

CIGI Working Group on Environment and Resources

# Environmental Sustainability and the Financial Crisis: Linkages and Policy Recommendations



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The Centre for International  
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Addressing International Governance Challenges



# ENVIRONMENTAL SUSTAINABILITY AND THE FINANCIAL CRISIS: LINKAGES AND POLICY RECOMMENDATIONS

CIGI WORKING GROUP ON  
ENVIRONMENT AND RESOURCES

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## FOREWORD

Global problems are rarely as discrete from one another as we might think. They are often, in fact, linked in complex ways. Both the emergence of global crises, and the policies put in place to address them, can and often do overlap in important ways. Such is the case with the global financial crisis and the broader ongoing global environmental crisis.

As the financial crisis has grabbed headlines over the past year, it has overshadowed global environment and resource issues, which is not surprising given that such issues typically take a back seat in times of economic instability. But, ecological havoc caused by climate change, dramatically increased global food insecurity, rising environmental protectionism, and volatile energy prices accompanied by a changing geopolitics of energy security, have only intensified over the past year, while financial markets tumbled, banks failed and governments enacted economic stimulus legislation. On closer inspection of these apparently separate crises occurring in tandem, we see remarkable overlap and interconnectedness between the global financial crisis on one hand, and emerging and escalating environment and resource issues on the other. It is not surprising, then, that the proposed policy solutions to the economic crisis have important implications for policy solutions to these broader environmental issues.

This publication, with contributions from The Centre for International Governance Innovation's research group

on Environment and Resources, highlights the intersection of the financial crisis and its policy responses with broader environment and resource issues and policies. It shines a bright light on the ways in which these multiple crises are related to one another, and how international policy responses to them must take account of these linkages. While economic policies have the potential to work against broader environment and resource goals, this need not be the case. This publication maps out how both economic and environmental goals can be pursued in ways that are mutually supportive of each other. Such integrated responses are vital in the current context of multiple, complex, interlinked crises.

Louise Fréchette

Distinguished Fellow, The Centre for International Governance Innovation and former UN Deputy Secretary-General

## OVERVIEW

JENNIFER CLAPP & LINDA SWANSTON

In crisis there is opportunity. As the global economic crisis and nascent recovery continue to unfold, it is important not to lose sight of the environment amid fiscal stimulus efforts and economic reorientation. Economic prosperity cannot be pursued at the expense of environmental sustainability. Indeed, long-term economic prosperity requires a strong and healthy ecosystem at its base.

Taking the fundamental interdependence of the economy and environment as their starting point, the papers presented in this publication outline and highlight the unique challenges and opportunities for policy makers in the face of the current economic crisis. The ways the economic crisis interfaces with environment and resource issues are rarely straightforward, and the authors consider the multi-faceted nature of this relationship. Each paper presents analysis and concrete policy recommendations to advance mutually supporting economic and environmental agendas.

This publication is organized around four key themes. The first section is devoted to opportunities to reform financial regulation and international trading systems in order to achieve both environmental and economic gains. Eric Helleiner and Jason Thistlethwaite discuss various banking initiatives to address environmental risk, including ways to integrate the assessment and disclosure of environmental risk into voluntary initiatives and core banking principles. John Whalley argues that

policy makers should consider the relationship between international climate and trade agreements, in order to avoid the risks of “green” protectionism and simultaneously move climate negotiations forward.

The second section outlines missed opportunities to maximize environmental benefits from national stimulus packages and environmental policy initiatives. Ian H. Rowlands draws on international sustainability studies of stimulus packages and highlights some of the environmental opportunities Canada is currently missing, but could take up. Debora VanNijnatten also demonstrates that recent climate-policy advances at sub-national levels of government in North America are being inadequately integrated into national environmental policy efforts in the wake of the economic crisis.

The third section is an assessment of the complex relationships between resources, specifically food and energy, and how the global crisis, and responses to it, are affecting both markets and people. Jennifer Clapp links the global food price crisis of 2008, widely viewed as the product of environmental and political factors, to the broader global economic crisis. The devaluation of the US dollar and the credit crisis have clear implications for global agricultural production and food commodity markets. Clapp argues that policy makers need to consider fiscal and economic policies in addressing hunger and the environment. Annette Hester investigates the relationship between energy security and the economic crisis, and makes the case that the financial vulnerability of the United States has enormous implications for the global geopolitics of energy.

The final section focuses on the ways in which complexity is central to both environmental and economic prob-



lems. Thomas Homer-Dixon argues that parallels between different complex crises highlight the need to pay adequate attention to complexity theory in responding to the global economic emergency, and to learn from this crisis in order to more appropriately respond to future crises. Homer-Dixon presents a compelling picture of a world constructed of overlapping and interconnected complex systems, with the attributes exhibited by the economic crisis increasingly likely to be repeated in the impending climate crisis.

By considering opportunities, instances when they are being missed, and the complex linkages between the environment and the global economy, this publication and the policy recommendations contained within, provide markers for a way forward that ensures the environment stays on the agenda in these times of economic turmoil. Each of the papers emphasizes that both short- and long-term policies are needed to ensure the attainment of mutually supportive economic and environmental goals.

# THE GREENING OF INTERNATIONAL FINANCIAL REGULATION

ERIC HELLEINER AND JASON THISTLETHWAITE

The financial crisis has opened up an extensive debate about the reform of international financial standards and regulations. But the link between such reform and environmental issues has unfortunately been almost entirely neglected by financial officials to date. Policy makers would serve the goals of both financial stability and environmental sustainability by seizing this reform moment to “green” international financial regulations.

## THE IMPORTANCE OF DISCLOSING ENVIRONMENTAL RISKS

Financial transparency and disclosure has long been a target of international financial regulation. Traditionally, regulations have focused on disclosure of material financial risks. But there is growing recognition within the investor community that material risks should also include environmental risks such as physical damage from the changing environment, regulatory risks from implementing costly environmental regulations or fines, or legal liability issues related to a firm’s environmental performance.

Requiring an accurate and full disclosure of environmental risks would help investors make more informed financial decisions and manage financial risk more effectively. It would also be welcomed by those who increas-

ingly recognize that financial standards and regulations have important environmental consequences. From this standpoint, incorporating environmental risk into due diligence procedures by investors would impose useful costs on environmentally dangerous behaviour and shift capital towards more sustainable investments.

American insurance regulators have played a pioneering role in responding to investor demands for mandatory environmental risk disclosure (perhaps not surprisingly, given the clear vulnerability of insurers to growing losses from climate change-induced extreme weather events). In March 2009, the US National Association of Insurance Commissioners (NAIC) announced a requirement that US insurers with premiums over US\$500 million disclose climate change risks and their policies for reducing this risk. To date, the key international regulatory body — the International Association of Insurance Supervisors (IAIS) — has yet to follow the US lead in backing this policy.

By revealing climate change risks, US insurers will face considerable pressure from their stakeholders and shareholders to introduce more climate-related policies, and to raise premiums for covering carbon-intensive firms and activity in the economy. To prevent these insurers from reducing climate-related insurance altogether, it may be important to combine disclosure requirements with public incentives for private insurance of climate-related risks.

Environmental accountants are also pressing for regulators to require financial firms and publicly traded companies to disclose environmental risks in their financial statements. Indeed, if the International Accounting Standards Board (IASB) could specify, or even quantify, environmental risk, financial markets would be given the ability to interpret a standard measure for this risk. This

kind of measure could then be employed by credit rating agencies in ways that prompt borrowers with poor environmental records to face higher capital costs.

Even the core of international banking regulation — Basel II — could be modified in this direction. Its Pillar III standard on market discipline notes that banks must follow the “materiality concept” for disclosure of financial information. This concept could be expanded to explicitly include environmental risk. Many banks have already started incorporating environmental risks into their credit risk management, and for good reason. One study of German banks, for example, shows that about ten percent of all defaults on commercial credits were connected to environmental risks. Looking towards the future, investors should also be made aware that implementing a price on carbon through an emissions trading market increases a bank’s exposure to regulatory risk for investments in carbon-intensive sectors.

## VOLUNTARY INITIATIVES

In the absence of formal international regulations, several financial organizations have initiated voluntary or private standards in response to demands for greater environmental risk disclosure. The United Nations Environment Programme Finance Initiative (UNEP-FI) spearheaded these efforts by launching a global partnership with the financial sector. UNEP-FI has encouraged over 170 financial institutions to sign onto a set of voluntary principles committing them to integrate environmental considerations into their business models, including “identifying and quantifying environmental risk.”

Institutional investors, who control and invest trillions of dollars of capital, have also been forming interna-

tional political lobbies such as the Investor Network on Climate Risk (INCR). INCR recently established voluntary guidelines called the Climate Risk Action Plan that oblige signatories to encourage both investors and the firms in which they invest to disclose the environmental risks generated by their activities. Ceres, a partner group with INCR, has been pushing the US Securities and Exchange Commission (SEC) to require climate risk disclosure from all publicly traded firms in the US. This initiative has gained considerable political traction in recent months, and has the potential to extend internationally via the SEC’s counterpart, the International Organization of Securities Commissions (IOSCO).

In consultation with some environmental groups, American and European banks have launched two initiatives — the Carbon Principles and Climate Principles — which are designed to implement a common due diligence procedure for investing in carbon-intensive sectors. By standardizing how these major banks evaluate their lending practices and due diligence procedures, these principles establish a precedent that carbon-intensive economic activity faces potentially higher borrowing costs. In July 2009, a number of leading private accounting bodies also signed a set of sustainability principles that encourage clearer and more consistent reporting that link firms’ environmental impacts with their financial performance.

## THE NEED TO REFORM INTERNATIONAL REGULATION

These various private initiatives are very welcome and demonstrate the interest of many investors and financial institutions to see environmental risks addressed. But their voluntary nature means they lack legal enforce-

ment. Moreover, the proliferation of different standards prevents investors from forming a coherent response to environmental risk.

These problems could be addressed by integrating environmental risk disclosure more directly into official international financial standards and regulations. The

global financial crisis is already prompting extensive regulatory reform to boost transparency and disclosure, in order to minimize the likelihood of future crises. Adding environmental disclosure reform to the international agenda would work in the same direction. It would also generate the added bonus of reorienting financial markets towards a more environmentally sustainable future.

## POLICY RECOMMENDATIONS

- The International Association of Insurance Supervisors should follow the US NAIC's example and encourage national regulations disclosing environmental risk for all insurers covering over US\$500 million in premiums.
- The International Accounting Standards Board should specify, or even develop, a quantifiable standard metric for reporting environmental risks in financial statements.
- The International Organization of Securities Commissions should encourage both credit rating agencies to evaluate a firm's environmental risk in rating decisions as well as national securities regulators to require climate risk disclosure.
- The Basel Committee on Banking Supervision should expand the definition of material risk under Basel II's Pillar III for banks to include environmental risk.

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# PROTECTIONISM, CLIMATE, ENVIRONMENT AND THE CRISIS

JOHN WHALLEY

Growing trade protectionism, justified on environmental grounds, has important implications for the global trading system. This is especially true today, as protectionist impulses are on the rise due to the global economic slowdown. Developing countries are especially concerned about the impact that a potential closing of the trading system could have on their prospects for growth and development. At the same time, there is recognition that environmental issues, particularly climate change, require major global responses. Achieving a balance between both trade and environmental objectives is important during this period of economic crisis.

## WHAT IS ENVIRONMENTAL PROTECTIONISM? WHAT IS THE THREAT?

Environmental protectionism is trade protection linked to concerns over environmental issues. Some of these environmental concerns are no doubt legitimate, and there has been longstanding debate in the World Trade Organization (WTO) on the linkages between trade and the environment. At heart, this debate is over what rights countries have to use protectionist measures on environmental grounds and what constitutes legitimate environmental interventions in trade.

In the last five years, the focus of the environmental protectionism debate has swung away from the WTO to climate-related trade issues. The potential severity of climate change has resulted in different levels of national commitment to undertaking various mitigation activities. These disparities were manifested in the Kyoto Protocol, which treats developed and developing countries differently, and the non-participation of the latter. Since the Bali meeting in 2007, which started negotiations on a post-Kyoto world after 2012, there has been substantial discussion of more active participation by key developing countries, particularly China, India, Russia, Indonesia and Brazil.

The developed countries, however, see themselves as leaders in carbon reduction and have concerns over leakage (spillover effects with increased emissions elsewhere relative to the emissions they reduce) and the associated impacts on the competitiveness of their domestic firms. Active discussions have emerged over the past year on the concept of border tax adjustments, which would mandate trade restrictions on imports and subsidies on exports for countries that make stronger climate commitments than their counterparts. While such measures would put in place incentives for climate protection, they also have the potential to disadvantage exports from developing countries. The debate over such adjustments has been particularly active in Europe and has gained attention more recently in the United States.

## ENVIRONMENTAL PROTECTIONISM AND THE ECONOMIC CRISIS

The global economic crisis greatly intensifies the threats posed by environmental protectionism because of the

amplified pressures for trade protection. Because of the ambiguities over what is legitimate trade-based environmental protection, developing countries in particular are concerned that environmental arguments will be used to legitimize unjustified protectionism. The G20 pledged to put a freeze on new protectionism at its April 2009 meeting in London, but whether this will be sufficient is unclear.

The appropriate response to environmental protectionism is inevitably complex and nuanced. It is not a matter of simply saying that all protectionist measures must cease. There are legitimate debates taking place over the linkages between trade, climate and the environment that began pre-crisis; the intensification of the issue at the present time is the central concern.

An appropriate response to environmental protectionism in the current economic context requires two broad directions. The first is to accept and deal with the linkage between environment and trade and not allow it to be cast aside during international negotiations on the new global, post-crisis regime.

The second response is to stress the need to maintain openness in the trading system, and strengthen the application of existing disciplines in the framework of the WTO. This ultimately points to stronger dispute settlement procedures and enhanced compliance with WTO rules.

## TRADE AND CLIMATE CHANGE AT COPENHAGEN 2009

An important part of the response to the threat of environmental protectionism in the current global environmental crisis is the linking of trade openness to climate change in the Copenhagen negotiations on a post-Kyoto agreement.

These linkages are, at the moment, only indirect. The Copenhagen negotiation has four separate pillars of negotiation: one on mitigation, one on adaptation, one on innovation, and one on trade and finance. The trade and finance component does not explicitly deal with the trade linkage. This linkage is crucial, however, in order to facilitate the participation of China, India, Russia, Brazil and other developing countries in the negotiations.

A key element to bringing these rapidly industrializing countries into the negotiations more actively is to ensure the security of openness for their exports of manufactured and agricultural goods to OECD markets, in return for environmental concessions. As the risk of environmental protectionism escalates in light of the financial crisis, acknowledging this linkage in the Copenhagen negotiations is critical.

## ENVIRONMENTAL PROTECTIONISM AND ENHANCED DISPUTE SETTLEMENT

Strengthening and opening the trading system through an enhanced dispute resolution mechanism is one way to deal with the threat of new spurious environmental protectionism. Although the dispute resolution system has improved in recent years, the weaknesses that remain lie in both the WTO's ability to generate multiple panels for any given dispute and also in the relative weakness of the allowable penalties. Retaliation, which is sanctioned by the dispute settlement process, is only bilateral and only allows the withdrawal of equivalent concessions. One way to proceed is to substantially strengthen the application of dispute settlements with more severe penalties.

Bolstering penalties could involve moving to a system of N-1 retaliation, where if a country is found to be in viola-

tion of its WTO obligations, all other WTO members are required to jointly engage in retaliation. Another mechanism which has been proposed is to enter all WTO disciplines fully into domestic law, so private groups can take legal actions against national governments for violations of WTO disciplines.

Strengthening the WTO system in these ways is central, not only to maintaining the system rules, but also to dealing with threats of spurious environmental protectionism in the immediate post-crisis period. It could also form the basis of a revised trade rule system that would accelerate developing country participation in climate change negotiations.

## POLICY RECOMMENDATIONS

- Acknowledge the linkage between trade, climate and the environment. A linked negotiation between these areas is now effectively called for, particularly as a mechanism for completing the Copenhagen 2009 negotiation on a post-Kyoto world.
- Focus on mechanisms that strengthen the application of existing trade rules in return for environmental commitments that would be accepted by the rapidly growing economies of China, India, Russia and Brazil.
- Strengthen mechanisms for enforcement and dispute settlement. These could involve both stronger penalty systems, in particular a stronger application of penalties through N-1 retaliation, and also entering all international trade disciplines fully into domestic law so as to allow domestic groups to take action when countries are in violation of their WTO obligations.

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# SUSTAINABILITY AND THE CANADIAN STIMULUS PACKAGE

IAN H. ROWLANDS

The Canadian federal government tabled its *Economic Action Plan* in response to the global financial collapse at the end of January, and provided a *First Report to Canadians* two months later. Since that time, additional announcements have presented further details of the government's strategy, while actual disbursements have revealed the government's priorities. Thus, during the course of this year, more and more substance has been being given to the Government of Canada's economic strategy in the midst of the current crisis.

A number of studies have aimed to offer comprehensive assessments of the various economic stimulus packages that national governments have introduced. Building on this research, a sustainability evaluation of Canada's stimulus package is offered here.

## GLOBAL PERSPECTIVES

An HSBC study from February 2009 evaluated the extent to which a variety of national packages contained "climate-related investment themes." In absolute terms (that is, how much money is to be spent on these themes), China's came out on top, with US\$221.3 billion of its stimulus package so targeted — much of this for rail, grids and water infrastructure. Meanwhile, in relative terms (that is, what share of the total package to be spent

on these themes), South Korea placed first, with 80.5 percent of its US\$38.1 billion package contributing to climate change mitigation. Canada, meanwhile, ranked, in absolute terms, sixth of the 15 countries studied, with US\$2.6 billion labeled climate-related, and seventh in relative terms, with 8.3 percent of the total package similarly targeted.

A study commissioned by the WWF in Europe built upon this HSBC study in two important ways. First, it recognized there could be different economic multiplier effects associated with each dollar of government stimulus — not only because of the sector in which the dollar was invested (for example, renewable energy or electric grid infrastructure), but also because of the policy strategy used to disburse the money (for example, a loan or subsidy).

Second, the WWF study asked whether there were "climate-unfriendly" aspects of the stimulus packages; it investigated whether parts actually served to increase emissions of greenhouse gases, rather than to reduce the same.

Looking at policy through these additional lenses, the German stimulus package is viewed more favourably: low-interest loans for retrofitting public buildings, for one, serve to improve its standing. Alternatively, the Italian economic plan falls from grace: a massive investment in roads is viewed negatively.

Yet a different approach was offered in a study by Lord Stern and his colleagues at the Grantham Institute in the United Kingdom. They identified a number of different policy proposals that claimed to be supportive of climate change goals; although they do not study specific



proposals — that is, they do not identify detailed plans from explicit countries — they argue that these kinds of proposals were under discussion by many governments around the world. Stern's team examined these generic proposals and considered the extent to which they truly contributed to a "sustainable society." This latter term was defined by the authors as being "an effective boost to the economy, increasing labour demand in a timely fashion, while at the same time building the foundations for sound, sustainable and strong growth in the future." Reviewing 23 such proposals, those policies that promote increased energy efficiency in buildings came out on top, for they help deliver both a fiscal stimulus and various climate change and sustainability objectives.

Interestingly, in the WWF and Stern studies, Canada was not examined. Thus, one way to evaluate this country's plan is to apply the insights these reports provided on varied multiplier effects, hidden negative impacts and overall contributions to sustainability.

## EVALUATING THE CANADIAN PLAN

Some aspects of the Canadian stimulus package deserve praise. It provides \$300 million over two years to support approximately 200,000 additional retrofits for residential energy efficiency. While Lord Stern would clearly be pleased with this approach, the enthusiasm of the authors of the WWF study might be more muted, for the support comes in the form of a subsidy. The WWF maintains that this policy leads to the so-called "free rider" problem; that

is, financial resources are transferred to individuals who might well have taken the desired action even in the absence of the incentive. In other words, people who were going to buy a new furnace anyway will now receive "free money" from the government when they do so.

If that takes some of the gloss off parts of the Canadian package, it represents a relatively small challenge when compared to one of the biggest-ticket items in the plan. Central to the so-called "Clean Energy Fund" — a key plank of the green part of the government's plan — is a \$650 million investment in carbon capture and storage (CCS) demonstration projects. Interestingly, however, CCS is tied for last on Lord Stern's list of 23 options, largely because it has few short-term benefits. Representing as much as one third of the purported green elements of the Canadian plan, it is questionable whether this huge investment can meet the multiple goals purported by the Canadian government.

Another big-ticket item in the stimulus package is infrastructure. Following the WWF's analysis, however, it is immediately revealing to note that there is not only a \$1 billion "Green Infrastructure Fund" in the Economic Action Plan, but also a \$4 billion "Infrastructure Stimulus Fund." The separation of the latter from the former suggests that significant parts of the infrastructure development program in the stimulus package might be hued "brown" instead of "green." The announcement, in early June 2009, of over \$50 million for major highway improvement projects in Alberta makes it clear that some parts have climate-unfriendly aspects.

## POLICY RECOMMENDATIONS

When calling for a “Global Green New Deal” at the G20 meetings in London this past March, the executive director of the United Nations Environment Programme argued that economic stimulus packages must advance a trio of goals: revive the world economy by creating employment opportunities and protecting vulnerable groups; reduce carbon dependency, ecosystem degradation and water scarcity; and end extreme world poverty by 2015. Those are worthy yardsticks by which to measure any economic plan. Canada has only begun to evaluate its own actions with these kinds of criteria. As the *Economic Action Plan* continues to take substance, it becomes more and more important to reflect upon the country’s activities in this way. As this analysis continues, three key points for policy consideration must be kept in mind:

- Evaluate all economic stimulus packages according to multiple criteria, including sustainability.
- “Green” stimulus packages should emphasize energy-efficiency investments as the International Energy Agency recognizes that they, “most obviously fit the bill in meeting both short-term economic goals and longer-term energy and climate goals.”
- Canada should not look to investments in carbon capture and storage (CCS) to meet its short-term economic recovery goals. Any potential benefits of CCS lie in the longer term; it is an ineffective tool for economic stimulus.

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## (RE)CENTRALIZATION AND ENVIRONMENTAL POLICY IN NORTH AMERICA: MISSED OPPORTUNITIES?

DEBORA L. VANNIJNATTEN

While the European Union has adopted a top-down approach to environmental policy, coordinating national policy responses under a supranational umbrella, North America has adopted a primarily bottom-up approach, particularly on the climate change file. On this continent, efforts to develop environmental policy capacity over the past decade have occurred at the cross-border regional level, with American states, Canadian provinces and northern Mexican states acting as policy entrepreneurs. More recently, national governments have re-engaged with environmental policy to address the interlinked pressures associated with the global economic crisis and international climate negotiations.

While national government re-engagement has the potential to address critical gaps associated with transboundary environmental cooperation and capacity building, decision making at that level has had little regard for the policy legacies already in place at the sub-national level. What is needed now is a coordinated multi-level approach that integrates sub-national policy advances into the national frameworks now being established in each of the three North American countries, and which is supported by continent-wide capacity-building and coordination strategies.

## SUB-NATIONAL AND CROSS-BORDER REGIONAL ACTIVISM

Impelled by ambitious American states in the Northeast and West, cross-border interactions have pushed the limits of transboundary cooperation. The interplay between trade relations, societal exchange and shared policy problems have contributed to a “clustering” phenomenon, whereby groupings of sub-national units — for example, in the Pacific Northwest, Great Lakes, New England/Maritimes, the Californias, Arizona-Sonora, New Mexico-Texas-Chihuahua — have set policy agendas, formulated plans of action and undertaken implementation tasks.

On the climate change file, many American states and some Canadian provinces have legislated targets for overall and sector-specific emissions reductions. Quebec and British Columbia have established carbon taxes. Further south, northern Mexican states have been building infrastructure to support climate policy, including cross-sectoral measures. Across the continent, a wide range of alternative energy and energy efficiency programs are already producing results. Support for these kinds of initiatives has been quietly offered by organizations such as the North American Commission for Environmental Cooperation (CEC), the trilateral institution created alongside the North American Free Trade Agreement (NAFTA) to address regional environmental concerns.

In addition, American states, Canadian provinces and Mexican states — despite a lack of constitutional authority — have been putting in place the policy and technical frameworks for cross-border cap-and-trade programs. There are three regional cap-and-trade schemes in various stages of maturity: the Regional Greenhouse Gas Ini-

tiative (RGGI) in the US Northeast, the Western Climate Initiative (WCI) in the US/Canadian/Mexican West and the US/Canadian Midwest Greenhouse Gas Reduction Accord (MGGRA).

## NATIONAL GOVERNMENTS RETURN TO THE ENVIRONMENTAL POLICY SCENE

Given the significant cuts to environmental programming in Canada beginning in 1995, and the political and ideological constraints on environmental policy imposed in the US, by the late 1990s these two national governments had become reluctant participants in environmental policy. In Mexico, federal environmental policy ambitions simply outstripped the available resources.

Beginning in 2008, however, environmental policy making was re-centralized in North America. Given the inability of sub-national jurisdictions to deal with the far-reaching impacts of the economic crisis, the national governments in Mexico City, Ottawa and Washington have stepped forward with a complicated cocktail of budgeted dollars, actual spending, guarantees, loans and so forth to help their most-affected citizens and businesses. This support is often tied to national government oversight and intervention — and to national policy preferences. National governments themselves have been influenced by continuing international pressures on climate, including at the G8 and in international negotiations to establish a post-Kyoto climate regime. Particularly in the US, national responses to the economic crisis have included targeted stimulus funding and measures to encourage programs and projects that

can deliver environment-related benefits in addition to economic support.

On the positive side, national engagement has the potential to fill the gaps that were becoming increasingly evident in cross-border regional transboundary action; that is, they could ensure a level playing field. The various sub-national organizations in North America have made great strides in putting in place critical elements of a cap-and-trade program, working toward equivalency of targets, harmonizing emissions tracking systems and setting common definitions of such key mechanisms as offsets. It has always been clear, however, that only a national framework that sets a firm floor for action can force all actors to “play ball.” Only national governments can provide the necessary incentives for burden sharing that make implementation at the local and regional levels far easier, particularly given wide variations in socio-economic conditions and incentives. This ability is critical in Mexico and Canada.

Moreover, there is an important role for national governments in capacity building. Cross-border regional initiatives rely to a great extent on certain technical capacities which are distributed unevenly across sub-national jurisdictions and are highly vulnerable in light of the current (and massive) budgetary shortfalls caused by the economic downturn. In the US alone, 33 states foresee budget deficits totaling US\$160-180 billion. National agencies can provide strategic supports through inter-governmental channels that have long existed in all three countries, but have been widened by the distribution of stimulus funds.

## (RE)CENTRALIZATION AND MISSED OPPORTUNITIES

National governments in North America have shown relatively little regard for the policy legacies of sub-national governments and the lessons from this experience. In the US, the decade-long, state-level experience with climate policy has not been the focus of discussion. In June 2009, representatives of the three organizations pursuing cross-border regional greenhouse gas reduction programs — RGGI, WCI and MGGRA — convened a joint workshop and expressed concern that the policy work of sub-national jurisdictions was not being considered in federal programming.

In Canada, federal officials have set forth a package of initiatives which do not seriously grapple with the diversity of provincial climate initiatives underway. The federal government has provided little support — political or operational — for the most ambitious initiatives, such as the carbon tax regime imposed by British Columbia. The federal government, supported by the Province of Alberta, has emphasized carbon capture and storage (CCS) technology as the key to mitigation (to the tune of \$650 million), but has not supported attempts by Ontario and other provinces to significantly increase alternative energy generation. After long opposing cap-and-trade, and branding provincial participation in regional carbon trading as “unhelpful,” in early 2009 Ottawa suddenly indicated a preference for joining the US in a North American carbon-trading scheme.

The national governments’ capacity for policy development is unclear. In Canada, funding cuts through to 2010-2011 are proposed for various climate programs,

presumably to address looming budget deficits. In the US, although a considerable portion of the stimulus spending might be regarded as climate-friendly, the lion’s share has been allocated to hard infrastructure — rather than the soft infrastructure needed for more complex policy challenges, such as supporting cap-and-trade.

One of the lessons learned at the sub-national level was to ensure coordination across government as well as accountability in climate policy making and implementation. In Canada, however, the national Clean Air Regulatory Agenda is supported by an ad hoc interdepartmental committee coordinating efforts across nine departments, with no clear accountability mechanism. In the US, leadership on climate change is lodged with numerous actors across the legislative and executive branches, and it is not clear where overall coordination will come from.

There is also some concern about the transboundary impacts of some of the national climate policy actions being debated or undertaken. The US Congress is currently debating climate legislation that would mandate restrictions on imports from countries that do not have “comparable” climate change commitments. Canada has indicated it would like to participate in a North American carbon trading regime, yet has proceeded with its own intensity target and offset program; it is not clear these are compatible with the emerging American system, particularly given the much greater US support for alternative energy projects. Furthermore, neither country is seriously engaged in discussions about capacity building and technology transfers to Mexico, something which sub-national officials have begun to address.

## POLICY RECOMMENDATIONS

What is needed now, particularly in the current economic context, is a coordinated multi-level approach that integrates sub-national policy advances into the national frameworks now being established in Canada, Mexico and the US. More specifically, the three North American governments should:

- Convene a workshop with the Regional Greenhouse Gas Initiative, the Western Climate Initiative, the Midwest Greenhouse Gas Reduction Accord and federal representatives from the three countries, with the aim of providing advice on linking cap-and-trade programs.
- Task the North American Commission for Environmental Cooperation (CEC) with providing research and technical support for climate policy integration measures – particularly on cap-and-trade – and for soft infrastructure capacity building, particularly in Mexico.
- Encourage the North American Working Group on Energy to foster continental cooperation of alternative and renewable energies to cross-border energy markets, rather than on conventional supply and market integration.

# THE FINANCIAL CRISIS AND FOOD SECURITY

JENNIFER CLAPP

Food prices climbed sharply on international markets in 2007 and spiked to unprecedented levels in the first part of 2008. The rapidly rising prices sparked widespread hunger and civil unrest across the developing world. The attention to the global food crisis was quickly overshadowed by the global economic collapse in the latter part of 2008, which came on the heels of months of financial instability.

Although food prices on international markets eased as the broader economic crisis set in, global food insecurity has only worsened. Indeed, the Food and Agriculture Organization (FAO) recently announced that the number of undernourished people on the planet has now surpassed one billion. Never before have so many people gone hungry.

Is it just a coincidence that the food and financial crises occurred in tandem? In the past year, it has become clear they are linked in important ways. The overlap between the crises suggests that efforts to promote food security should take broader economic and financial factors into consideration. Most policy makers putting forward proposals to address the food crisis, however, have failed to fully appreciate the important role of financial factors.

## FINANCIAL DIMENSIONS OF FOOD PRICE VOLATILITY

The food price volatility that occurred in late 2007 and early 2008 was tightly coupled with financial turmoil

on global markets. The US dollar had lost a significant amount of its value against other currencies due to the financial instability that was linked to the sub-prime mortgage crisis in this period. A declining dollar meant that US dollar investments lost their appeal, and investors began to move large amounts of funds into other financial instruments, including commodity index funds. These funds bundle commodity futures contracts, a third of which are typically agricultural commodities, into a single financial instrument.

The lack of strict regulation, such as position limits in futures markets, allowed large investors such as hedge funds and institutional investors to speculate extensively on commodity futures via large banks that managed these funds. Investment in commodity futures contracts doubled between 2005 and early 2008, when it reached US\$400 billion. Investment in commodity index funds alone increased from US\$13 billion in 2003 to US\$260 billion by March 2008. The massive increase in investment funds on commodity markets affected the prices of those commodities to a significant degree, including agricultural commodities, as confirmed by a recent US Senate report on excessive speculation in the wheat market.

As the economic crisis entered a new phase — in the form of global recession following the financial meltdown — high and volatile food prices have remained problematic, particularly in the developing world. Although food prices fell on global markets in the past year, they have continued to be relatively high in developing countries. Short-term supply bottlenecks in poor countries, generated by a lack of financing for imports due to the global credit crunch, have contributed to higher local prices. In some cases, currency devaluations have resulted in high-



er import costs. As developing countries on the whole have become dependent on food imports over the past 30 years, they have become much more vulnerable not only to price shocks, but also to the tightening of credit on global financial markets.

## GLOBAL ECONOMIC SLOWDOWN FURTHER THREATENS FOOD SECURITY

The global economic slowdown has also had serious implications for food security as the broader economic crisis spreads from North to South. The UN estimates that as a result of the economic crisis some 55-90 million more people will be living in extreme poverty in 2009 than was originally estimated. Because poor people in developing countries spend on average some 50-80 percent of their income on food, changes in their economic statuses have direct and immediate implications for food security.

At the same time, the availability of funds for addressing food insecurity has been profoundly affected by the economic crisis. Although donor countries pledged additional funds for food aid in response to an emergency plea from the World Food Programme (WFP) in 2008, the level of food aid commitments in 2009 is down significantly as the economic crisis takes its toll. It is particularly problematic that food aid funding is declining just as the need for food assistance is rising. The WFP recently announced that it has raised only half of its US\$6.7 million budget for 2009.

Funding for longer-term investments to improve food security is also threatened by the economic crisis. This is worrisome given that investment in the sector has already fallen significantly over the past 30 years. The economic slowdown is affecting developing country

governments' ability to maintain investment in the sector. Although the G8 recently pledged some US\$20 billion for investment in international food security initiatives, it is still unclear whether this constitutes new or existing funds.

Before the food and financial crises hit, agricultural sectors in developing countries were already weak and vulnerable, and over 850 million people lacked sufficient caloric intake. The economic and food price turmoil of recent years has seriously exacerbated what was already a difficult food security situation, pushing more than one hundred million more people into the category of undernourished.

## OFFICIAL RESPONSES TO THE FOOD CRISIS HAVE DOWNPLAYED THE FINANCIAL FACTOR

The policy proposals put on the table immediately following the food price spikes in 2008 were not based on a full appreciation of the role of the financial crisis in precipitating the food price crisis. Nor did policy makers foresee that the global economic crisis would exacerbate the food security situation further.

Rather than suggesting a clamp-down on speculative investment on agricultural commodity futures markets to prevent food price volatility, proposals put forward in the immediate aftermath of food prices rises either downplayed the significance of speculation or focused on moderating food prices via a virtual grain reserve. The latter, proposed by the International Food Policy Research Institute (IFPRI) and endorsed in principle by the World Bank, would see industrialized country governments make purchases and sales on commodity futures

markets. This is a more complicated way of counteracting speculation on agricultural commodity markets than direct restrictions on speculative activity, which the US Congress is currently contemplating.

Most official policy responses have stressed the need for long-term investment in agricultural production in developing countries as a way to avoid future crises. While such investment is indeed important, it should not be at the expense of meeting immediate food assistance needs, and

should focus on reducing food import dependence in the world's poorest countries.

Global food insecurity is an enormously complex problem. The financial and food price crises are just the latest factors complicating the situation. Research into the causes of the food price spikes and the continued growth of the number of hungry people around the world has revealed that the linkages between the food and financial sectors need to be considered seriously by food security policy makers.

## POLICY RECOMMENDATIONS

There are a range of policy responses that industrialized country governments should adopt to enhance global food security in the current era of economic crisis.

- Address food price volatility with regulation on agricultural commodity speculation, including strict position limits for large institutional investors.
- Increase funding for emergency food assistance and resist using the economic crisis as an excuse for cutting back aid budgets.
- Provide assistance to developing countries to help them reduce their dependence on food imports.

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## ENERGY MARKETS AND THE CRISIS: IS THE US STATUS AS A SUPERPOWER AT RISK?

ANNETTE HESTER

Although energy markets and politics were not at the root of the financial/economic crisis, most would concur that the preceding increase in oil prices significantly contributed to the challenges most countries faced prior to the 2008 implosion of financial markets. Much was at play as prices climbed. Some maintain that speculators did not influence the oil price volatility; however, even the US Commodities Future Trading Commission — which last year insisted that the spike in oil prices was just supply and demand at work — now suggests that its data was deeply flawed and that speculators played a role in driving wild swings in oil prices. If there was a lesson learned in the early days of this turmoil, it was that global markets were interconnected at all levels, making the lines of cause and effect impossible to draw with precision.

It was not long before the financial crisis turned into a global economic crisis. Energy markets were swept up in the tidal wave. By December, oil prices had collapsed to under US\$34/barrel from the July 2008 peak of US\$147/barrel. Since then, although prices have recovered (averaging approximately US\$64/barrel in July 2009), the contraction of global demand combined with tight credit markets has taken the fizz out of the

energy sector. Almost across the board, investment is down, from exploration to refining, from hydrocarbons to nuclear and alternative sources.

Attempts to understand what is unfolding and to predict what is to come have commanded the attention of experts and institutions everywhere. Still, little of the analysis thus far has addressed the impact of the financial crisis on the geopolitics of energy markets. Aside from the direct effect of a low oil price on the revenues of oil-producing nations and their state oil companies that now control approximately 80 percent of the world's oil resources, there are indirect effects that might prove more significant. In particular, the effects on global security and global energy markets of the extremely vulnerable US financial position are crucial. This position is a consequence of its deepening status as a debtor nation, combined with the magnitude of its stimulus package. These factors have accelerated US fragility and sent that country, and by extension the world, into uncharted territory.

### ENERGY SECURITY FOR OIL IMPORTING NATIONS

Previously, the predicament that oil-importing nations (particularly OECD countries) faced as prices rose was troublesome: declining terms of trade weakened their economies, which, among other impacts, sent inflationary pressures up and incomes down. On the other hand, the same high prices focused oil-importing nations' attention on energy security. While talk of energy security has abated since late 2008, the issue still commands much attention from governments, especially of the world's largest oil-importing nations.

For the US, the world's biggest oil consumer — responsible for approximately 25 percent of global consumption — energy security equated to shifting and adding suppliers if possible, and providing incentives for developing alternative fuels domestically. As far as its interaction with Middle Eastern suppliers is concerned, it is hard to isolate the US energy strategy from the fight against terrorism, the war in Iraq and the Bush White House's rhetoric of "us" against "them." The only thread, mixed with all other messages, was a constant reminder that the US needed to make its "dependence on Middle Eastern oil a thing of the past."

In fact, US dependence on Middle Eastern oil is paltry. In the last few years, the US has imported approximately 58 percent of the crude oil and refined-petroleum products it consumed. Of these imports, the Middle East supplied 16 percent, with Saudi Arabia accounting for 11 percent. In contrast, the situation facing Japan, and increasingly China and India, is remarkably different.

Although Japan's energy efficiency pursuits have translated into a decrease in oil consumption, it is still the third-largest world consumer — after the US and China — and the second-largest net oil importer. It is hard to make sense of Japan's energy security strategy. Unlike most other countries, its dependency on one region, the Middle East, has increased from 70 percent in the mid-1980s to approximately 90 percent in the last few years. This is a particularly vulnerable position for a country that imports almost all of its oil.

China, on the other hand, is clearly acting strategically. Energy security is seen as a key issue for the country's future development and its importance as an oil consumer and importer is rising dramatically. China went

from self-sufficiency to importing 52 percent of its needs in recent years. Energy security has translated into hefty investments overseas in exploration and production, infrastructure projects, and equity participation in oil companies. Recent moves include substantial financing of exploration in Russia, Brazil and Ecuador in exchange for future supply guarantees. Although this strategy was already at play before the financial crisis, China used its hefty currency reserves to pursue its objectives aggressively in the first part of 2009. Its strategy is already paying off. Two years ago, over 50 percent of its imports came from the Middle East. While total Chinese consumption increased, dependence on that region decreased to 42 percent in 2008.

India's dependency on foreign oil is also increasing substantially. Since 2007, it has become the world's fifth-largest consumer. Oil exploration and production in India has not kept pace with demand. India imports almost 70 percent of its needs, with Saudi Arabia and Iran the primary suppliers. In fact, the Middle East accounts for 75 percent of total imports, or 53 percent of India's total oil consumption. According to estimates from the US Energy Information Agency, India will become the fourth-largest oil importer by 2025.

A full picture of the impact of the financial/economic crisis on the geopolitics of energy will take time to emerge, as we wait for data on new import patterns. The numbers show that it is not US dependency on the Middle East that might prove to be troublesome. Japan, China and India have much more reason to worry. Yet, when it comes to US energy security, members of the country's defence establishment — including, the Pentagon, analysts and security consultants — have made

their careers on convincing the government and general public that total control over the Strait of Hormuz is essential. And that control can only be achieved with billions in military expenditures.

Their rationale is that one-fifth of the world's production must travel through that narrow corridor, and even if the US is not a direct recipient of that oil, any disruptions would send prices skyrocketing. While the logic behind keeping prices stable still holds, the idea that the US is the only country able to ensure this stability does not. Now, the reality is that the US is giving Japan, China and India a free ride. This is an untenable position. Although the discourse in Washington has not turned to the Strait of Hormuz and the corresponding

defence budget, the US cannot afford to continue to carry the costs of protecting that corridor. Eventually, it will have to either charge other countries for its military service or scale back its involvement.

If the might of the US has been diminishing in the last decade, the global financial/economic crisis has only served to accelerate this process. Whatever the US chooses to do, a profound change is inevitable in the way the country views itself and, equally importantly, in the way the world views the US. If recent decades highlighted the nation's singular strength and its willingness to invest in the world's stability, the decades to come will likely be marked by its ability to partner with others.

## POLICY RECOMMENDATIONS

- Include the costs associated with the defence of oil-related interests in analyses of energy security.
- Conduct research on the need to defend free passage of the Strait of Hormuz, and more importantly, determine who should contribute to these costs.
- Capitalize on the current moment to move toward more balanced international cooperation on energy security.

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# COMPLEX LESSONS OF THE FINANCIAL CRISIS

THOMAS HOMER-DIXON

## KEY FEATURES OF THE ECONOMIC CRISIS

Many analysts and commentators have interpreted the recent economic crisis as a decidedly anomalous event. They see it as the economic equivalent of the thousand-year storm — the result of an unhappy but exceedingly rare conjunction of poor regulations, individual venality and bad luck.

This view is incomplete. The economic crisis has actually opened a window on our future. True, the particular conjunction of events in this case was rare. But the crisis is also an example of a more general and increasingly frequent phenomenon: a sudden shift in behaviour of a highly complex system critical to human well-being that is under extreme and steadily rising stress.

Certain of the crisis' key features can ultimately be traced to the global economic system's fundamental complexity. Because this complexity is unlikely to diminish, more economic crises exhibiting the same features are likely to develop in the future, in the absence of radically different institutional designs and policies. Also, because many of humankind's most intractable global challenges — including climate change, energy scarcity and pandemic disease — arise from (often intimately connected) natural and social systems that are similarly complex, important lessons learned from the economic crisis can be applied to these other challenges.

For the purposes of the analysis here, the economic crisis' key features are:

- Advance warning from a few experts of the rising dangers of systemic crisis that engendered little or no policy response;
- Origins in the conjunction of several long-term trends that ultimately produced a sharp and sudden shift in system behaviour from stability to turbulence;
- Rapid worsening because of self-reinforcing feedbacks amplified through tightly coupled networks;
- Extreme unpredictability during its worst phases; and
- Inability of policy makers to control system behaviour with any precision.

## THE ROLE OF COMPLEXITY

The above features are partly a result of the rising complexity of our modern economic systems. Complex systems — whether natural, like the global climate, or social, like the global economy — generally exhibit what specialists call “nonlinear” behaviour, characterized by a disproportionate relationship between cause and effect. In a nonlinear system, small perturbations sometimes cause big effects, while other times big perturbations have little or no effect at all. Nonlinear behaviour has a range of sources, most importantly the presence inside systems of self-reinforcing and self-cancelling feedback loops and of multiplicative or “synergistic” interaction among causes.

In turn, nonlinear behaviour leads to three other characteristics of complex systems: intractable uncertainty, intermittently long time lags between perturbation and

response, and the potential to “flip” abruptly from one state to another. These characteristics make system behaviour notoriously hard to control. Uncertainty weakens policy makers’ ability to predict this behaviour and calibrate the size and scope of proposed interventions. Time lags make it hard to correct suddenly undesirable behaviour, and impede learning about the efficacy of policy interventions to change that behaviour. Abrupt flips demand wholesale reorientation of policy and often preclude returning the system to its previous state.

From the perspective of national and global governance, the combination of high uncertainty and long time lags is particularly pernicious: together, in the absence of a crisis, these characteristics of complex systems give policy makers and publics enormous scope to ignore advance warnings and procrastinate in implementing effective policy responses.

## COMPLEXITY AND THE ECONOMIC CRISIS

In recent decades, financial crises, especially those that involve both a sharp devaluation of a country’s currency and the loss of most of its banking capital, have become more frequent and arguably more severe. But, if anything, policy makers have exhibited progressively less ability to predict the advent or course of each successive crisis.

In advance of the most recent crisis, uncertainty was deep and pervasive. While some analysts expressed concern about certain long-term trends — including rising household and corporate debts, increasing vulnerability of the US sub-prime mortgage market, and the progressive attenuation of estimated risk through securitization and derivatives like credit-default swaps — only a few (such as Nouriel Roubini) anticipated

anything like what eventually occurred. And during the crisis’ first 18 months, from mid-2007 until the end of 2008, policy makers and their economic advisors were wrong far more often than they were right about the likely direction of events, usually vastly underestimating the crisis’ future severity.

The financial system also repeatedly flipped from one state to another. The long-term trends combined synergistically to create widespread and largely unrecognized systemic weaknesses. A proximate cause — some research points to soaring energy prices — pushed the US economy across a threshold into recession. Then, a succession of sharp shifts rapidly deepened the crisis. Lehman Brothers’ fall into bankruptcy in September 2008 was an especially critical inflection point: credit markets around the world almost immediately seized up while equity markets began a plunge that lasted through the fall. Policy makers and central banks tried to respond aggressively, but the global economy’s lags worked against them. It had developed enormous systemic inertia; a stunning worldwide contraction of investment and consumption and a surge in unemployment overwhelmed responses.

## COPING IN A WORLD OF COMPLEX CHALLENGES

Other global challenges we face arise from systems that exhibit the same characteristics of uncertainty, lags and potential for flips. These characteristics are, for instance, inescapable features of the climate system.

Uncertainty arises from our incomplete knowledge of climate feedbacks, especially of self-reinforcing positive feedbacks in the global carbon cycle. For instance, we



know that warming will melt Arctic permafrost, which, when it rots and releases carbon, causes more warming — but how bad will this cycle be?

Lags arise from inertia in the climate system — due to, for instance, the oceans' absorption of heat — that slows the climate's response to our carbon emissions. They also arise from the slow turnover of our carbon-emitting energy infrastructure.

Flips appear in the paleoclimatological record (ice core, sedimentary and coral data, for example), which shows occasional sharp discontinuities in ancient climate regimes. Climate scientists now vigorously debate whether human emissions of carbon could soon push the planet's climate over such a threshold.

As with the economic crisis, uncertainty and lags combine to weaken policy responses to climate change. Publics and politicians ask: why should we pay substantial costs now to avoid an uncertain threat far in the future?

Special interests groups and firms that benefit from the status quo exploit this hesitation by emphasizing the degree of uncertainty in climate science, the temporal distance of climate costs, and the magnitude and temporal nearness of mitigation costs.

These arguments implicitly assume that humankind can adopt remedial measures if and when the costs of climate change become substantial. But like all complex systems, including the global economy, Earth's climate exhibits "hysteresis"; that is, the system's state at any particular time depends on the path it followed to get to that state (often referred to as path dependency) and movement along that path is not trivially reversible. A return to a previous climate state, especially if the climate has passed a critical inflection point, may be impossible. Put simply, once we find out definitively that we have pushed the climate too far, it will likely be extraordinarily hard to return to anything like the climate we have now. We cannot simply turn the clock back.

## POLICY RECOMMENDATIONS

The recent economic crisis was an instance of a general type of problem that will become more common in our increasingly complex world. In consequence:

- Researchers should seek to better understand the implications of complex system behaviour for public policy and governance, perhaps using the recent economic crisis as a source of lessons.
- Policy makers should recognize that while intractable uncertainty and long time lags may accentuate the political challenge of action on complex global problems, they are not an excuse for inaction.
- Policy makers should also recognize that in systems with the potential to flip their behaviour, past and current systemic trends are not good indicators of future system states.
- In circumstances where uncertainty and lags shroud future outcomes, yet a wrong decision could produce catastrophic and irreversible costs, policy makers should generally adopt a precautionary or prudential approach to system governance.



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## ABOUT CIGI

The Centre for International Governance Innovation is an independent, nonpartisan think tank that addresses international governance challenges. Led by a group of experienced practitioners and distinguished academics, CIGI supports research, forms networks, advances policy debate, builds capacity and generates ideas for multi-lateral governance improvements. Conducting an active agenda of research, events and publications, CIGI's interdisciplinary work includes collaboration with policy, business and academic communities around the world.

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Le CIGI a été fondé en 2002 par Jim Balsillie, co-chef de la direction de RIM (Research In Motion). Il collabore avec de nombreux partenaires stratégiques et exprime sa reconnaissance du soutien reçu de ceux-ci, notamment de l'appui reçu du gouvernement du Canada et de celui du gouvernement de l'Ontario. Le CIGI exprime sa reconnaissance envers le gouvernement du Canada pour sa contribution à son Fonds de dotation.





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