

# Climate Change Adaptation

## Lessons from Canadian NGOs



Canadian Coalition on  
**Climate Change  
& Development**

## About C4D

The Canadian Coalition on Climate Change and Development (C4D) is a group of development, humanitarian and environmental organizations that first joined together in 2006 to share knowledge and take concerted action to address climate change. The aim of the coalition is two-fold: to build the capacity of the international development community to address the challenges which climate change poses to sustainable development; and to bring the voice of the international development community to the policy debate on Canada's response to climate change.



## Acknowledgements

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Thank you to the International Development Research Centre, without whose support the development of these case studies would not have been possible. Also, thank you to the IDRC and its staff for their encouragement and support of the C4D initiative since its inception.

Please feel free to examine the case studies for gaps and areas for further investigation. Your comments and feedback on this package are welcomed; they should be emailed to Paul Cobb at [paulc@pembina.org](mailto:paulc@pembina.org).

# Climate Change Adaptation: Lessons from Canadian NGOs

Climate change is increasingly intersecting with the challenges faced by people seeking to emerge from poverty, and changing the way Canadian development organizations – and their partners in the global south – must design their programs to ensure resilience and continued sustainability. Climate change not only permeates the entire development process, it threatens many of the development gains of the past years.

Five case studies in this package outline how climate change can and is being incorporated by Canadian organizations in development and humanitarian work in order to increase resilience or decrease risk in vulnerable communities. The sixth case study examines how national-level adaptation plans can be improved to ensure that adaptation is inclusive and responsive to the needs of the most vulnerable.

For development practitioners, lessons from the case studies show that promoting understanding of climate change through integration with existing programs can increase awareness of climate impacts and lead to better adaptation, and that integrated, coordinated initiatives that draw from multi-disciplinary teams can help address both climate impacts and the underlying drivers of vulnerability.

For policy-makers, the case studies show that adaptation must form part of a holistic response that aims to reduce the underlying causes of vulnerability and not simply respond to a specific projected climate impact, and that both local and scientific knowledge are essential in understanding how communities experience climate impacts and how they can increase their resilience. It is essential to build networks to increase knowledge sharing around climate change, as no one organization can address all impacts or all drivers of vulnerability. Efforts to integrate climate impacts and adaptation must be scaled up, as the impacts of climate change are already hitting home for vulnerable populations around the world.

The lessons from each study, detailed in the individual case study reports and summarized here, have the potential to impact the work that Canadian organizations undertake internationally and the policies adopted by national governments.

## What is Adaptation?

Climate change adaptation is the adjustment of ecosystems or human systems in response to the impacts of current or projected changes in climate caused by human-induced climate change. That these impacts are already occurring is widely documented, and it is anticipated that they will increase in scale, frequency, and intensity.

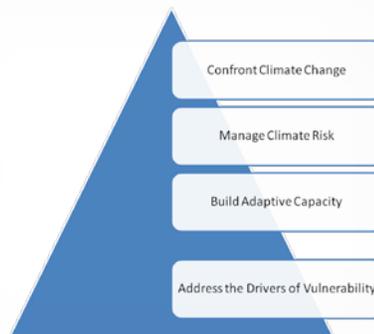
Vulnerability to climate change is a function of the nature and severity of the climate impact and capacity to cope with it. “The degree of vulnerability depends on the environmental, social, economic and political characteristics of an area, population, activities, or the environment and is measured by the ability to anticipate, cope with, resist, and recover from an event, process, or a phenomenon like a drought hazard.”<sup>1</sup>

Adaptation responses then can be seen as a continuum. At one end of the spectrum the focus is on the underlying causes of vulnerability — poverty and food insecurity for example (in most cases, this can be thought of as ‘development as usual’). At the other end of the spectrum are responses to specific climate impacts — responding to a rise in sea level for example. In the middle, organizations and individuals can build adaptive capacity through knowledge sharing and increasing awareness of climate impacts, and can manage climate risk by integrating climate change in program decision making — i.e. climate-proofing projects and investments.<sup>2</sup>

The case studies completed here address all parts of this spectrum of approaches.

Continuum of Adaptation Activities: From Development to Climate Change

Source: World Resources Institute



# The Context

## From Global to Local

The need for adaptation is now recognized at the national and international level. The World Bank estimates that \$75–100 billion will be required each year from 2010 to 2050 to meet adaptation requirements. However, to date less than \$2 billion USD has been deposited to various climate funds.<sup>3,4</sup> These funds — including those set-up through the UN Framework Convention on Climate Change (UNFCCC) — have been established to help raise, coordinate and manage international support for adaptation.

Canadian environment and development NGOs have outlined principles they feel should guide these funding mechanisms. These principles include (i) donor countries must commit to the scale of the resources required for adaptation, (ii) adaptation funding must be additional to official development assistance and be available as grants and not loans, and (iii) that the governance of adaptation funds must be fully inclusive of developing countries. Canadian NGOs have stressed that the needs and perspectives of vulnerable communities, populations and people must be prioritized, particularly children, women, the sick, people with disabilities, the aged, and smallholder farmers.<sup>5</sup>

In addition to the identified need for financial resources, there is also recognition that climate change impacts and adaptation should be integrated in development assistance. The OECD Development Assistance Committee, for example, has published policy guidance on mainstreaming climate change in development co-operation. At the national level, some donor countries have recognized the need to change their approach to development aid — DFID (UK) stated “we will make our entire development work climate sensitive and support new climate strategies in DFID country programmes.”<sup>6</sup>

At the national level in developing countries, many least developed countries (LDCs) have completed preparation of National Adaptation Programmes of Actions (NAPAs), which are intended to identify and prioritize these countries immediate and urgent adaptation needs. As of September 2009, 43 of 49 LDCs had submitted NAPAs to the UNFCCC Secretariat.<sup>7</sup>

While these international and national initiatives to support adaptation to climate change remain important, the case studies presented here demonstrate that the most effective adaptation responses will occur at the local level. It is in this area that Canadian NGOs, who already have important experience with climate change adaptation, can contribute their knowledge. NGOs

may not identify climate adaptation as a priority area of focus, or have not ‘mainstreamed’ adaptation with their program development, planning processes, criteria and decision-making, and yet the experience gained by many of these organizations to date through implementation of projects such as the case studies presented here, together with decades of knowledge of development and disaster reduction, can help guide the design and management of new, international climate adaptation funds. At the same time, these cases studies can help Canadian organizations and their partners in the south understand how they can ensure their programs and projects are sustainable and resilient in the face of a changing climate.

The growing awareness and attentiveness to new needs related to, or created by, climate change among Canadian NGOs is already leading to important lessons. Some of the most interesting adaptation responses are those related to community-based adaptation (CBA) and the new tools that can be used to support decision-making. Local responses to climate change need to inform national responses, including national strategies, policies, and programs, and such policies must be appropriate to the hazards, threats and impacts being faced by vulnerable communities, groups and households as well as vulnerable sectors and regions.

So, can the growing experience and knowledge that exists among Canadian organizations help ensure that the individuals and communities most affected by climate change are able to adapt? Can local, community-scale experience acquired by Canadian organizations in the field inform national and international policies?

These case studies show that not only is it possible, it is essential that they do.



Floods affected communities throughout north Bangladesh. Bashalia village on the banks of the Jumna river was under water for 15 days. Photo: Jenny Matthews/British Red Cross

## The Case Studies

In response to the learning priorities identified by our members, C4D has developed a suite of six case studies on climate change impacts and adaptation solutions. These case studies are drawn directly from the experience of Canadian NGOs and their partners in the global south. They highlight climate change impacts and the local solutions that communities rely on and employ to adapt and reduce vulnerability. The responses have been mainly at the local and the national levels.

### International Institute For Sustainable Development (IISD) and Centre for Science and Technology Innovations (CSTI)



In Kenya, drought events associated with climate change have become more pronounced in recent years, adversely affecting the lives and livelihoods of smallholder farmers. In response, IISD and CSTI have undertaken a pilot project that links together the provision of downscaled weather forecasts, improved agriculture practices, increased access to reliable water, and a revolving microcredit system for women's self-help groups. Together, these initiatives contribute to improved and diversified livelihoods, and facilitate the integration of climate change in policies related to disaster management and sustainable development.

### Canadian Foodgrains Bank (CFGB)



In the Nkayi District of western Zimbabwe, chronic food insecurity is the result of recurring and persistent droughts stretching back nearly a decade. A three-year project of the Foodgrains

Bank and Christian Care — a local partner — has demonstrated that promoting conservation agriculture can increase yields, decrease chemical inputs and lower capital investment required from farmers. The result? Increased food security and greater resilience to climate change in a drought-prone area.

### Oxfam Canada (OXC)



In the lowland communities of Bolivia, there is a widespread perception of unpredictability of rains, warmer temperatures,

and increases in extreme weather. Terrible flooding in Beni in 2007 and 2008 motivated local communities to enlist in a project known as the 'camellones' ('raised fields'). This farming practice draws on both ancient techniques and modern science to offer a sustainable solution to flooding, drought and overall food insecurity.

### World Vision Canada (WVC)

On the Indonesian Island of West Kalimantan, communities concerned about the disruptive forces of deforestation, reduced



World Vision

rainfall, loss of forest productivity and decreased soil fertility participated in a pilot project to realistically assess the environmental stresses and the local capacity to cope with them. Incorporating local wisdom, scientific knowledge of climate change, and risk assessment strategies, World Vision has developed new programming methods and standardized vulnerability assessment tools to better address the complex relationship between climate change, environmental degradation, food insecurity and child malnutrition.

### Care Canada (CARE)

CARE's 'case study' stands apart from the others; rather than focusing on the lessons of one particular project, CARE has examined the process of developing National Adaptation Plans of Action in Malawi and Niger. Worryingly, gaps in the NAPA process as identified by CARE demonstrate that the priority actions included in the NAPAs are inadequate in addressing the needs of the most vulnerable groups. CARE recommends improvements to



better support inclusive and transparent national adaptation planning, and that plans recognize and address the differentiated vulnerability and the different social, economic and political determinants of adaptive capacity within a country's population.

## How to Use the Case Studies

These case studies provide a compelling story. They present a framework for enhancing knowledge sharing and capacity development by C4D members. Sharing these experiences within our membership will help each organization to develop an understanding and then build their capacity to reduce vulnerability to climate change within their programs — by learning from approaches and methods that are being successfully tested and employed.

These case studies also provide an opportunity for C4D members to contribute to the development of Canadian policies and activities that provide effective support for

climate change adaptation in the global south. Sharing this knowledge on climate change adaptation with constituents, Southern partners, other Canadian civil society organizations (humanitarian, development and environmental) and civil servants and policy makers in Canada will help build a broader understanding of climate change as a threat to human development. Very practically, this enhanced knowledge can also be used in preparing funding proposals. We hope it will also create opportunities to help shape policies that are effective in reducing vulnerability to climate change in the global south.

The following chart indicates the diversity of climate change hazards, impacts and responses illustrated in these case studies:

Climate Change Hazards	CFGB	CARE	OXC	IISD	WVC
Drought	✓	✓	✓	✓	
Flooding (from rainstorms)			✓		
Shift of seasons, changing season start dates	✓	✓		✓	
Spread in vector borne diseases					✓
Erratic rainfall, heavy rainfall (incr. in intensity)	✓	✓	✓		✓
Sea level rise, sea surge					
Extreme heat			✓		
Storms					
Climate Change Impacts	CFGB	CARE	OXC	IISD	WVC
Decreased food security, incl. household level	✓	✓	✓	✓	✓
Soil erosion	✓				
Soil moisture stress	✓			✓	✓
Coastal inundation; coastal erosion, loss of land					
Deforestation, loss of ecological diversity					✓
Increased disease incidents					✓
Land degradation	✓		✓		✓
Poor and non-existent harvests, loss of crops	✓			✓	
Water shortage	✓			✓	
Decreased viability of rain-fed agriculture	✓			✓	
Loss of livelihood	✓	✓	✓	✓	✓
Adaptation Responses	CFGB	CARE	OXC	IISD	WVC
Conservation agriculture, alternative cultivation method	✓		✓	✓	
Community seed banks	✓				
Dissemination of knowledge	✓	✓		✓	✓
Formation of community structures (groups)		✓			
Sharing of historical climate knowledge		✓			✓
Livelihood diversification		✓	✓	✓	
Soil conservation	✓			✓	
Alternative crop selection				✓	

## Overview

The case study lessons suggest that action on adaptation must:

- Be locally or community-driven
- Promote specific practices that are workable for local contexts
- Focus on most vulnerable groups
- Build up the adaptive capacity of communities and local and provincial or state governments

It is particularly important to note the development of community structures (committees, groups, etc.) — with mandates, skills and information — to take action.

For example, while governments in LDCs develop National Adaptation Programmes of Action (NAPAs) they usually do not include community vulnerability assessments. CARE’s case study provides a critique of the NAPA process suggesting they are not sufficiently participatory, nor locally driven; that there are weaknesses and gaps in the guidance provided to countries from the NAPA-LDC Expert Group (LEG).

However it is through NAPAs that LDC countries are developing their adaptation strategies and most countries use the NAPA guidance materials, and therefore the resulting strategies are not responsive to the needs of a country’s most vulnerable population.

Another important observation from the NGO experience represented within the case studies is the deep relationship between the community-level work and the national level work. Local adaptation is crucial, but climate change adaptation strategies need to relate somehow to national programs and planning. Local action alone will not have the effect needed to accomplish the scale of adaptation that is required. The goal is to mainstream adaptation into national planning, to develop regular and effective mechanisms to involve stakeholders, and to explore and validate a range of adaptation methodologies and assessment tools. Adaptation involves knowledge creation and knowledge management and sharing. These are crucial goals of effective adaptation efforts.

Here is a list of the adaptation strategies and approaches that were employed:

Adaptation Strategies and Approaches	CFGB	CARE	OXC	IISD	WVC
Vulnerable households, communities	✓	✓	✓	✓	✓
Vulnerable women, groups	✓	✓	✓	✓	✓
Vulnerability & Adaptive Capacity Assessment		✓		✓	✓
National Adaptation Program of Action-NAPA		✓			✓
NAPA Guidelines for LDC		✓			
Setting Priorities for Action		✓		✓	
Gender equity and climate change		✓	✓		
Civil society role in setting adaptation policies		✓	✓		
Community-based adaptation	✓	✓	✓	✓	✓
Risk assessment and management					
Inform policy from experience, scale-up		✓	✓	✓	✓
Downscaled predictions; seasonal forecasts				✓	
First (or 2nd) National Communications (F/SNC)					✓



The camellones (raised beds; literally ‘camel humps’) system was last used 3,000 years ago. But communities in this jungle region of Bolivia are now reviving the system — with impressive results. Photo: Mark Chilvers

## Common Threads

### What Has Been Learned: Lessons For Programming

Some lessons from the case studies for programming:

- Improved agricultural practices can increase resilience and increase food security. Improved agricultural principles and practices can be applied in many ecological zones.
- Promoting understanding of climate change can be made easier if opportunities are taken to integrate the subject into existing forums; dialogue between relevant stakeholders (including multiple levels of government) and the creation of strong networks contributes to addressing the impacts of climate change. These networks create opportunities for up-scaling of benefits.
- Integrated, coordinated solutions that address the climate impacts and the underlying causes of vulnerability can be effective at increasing overall resilience and adaptive capacity.
- Developing multi-disciplinary teams and encouraging different sources of knowledge – local, traditional, scientific (including participation of climatologists and meteorologists) – can contribute to accurate assessments of vulnerability, capacity and subsequently the implementation of effective adaptation measures.
- Creating opportunities for livelihood diversification while addressing climate impacts helps address immediate climate impacts (drought, extreme weather events) as well as the underlying causes of vulnerability (poverty, inequality).



Essie Mpofu shows the layer of mulch, about six inches deep, which serves to conserve moisture. The Mpofu family of Zimbabwe is steadily increasing the size of their fields farmed with conservation methods. Photo: Carol Thiessen, CFGB

Men in Marafa village in the Department of Dakoro, Niger, discuss their experiences with climate change. Photo Credit: Angie Daze



## Key Findings

### What Has Been Learned: Lessons For Policy

Here is a quick look at some of the key lessons and recommendations for policy from the case studies:

- Climate change adaptation must form part of a holistic response that aims to reduce the underlying causes of vulnerability that communities face.
- Local wisdom and scientific data collectively offer a rich picture of how climate is changing but most importantly, how communities are experiencing the impacts of climate change.
- Conservation agriculture can help farmers in drought-prone areas reduce vulnerability, adapt to climate change and improve their food security. It is highly adaptable to many ecological zones, especially where soil erosion and moisture stress are critical. It can be used in conjunction with community seed banks and should be implemented over multiple years. It is guided by principles and practices which, when closely adhered to, produce high yields and viable seeds. The potential contribution to biodiversity conservation may bring additional benefits to the community.

- By developing NAPAs, LDCs take an important step toward more comprehensive adaptation assessments and strategies. The lessons learned from the NAPA experience should inform and serve as a foundation for longer-term adaptation planning that is mainstreamed into national development plans and strategies. A priority must be put on vulnerable communities, populations, and people, and ensure their active and meaningful participation in decision-making at all levels.
- Adaptation responses are often supportive of global mitigation efforts; conservation agriculture for example, increases carbon storage in soils.
- Being able to share knowledge about climate change and agricultural practices from different perspectives creates an environment for mutual learning. Engaging district and national government officials in the direct implementation of a project can lead to immediate policy changes creating the potential for significant up-scaling of benefits.
- Communities can look beyond the normal time frame and commit to sustainability. They can take the lead on building new networks and establish dialogues with relevant stakeholders; they can train staff on climate change; integrate climate change knowledge into community-based activities; facilitate reflection upon changes in their environment; develop networks with the climate change sector; and advocate that the government take further disaster risk reduction measures.
- No single organization can take on the challenge of climate change alone; the complementary contribution of different organizations with different approaches and expertise stands a better chance of making a difference.
- There is a need to scale up efforts to integrate climate change adaptation in development work.

Sand dams constructed in Sakai and other parts of Kenya have proven to be reliable sources of water for people, livestock and plants during the dry season and in times of drought. By slowing the flow of creeks or rivers, these dams trap sand (which prevents evaporation) and cause water to percolate underground, where it remains available for future use. Photo Credit: CSTI



- 1 Speranza, Chinwe. Learning and Understanding Adaptive Mechanism. German Development Institute, Bonn Presentation to National Stakeholders Workshop. March 2010. Abuja, Nigeria.
- 2 Weathering the Storm. World Resources Institute. <http://www.wri.org/publication/weathering-the-storm>. Accessed May 17, 2010.
- 3 <http://www.climatefundsupdate.org/graphs-statistics/deposits-by-country>. Accessed May 17, 2010.
- 4 World Bank. The Economics of Adaptation to Climate Change (EACC) Study. Accessed May 17, 2010. <http://beta.worldbank.org/climatechange/content/economics-adaptation-climate-change-study-homepage>.
- 5 See various publications and letters published by Canadian NGOs, including letter from WWF Canada, Canadian Council on International Cooperation, Oxfam Canada and the Pembina Institute (available at <http://pubs.pembina.org/reports/fast-start-financing-letter-april-2010.pdf>). See also Pembina report "Our Fair Share: Canada's Role in Supporting Global Climate Solutions" <http://pubs.pembina.org/reports/our-fair-share-fact-sheet-final.pdf>. See also Oxfam Canada Technical Briefing on Climate Financing: <http://www.oxfam.ca/news-and-publications/publications-and-reports/technical-briefing-note-on-financing-climate-adaptation/file>.
- 6 <http://www.dfid.gov.uk/Global-Issues/How-we-fight-Poverty/Climate-and-Environment/Climate-Change/What-DFID-is-doing/DFIDs-White-Paper-Climate-Change-Commitments/>.
- 7 The CARE Canada case study takes a closer look at NAPA process and makes recommendations that can ensure it works for the poor.

## FURTHER RESOURCES

- Action Aid, Participatory Vulnerability Analysis handbook. [http://www.actionaid.org.uk/doc\\_lib/108\\_1\\_participatory\\_vulnerability\\_analysis\\_guide.pdf](http://www.actionaid.org.uk/doc_lib/108_1_participatory_vulnerability_analysis_guide.pdf)
- Assessments of Impacts and Adaptations to Climate Change (AIACC) program of the International START Secretariat, Washington, DC. [www.aiaccproject.org](http://www.aiaccproject.org)
- Canadian Food Security Policy Group case studies. <http://www.foodgrainsbank.ca/resilience.aspx>
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- Climate Change and the Future Impacts of Storm-Surge Disasters in Developing Countries, Centre for Global Development, September 2009. [www.cgdev.org](http://www.cgdev.org)
- Climate Risk Screening Tool: Adaptation and Livelihoods (CRISTAL). IISD, Intercooperation, International Union for the Conservation of Nature and Stockholm Environment Institute. [www.cristaltool.org/](http://www.cristaltool.org/)
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- Handbook on Vulnerability and Adaptation Assessment, UNFCCC.
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- IDS Working Paper 320, "Climate Change Adaptation, Disaster Risk Reduction and Social Protection: Complimentary Roles in Agriculture and Rural Growth," 2008. <http://www.ids.ac.uk/download.cfm?file=wp320.pdf>
- International Development Research Centre's Climate Change Adaptation in Africa (CCAA) program, including further case studies: [www.idrc.ca/ccaa/ev-118955-201-1-DO\\_TOPIC.html](http://www.idrc.ca/ccaa/ev-118955-201-1-DO_TOPIC.html)
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- Livelihoods and Climate Change: Combining disaster risk reduction, natural resource management and climate change adaptation in a new approach to the reduction of vulnerability and poverty, Inter Cooperation, Stockholm Environment Institute, IISD, and IUCN, 2003.
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- Our Fair Share: Canada's Role in Supporting Global Climate Solutions. The Pembina Institute.
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- Red Cross/Red Crescent Climate Guide, The Climate Centre, the Netherlands, 2007.
- Stern Review: The Economics of Climate Change, UK Government, 2006, (especially Chapter 20 on Adaptation).
- Training Manual on Gender and Climate Change by IUCN and UNDP with the Global Gender and Climate Alliance (GGCA), 2009. [www.gender-climate.org/resources.html](http://www.gender-climate.org/resources.html)
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