



Briefing **October 2006**

Sustainability

A Winning Merger of Growth and the Environment

At a Glance

- Economic growth and concern for the physical environment need to be integrated into the single concept of sustainability.
- Currently, no global consensus exists on how to deal with greenhouse gas emissions or how to share the economic impact of adjustment.
- Improved measures of sustainability are needed to assess and minimize the economic impact on Canada.
- Canada's environmental regulatory processes need reform to reduce significant overlap and duplication in federal and provincial regulations.

This briefing is an excerpt from Volume I (Mission Possible: Stellar Canadian Performance in the Global Economy) of the final report of The Canada Project, Mission Possible: Sustainable Prosperity for Canada.

THE CONTEXT

The idea that there is a close, interlinked relationship between economic growth and sustainability of the physical environment is once again in ascendancy.¹ There is growing recognition that gross domestic product (GDP) produced at the expense of the global environment, and at the expense of scarce and finite physical resources, overstates the net contribution of that economic growth to our prosperity. Indeed, measures of national wealth should ideally include some estimation of the net impact on the natural resources used to produce that wealth—the costs imposed on the physical environment—in addition to the current estimation of the economic benefits from growth.

Integrating economic growth and the environment produces the concept of sustainable development—or more simply, *sustainability*. While there are many definitions and approaches to the notion, the Brundtland Commission’s definition is the most widely used:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.²

So how do we ensure that economic growth, the environment and related social impacts are woven together into a strong integrated fabric of sustainable national prosperity? Are we using the right measures and instruments to inform and guide public policy debate and business decision-making? And do today’s markets adequately encourage and incent sustainable behaviour, or do they send signals that foster unsustainable outcomes?

SUSTAINABILITY—THE MACRO LEVEL

Environmental issues with potential national, international or even global impacts can be classified as macro-sustainability issues. More than 20 years ago, the issue of acid rain, as well as of water quality in the Great Lakes, helped to raise Canadian and American awareness of cross-border environmental issues and the negative relationship between unconstrained economic growth and sustainability. Bilateral agreements were reached with the intent of curbing cross-border and domestic effluents. Depletion of the ozone layer and the need for global action on chlorofluorocarbons helped to raise awareness further, to the global level, and resulted in the 1987 Montreal Protocol. Recent scientific evidence suggests that the erosion of the ozone layer has stabilized,³ and there may even be reasons to hope for a gradual reversal of the damage.⁴

Global environmental concerns are related not only to managing pollution, but also to the quality and availability of our resources. Both within Canada and internationally, there have been moves to develop effective environmental governance regimes that address globally important resource issues such as forest and fisheries protection and trade in endangered species (e.g., the Convention on International Trade in Endangered Species). Within Canada, the depletion of cod stocks resulted in profound social and economic dislocations, in particular

for traditional fishing communities along Canada’s East Coast, providing dramatic evidence of the entangled nature of social, economic and environmental issues.

The search for a global approach to sustainability is best demonstrated today by global and national strategies to deal with climate change issues. The hard scientific evidence of change in the global climate continues to grow. Rising levels of greenhouse gases (GHGs) in the atmosphere, particularly carbon dioxide (CO₂), have been linked to the rise of average global temperatures and melting of the polar ice caps and glaciers around the world. An apparent increase in the frequency and intensity of extreme weather events has also been blamed on the rise in temperature. The case for the direct relationship between human production of GHGs and atmospheric CO₂ is being ever more strongly demonstrated, and there remain only a few unconvinced critics.

But when it comes to policy action, a true global consensus on the strategy and means for addressing climate change has not yet emerged. In 1992, at the second Earth Summit in Rio de Janeiro, the United Nations Framework Convention on Climate Change (UNFCCC) became the first building block toward a global consensus. The UNFCCC was eventually signed or ratified by more than 160 countries, including all the major GHG-emitting countries.

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The subsequent Kyoto Protocol of 1997 was another critical step toward an action plan to curtail emissions of GHGs, but its implementation is incomplete. The United States and Australia chose not to ratify the Protocol. China and India signed and ratified it, but did not have targets to reduce emissions under the terms of the Protocol. And Canada and Russia have ratified, but their support is wavering.⁵ Nevertheless, the politically conservative governments in the U.S., Australia and now Canada are acting to develop and implement national plans for dealing with GHGs. Moreover, sub-national governments within these countries—states, provinces and cities—have introduced their own plans for reducing GHGs and adhering to the spirit of Kyoto.

Despite the absence of a meaningful global consensus on Kyoto, climate change is now accepted in mainstream political discourse—politicians of all stripes have to position themselves as doing something. And it should be recognized that Kyoto is but a first step in a long voyage to stabilize and then reduce global GHG emissions. Therefore, the future debate on climate change will not be on *whether* action is necessary to curtail emissions of GHGs. Instead, the debate will centre on *how to develop a full global consensus* on the pace of adjustment, the impact on various sectors and fair burden-sharing among nations.

Measurement of the impact on national wealth of reducing GHG emissions will matter more and more in the ongoing debate. The Kyoto Protocol focused on commitments to reduce national emissions, but it did not formally link those reductions to impacts on national income or wealth. Countries with large geographic size (and thus long distances to travel), cold climates or heavy reliance on energy and other resource production could reasonably question whether the burden of adjustment was appropriately shared among nations. Canada, of course, reflects all three of those conditions. Similarly, developing nations have argued that it would be unreasonable to expect them to curtail their industrial and economic advancement to deal with a problem caused predominantly by industrialized nations.⁶ (See box “The Thorny Issue of Trade and the Environment.”)

At this point, it is useful to recall that the most commonly used measure of national wealth and prosperity—GDP—came into vogue only in the post-war period. Its architects were economists such as John Maynard Keynes and Simon Kuznets, who understood the powerful explanatory value of GDP, but also cautioned against its misuse as the dominant or sole measure of the welfare of a nation. Kuznets lamented that “the welfare of the nation can scarcely be inferred from a measurement of national income as defined by the GDP . . . goals for ‘more’ growth should specify of what and for what.”⁷

As environmental awareness has grown in recent decades, numerous ideas have been offered in the academic and policy literature on how macro-sustainability might be measured and used to improve our understanding of sustainable national wealth. Various analysts have tried to build environmental impacts as well as social

The Thorny Issue of Trade and the Environment

A sustainability issue that has yet to be resolved satisfactorily is the relationship between concern for the environment and the negotiation of international trade and investment agreements. There is little dispute that environmental (and related social) impacts deserve to be factored into our policy thinking on international trade and investment. The North American Free Trade Agreement included an environmental side agreement, since Canada and the U.S. wanted to avoid the risk of having to reduce their environmental standards to compete with their new integrated trading partner, Mexico.

As we look at future trade agreements, a key issue is how sustainability should be incorporated into the real world of international negotiations. Sustainability could be made a precondition of international trade negotiations—but that could make international trade and investment liberalization that much harder to achieve, attracting resistance from developing countries in particular. As the collapsed Doha Round negotiations have demonstrated, the trade negotiating agenda is already very complex. Adding sustainability conditions might be one more straw on a camel's back that already appears bent out of shape.

Yet, the traditional approach of pursuing trade and investment liberalization to improve the conditions for raising national incomes, and then using those higher incomes to address environmental concerns (as is implicitly the case in a country like China today), will be insufficient when negative environmental effects are widespread, permanent and (or) global in nature. We thus are left with a chicken-and-egg quandary when considering the thorny issue of trade and the environment, and with no easy solution in prospect.

impacts into these measures. For example, a measure called the Genuine Progress Indicator, or GPI, was proposed in 1994 by Redefining Progress, a U.S. economic research think tank.⁸ The GPI adds up a nation's expenses (GDP), factors in sectors that are usually excluded from the market economy such as housework and volunteering, and then subtracts social ills: natural resource depletion, crime and loss of leisure time.

For Canada, an Index of Economic Well-being that took environmental costs, social inequality and poverty into account when estimating Canadian national wealth was proposed in 1998.⁹

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Another approach was adopted by The Conference Board of Canada in its annual *Performance and Potential* report. Canada's performance is benchmarked against leading industrialized countries in six categories, including the Environment. The methodology is based on 22 indicators in a Pressure-State-Response model developed by OECD. In 2005, Canada ranked in 8th place among the top-12 performers in this category.

The federal government also acknowledged, in its 2000 budget speech, the need to develop a set of indicators to measure environmental performance in conjunction with economic performance. In 2003, the National Round Table on the Environment and the Economy proposed six initial indicators—five for natural capital and one for human capital—that would augment familiar economic indicators such as GDP. The indicators were forest cover, freshwater quality, air quality, GHG emissions, extent of wetlands and educational attainment. The February 2004 Speech from the Throne repeated the commitment to begin using several of the recommended indicators.

Political circumstances have changed in Canada since these announcements, and sustainability indicators have not yet appeared in a federal budget. Still, the need for indicators that explicitly recognize the close relationship between GDP and sustainability of the physical environment—or natural capital—has grown, not waned.

To that end, a new Canadian Index of Wellbeing (CIW) is now under construction, measuring the extent to which we are realizing our values and goals as a society. The CIW is the result of a pan-Canadian and innovative partnership that brings together indicator experts, including Statistics Canada.¹⁰

SUSTAINABILITY—THE MICRO LEVEL

Environmental issues that affect specific industries, sectors, local areas (both urban and rural), and individuals in those areas can be classified as micro-sustainability issues. These issues are usually understood and assessed in terms of specific local impacts. Going forward, micro-sustainability issues will have to incorporate macro-sustainability concerns.

Significant progress has already been made on the Canadian and international regulatory framework for assessing and managing micro-sustainability. Legislation governing environmental protection (e.g., the *Canadian Environmental Protection Act*) and environmental assessment (e.g., the *Canadian Environmental Assessment Act*) has existed in various forms for many years at the federal and provincial levels. International guidelines and standards among governments, such as the World Bank's *Pollution Abatement Handbook* or the recent Organisation for Economic Co-operation and Development guidelines for export credits, have also

been developed. Generally, these regulatory frameworks are used to guide specific projects and initiatives, and they take social impacts into account in addition to environmental impacts.

Volumes II and III of The Canada Project final report examine the micro-sustainability issue in much greater detail. Volume II, entitled *Mission Possible: A Canadian Resources Strategy for the Boom and Beyond*, offers a description of sustainability in four sectors: forests, agri-food, mining and metals, and energy. In general, Volume II reaches the judgment that regulatory processes in Canada, while reasonably well designed, are not functioning well in some important respects. Specifically, the approval processes for new mills, mines, oil and gas developments, electric power generation and electricity transmission are too long and cumbersome, often driven more by consultative process than by discussions of scientific measurement and assessment of environmental impacts. There are many federal and provincial regulations that overlap and duplicate one other, making the approval process unnecessarily complex and costly.

This is an important finding in the context of sustainability, because it demonstrates that wealth creation capacity is being constrained and may even be forgone in specific sectors, without any net improvement in overall sustainability. Indeed, regulatory processes may be stifling innovation in these sectors at a time when innovation through research and development and refinements to production processes may be a critical way of *reducing* the environmental impacts of desirable economic activity.

With industrial ecology put into practice, cities would become more resource efficient.

Volume III of The Canada Project final report, entitled *Mission Possible: Successful Canadian Cities*, highlights the significant improvements that can be made to the urban environment through greater reliance upon the emerging field of industrial ecology. Within the framework of industrial ecology, a successful urban industrial ecosystem would effectively manage the energy and material flows linked to industrial activities, such that human needs are met without overwhelming the assimilative capacity of the city, the surrounding area, or indeed the planet.

With industrial ecology put into practice, cities would become more resource efficient—they would make better use of the materials brought into them and produce less waste material. Waste products from one industry or sector would be recycled as inputs used in other sectors, minimizing the need for controversial and costly waste disposal outside the city. Numerous barriers—technical, informational, economic, regulatory, motivational and institutional—will have to be dismantled for industrial ecology to move into the mainstream of urban design and practice, but Volume III offers significant ideas for how our cities could be re-founded on principles of sustainable economic growth.

And, of course, individual firms can take measures that support sustainability. As shown by The Conference Board of Canada's work with the global Carbon Disclosure Project,¹¹ companies can reduce their own firm-specific environmental footprint while simultaneously contributing to long-term shareholder value.

CONCLUSIONS AND POLICY GUIDANCE

There has been important movement at the macro level toward social and political acceptance of sustainability—the integration of economic growth, social justice and environmental integrity. However, sustainable management of important global resources such as forests and fisheries remains incomplete. As for climate change, there is not yet a meaningful global consensus on what economic actions are needed to slow, and then reduce, GHG emissions; nor is there agreement on how to share the economic impact of adjustment among nations. For Canada, improved measurement of the close relationship between GDP and macro-environmental sustainability

will be needed if we are to minimize the economic impact on Canada of GHG reduction and other global resource management issues, and to share the economic impact of adjustment fairly.

The Canadian micro-environmental regulatory framework is broadly appropriate, but regulatory processes in Canada are not functioning well due to significant overlap and duplication in federal and provincial regulations, making the approval process unnecessarily complex and costly. Wealth creation capacity and innovation in key resource sectors are being constrained, without necessarily improving sustainability—and perhaps even impeding innovation that could contribute to improved sustainability. For the micro-sustainability of our cities, the adoption of industrial ecology would create systems that use resources more efficiently and thus offers enormous potential to re-position Canadian cities as centres of sound sustainable economic growth.

Companies can reduce their environmental footprint while contributing to shareholder value.

The Canada Project concludes that it is time to recognize that economic growth and concern for the physical environment and resulting social impacts need to be integrated into a single concept of *sustainable prosperity*. Among its recommendations, governments are urged to adopt metrics that integrate the concept of sustainability into our measurement of economic growth. The final report will contain further specific recommendations on sustainability.

1 The concept of sustainability has taken decades to reach today's level of social awareness. Key points in this journey of realization have included the publication of *The Challenge of Man's Future* in 1954 and *Silent Spring* in 1962; the first Earth Day in 1971; publication of *Limits to Growth* in 1972; the first Earth Summit in 1972; publication of the Brundtland Commission report in 1987; and the Rio Earth Summit in 1992.

2 Gro Harlem Brundtland, *Our Common Future: World Commission on Environment and Development* (Oxford: Oxford University Press, 1987); and John Bellamy Foster, "A Planetary Defeat: The Failure of Global Environmental Reform," *The Monthly Review*, 54, 8 [online]. (January 2003), [cited Aug. 2006]. Available from www.hartford-hwp.com/archives/25b/021.html.

3 See, for example, Elizabeth Westhead and Signe Andersen, "The Search for Signs of Recovery of the Ozone Layer," *Nature* (May 4, 2006).

4 Examined in a forthcoming article by Eun-Su Yang, et al., "Attribution of Recovery in Lower-Stratospheric Ozone," to be published in the *Journal of Geophysical Research*, as cited in National Aeronautics and Space Administration, *Earth's Ozone Layer Appears to Be on the Road to Recovery*, posted May 27, 2006.

5 Countries that have ratified the Kyoto Protocol are provided at United Nations Framework Convention on Climate Change, *Status of Ratification*, <http://unfccc.int/resource/conv/ratlist.pdf>.

6 Frank Jotzo, "Developing Countries and the Future of the Kyoto Protocol," *Australian National University Economics and Environment Network Working Paper* (Oct. 15, 2004), pp. 1–16.

7 As cited in Mark Anielski, "The Genuine Progress Indicator—A Principled Approach to Economics," *Encompass* (Sept./Oct. 1999).

- 8 The GPI was first proposed in Clifford Cobb, et al., "If the Economy Is Up, Why Is America Down?", *The Atlantic Monthly* (Oct. 1995). In Canada, the Genuine Progress Indicator Atlantic is advancing work in this area.
- 9 Lars Osberg and Andrew Sharpe, "An Index of Economic Well-being for Canada," Conference on Canadian Living Standards, 1998.
- 10 Information on The Canadian Index of Wellbeing is available online at www.atkinsonfoundation.ca/ciw.
- 11 See www.cdproject.net.

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