Fiscal Pulse

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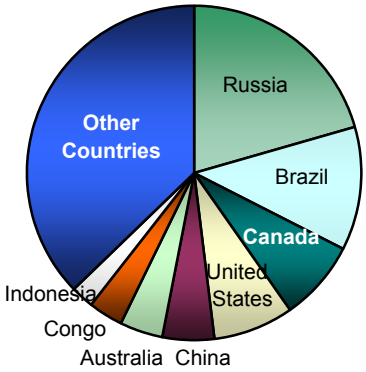
Financing the Protection of Forests Around the World

Forest conservation and sustainable forest management represent one of the most cost-effective solutions to global climate change. Forests' capacity to store carbon dioxide is one of several factors driving current forestation initiatives in developed countries, including Canada. Yet it is in developing countries where efforts to prevent deforestation and strengthen forest assets will have the biggest pay-off in limiting global GHG emissions.

Carbon sequestration in forests

At the last round of international climate change talks in December, a key issue was protecting forests around the world. This is not surprising, forests store about half of the world's land-based carbon dioxide ($C0_2$). In developed countries, protecting forested areas and sustainable forest management are spurred by several goals, including preserving biodiversity and optimally extracting a valued renewable resource. In contrast, 96% of the global deforestation from 1990 to 2005 has occurred in developing countries in the tropics. Losing those forests has raised annual global greenhouse gas (GHG) emissions by 17½% or 8,500 megatonnes of carbon dioxide (Mt of $C0_2$). Looking ahead, developing countries could account for 70% (10,000 Mt of CO_2) of the potential climate change mitigation by 2030 from enhanced global forest management, according to the Intergovernmental Panel on Climate Change (2007).

The World's Forests
% share of total hectares, 2005



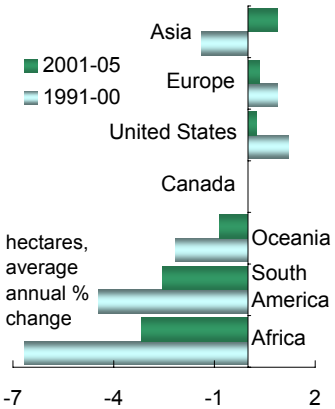
Source: United Nations Food and Agricultural Organization.

Currently, there is no effective mechanism or international consensus on how to protect forests in developing countries, despite their major benefits. In addition to their capacity to store CO_2, the advantages of forests include reducing run-off, improving water and soil quality and supporting biodiversity. Moving forward, the provision of significant benefits for local communities and indigenous peoples is critical to international efforts to limit deforestation and forest degradation in developing countries. Establishing sustainable harvesting of forests is one of several possible options to counter the drive towards agricultural expansion, mining and infrastructure development in developing countries.

Forest projects stall under the CDM

The issue of deforestation represents a significant gap in the Kyoto Protocol's coverage of global GHG emissions. Initially, forest projects were expected to play a greater role in the Clean Development Mechanism (CDM) of the Protocol. The CDM allows developed countries to earn certified emission reduction credits from undertaking offset projects in developing countries that remove GHG emissions. To date, only one forest project, located in China, has been validated and registered under the CDM, and credits for emissions reduction have yet to be issued.

Change in Regional Forested Area



Source: United Nations Food and Agricultural Organization.

For the first commitment period of the Kyoto Protocol, accessing Land Use, Land-Use Change and Forestry (LULUCF) activities under the CDM was restricted. Forest projects were limited to afforestation and reforestation (A/R) and potential offset credits were constrained to 1% of a developed country's base year emissions, multiplied by five. For now the EU disallows offset credits from LULUCF projects in its Emissions Trading

Scheme (ETS), presently the major market for trading emissions credits. In fact, the potential decline in CO_2 emissions from preventing deforestation in the developing countries could be three times larger than the emissions regulated under the EU's ETS. Therefore, allowing credits from LULUCF projects in developing countries could have flooded the domestic ETS market and, as discussed below, significant risks remain in ensuring their longer-term value.

To provide equivalence and environmental integrity, CDM projects must be real, measurable, long-term and additional to activity that would have taken place without external funding. Given these criteria, A/R projects under the CDM appear high risk to investors and they are not fungible with other CDM units. While A/R projects in developing countries can eventually cost as little as $5/t of $C0_2$, the upfront costs are substantial, the return is back-end loaded with a delay in credit issuance of at least five years to allow the forests to grow and considerable risk exists surrounding the longer-term integrity of forest carbon assets. Registering forest projects under the CDM can average 50% more than other GHG reduction projects given the cost of surveying the land, providing specialists' reports on complex biological systems and establishing local participation. The subsequent difficulties and delays in obtaining regular feedback on the forests' carbon storage from Designated National Authorities underline the challenges inherent in A/R emissions credits that expire every five years and require verification for re-issuance.

To facilitate A/R investment, consolidating and simplifying methodologies for both large- and smaller-scale projects is widely recommended. Importantly, advances in remote satellite sensing technologies to estimate carbon storage in forest biomass could eventually limit required ground-based verification. A continuing challenge for A/R projects under the CDM, however, is that they are potentially reversible with events such as forest fires, pests and disease. A possible solution is to establish adequate project buffer reserves of non-tradable credits to cover unforeseen losses in carbon stocks. In a post-Kyoto framework, extending to developing countries the responsibility for the conduct of reforestation and deforestation activity as part of their climate change role could accelerate progress, particularly on issues such as the potential non-permanence of forest initiatives.

Increasing the focus on deforestation in developing countries

As deforestation presents a range of issues not dealt with under the CDM, a new mechanism, "Reducing Emissions from Deforestation and Forest Degradation (REDD), was proposed in December 2005 to finance sustainable forest management in developing countries. The REDD mechanism was subsequently supported for post-2012 in the *Bali Action Plan* at the December 2007 UNFCCC[1] conference. To demonstrate the REDD program before a post-2012 climate change agreement is potentially finalized at meetings in Copenhagen in December 2009, the UN plans a REDD pilot phase with nine developing countries, using a US$35 million pledge from Norway.

Europe's recommendations

In global climate change discussions, the EU has urged a goal of halting global forest cover loss by 2030. To this end, the European Commission proposes a financing mechanism to reward countries that have taken steps towards REDD. Known as the Global Forest Carbon Mechanism, it would be funded by developed countries and issued through a competitive public purchasing program. In addition, in December 2008, European leaders supported the proposal to allocate a share of the revenues from its ETS to REDD in developing countries, with each EU member state determining its own contribution. By 2020, 5% of the EU's ETS auctioning revenues could amount to €1.5-€2.5 billion for the Global Forest Carbon Mechanism. Within the EU, one proposal is to require timber imports into Europe to have a guarantee that the harvesting occurred legally in the source countries.

International funds to protect forests

Among the broad-based funds addressing climate change for developing countries, the World Bank's Carbon Finance Unit has a BioCarbon Fund that has financed A/R projects since 2004. As well, the World Bank is currently proposing to create its own pilot program for REDD. Several funds are exclusively devoted to preventing deforestation in the developing countries primarily responsible for the world's forest loss. Brazil and Indonesia, for example, together accounted for over 55% of global deforestation from 1990 to 2005. For Brazil, the Amazon Fund is expected to assist the nation in cutting its deforestation rate by more than 70% by the end of 2017, relative to its 1996-05 average.

Forest cover around the world was boosted in late 2006 with the United Nations Environment Programme setting a goal of planting one billion trees. The Programme's overwhelming success resulted in a revised target of 7 billion trees by 2009. Of note is China's planting program that averaged over 4 million hectares annually between 2000 and 2005.

[1] United Nations Framework Convention on Climate Change.

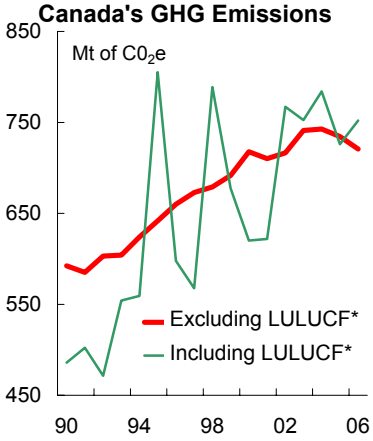
Forest projects are more prominent in voluntary GHG reduction programs

One tool for companies seeking to reduce their climate change impact is to purchase GHG offset credits. These credits may be purchased through Voluntary Carbon Markets, such as the Chicago Climate Exchange, and forest projects' share in 2007 was 36%. These forest offsets have proven to be far more popular than under the CDM, partly because almost three-quarters are domestic, and therefore usually lower cost, less risky and highly visible to the public.

Canada's forest wealth

As the Kyoto Protocol was negotiated, tradable credits related to domestic forests was an issue for developed nations such as Canada and the United States, but Europe and other nations viewed it as a potential loophole. In 2001, the latest year of available data, Canada had about 8% of the world's forests, or 310 million hectares. As the accompanying graph of Canada's GHG emissions indicates, including the emissions impact of LULUCF introduces substantial annual variability. The volatility arises from events such as forest fires and the flooding from developing hydro-electric power. The recent upward trend in emissions when LULUCF is included reflects the loss of forests from insect infestations such as the mountain pine beetle.

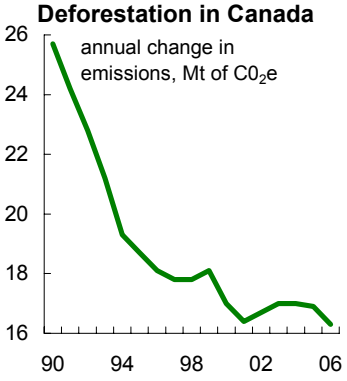
Canada's GHG Emissions



* Land Use, Land-Use Change and Forestry. Source: United Nations Framework Convention on Climate Change.

Recently, provincial governments have stepped up their forest management efforts for several reasons, including climate change. This mirrors initiatives in other developed countries. The Western Climate Initiative, a group of seven States and four Provinces planning a cap-and-trade program for 2012, is proposing to allow afforestation, reforestation, conservation and forest management as offset projects. The Australian government's cap-and-trade program, slated for implementation in July 2010, also will offer credits for domestic A/R projects. In Canada, Alberta's offset framework allows major industrial emitters to use forest projects in the province towards their GHG intensity-reduction targets.

GHG Emissions Impact From Deforestation in Canada



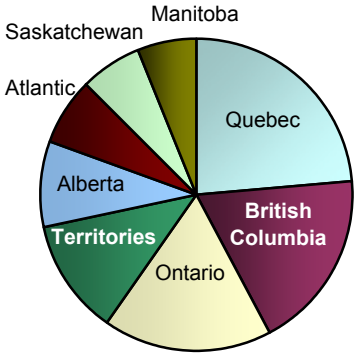
Source: Natural Resources Canada.

Protection of Canada's forests

Across Canada, provincial and territorial governments are setting aside large forested tracts. One example is Ontario's decision in mid-2008 to preserve at least 225,000 square kilometers of northern Boreal forest. This acreage is estimated to absorb 12.5 Mt of $C0_2$ annually.

Currently, the greatest shift in forest acreage is occurring in British Columbia. Through the 1990s, the trend was for B.C.'s forests to act as a substantial sink for $C0_2$. The province now is grappling with the largest outbreak of the mountain pine beetle in North America, eventually estimated to affect up to four-fifths of the merchantable mature pine forests in the province's central and south interior by 2013. In the peak outbreak years, 2009 and 2010, the B.C. government estimates that the mountain pine beetle will impact the carbon balance by 73 Mt of $C0_2$, partly because of the carbon released through the decomposition of dead trees. By 2015, British Columbia is targeting zero net deforestation.

Canada's Forests
% share of total hectares, 2001



Source: Natural Resources Canada.

Planting programs in Canada

Investment in planting trees also has ramped up in Canada. Ontario, for example, is planning to plant 50 million trees in Southern Ontario by 2020 at an estimated cost of close to $80 million, the largest contribution in North America to date to the UN Environment Programme's tree planting campaign. In Ontario's initiative, annual tree planting is expected to climb to five million trees as stock becomes available and private landowners become more aware of the program. Quebec is proposing to lease poorly regenerated forested areas to private companies for reforestation, with the eventual aim of providing investors with carbon credits.

Alongside provincial efforts, municipal governments also are aiming to increase forest cover. The City of Toronto, for example, has a plan to double its existing tree canopy — the amount of leaf area on existing trees — from an estimated 17.5% in 2004 to 34% by 2020 through a competitive grant program.

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