



Policy Research
Initiative

Projet de recherche
sur les politiques

SUSTAINABLE DEVELOPMENT

A Fresh Look at Freshwater

January 2005



Canada

Background

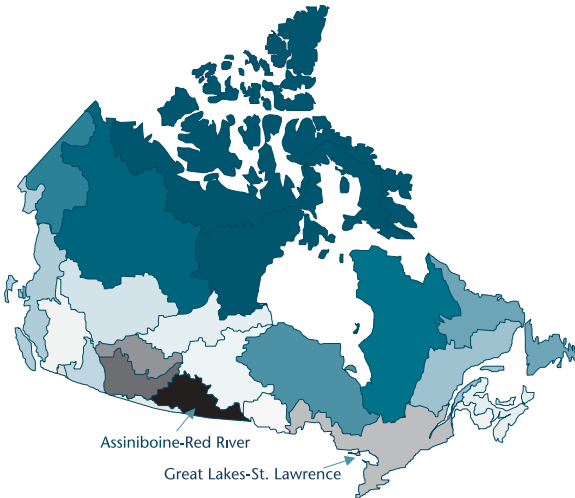
The Sustainable Development (SD) project started in 2001, examining general issues, such as corporate social responsibility, environment and trade, and policy instruments. In the fall of 2003, the project entered a second phase, focusing on freshwater issues.

Freshwater is a highly renewable, but increasingly stressed resource that is essential to all aspects of the economy and environment. While Canada has large supplies of freshwater, much of it is north of the areas of greatest population and industrial need. Within the populated areas, high-quality freshwater in Canada is in increasingly short supply.

Water quality issues surface as boil-water advisories for citizens, illnesses and deaths caused by contaminated water (e.g., Walkerton in 2000), and increasing treatment costs for municipal water supplies. They also appear in the form of concerned citizens buying expensive bottled water for use in the home instead of tap water, and disrupted aquatic ecosystems where pollution brings species closer to extinction.

Water quantity as an issue surfaces in Canada mainly in the agricultural prairies, in some of the dry but highly productive interior valleys of British Columbia and, more recently, in southern Ontario. Near Perth, Ontario, a company had to fight with local residents to obtain a permit to extract water for its operations. In the Toronto region, development and groundwater recharge compete for space on the Oak Ridge Moraine.

Annual Stream Flow per Capita in Canadian River Basins



The darker areas on the prairies, interior British Columbia, and southern Ontario indicate relatively low flows per capita. In the Assiniboine-Red basin, stream flow per capita is less than the average annual per capita water withdrawal in Canada. From *Horizons* 6(4): 4.

A third major freshwater issue is infrastructure renewal – both municipal water treatment and sewage infrastructure, and agricultural water infrastructure (e.g., dams, dugouts, and canals). In parts of the country, this infrastructure is under increasing load, even as it is aging and in increasing need of repair and replacement. Funding this infrastructure deficit is increasingly difficult.

As an issue within the federal government, freshwater is massively horizontal. An interdepartmental assistant deputy ministers' committee on freshwater has representatives from 19 departments and agencies. While Environment Canada and Health Canada lead many aspects of the committee's work, Natural Resources Canada, Fisheries and Oceans, and other departments also have lead roles for some aspects and supporting roles in others.

The PRI's Fresh Look at Freshwater

The PRI's Freshwater project will focus on two major themes, each with sub-themes:

- Economic Instruments for Freshwater Management
 - Instruments for demand management
 - Instruments for pollution control
- The Federal Role in Freshwater Management
 - Integrating SD principles in freshwater and landscape management decision making
 - International aspects of freshwater management
 - Bulk export issues
 - Public-private partnerships and other means of financing water infrastructure

The **Economic Instruments** theme is examining the potentials, limitations, and pitfalls of using economic instruments for water management in Canada. Canada uses fewer economic instruments than most developed countries for environmental issues, and water is no exception. Until recently, most households in Canada did not have water meters; many municipalities still charge flat rates for supplying treated water to homes and businesses. Many agricultural users – the largest water consumers in Canada – generally pay nothing for the water itself, paying only to run their own pumps and sprinkler systems. Similarly, economic instruments, beyond fines for breaches of regulations, are rarely used for water pollution control.

The first activity under this theme was a symposium held in June, 2004, in Ottawa (co-sponsored by the Walter and Duncan Gordon Foundation, Agriculture and Agri-Food Canada, Environment Canada, and the Canadian Water Network). This symposium included international experts from Australia, Israel, the European Union, and the United States, as well as academics from across

Canada, researchers and practitioners from provincial and municipal governments, representatives from federal departments, and environmental non-governmental organizations. Products from the symposium include a synthesis report, two SD briefing notes, and a special issue of the *Canadian Water Resources Journal* (anticipated in spring 2005).

The **Federal Role** theme is conducting a number of studies. The first was an SD briefing note examining how federal departments perceive and are discharging their responsibilities through a review of the sustainable development strategies using a freshwater lens.

Other studies include developing a proposal (with Foreign Affairs Canada and Environment Canada) for keeping an international spotlight on freshwater issues, and SD briefing notes on bulk water exports, the integrated water resource management approach to source water protection, and integrated landscape management modelling.

Funding water infrastructure is another difficult issue, raising questions around full-cost pricing, who should pay for what, and whether – and in what way – public-private partnerships can ease the burden on the public purse.

A workshop in late winter 2005, in co-operation with Environment Canada and Agriculture and Agri-Food Canada, will further develop plans for a practical application of integrated landscape management modelling in Canada. Also, together with Natural Resources Canada, Statistics Canada, and Environment Canada, an outline is being developed for a possible atlas of freshwater issues in Canada.

Recent Publications

The following publications are available in both official languages by contacting the PRI at 613 947.1956 or on the PRI web site <www.policyresearch.gc.ca>. Out of print items are available on the web site only.



Advancing Sustainable Development in Canada: Policy Issues and Research Needs identifies seven key issues for SD in Canada: urban redesign, freshwater management, eco-region sustainability, impacts of globalization on Canada, signals and incentives, unsustainable lifestyles, and international engagement: poverty and sustainable development.

The *Horizons* special issue on SD includes articles on freshwater management, key issues for SD in Canada, voluntary approaches in environmental policy, forest fire management, the comparative advantages of urban Canada, normative approaches to policy, urban forestry, natural and human capital, early child development, the *Species at Risk Act*, sustainable water use information requirements, and the use of integrative modelling in policy development. The SD project has also published

eyewitness (conference) reports in other issues of *Horizons*: Canadian National Policy Conference and Policy Forum on Drinking Water (*Horizons* 7(1)); Using Market-Based Instruments for Water Demand Management (*Horizons* 7(2)).

Economic Instruments for Water Demand Management in an Integrated Water Resource Management Approach is a synthesis paper based on an experts' symposium held June 14-15, 2004. It reviews the state-of-the-art in the use of economic instruments, such as pricing and markets for managing water demand.

SD Briefing Notes



Integrated Water Resource Management explains the concepts and gives practical examples of integrated water resource management.

Integrated Landscape Management Modelling shows how large-scale integrated models can be used to inform policy decisions.

Federal Commitments to Freshwater: Three Generations of Sustainable Development Strategies examines the sustainable development strategies published by federal departments since 1997 through a freshwater lens, showing how departments have adopted the principles of sustainable development and source-water protection.

Exporting Canada's Water I: Outside of NAFTA takes an economic perspective on shipping water in bulk overseas, and finds that it is not likely to be worthwhile except possibly as a luxury good.

Market-Based Instruments for Water Demand Management I: Pricing and Taxes examines the potential roles of pricing and taxes in managing water demand, based on the June 2004 PRI symposium.

Market-Based Instruments for Water Demand Management II: Water Markets examines the potential role of water markets in managing water demand, based on the June 2004 PRI symposium.