



**Annual Meeting of the Agriculture and Health Research Platform**

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**IDRC<sup>1</sup> Ecohealth Program Perspective**

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**Ecohealth** – short for “Ecosystem Approaches to Human Health” –

- Is a research framework that addresses how human health and environmental quality are determined by complex relationships among different components of an ecosystem
- It is used to explore how human health can be protected and improved through more sustainable ecosystem management
- Researchers work across academic disciplines and engage communities and stakeholders to develop sustainable solutions that transcend the health sector
- Ecohealth pays attention to social and gender equity
- Ecohealth approaches help translate research findings into policy and action.

**Support for Ecohealth Research Related to Agricultural Transformations (Africa)**

Agriculture in the developing world continues to change and transform as a result of heavier reliance on lower quality food imports and the strong push to promote irrigation, chemical inputs, and new crop varieties. Too often, however, rural farmers are the hardest hit by these changes, which affect their livelihoods, food security, natural environment and health. Using an ecohealth approach, researchers can understand the complex dynamics among all these issues, and come up with solutions that are equitable and sustainable.

***The Challenge***

- Advances in technology are changing the face of agriculture. Faced with immediate needs to feed their families and make a living, many farmers are opting for short-term solutions that are degrading ecosystems;
- About 11% of the Earth’s land is suitable for agriculture, but excessive use of pesticides and fertilizers, contamination by heavy metals, and soil depletion have taken about 2% of these lands out of production—about 10 million hectares;

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<sup>1</sup> International Development Research Centre (IDRC)

- Widespread globalization is influencing the demand for agricultural products, bringing about dramatic changes in the ecosystem and affecting the health of farmers and their families. Rice, for example, is increasingly replacing traditional cereal crops, but rice paddies require considerably more water and are ideal breeding grounds for malaria-carrying mosquitoes.

Responding to the challenge, IDRC supports ecohealth research and networking to generate scientific knowledge, build capacity and influence policy to mitigate the negative impacts of agricultural transformations in underprivileged communities. Ecohealth approach has been successfully applied to a number of issues related to agricultural transformations such as water management for agriculture, pesticides use as well as food security and diversity. Examples below show how researchers engage communities in Africa both to understand the problem and develop solutions.

### ***Understanding the impact of small dams in Morocco***

Persistent low rainfall in the mountainous areas of Central Morocco has affected human health and economic development by reducing crop yields and forcing women and young children to travel longer distance to fetch water. People and livestock are also pressured to use common water sources when the alternatives dry out, increasing the possibilities for contamination. In response to recurring drought, the state built 21 small dams to conserve water, but their overall impact on human health and the ecosystem was rarely studied.

Using an ecohealth approach, IDRC-supported researchers from a number of different disciplinary backgrounds studied together the Asgherkiss dam ecosystem, making a range of discoveries. With respect to human health, the dam provided more water for personal hygiene, but also increased the presence of mosquitoes—a carrier for diseases such as malaria- and attracted wildlife hence probably contributing to increase zoonoses transmission. On a social level, women living downstream spent less time fetching water and more time working in irrigated fields and processing Argan oil. The challenge now is “to use research findings combined with local knowledge to benefit the affected communities, and in the long-term, to support better water management throughout Morocco to cope with climatic change and improve community resilience, health status and well-being” (Abderrahmane Ait Lhaj)

### ***Soils, food, and healthy communities in Malawi***

In the Ekwendeni region, researchers from various disciplines involved over 4000 resource-poor farmers and their families as part of a study on how to improve food security, soil fertility, and child nutrition. Farmers received seeds for planting, as well as information about agricultural issues, gender relations, and nutrition, and there were recipe days, dramas and other community events to foster local knowledge.

Results were impressive. Between 2003 and 2005, for example, farmers more than doubled the average size of their fields grown to groundnut and pigeon pea, and there was a significant increase in the number of farmers burying legume residue to improve soil fertility. Some farmers also reported a modest increase in income from the sale of these legumes.

But the transformations were not limited to farming. Researchers found that healthier child feeding practices, particularly the practice of exclusive breastfeeding for the first four to six months, was associated with better child growth. In addition, men reported more willingness to

take part in child care, including feeding. Part of the study's success can be attributed to how it empowered farmers through knowledge and taking action.

### ***Managing agricultural biodiversity for better nutrition and health, improved livelihoods and more sustainable production systems in Kenya, South Africa and Benin***

The quality of diets in many African food systems appears to be getting worse as evidenced by the increase in micronutrient deficiencies, a rise in chronic diseases (diabetes, hypertension, obesity, cardiovascular, cancer, etc.) and low resistance to infectious disease. The project is investigating the factors underpinning the persistence and rise in malnutrition within African food systems. It seeks to improve understanding of the dynamics and determinants of biodiversity use that contribute to dietary diversity and improved nutrition and health along a continuum of communities from rural farmers to urban consumers using an ecohealth framework. The project will then explore how interventions based on local ecosystems and human resources can provide sustainable solutions to hunger and malnutrition.

### **Next Steps**

The complex and changing relationship between health and agriculture continues to preoccupy researchers, development practitioners and policy makers. This preoccupation will be taking more of a central stage as more efforts are now required to understand and adapt to the health and environmental impacts resulting from climate change and other new policy and technological challenges. With its holistic sensibility, the ecohealth approach can give researchers much-needed evidence to balance seemingly conflicting needs within an ecosystem.

### ***New Initiative on Food, health and climate change adaptation in East, Southern and Central Africa (ESCA)***

The majority of the rural population in Sub-Saharan Africa (SSA) is poor and survives by subsistence agriculture. Those living in the dry areas depend fundamentally on rain-fed agriculture. About 300 million people (out of 1.3 billion poor people worldwide) live in arid and semi-arid ecosystems of SSA (Thornton et al., 2008) where many suffer from hunger or are chronically food insecure. Extreme and recurrent climate events such as droughts and floods aggravate this situation and threaten their lives. Children are particularly vulnerable and millions die annually due to malnutrition and disease.

The ESCA region is also home to lake and river ecosystems. Yet, these ecosystems are fragile and vulnerable to degradation due to effluent discharges from industries and inflow of pollutants from use of agrochemicals, herbicides and pesticides, semi-treated municipal sewage and human waste; all of which contribute to the pollution and eutrophication of the lakes. Besides, water withdrawals from the lakes and unsustainable utilization of the major wetlands through agricultural and livestock activities has greatly compromised the buffering capacity of the wetlands. As a result, water and wetlands contamination loads are increasing over time leading to various health hazards along the food chain.

Climate change may aggravate this situation in altering the water balance and the functioning of these ecosystems (and related agro-systems) and contributing to food insecurity, malnutrition,

and diverse health consequences through more unpredictable and more favorable conditions for the transmission of infectious diseases.

Poor communities in SSA are already seriously affected by the various impacts of past and current climatic variability, and will face enormous challenges to adapt to the impacts of future climate change. At the same time, policies and institutions in the region have been having a hard time to cope, even with the current situation. As we speak now, about 10 million people, one in every three Kenyans, are in danger of starvation due to crop failure and the Government plans to declare the food shortage a national emergency (Saturday Nation. Nairobi, January 10, 2009)

This new initiative will build on a current IDRC-supported program on water, health and climate change adaptation in West and North Africa. It will support innovative research and capacity building in order to generate knowledge on the links between food security and quality, health and climate change and to strengthen community and institutional adaptive capacity to current and potential future health impacts of climate variability and change.

The program will be rolled out in two stages: A call for proposals will be launched in the coming few weeks; A project development workshop will be organized to strengthen the capacity of winning teams to undertake ecohealth policy relevant research (Mai 2009). Thereafter final project proposals will be approved for funding most likely in August-September 2009.

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**International Ecohealth Forum:** IDRC and its partners<sup>2</sup> have successfully organized the International Ecohealth Forum in Merida, Mexico, from 1<sup>st</sup> to 5<sup>th</sup> December 2008. The theme of the Forum was '*Healthy Environments, Healthy People*'. The Forum offered opportunity for about 700 participants (including researchers, practitioners, policy makers, community representatives, students and journalists) from all the regions of the world to share current approaches, experience and evidence on the important links between healthy ecosystems and community health, as well as linkages with policy – all these on wide ranging topics including climate change, marine and land ecosystems, floriculture industry, mining, public health, vector-borne diseases, emerging diseases, urban environments and pollution, food and nutritional security, etc. For more information visit [www.ecohealth2008.org](http://www.ecohealth2008.org) and [www.idrc.ca/ecohealth](http://www.idrc.ca/ecohealth)

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<sup>2</sup> National Institute of Public Health (Mexico), the International Association of Ecology and Health (IAEH), and the FICRUZ (Brazil)