ADAPT AND THRIVE: OPTIONS FOR REDUCING THE CLIMATE-CHANGE ADAPTATION DEFICIT

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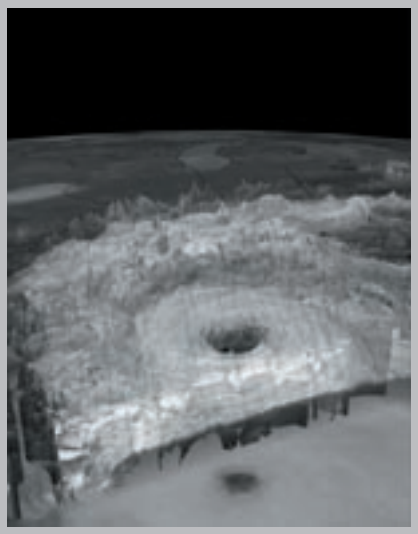

Part of the climate change impact equation is the degree to which the people most affected by change — mostly in the world's poorest nations — can adapt to it, particularly in a post-disaster context. Ian Burton, an expert on adaptation and a lead author of the Intergovernmental Panel on Climate Change fourth assessment, due in 2007, writes that, "The grim prospect is that with climate change the adaptation deficit as a whole is set to grow significantly larger." Burton links the evolution in thinking on adaptation to the thinking on climate change, which is finally being recognized as a poverty and equity issue. But more needs to be done, and fast, by governments — including Canada's.

Un des enjeux importants découlant des changements climatiques tient dans la capacité d'adaptation plus ou moins grande des populations les plus touchées — essentiellement regroupées dans les pays pauvres — surtout à la suite d'une catastrophe. Et pour Ian Burton, grand spécialiste de la question et l'un des principaux auteurs du Quatrième rapport d'évaluation du Groupe d'experts intergouvernementaux sur l'évolution du climat, à paraître en 2007, cette capacité d'adaptation risque de s'amenuiser considérablement à mesure que les changements gagnent en ampleur. « Une sombre perspective », note l'auteur, pour qui la réflexion sur l'adaptabilité est étroitement liée à l'analyse des changements climatiques, dont on reconnaît enfin qu'ils soulèvent un problème d'équité et de pauvreté. Le temps presse et tous les gouvernements ont beaucoup de pain sur la planche, y compris celui du Canada.

There is no question that, on a global scale, exposure to climate-change-related extreme weather events is increasing. Because of population growth and increases in prosperity in some places and persistent poverty in others, and the heedless expansion of human settlement into high-hazard zones, the number of people and property exposed to weather-related hazards are growing steadily. In recent decades, material losses due to extreme weather events have risen steadily, reaching over US$100 billion in 2004. As a result of Hurricane Katrina, among other hazard events, the figure will be higher in 2005. According to research from the World Bank and the Pew Centre on Global Climate Change, in absolute terms, the greatest losses occur in developed countries, but measured relative to wealth, losses are substantially higher in developing countries.

From 1984 to 2003, losses as a percentage of national income were three times higher in low- and lower-middle-income countries — representing 80 percent of the world's population — than in higher income countries. Mounting losses increasingly threaten the development process itself, and single events in particular countries can cause setbacks equivalent to a decade's worth of economic growth. The World Bank has estimated that from 1990 to 2000, average annual economic losses due to disasters in Asia alone equalled one-half to two-thirds of the bank's entire lending portfolio. High-risk countries frequently have to borrow for post-disaster reconstruction, contributing to country indebtedness without necessarily promoting economic growth or poverty reduction. Indeed, hasty reconstruction (getting back as quickly as possible to "business as usual") may serve to increase future vulnerability by guiding more development into high hazard zones and providing no improvement in infrastructure design or the quality of construction — a process called "maladaptation."

A traditional view holds that natural disasters are "acts of God," or simply a result of the natural processes of the climate and weather systems on this planet. This view is perhaps understandable among the poor, who often have little choice but to live in dwellings of low quality construction in high hazard zones. It also carries some resonance where scientific understanding of the magnitude, frequency and

spatial distribution of atmospheric risks is low, and modern construction techniques and building materials are unknown or unavailable. These excuses are no longer credible. We now know and understand more than enough to use the remedies within our hands, but we have failed to apply them. Disasters are increasingly recognized as the indirect and unintended result of everyday human choices and poor development decisions. A broad diagnosis is that people, societies, national governments and the international community are collectively and individually failing to adapt as well as should be expected under prevailing climate conditions. Increasing disaster losses thus reflect an adaptation deficit that is being imposed on future generations.

Humanity has always struggled to adapt to climate and weather. In the past, this was a cultural and social learning process based largely on accumulated experience. In the modern era, adaptation has become the responsibility of professionals: scientists, experts, managers, decision- and policy-makers in such diverse fields as agriculture, forestry, health, water, biodiversity and environmental conservation, infrastructure planning, design, construction, insurance, transport and others. All play a role in protecting people, the economy and the environment from weather events and climate conditions. Much of their work is science-based, including atmospheric science. Usually, such professionals do not describe their function as including adaptation, and each field has its own terminology, such as crop protection, disease prevention, transport and building safety, flood control, and so forth. In the negotiated text of the United Nations Framework Convention on Climate Change, all these activities and many others were lumped together under the rubric of "adaptation." According to the IPCC (Intergovernmental Panel on Climate Change) definition, adaptation refers to "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities." In the disaster management literature (see the article by Henstra and McBean in this issue), the term "mitigation" is used almost synonymously with the term "adaptation" in the climate change literature, except that "mitigation" is applied to all disasters and not just those that are climate-related.

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It seems that, initially, the drafters of the Climate Convention were thinking of adaptation to future *anthropogenic* climate change only. It has come to be accepted, however, that it is not possible to provide a scientific basis for determining how much of an extreme event such as a hurricane can be attributed to climate change. Adaptation therefore is increasingly understood to include adjustment to climate variability and extremes as well as climate change, and to include present as well as future adjustment. From a practical standpoint, when thinking about adaptation to future climate change, it makes sense to begin by asking "how well are we adapted now?" The answer, once again, is that we are not as well adapted as we could and should be, and that there is currently an adaptation deficit. Slow progress in the implementation of the Kyoto Protocol and in achieving reductions of greenhouse gas emissions and improvements in carbon storage and sequestration mean that climate change can be expected to continue and perhaps accelerate over the coming decades and centuries. While the component of the adaptation deficit currently attributable to climate change is not determined, it is probably still quite small. It may confidently be expected to increase unless carbon dioxide and other greenhouse gas emissions can be rapidly reduced and unless action is taken urgently to improve adaptation. The grim prospect is that with climate change the adaptation deficit as a whole is set to grow significantly larger.

This evolution in the thinking about adaptation has implications for the way we think about climate change. Originally conceived as an atmospheric pollution issue that was primarily the concern of meteorological agencies and departments of the environment, it is now also recognized as a development issue and as a poverty and equity issue.

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ness. Climate risks need to be factored into development and investment decisions to a much greater and more serious degree than they have been. Adaptation is now becoming an item on the policy agenda that cuts across the departmental and sectoral boundaries of government, and it must be factored into decisions in a generic way similar to issues such as gender equity, environmental impacts, and poverty eradication.

There are two immediate implications of this: first, governments at every level and the private sector have to find ways of addressing adaptation in a more coherent way, and this requires some institutional reform or restructuring; second, such innovations need to be supported by a more integrated science and policy for adaptation. On the leading edges of this debate, experts have already begun to talk about adaptation science and adaptation policy.

The great breadth of the concept of adaptation means that it is difficult to operationalize. There are no clear limits to what is or should be meant by adaptation. However, the preliminary formulation of the problem at the international level and the emerging diagnosis has led to some initial steps. Within the UN Framework Convention on Climate Change itself, funds have been established under its financial instrument, the Global Environment Facility (GEF). These funds are to be used in part to support adaptation in developing countries, especially those most vulnerable. The least developed countries are being assisted to prepare National Adaptation Plans of Action (NAPAs), and the Subsidiary Body on Science and Technology Advice, (SBSTA) is developing a Five Year Work Programme (PWA) on impacts, vulnerability and adaptation. The approach is fragmentary and lacks the coherence that has been created on the mitigation side by the Kyoto Protocol.

There is a limit to what can be accomplished under the Framework Convention itself (it is only a *framework c*onvention) and this has led to suggestions for the development of an Adaptation Protocol, or at least some more coherent adaptation regime under the convention. Such a protocol or regime might be expected to deliver the more effective adaptation that is required. This would likely entail a more precise definition of adaptation, some agreement on how adaptation can be measured, and the setting of goals and targets in such a way that they can be assessed. The International Decade for Disaster Reduction, which ran from 1990 to 1999, set the ambitious goal of reducing the costs of natural disasters by 50 percent. But despite the efforts of the decade, they have continued to increase. Effective

This is America? After the levees were breached in New Orleans, entire neighbourhoods were left under water. Here, residents are evacuated. In the world's richest nation, residents across a racial divide are faced with the same kind of post-storm adaptation deficit confronted by citizens in the world's poor countries.

adaptation is not easy to achieve. It is possible that more closely integrating climate change adaptation with disaster mitigation under the Climate Convention could help development and reduce poverty.

The bilateral development assistance agencies (including CIDA) and the development banks (including the World Bank) have started to consider how to make the assessment and response to climate risks an integral part of their portfolios. This process is sometimes referred to as "mainstreaming." The Gleneagles Plan of Action on Climate Change, Clean Energy and Sustainable Development agreed to at the G8 Summit in August 2005, invited the World Bank "to develop and implement "best practice" guidelines for screening their investments in climate sensitive sectors to determine how their performance could be affected by climate risks, as well as how those risks can best be managed, in consultation with host governments and local communities." The G8 leaders also invited "other multilateral and bilateral development organizations to adopt the World Bank guidelines, or develop and implement similar guidance."

One recurring issue has been the question of cost sharing. Under the Framework Convention, the developed country parties have agreed to "assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation to those adverse effects." At the level of international agreements there is an important distinction between climate change impacts and natural disasters.

Because the developed countries have been historically responsible for the vast majority of greenhouse gas emissions (although this is changing soon as China, India and other rapidly growing developing country economies expand their fossil fuel consumption) they have accepted a degree of responsibility for climate change and its impacts. No such responsibility has been accepted for natural disasters. As agreed in the Hyogo Declaration at the World Conference on Disaster Reduction held in Kobe, Japan in January 2005, natural disasters are a matter for international concern only, and not responsibility. But even here the responsibility is limited. The developed or donor countries are insisting that there should be few "adaptation only" projects, and that adaptation will be integrated into development activities with co-benefits and that additional international assistance under the Climate Convention will normally be limited to the "incremental costs" of adapting to climate change.

In Canada, one nationwide study of the impact of climate change (*The Canada Country Study*, or CCS.) was completed in 2001 under the leadership of Environment Canada and a second study on impacts and vulnerability is now being conducted by Natural Resources Canada. While both these studies are important steps forward for Canada, the CCS does not advance very far in the direction of adaptation policy and practice, and it appears unlikely that the NRCan study will go much further. There have been discussions among the federal, provincial, and territorial governments about the development of an adaptation policy framework for Canada, but this has not progressed beyond statements of general principles. One obstacle here, as at the international level, is the "who pays?" question. Since there is no basis for claiming that the federal government bears any higher degree of responsibility for climate change, it is clear that the costs of adaptation in Canada will have to be widely shared among levels of government and with the private sector. For this reason among others there might be merit in linking climate change adaptation to disaster mitigation in Canada, and there have been preliminary steps in this direction.

The pervasive impacts of weather and climate on people's livelihoods, economic sectors, and the natural environment have made adaptation to climate change everybody's business. Climate risks need to be factored into development and investment decisions to a much greater and more serious degree than they have been. Adaptation is now becoming an item on the policy agenda that cuts across the departmental and sectoral boundaries of government, and it must be factored into decisions in a generic way similar to issues such as gender equity, environmental impacts, and poverty eradication.

Both in Canada and internationally, more work is needed to develop a coherent program for adaptation, to assess the options, and to develop a rationale and implementation plan. There is no one simple prescription for adaptation and a balanced portfolio of measures and policies is still to be developed and agreed. An important feature of this for Canada, as for other countries, is to achieve consistency and synergy between international positions and national strategies. Some of the options are laid out in the following lists:

International options:

- Take steps to strengthen the adaptation regime under the UNFCCC. Canada could as a minimum increase its donations to the (voluntary) funds under the GEF and promote through negotiations the creation of a more coherent adaptation regime or even a protocol. This might require the consolidation of the various GEF funding windows and the simplification of the rules of access. A less complicated and more coherent

approach could increase the transparency and effectiveness of the adaptation regime.

- Support and promote the integration of adaptation into development assistance programs, and ensure that this happens at CIDA. This would entail the adoption of a screening tool and "best practice" guidelines, perhaps following the lead of the World Bank.
- Help to create a global capacity to strengthen and distribute information about climate risks, impacts and potential adaptation measures.
- Provide support to developing countries to help strengthen their technical and institutional capacity for responding to climate change, including adaptation.
- Support the extension of National Adaptation Plans of Action to all developed countries. This could include new guidelines stronger than the current NAPA guidelines that would integrate climate risks and adaptation into national economic and sectoral development.
- Support the development of the PWA in SBSTA. For example, Canadian initiatives could include the organization of a collaborative study leading to a workshop and recommendations on climate change and world agriculture (or another sector). Indications are that China would be glad to host such a workshop and that FAO and CGIAR and other partners and stakeholders would help by cosponsoring the work.
- Take a leadership role in helping to establish an ad hoc international group of experts to facilitate the work on adaptation under the convention and the PWA.
- Take a leadership role in furthering the consideration of insurance both as a risk-sharing approach and to facilitate (mandate) adaptation. New insurance products could be developed using public-private partnerships to help create expanded accessibility to climate insurance.
- Canada could help to develop with other Annex 1 (developed country) parties a strategy that would lead to a "great accommodation" or "grand bargain" or a "new deal" with developing country parties to provide for a substantially expanded, more coherent, and more generously funded program in adaptation under the convention, that would require verifiable steps in adaptation and some form of commitment to emission reductions from at least the major emitters such as China, Brazil and India.
- Other suggestions within the "grand bargain" include further donations to the GEF funds; extension of NAPAs to all developing countries; support for activities under the PWA; consideration of the development of insurance for climate-related risks; support for institution and capacity building; and a more coherent adaptation regime. Technology transfer for adaptation would also be included.

Talk of a "great accommodation" may seem fanciful, but if the drive to curb the impacts of climate change is not to stall, some breakthrough in negotiations is needed well before 2012. In that year, the first commitment period for emission reductions under the Kyoto Protocol will expire. It has to be replaced with some form of new commitments that will make it possible for the major emitters among the developing countries to join in, and if possible rescue the United States from its increasingly isolated position. Finding a way to this "grand bargain" should be high on the radar screen of Canadian diplomats and political leaders. The situation calls for some vision in which there is a key role for adaptation.

Domestic Options:

- The linking of Canada's disaster mitigation policies with adaptation to climate change. The Disaster Financial Assistance Arrangements (DFAA) are a useful model for cost-sharing in adaptation to climate change, despite important differences in the two policy domains.
- A coherent national (federal, provincial, territorial) approach to adaptation is urgently needed. There is little merit in "adaptation only" projects: Climate risks should be incorporated into sectoral activities and investments at all levels of government and in the private sector. The aim is to reduce the impacts of climate change and

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variability and extreme events, gaining co-benefits along the way, and not to create a major new spending program. In this, as in other policy domains, the principle of subsidiarity should apply.

- Mechanisms and institutions need to be strengthened (or in some cases to be established) to ensure that climate change and climate risk information is available and accessible to all levels of government and the private sector. This also applies to climate impacts and adaptation options including adaptation technology.
- The fact that national (federal, provincial and territorial) adaptation policies, measures, and practices can have international implications should not be overlooked. This applies both to NAFTA partners and other trading partners. There are resource management issues as in the case of boundary waters and other resources such as migratory wildlife. Incentives for adaptation could, if not carefully designed, attract the critical attention of trading partners, and adaptation policies introduced in other countries may have consequences for Canada.
- There are opportunities for development, transfer and export of adaptation technologies and Canada should consider how these might be facilitated.
- It would be useful to engage in consultations on the development of adaptation strategies, policies and measures with other developed (Annex 1) countries.

A Darwinian "survival of the fittest" rhetoric is sometimes used in connection with the concept of adaptation, including adaptation to climate and climate change. The nature of climate change as a global issue in which all countries have "common but differentiated responsibilities" is such that a dog-eat-dog approach is likely to end in mutually assured destruction akin to that of nuclear war, only on a more protracted timeline. The alternative is to find a collective determination to adapt and thrive. Canada is uniquely placed among nations to play a catalytic role in such an endeavour.

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