The nature and content of a national water strategy for Canada

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INTRODUCTION

To achieve an integrated water resources management strategy, existing threats and water related problems have to be considered. In Canada, the limits of local water supplies and capacity of current infrastructure have been reached in many regions (Morris, 2007), while demand for these limited resources increases (Pollution Probe report, 2008). Pollution is an ongoing threat, as untreated waste and byproducts decrease water quality (Morris, 2007). All the while, natural and human-induced climate change are altering the hydrological cycle and water availability (Pollution Probe report, 2008). The complex, uncertain and interdependent nature of the human and environmental components of water resources systems gives rise to greater challenges and conflicts (Dorcey, 2004). Water resources in Canada face several threats and shortages, and the need for a new approach to deal with these problems has become tangible. This paper describes the principles and approach for a National Water Strategy that should be taken to address existing threats to Canada's water resources and institute integrated water resource management.

PRINCIPLES

Collaborative Governance: In both the development of the national plan and in subsequent phases of watershed planning and implementation, all four levels of government, regional districts, stakeholder groups and citizens should be meaningfully engaged with an emphasis on building capacity.

Systems thinking: Considering systems' behaviours and boundaries in all scales and times and connections among different systems (Dorcey 2004). A shift from process to outcomes; water to watershed management and government to governance. (Pollution Probe report, 2008)

Adaptive: The approach should be flexible and able to adjust to changing conditions through learning; in other words, it should be robust.

Develop sustainability: Involve all ecological, economic and social system and values with an explicit focus on balancing multiple interests/needs.

Integrative: coordinate between jurisdictions, disciplines, domains, ecological systems, trans-boundary, parts of the system, uses.

Forward-looking: maintain water resources intact for the use of future generations by considering climate change impacts, pollution prevention, and living off the interest of the ecological services (Morris, 2007).

Equity: promote equitable process and outcomes. Include consideration of vulnerable populations and institute a polluter-pays principle. (Morris, 2007)

Shared responsibility: shift from regulating to sharing responsibility between jurisdictions and stakeholders (Pollution Probe report, 2008).

Innovation: The approach should be innovative, support experimentation, provide motivation to achieve creative "win-wins" and combined benefits.

"Jurisdiction best-placed": Functions and funding should be assigned to the level that is best suited to managing that aspect of the problem (Pollution Probe report, 2008).

PRIORITIES

1. To engage citizens, stakeholders and all sectors of society in ongoing processes of planning, implementation, monitoring and improvement.
2. To ensure improving water quality and quantity standards and secure safe drinking water for all Canadians
3. To streamline and harmonize the legislative environment
4. To establish an institutional framework that models the above principles
5. To ensure an effective and appropriate infrastructure base over time
6. To address transboundary issues and protect aboriginal water rights
7. To respond to the impacts of climate change and energy production
8. To promote a culture of water conservation
9. To protect aquatic ecosystems

STRATEGY

Institutional and Legislative Framework

The national water strategy ("the Strategy") will be presided over by a National Water Council that is based on the above principles. This body will be responsible for production of the Strategy and will serve as a permanent authority overseeing implementation, review, and dispute resolution (Figure 1). The Strategy and Water Council will serve as a framework within which river-basin management authorities (RBMAs) are established according to the same principles.

The Strategy will contain measures to streamline existing legislation and regulation, and make targets, standards and planning outputs binding in law through agreement by parties to the Water Council. This will also allow for sufficient flexibility so that existing institutions and agencies can adapt the strategy to the local context (eg: Barreira 2006). Provisions will have to be made for how to deal with existing rights to water as the legislative environment changes.

Mechanisms should be developed to institutionalize stakeholder and citizen involvement, such as guidelines for deciding who should be involved, how, and in what decisions. RBMAs should specify how priority uses in watersheds will be determined.

Objectives and Standards
Taking a sustainability perspective toward water management requires enumeration of clear objectives (Dorcey 2004). Graduated environmental standards for water quality, quantity, instream needs and aquatic environments should be agreed to at a national level to ensure a minimum level of performance. Incentives should be included to promote higher achievement.

Information System
A well developed information system that is maintained over time is the basis of effective water management. In the Canadian context there is an urgent need to improve baseline data (Morris et al 2007). In addition, creative uses of existing data should be explored and priorities for gathering additional data defined at watershed and national levels. This data must be transformed into useful forms that are widely accessible; information networks should be established for the sharing of data and best practices. Additionally, modeling capacity should be developed to support a systems approach to IWRM (Loucks and Beek 2005).

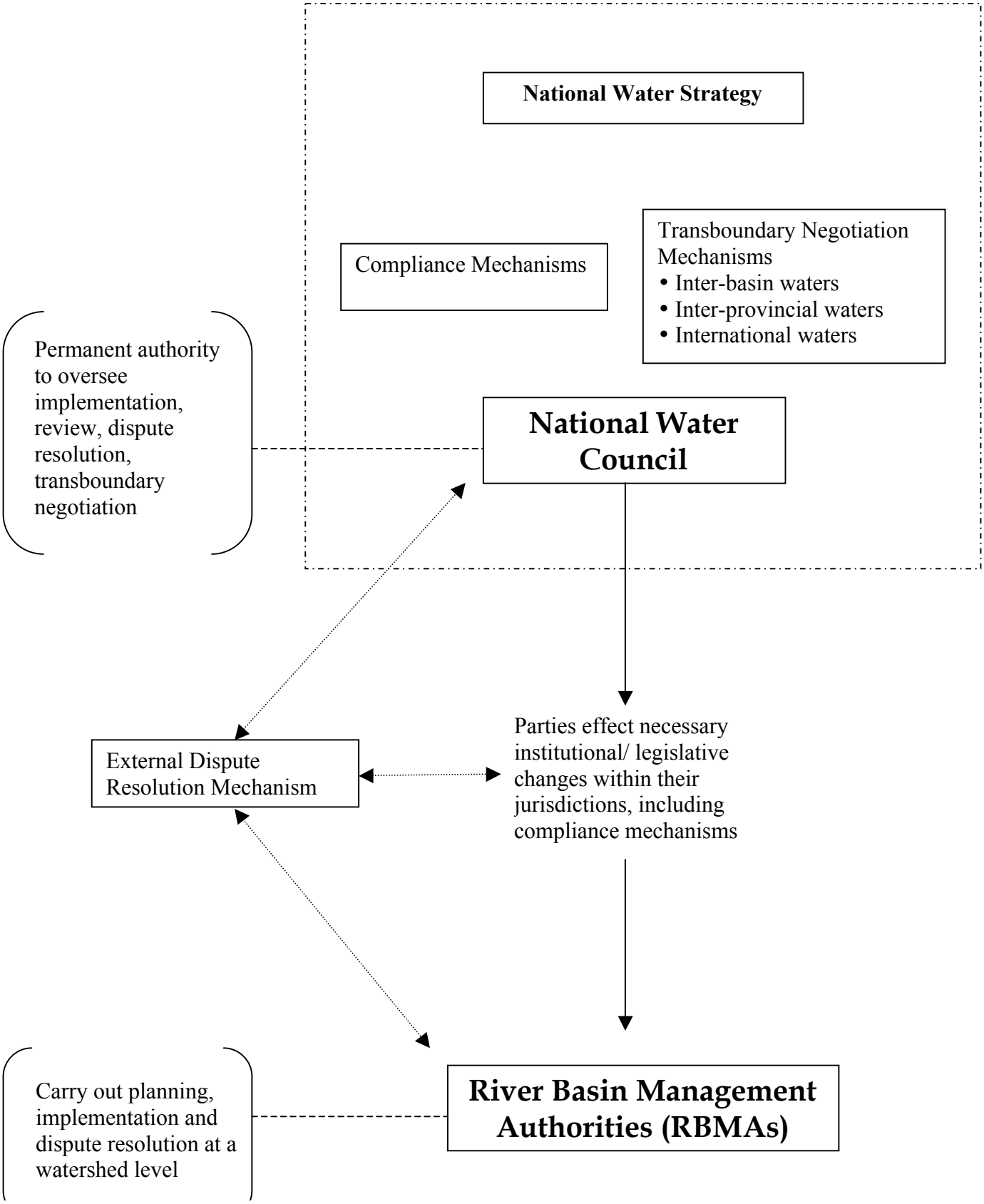
Tools
The Strategy should contain guidelines for the use of different types of tools, including market-based, regulatory, planning, or voluntary measures. Legislative measures to guard against bulk water exports should be included (Morris et al 2007).

Planning Cycle
The Strategy should include timelines, incentives and compliance mechanisms for achieving objectives and standards. These requirements should be supported using an appropriate mix of obligatory and incentive-based measures for attainment, for example tying funding for infrastructure to completion of water planning phases. The Strategy should outline the process for development, implementation, monitoring and updating of plans themselves, with details determined at a river basin level (Barreira 2006). Incentives for active experimentation and adaptive management approaches (eg: Resilience Alliance 2008) should be built into the Strategy and river basin plans, along with specific measures for mainstreaming climate change into the planning cycle.

Infrastructure System
Funding for water infrastructure renewal in Canada must be a priority. The Strategy should outline guidelines and targets for infrastructure that enable a balance of hard and "soft path" approaches (Brandes et al 2006), and use of appropriate technologies.

Funding
Funding mechanisms need to be specified at the national and river basin levels. This should include both long-term and project-specific funding. The Strategy should address who funds what, with a consideration of appropriate tools (market-based, taxation, private-public partnerships, transfers, etc). Mechanisms should be included so that proactive and preventative measures are supported or rewarded financially.

Figure 1. Institutional Framework for a National Water Strategy



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