

HEALTH ↔ ENVIRONMENT: Global Links

Challenging the HIV/AIDS–hunger nexus



Pediatric health is an important focus for a multidisciplinary wastewater management team in the Mingoa watershed community of Yaoundé, Cameroun. Starting from an eco-health approach, the community has seen the pros and cons of a community-based approach to reducing fecal contamination in local drinking water supplies. Story: Page 5.

The recent *HIV/AIDS, Food and Nutrition Security Conference* in Durban, South Africa¹ brought together pioneering research on the interactions between HIV and food security and explored the implications for policy and front-line action.

Conference organizers called on participants to actively build bridges between affected and at-risk countries, between stakeholders from policy, programming and research arenas, and between humanitarian and development initiatives. There was general agreement that these linkages would promote pro-active, collaborative engagement of food and nutrition organizations in research related to one of the most devastating health crises in world history.

What's the connection?

What does HIV/AIDS have to do with agriculture? Plenty, since agriculture is the economic mainstay of the people most affected by the epidemic. Evidence gathered from an ecosystems and human health perspective shows that HIV/AIDS has far-reaching impacts on rural livelihoods, food security and nutrition, with interactions that are devastating and complex.

At the individual level, food security and nutritional status play a key role in preventing the disease. At the societal level, these are also key factors in determining communities' livelihoods and their capacity for future preventive and mitigating activities. The impacts of HIV/AIDS are equally dramatic on the human, social, economic and environmental scales, with loss of family members and community ties, diminishing family income, agricultural labour shortages, and the degradation of farmland heading a long list of devastating consequences.

Research on the interactions between HIV/AIDS and food and nutrition security is well under way, but this work has not yet been translated into action or policy.

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About this newsletter

Health ↔ Environment: Global Links is being introduced by Canada's International Development Research Centre to meet a need for information and knowledge exchange globally expressed at the *International Forum on Ecosystem Approaches to Human Health* that convened in Montréal, Canada in May 2003.

Out of all the knowledge and experience presented at the *Forum*, one of the most basic insights—and one of the most exciting—was the realization on the part of practitioners working on health and environment issues to sustainable development that they were not alone.

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*Editorial***The Communities of Practice in health and environment emerge**

The two years since the Montréal Forum have been an exceptionally busy time for anyone with an interest in environment and health linkages.

Regional communities of practice (CoPs) are being consolidated in Latin America and West Africa. A third regional CoP may be emerging in the Middle East and North Africa. A special edition of *EcoHealth*¹ journal carried over some of the most significant conceptual thinking from Montréal, while providing an update on recent developments in the field. And around the world, in dozens of local and regional projects, practitioners are implementing integrated approaches to health and environment linkages on the ground, building capacity for their communities while generating insights to help guide the next generation of ecohealth initiatives.

This edition of *Health ↔ Environment: Global Links* captures some of the conceptual advances and lessons learned from a few projects around the world that reflect practical applications of the environment-health linkage.

From Ecuador, Dr. Jaime Breilh shares his thinking on some of the main conceptual challenges facing practitioners working at the junction between ecosystems and human health, based in part on his front-line analysis of the flower industry in the Granobles River Basin.

From South Africa, we hear about a recent conference on HIV/AIDS, food production, and nutrition, where participants focused on the epidemic's impact on rural livelihoods, food security, and nutrition and on the potential of nutritional interventions to mitigate some of the impacts of AIDS.

In seven different African nations, researchers are looking at the sometimes unexpected linkages between agricultural production and human health risks, through the complex ecological and socio-economic determinants of malaria prevalence. In Cameroun, the city of Yaoundé is experiencing the ups and downs of different aspects of community mobilization as it seeks to design a wastewater management system from an ecohealth perspective.

These are just a few of the local projects now under way that are drawing from and contributing back to the global community of practice on environment and health linkages. We look forward to sharing the insights and lessons learned from these and other front-line initiatives in future newsletters.

¹*EcoHealth* is an international peer-reviewed journal that arose from the merging of the *Ecosystem Health* and *Global Change and Human Health* journals, in collaboration with the Consortium of Conservation Medicine. The journal focuses on issues, research and integration of knowledge at the interface between ecological and health sciences and concentrates on three complementary and overlapping areas: Integrated studies in ecology, health and sustainability, Global change and human health, and Conservation Medicine (www.ecohealth.net).

“Researchers are looking at the sometimes unexpected linkages between agricultural production and human health risks.”

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In plenary halls and workshop sessions, and in dynamic conversations in hallways and at coffee stands, it was clear to participants that they were a part of a broad, global effort to understand and act upon the interactions between environmental quality and human health. For many, the breadth and depth of that growing network became clear for the first time.

The purpose of this newsletter is to sustain the momentum that began with the Forum and continue building the emerging global Community of Practice on health and environment. The newsletter is sponsored by Canada's International Development Research Centre, but belongs to what we hope will be an emerging global community of scientists and development practitioners working on health and environment linkages. Therefore, while the first issue of this newsletter emphasizes projects and activities sponsored by IDRC, we invite you to send your comments, your suggestions, and your story ideas to ecohealth@idrc.ca as we continue to build a vibrant, effective community together.

*Health ↔ Environment:
Global Links wants YOU*

This newsletter is intended as a forum for the global community of scientists and practitioners in health and environment. Please send your project information, story ideas, comments, and letters to the editor!

You can reach
Health ↔ Environment: Global Links at

ecohealth@idrc.ca.

SIMA: Meeting the challenge of transdisciplinarity

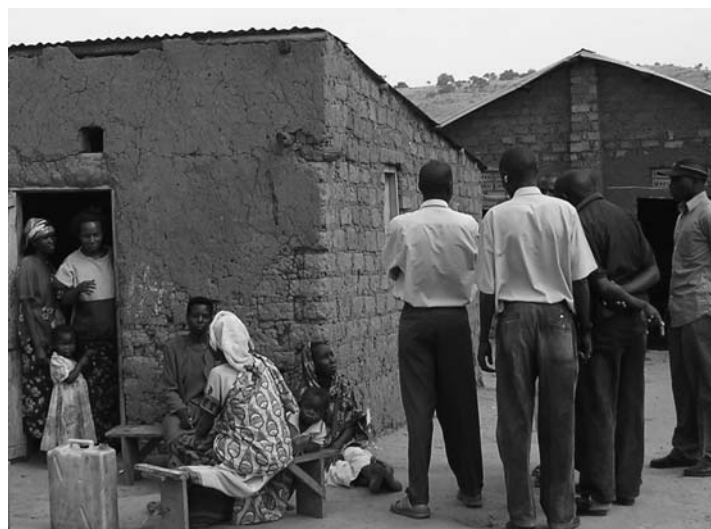
Local water sources in this community in Mbarara District, Uganda, are used for both human and animal consumption. Livestock footprints near water sources provide a perfect breeding ground for mosquitoes. Photo: SIMA.

Building an effective community of practice is a key challenge faced by the Systemwide Initiative on Malaria and Agriculture (SIMA), said project coordinator Dr. Clifford Mutero of the International Water Management Institute in Pretoria. In the eight projects conducted under the SIMA banner, a deliberate effort was needed to bring together researchers from different disciplines and help them discover the common language of an environment and human health approach.

SIMA promotes research partnerships, capacity-building, and information dissemination, and pilots innovative interventions to strengthen and complement existing malaria control strategies. Its current projects in Uganda, Kenya, Zimbabwe, Tanzania, Mozambique, Ghana, and Ethiopia look at the links between different agricultural systems and malaria prevalence and transmission.

The positive linkages between agriculture and human health are well known: better food security and nutrition and higher household incomes have long been understood as a basis for human health. But agricultural development carries negative health impacts as well: The irrigation of rice, for example, can directly influence the exposure of people to malaria and other vector-borne diseases.

SIMA projects recognize that the ecological and socio-economic determinants of malaria prevalence are complex and not readily addressed through “piecemeal, reductionist approaches,” Dr. Mutero said. He called for a shift to more integrated, transdisciplinary, participatory approaches that would lead to sustainable intervention strategies against malaria.



A typical rural dwelling in Nyabushozi County, Mbarara District, Uganda.

Transdisciplinarity comes to life

From this starting point, a team of researchers with background in medical entomology, parasitology, public health, crop and livestock science, medical anthropology, sociology, and biostatistics found themselves working together on initially unfamiliar terrain with an IDRC-funded project in Mwea, Kenya. Their goal was to determine the links between malaria and crop/livestock systems in areas with and without rice irrigation.

While several of SIMA’s other projects are in the data collection or analysis stages, some interesting results have already surfaced in Mwea. For instance, one explanation for the “paddy paradox”, whereby malaria incidence is actually and counter-intuitively lower in irrigated rice production, is the presence of cattle. The mosquito malaria carrier, *Anopheles arabiensis*, appears to prefer cattle to humans for its blood meal, making zooprophylaxis a practical option in the tool kit for long-term malaria control in irrigated areas.

This is precisely the sort of intervention that an ecosystems and human health approach can uncover, Dr. Mutero said, noting that all the SIMA projects have been selected for their potential to set an example. SIMA’s approach, methodology, and results have been published in peer-reviewed journals (ex. Mutero et al. 2005. *EcoHealth* (2), 6-11), in the hope of inspiring other transdisciplinary teams.

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Calling for social equity and ecological awareness



Communities of practice in ecosystem health can promote “a deeper and humane sense of belonging” by integrating values of social and ecological equity, says Dr. Jaime Breilh.

“A community of practice that links health and environment is an important counter-movement to the irrationality and destructiveness of market societies,” said Dr. Jaime Breilh of the Center for Health Research and Advisory (CEAS) in Quito, Ecuador. It also serves as a powerful tool for the “development of a much needed ecosystem approach, a deeper understanding of human development and the evolution of an alternative research paradigm.”

A focus on social and ecological equity values can “move us towards a deeper and humane sense of belonging” in a time when “aggressive, commercially minded globalization has weakened this sense of belonging,” said Breilh.

Breilh added that instruments of “social awakening and ecological awareness” such as a community of practice are important against a backdrop of economic and social policies that lead to deteriorating human health and environmental quality. A collaborative setting is ideal for intercultural knowledge exchange, information building and closer relationships between academic and community experts. Such opportunities, in turn, are avenues to address complex health and environment issues.

Health is influenced by determinants that operate in the broad societal domain, in the domain of specific groups with unique modes of life and at the level of individual daily lifestyles and conditions. Breilh noted that the interrelation between these domains underpins an understanding of “health and human life in all its reaches.”

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SIMA: Meeting the challenge of transdisciplinarity

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He listed three factors that can help to foster the actions of these transdisciplinary teams:

- Introduction of integrated ecohealth approaches at the post-graduate level;
- Greater knowledge of the ecohealth perspective within the scientific and donor communities; and
- Less compartmentalization within governments.

SIMA's experience so far demonstrates the potential of the ecohealth approach, but underscores the importance of effective communication. Participatory community needs assessment, a process that was built into the Mwea project, is an essential step in an ecohealth approach that involves defining research objectives, sensitizing the community, and ensuring that researchers remain accountable for delivering effective solutions.

A synthesis workshop is planned for late 2005 to summarize insights, results, and lesson learned through the eight SIMA projects. The meeting will be an opportunity for the small emerging community of practice on the issue of agriculture and malaria to consolidate experiences and push the ecohealth envelope a step further.

Information: www/iwmi.cgiar.org/sima.

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Community unites for clean water

The MINGOA watershed community of Yaoundé, Cameroun is charting its own path towards a better way of life, said Dr. Henri Bosko, of the Faculty of Sciences of l'Université de Yaoundé.

The ecohealth approach suggested a diverse make-up for the community's wastewater management team, with researchers from disciplines such as engineering, economy, pediatrics, biology and sociology joining civil society representatives, local leaders, traditional healers, nurses and students. The project, supported by IDRC, the Swiss Centre for Scientific Research, and the U.N. Environment Programme (UNEP) also relies heavily on community participation, which has created a framework for productive neighbourhood dialogues.

To date, the research has found high fecal contamination in many of the sources the community uses for drinking water. Health monitoring has demonstrated that infants aged 12 to 23 months are the most vulnerable to and affected by this contamination. Poor hygiene, limited maternal education and poor infant vaccination history all contribute to this public health problem.

The ecohealth approach has allowed different actors not only to come together but to partake in and feel ownership of the results obtained and the interventions carried out.

Not long after the initial results were discussed with the community, the project team and the community built improved sanitation facilities; areas surrounding a spring from which most households collect water for daily consumption were cleaned; and dedicated potable water containers have been distributed to households as a simple but effective means of protecting water quality.

However, the minimum 15-metre recommended protection perimeter around water sources (such as individual wells) that is necessary to limit fecal contamination has been difficult to respect, given the land constraints of a dense urban setting.

These are just first steps, said Bosko, who envisions a second, more operational phase of the project to truly capitalize on the results to date: a combination of community involvement in the management of water sources and improved hygiene, sanitation, and household-level water handling.

A community-based approach: Pros and cons

Bosko identified pros and cons in the community participation model underlying this project. Public awareness campaigns have successfully engaged local stakeholders in project decisions, while building an appreciation for financing mechanisms that allow for direct community contributions while ensuring transparency of fund management. This financial participation, although difficult, puts the onus on the community to come up with effective long-term solutions.

However, community funds for implementation are limited and individual inertia towards action must be overcome. Bosko also questioned how the gains made at the community level would translate into necessary policy action.

He also stressed the need for further “work on the ground,” to demonstrate that living conditions can be

improved with limited financial resources but significant community involvement. It would also be important to determine how readily this approach to community intervention can be replicated—elsewhere in Yaoundé, and beyond.

While the participatory approach works well, Bosko said it is complicated by the diversity of actors and the often divergent interests involved. He underscored the value of well-defined project criteria that can unite efforts and minimize clashes between participants. Not all projects are suitable for this type of intervention, but it works when community members agree on prioritizing an issue like clean drinking water and can see tangible benefits for their investment.

Information: http://network.idrc.ca/en/ev-23647-201-1-DO_TOPIC.html



Community participation has been a hallmark of the Yaoundé project.

NEWSBRIEFS*Nucleus continues to network in MENA*

Forging meaningful relationships between project stakeholders and advancing the ecohealth approach were just two of the resolutions that arose from the first regional MENA workshop held in Cairo this past January and organized by IDRC's Ecohealth team, together with the Ford Foundation, UNEP, WHO and UNF. Projects in Morocco, Egypt, Jordan, and Lebanon dealing with water quality and health issues set the stage for project teams to share their experience with the ecohealth research framework and lay the groundwork for regional networks.

Applying ecohealth to dengue and Chagas disease in LAC

In support of its projects in Latin America and the Caribbean, IDRC's Ecohealth Program Initiative sponsored two workshops in Guatemala in February 2005. The workshops brought together researchers, civil society organizations, policy-makers and other stakeholders to share experiences with the ecosystem approach to vector-borne diseases in Guatemala and Honduras. While the two groups were dealing with the same target disease, they came up with different approaches and successes: while one community's participatory response to Chagas emphasized local survey methodologies and better housing, the other focused on ecosystem-based approaches to water management, dengue and diarrhea disease in the region. The workshop format included

opportunities for participants to share technical advances, as well as an open roundtable with local officials.

Sharing lessons on environmental contamination in LAC

In September 2004, researchers from six projects sponsored by IDRC's Ecohealth Program participated in the *III Semana de Saude e Ambiente*, FIOCRUZ. The meeting was an opportunity for researchers from both sets of networks to share their experiences and discuss ways of tackling environmental pollution in LAC based on the ecohealth framework. The event not only provided a platform to share information but contributed to the building of a collaborative network of researchers involved in addressing environmental pollution from a holistic point of view.

Laying the groundwork for future collaboration in West Africa

The second edition of the Cotonou Ecohealth Institute, held in February 2005 at the University of Bénin, brought together researchers from seven teams to develop pre-proposals for IDRC's Ecohealth Program. Training included sessions on the three pillars of the ecohealth approach and guidance on proposal development. Proposals were subsequently finalized and submitted to IDRC for a review process that emphasized regional ecohealth capacity-building.

Transdisciplinarity well entrenched, working on community participation

"Hard" and "soft" science met and made headway in understanding and sharing methodologies across disciplines in early March in Honolulu, Hawaii, at the *International Symposium on Emerging Infectious Diseases and Socio-Ecological Systems in the Asia-Pacific*. While attendees found that transdisciplinarity was already well-entrenched in their research philosophies, their institutional struggles to operationalize the approach continue. IDRC encouraged participants to consider community participation as a priority for action on dengue, HIV/AIDS, tiplospirosis, and other emerging infectious diseases, and provided practical examples of successful community intervention.

SMEs and mitigating health risks using ecohealth approaches in Asia

Following a successful training workshop in Goa, India in January 2005 on the use of ecosystem risk analysis in assessing and mitigating health risks from pollution by small- and medium-scale enterprises (SMEs), a call for proposals for small project development grants was launched. Four project teams will be eligible for a grant that will enable them to develop full research proposals. For more information on the selected teams, please visit www.idrc.ca/ecohealth.

COMING EVENTS

18–23 July 2005. *Second People's Health Assembly*, Cuenca, Ecuador. The Assembly will advance local and national discussion, debate, and exchange of community experience on the factors that influence health and well-being. Information: www.phmovement.org/pha2/.

1–5 August, 2005. Ecohealth Summer Institute, Instituto Nacional de Salud Publica (INSP), Cuernavaca, Morelos, Mexico. Intensive, participatory workshop to familiarize researchers with the ecohealth approach, with particular attention to dengue and Chagas disease. Information: www.insp.mx/verano/cursos/c37.php.

13–16 September, 2005. *Linking Health and Environment in Developing Countries – From Theory to Practice*, Johannesburg, South Africa. The symposium, which will discuss how to strengthen health and environment linkages and encourage contact between members of the emerging community of practice, will take place at the 2005 Conference of the International Society for Environmental Epidemiology (ISEE). Information: www.isee2005.co.za.

19–23 September, 2005. *Nutrition Safari 2005: 18th International Nutrition Congress*, Durban, South Africa. International nutrition experts will exchange and integrate knowledge about nutrition, generate new insights, and define innovative solutions for global nutrition problems. Information: www.puk.ac.za/fakulteite/voeding/iuns/index.html.

21–25 September, 2005. *10th International Women and Health Meeting*, New Delhi, India. Lessons learned on politics, policies and issues that have adverse effects on women's health. Information: www.10iwhmindia.org/.

9–16 October, 2005. *Ecohealth approaches to environmental pollution assessment and management in LAC*, Fiocruz, Rio de Janeiro, Brazil. A week-long practical training to reflect on the conceptual framework and methodological principles associated to ecohealth approaches. Participants, from LAC, will be selected following the submission of research proposals addressing environmental pollution from an ecosystem perspective. Selection criteria will also include background and affiliation of team members (three people) with expertise in health, environment, and social sciences. Participants should originate from academic and non-academic institutions (including decision-makers and NGOs). Information: www.idrc.ca/ecohealth.

January 2006. *Ecohealth Internship Competition*. The candidate should have a research interest in understanding the social and ecological determinants of health, with specific focus on health issues in urban slums in the Middle East and North Africa or Sub-Saharan Africa regions. Information: http://web.idrc.ca/en/ev-23323-201-1-DO_TOPIC.html.

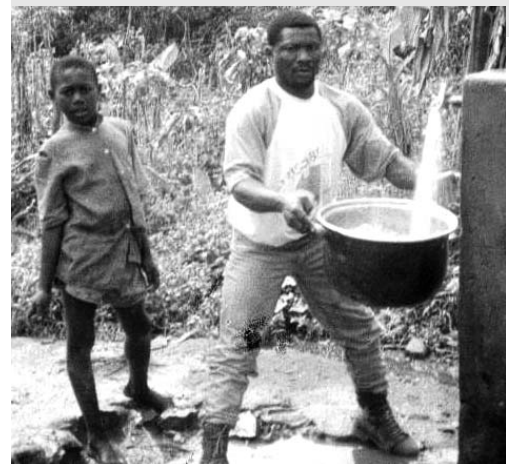
IDRC is initiating a consultation process in conjunction with NGOs and other organizations on slums in MENA and Sub-Saharan Africa. The process will eventually lead to a Request for Proposals on ecohealth and slums in

2006. More information will be available soon on IDRC's Ecohealth website, www.idrc.ca/ecohealth.

The IDRC Doctoral Research Awards and the Canadian Window on International Development Awards hold periodic competitions to fund Canadian and developing country graduate students registered in Canadian universities for thesis research in the field of international development. Information on these and other awards offered by IDRC: http://web.idrc.ca/en/ev-23273-201-1-DO_TOPIC.html, http://web.idrc.ca/en/ev-23376-201-1-DO_TOPIC.html.

Watch the next edition of Health ↔ Environment: Global Links for an update from:

14–15 June, 2005. *Health and Environment Ministers of the Americas (HEMA) Satellite Workshop: Integrated Approaches to Health & Environment: Research Based Policy Innovation*, Mar del Plata, Argentina. Information exchange, discussion of evidence-based projects that integrate health and environment policies and actions. Information: www.idrc.ca/es/ev-71968-201_103003-1-IDRC_ADM_INFO.html.



Challenging the HIV/AIDS-hunger nexus

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Much remains to be known about the reverse interaction between HIV/AIDS and agriculture: how, for example, could agriculture help marginalized populations reduce their vulnerability to the disease?

Setting the stage for a community of practice

The three conference themes—HIV/AIDS–food and nutrition security interactions, local responses to the disease and its impacts, and food and nutrition programs, policies and interventions—were designed to support interdisciplinary learning and cross-fertilization of ideas and experiences. The event was also an important step towards building a community of practice around these issues, and in placing

the HIV/AIDS–food and nutrition complex in an ecohealth context. This perspective may help practitioners decipher the intricate interactions between two very large issues, in order to move ahead with a plan of action.

In the past, HIV/AIDS has been addressed largely from a public health perspective, with emphasis on increasing individual awareness of the disease. That work can be complemented by an ecosystems and human health approach that considers the socio-economic conditions facing rural populations, agricultural practices and policy and, importantly, their interactions with the HIV/AIDS epidemic. The environment–human health linkage also provides a conceptual foundation for interventions that promote the resilience of agricultural systems and

build their capacity to support human health, household livelihoods, food security and nutrition.

IDRC's program on ecosystem approaches to human health is supporting work on HIV/AIDS in the rural areas of sub-Saharan Africa, where the greatest difference can be made. The Centre continues to work with the Regional Network on HIV/AIDS, Rural Livelihoods and Food Security (RENEWAL), a project of the International Food Policy Research Institute that was developed with the participation of food and nutrition organizations, HIV/AIDS and public health groups and policy specialists.

Information: www.ifpri.org/renewal.

¹ *HIV/AIDS and Food and Nutrition Security: From Evidence to Action*, April 14–16, 2005, Durban, South Africa, organized by the International Food Policy Research Institute, www.ifpri.org/events/conferences/2005/20050414HIVAIDS.htm.

Calling for social equity and ecological awareness

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Academic and community organizations must work to identify both destructive and protective processes in all the domains. The challenge, according to Breilh, is “to prevent and change those processes that are destroying life and promote those which are fostering biodiversity and humanization.”

“Opening the bridges”

Breilh and his team are studying complex health and environmental issues in the floriculture industry of the Granobles River Basin of Northern Ecuador.

Here, an intricate web of relationships in a complex ecosystem is best understood through an ecohealth approach,

he said: Local farms, for instance, must be seen in the context of the global flower market. Grappling with these issues requires a broader multicultural and transdisciplinary approach that represents a departure from traditional methods of applied research.

One aim of Breilh's project with the floriculture industry is to change the balance of power in the knowledge-building process by linking community and ancestral understanding to academic knowledge. This is part of his broader thinking about traditional applied research flawed by both a unilateral and unicultural approach. “It is not enough to claim for community participation,” said Breilh: research must also redefine the research subject as a multi-subject process.

Multi-subject research, however, gives rise to “the problem of intersubjective relations,” characterized by the transdisciplinary interactions between academics and the intercultural relationships between them and the communi-

ty. “Opening the bridges between these actors,” however, could provide a solution for this conceptual problem. He stressed that this two-way educational process is facilitated by the ecosystem approach to human health.

More broadly, ecohealth can be the key to understanding the complex and often contradictory realities of health and ecological processes. This systemic approach not only avoids “a reductionist or excessively localized view of health and ecological problems, but also provides a tool for building an ‘equity-sensitive’ interpretation.”

According to Breilh, “humanity is facing a crucial dilemma” between accepting a dangerous social model “based on greed and blindness” or attempting to “redefine the rules of progress, of social organization and of ecosystem management that big business is imposing on us and, thereby, placing all humanity on the verge of collective suicide.”

Information: http://web.idrc.ca/en/ev-11054-201-1-DO_TOPIC.html.