

4YR EOI: Reference No. 2007-1-71

[Forms](#) | [Download Summary](#) | [Logout rdeloe](#)

Do not log out without clicking the Next button for this page! Failing to do so will lose any changes you have made.

Summary

4YR EOI Summary

Project Leader

Name

Rob de Loe <rdeloe@uoguelph.ca>

Affiliation

University of Guelph
Department of Geography

Address

50 Stone Road East
Guelph ON
519-824-4120 x53525
519-837-2940

Project

RFP Being Addressed

Comparative analysis of the institutional capacity and results of implementing watershed-based source water protection strategies

Title of Proposed Project

Governance for Watershed-Based Source Water Protection in Canada: A National Evaluation

Target Users

Description

The proposed project has eight main target user groups: (1) provincial and territorial officials responsible for developing and implementing policies and programs relating to source water protection (SWP), specifically, and water management and land-use planning, generally; (2) municipal officials across Canada responsible for land use planning and implementation of water resources protection strategies; (3) local water management organizations with implementation responsibilities, e.g., conservation authorities in Ontario, Watershed Planning Advisory Councils in Alberta; (4) industries whose activities affect water quality or quantity; (5) civil society groups that participate in national and/or provincial policy making, or in stewardship at the watershed scale; (6) First Nations communities; (7) federal government officials in organizations with water management responsibilities, or who are involved in water policy development; and (8) academics and other researchers in Canada and around the world contributing to the study of effective SWP. Individuals in each of these target user groups have different motivations for adopting knowledge developed through this project, and must deal with different kinds of obstacles to adopting project outcomes. The following are selected key examples:

- Across Canada, provincial and territorial agencies, local governments, watershed management bodies, industries and First Nations communities are expected to collaboratively develop and implement SWP plans. However, specific technical and procedural guidance available to these people when designing and implementing SWP strategies is both limited and fragmented. The knowledge produced from this project will contribute directly to

filling this gap. To ensure that the knowledge generated by the project is accessible to these users, and thus to facilitate its adoption, stakeholders from these target groups will be involved as members of the project team and as partners throughout the life of the project.

- Provincial and territorial officials across Canada are struggling to devise appropriate policies and programs. In general, these people do not have adequate time or resources to conduct extensive reviews and evaluations of best practices in Canada and around the world. The proposed project will generate this knowledge, and therefore address this need. As well, knowledge communicated in the scholarly literature usually is not readily accessible to, or in an appropriate format for, these target users. Thus, involvement of these users in the design and implementation of the project, and in the development of appropriate Knowledge Translation strategies, will ensure that project outputs are accessible and adopted.
- Civil society actors in a variety of non-government organizations are participating on formal committees, acting as evaluators or critics of government programs, and providing resources to inform the work of other civil society organizations. Involvement of these organizations can be constrained by lack of technical, procedural and policy knowledge. Thus, people in these organizations can use the knowledge generated from the proposed project to support their efforts in these varying contexts. However, a failure to recognize the specific knowledge requirements of civil society actors can be a barrier to their adopting knowledge generated by project such as this. This concern is addressed by engaging key civil society actors early in the design phase and throughout the development of the proposed project as team members and collaborating partners (see Partners section).
- The proposed project will benefit from previous evaluations of SWP governance conducted by academics and researchers around the world.. In turn, by contributing to this literature from a Canadian perspective, this project will generate knowledge to support the work of these target users. User groups have two principle concerns about knowledge adoption. (1) A danger exists that people will transfer lessons inappropriately to their own contexts. (2) Generalizations from Canadian experiences may have limited relevance for other jurisdictions. These concerns are addressed in the proposed project through the international perspectives that the team members bring and through the Knowledge Translation strategy.

Problem/Issue

Description

The fundamental problem being addressed in this proposed project is how to improve governance for source water protection (SWP) in Canada. SWP is now broadly recognized in Canada as an essential precursor to drinking water safety (CCME 2002; O'Connor 2002). Contamination incidents in the town of Walkerton, Ontario, and North Battleford, Saskatchewan, were dramatic and well-publicized, but every province and territory in the country has faced threats to drinking water sources in recent years. As a result, governments across Canada are now taking steps to enhance SWP with the aim of reducing threats to drinking water safety (FitzGibbon and Plummer 2004).

A key underlying assumption in this proposed project is that failures to protect drinking water sources in Canada in recent years have resulted not from a lack of scientific understanding or technical know-how. Instead, most important were factors such as insufficient financial resources, weak standards, lack of skilled staff, rivalries among agencies, insufficient political will, and other persistent governance problems (de Loe and Kreutzwiser 2006). To illustrate, the contamination incident in Walkerton ultimately was caused by implementation failures in the areas of operations, oversight, monitoring, etc. The knowledge and technology that could have kept the water supply for this community safe were inexpensive and readily available (Michaels, et al. 2006b). Reasons for why they were not used fell primarily in the realm of governance (O'Connor 2002).

SOURCE WATER PROTECTION

Source waters are the raw water supplies in lakes, rivers and aquifers that provide water for drinking water systems. In its most specific sense, SWP involves identifying risks to source waters and implementing strategies that will help to ensure that the quality and quantity of these waters are not jeopardized (O'Connor 2002). SWP can involve a range of activities such as developing SWP plans, implementing land use controls, and modifying land management practices (de Loe, et al. 2005). The benefits of SWP are numerous. Protecting sources of drinking water is demonstrably less expensive than remediating and treating contaminated supplies (Job, 1996). More importantly, however, even properly operated water treatment systems can be vulnerable to contaminants such as *Cryptosporidium*, a waterborne parasite that caused the illness of 400,000 and the death of 100 people in the United States in Milwaukee, Wisconsin, in 1993 (Hrudey, et al. 2003). Of course, SWP also contributes to the quality of

aquatic ecosystems, a policy objective in many provincial water policies (e.g., the Water for Life strategy in Alberta). Consequently, SWP is recognized as a priority in jurisdictions around the world.

SWP can be viewed narrowly or broadly. In this EOI, a broad perspective is taken. SWP, it is argued, must be integrated with other considerations and decision making processes. Integration involves coordinating management of water quality and quantity; surface water and groundwater; different water use sectors; land use, water management and economic development; water use and ecosystem protection; and upstream and downstream stakeholder interests (GWP 2000). From this perspective, the watershed clearly is an appropriate unit for understanding and analyzing many SWP challenges (Pollution Probe 2004). However, a broadly-focused, watershed-based perspective on SWP increases the complexity of governance relative to narrowly-focused perspectives (e.g., well-head protection strategies) for reasons such as the following: (1) While the watershed often makes sense from a hydrological perspective, many critical decisions that affect source waters are made in the context of other administrative units (e.g., municipalities). (2) Watershed-based approaches typically involve a broader range of stakeholders, including traditional state actors (e.g., municipalities), civil society groups (e.g. watershed stewardship alliances), and water users (e.g., industries). Reconciling the diverse and often conflicting interests of these various actors in SWP governance at the watershed scale can be extremely challenging.

WATER GOVERNANCE

The term governance has many meanings. In this EOI, governance is defined as “the processes and institutions we use to make decisions about the environment” (World Resources Institute 2003). Governance is good, from this perspective, when decision making is transparent, when all stakeholders participate, when full accountability exists, and when environmental decisions are integrated with economic and development decisions. Governance has been recognized as a priority at the international level, in reports such as the United Nations’ 2003 report Water for People, Water for Life (World Water Assessment Programme, 2003). In Canada, improving water governance has been a major theme at a number of recent conferences and workshops. Examples include the Policy Research Initiative’s May, 2006 conference Freshwater for the Future; and Pollution Probe’s series of 5 workshops across Canada in 2006. In several important respects, outlined in the Project Description, this proposed project builds on the momentum established by these initiatives.

The concept of governance draws attention to the fact that it is not only governments-or the “state”-that can (and should) make decisions about the use and management of water. Instead, it recognizes that the participation of non-state actors-citizens, non-government organizations and businesses is essential for effective water management. More importantly, it emphasizes that decisions about the use and management of water resources should involve non-state actors because the state, through its various agencies, simply cannot do everything, and because some water management functions are best handled by other actors (Rogers and Hall, 2003). For instance, in many respects SWP will be realized by individual landowners understanding and acting on the need to implement best management practices on their properties. From this perspective, SWP is fundamentally a governance challenge.

GOVERNANCE CHALLENGES FOR SOURCE WATER PROTECTION

A systematic, coordinated research project that provides a comparative assessment of the regional and institutional contexts and initiatives of different provincial and territorial SWP experiences will permit addressing challenges that have not yet been effectively addressed in Canada. Importantly, capacity is a key concern in both of the following key examples of challenges..

1. Provincial and federal governments in Canada are constitutionally responsible for water management. However, many of the activities and strategies that are necessary for successful SWP involve local agencies and organizations and non-state actors. Unfortunately, as governance becomes distributed among an increasingly larger group of local and provincial stakeholders, accountability and capacity concerns increase. Thus, a key challenge for effective SWP will be finding the appropriate balance between state and non-state actors, and among the various scales at which water governance can occur (locally, regionally, provincially and nationally).
2. Historically, water has been seen as a resource to be managed separately from other considerations. Nowadays it is understood that water management must be integrated. Unfortunately, as noted earlier, while this broader perspective is essential to good governance, it also magnifies implementation challenges because it leads to considerably increased complexity. Thus, strategies for SWP are needed in all jurisdictions that (a) recognize the enormous variability in capacity to undertake SWP that exists at various scales across Canada (b) respect contemporary principles such as integration at the watershed scale, and (c) find the appropriate balance between regulatory and non-regulatory approaches to balancing environmental and economic objectives.

Project Outcomes

Description

The proposed project will produce a number of outcomes that, collectively, will address critical knowledge needs of the eight kinds of target users identified earlier, and will lead to enhanced capacity for SWP governance.

- With its focus on governance, rather than just the actions of governments, the project will draw attention to the critical role played by non-state actors in drinking water SWP, and to the broader connections between SWP and other governance issues. Additionally, it will identify the knowledge needs of these actors, their concerns regarding governance, and the capacity challenges they face. Through the various approaches used in the Knowledge Translation strategy described in the next section (e.g., workshops involving target users, plain language primers for target users, project web site), stakeholders from the major target user groups will have numerous opportunities to learn from each other regarding their needs, concerns and issues. Given the collaborative nature of SWP governance, this is an extremely important outcome of the project.
- The comprehensive evaluation framework to be used for the national evaluation will draw from emerging trends and experiences across the world, and by doing so, will contribute a thorough and critical review of international governance arrangements for SWP that will supply innovative models and exemplars with potential relevance for Canada. The project will make these international examples available to key target users in an accessible and relevant fashion. Adoption of insights from this part of the project is highly likely because key target users are involved throughout the project (e.g., as core members of the research team) (see Project Description and Partners sections).
- The proposed work will identify and evaluate innovative SWP governance mechanisms from across Canada, and will provide insights into factors that facilitate and constrain success. Through various outputs described in the Knowledge Translation strategy (below) the project will catalogue best management practices for SWP governance, including regulatory (e.g., statutes, local by-laws) and non-regulatory approaches (e.g., economic instruments that promote stewardship; educational processes and public consensus building processes that have been used throughout Canada and the world to achieve meaningful involvement in drinking water SWP and related objectives). Because the project is based on a participatory, interactive and adaptive research approach (see Project Description, below), the knowledge that will emerge from the evaluation will be highly relevant and accessible to the different user groups these people represent. This is an essential outcome because the involvement and active support of non-state actors is necessary for implementation of SWP.
- An important outcome from the project will be an enhanced capacity among target users to decide for themselves (1) what the appropriate balance is among the various state and non-state actors involved in governance, (2) what the appropriate balance is between regulatory and non-regulatory approaches, and (3) which approaches to SWP are likely to be most applicable in specific settings. The on-going effort in Ontario to find an appropriate balance between regulatory and non-regulatory approaches to SWP is just one example of the need for this outcome. Thus, a key aim of the project will be to ensure that target users will have the tools they will need to adapt knowledge from the project to help them decide what the most significant issues and challenges relating to SWP are, how to critically assess potentially innovative strategies for addressing those challenges, and how to select appropriate governance arrangements. Key to achieving this outcome will be tools that target users can use to evaluate the strengths and weaknesses of the SWP governance regimes in which they participate, and the opportunities and threats these users face (see Knowledge Translation strategy).
- Because of the collaborative nature of the work, the project will result in the creation of an interdisciplinary network of Canadian researchers and practitioners with experience in evaluating governance for SWP. Even the process of forming a team to produce this expression of interest has resulted in new collaborative relationships among researchers and partners that did not previously exist. Through the various activities that will occur during the four year life of the project, including collaborative research, and workshops for researchers, partners and target users, a substantial new network will be created that will outlast the 4-year life of the project. The highly diverse nature of the network that will be created through this project will enable the development of a long-term science-policy interface for SWP.
- Finally, the project has been designed to enable graduate students, research associates and assistants and postdoctoral fellows to take full advantage of the network of researchers and practitioners that will emerge from the project. For example, faculty researchers participating in the project will be members of graduate student committees, and will collaborate with the Research Associate responsible for undertaking key portions of the

project (see Project Description). Thus, a key outcome of the project is a cadre of highly qualified personnel with interdisciplinary skills for SWP, practical experiences from across Canada, and strong working relationships with key target users involved in SWP.

Knowledge Translation Strategy

Description

As noted in the description of the target users, the various stakeholders involved in SWP have very different knowledge needs, capacities to seek out and use new knowledge, frames of reference, and reasons for being involved. Additionally, because the project involves a national evaluation, the population of target users in Canada is enormous. For example, all provinces and territories have officials with responsibilities for SWP. Thousands of municipalities exist across the country, all of which face SWP challenges. Numerous national, regional, and local civil society groups are involved in SWP planning, as are different kinds of watershed management agencies. First Nations communities across the country are experiencing threats to drinking water sources. The Knowledge Translation strategy designed for the proposed project respects these basic facts, and builds on the considerable expertise within the project team (e.g., Pollution Probe 2004; Michaels, et al. 2006a; 2006b; Simpson, et al. 2006; Brandes, et al. 2006).

Specific elements of the Knowledge Translation strategy include the following:

- Plain language primers for practitioners are an essential knowledge translation tool. Pollution Probe's (2004) widely distributed Source Protection Primer effectively addresses basic principles of SWP, but governance issues are not emphasized. Therefore, throughout the project plain language documents and tools will be developed for lay audiences, e.g., primers on challenges and opportunities for SWP, and experiences across the country; a self-assessment tool that stakeholders can use to assess their own SWP governance structures to identify priority areas, weaknesses and strengths. Partners on the project team have considerable experience developing such plain language documents (e.g., Pollution Probe 2004; Brandes, et al. 2006).
- At various stages, workshops and conferences for researchers (including students and other highly qualified personnel), partners, and representatives from target user groups not yet involved in the project, will be held. Early workshops will be used to identify target user needs and concerns, and emerging SWP trends and to support development of the research methodology. Subsequent workshops will be used to communicate findings to target users and to permit network among key stakeholders. Wherever possible, workshops will be linked with existing events, e.g., meetings of key target user associations such as the Federation of Canadian Municipalities.
- Progress reports and briefing notes will be developed on a regular schedule and distributed to partners, for dissemination through their networks, and to a growing list of interested stakeholders and researchers.
- A project website will be used to present findings and activities of team members relative to the project. This website will be a clearinghouse of best practices, and will be an accessible, user-friendly source of information for people involved in SWP.
- Presentations by project researchers and core partners will be made over the life of the project in forums where target users will be in attendance, e.g., annual meeting of the Federation of Canadian Municipalities, Canadian Water Resources Association, Canadian Water and Wastewater Association, and the annual A.D. Latornell Conservation Symposium. Additionally, partners will play a key role in providing access to meetings that normally are closed to outside participants, e.g., regular meetings of SWP coordinators in Ontario.
- Finally, as a general principle, all outputs will be designed to demonstrate social and economic benefits in ways that are tailored to the various target users (e.g., a sustainable livelihoods focus for First Nations communities, versus a traditional economic perspective with a business case for industry). Partners will play a key role in helping us to understand the most appropriate perspective for their user communities.

Project Description

Description

The purpose of the proposed research is to undertake a comprehensive, national evaluation of governance for SWP in Canada that provides policy direction and innovative strategies. The core of the project will involve a comparison of institutional capacity for, and implementation of, watershed-based SWP governance strategies. Through this work, the project will identify and evaluate innovative governance approaches that have the potential to be broadly relevant across Canada, and which address the major governance challenges discussed earlier (see Problem/Issue Being Addressed).

To accomplish this overall goal the project will have three phases:

1. Development of an evaluative framework for SWP governance.
2. Systematic evaluation of governance for SWP in Canada using the evaluative framework.
3. Detailed analysis of regional case studies relating to key themes and concerns emerging from the framework and the systematic evaluation.

The overall research approach will be participatory, interactive and adaptive. As a result, interaction with key target users (and thus outreach and knowledge translation) occurs throughout all three phases.

PHASE 1: Development of Evaluative Framework for Source Water Protection Governance (Year 1)

The framework will (1) define the major elements of SWP, (2) establish governance principles and (3) specify criteria that will guide the evaluation. Development of the framework will be a major focus during Year 1, and will occur in a participatory fashion, involving researchers, and partners who have specific interests and expertise. A significant undertaking during this phase will be an inventory of SWP initiatives, across Canada and internationally. The inventory of Canadian initiatives will include identification of SWP approaches, state and non-state actors involved in SWP, and an initial scan of their interests (e.g., regulatory responsibility, concern for the resource). The systematic review of international experiences will provide insights into governance approaches, emerging challenges and lessons from other jurisdictions. A workshop in the middle of the first year will be used to bring together researchers, partners and target users to discuss and appraise a draft version of the evaluative framework. Once this is completed the framework will be implemented in Phase 2 of the research.

PHASE 2: National Evaluation of Governance for Source Water Protection (Years 2 – 4)

SWP takes very different forms in Canada's 10 provinces and 3 territories. Comparison and evaluation of SWP systems among provinces and territories will reveal the characteristics of governance approaches in each jurisdiction. For example, new legislation with a specific focus on protection of municipal water sources (the Clean Water Act) has been adopted in Ontario, and in many respects, SWP in Ontario is distinct from existing watershed management and water allocation systems. In contrast, Alberta's approach is integrated with water quantity and quality management initiatives through the broader Water for Life planning process.

To establish the foundation for subsequent work under this phase, SWP arrangements in all provinces and territories will be systematically documented and analyzed according to key considerations emerging from the evaluative framework (e.g., legal authority, roles and responsibilities of participants, linkages with land use planning). Data collection for this part of the research will involve a systematic review and analysis of key institutional arrangements (legislation and associated regulations, policies and programs) based on the evaluative framework developed in Phase 1. Key informant interviews with selected stakeholders involved in SWP in each jurisdiction will be central to providing depth to our analysis. It is expected that 15 or more key informants will be interviewed for each jurisdiction, drawn from all eight target user groups identified earlier. The primary goal of the interviews will be to learn more about the governance system in place and to fill gaps in our understanding of SWP governance. Our partners will play a key role in helping us to identify and interpret institutional arrangements, and select key informants. The project's full-time research associate, based in the Guelph Water Management Group, will be primarily responsible for completing the work, but he or she will receive support from the project researchers, research assistants and graduate students, and the various partners. A major output from this work will be a database that, once completed, will be updated during the life of the project. This database will form a critical resource for subsequent work in Phase 2 and Phase 3. This approach proved extremely successful in the first CWN project led by R. de Loe, where the database became a foundation and resource for a number of detailed studies conducted by various project users (www.uoguelph.ca/gwmg/wcp_home).

Once SWP governance structures have been reviewed and analyzed using the framework, we will conduct a systematic analysis of approximately six major governance concerns selected following a workshop in Year 2 involving target users and the research team. The purpose of the workshop will be to evaluate the preliminary list of governance concerns selected by the team based on Phase 1 and the first part of Phase 2. Workshop participants from the eight target user groups will be asked to comment on and evaluate a preliminary list of concerns, and to suggest additional ones (if appropriate) that better reflect their perception of central governance concerns in SWP. In this way, we expect that the roughly six concerns ultimately selected following the workshop will best reflect the

most pressing governance challenges. The project's full-time Research Associate will be responsible for organizing the workshop, under the direction of the project team members. The following are examples of key SWP governance concerns that we have identified from the literature (including previous work by project team members): integration of existing land and water stewardship at the watershed scale with new SWP initiatives; creation and maintenance of partnerships developed to address capacity challenges in SWP.

For each province and territory, we will analyze the extent to which the key governance concerns are addressed in laws, policies and practice at the scale of the entire province/territory. The analysis will be guided by explicit criteria or indicators developed for each concern. For instance, in the context of integration of existing land and water stewardship at the watershed scale with new SWP initiatives, an example criterion is the following: the extent to which social capital built up through previous stewardship initiatives is maintained as new SWP programs are introduced. Preliminary indicators will be developed during the workshop where the major governance concerns are identified. The database (i.e., the characterization of institutions for SWP governance in each jurisdiction) will be an important source of data. It will be supplemented by additional key informant interviews in each jurisdiction to fill in gaps (e.g., to clarify specific means through which social capital is maintained) and, where appropriate, by field work (e.g., site visits with stakeholders in each jurisdiction to identify and document actual practices). Key informants will be vital sources of data on innovations, and the ways in which legal requirements and policy guidelines are actually implemented in specific local areas. With assistance from researchers and partners in each province and territory, and graduate students working on complementary projects in Phase 3, the project's full-time research associate, working with student research assistants, will be primarily responsible for completing this analysis.

Once the national evaluation of the key SWP governance concerns has been completed, we will update the database, adding new insights and new information. Project outcomes relating to this phase will be synthesized into plain language outreach reports designed to be used as practical handbooks for target users. The budget proposed for this project will permit several workshops to be conducted throughout the study and specifically, for this phase, during Year 4 for the purpose of knowledge transfer and outreach. During the fourth year workshops with target users and other stakeholders the synthesis material will be presented and discussed and their application will be illustrated through a number of examples in the context of the case studies conducted in Phase 3.

Team members have extensive experience in undertaking in this kind of analysis (e.g., FitzGibbon and Plummer 2004; Bjornlund 2005; de Loe, et al. 2005; Doelle and Sinclair 2006; Ivey, et al. 2006; Michaels, et al. 2006b; Timmer, et al. 2007). With funding from the Walter and Duncan Gordon Foundation, the Guelph Water Management Group currently is completing a national evaluation of water allocation arrangements in Canada that has a similar design to the proposed project.

PHASE 3: Detailed Case Studies (Years 2 – 4)

During Phase 1 (development of the evaluative framework) and Phase 2 (the national evaluation of governance for SWP), numerous opportunities for detailed case studies will emerge. Some of these will reflect fundamental governance challenges evident in the literature, while others will reflect pressing knowledge needs of target users in various regions of the country. While it will not be possible to address all of these in this project, the research team will identify critical topics that demand detailed investigation by individual faculty researchers and their graduate students, working in collaboration with the various partners. Some of these detailed case studies will be focused on specific watersheds or regions, and will involve consideration of a number of key governance themes. For example, in agricultural watersheds, a number of governance issues relating to the role of the various stakeholders and the balance between stewardship and regulation come into play. Other detailed case studies may involve multiple watersheds, and comparative evaluation relating to only one key governance concern. For instance, watershed partnerships are a key mechanism in provinces such as Alberta, New Brunswick and Quebec; the role of these partnerships in the implementation of SWP, and capacity challenges they face, is one opportunity for comparative study. To ensure that data and insights produced by the detailed case studies contribute to the project's overall objectives, and yield information that is widely usable and accessible to researchers and partners, the detailed case studies will be carefully coordinated.

Methods that might be used in each of these studies will reflect the overall approach by being participatory, interactive and adaptive. Individual faculty researchers and their graduate students will carry the primary responsibility for the research identified, working in collaboration with the various partners. Graduate students will be given the latitude to develop their own research projects while still contributing to the overall goals of the project. The budget proposed for this study will permit each faculty researcher to undertake at least one detailed case study investigation with his or her graduate students during the life of the project. Researchers will be expected to develop stronger collaborative relationships with partners, and to secure additional matching resources to support

the detailed case studies they are undertaking.

Links to Other Work

Description

Federal and provincial/territorial government attention to water declined steadily during the 1990s (Bruce and Mitchell 1995). The contamination incidents in Walkerton and North Battleford marked a resurgence in concern for water in Canada, especially water governance. As a result, numerous water governance-related initiatives have been undertaken since 2000 by a host of government and non-government organizations in Canada, and around the world. The following are selected examples that relate well to the proposed project.

- The Guelph Water Management Group (www.uoguelph.ca/gwmg), under the leadership of R. de Loe and R. Kreutzwiser, has conducted applied, policy-relevant research on water governance since the mid-1990s. Governance for SWP was a funded theme within the group's program starting several years prior to the Walkerton incident, and remains a dominant focus alongside water allocation and climate change adaptation. The proposed project will be integrated into the GWMG's overall research program, and will build on previous collaborative research supported by the Canadian Water Network.
- The Walter and Duncan Gordon Foundation's (www.gordonfn.org) Freshwater Resources Protection Programme has been a major source of research and action relating to water governance in Canada. Through its grant making program, the Foundation has supported numerous organizations conducting water governance research, including three that are key participants in the proposed project (GWMG, POLIS, Program on Water Governance).
- The Program on Water Governance at the University of British Columbia (www.watergovernance.ca), under the direction of K. Bakker, conducts research and outreach on various themes relating to water governance. Through K. Bakker's participation on this project, the proposed work will be integrated into the Program's current and future research agenda.
- Through its Water Sustainability Project (www.waterdsm.org), the POLIS Project on Ecological Governance has undertaken research and outreach on water governance since 2003. Through O. Brandes' participation on this project, the proposed work will be integrated into POLIS' current and future research agenda.
- The Water Resources Research Unit at University of Lethbridge under the leadership of H. Bjornlund and K. Klein has conducted research into the water management practices of irrigators and intensive livestock producers in the South Saskatchewan River Basin and the processes and instruments that can be used to change these practices to achieve water improved governance and environmental outcomes.
- The Government of Canada's Policy Research Initiative (policyresearch.gc.ca) launched a major project relating to water governance and the role of the federal government in 2003. This project culminated in a major national conference focused on these themes in June, 2006. The PRI's Acting Executive Director (I. Campbell) has indicated a desire to work with the project team to ensure that links to the PRI's work are maintained, and expanded where possible.
- SWP has been an important focus for the Canadian Council of Ministers of the Environment (CCME) throughout the mid-2000s. The CCME's "Source to Tap" project (www.ccme.ca/sourcetotap) is an important resource for SWP. The proposed project will capitalize on knowledge generated through this project.
- Numerous NGOs with an interest in water have completed studies that provide baseline information and reveal key concerns pertinent to the proposed project. These include the Sierra Legal Defence Fund, Pollution Probe and the Canadian Environmental Law Association. Pollution Probe is a core partner in the proposed project; the team will build on work completed through Probe's 2006 national workshop series.
- Finally, through their international experiences and networks, project team members will draw on the experiences of jurisdictions such as the United States, the European Union and Australia, all of which have developed distinctive approaches to governance for SWP planning; international experiences will be examined as part of the proposed study.

Excellence/Strength of Project Team

Description

The project team comprises a core of faculty researchers, supported by research associates and postdoctoral fellows in their research groups, and core partners who will be involved in the design and execution of the project. The excellence and strength of the project team originates in numerous perspectives that are pertinent to governance for SWP.

As a basic principle, projects funded by the Networks of Centres of Excellence program must have “excellent” researchers. All the researchers involved in this EOI meet this test.

- Faculty researchers on the team have proven national and international expertise in water and environmental governance, generally, and in numerous areas of water governance pertinent to SWP. The team includes two “water governance-themed” Canada Research Chairs (de Loe, the Project Leader, and Bjornlund).
- The Project Leader (de Loe) has emerged as a national leader in the water management field. His advice on policy issues is sought by agencies and organizations involved in water management at all levels in Canada. He has secured \$3 million in academic research funding since 1995 from a host of funding agencies (83% as Principal Investigator). In 2002 he received a prestigious Premier’s Research Excellence Award from the Government of Ontario. He has been involved as a founding member and project leader in the Canadian Water Network since its inception.
- All faculty involved in the project hold or have held major national and international awards to support their research programs; six currently hold tri-Council grants (SSHRC and NSERC).
- All faculty researchers have published extensively on water and environmental governance in national and international peer-reviewed journals, and all have led, or have been involved in, multidisciplinary research projects. In addition to these basic indicators of excellence, the team behind this Expression of Interest (both faculty researchers and partners involved in the project’s design and delivery) demonstrates specific strengths essential for success in the project:
 - Several participants are part of existing water governance research groups that are prominent in Canada. The project leader (de Loe) is co-principal of the Guelph Water Management Group at the University of Guelph (with Kreutzwiser). Bakker directs the Program on Water Governance at the University of British Columbia, and Brandes is a key member of the POLIS Project on Ecological Governance at the University of Victoria. These team members bring not only their own expertise, but also the resources, staff, and expertise of their research groups.
 - Governance for SWP is exceptionally complex, and cannot be studied effectively from the perspective of only one discipline. The team includes faculty members with disciplinary expertise in geography (de Loe, Kreutzwiser, Bakker, Watson); economics (Bjornlund, Klein); planning (Michaels, Sinclair, Plummer); groundwater hydrology (Rudolph); and law (Sinclair). Partners and research associates involved in the design and delivery of the project bring a similar breadth of disciplinary expertise, e.g., law (Brandes, Nowlan), economics (Brandes), and groundwater science and policy (Simpson). The breath of disciplinary expertise represented on the team will permit a truly interdisciplinary evaluation of governance for SWP in Canada.
 - Governance for SWP does not occur in isolation from environmental governance in other contexts. Thus, expertise in governance in other pertinent sectors is an asset for a project such as this because it brings a broader perspective, access to solutions developed in other settings, and contacts with additional networks and potential partners. The project team members have considerable experience not only in water governance, but also in other pertinent realms such as co-management (Plummer, Sinclair), knowledge management (Michaels), forestry and environmental assessment (Sinclair), business management and property rights (Bjornlund), and First Nations issues (Sinclair, Plummer).
 - Research on environmental governance should be grounded in a variety of methodologies. Project participants bring considerable expertise in all the methodologies that will be used to accomplish the project’s objectives (see Project Description). Examples include the following: collaborative research with local stakeholders (Sinclair, Plummer, Bjornlund, de Loe, Kreutzwiser); systematic analysis and evaluation of institutional arrangements for water governance (de Loe, Kreutzwiser, Watson, Michaels, Bjornlund); economic analysis of institutional performance (Bjornlund, Klein); key informant interviewing (Michaels, Plummer, de Loe, Kreutzwiser, Watson, Bakker); and case study analysis (Kreutzwiser, de Loe, Michaels, Plummer, Watson, Bakker, Bjornlund).
- Canada’s water management landscape is exceptionally diverse due to the vast size of the country, and because of the high degree of institutional complexity that results from the division of responsibility for water under the Constitution Act. As a result, a national evaluation of SWP in Canada demands a team with expertise and experience across the country. Members of this team have been involved in several comprehensive national assessments of water governance (e.g., de Loe, Kreutzwiser, Brandes, Nowlan, Plummer); together, researchers and partners on the team have been involved in studies of water governance in virtually every region in Canada. Hence, through their research and professional experiences, and through the various networks in which they are embedded,

team members bring the experience and expertise needed to conduct a truly national evaluation of SWP in Canada.

- Canada is not the only country in the world facing water governance challenges. Therefore, a parochial perspective, grounded only in Canadian experiences, is unsatisfactory. In addition to Canadian experiences, members of the team have considerable experience in water and environmental governance in numerous countries and regions, including the following: Australia (Bjornlund, de Loe, Kreutzwiser); the United Kingdom and the Europe Union (Watson, Bakker); Africa (Bjornlund, Bakker, Kreutzwiser, Sinclair); India (Sinclair); the United States (Michaels, de Loe, Kreutzwiser), and New Zealand (Michaels). Researchers also are experienced in cross-national studies (e.g., de Loe, Michaels, Kreutzwiser, Bjornlund, Watson). Brought to bear on the challenge of SWP in Canada, these international experiences permit team members to capitalize effectively on lessons from other places, approaches that have not yet been tried in Canada, and networks of researchers and practitioners outside of Canada. As noted in the “Target Users” section, this range of experience will facilitate communication with an important target user group (academics in other jurisdictions).
- Finally, it is important to emphasize that team members collectively have exceptional access to target users for the knowledge that will be generated through the proposed research. All faculty researchers on the team are engaged in practical, policy-relevant research that demands continual interaction and collaboration with members of civil society, government officials, and water users across Canada in practice-oriented networks. At the same time, the team includes key partners who not only provide access to the organizations they represent, but also themselves are embedded in networks of practitioners (e.g., Brandes, Simpson, Lucas, Findlay), and who therefore can provide access to target users in these larger networks. As a result, the team is well grounded both in the theoretical and academic concepts of governance and in the practical structures in which governance arrangements will have to be implemented.

Partners

Description

Partners representing target user groups are essential to the success of the proposed project because they best understand the real, current knowledge needs within their user communities. Two kinds of partnerships exist in the proposed project: (1) partners who act as core members of the research team, and (2) partners who are collaborating with specific team members in a more limited or focused way. In selecting partners, we have concentrated on individuals who are “hubs” in their own extensive networks. Thus, all partners, whether core or collaborating, are a critical source of information regarding the priorities and knowledge needs of their respective target user groups. Additionally, all partners are conduits for the diffusion of project outcomes back to their respective user groups. Representatives of several target user groups will participate as CORE PARTNERS and members of the Research Team during the life of the project. Providing access to target user groups, shaping knowledge translation initiatives, and acting as members of the project steering committee, will be key roles. Core partner organizations so far include the following:

- The Walter and Duncan Gordon Foundation provides support to organizations involved in water governance research and has created an extensive network of civil society groups. Subject to submission of a proposal that is consistent with the goals and objectives of the Foundation’s program and approved by its Trustees, the Foundation will provide cash support to the proposed project in the amount of \$75,000/year for Years 1 and 2, with the possibility of continuation in Years 3 and 4. Brenda Lucas, Programme Manager, Fresh Water Resources Protection, is a core member of the team over the life of the project (representing an additional in-kind contribution of \$5,000/year for staff time, administrative support, office space).
- The POLIS Project on Ecological Governance has over the last 5 years developed a network of water practitioners, managers, policy professionals, elected officials, academics, associations and community activists. Oliver Brandes leads POLIS’ Water Sustainability program, and is a core member of the project team. He will facilitate access to POLIS’ extensive network of target users, and will participate in the design and execution of the project. Counting staff time, outreach and communications, office space and administrative support, POLIS’ in-kind contribution to the project is valued at \$20,000/year for four years.
- Pollution Probe is a non-profit charitable organization that works in partnership with all sectors of society to protect health by promoting clean air and clean water. Probe recently completed a series of workshops held across Canada on water policy, and will soon be releasing a new vision and strategy for water for Canada wherein SWP will be a key concern. Probe’s Director of Water Research, Rick Findlay, is a core member of the project team.

Probe has indicated an in-kind contribution of \$5,000/year for four years (staff time, administrative support, office space).

Note: If we are asked to develop a proposal, then we will add additional core partners representing provincial/territorial government, local government, conservation authority, industry, and First Nations.

COLLABORATING PARTNERS represent specific target user groups who are working with members of the research team (including core partners) to undertake the national evaluation, and to design and undertake specific case study analyses. Project team members have identified a host of organizations who wish to participate as collaborating partners in the national evaluation, and in detailed case studies, and who have indicated various kinds of in-kind and cash support (see Partner Contributions, below). Collaborating partners identified so far include representatives of government agencies, industries, and civil society groups. Team members also have held discussions with members of their extensive networks to seek provisional support for the project. If this EOI is accepted, then team members will mobilize their networks to secure additional collaborating partners and contributions.

Other Considerations

Description

REFERENCES CITED

- Bjornlund, H. 2005. Making Environment and Economics Meet for Sustainable Water Management. Proceedings of the annual CWRA Conference, Banff, Alberta.
- Brandes, O., T. Maas and E. Reynolds. 2006. Thinking Beyond Pipes and Pumps: Top 10 Ways Communities can Save Water and Money. POLIS Project on Ecological Governance.
- Bruce, J. and B. Mitchell. 1995. Broadening Perspectives on Water Issues. Canadian Global Change Program Incidental Report Series No. IR95-1. Ottawa, ON: Royal Society of Canada.
- CCME. 2002. From Source to Tap: The Multi-Barrier Approach to Safe Drinking Water. Winnipeg, MB: CCME.
- de Loë, R., R.D. Kreuzwiser, and D. Neufeld. 2005. Local groundwater source protection in Ontario and the Provincial Water Protection Fund. CWRJ. 30(2): 129-144.
- de Loë, R.C. and Kreuzwiser, R.D. 2006. Challenging the status quo: the evolution of water governance in Canada. Chapter in *Eau Canada: The Future of Canadian Water Governance*. ed. K. Bakker, pp. 85-103. Vancouver: UBC Press.
- Doelle, M. and Sinclair, A.J. 2006. Time for a new approach to environmental assessments: Promoting cooperation and consensus for sustainability. *EIA Review*, 26(2): 185-205.
- FitzGibbon, J. and R. Plummer. 2004. Drinking water and source protection: a challenge for integration in watershed management. In D. Shrubsole (editor). *Canadian Perspective on Integrated Water Resources Management*. Cambridge, ON: CWRA.
- Global Water Partnership. 2000. *Integrated Water Resources Management*. Stockholm, Sweden: GWP.
- Hrudey, S. E. and others. 2003. A fatal waterborne disease epidemic in Walkerton, Ontario. *Water Science and Technology* 47, no. 3: 7-14.
- Ivey, J., de Loë, R. and Kreuzwiser, R.D., and Ferreyra, C. 2006. An institutional perspective on local capacity for source water protection. *GeoForum*, 37: 944-957.
- Job, C. A. 1996. Benefits and costs of wellhead protection. *Ground Water Mon. and Rem.* 16, no. 2: 65-8.
- Michaels, S., Goucher, N. and McCarthy, D. 2006b. Policy windows, policy change and organizational learning: Watersheds in the evolution of watershed management. *Env. Mgmt.* 38:6:983-992.
- Michaels, S., N. Goucher and D. McCarthy. 2006a. Considering knowledge uptake within a cycle of transforming data, information and knowledge. *Rev. Policy Res.* 23(1):267-279.
- O'Connor, D. R. 2002. Report of the Walkerton Inquiry: Part Two, A Strategy for Safe Drinking Water. Toronto, ON: Queen's Printer for Ontario.
- Pollution Probe. 2004. *The Source Water Protection Primer*. Toronto, ON: Pollution Probe.
- Rogers, P. and A.W. Hall. 2003. *Effective Water Governance*. TEC Background Papers, No. 7. Stockholm: GWP.
- Simpson, H.C., J.P. Myslik, F. Ruf and E.P. Taylor. 2006. Communicating best management practices to rural well owners. *International Waterborne Pathogens Symposium*. AWWA.
- Timmer, D.K., R.C. de Loë and R.D. Kreuzwiser. 2007. Source water protection in the Annapolis Valley, Nova Scotia: lessons for building local capacity. *Land Use Pol.* 24: 187-198.