

## Regionalization of water infrastructure in Canada: a comparative study of conflict resolution approaches

C. Emdad Haque, Sheila Csapo and Richard Rounds  
Brandon University

**Abstract:** The principal objective of this study is to determine the means by which communities involved in cooperative water or wastewater projects resolve initial conflicts that occur during the negotiation process. Of particular interest are primary negotiations focusing on issues of fear of urban sprawl or the perception of loss of control. The study, employing a case study (Greater Vancouver, York and Halifax) approach, is of value to analysts and policy makers seeking guidelines for negotiating water and wastewater agreements. The case studies would serve as examples for guiding future inter-community projects. The findings of the study have revealed that regionalization of service and infrastructure presents a number of advantages including the sharing of capital costs, assurance of minimum service standards, a higher degree of coordination, long- and short-term operational savings, accountability and an increased ability to meet drinking water standards. Conversely, the disadvantages are less responsive administration of services, potentially higher costs in some components and the acceptance by smaller communities that the central city is of regional concern. The study further suggests that changes in leadership, provision of technical information and the imposition of deadlines assist in dealing with perceptions of gain or loss that may be encountered in the negotiation process. This research also demonstrates that water and sewage services are interconnected to sprawl, consolidation may be a deterrent to sprawl, and that a central city's refusal to extend water and wastewater treatment services may not prevent sprawl. Effective collaboration involves equitable mitigation of costs and distribution of benefits among participating communities, through a focus on long-range planning and a search for common ground.

## **Introduction**

Geographers, along with planners and practitioners, have long been concerned with the conflict between “place-specific” interests and their unique properties and the benefits from economics of scale through amalgamation of economic space. Such challenges often stem from urban sprawl, annexation of fringe communities, and loss of control in conjunction with cooperative water and wastewater infrastructure agreements. Understanding the processes of negotiation, compromise and conflict-resolution used by communities that have pursued inter-jurisdictional water or wastewater agreements is of utmost importance to the policy makers.

The significance of this study lies in determining issues that impact water and wastewater system negotiations and implementations which would assist the planning process in comparable future situations, and analysing different agreements and negotiation processes that provide cases of methods of resolving inter-community issues.

## **Conceptual Issues Concerning Inter-Municipal Water and Sewage System Cooperation**

A conceptual model of water systems conflicts and their resolutions is presented in Figure 1 to reflect the generalized issues and interconnections of the components in the systems. From an economic perspective, cooperative infrastructure development is an alternative for municipalities to bring greater efficiencies and cost effectiveness to large capital projects. From municipality and community perspectives however, the perception of loss of control, fear of urban sprawl and the threat of competition are the principal concerns. These elements are thus also barriers to inter-jurisdictional cooperation (Figure 1).

Fear of loss of power to make and/or control decisions is a serious impediment to multi-community collaboration. These fears specifically make it difficult for two communities to develop a cooperative agreement if the proposed collaboration is perceived

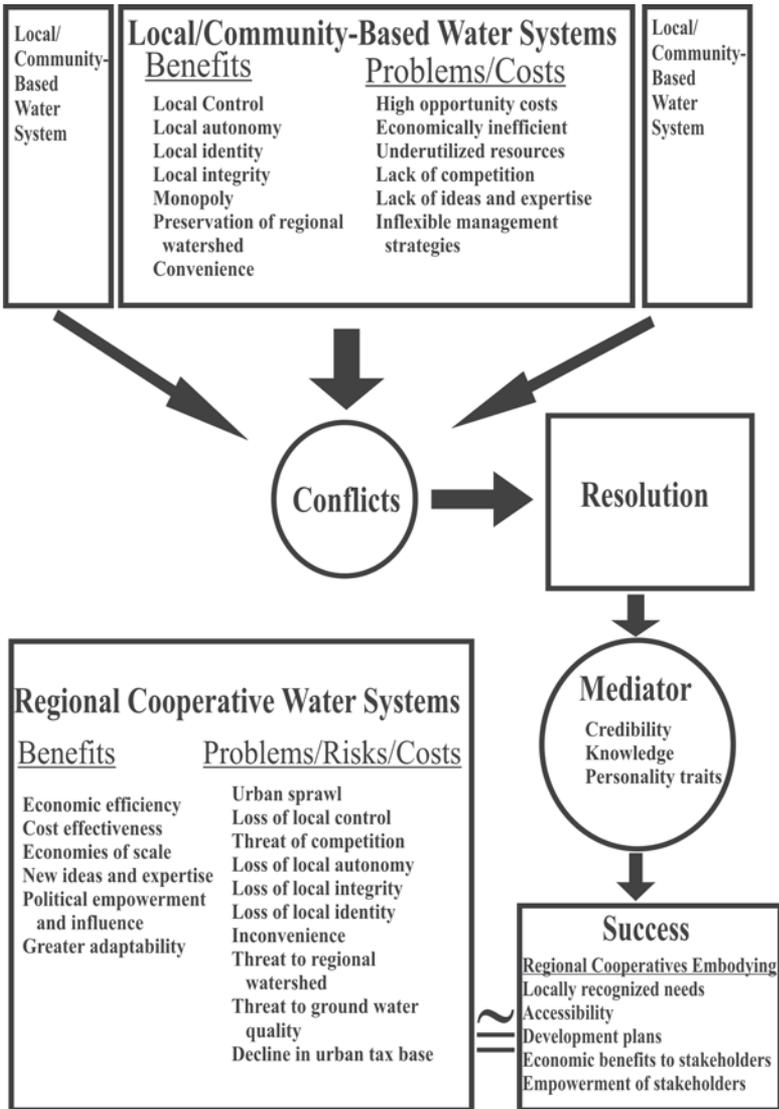


Figure 1: A conceptual model of water systems conflicts and resolutions.

as a potential cause of “loss of control, autonomy, community integrity, personal identity and/or convenience” (Hobbs 1992: 283-284). The perception that cooperation will result in greater loss than gain is demonstrated through resistance, lack of cooperation and lack of support. An example is the lack of cooperation between the City of Kingston and the Township of Ernestown, Ontario who assessed the options either to construct a new water system or to purchase surplus water from an existing conventional plant in Kingston. The perception of the Township was that the construction of a local water system would permit them to maintain local control over growth issues, service provision, and other community issues associated with local identity. Also, the City of Kingston delayed sending up-to-date technical information required for the Township of Ernestown’s feasibility study. Such delay was attributed to the City of Kingston’s fear that by providing the necessary plant information, they would miss an opportunity to wholesale water to the Township and to influence the community in other ways.

Conversely, collaboration may be viewed as a gain with little loss if the proposed ground for collaboration serves a “locally recognized need” (Hobbs 1992: 284). In North Dakota, U.S.A., for instance, five water systems have originated through the grass-root efforts in addressing the problem of good quality water in the majority of the district. The planning process, rather than stressing potential loss of control, focussed on the required initiatives and steps required to complete the project: defining the area, forming committees, defining the need, obtaining approval and funding from the state, securing public interest resources, and developing a detailed plan. Shaffer and Tweeten (cited in Korsching 1992) have summarized the costs of multi-community collaboration as: loss of local identity and control; high opportunity costs; lack of vision, goal and focus; and maintenance of collaborative efforts (Figure 1). They included the following items as benefits: synergism; economies of scale; new ideas and expertise; political empowerment and influence; and adaptability to emerging conditions and crises (reduced risk).

Disagreement about gains and losses also can contribute to the involvement of new participants or can recruit new leadership critical to a new direction required for multi-community solutions.

“Multi-community collaboration implies the creation of new action communities; networks of people organized to accomplish certain purposes on behalf of a community that have not existed before,” Hobbs (1992: 286) notes. He adds that it also means a sense of purpose and participation that leads to identification of problems and organized activity to address them. The appointment of a mediator with sufficient credibility, knowledge and personality traits also can be critical to resolving issues of fear of loss of control (Figure 1). The ability of the mediator to keep the process continuing and to obtain agreement on difficult issues is especially important (DeHoop 1997).

Fear of urban sprawl may lead to the absolute refusal by a central city to extend water and sewage services to surrounding suburbs. The consequence, in some instances, has been a decentralized and fragmented infrastructure system, and a central-city with a significant over-capacity of water. Uncertainty on the effects of urban sprawl also can become a major impediment to negotiating multi-community service and infrastructure projects because of its close relationship with infrastructure or development. General principles related to sprawl reveal that the extension of water and sewage services can be a direct determinant of growth (City of Salisbury Task Force 1998). Urban sprawl tends to increase the costs of providing other public services to a widely scattered population. Further, excess capacities may promote sprawling development, with costs for new services exceeding generated growth of local revenues. Sprawl, combined with excess tax burdens, has been known to trigger out-migration which leads to long-term reduction in property tax bases and further increases burden on the remaining residents (Wade Miller Associates 1987 cited in Landau *et al.* 1990).

Reid (1996) adds that other issues concerning urban sprawl center around the impacts of sprawl including environmental damage, such as ground water contamination and the threat posed to the regional watersheds, the decline in the urban communities’ tax base and the inter-municipality competition for assessments which may reduce the region’s ability to retain and expand the assessment base (Reid 1996). Conversely, DeHoop (1997) observed that consolidation can be perceived as a deterrent of sprawl. The

notion is that collaboration is a vehicle to enhance the “marketing” image of the central city allowing the region to compete more effectively, to provide more power and influence with higher levels of institutions, to offer a forum for directing urban growth through consistent and comprehensive land use policies, and to facilitate the creation of more compact and sustainable communities.

## **Regionalization of Water Infrastructure and Conflict Resolution**

Several criteria were employed in the selection of the three case studies that relate to the cooperative infrastructure agreements analysed in this paper. They included: (i) urban-rural water cooperative systems established by communities of high growth areas (Region of York, Greater Vancouver Water District), and cases in which water or wastewater services have been extended to bedroom communities (Halifax Regional Water Commission); (ii) recent (occurred in the past 10 years) water and sewage negotiations involving two or more partners. The selected case studies vary according to the degree of structural changes required for inter-jurisdictional water or sewage cooperation. For instance, the Greater Vancouver Water District is a federation of 16 member and two non-member municipalities; three communities – North Vancouver City, Langley Township and Langley City – have become members of the Water District in the 1980s and 1990s. The York Region Inter-Regional Water and Wastewater Agreements involve the sharing of infrastructure maintenance and capital costs. The three agreements with Peel, Durham and Toronto, originally formed in the 1970s, have been renegotiated in 1996 and 1997. The Halifax Regional Water Commission is a consolidation of the region’s four former municipal water utilities; a regional water system was formed following the amalgamation of Halifax and its surrounding communities in 1995.

## **The Greater Vancouver Water District (GVWD)**

The Greater Vancouver Water District (GVWD) was originally formed in 1924 through the Greater Vancouver Water District Act. The Act, which sets out the basic reporting arrangements, structure and context for the regional system, establishes the District as a legal corporate entity responsible for providing water services to the region. It also gave the GVWD the power to acquire water rights and to acquire and supply water (GVRD 1997).

The GVWD is a federation of municipalities that is owned by the taxpayers of the region and is governed by a Regional Board (Morris 1998). The Water District is also governed by and affected by the policies and strategies of the Greater Vancouver Regional District (GVRD), which was established in 1996 to provide overall regional management of the region. Vancouver was the original member of the GVWD. Most member communities joined the system prior to 1950; more recent partners have included North Vancouver which joined in 1984, the Langley Township in 1990, and Langley City in 1991. In some selective cases, a portion or all of the costs of adding the communities to the system were borne by the GVWD system as a whole. The GVWD Act permits member municipalities to supply water to another municipality but not the connecting infrastructure. The municipality's opportunity to supply water to neighboring municipalities is subject to the approval of the GVWD's Board (Office of the Legislative Council 1996).

The GVWD draws water from three watersheds: Seymour Lake, Capilano Lake, and Coquitlam Lake. The system's output is approximately 1,055 megalitres/day and has a peak output of two billion litres/day during the summer months. Its maximum watershed hydraulic capacity is 4,500 megalitres/day. The GVWD sells water as a standardized wholesale rate to its members and two non-members, who collectively have a population of 1.8 million. Members retail the water to their community and third-party recipients with whom they have agreements.

## **Urban Sprawl and Autonomy Issues and Strategies**

In recent years Surrey and the Township of Langley have expressed dissatisfaction with the water system because of the limits

on urban growth that the GVWD has imposed. They have revealed their interest in breaking away from GVWD's water system because of disagreements on growth management strategies. The City of Surrey however, is entirely dependent on the GVWD water supply; it has only a limited local water supply available from farm-based wells. Langley Township is experiencing annual population growth of three percent. Prior to joining GVWD in 1987, the Township was on a rural well system that often experienced contamination. The authority also believed that the public felt safer when water was supplied regionally. Continuity of water supply initially was a concern of the Township as it is located at the end of the pipeline. This was resolved through the expansion of the GVWD system, which involved interconnection of the watershed and the addition of river crossings. The benefits of joining the GVWD were lower sewage cost, fairer rates for residential customers, and a mechanism for metering industrial and commercial users (Mongracz 1998).

The most recent agreements on water supply have been volume-based, in contrast to the provision of unlimited supply, and have evolved because of the need to share the water supply with a larger number of partners (Morris 1998). In the case of rapidly growing areas, the GVWD has established an agreement (effective until 2011) that obligates it to provide specific volumes. The agreement with Langley Township stipulates that Langley Township cannot provide water services to Third Party participants prior to 2011. Langley Township has experienced an increase in their tax and water rates, but joining the system was a necessary step owing to the unreliability of their well system.

Both the GVWD and the GVRD have followed two main strategies for dealing with potential urban sprawl: (i) the Livable Region Strategic Plan, and (ii) the Regional Water Supply Plan. The Livable Region Strategic Plan focus on four fundamental guidelines for regional growth: (i) protection of green zone; (ii) building complete communities; (iii) achieving a compact metropolitan region; and (iv) increase mobility and transportation choice. The Regional Water Supply Plan provides a framework for meeting the region's water needs until 2041. Factors considered in developing the plan include the municipalities' demand projections, assessments of water supply sources, and projections

of infrastructure requirements for repair and construction of water mains, pump stations, and peak storage reservoirs.

The GVWD has not attempted to amalgamate any of its partners. The issue of annexation and amalgamation are not concerns to member municipalities; this is because the GVWD water supply is controlled by the federation and a corporate entity rather than by the City of Vancouver (Morris 1998; Mongracz 1998). Some municipalities have concerns about loss of autonomy but there is no strong element to feel threatened as all issues are openly discussed and voted upon through the federation's operation.

In sum, the key factors that have contributed to the GVWD's success include: the implementation of a public education program; the flexibility of the Livable Region Strategic Plan; its corporate structure which reduces fears of potential annexation; the creation of downtown centers to reduce urban sprawl, and; the ability of the GVWD to provide water more efficiently than members can provide individually. Difficulties of the GVWD include the municipalities' tendency to view issues from the local perspectives, the need to upgrade the system's water quality, the geographical extent of the system, and the need to justify the costs to the region as a whole.

## **The Region of York**

The Region of York, which was formed in 1971, consists of nine municipalities; it is one of the fastest growing of the five regions in Greater Toronto Area. York's population has increased from 166,060 in 1971 to approximately 635,000 in 1997, and is projected to reach 1.1 million by the year 2021 (Regional Municipality of York 1998). The Region of York lacks direct access to Lake Ontario, and Lake Simcoe provides some of York's water and wastewater needs via the King water treatment plant and the Georgina-Keswick wastewater treatment plant. The majority of its water and wastewater needs are met through three inter-regional agreements with Durham, Peel and Toronto (McGreggor 1998). These agreements, originated in the 1970s, were re-negotiated recently to reflect York's increased population, the transfer of

provincial power to the local level, and the region's long-term water and wastewater needs. During the re-negotiation process, the issues concerning the threat of industrial competition, the fear of urban sprawl, the fairness of rates, and the need for partner equality have re-emerged.

The Region of York's preferred solution for a long-term water supply and wastewater treatment plan was developed following a public participation process. The selection criteria were based on the region's statement of goals to secure water supplies to continue the region's future growth, rate stability and cost minimization, finance future infrastructure and protect the environment. Additional criteria included independence, reliability, sources of supply and economic benefits to the region. The York Region/Consumers Utilities Partnership formulated the preferred solution for water supplies to the region. It recommended a four-step phased strategy: (i) finalize the Metro agreement; (ii) implement a water-use efficiency program which would provide immediate cost savings for the region as well as defer capital expenditure; (iii) construction of a new water treatment facility at Lake Simcoe; and (iv) establishment of water supply facility to draw water from Lake Ontario via Durham (West).

### **The Interregional Water and Wastewater Agreements**

York and Durham's original interregional wastewater agreement was developed in the late 1970s and early 1980s. In the early 1990s, due to York's specific need for additional capacity, a new 80 million gallon/day plant was built; in 1997 the plant was expanded to have a 160 million gallon/day capacity and a new wastewater agreement was finalized between York and Durham. In regard to capital cost, the regions agreed that the portions of the wastewater distribution system located within their own region would be financed individually, and that the capital and maintenance cost of the main sewage trunk and the pumping stations would be shared (Murray 1998).

The principal variations between the new agreement and the original agreement are the commitment of the municipalities to specific flow levels, specificity with regard to payment is defined,

and York is recognized as a faster growing region. The two regions agreed that they would be responsible for the cost of maintaining the collection system within their own region, and would pay according to the flows, which are metered at the boundary. Built into the text of the agreement is that re-distribution will be permitted at a later date. The regions also agreed to permit an outside party to audit the meter on a regular basis and to have an open-book mechanism for deciding on capital costs.

Urban sprawl, loss of control or annexation, were not significant issues. The main reason is that prior to expansion of the wastewater plant, each region presented their official plans for development and the plant was built to meet anticipated demands. Growth was not a difficult issue because in both regions the residents informed the municipalities where they would like to live, not the other way around. The regions also found that because the agreement was interregional instead of inter-municipal, potential annexation was not a threat. Specifically, although individual municipalities still exist, political boundaries were not as pronounced because each regional government managed its own distribution and set rates for the region regardless of the size of the municipalities with their region (McGreggor 1998).

The York-Toronto Water Agreement was originally signed in 1974 with the assistance of the Province of Ontario. Within 20 years of the original agreement, however, the Region of York's water demands were at full-capacity and a re-negotiation process was undertaken to obtain additional water from Toronto. Some council members from the City of Toronto initially showed their reluctance to renew the agreement with York because of concern over the growth of York's urban boundaries. From the perspective of the City of Toronto, the key requirements in the agreement included restricting York's peak daily demand, ensuring that the agreement provided a return on infrastructure investment and ensuring that Toronto was not subsidising water rates in York. From York's perspectives, their projected growth was caused by Toronto's concentration of commercial areas and the naturally-occurring need for the workers to live somewhere nearby in order to fill these jobs. Eventually, York agreed to pay a dollar penalty if they exceeded their peak daily allowance, a 'power factor' (a premium

on their water rates to account for the additional power required to transmit the water from Toronto), and to share the capital costs of the connecting infrastructure.

The Peel Regional Council approved an interregional wastewater servicing agreement with the Region of York in September 1997. Under the servicing agreement, Peel provides wastewater services to Woodbridge (City of Vaughan, Region of York) and two future areas of development – an area located north of the existing community and a business area located between highway 27 and the Peel/York boundary. Servicing for York will begin in 2001 when the York/Humber pumping station will have reached full capacity.

The main benefits on this interregional partnership are: (i) both Peel and York save on infrastructure cost, obtain capital cost savings through shared infrastructure, obtain savings through the sharing of plant operation, maintenance and overhead cost while providing service to a larger customer base; (ii) Peel anticipates cost savings between \$63.2 and \$82.4 million over the next 30 years, and capital cost savings between \$10.4 to \$29.6 million; (iii) Peel will receive a return on assets of \$14.8 million from York for capacity rights, along with an additional \$38 million from York in contributions to the Infrastructure Reserve over the next 30 years; and (iv) York is able to service existing and future growth in Woodbridge and benefit from capital and operational cost savings as a result of connecting to Peel's system (Zamojc 1998).

Some council members of the Region of Peel were concerned that commercial interests might find the Region of York more attractive than Peel. These concerns however, were eased following a market assessment that advised Peel council members of the impact of renewing the water agreement. In particular, the report indicated that competition from York was not dependent upon a sewage treatment or water system.

In sum, the key factors of conflict resolution in York's interregional agreements included: open communication; full disclosure of supporting documentation; negotiators' previous working relationships; the development of each region's official plan prior to the commencement of negotiations regarding the water

and wastewater agreements, and; the equitable sharing of infrastructure and maintenance costs.

### **Halifax Regional Water Commission**

The Halifax Regional Water Commission (HRWC) was created by the Halifax Regional Municipality Act S.N.S. 1995. The Commission, a crown corporation owned by the Halifax Regional Municipality, is a union of the former Halifax County Water Utility, the Dartmouth Water Utility, and the Halifax Water Commission (Rooney 1998). The regionalization of the water system was mandated following a provincially enforced amalgamation. The choices for a model for the Regional Municipality of Halifax's water utility were: a) a municipal department-run system, b) privatization, or c) a Commission structure. A Commission structure was chosen because, of the three former water utilities, the Halifax Water Commission had the best performance record.

The Halifax Regional Water system serves approximately 69,000 connections and a population of approximately 325,000. Pockwock Lake and Lake Major are the main supply sources from which the system draws water. The Pockwock Lake Treatment Plant provides water services to Halifax, Bedford, Saxille, Lakeside and Timberly. The Lake Major Treatment Plant provides water services to Dartmouth, Eastern Passage, Forest Hills and Cole Harbour (Yates 1998). Seven smaller systems, serving a total of 25,000 residents in Halifax County, are operating in conjunction with the HRWC. No decision has been made whether or not these smaller systems will be integrated into the regional water system.

### **Issues and Strategies Concerning Regionalization and Loss of Control**

The Regional Municipality of Halifax is the process of developing growth management strategies. Prior to amalgamation, each of the former municipalities initiated capital projects that would have been pursued under normal circumstances, thus depleting their financial reserves (Meech and Vodicka 1997). It is less expensive now to develop in "unserviceable" areas, although

some of these areas have water quality and quantity problems (Dickson 1998).

The basic plan for growth management will be to have serviceable boundaries marked. Serviceable development will be permitted within the boundaries and only non-serviceable development will be permitted outside of the boundaries. The Halifax Water Commission also will assist in defining the growth boundaries, by examining which water trunks can be extended.

A Capital Cost Contribution Policy has been developed to manage the sharing of infrastructure cost for new and existing developments serviced by the Commission. The policy is designed for developers and deals with issues of who pays for infrastructure extension. The basic principle of the policy is “whoever benefits, pays.” The Capital Cost Contribution Policy applies to the entire municipality, with the implementation of specific charges to the Bedford South Water Service District. The policy has been developed in order to plan for the Regional Municipality’s anticipated new development and the accompanying demands for new infrastructure.

Political critics have denounced the merger for several reasons: (i) the transition cost are double the estimate made by Nova Scotia’s merger coordinator (\$22 million instead of \$10 million); (ii) property and business taxes (predicted to decrease following the merger) have increased by nearly 10 percent in some areas; (iii) costs have increased owing to higher service levels in outlying areas and the equalization of municipal employees’ salaries and wages, and; (iv) the merger was completed without local approval (McDonough 1997; Hamilton 1996).

All current partners initially were reluctant to join but had little choice because the amalgamation was a ‘shotgun merger.’ All four partners had concerns about losing their identity, absorbing each other’s debts, and changes in service levels. The City of Halifax felt the least impact from the amalgamation because the Commission structure remained the same and thus view the ‘new’ water system as having no net loss or gain. Dartmouth’s water rates have increased, but they realize that through regionalization their water quality problems will be resolved. Halifax County’s rates have decreased since the merger (Yates 1998).

Regionalization of the water and sewage infrastructure will prove to be a benefit to Dartmouth because the quality of water will be improved through the Lake Major Treatment Plant upgrade (Yates 1998). The merger also has given the area more “political clout” and stronger justification for additional provincial funding. The amalgamation of the municipalities however, has distanced the taxpayers from the decisions that most directly affected their lives.

## **Lessons for Manitoba’s Capital Region: Conclusions and Recommendations**

The study has examined three case studies to understand how communities have dealt with the challenges of urban sprawl, annexation, and loss of control in decision making in conjunction with water and wastewater infrastructure development. This approach has been employed to allow Manitoban municipalities to assess the processes other regions have undergone through an analysis of their dealings, benefits, lessons to be learned, and conflict resolution techniques.

The proposed Cartier Regional Water System Plan (Manitoba) included an infrastructure project, with an estimated cost of \$30 million, to bring potable water to Headingley Municipality, construction of a water treatment plant in St. Eustache, and the connection of Portage la Prairie’s pipeline to Winnipeg. Under the plan, Winnipeg would sell 240,00 gallons/day to a regional authority that would then sell the water to the rural municipalities of Headingley, Cartier, St. Francois Xavier and Portage la Prairie. The proposed agreement would allow Headingley to pump 75,000 gallons/day of sewage into the City’s westland sewage treatment facilities but limited the amount of additional sewage treatment to five percent each year. In return the City of Winnipeg would receive annual revenue of \$200,000 for its surplus water (Santin 1998a). Purported secondary benefits to Winnipeg and surrounding areas would include the development of region-wide waste management strategies, the attraction of new residents, and the attraction and development of industries.

Resolution of the dispute between the City of Winnipeg and the surrounding rural communities over the extension of Winnipeg's water and sewage system has come to a stand-still. In February 1998 the City Council announced that the City will not supply water and sewage services to the surrounding fringe communities as outlined in the Cartier Regional Water System Plan. The absence of a sewer line and treatment facilities restrict urban development in Headingley and other surrounding communities. Although the provincial government would provide a grant of \$2.1 million for the proposed project, Headingley's 1,600 population (1996 statistics) could not support the additional \$4.1 million of borrowing required for the project (Cole 1998).

The City of Winnipeg contends that the extension of water sewage services to the surrounding rural areas will lead to urban sprawl and a decline in its tax base. In particular, the City Council contends that most of the "new growth" in Headingley would consist of relocated Winnipeg residents. Other critics of the proposed project feel that once Winnipeg extends its services, other bedroom communities will want to join, and this will further increase urban sprawl issues (Santin 1998b). Others criticize the plan on the basis that Winnipeg will need all of its current excess water sewage capacity if it hopes to attract large industries.

The surrounding rural areas are concerned that forming a partnership with the City of Winnipeg would result in a loss of control over land use planning and other local issues. Winnipeg and Headingley have a history of conflict, which resulted in Headingley's secession from Winnipeg in 1992 over a dispute regarding water related issues.

Proponents of the Cartier Regional System Plan contend that without a water and sewage treatment agreement, Winnipeg will lose whatever 'say' it has on development in outlying communities, since the agreement puts limits on how rapidly the outlying areas can grow. Santin (1998c) notes that for political reasons, the provincial government is unlikely to agree to a deal that creates uncontrolled growth. The provincial authority however, has stated that Headingley and the fringe communities will receive water and sewage services regardless of whether or not Winnipeg provides them (Thompson 1998).

In light of the three Canadian experiences, the following recommendations have been formulated for addressing the emerging water and sewage infrastructure related issues in Manitoba:

(i) The Province should establish an information base that includes population projections, current and future water and wastewater demands, expectations on quality of life, and the environment;

(ii) Each potential partner should establish a statement of goals and an official plan for development;

(iii) The Province should establish a negotiation process that encourages clear and open communication, the full disclosure of supporting documents, and local acceptance;

(iv) The Province should assess 'what-if-scenarios' with consideration of the long-term consequences of the agreement, and attempt to create a situation where all parties would benefit;

(v) The Province should establish a commission to select a preferred solution from the 'what-if-scenarios';

(vi) Public participation should be utilized in selecting a preferred solution as it would create the grounds for making the agreement responsive to local needs and in establishing a solution reflective of the area's concerns, and;

(vii) Any agreement should be comprehensive enough to include definitions of levels of service, cost-sharing, growth management policies, and a formal arena in which regional issues can be discussed.

## **Acknowledgements**

The authors would like to express their gratitude and thanks to Manitoba Rural Development for funding this research project as well as the councilors, public work commissioners, mayors and water services managers who participated in the interview processes.

## References

- CITY OF SALISBURY TASK FORCE 1998 *Policies: Water and Sewer Services* Salisbury: CSTF.
- COLE, B. 1998 'Kill the deal' *Winnipeg Free Press* January 27: A10.
- DEHOOP, J.B. 1997 *Municipal Restructuring in Kingston-Frontenac: The 'How' and 'Why' of Local Government Consolidation from a Central City Perspective* Kingston, Ontario: Queen's University Press.
- DICKSON, P. 1998 Personal Communication, Telephone Interview on March 23 (Halifax: Planning Commission).
- GREATER VANCOUVER WATER DISTRICT (GVWD) 1997 *Livable Region Strategic Plan* Vancouver: GVWD.
- HAMILTON, G. 'Halifax finds big isn't always better' *Southam Newspapers* November 8: pp. 1-11.
- HOBBS, D. 1992 'Costs and benefits of multi-community collaboration' *Multi-community Collaboration: An Evolving Rural Revitalization Strategy Conference Proceedings* Ames, Iowa: North Central Regional Center for Regional Development, pp. 279-286.
- KORSCHING, P.F. 1992 'Multi community collaboration: an evolving rural revitalization strategy' *Multi-community Collaboration: An Evolving Rural Revitalization Strategy Conference Proceedings* Ames, Iowa: North Central Regional Center for Regional Development xi – xxvi.
- LANDAU, S.R. *et al.* 1990 *Infrastructure and Economic Development: MetroPlan 2000* Toronto: Metropolitan Area Planning Council.
- McDONOUGH, A. 1997 'Presentation at the Standing Committee on general government hearings on bill 103' February 13 Ottawa: Parliament of Canada Library.
- McGREGGOR, B. 1998 Personal Communication, Telephone Interview on March 24 (York: Director of Engineering, Region of York).
- MEECH, K.R., and VODICKA, R. 1997 'Hindsight is 20/20: planning for amalgamation in the Halifax regional municipality' *Cordillera Institute Journal* 1: pp. 8-11.
- MONGRACZ, M. 1998 Personal Communication, Telephone Interview on February 19 (City of Langley: Director of Public Works).
- MORRIS, J. 1998 Personal Communication, Telephone Interview on February 22 (Vancouver: Manager of the Greater Vancouver Water District).
- MURRAY, L. 1998 Personal Communication, Telephone Interview on March 25 (Durham Region: Works Department, Technical Support).
- OFFICE OF THE LEGISLATIVE COUNCIL 1996 *An Act to Incorporate the Greater Vancouver Water District: Consolidated for Convenience Only* Victoria: Queen's Printer for British Columbia.

- REGIONAL MUNICIPALITY OF YORK 1998 *York Region: Regional Profile*  
York: RMY.
- REID, B. 1996 'New agendas for regional government' *New City Magazine*  
17: pp. 14-20.
- ROONEY, B.S. 1998 Personal Communication, Telephone Interview on  
March 25 (Halifax: Halifax Water Commission).
- SANTIN, A. 1998a 'Deal means dollars for Headingley's Absentee Owners'  
*Winnipeg Free Press* January 27: A4.
- SANTIN, A. 1998b 'Water deal a drain on city?' *Winnipeg Free Press* January  
26: A1.
- SANTIN, A. 1998c 'Winnipeg pays in several ways, they contend' *Winnipeg  
Free Press* January 27: A4.
- THOMPSON, K. 1998 'Water, water everywhere....:Sharing makes sense'  
*Winnipeg Free Press* January 28: A15.
- YATES, C. 1998 Personal Communication, Telephone Interview on February  
16 (Halifax: Halifax Regional Water Commission).
- ZAMOJC, M. 1998 Personal Communication, Telephone Interview on March  
11 (Region of Peel: Commissioner of Public Works).