

The Need for a National Water Strategy for Canada

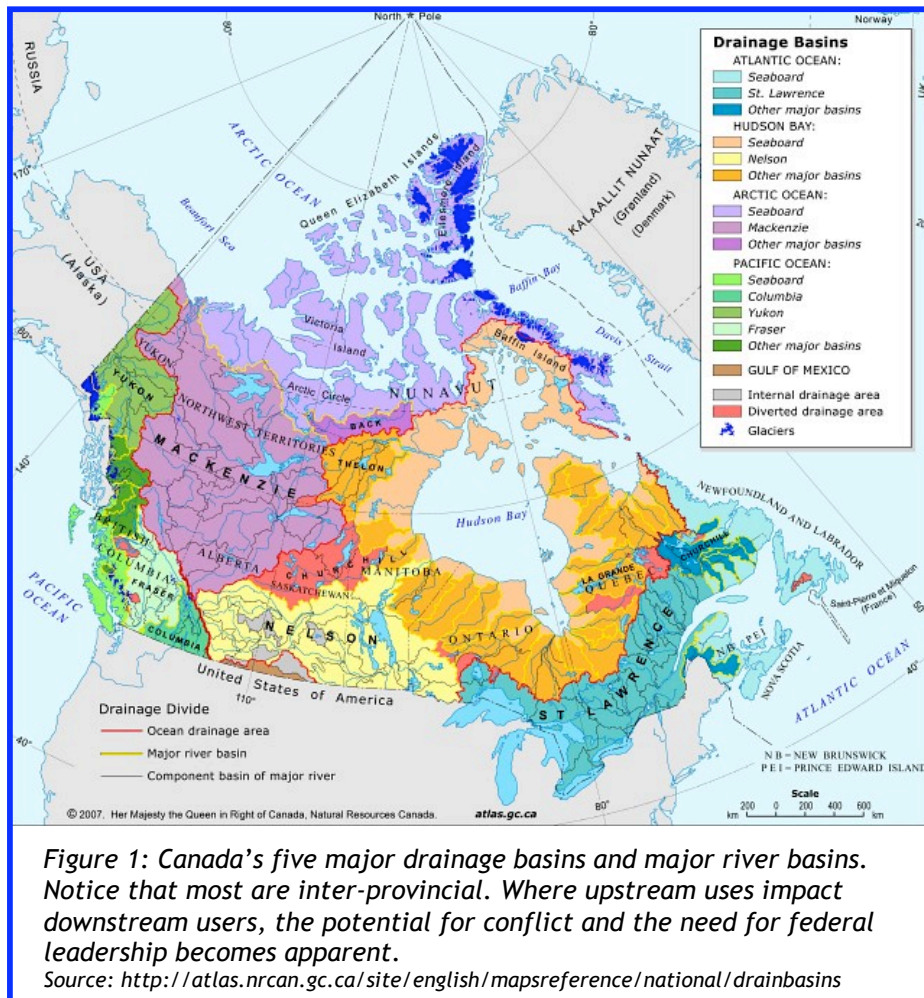


Figure 1: Canada's five major drainage basins and major river basins. Notice that most are inter-provincial. Where upstream uses impact downstream users, the potential for conflict and the need for federal leadership becomes apparent.

Source: <http://atlas.nrcan.gc.ca/site/english/mapsreference/national/drainbasins>

In the past decade, a slew of changes in water governance throughout Canada and several scathing reports written by academics and citizen groups have shown the need for a national water strategy (Bakker 2007; Morris et al. 2007). With cuts to water funding during the past decades, non-governmental entities in the private and public sector have responded to the need for improved monitoring, more research and better service¹ (De Loë and Kreutzwiser 2007). Moreover, individuals and organised coalitions advocate recognising the symbolic and inherent value of water as a 'public' good and essential need, in addition to its economic worth (Sanders and Wenig 2007). Growing understanding of the hydrological processes and systems within watersheds calls for governing water at its inherent boundaries: the river basin and the aquifer. With no co-

ordination legislated at river basin levels, water extraction permits are generally distributed with little respect for environmental thresholds. Consequently, minimum instream flows necessary to preserve ecological integrity including aquatic habitat, fish stocks and other ecosystem services are threatened, while aquifers are at risk of depletion beyond their recharge rates. As populations grow, the stress on natural ecosystems is exacerbated, while extant infrastructure is reaching capacity and deteriorating with age (Morris et al. 2007).

Provinces differ in their ability to respond to the daunting costs of research, monitoring and infrastructure upgrades. As water does not heed jurisdictional borders, the need for collaborative governance is clear: inter-provincial guidelines must be enacted at the federal level with cooperation from the provinces, where many initiatives at the watershed scale are already taking place².

¹ Examples include local involvement groups such as watershed organizations (Quebec), water response teams (Ontario) and Annapolis River Guardians (Nova Scotia) (De Loë and Kreutzwiser 2007); public-private partnerships for meeting Canada's water supply are also becoming increasingly popular (see page 194 in Bakker 2007b).

² River basin initiatives are occurring in Canada. Examples include the Okanagan Basin Waterboard (<http://www.obwb.ca/>), the Fraser Basin Council (http://www.fraserbasin.bc.ca/fraser_basin/index.htm) and the Bow River Basin Council (<http://www.brbc.ab.ca/>); many lessons can be applied from these experiences to a national strategy. International examples from which we can learn include the Murray Darling Basin Commission (Australia - <http://www.mdbc.gov.au/>).

Guiding principles and recommendations

In order to ensure long-term success, cooperation from provinces, health of future generations and the environment, the framework should follow these guiding principles (Nowlan and Bakker 2007):

- ***River basin level governance*** - natural boundaries supersede jurisdictions
- ***Precaution*** - recognize complex systems' inherent uncertainty
- ***Valuing water*** - recognize scarcity and the cost of treatment and distribution
- ***Adaptiveness and flexibility*** - respond to changing conditions and continued learning
- ***Participation and transparency*** - involve all stakeholders
- ***Equity*** - water allocation, charging and funding that is socially just
- ***Negotiation-based*** - ensure ownership, compliance, and foster innovation
- ***Rewarded and regulated*** - both incentives and executive powers should ensure compliance

The following recommendations should be implemented to successfully incorporate the guiding principles into the strategy:

1. Establish river basin councils with executive powers
2. Require river basin plans to be devised within a timeframe (through multi-stakeholder processes including inter-provincial cooperation)
3. Set water use standards for extractive industries for each river basin within federally established guidelines
4. Base water allocations on aquifer recharge rates (considering cumulative effects) and in excess of in-stream flow needs (IFNs): gradually establish and enforce IFNs for all river systems (Nowlan 2007)
5. Apply the polluter pays principle and set enforceable water quality standards for effluents
6. Develop minimum, legally-binding national drinking water quality standards in consultation with stakeholders³
7. Ensure safe drinking water for all Canadians, especially on First Nations reserves (Morris et al. 2007)
8. Integrate water conservation strategies into other policy areas (e.g. agriculture, mining, energy, through best management practices)
9. Develop a binding resolution to solve interprovincial conflicts and to prohibit bulk water export (Morris et al. 2007)
10. Renegotiate the International Joint Commission to ensure stronger legislated powers and a clearer mandate (Morris et al. 2007; Pentland and Hurley 2007)
11. Create a federal fund fed by a federal water tax: for redistribution to have-not provinces or provinces with proven substantial infrastructure/ research needs and which are in compliance with established framework⁴
12. Cost recovery at the river-basin/municipal level through volumetric pricing (accounting for equity concerns) and mandatory metering; the price should include environmental externalities, in addition to primary (infrastructure) and secondary (marginal) costs (GWP 2000)



³ The provinces could exceed these standards with voluntary stricter measures, as has occurred in EU member states (Barreira 2006)

⁴ Such incentives are used in the EU Water Framework Directive

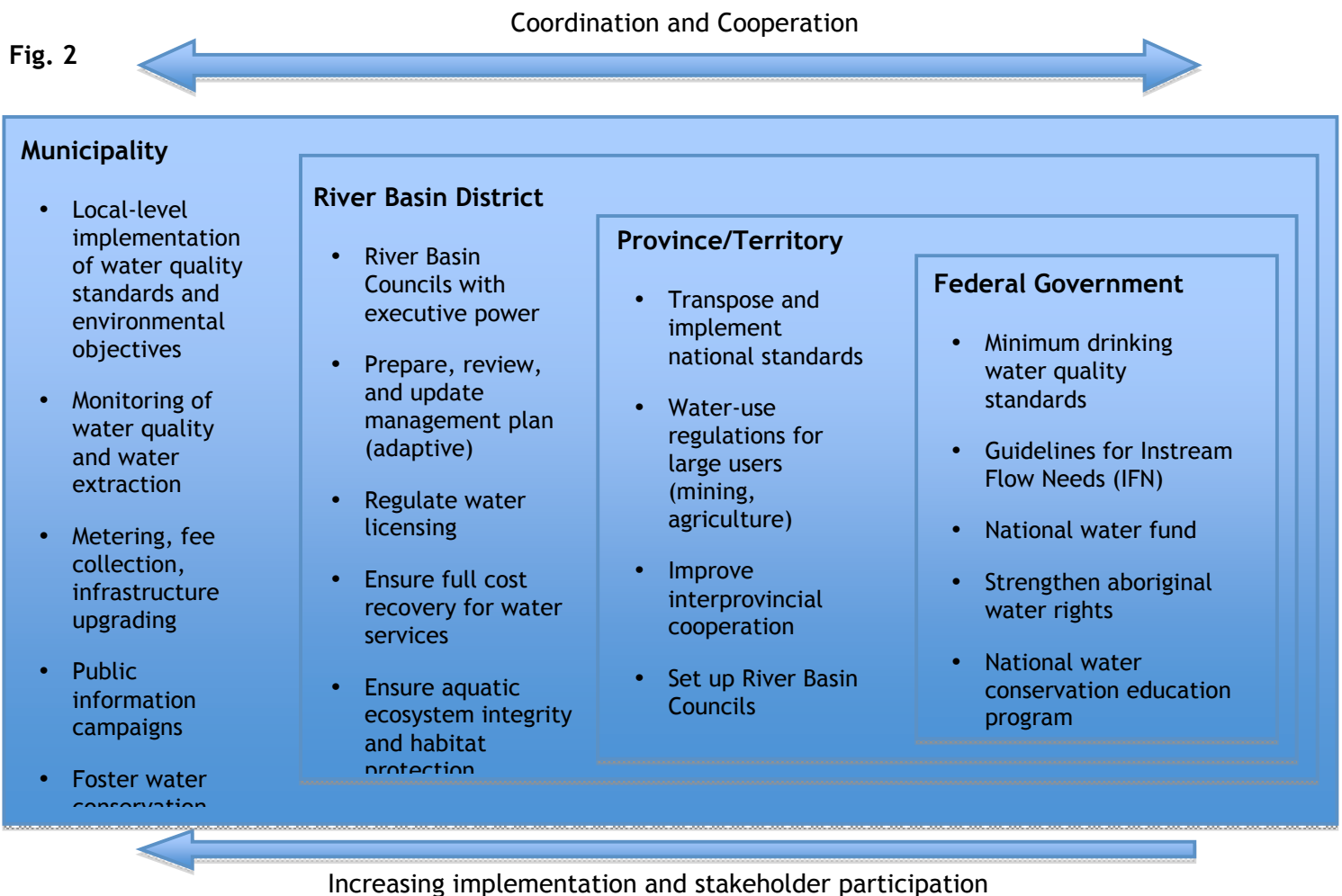
Funding priorities

As emphasized in the recommendations, federal funding will be key in providing incentives for provincial, river basin and municipal compliance and to ensure equity through redistribution of funds. The following areas should be prioritised:

- Renovation of crumbling infrastructure following a multi-barrier approach
- Research at the basin level:
 - development of state of environment reports (with IFNs and aquifer recharge rates)
 - accurate and predictive models which include uncertainty (e.g. climate change impacts)
 - integration of research from land-use management
- Re-establishment and expansion of monitoring sites
- Creation of transparent and accessible database with national water quality and quantity information including permit allocations, such as in EU
- Strengthening of capacity through funds to scientific institutions
- National education program to promote culture of conservation (Morris et al. 2007)

Distribution of responsibilities

While the federal government must take a strong leadership role in bringing stakeholders to the table and ensuring compliance, the framework will ultimately only be successful if stakeholder concerns are addressed through negotiation and consensus where possible. The relationship between governmental tiers will thus not be hierarchical but will consist of fluid and overlapping responsibilities as illustrated in figure 2.



Timeline

Provinces and the respective river basin councils must comply with the following target dates. In case of non-compliance, funding will be frozen. For certain standards (such as drinking water quality), non-compliance will be subject to legislated penalty.

Target date	Objective
2012	State of environment reports completed (provincially) with identification of principal water basins and gaps in baseline data.
2015	River Basin Councils established and functioning with appropriate stakeholder representation for each principal water basin.
2017	Completed baseline data collection as identified in state of environment report and supported with federal and provincial funding.
2018	Long-term strategic river basin plans with clear targets to meet federally established guidelines.
2025	Federally established guidelines (IFNs, water quality standards, effluent standards, permitting systems) are met or exceeded.
2028	Revision of strategic river basin plans; plans are to be revised at seven-year intervals.

Concluding remarks

Without quick action and strong federal leadership in Canada's water governance, growing populations and subsequent environmental pressures will result in more frequent and more costly conflicts. Once a leader in environmental policy and management, Canada now lags embarrassingly far behind its European and southern neighbours. Now more than ever, decisive action is necessary: Canada could well regain its position as a leader in innovative and collaborative responses to complex problems.

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