public health people at the Forum.

the EcoHealth approach and perhaps to become partners in some manner, but the breadth of areas in which EcoHealth is working tends to dilute its impact within any given community.

The metaphors used describe well the image of the program that has its own profile in spite of the newness, the diversity of elements that it incorporates and the small size that it has in comparison with other programs of other agencies. The program's niche is that combination of the environmental and social with health, its force is in being able to place together all the elements and that as in the image of the soup, it has a force and special flavor in its diversity. The program is adequately located in the area of health, but its force comes from interpreting it in a holistic manner and working more with health than with disease and that orientation allows it to intervene in programs that not only lead to better health, but also to the development of the society.

References

- Alvarez Valdés, Angel M. Hurtado Díaz, Magali, Ibarra, Ana María, Rojas, Miriam Concepción.* “Una estrategia integral y participativa con un enfoque de ecosistema para la prevención y control de *Aedes aegypti* en el municipio Centro Habana, Cuba.
- Allen, Timothy F. H. ; Bandurski, Bruce L. and King, Anthony W.* The Ecosystem Approach: Theory and Ecosystem Integrity. International Joint Commission. United States and Canadá. n/d.
- Amorim, Marúcia, Guimarães, Jean- Rémy, Lucotte, Marc, Mergler, Donna.* Final Report to IDRC for the project: Présence du mercure et exposition humaine à ce contaminant dans la région du Tapajós, Amazonie, Brésil. December 1997.
- An ecosystem approach for human health (mercury contamination in the Brazilian Amazon. A joint study of: University of Québec at Montréal) Slides n/d
- Bazzani, Roberto, Dolbec, Julie, Forget, Gilles, Labatut, Jean- Michel, Lebel, Jean, Orosz, Zsofia, Peden, Don, Phillips, Anne, Sánchez, Andrés, Smyth, Nancy, Zarowsky, Christina.* Ecosystem Approaches to Human Health Program Initiative. Program Prospectus, 2000- 2004.
- Bezner Kerr, Rachel.* Food Security, Household Dynamics and Organic Matter Technologies Identifying critical linkages in northern Malawi. IDRC Internship Final Technical Report. September 2000.
- Biodôme de Montréal, CIAT, COEHMA, (IEC), EMBRAPA, FCAP, IBAMA, INCRA, MPEG, NAEA (UFPA), SECTAM, UQUAM. Mercury contamination of aquatic ecosystems of the Amazonian area of the Tapajós River: a lever to help setting up riparian agricultural systems models based on sustainable development. A proposal based on networking – research- intervention. October 2001.
- Bopp, Michael.* Interventions and Impacts: An Evaluation of Interventions and Impacts of There Ecohealth Projects in Central and East Africa. Septiembre 2002.
- Bopp, Michael.* Research Teams that Participated in the IDRC Evaluation of Transdisciplinary and Participation Aspects of Eco- health Research. Cover Letter for Case Review Report. Centre for Development Learning. February 2001.
- Burone, Federico.* IDRC in Latin America and The Caribbean. Report to the Board of Governors October 17-18, 2002.
- Bustamante, Dulce María, Martínez, Miguel Angel, Monroy, Carlota, Rodríguez, Elvia.* Disminución de la reinfestación intradomiciliar de *Triatoma dimidiata* en Guatemala, por medio de control integrado basado en el manejo ambiental con participación comunitaria.
- Bustamante, Dulce María, Monroy, María Carlota.* Pre- Propuesta de Investigación Situación epidemiológica de la enfermedad de Chagas en dos ecosistemas de Guatemala e Implementación de una estrategia de control basada en la participación comunitaria.

- Carbajal Sánchez, Nancy Lizeth, Guevara Flores, Ramón, Jiménez Herrera, Ricardo.* Propuesta de Investigación: Incidencia progresiva mortal de brotes de dengue en el área urbana de Bilwi. Perspectivas y formas de control comunal.
- CENSA/ CAM. Modulo C- Anexo 1 Guía de Instrucción: Taller de sensibilización y contaminación en ambiente, salud y consumo sustentable desde una perspectiva de Equidad entre los géneros. Ecosistema Urbano y Salud de los Habitantes de la Zona Metropolitana de la ciudad de México.
- CENSA/ CAM. Modulo C- Anexo 3 Procedimiento de Monitoreo y Evaluación. Ecosistema Urbano y Salud de los Habitantes de la Zona Metropolitana de la ciudad de México.
- CENSA/ CAM. Modulo C- Anexo 4 Resultados del Modelo de Capacitación. Ecosistema Urbano y Salud de los Habitantes de la Zona Metropolitana de la ciudad de México.
- Centro de Estudios y Asesoría en Salud (CEAS). Floriculture ecosystem disrapture and human health impacts in Cayambe: participatory approaches for a healthy ecosystem (Ecuador). Noviembre 2001.
- Centro de Estudios y Asesoría en Salud (CEAS). Proyecto: Floriculture Ecosystem Disrupture and Human Health Impact in Cayambe: Participatory Approaches for a Health Ecosystem (Ecuador- 100661001). Informe sobre Avances del Proyecto en el período 21 de enero del 2002- 21 de septiembre del 2002 (Primer Semestre).
- Cooper, Peter.* Environment and Natural Resources Management (ENRM) Program Area. Annual DPA Report to the Board. Program and Partnership Branch. October 2001.
- Chalén Láinez, César, García Pineda, Susana, Laguna Pérez, Fernando, Pineda Zavaleta, Ana Patricia.* Plomo en la Cuenca del Rio Puyango: Impacto sobre el ambiente y vías de exposición en los niños FUNSDAD 2002-2005.
- Chalen, Cesar.* Proyecto de Investigación e Intervención en el Campo de la Salud Humana y del Ambiente, Cuenca del Puyango. Folio 9. FUNSDAD
- Ecosistema Urbano y Salud de los Habitantes de la Zona Metropolitana del Valle de México. Banco Mundial, OPS, IDRC.
- Finan, Roger and McGurk, Stephen J.* 501. IDRC in Asia. Report to the Board of Governors October 17-18, 2002. Septiembre 2002.
- Flynn- Dapaah, Kathleen.* Ecosystem Approaches to Human Health Global Community of Practice. Report on the Desing Phase Consultations. April 2003.
- Forget, Gilles (WARO) & Freeman, Constance (ESARO)* Regional Directors. IDRC in Sub- Saharan Africa. Report to the Board of Governors. October 17-18, 2002. September 2002.
- Forget, Gilles and J. Lebel,* "An Ecosystem Approach to Human Health," International Journal of Occupational and Environmental Health, Supp. To vol. 7, no. 2, 2001.
- Gillespie, Stuart and Loevinsohn, Michael.* HIV/AIDS and the Food Crises in Southern Africa: An Agenda for Action Research and for Learning How to Respond. May 2003.

- Gillespie, Stuart and Loevinsohn, Michael.* HIV/AIDS, Food Security and Rural Livelihoods: Understanding and Responding. RENEWAL Working Paper N°2. Mayo 2003.
- Guevara, Ramo S.* Propuesta: Incidencia Progresiva Mortal de Brotes de Dengue en el Área Urbana de Bilwi, Perspectivas y Formas de Control Comunal. Nicaragua, Mayo 2002.
- Hernández, Carmen Nora.* Ciudad de La Habana. Agosto 2002. *Sousa (de) Minayo, María Cecilia.* Brasil. *Mergler, Donna.* Montreal. *Davée Guimarães,* Universidade Federal do Rio de Janeiro. Informe sobre el Curso Taller sobre “Enfoques Ecosistémicos en Salud Humana. Enfermedades transmitidas por vectores y contaminación ambiental”.
- Hidalgo, Javier, Sánchez, Doris Eleana.* Pre- Propuesta de Investigación: “Enfoques ecosistémicos aplicados a los sistemas de información y participación comunitaria, ante la contaminación ambiental provocada por la agroindustria florícola en la región de Cayambe- Ecuador.
- Ibarra, Anamaría, Rojas, Miriam Concepción.* Pre- propuesta de Investigación. Una estrategia integral y participativa con un enfoque de salud del ecosistema, para la prevención y control del dengue en el municipio Centro Habana de la capital. Instituto Nacional de Higiene, Epidemiología y Microbiología. La Habana, Cuba.
- IDRC- UNEP- FIOCRUZ. Working Document: An ecosystem approach to human health: Guidelines to Re-Asses Tropical Disease Research Projects. International Meeting “An ecosystem approach to human health: communicable and emerging diseases”. Noviembre 1999.
- IDRC, Case Study Health an Ecosystem Approach. Taking control of air pollution in México City.
- IDRC, Case Study. Health an ecosystem approach. 1 From forests to fields in côte d’Ivoire. IDRC.
- IDRC, Case Study. Health an ecosystem approach. 10 Housing and human capital in Cuba. Community efforts improve health in inner- city Havana.
- IDRC, Case Study. Health an ecosystem approach. 11 Health, Environment, and Indigenous Culture. Revitalizing Chile’s Mapuche communities.
- IDRC, Case Study. Health an ecosystem approach. 12 Mining, contamination, and health in Ecuador. Research leads to action to improve human health.
- IDRC, Case Study. Health an ecosystem approach. 2 Malaria and Agriculture in Kenya. A new perspective on the links between health and ecosystem.
- IDRC, Case Study. Health an ecosystem approach. 3 Mercury Contamination in the Amazon. Reducing soil erosion may provide a lasting solution.
- IDRC, Case Study. Health an ecosystem approach. 4 Preventing pesticide poisonings in Ecuador. Integrated pest management yields economic and health benefits.
- IDRC, Case Study. Health an ecosystem approach. 9 Fighting Malaria without DDT. Better management of the environment a key to disease control.

IDRC, Case Study. Health an ecosystem approach. Breaking the Cycle of Poverty in Ethiopia. Agricultural and sanitary practices improve incomes and health.

IDRC, Case Study. Health an ecosystem approach. Tracking Health and well- being in Goa's Mining Belt. New tools promote the sustainable development of mining.

IDRC, Document D' Approbation de Project. Research Support Project 101417. INSP Summer Workshop.

IDRC, Document D' Approbation de Projet 100205. Urban Ecosystem and human health in Mexico City.

IDRC, Document d' Approbation de Projet. Research Project 100662. Manganese exposure in general population resident in a Mining District, Méxic.

IDRC, Document D' Approbation de Projet. Research Project 100772. Regional Ecosystem Approaches to Human Health Competition in west Africa PPB/ DGPP.

IDRC, Ecohealth Admin Closed 100552. Pre-project Workshop Ecosystem Approach to Manganese Mining in México.

IDRC, ECOHEALTH- PI Work Plan 2002- 03.

IDRC, In a Changing World. Program Directions 2000- 2005. International Development Research Centre, 2000.

IDRC, Meeting of the Board of Governors October 19-20, 2000. Ottawa, Canadá.

IDRC, Meeting of the board of Governors. June 15-16, 2000. Ottawa, Canadá.

IDRC, Project Approval Document. Document D' Approbation de Project. Research Project. 100310. Enviromental & Social Performance Indicators and Sustainability Markers in Minerals Development: II.

IDRC, Project approval document. Document D'approbation de projet 100661. Floriculture ecosystem disrupture and human health impacts in Cayambe. Appraisal/ appréciation. Recipient Administered Portion in.

IDRC, Project Summary 03323. Mercury Exposure and Ecosystem Health in the Amazon: Building Solutions with the Community II.

IDRC, Project Summary. Environmental/ Social Performance Indicators and Sustainability Markers in Mineral Development. File 03507.

IDRC, Review of Achievements: Mining Projects (Europe). The Ecosystem Approach to Human Health in the Context of Mining in the Developing World

IDRC, Review of Course in an Ecosystem approach to Health Cuernavaca, México August 2002.

IER- ETSHER. Laboratoire Environnement et Sciences de l'EAU. University de Yaunde I. Concours Ecosystemes et Sante Humaine Afrique de L'ouest (Región AFO). Maitrise de L'Assainissement dans un Ecosysteme Urbain a Yaounde au Cameroun et Impacts Sur la Sante des Enfants Ages de Moins de Cinq Ans, 2001.

- IER- ETSHER. Rapport Annuel 2001-2002. The Ecosystem Approaches to Human Health Regional Fund for the West and Central Africa.
- INSP, Curso sobre “Enfoques Ecosistémicos en Salud Humana”. Instituto Nacional de Salud Pública, Cuernavaca, Guatemala 19 al 23 de agosto, 2002.
- Instituto de Estudios Ambientales (IVM). Modulo A. valoración Económica del Mejoramiento de la calidad del aire en la zona Metropolitana del Valle de México.
- Instituto de Salud, Ambiente y Trabajo (ISAT). Primer Informe Semestral del Proyecto: Impacto en la Salud del Ecosistema por Actividades Antropogénicas en una Cuenca Manganífera. Instituto de Salud, Ambiente y Trabajo, México 2001.
- ISNAR- IFPRI- WARDA. Report to ministry of Foreign Affairs, Norway HIV/ AIDS-Related Activities Facilitated by ISNAR, IFPRI and WARDA: 2001-2002.
- Izunsá Mohedano, Irma. Modulo C: Modelo de capacitación comunitaria en ambiente, salud y consumo sustentable desde la perspectiva de equidad entre los géneros.
- Kaida, Angela K.* Exploring the links between HIV/ AIDS, Agriculture, and Food Security, including associated Household coping Strategies within an Ecosystem Approach to Human Health in northern Malawi. To the Ecosystem Approaches to Human Health (Ecohealth) Program Initiative of the International Development Research Centre (IDRC). 2002.
- Kay, James J.* An ecosystem approach to sustainability of ecological economic systems: A short summary. Updated. June 1999. (www.fes.waterloo.ca)
- Labonté, Ronald.* Econology: integrating health and sustainable development. Part two: guiding principles for decision-making. Health Promotion International, Vol.6, Nº2, 1991. Pp 147-156.
- Lebel, Jean.* In- Focus Health an Ecosystem Approach, IDRC, 2003
- Mercado Domenech, Serafin et Alters.* Modulo B. Percepción social de la contaminación del aire en la zona Metropolitana del Valle de México.
- Mercado Domenech, Serafin et Alters.* Percepción social de la contaminación del aire en la zona Metropolitana de la ciudad de México. Ecosistema Urbano y Salud de los habitantes de la zona Metropolitana de la Ciudad de México. Modulo B.
- Mergler, Donna and Lucotte Marc, Corvelo, Tereza Cristina, Sablayrolles, Maria das Graças, Guimarães, Jean- Rémy, Davidson, Robert.* Mercury Exposure and Ecosystem Health in the Amazon Phase II: Building Solutions with the community. Project Number : 03323/97- 1002-02. Final Report. March 2002.
- Michael, Bopp.* Transdisciplinarity and Participation: An Evaluation of Transdisciplinarity and Participatory Aspects of the IDRC Ecosystem Approaches to Human Health Project Initiative. Final Report, February 2001.
- Muñoz, Roberto.* Gestión Ambiental y Salud Comunitaria, estudio de caso para la Delegación Alvaro Obregon, Ciudad de México.

- Nielsen, N. Ole and Reveret, Jean- Pierre.* IDRC External Review of The PI Ecosystem Approaches to Human Health
- Noronha, L.* Designing tools to track health and well- being in minig regions of India. Natural Resources Forum N/D. October 2000.
- Peden, Don,* Is There a Doctor on the Farm? Managing Agro-Ecosystems for Better Human Health, IDRC, Ottawa, 2000.
- Proyecto Ecosalud (CEAS/CIID/PPMU.ALIC). Universidad Central del Ecuador. Eco salud “Caracterización de Plaguicidas en el cultivo de flores en la Cuenca del Río Granobles”.
- Quality of Life workshop (part of the IDRC Phase II project). Date: 19th August 2000. Venue: The International Centre- Goa.
- Rached, Eglal.* 502. IDRC in the Middle East and North Africa. Report to the Board of Governors. October 17-18, 2002. September 2002.
- Rapport, David J.* Ecosystem Health: Exploring the Territory. Ecosystem Health Vol.1. March 1995. Pp. 5-13.
- Riojas Rodríguez, Horacio.* Impacto en la Salud del Ecosistema por Actividades Antropogénicas en una Cuenca Manganífera. Informe Semestral Manganeso. Enero-octubre 2002. Instituto de Salud, Ambiente y Trabajo S.C.
- Riojas Rodríguez, Horacio.* Impacto en la Salud del Ecosistema por Actividades Antropogénicas en una cuenca Manganífera. Informe semestral manganeso- marzo- julio 2001.
- Roulet, Marc.* Impact on the Health of the Ecosystem from the Anthropogenic Activities at Manganiferous Basin. Report of Consultancy contract # 100525. August 2000.
- Sabido Pedraza, Eva, Texcalac S., José Luis, Hdez. Gómez, Gloria.* Programa de Comunicación de Riesgos por Exposición a Manganeso.
- Sabido Pedraza, Eva.* Programa de Comunicación de Riesgos de Exposición a Manganeso en Comunidades del Distrito Minero Molango, estado de Hidalgo, México. Folio 11.
- Santos Burgoa, Carlos.* Impact on the Health of the Ecosystem from the Anthropogenic Activities at a Manganiferous Basin. Short Version Research Proposal Submitted to the International Development and Research Center. October 2000.
- Soils Food and Health Communities Project. Report of Proceedings of the Project Inception Workshop. Ekwendeni Mission Hospital, 9-14 July, 2001.
- Soils Food and Health Communities Project. Transdisciplinary and Participatory Nutrition Education Workshop Minutes. Soils Food and Health Communities Project on 19-21-02-2003.
- UNEP- DPDL. Improved Health Outcomes Through Community- Based Ecosystem Management: Building Capacity and Creating Local Knowledge in Community Health and Sustainable Development. Report to UNEP June 2002.

- UNEP- DPDL. Improved Health Outcomes Through Community- Based Ecosystem Management: Building Capacity and Creating Local Knowledge in Community Health and Sustainable Development. Report to UNEP December 2002.
- Waltner- Toews, David, Gitau, Thomas, Kay, James J., Neudoerffer, Cynthia.* Perspective changes everything: managing ecosystems from the inside out. *Front Ecol Environ* 2003; 1 (1) 23-30.
- Waltner- Toews, David, Kay, James, Murray, Tamsyn P., Neudoerffer, Cynthia.* Adaptive Methodology for Ecosystem Sustainability and Health (AMESH): An Introduction. Forthcoming in: *Community Operation Research: systems thinking for community development.* Draft March, 2002.
- Yonkeu, Samuel, Maiga, Amadou Hama, Mampouya, Moïse, Mamane, Chaïbou, Wethe, Joseph,.* Proposition de Projet de Recherche. Soumis au Fonds Régional CRDI Ecosystèmes et Santé humaine pour l' Afrique de l' Ouest. Theme: Elaboration des Strategies de Reduction des Risques Sanitaires pour les Populations Humaine des Pettis Barrages en Afrique de l'ouest: Cas du barrage de YITENGA au Burkina Faso. Janvier 2001.
- Joshi, Durga Datt, Sherpa, Chhing Lamu, Waltner Toews, David.* Participatory Action Research on Urban Ecosystem Health in Kathmandu Inner City Neighbourhoods, 2003.
- National Zoonoses & Food Hygiene Research Centre (NZFHRC), Tahachal, Kathmandu, Nepal. Social Action for Grassroots Organisations Nepal (SAGUN), Pulchowk, Lalitpur, Nepal. Urban Eco System Health Project Nepal Ward 19 & 20 of KMC (1998-2001). Jointly implemented by NZFHRC/ SAGUN/ UNIV. GUELPH Supported by IDRC. First Year Progress Report of the Project. 21st october 1998 to 20th October 1999.
- National Zoonoses and Food Hygiene Research Centre (NZFHRC) Social Action for Grassroots Organizations (SAGUN), Nepal & University Of Guelph, Canada. Three Years Projects Progress Review Workshop Urban Eco System Health Project Nepal Ward 19 & 20 of KMC (1998- 2001), November 6, 2001.
- Social Action for Grassroots Organizations (SAGUN). Second Annual Progress Report on Urban Ecosystem Approach to Health Project in Ward 19& 20 of Kathmandu Metropolitan City, Nepal. 1st November 1999- October 31st 2000.
- Social Action for Grassroots Organizations (SAGUN). Third Annual Progress Report on Urban Ecosystem Approach to Health Project. In Ward 19 & 20 of Kathmandu Metropolitan City, Nepal. October 2000 to October 2001.

APPENDIX 1: CASE STUDY DESCRIPTIONS

The seven case study projects reviewed in-depth are:

Agriculture

“Livestock and agro ecosystem management for community-based integrated malaria control,” Mwea, Kenya (Phase 1+)

“Evaluation de l’impact de l’utilisation des eaux uses en agriculture sur l’ecosysteme et la sante de la communaute des Mzamza,” Settat, Morocco (Phase 1)

Urbanization

“Urban ecosystem health,” Kathmandu, Nepal (Phase 2)

“Urban ecosystem and urban health in Mexico City,” Mexico (Phase 2)

Mining

“Managing and Monitoring ecosystems for improved human health and well-being in mining regions,” Goa, India (Phase 2)

“Mercury exposure, ecosystem and human health in the Amazon,” Amazonas, Brazil (Phase 3)

“Manganese exposure in general population resident in a mining district,” Mexico (Phase 1)

In-Depth Case Studies

All EcoHealth research projects must satisfy dual purposes: contribute to scientific knowledge and improve development outcomes, especially human health. These two objectives are in themselves great challenges and in combination present a continuing need to balance for EcoHealth program officers as well as project researchers. The purpose of this section is to present some background descriptive information about the seven in-depth project studies that were carried out in the external evaluation. Projects themselves were not evaluated and project personnel were assured that the evaluators were seeking information only for purposes of drawing general conclusions about the overall EcoHealth program.

These studies are by no means comprehensive, nor are they purported to be representative of all EcoHealth projects. While this section does indicate specific project conditions, only those that seem to be generalizable are discussed for the purposes of this review.

However, they are used to provide some lessons and suggest conclusions that apply more broadly to program activities.

Case Study 1: Livestock and agro ecosystem management for community-based integrated malaria control,” Mwea, Kenya (Phase 1+)

The Mwea research project has completed Phase 1 and is awaiting approval of Phase 2 funding. The initial phase took place from November 2000 – December 2002. The project

was performed as a collaboration among researchers at the International Centre of Insect Physiology and Ecology (ICIPE), the University of Nairobi, and Kenya Medical Research Institute (KEMRI.) The primary research objective was to carry out surveillance and community assessment on the link between irrigation for rice production, livestock, and malaria prevalence. The main development objective is to equip the study communities with knowledge and techniques to reduce the prevalence of malaria which imposes a high toll of morbidity and mortality on the communities at present.

The research team is transdisciplinary, including specialists in epidemiology, veterinary medicine, livestock production, community health, entomology, and gender approaches. The project leader is Dr. Clifford Mutero, a staff scientist at ICIPE who has recently moved to the International Water Management Institute (IWMI), and is now based in Pretoria. The project team was supported by four graduate students who were conducting their theses in various disciplines based on project activities.

During Phase 1 of the study, several major accomplishments occurred:

- The research team was formed, coalesced, and carried out the work in a highly collaborative manner
- Participatory activities with the four study communities occurred, including initial stakeholder workshops, surveillance and household surveys using a participatory rural appraisal (PRA) approach, and dissemination workshops
- A variety of no- or low-cost technical recommendations were made to the communities and have been implemented by them, leading to perceived reductions in malaria
- Five scientific papers and three conference presentations have been completed, with three papers accepted in peer-reviewed journals and the others to be submitted
- Three masters theses have been completed and approved, with a fourth nearing completion
- Preparations have been made for Phase 2 (including village action plans) and an application is being prepared for submission to IDRC for funding
- The Systemwide Initiative on Malaria and Agriculture (SIMA) was launched by the CGIAR, a move which was clearly instigated by the project leader's work on this project and others

The Mwea project is considered a success by the EcoHealth PI team. The first phase of the project has many accomplishments to show for its two years of relatively modest funding. It is evident that the project has achieved the sine qua non of EcoHealth in being participatory, transdisciplinary, and inclusive of gender differences. Beyond the basics, the project has been a showcase for the EcoHealth program: its main theme fits well within the scope of EcoHealth; the project leader, Dr. Mutero, exemplifies the philosophical, managerial, and scientific approach that EcoHealth seeks to support; and it is situated in a region and country of high global health priority. Not all of these features are present in other EcoHealth projects but their presence in this project demonstrates in an important way that it is possible to achieve these qualities.

Despite its success, the project raises issues that are repeated elsewhere and so could be seen as endemic to the manner in which the EcoHealth approach is being carried out. Some of the key issues raised in this project and others are: the soundness of the research design; a visionary and driven project leader without whom the project may not be sustainable; adequacy of funds and time to achieve impacts; and the availability of independent scientific input at all stages of the project.

Case Study 2: Evaluation de l'impact de l'utilisation des eaux usees en agriculture sur l'ecosysteme et la sante de la communaute des Mzamza, Settat, Morocco (Phase 1)

The Morocco project is a product of the MENA Regional Fund RFP process. It officially began in October 2002 but work did not get underway until April 2003 due to budgeting difficulties through the Moroccan government. The project leader is Laamari Abdelali, based at INRA in Settat. His partners come from the local agriculture university and the regional hospital. The entire team consists of 19 professionals and several students in health, natural and agricultural sciences.

The study area is currently two rural villages near Settat (a small regional town near Casablanca) that rely on agriculture using wastewater for irrigation. One village uses more wastewater than the other and the study objective is to determine the health and ecosystem impacts of wastewater use and, based on the results, recommend solutions to improve human, animal and ecosystem health.

The project is relatively new and it would be far too early to assess its accomplishments. However, to date, a substantial team has been assembled from multiple institutions and representing a wide range of disciplines. There are no apparent gaps in expertise to allow the project topic to be addressed. A substantial amount of health assessment has already been performed and data is ready to be analyzed. The environmental team is also gathering data on soils and plant conditions, and some community involvement has occurred. As with all EcoHealth projects, the relations between researchers and community members seems quite open and positive.

However, at this early stage there remain gaps in the commitment to and understanding of team members to the EcoHealth approach. There is not yet a common set of working hypotheses within the team, and there are significant methodological divides that have not been bridged. For instance, there is a dispute regarding the necessity of carrying out surveillance in a control village, which is viewed as important by the health experts on the team but not by others.⁷⁰ Further, there is little evidence of social science, including gender, data collection or plans for analysis.

⁷⁰ This dispute illustrates a common methodological difference in research by biomedical scientists where randomized control experiments are the gold standard and social and behavioral scientists where observational and quasi-experimental methods are accepted and indeed often the only feasible approach. It may be useful for IDRC to consider addressing this methodological chasm head-on in the training workshops they sponsor.

This project was initiated through the Regional Fund for Middle East/North Africa in the manner described above. A number of institutions within the region were invited to attend a proposal development workshop and some were thereafter selected to receive small grants and submit proposals. The Morocco project was one of two in the MENA region that received a funded project (the other was El-Fayoum, Egypt.) Some of the potential advantages of this approach mentioned above could be to reduce delays in project implementation and to better prepare the teams for the EcoHealth paradigm. These advantages were not fully realized in the case of the Morocco project because project budgeting through the Moroccan government was and still is very slow, and because not all of the 19 team members participated in the workshop (only three per team are allowed.)

The project team cited several realized advantages of participating in the Regional Fund workshop and pre-proposal process. The team felt that the small grant for proposal development was very valuable in working through disciplinary differences, attracting needed expertise in the early stage of the project, initiating communication with the communities, and in general overcoming skepticism about whether the project could work.

Case Study 3: Urban ecosystem health, Kathmandu, Nepal (Phase 2)

This is the project on “Urban Ecosystem Health” in Kathmandu, which was visited from July 27 to August 1. Investigators, health authorities of the Ministry and of the city and members of the community boards and of the association of butchers were interviewed.

The project allowed modifying the sanitary conditions of slaughterhouses and improving the riverbanks, but it empowered a group of butchers to create a company and install the first industrial slaughterhouse of the city which can offer the local market safe meat. The economic benefit is that this meat can substitute for imported meat purchased by the hotels and tourist restaurants because they do not have confidence in the local meat without sanitary inspection. These changes have created conflicts between the butchers with fewer resources and the partners of the company (strengthening the social class structure instead of the castes), but shows how the project is contributing to the development of the country.

In terms of ecosystem management, the experience has been very interesting because it combines strictly health objectives, such as the sanitary control of meat, with social development proposals, such as the construction of public restrooms administered by cooperatives, or the building of a highway. Further, the creation of a company such as the industrial slaughterhouse that can offer certified meat will create jobs and reduce imports. But it has also influenced the creation of sanitary norms through decrees enacted by the authorities of the municipality and the ministry of health.

In Kathmandu, Nepal, the experience has been very interesting because it combines strictly health purposes, such as the sanitary control of meat, with social development proposals, such as the construction of public restrooms administered by cooperatives, or the building of a highway, but in a more significant manner, the creation of a company such as the industrial slaughterhouse that can offer certified meat will create jobs and reduce imports.

But it has also influenced in the creation of sanitary norms through decrees enacted by the authorities of the municipality and the ministry of health.

In the case of the mercury project of Brazil, the management of the ecosystem has a community, small-scale nature, with actions carried out in some communities. In this case, the public authorities were not involved, but rather direct work was performed with the communities. This may be due to the isolation of the communities studied, which are disperse populations that inhabit the borders of the river or lakes, but also to the fact that this team is made up of individuals with a marked scientific interest and as a consequence with little vocation as activists.

Case Study 4: Urban ecosystem and urban health in Mexico City, Mexico (Phase 2)

This is the “Urban Ecosystem and Urban Health in Mexico City” project which was visited in the city of Mexico from July 12 to July 15. Investigators and authorities of the health secretariat of the city and the country were interviewed.

The focus on ecosystems for human health has managed to modify the view of investigators toward their work and their connection with the communities and the use of results. It is interesting how in the city of Mexico, although the use of results has been limited by the political circumstances from the change of government, the experience of the ecosystems focus has been incorporated in the analysis of the Health Secretariat and the Institute of Public Health for the comprehension and design of policies in complex problems.

The project was entrusted to and led by the adequate political level which is the secretariat of environment of the DF. Nevertheless, the use of the results has been very limited because of the change of local government and the dimensions of the city. The impact of the interventions made by the institute were considered to be somewhat symbolic, since it can only train some dozens of women in a city of 18 million inhabitants. But the results that the study yielded are important for the plans and policies of the city when it is deemed opportune.

On the other hand, in the project on Manganese in the state of Hidalgo in Mexico, the conflict was carried out at the official level and there a table for consultations was created where all the sectors involved in the conflict are represented: companies, unions, community and the authorities of the state through the secretariat of ecology. In this case, the management of the conflict is in the hands of the state, which seeks to obligate the actors to reach agreements and then carry them out; and it seeks by this means to exercise a policy of social control lessening the negative political effects that an open conflict that is beyond the control of the state could have.

The project on environmental contamination in the city of Mexico was entrusted to and led by the adequate political level which is the secretariat of environment of the DF. Nevertheless, the use of the results has been very limited because of the change of local government and the dimensions of the city, because the interventions made by the institute

of the woman were considered to be somewhat symbolic, since it can manage to train some dozens of women in a city of 18 million inhabitants. But the results that the study yielded are important for the plans and policies of the city when it is deemed opportune.

Case Study 5: Managing and monitoring ecosystems for improved human health and well-being in mining regions, Goa, India (Phase 2)

The Goa project is currently beginning Phase 3 of IDRC funding, and this evaluation focuses on what has been learned in Phase 2 and how it is being applied to development of Phase 3 to draw lessons for the overall EcoHealth program. The overall objective was to assess the impact of large-scale mining on the health and well-being of surrounding populations in Goa, India. The project began in 1998 with a 1-year probationary grant to the project leader, Ligia Noronha, an economist at TERI, an environmental research organization in Delhi, India. It was extended to a second phase which took place from March 2000 to March 2002. Phase 3 got underway in Spring 2003.

It is interesting to note that a funding hiatus between project phases is common among EcoHealth projects and appears to be due to the extensive negotiations that take place between PI program officers and project researchers in order to reach agreement on proposal documents. These funding gaps may be reason for mild alarm if they cause a project to lose momentum, a particularly risky situation when doing participatory research with communities where trust is a prized commodity. In the Goa case, this does not appear to be the case thanks to a parallel project funded by DfID that brought the research team into the communities on a regular basis.

The Goa project began life as a tripartite endeavor among research institutions in India, the U.K. and Colombia. IDRC program officers created the arrangement so that the researchers in those institutions could share common objectives in their work on mining and could benefit from developing mutually informative methodologies in parallel with each other. Consequently, the research was conducted simultaneously with each of the three institutions focusing on specific aspects. The goal was to enhance and broaden the methodological tools conceived of in Phase 1, to apply them to assess and track community health and well-being, and to disseminate what was learned in the process.

Although the project successfully produced a tri-partite collaboration in methodology development, the challenges of working across oceans in different languages and with different emphases gradually led to the disintegration of the partnership. Hence, this review focuses only on the Phase 2 work done in Goa by the TERI team, recognizing that it was informed and no doubt enriched by the earlier collaboration.

The Goa project itself is not multi-institutional as TERI has a strong inter-disciplinary ethos within the institution and was able to assemble the necessary expertise from within, led by Dr. Ligia Noronha. During Phase 2 of the IDRC funding, the research team accomplished the following activities:

- Developed and tested a set of environmental and social performance indicators with data from 17 villages in Goa and obtained feedback on their feasibility and acceptability from a wide range of stakeholders
- Created and applied a quality of life instrument (after refinement) to collect information from a random sample of households in mining and non-mining villages
- Developed financial impact accounts of health, social and natural resource depletion costs based on data from a 1997 TERI study of mining impacts
- Published two articles and made numerous presentations to small and large audiences, including national and international policy-makers and researchers
- Worked closely with the mining industry and facilitated establishment of its community benefit program (Mining Foundation)
- Created a congenial space for dialogue between the industry and the communities

In the process, the project team operated in a transdisciplinary and participatory fashion. Like most, but not all EcoHealth projects, the participatory approach was also utilized within the research team as well as in relations with the study communities. This contrasts with more traditional research activities that are frequently hierarchical and rigid in conduct. Whether this is a result of working in a transdisciplinary manner (logically this would be expected) or due to self-selection into EcoHealth, it leads to a creative and flexible approach to the conduct of research. This flexibility is also encouraged by EcoHealth staff, one of the many ways in which the EcoHealth program officials lend support to the projects. This type of appreciative comment was made frequently by project researchers about the EcoHealth PI team.

Some of the issues already mentioned that are common to EcoHealth projects are also apparent in Goa (need for independent scientific input, reliance on a visionary leader, time needed to impact.) Several others were hinted at in Goa but are being managed there whereas they may present more serious problems at sites with less institutional and intellectual capacity. These include some conflict between research and development aims of the project, lack of a hypothesis testing approach, and some methodological confusion.

Case Study 6: Mercury exposure, ecosystem and human health in the Amazon, Amazonas, Brazil (Phase 3)

This project was visited from July 10 to July 16 in the city of Santarem, Itaituba and Santo Antonio community in R o Tapajos. Investigators and their auxiliaries, the authorities of the University and persons of the community were interviewed. It was not possible to interview the chief investigator of the project for personal reasons.

The research results have identified the origin of contamination by mercury in the water, plants and fish, and thus formulating proposals for changes in the nutrition of the persons. The management of the ecosystem has a community, small-scale nature, with actions carried out in some communities. In this case, the public authorities were not involved, but rather direct work was performed with the communities. This may be due to the isolation of the communities studied, which are dispersed populations that inhabit the borders of the river or lakes, but also to the fact that this team is made up of individuals with a marked scientific interest and as a consequence with little vocation as activists.

Case Study 7: “Manganese exposure in general population resident in a mining district,” Mexico (Phase 1)

This is the project on “Manganese exposure in general population resident in a mining district, Mexico” which was visited in Pachuca, Molango and Chiconcuac from July 16 to July 19, 2003. Investigators, authorities of the institution, local physicians and the secretary of ecology of the State of Hidalgo were interviewed.

The investigation permitted on one hand placing in its fair dimension the damages caused to health by mining exploitation, which had been exaggerated by the social conflict between the company and the community. The project allowed establishing a space for dialogue where the social and epidemiological situation of the zone can be regularly discussed and measures taken that are deemed appropriate to improve these conditions.

Conflict existed among authorities and the project was able to create a space for consultations where all the sectors involved in the conflict are represented: companies, unions, community and the authorities of the state through the secretariat of ecology. In this case, the management of the conflict is in the hands of the state, which seeks to obligate the actors to reach agreements and then carry them out; and it seeks by this means to exercise a policy of social control lessening the negative political effects that an open conflict that is beyond the control of the state could have.

APPENDIX 2: LIST OF PERSONS INTERVIEWED

Brasil

Nombres y Apellidos	Instituto y Dirección	Teléfono	E-mail
María Das Gracias Piner	Universidad Federal de Pará	Hab. (93) 5222072	pines@tap.com.br mpines@ufpa.br
Cristina Corvelo	Coordinadora General Laboratorio de Inmunología		
Aldo Queiroz	Director da 5ta Unidade Regional de Educação, Antigo Vice- coordenador de la UFPA	(93) 5241872 Cel. (93) 99751011	queiroz@tap.com.br
Edilan Santana Cuaresma	Vice- Coordinador de Núcleo da UFPA en Santaren	Directo 5226637-5231087- 5232258	
Dianne Samparo da Silva Estudiante curso de Letras	Instituto Luterano de Ensino Superior Ulbra, TRV Professor Luis Barbosa, 1322 Caranazal Santarím Pará Cop.: 68040420		
Jorge Rodríguez Palmquist Estudiante do curso de Ciências Sociais	Departamento de Antropología Centro de Filosofia e Ciências Humanas Universidade Federal do Pará- UFPA Belem- Pará		jorgepalmquist@hotmail.com
Katia Demeda Estudante de Ciências Humanas	Antropología Centro de Filosofias e Ciências Humanas Universidade Federal do Pará Belem- Pará.		sdemeda@bol.com.br kdemeda@bol.com.br
Mauro Costa de Castro	Estudante de Ciências Sociais Enfase em Antropologia Centro de Filosofia e Ciências Humanas Universidade Federal do Pará Belem- Pará		mauroandrec@bol.com.br

Carlos José Passos	Biólogo, M. Sc. Ciências Ambientais Doutorado em Ciências Ambientais Universidade de Québec em Mont (UQAM)		passos.carlos@courrier.uqam.ca
Myriam Fillion	Bióloga, B.Sc. Estudante de mestrado em Ciências Ambientais Universidade de Québec em Montréal (UQAM)		fillion-myriam@courrier.uqam.ca
Frederic Mertens Dr. en Ciências, Université Libre de Belgique	Estudante de Doutorado em Ciências Ambientais Universidade do Quebec em Montreal		mertens.frederic@courrier.uqam.ca
Edenilza Figueredo g. De Sousa	Bióloga- UFPA- Santarém- PA		edenilzasouza@hotmail.com
Clenildo Adriano Andrade dos Santos	Enfermeiro- UFPA End: Rua Nova U Linda Nº 66 Bairro: Interventório C.E.P.: 68010-040 Santaém- Pará	021-93-5 ^a a-651 ^a	
Melanie Lemire Bióloga, B. Sc.	Estudante de Maestrado em Ciências Ambientais Universidade de Québec em Montreal		lemire.melanie@courrier.uqam.ca
Delaine Sampaio da Silva	Bióloga, Msc Ciências Ambientais Doutoranda em Ciências Ambientais- UQAM		sampaio_da_silva@courrier.uqam.ca
Hugo Poirier	Ciências Ambientais, Msc Montreal, Quebec	Phone: 514-934-0460	
Marco Rodríguez Miranda	Biólogo- Maestrando em Biofísica- IBCCF-UFRJ		topo@biof.ufrj.br
Solange Ximenes	Prof. da UFPA (Biologia)		
Jean Remy Guimaraes	Univ. Federal de Río de Janeiro Coordenador del Proyecto		

Goa, India

Name and Title	Institution and Address	Phone	E-mail
----------------	-------------------------	-------	--------

Dr. Ligia Noronha	TERI New Delhi, India	+468-2100	ligian@teri.res.in
Sangeeta Sonak	TERI Dona Paula, Goa, India	+254-6064	ssonak@teri.res.in
Subrahmanya Nairy	TERI Dona Paula, Goa, India	+456-064	ksnairy@teri.res.in
Dr. Rajendra K. Pauchuri	TERI Dona Paula, Goa, India	+468-2121	pauchuri@teri.res.in
Melba D'Sourza	TERI Dona Paula, Goa, India		
Yohita Mehra	TERI Dona Paula, Goa, India		
Vikram Dayal	TERI Delhi		
Divya Dutt	TERI Delhi		
Dr. B.S. Choudri	TERI Dona Paula, Goa, India		
Saltanat Kazi	TERI Dona Paula, Goa, India		
Sheshank Thakur	TERI Dona Paula, Goa, India		
Shirin Cooper	TERI Dona Paula, Goa, India		
Dr. N. Bhatiker	General Manager SESA Goa Limited Panjim, Goa India	+91-832-237-0155	drbhatiker@sesagoa.com
Mehesh K. Patil	Senior Manager SESA Goa Limited Panjim, Goa India	+91-832-246-0713	mptail@sesagoa.com
M.D. Phal	Director, Resources SESA Goa Limited Panjim, Goa, India	+91-832-246-0600	phal@sesagoa.com
R. Uma	Fellow Center for Environmental Studies TERI New Delhi, India	+24-68-2100	ruma@teri.res.in

Preety Bhandari	Policy Analysis Division TERI New Delhi, India	+24 68 2100	preetyb@teri.res.in
Mr. Kaumbali	Officer-in-Charge National Irrigation Board Mwea District		

IDRC

Nombres y Apellidos	Instituto y Dirección	Teléfono	E-mail
Jean Michel Labatut	IDRC, Canadá		jmlabatut@idrc.ca
Laurent Lepage	Chair Ecosystem Network in Quebec IDRC- Consultant		lepage.laurent@ugam.ca
Andrés Sánchez	IDRC, Canadá		asanchez@idrc.ca
Ana Amel Boischio	IDRC, Canadá		aboischio@idrc.ca
Jean Lebel	IDRC, Canadá		jlebel@idrc.ca
Renaud de Plaen	IDRC, Canadá		rdeplaen@idrc.ca
Gilles Forget	IDRC, Canadá		gforget@idrc.org.sn
Don Peden	IDRC, Ethiopia		d.peden@cgiar.org
Roberto Bazzani	IDRC, Uruguay		rbazzani@idrc.org.uy
Zsofia Orosz	IDRC, Canada		zorosz@idrc.ca
Peter Cooper	IDRC, Canada		pcoper@idrc.ca

Mwea, Kenya

Name and Title	Institution and Address	Phone	E-mail
Dr. Lucy Kabuage	Professor University of Nairobi Faculty of Agriculture		kabuage@gt.co.ke
Dr. Violet Kimani	Chair, Department of Community Health Faculty of Medicine University of Nairobi	+254-2-2726300	Kimanek2002@yahoo.com

Charity Kabutha	ISNAR		C_kabutha@yahoo.com
Dr. Clifford Mutero	Coordinator, SIMA IWMI Pretoria, South Africa		cmutero@cgiar.org
Mr. Chelagat	District Officer Mwea		
Mr. Kaumbali	Officer-in-Charge National Irrigation Board Mwea District		
Martin	Research Assistant Mwea Project		
Dr. John Githure	Director, Health and Agriculture ICRPE Nairobi, Kenya		
Prof. Dominic Makawiti	Dean, Faculty of Medicine College of Health Sciences Kenyatta National Hospital Nairobi, Kenya	+254-2-2726 300	dmakawiti@hotmail.com
Dr. George Gitau	Interafrican Bureau for Animal Resources P.O. Box 30786 Nairobi, Kenya	+254-20-315-065	George.gitau@oau-ibar.org
Dr. Hans Herren	Director General ICRPE Nairobi, Kenya	+254-2-861-686	hherren@icipe.org
Dr. Amos Omore	ILRI Box 30709 Nairobi, Kenya	+254-2-630-743	a.omore@cgiar.org

México

Nombres y Apellidos	Instituto y Dirección	Teléfono	E-mail
Carlos Santos Burgoa	Secretaría de Salud de México	52- 11- 7538- 52-11- 7788	csantos@salud.gob.mx

Roberto Muñoz Cruz	Secretaría de Medio Ambiente del DF, México	Tel. 52-555-6504270 (casa mamá) 52-555-2099903 Ext. 6120 Ofic. 52-55- 52-718844 Directo ofic. 52-55-5676911 (casa)	rmunoz@sma.df.gob.mx
Horacio Riojas	Instituto de Salud, Ambiente y Trabajo (ISAT) Cuernavaca	Cel. 52-77-73-042417 Casa 52-77-73-176212 Ofic. 52-77-73-293000 ext. 3327	horacio.riojas-rodriguez@isat.org.mx
Enrique Cifuentes	Director del CENSA (Centro de Salud Ambiental) Instituto Nacional Salud Pública Cuernavaca		
Lic. Adriana Duran	Directora General Consejo Estatal de Ecología, Estado Hidalgo, Pachuca Calle José María Iglesias N° 100 Colonia Centro	01-771 7141056	
Arquitecto David Uribe Gutiérrez	Director de Normatividad y Control Ambiental Consejo de Ecología del Estado de Hidalgo Pachuca, Hidalgo México.		
Dr. Victor Borja Aburto	Titular de Coordinación de Salud en el trabajo Instituto Mexicano del Seguro Social, México		
Serafin Mercado Domenech	Esc. De Psicología Univ. Autónoma de México		
Claudia Sierra	Jefa de Jurisdicción de Molango, Hidalgo. Sanitaria N° IX		

Erasmio Nava	Encargado de la Clínica Lolotla Sistema de Salud de Hidalgo Secretaría de Salud de Hidalgo		
Ricardo Vidal			

Settat, Morocco

INRA Team

Dr. Abdelali Laamari
Project Leader
Department Chair, Socio-Economics
Institut National de la Recherche Agronomique
Centre Aridoculture
CRRA B.P.589, Settat Moroc
Laamari@crrasettat-inra.ma

Driss Hadarbach
Statistician/Biometrician
Steering Committee
INRA-CRRA

Abdelouahid Chriyaa
Animal Production
INRA-CRRA

University Team

Abdelhoumid Bouzidi
Team Coordinator
Hassan 1er University
Faculty of Science and Technology
BP 577 Settat, Maroc
Bouzidi_a@hotmail.com

Asaad Abdelmajid
Vice President
University Hassan II

Nameira El Awaui Paaza
Hydrologist and hydrogeology
FST Settat

Yahya Koulali
Microbiologist (Mycology and bacteriology)
FST Settat

Rachid El Mowraoulah
Geologist/geochemistry/minerology
FST Settat

Hilali Abderraouf
Genetics and toxicology
Faculty, Hassan II University

Sanae Kholtei
Water chemistry

Fatima Jira
Soil scientist

Three students: chemistry and water biology, water treatment, water chemistry

Health Team

Said El Kettani
Team Coordinator
Internal Medicine
Hassan II Hospital Settat

Fethi Slimani
Medical Chief, Hospital

Jaaouni Noureddine
Chief of Medical Emergencies

Ahmed Ouassim
Community participation expert

Mohamed Kahhouli
Regional Epidemiologist

Touria Chakib
General practitioner

Ouafaa Fennich
Neurologist

Youssef Nionchi

Public Health
Neurology and toxicology
Nepal

Nombres y Apellidos	Instituto y Dirección	Teléfono	E-mail
Dr. Dhan R. Ratala	Program Director Directorate of Animal Services Ministry of Agriculture Co- Operatives		
Vijaya Krishna Shrestha	Former Ward Chairman Ward n° 20 KMC Katmandú		
Manoj Newa Khadhi	Nepal Khadi Sewa Samitee Estd. 2030 (30 years before) Caretaker of Nepal Meat Entrepreneours Association Phone: 42-68144 OFF. 42- 53433 RBS		
Rajim Sthapit	Nhu Pucha (club) Bhimsemstham Kath	42- 29005 42- 57312	
Bhasat Kumas Porcured	20 Ward Secretary (present id director)	4-253967	
Sahi Lal Shrestha	Former Chairman		
Rajesh Shresta	Tagocha Maharjan (Former Member)		
Rajesh Shresta	Ward Secretary		
Dr. Babu Ram Gautam	Chief, Public Health Departament Kathmando Metropolitan City (KMC)		
Dr. Padam Bahadun Chand	Director Epidemiology & Disease Control Departament of Public Health		
Minu Sharma	Programm Officer (Sociologist)		
Meena Oahal	Computer Analysts		
Basant Joshi	Field Supervisor		
Mahendra Maharjan	Research Officer		

Dr. Harish Joshi	Chairman and Public Health Epidemiologist		
Dr. D.D. Joshi	Director Project Coordinator NAFHRC Urban Ecosystem Health		
Mukta S. Lama	Quality Meat Products LTD		
Suresh Dhakal	Quality Meat Products LTD		
Indra Prasad Khadgi	Managins Director		
Radha Krishra Shahi	Quality Meat Products LTD		
Balkirshna Khadagi	Quality Meat Products LTD		
Kedar Shahi	Quality Meat Products LTD		
Nuchheralma Shahi	Quality Meat Products LTD		
Hira Kaji Khadagi	Quality Meat Products LTD		
DayaNanda Khadagi	Quality Meat Products LTD		
Chandra Prakash Khadagi	Quality Meat Products LTD		

Other

Name and Title	Institution and Address	Phone	E-mail
Johannes Sommerfeld	OMS; Switzerland		sommerfeldj@who.int
David Waltner-Toews	University of Guelph		dwaltner@voguelph.ca
Donna Mergler	University of Quebec-Montreal		mergler.donna@ugam.ca
Laurent Lepage	University of Quebec-Montreal	+514-987-3000	Lepage.laurent@uqam.ca
Dr. Fawzy Kishk	Alexandria University Faculty of Agriculture Egypt	+203-592-1260	fkishk@hotmail.com
Dr. Michael Bopp	Four Worlds Centre for Development Learning P.O. Box 395 Cochrane, Alberta, Canada	+403-932-1922	fourworlds@telusplanet.net
Micheal Loevinsohn	RENEWAL Network ISNAR P.O. Box 93375 The Hague Netherlands	+31-70-349-6183	m.loevinsohn@cgiar.org
Dr. Don Peden	ILRI P.O. Box 5689 Addis Ababa, Ethiopia	+251-1-463215	d.peden@cgiar.org

Rachel Bezner Kerr	Development Sociology Cornell University Ithica, NY, USA	+607-255-2065	Rnb5@cornell.edu
May Yacoob	UN Foundation 1225 Connecticut Ave. Washington, DC	202-887-9040	myacoob@unfoundation.org
Dr. Burton Singer	Sociology Department Princeton University Princeton, NJ, USA		Burt.singer@princeton.edu
Eckhard Kleinau	Environmental Health Project Arlington, VA		