

# ACT

ADAPTATION TO  
CLIMATE CHANGE TEAM

## BRIEFING PAPER FOR DECISION MAKERS CLIMATE CHANGE ADAPTATION AND WATER GOVERNANCE

For additional details, resources, data and information please refer to the accompanying Executive Summary and Background report, available at: [www.sfu.ca/act](http://www.sfu.ca/act)



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# ACKNOWLEDGEMENTS

**Bob Sandford**, the lead policy author for ACT's fourth set of findings, is the EPCOR Chair of the Canadian Partnership Initiative in support of the United Nations "Water for Life" Decade, a national partnership initiative that aims to translate scientific research outcomes into language decision-makers can use to craft timely and meaningful public policy. In this capacity, Bob sits on the Advisory Committee for the Rosenberg International Forum on Water Policy, where he works to bring broad international example to bear on Canadian water issues. Bob is the Director of the Western Watersheds Climate Research Collaborative and an associate of the Centre for Hydrology, which is part of the Global Water Institute at the University of Saskatchewan. He was recently appointed a Fellow of the Biogeoscience Institute at the University of Calgary, sits on the Advisory Board of Living Lakes Canada, the Canadian chapter of Living Lakes International and is co-chair of the Forum for Leadership on Water (FLOW), a national water policy research group centred in Toronto. Bob is also a member of the Advisory Panel for the RBC Blue Water Project. He is the author of four books on water policy in Canada and abroad.

Though Bob was the lead policy author on this project, he relied heavily on the support of a team of committed and highly dedicated research assistants who laid down the foundation for the policy opportunities put forward in this report:

**Laurie Neilson-Welch**, a PhD candidate in the faculty of Earth Sciences at Simon Fraser University, researched climate impacts on water in the Okanagan Basin and built a multi-stakeholder decision-making/water management scenario/assistance for use by the Okanagan Basin Water Board.

**Cedar Morton**, a graduate student in Resource and Environmental Management at Simon Fraser University assisted in the writing of the background paper and first drafts of this report.

**Jon Robinson**, a graduate student in the Master of Public Policy Program at Simon Fraser University, researched water management policy structures at federal, provincial/territorial and local levels in Canada, with a special focus on the regions in which ACT partnered with the Centre for Indigenous Environmental Resources to host information gathering sessions.

**Asrai Ord**, a graduate student in Sustainable Resource Management at the University of British Columbia helped organize and conduct multi-stakeholder decision-making collaborations in Vancouver and in Cape Breton in Nova Scotia.

**Linsay Martens**, a senior ACT researcher and graduate of the SFU Master of Public Policy program, conscientiously assisted in completion of the reports.

The lead policy author would also like to acknowledge the enormous benefit of having senior policy experts as advisors to this project. Because of their dedication to this project, everyone involved learned a great deal about public policy processes. In particular, the team would like to thank the following:

**Jon O'Riordan** is a former Deputy Minister in the former BC Ministry of Sustainable Resource Management. Jon serves on the Advisory Board for ACT at Simon Fraser University as well as many other boards and committees working to improve water governance in Canada.

**William Lahey**, who kindly reviewed the reports, is a former Deputy Minister in the Environment Ministry of the Government of Nova Scotia and is now the Director of the Health Law Institute and Assistant Professor in the Faculty of Law at Dalhousie University in Halifax, Nova Scotia.

The lead policy author would also like to offer special thanks to the Executive Director of ACT, **Deborah Harford**, who helped establish the research direction and vision for this project and patiently and tirelessly steered it toward completion.

The lead policy author would also like to acknowledge **Amber Church**, a graduate student at Simon Fraser University, who played a key early role in putting this team together.



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## BRIEFING FOR DECISION MAKERS

In most parts of Canada, climate change is increasingly affecting the way water moves through the hydrologic cycle, which up until now has fluctuated within a fixed envelope of certainty. This relatively stable regime is termed ‘stationarity’ by hydrologists. The hydro-climatic conditions that are emerging in response to climate change are increasingly outside this established range to which Canadians have demonstrated an ability to adapt over the last century.

We are beginning to experience increasingly frequent, deeper and more persistent droughts. Simultaneously, we are beginning to experience the same intense rainfall and flooding events that are becoming more common all over the world.

According to climate models, this variability is likely to become greater in the future, which will result in extensive and costly on-going damage, not just to public infrastructure such as roads, bridges and water treatment plants, but to our entire built environment. The fear is that the cost of this ongoing damage may in time be substantial enough to make it difficult to sustain prosperity as we know it today and still keep our cities, towns, national transportation systems and other crucial infrastructure in functional repair.

The economic costs are already clear and rising. The insurance industry is already warning us of these concerns. In August of 2011, the Insurance Bureau of Canada observed that the number and severity of storms is having a negative effect on the industry and that insurers are particularly worried about the rapidly increasing rate of water-damage claims. An industry spokesman reported that, while historically most insurance claims were related to fire and theft, half of every dollar now paid out by insurance companies is for water damage related to extreme weather events. The industry is lobbying governments to invest in infrastructure, including improving sewer systems, to prevent future worsening of the problem.

Warming temperatures will affect water quality widely in Canada especially in areas dominated by lakes and large rivers. Canada’s Arctic will be particularly affected. In some areas, changes in hydrological patterns will also affect water security, including southern British Columbia and much of the prairies. This does not mean water security issues won’t appear elsewhere. Serious water conservation measures must be put into place immediately to reduce the risk of water scarcity, and additional measures such as those described in this document’s recommendations need to be considered to ensure that water quality and allocation issues related to reduced supply can be effectively managed.

Climate change is becoming a risk-multiplier that will test fundamental Canadian ideals related to the social contract that promises citizens peace, order and good government. The primary response to climate change in Canada thus far has focused principally on mitigating impacts by reducing greenhouse gas emissions. While such action is crucial, it is also inadequate by itself. Current and projected atmospheric concentrations of greenhouse gases are substantial enough

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to mean that further climate change will occur, and indeed is already occurring, regardless of our success in reducing emissions. Therefore, it is important to couple our efforts to mitigate the cause of the problem—in the case of climate change: greenhouse gas emissions—with efforts to adapt to the current and anticipated effects of climate change. As water is an essential resource in all aspects of life, social, economic and environmental, one of the most crucial ways to adapt to the growing number of negative consequences and costly feedbacks associated with climate change is to manage water effectively.

Because there is less confusion and debate in Canada about the importance of water than many other resources, the affirmation of a new “water ethic” could be a means of ultimately achieving greater adaptive capacity to climate change, while generating a great many other lasting social, economic and environmental benefits along the way. This, however, will require new governance structures that break down existing jurisdictional fragmentation and institutional territoriality. The breaking down and reformation of governance related to the management of water will, in itself, require a high degree of committed and effective collaboration among jurisdictions.

During the research carried out for the development of this report, however, the authors heard from coast to coast to coast that, even in the face of clear and obvious climate change threats, planners and government bureaucrats are too financially strapped and lack human resource capacity at the levels at which they are working to undertake the kinds of deep reform required to manage water differently, and more effectively, than it is being managed now. Fears were expressed in all but one jurisdiction that we consulted that our country’s political structures and institutions are in fact incapable of dealing with such complex reforms, and that we are doomed as a nation to inferior approaches to adapting our water management practices to increasing climate change effects. Strong evidence from that one jurisdiction, however, suggests that, in fact, this may not be the case.

The federal, territorial and Aboriginal governments with jurisdiction over water in the Northwest Territories have recently demonstrated that there is nothing in the Canadian federalist political structure that makes the kinds of reform necessary to adapt successfully to climate change impossible. The Government of the Northwest Territories and its federal and local partners assumed timely, complete and proactive responsibility for broad community collaboration leading to the development of a new and fully integrated watershed-based territorial water stewardship strategy. In so doing, these three senior levels of government demonstrated that the legal powers are in the appropriate hands and the necessary policy avenues exist to make such changes in governance possible. What is required, however, is pro-active, well-informed, and visionary political leadership.

The Northwest Territories example suggests that the same strong, inspired political leadership applied at national and provincial levels could create the policy reforms necessary to achieve the level of adaptive capacity we need as a



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nation to respond to the climate impacts on water security that we expect to emerge in the coming decades. We should be cultivating that leadership – and public support for that leadership – now.

Effective governments prefer proposition to opposition. This report outlines a new national proposition on water that aims to strengthen Canada’s economy and assure its sustainability while at the same time enhancing our adaptive capacity in the face of growing climate impacts on our national identity and well being, and therefore our nation’s future.

Fortunately, Canadian consciousness of our overall good fortune in terms of water resources, and popular understanding of water issues, is growing. We also know from world example much of what needs to be done. Time is of the essence. Our changing climate and hydrology demand that we shift out of the coping zone of stationarity, and adapt to new circumstances.

The extent of adaptation that is likely to be demanded will require that a new set of values must underlie water governance in Canada in the future. The creation of a new water ethic in Canada that addresses this shift comprehensively can be achieved in a series of steps, as outlined in the recommendations summarized below.

## RECOMMENDED POLICY ROADMAP

### Short-term Recommendations (in the next 3 years)

1. Firm steps should be taken immediately at federal, provincial and municipal levels to value water appropriately, and promote its wise use and conservation by establishing **national and regional water conservation guidelines**;
2. Governments at all levels should be urged **to formally allocate water to meet nature’s needs** and ensure its use is consistent with sustaining resilient and functioning ecological systems;
3. Established knowledge and experience in prediction should be recognized and valued through **the strengthening and harmonizing of flood protection strategies** nationally;
4. Governments at all levels should be encouraged to formally **support the design and sustainability of water supply and waste disposal infrastructure based on ecological principles** and adaptation to a changing climate, with special attention to meeting the needs of First Nation communities;
5. **The value of comprehensive on-going monitoring must be recognized nationally and regionally** and the need for accessible up-to-date information required to manage water in a changing climate fulfilled on a permanent and reliable basis.

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#### Medium-term Recommendations (in the next 3-5 years)

6. **The role of education in public understanding** of the importance of water to our way of life in Canada **should be recognized and formally supported**;
7. **Water must be recognized as a human right** integral to security and health;
8. Holistic approaches to **managing watersheds through collaborative governance** should be supported;
9. **The importance of groundwater must be recognized** and governments at all levels urged to understand and value its role in creating a sustainable future for Canada;
10. Coordinated long-term **national strategies for sustainably managing water in the face of climate change should be valued and developed**.

#### Long-term Recommendations (in the next 5-10 years)

11. The value of **creating a non-statutory National Water Commission** to advance policy reform and to champion a new Canadian Water **ethic as outlined in this document should be considered**;
12. In order to identify those who care and gain their support for both the necessary reforms and for the leadership that will make those reforms possible, **the government of Canada**, in association with provincial, territorial and Aboriginal governments **may wish to fully articulate and actively and publicly promote a new Canadian water ethic**.

Proposals for reforms of the magnitude listed above should not be dismissed as too ambitious or beyond the capacity of government to successfully achieve. The *Northern Voices, Northern Waters* Northwest Territories water stewardship strategy demonstrates that it is possible to undertake fundamental water policy reform at the provincial or territorial level that incorporates ambitious principles of good water management as defined by the best international example.<sup>1</sup> The strategy demonstrates that it is no longer acceptable to say that such levels of reform are not possible because of legal, legislative, policy, political, or bureaucratic obstacles.

Governments do not have to be limited to playing around at the edges of reform; they are capable of making real change happen. What is needed is leadership. We need to cultivate that leadership now – and find ways to ensure that Canadians support that leadership as it does what needs to be done – if we do not want water availability and quality issues associated with climate change to limit the promise of our social, environmental and economic future.

<sup>1</sup> Northwest Territories Ministry of Environment and Natural Resources (2010)

# PARTNERS

ACT is deeply grateful to the partners on this project, whose support was invaluable:

**Zurich Financial Services** was a key sponsor for this research session and conference series. Zurich is taking an active role when considering change to the earth's climate and the associated risks it presents. We aim to help customers manage the risks associated with climate change through a dedicated climate change unit exploring approaches to help global businesses respond to this emerging risk, including solutions for customers participating in the growth carbon credit market.

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The former **Indian and Northern Affairs Canada** believes that Canada's economic and social well-being benefits from strong, self-sufficient Aboriginal and northern people and communities. Our vision is a future in which First Nations, Inuit, Métis and northern communities are healthy, safe, self-sufficient and prosperous - a Canada where people make their own decisions, manage their own affairs and make strong contributions to the country as a whole.

**Environment Canada's** business is protecting the environment, conserving the country's natural heritage, and providing weather and meteorological information to keep Canadians informed and safe. Environment Canada is building on its accomplishments with the environment through credible science, effective regulations and legislation, successful partnerships, and high-quality service delivery to Canadians.

Please note: The views expressed herein reflect solely those of the authors and do not necessarily represent the views of the Partners.



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