

Pathways To Resilience: Smallholder Farmers And The Future Of Agriculture



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The Canadian Food Security Policy Group (FSPG) brings together Canadian international development and humanitarian agencies, farmers' organizations and human rights groups who have worked for decades in sectors related to enhancing food security in developing countries and in Canada. For the last ten years, we have worked with the Canadian government to highlight the importance of using Canada's aid dollars to effectively support smallholder agriculture.

This document is the result of our efforts to collectively examine how the work of our partners in the South might inform Canada's response to the Global Food Crisis in a way that acknowledges the central role of smallholder agriculture and its long-term sustainability and resilience. The FSPG has prepared a series of seven case studies to accompany this discussion paper. These case studies highlight successful practices in community-based, smallholder agriculture and illustrate the kind of work that Canada needs to support in the medium to long term to address the food crisis.

Responding to the Global Food Crisis

The apparent sudden emergence of the "Global Food Crisis" has focused world attention on the short-term need to protect people who are most vulnerable to food insecurity as a result of soaring food prices, and the longer-term need to address fundamental problems with the global food and agriculture system.¹ Despite the recent drops in international food prices, the credit crunch has meant that in many countries, local prices remain high.

The World Bank estimates that the rapid rise in the price of basic food staples has pushed as many as 105 million additional people into situations of chronic hunger, raising the total number of people who are hungry to just under one billion.² Among those most vulnerable to the food crisis are rural families, who make up 75 percent of the developing world's poor and 70 percent of the world's malnourished. Of the 3 billion rural people in developing countries, 2.5 billion depend on agriculture for their livelihoods and 1.5 billion are smallholder farmers, the majority of whom are women.³

This crisis, however, did not emerge suddenly. Among other factors, it must be seen in the light of declining donor and government support to agriculture. Due in part to structural adjustment policies, government funding for agriculture in developing countries has declined sharply over the past 3 decades. Donor support for agriculture has slipped from 18% of total ODA in 1979 to 3.5% in 2004.⁴ This lack of government and donor support for agriculture has contributed to the extreme vulnerability of those who produce food. It is precisely these rural households who are in need of Canada's support.

What Kind of Agriculture?

Widely publicised solutions to the food crisis have focused on increasing agricultural production through the promotion of high-input, carbon intensive approaches to agriculture in an effort to produce more food. This approach argues that increased access to fertilizers, chemicals and improved seeds will lead to greater crop yields which will in turn result in a decrease in hunger.



Nigeria

Photo credit: Farm Radio International

In Malawi, for example, a national program to subsidize fertilizers for smallholder farmers is being hailed as the solution to perennial dependence on food aid. However, as illustrated in the attached Malawi case study, increased yields and the exporting of surplus maize has not ended hunger in rural areas. The case study highlights agroecological approaches that increase yields without expensive inputs, and also improves child nutrition and soil health.

While increased yields are certainly important, a singular focus on their attainment through the application of inorganic fertilizers and improved seeds overlooks the underlying causes of low yields as well as the multiple roles agriculture can play in maintaining ecosystem services and providing a way of life for billions of people. Top-down “technology transfers” run the risk of failure since they tend to discount the considerable knowledge of local farmers as well as the diversity of agro-ecosystems and the rural communities that depend on them. In India for example, the “Green Revolution” in agriculture allowed the country to export surpluses through the introduction of high-input agricultural techniques, but this push in fact bypassed many smallholder farmers and had negative impacts on agroecosystems.⁵

As the U.N. Special Rapporteur on the Right to Food stated recently, the risk in the current situation is that “we focus on solutions that promote the supply of more food, without paying sufficient attention to the question of who produces, at what price and for whom. This would be a mistake with far reaching consequences.”⁶ For example, women and girls face specific barriers to accessing food for consumption and to the resources required for food

production including land and credit. Medium to long-term solutions must acknowledge the specific reality of smallholder farmers and identify approaches that stem from the diversity of their experience and their ingenuity. They must also address multiple criteria such as the nutritional value of the food produced, the adaptability of the crops to changing climate and the environmental impact of the production systems.

Farmer knowledge: the starting point for solutions

Much conventional agricultural science and policy does not seem to be able to explain, let alone respond to, complexity, diversity, and uncertainty, although poor people who are dependent on agriculture for their livelihoods very often live in complex, diverse and risk-prone settings.⁷

Smallholder farmers play an integral role in global agriculture, producing more than half of the world’s food supply.⁸ However, they face an increasingly complex set of challenges that make them more vulnerable than ever to changes that are beyond their control. Climate change in particular, poses a severe threat to agricultural livelihoods in the South. The Intergovernmental Panel on Climate Change concludes that projected changes in the frequency and severity of extreme climate events such as drought and flooding will have serious consequences for food production and food security. The implications are already being felt in areas like sub-Saharan Africa where rainfed agriculture supports the majority of livelihoods.⁹

In addition to the rapid rise in the cost of food, smallholder farmers in developing countries are coping with a variety of shocks and stresses that hinder their ability to feed their families and local communities:

- **Increased market volatility, unfair competition and speculation** – Structural adjustment and trade liberalization have exposed farmers to competition from global agribusiness, flooding local markets with cheap and often dumped agricultural products. The de-regulation of financial and agricultural markets over the past three decades has also contributed to the current volatility in commodity prices;

- **Greater dependence on monocropping and cash crops** - undermines local biodiversity and creates further dependence on volatile commodity prices;
- **Growing impacts of climate change** – Though Northern countries are the greatest contributors to climate change, Southern farmers will feel its impact most. Changes in the amount and timing of seasonal rainfall as well as storm patterns and intensity are already affecting farmers and food production in developing countries;
- **Neglect of agriculture and infrastructure in Developing Countries** – Structural adjustment and trade liberalization have contributed to the decreased ability of governments to support agriculture and local market infrastructure in many developing countries. On average, developing countries allocate only 4% of national budgets to agriculture, even though 60-80% of the population makes its living from farming;
- **Neglect of agriculture by donor countries** – Aid donors, including CIDA, have drastically cut the portion of their aid directed to agriculture, from an average of 18% in 1979 to less than 4% in 2004;
- **Loss of farm labour** - The HIV/AIDS pandemic and other health issues have had a significant impact on the availability of labour resources for agricultural production;
- **Gender-based inequalities** – Inequality perpetuates the marginalization and impoverishment of women, violating their rights and stunting the key roles they play in food production and consumption in households and markets.
- **Unstable political environments** – Political instability ranges from lack of good governance to armed conflicts.¹⁰

In the past, smallholder farmers have relied upon a wealth of traditional knowledge and agricultural practices that helped them cope with shocks and stresses. Current circumstances are contributing to the erosion of this coping capacity, leaving smallholder farmers more vulnerable to changes in the environment – whether that is the climate or economic environment. For this reason, it is urgent that Canada identify and support measures that strengthen their adaptive capacity. Farmers can reduce their vulnerability by adopting strategies that allow them to adapt to change and uncertainty – strategies that will increase the resilience of the agricultural systems in which they participate.

In Kenya, some rural communities are adapting to changing weather patterns and increasingly uncertain rainfall by constructing sand dams that allow them to harvest water and have it available for their crops year round. The attached case study highlights how communities benefit



from this local innovation. In Honduras, where there are pressures from export-oriented agriculture and increasing corporate concentration, some farmers are taking steps to increase crop diversity. By doing so, they are strengthening the resilience of the local food system and are better able to cope with changes to the climate.

International consensus: resilience in agriculture

There is an emerging international consensus that strengthening the ability of poor rural households to build more resilient agriculture systems is a crucial and much needed response to the global food crisis.

- In July 2008, the UN High Level Task Force on the Global Food Crisis underscored the importance of strengthening resilience in order to support smallholder livelihoods and long-term food security.¹¹
- The FAO High-level Conference on World Food Security declared that: “It is essential to address the fundamental question of how to increase the resilience of present food production systems to challenges posed by climate change.”¹²
- The UN Commission on Sustainable Development

Nigeria



insisted that in order to adapt to climate change, there is a need to promote resilient agricultural systems.¹³

- The UN Special Rapporteur on the Right to Food stated “we need to build a system that ensures a sufficient degree of resilience in the face of the increasing volatility of agricultural markets of agricultural primary commodities, and which maintains such volatility within acceptable margins.”¹⁴

In a very real sense, resilience can be understood as the opposite of vulnerability. Rather than an approach to agriculture that focuses solely on increasing productive capacity, resilience thinking focuses on reducing risk by increasing the adaptive capacity of people and the ecosystems on which they depend. This approach helps smallholder farmers to meet current and future food needs while coping with uncertainty and change.¹⁵

Is the current agricultural model resilient?

Efforts to improve productivity and reduce vulnerability of small-scale farmers are only effective when they build on local knowledge, protect (or improve) soil and water resources, and sustain or even enhance biodiversity. This means taking an approach that extends far beyond a singular focus on one or two high yield crops and the inputs required to grow them. Much of the international aid for agriculture in previous decades has focused on increasing yields of a limited number of cash crops – an approach that is in keeping with proponents of a new “Green Revolution” and that emphasizes the role of biotechnology, chemical fertilizers and pesticides. This approach depends upon a predictable framework of inputs, weather and markets. It makes farmers recipients of knowledge, created and controlled by someone else, and tends to devalue the accumulated knowledge and experience of small-scale farmers who live closely with the ecological systems in their regions.

The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) – a four year process supported by the World Bank and the United Nations involving hundreds of experts from around the world – concluded that this singular focus on increasing crop yields using an industrial agricultural model has in fact had a negative impact on environmental sustainability, contributing to increased land degradation, water scarcity, and a loss of biodiversity on a global scale.

Despite significant scientific and technological achievements in our ability to increase agricultural productivity, we have been less attentive to some of the unintended social and environmental consequences of our achievements... Agricultural knowledge, science and technology must address the needs of small-scale farms in diverse ecosystems and to create realistic opportunities for their development where the potential for improved area productivity is low and where climate change may have its most adverse consequences.¹⁶

Instead of promoting social and ecological resilience, the current agricultural model being promoted by some donors is undermining the integrity of ecological systems and the well-being of people that depend on them for their livelihoods. It has, in general, benefited the wealthy much more than the poor, contributing to the growing disparity between them.¹⁷

What does resilient agriculture look like?

Small-scale agricultural systems that build on the knowledge of farmers and local communities foster a diversity of agricultural practices and sustain local agro-ecosystem services while also addressing yield potential. Support for this kind of agriculture helps farm families to cope and adapt during times of increased vulnerability and uncertainty – it encourages resilience. In practice, it places the emphasis on sustainable soil and water conservation practices, the integration of trees and livestock with crop production to maximize nutrient cycling and the build-up of soil carbon, and increased public support for research on neglected tropical crops that are not internationally traded but form a major staple for people in developing countries.

The seven accompanying case studies in this package illustrate successful ways in which communities are approaching resilience in smallholder agriculture. They also show how, with the assistance of CIDA and Canadian NGOs, southern partners are enhancing community food security and strengthening small-scale agricultural practices and systems.

Resilience is about local knowledge and innovation

Smallholder farmers hold a wealth of knowledge about their land and its ability to produce food. International aid must recognize the important role that local knowledge and indigenous technologies can play in reducing uncertainty and risk. It is however, important to promote opportunities to share information and knowledge – at the household, local and regional levels – so that farmers can learn from each other and work together. Farmers always experiment and are anxious to learn new things. There will always be a use for research and new knowledge, but the learning processes must engage multiple actors (farmers, extension workers, researchers, NGOs). and not be under the control of corporations and shared only for a profit.

In Zambia, the Consortium for Food Security, Agriculture and Nutrition has provided training for farmers in conservation agriculture, using best practice techniques gathered from local farmers, and they have shared knowledge about open pollinated seed varieties and agroecological approaches with fellow farmers in neighbouring communities throughout the region.

The Nigeria case study illustrates how Farm Radio International, in cooperation with local partners, has developed a 26-episode radio drama that serves to share local knowledge together with research knowledge about how farmers can adapt to climate change in the region.

Resilience is about maintaining diversity – in genetic resources, and in approaches

Throughout history, diversity has been fundamental to farmers' ability to cope with uncertainty and risk. A diversity of crops is more stable – if one fails, others may not. A diversity of farming techniques allows farmers to cope with differences in local environments and the seasonality that is a part of life. A diversity of productive assets has been crucial to farmers – having many seed varieties and breeds of animals, each adapted to different conditions, ensured their survival. In addition, encouraging diversity means recognizing that agriculture serves many functions, providing food for the family, contributing to community nutrition and health, and providing a variety of livelihoods. Moreover, it plays a crucial role in defining people's identity and culture.

In Honduras, the Foundation for Participatory Research with Honduran Farmers has assisted farmers to organize themselves into community-based agricultural research teams, to diversify their plant genetic resources and to develop hardier plant varieties that perform well under changing conditions.



Resilience is about building trust and mutual reliance

People are better able to adapt to challenges when they have strong social networks and make decisions in a way that involves others. The livelihoods of smallholder farmers are strengthened when they have opportunities to learn from and help one another, build on their strengths and act together. This kind of trust is enhanced when the distance between farmers and markets is reduced, where learning engages local people with their neighbors, and where markets are encouraged at the local level. Farmers' organizations, cooperatives and innovative approaches to sharing knowledge build and strengthen rural communities. Since women form the backbone of smallholder agriculture in the South, support which enables exchange and learning among women farmers is crucial to building resilience.

In India, the Deccan Development Society has assisted poor women to organize themselves into village-level groups and, through sharing their knowledge of organic techniques and their own detailed knowledge of local crop varieties, they have significantly increased production.

Recommendation for Canada's policy

To respond effectively to the current food crisis, and support resilient agriculture, Canada needs to focus its agricultural development policies along two tracks:

- 1.** Canada must provide focused, deliberate and enhanced support to sustainable smallholder agriculture that builds resilient agricultural systems and vibrant rural communities. Building on CIDA's commitment to give increased priority to agriculture in the 2003 Agriculture Strategy, CIDA should:
 - Set out a plan to increase financial resources for agriculture that is consistent with the planned growth in



Kenya

Photo credit: Mennonite Central Committee

Canadian ODA (currently committed at 8% for 2009 and 2010). FSPG also calls on Canada to set out a 10-year timetable to increase ODA to .7% GNI.

- Support resilient small-scale agriculture, and proven approaches to strengthening sustainable farming systems that build on farmer's knowledge and locally viable solutions.
- Support efforts that help small-scale farmers adapt to climate change, including genetic conservation of staple crops and improving the natural resource base.

2. Canada should work to rectify policies and practices that erode resilience and the ability of smallholder farmers to deal with external shocks. Canada should:

- Use its influence within multilateral lending organizations to advocate for support to Southern countries to maintain local infrastructure, fair prices for farmers, and extension services.
- Use its influence within the World Trade Organization to advocate for protection for smallholder farmers.
- Find ways to address corporate concentration in the food system, which undermines the interests of many of the world's food producers and consumers.

This document is endorsed by the following FSPG members:

Canadian Foodgrains Bank
 CARE Canada
 CHF-Partners in Rural Development
 ETC Group
 Farm Radio International
 Inter Pares
 Mennonite Central Committee Canada
 National Farmers Union
 Oxfam Canada
 United Church of Canada
 USC Canada
 Canadian Council for International Co-operation
 Canadian Catholic Organization for Development and Peace
 Plan Canada
 World Vision Canada

Endnotes

¹FAO, 2008, "Declaration of the High-Level Conference on World Food Security: The challenges of Climate Change and Bioenergy," Rome: Food and Agricultural Organization; World Bank, 2008, "Double Jeopardy: Responding to High Food and Fuel Prices," World Bank Briefing for G8 Hokkaido-Toyako Summit, July 2, 2008, Washington: IBRD.

²World Bank, 2008.

³World Bank, 2007, *World Development Report 2007: Agriculture for Development*. Washington: World Bank & Oxford University Press; Thompson, J., Millstone, E., Scoones, I., Ely, A., Marshall, F., Shah, E. and Stagl, S., 2007, "Agri-food System Dynamics: pathways to sustainability in an era of uncertainty," STEPS Working Paper No. 4, Brighton, UK: STEPS Centre.

⁴World Bank, 2007, *World Development Report 2007: Agriculture for Development*. Washington: World Bank & Oxford University Press

⁵Drèze J., Sen, A., 1989, *Hunger and Public Action*, Oxford: Clarendon Press; Evenson, R.E., Gollin, D., 2000, "Assessing the Impact of the Green Revolution: 1950-2000," *Science* 300 (2): 758-762.

⁶De Schutter, O. 2008, *Building Resilience: a human rights framework for world food and nutrition security*. New York: United Nations

⁷Thompson, et al, 2007.

⁸Altieri, M. 2008, *Small farms as a planetary ecological asset: Five key reasons why we should support the revitalization of small farms in the Global South*. Oakland: Institute for Food and Development Policy. Accessed October 12, 2008 at <http://www.foodfirst.org/en/publications/factsheets> .

⁹Easterling, W.E., P.K. Aggarwal, P. Batima, K.M. Brander, L. Erda, S.M. Howden, A. Kirilenko, J. Morton, J.-F. Soussana, J. Schmidhuber and F.N. Tubiello, 2007, *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson. Cambridge, UK: Cambridge University Press, 273-313.

¹⁰Thompson, et al, 2007.

¹¹United Nations, 2008, "High-level Task Force on the Global Food Crisis: Comprehensive Framework for Action." New York: United Nations

¹²FAO, 2008, "Declaration of the High-Level Conference on World Food Security: The challenges of Climate Change and Bioenergy," Rome: Food and Agricultural Organization.

¹³Commission on Sustainable Development, 2008, Chairman's Summary – Part 1. New York: United Nations

¹⁴De Schutter, O. 2008, *Building Resilience: a human rights framework for world food and nutrition security*. New York: United Nations

¹⁵Adger, W.N., 2003, 'Governing natural resources: institutional adaptation and resilience,' in *Negotiating Environmental Change: New Perspectives from Social Science*, F. Berkhout, et al (eds.), Cheltenham: Edward Elgar., 193-208.

¹⁶2008, *International Assessment of Agricultural Knowledge, Science and Technology for Development*, Washington, D.C.: IAASTD.

¹⁷Drèze and Sen, 1989; Everson and Gollin, 2000.

¹⁸Pretty, J., Noble, A.D., Bossio, D., Dixon, J., Hine, R.E., Penning De Vries, F., and Morison, J., 2006, *Resource Conserving Agriculture Increases Yields in Developing Countries*. *Environmental Science and Technology* vol. 40, no. 4