# WATER UTILITY REGULATION IN BRITISH COLUMBIA:

# A WAY FORWARD

by

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## ABSTRACT

There are mounting concerns with water management and utility regulation in British Columbia. Rapidly growing urban centres require substantial investments to expand water supply and renew existing infrastructure, but the rates charged for water supply do not reflect the costs of new supply investments. Wastewater treatment requires substantial investments to attain health and environment standards, but investment capital is scarce. These financial challenges are especially severe for smaller utilities. Facing capital shortages, local governments are increasingly looking to private ownership to build and operate water supply and wastewater facilities. Public concerns for water quality and urban watershed land management are rising. Demand reductions are recognized as a an alternative to new water supply investment, but little is being done to inform or encourage water consumers in this direction. The meager financial, managerial and technical resources of some of the province's smaller water utilities represent a particular challenge for regulators. Regulation of private water utilities is conducted by the Comptroller of Water Rights with the Ministry of Environment but this close link between government ministry and independent regulation is sometimes perceived as problematic. Overall, there is mounting pressure to recognize these concerns in reforming the province's system of water utility management and regulation.

This study addresses two questions: Which alternatives exist for the economic regulation of water utilities that would be appropriate for British Columbia? How might a new strategy be successfully implemented in the province? In order to answer these questions, several phases of research were carried out. The first was an evaluation of the existing system for water utility regulation in British Columbia based on four criteria: cost effectiveness, efficiency, equity and adaptability. The second was the identification of forces of change in the provincial water supply sector. The third was identification of institutional and regulatory alternatives that might be pursued to improve the existing system. A telephone questionnaire was administered to experts and representatives of affected interests in the province to gain a measure of the desirability and feasibility of various alternatives. The insight gained throughout the research informed the

development of a set of recommendations for the provincial government and economic regulators.

The key recommendations of the study focused on the institution responsible for regulation and on the jurisdiction and authority of that regulator. The first critical recommendation is to transfer the responsibility for water utility regulation from the Comptroller of Water Rights to the British Columbia Utilities Commission. The benefits of such a model include the administrative economy of scale associated with housing all utility regulation functions in one organization. The second key recommended change is to expand the jurisdiction and authority of the economic regulator to empower it to require and review integrated resource plans from privately-owned water utilities on a mandatory basis and from publicly-owned utilities on a voluntary basis. This practice would reduce the likelihood of misinvestment in the province. Further, it would also allow the regulator to ensure that investment decisions are based not only on financial costs, but also on relevant environmental and social considerations. The implementation of these reforms has the potential to improve the effectiveness, efficiency, and equity and adaptability of economic regulation for water utilities in British Columbia.

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# 1. INTRODUCTION

The general purpose of this report is to consider alternate models to the existing legislative and policy regime for water utility regulation in British Columbia, especially in light of the emerging issues and future challenges facing the water industry in the province. This chapter provides some background on those issues and challenges, describes in more detail the objective of, and terms of reference for, the report; and provides an overview of the structure of the remainder of the report.

## 1.1 Background

Concerns are arising that some elements of water utility regulation in British Columbia, as currently practiced under the existing legislation and regulatory system, could be improved. For example, a legal dispute between a developer and an irrigation district has brought into question the efficiency and effectiveness of regulation, as well as the ability of existing institutions to ensure that due process is followed.[1] At a broader level, the water sector in British Columbia is also undergoing transformation as local governments are beginning to look to private ownership to build and operate facilities related to water use.[2] Finally, a combination of factors have led to the evolution of social and environmental objectives: for example, rapid growth of urban populations placing greater demands on existing infrastructure[3]; increasing concern over water quality[4] and over urban watershed land management and disposition[5]; and the rising costs of treating and disposing of wastewater.[6] As a result, there is mounting public pressure to recognize and incorporate these factors in planning and regulatory processes.

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[1] Boudreau et al. (1996).

[2] Personal communication, Steve Davis, March 5, 1997. Personal communication, Donald Lidstone, March 11, 1997.

[3] NRTEE (1996).

[4] British Columbia, Ministry of Environment Lands and Parks (1993). Personal communication with Bruce Morgan, January 27, 1997.

[5] For example, in the Greater Victoria Water District (Perry, 1996a). Since the release of David Perry's report, the province decided, in January 1997, to adopt the recommendations contained in the report, key among them that the GVWD's non-catchment areas (4,900 hectares) become part of the Capital Regional District's park system.

[6] See note 3.

In the case of regulatory processes for water utilities, it is useful to review why regulation may be regarded as necessary for the water industry. In many public utility sectors, including the water sector, the business of providing a utility service is considered to be a natural monopoly, where one supplier can generally provide the service more cost-effectively than two or more.[7] Part of the reason for this lower cost, is that the existence of more than one supplier would result in a duplication of the utility infrastructure, which represents a substantial investment.[8] While a natural monopoly situation can result in lower average costs for consumers, it can also result in the monopolist maximizing its own profits at the expense of consumers if it is not prevented from doing so. It may also result in poor capital planning, neglect of the ongoing maintenance of the utility, and a deterioration in the quality of service. Also, where the costs of water supply expansion are above the average cost of the existing supply system, the pricing of water services will not send consumers the correct signal for the costs of their water use, resulting in over-consumption. Many privately- and publicly-owned water utilities are now facing a capital crisis in that they need significant infrastructure repair, upgrading and/or expansion but have no capital reserve funds set aside to cover such costs.

In order to constrain monopoly power, and thereby ensure fair rates for consumers as well as an acceptable standard of service, two main forms of intervention are commonly pursued in the water sector.[9] The first is for the utility to be placed under public ownership, usually by local government, such that the interest of consumers is protected through public control of rate setting. The second is for utilities under private ownership to be economically regulated by a public utility commission. Aside from protecting consumers' interest, economic regulation also assures utility owners a reasonable rate of return on their investments so that they can afford to continue providing essential water services to consumers. There are also non-regulatory alternatives for achieving the goals of consumer protection with respect to both price and quality in monopoly situations. For

[7] Glynn et al. (1992) at 1921.
[8] McGuigan and Moyer (1993) at 701.
[9] Jaccard (1995) at 580.

example, in the United States, some professional associations coordinate voluntary self-assessment, peer review and benchmarking programs that help utilities develop agendas for continually improving quality, efficiency, and customer satisfaction.[10] However, this report focuses on regulatory alternatives.

In British Columbia, as in the United States, where water utilities are regulated by public utility commissions, the move to explore regulatory alternatives is driven by the desire to improve cost effectiveness as well as the general effectiveness of programs in meeting public policy goals.[11] There are a number of key trends shaping these goals and factors posing challenges to their attainment. In its report on water and wastewater services in Canada[12], the National Round Table on the Environment and the Economy (NRTEE) identifies a number of these trends and challenges: the rising operational and maintenance costs associated with our water and wastewater systems; two significant market distortions, namely the absence of full cost pricing and user pay pricing; unmet maintenance needs for water infrastructure; new infrastructure demands on the horizon; and, fiscal trends.

In Canada, and particularly in British Columbia where water is relatively abundant (at least seasonally), water is under-priced. The report of the NRTEE[13] (mentioned above) describes two major market distortions in the water sector which result from such under-pricing. First, consumer prices do not reflect true cost (i.e., all operational and capital costs) of treating water and cleaning effluent. Second, water and wastewater infrastructure services are not provided on a user pay basis (either by customer class or by volume). The combined impact of these two market distortions is to: reduce the demand for technologies that minimize or avoid producing waste during processes using water (front-of-pipe environmental technologies); and remove the motivation for consumers to "adopt conservation oriented lifestyles, invest in eco-efficient end-use technologies, press

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[10] Hoffbuhr (1996).
[11] *Ibid.*
[12] See note 3.
[13] See note 3 at 8-9.

for more comprehensive conservation planning, or demand more efficient treatment of water and wastewater".[14] The end result is that Canadian demand on its water resources is excessive due to subsidized prices, and this poses a threat to our aquatic ecosystems.

Not only do Canadians pay lower rates for their water than consumers in other countries, but British Columbians also pay less for their water than the Canadians on average.[15] Given that water is increasingly becoming a scarce good (although in some cases only seasonally), and that many utilities' rates are not sufficient to cover the cost of providing water service over the long-term, it will be important for economic regulators to encourage a move towards rates that reflect the true cost of water. When water rates are artificially low, two things happen: the utility is not able to recover its costs; and consumption increases (or is elevated) in response to the low rates. This combination leads to a capital crisis: the elevated consumption leads to the need for system expansion which the utility has insufficient revenue for without significant capital expansion. Thus, better water pricing is key because it addresses the capital crisis currently facing many utilities.

When rising consumption is combined with other emerging trends -- rising infrastructure and operational costs for water and wastewater services, growing needs to repair or replace deteriorating water and wastewater treatment facilities, sewers and supply, and declining availability of public capital to pay the capital costs of water and wastewater systems -- it signals a threat to the long-term viability of water and wastewater systems.[16] In British Columbia, different solutions are being brought to bear to address long-term viability. For example, the provincial government is limiting the creation of new small utilities, which are especially vulnerable to non-viability, and encouraging the transfer of small utilities in unincorporated areas to public agencies (municipalities and regional districts) who have access to better financial, managerial and technical resources. In

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[14] See note 3 at 9.
[15] Speech by Cathy MacGregor, March 6, 1997.
[16] See note 3 at 9.

addition, public-private partnerships are being explored, both by municipalities and by the provincial government, as a solution to this fiscal dilemma.[17]

While these are clear steps toward addressing the viability issue, there may also be additional policies to be explored by economic regulators; for example, acquisition incentive and/or uniform ratemaking policies, which encourage larger private utilities or other investors with more capital and expertise to assume the responsibility of smaller utility operations. With respect to public-private partnerships, it is still unclear whether water and wastewater systems, operated under various models of public-private partnerships, should be subject to any form of economic regulation. A decision needs to be made on this issue so that if this category of utilities is added to the portfolio of water utility regulators, they can begin developing programs and policies to address the needs of those utilities.

A related issue facing the water sector is the need to rethink the supply-oriented focus that water planners have traditionally held. In the face of rising demand due to population and economic growth, planners have typically adopted supply management strategies which are options for increasing supply; for example, by expanding a reservoir or tapping into a new watershed. The alternative approach, referred to as demand management, involves all measures that reduce or alter the volume and timing of water use.[18] One progressive planning framework, which involves a balanced consideration of both demand and supply management options when engaging in capital planning for future water system investments, is that of integrated resource planning (IRP). Given the current level of social and environmental concern related to water management issues in British Columbia,

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[17] Personal communication, Donald Lidstone, March 11, 1997. The Association of Vancouver Island Municipalities has retained legal counsel to review the Municipal Act, identify actual and potential barriers to implementing public-private partnerships, and draft amendments to the Act which would remove those barriers. At their October 1997 Convention, the Union of British Columbia Municipalities will decide whether to endorse a package of proposed legislative amendments and submit it to the Province.

[18] As defined on p. 1-2 of a report by Compass Resource Management Group, "The Role of Demand-Side Management in Managing Greater Victoria's Water Supply: Needs Assessment and Evaluation", in Perry (1996b).

it may be desirable for water utility regulators to play an active role in encouraging, and possibly requiring, water utilities to carry out integrated resource planning.

Another final area of growing concern shared by economic, health and environmental regulators is water quality. In general, the quality of B.C.'s potable water supply is safe; however, in certain locations, national guidelines are not being met for all defined criteria.[19] Further, in recent years, B.C. has experienced a higher number of waterborne disease occurrences (up to 30 or 40% more) in drinking water relative to other Canadian provinces.[20] Public concern over these alarming statistics is rising and is providing the impetus for further action. This issue is also tied to that of capital planning and crises. Many water utilities in the province are in need of major upgrades to their systems, not because of elevated consumption, but in order to meet updated engineering and health requirements. As was mentioned earlier, most of these same utilities are not charging their customers the true cost of providing the water and have not set aside reserve funds for future infrastructure needs. Institutional, scientific, financial and logistical constraints still limit the ability of water purveyors and government to ensure a safe, reliable water supply for all British Columbians at all times.[21]

## 1.2 Objective

As these and other issues and challenges emerge in the water sector in B.C., opportunities exist to improve water utility regulation. These improvements may be brought about through changes to the legal, political, institutional and regulatory process elements of the existing system. The objective of this report is to review alternatives and address the following questions.

- ***Which alternative forms of economic regulation for water utilities are most appropriate for British Columbia?***
- ***How might a new strategy for water utility regulation be successfully implemented in the province?***

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[19] British Columbia, Ministry of Environment Lands and Parks (1997a).
[20] See note 15, Cathy MacGregror.
[21] See note 19.

This research focuses primarily on the role of the provincial government and its appointed entities, particularly its independent economic water utility regulator, in dealing with current challenges and emerging issues. It should be noted, however, that numerous other stakeholders will all play a role in shaping the future of the water and wastewater industry in British Columbia: the federal government, regional and municipal governments, labour, environmental groups, consumers, water management professionals and their associations, infrastructure and environmental technology companies, and private investors. The scope is also limited primarily to the regulation of privately-owned water utilities with respect to economic efficiency. However, the links between such regulation and the oversight of publicly-owned water utilities and publicly- or privately-owned sewer systems, as well as the links with environmental and health regulation, are also discussed.

## 1.3 Overview

The phases of research carried out to achieve the objective of the study are as follows:

- establishment of methodology;
- description of the existing institutional arrangements for water utility regulation;
- evaluation of the current system and identification of emerging challenges;
- review and discussion of alternatives; and
- development of recommendations.

A brief overview of the structure of the report is provided here.

Chapter 2 describes the methodology, analytical framework and other research tools used to carry out the research. The existing water utility regulation system in British Columbia is described in Chapter 3. Information was gathered from government reports as well as though personal communication with regulators and other affected/interested parties. The elements of the existing regulatory system that are described include: legislation and regulations; policies and guidelines; administrative structures; economic and financial arrangements; political structures and processes; historical trends; and key participants and

stakeholders. Chapter 4 presents an evaluation of the existing water utility regulation system in the province and identifies the key emerging issues and future challenges for the water industry in British Columbia. It is these issues and challenges which are forces for change and should be addressed in any reform.

The review of alternative strategies is a phase of the research which involved a number of steps, which are presented in Chapter 5. The first of these is a review of the generic rationale for economic regulation of privately-owned water utilities. The broad challenges facing water utility regulators are highlighted. The second is a review of research literature on general and water-specific water utility regulation, and of the experience of water utility regulators in other jurisdictions. The third is the solicitation of input from both regulators and affected interests in British Columbia through the administration of the telephone questionnaire (described in Chapter 2). The insight gained from participants' responses provides some measure of the applicability of various theoretical or generic alternatives in the British Columbian context.

Finally, a series of recommendations is presented in Chapter 6. The information collected throughout the research was used to develop the recommendations regarding regulatory alternatives which have the potential to improve performance and could realistically be implemented in British Columbia. Implementation issues and strategies are discussed, and items for action and research are highlighted.

## 2. METHODOLOGY

Previous evaluations of water utility regulation in British Columbia have focused primarily on the activities of the Utility Regulation Section under the Comptroller of Water Rights.[22] The intent of the present study is to build on these efforts and broaden the focus to include related organizations and processes as well. Institutional arrangements for water utility regulation are of key interest. They include the "structures, processes, and policy approaches for making public decisions and for influencing the behaviour of individuals, groups and firms."[23] In this report, the performance and policies of the appointed independent economic regulator, in this case the Comptroller of Water Rights (Comptroller), are evaluated. The relationship of the Comptroller to other provincial agencies and to local governments is also addressed. The focus is primarily on the regulation of privately-owned water utilities with respect to economic efficiency. However, the links between such regulation and the oversight of publicly-owned water utilities and publicly- or privately-owned sewer systems, as well as the links with environmental and health regulation, are also discussed. The following sections describe the underlying process used to achieve the address these issues and the various phases of research and analysis.

### 2.1 Scoping the Issues

Information was gathered from government reports as well as though personal communication with regulators and other affected/interested parties. These include representatives from: the Utility Regulation Section acting for the Comptroller of Water Rights; the Ministry of Environment, Lands and Parks; the Ministry of Health; the Ministry of Municipal Affairs; water and wastewater management professional associations; municipal governments; the Union of British Columbia Municipalities; owners / operators of privately-owned utilities; private firms and consortia involved in financing private utilities; legal counsel for various parties; and, environmental groups.

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[22] British Columbia, Ministry of Environment Lands and Parks (1996c), Ernst and Whinney (1986).
[23] Mann (1983) at 116.

The elements of the existing regulatory system that are described include: legislation and regulations; policies and guidelines; administrative structures; economic and financial arrangements; political structures and processes; historical trends; and key participants and stakeholders.

## 2.2 Identification of Forces of Changes

This phase of the research involved two main steps: evaluating the existing system, and identifying emerging issues and future challenges for B.C.'s water industry and water utility regulator. The main research tool employed in this phase of the research is a set of evaluative criteria (described below), selected to assess the current performance of the water utility regulation system. These criteria were used in combination with a ranking scheme as part of a telephone questionnaire (see Section 2.3.2 and Figure 2-1) administered to water utility regulators and affected interests. Discussions with telephone survey participants and other personal communications contributed to the identification of emerging issues and future challenges which should be addressed under any reform.

A number of sources were consulted in selecting the evaluative criteria for use in the study. These include: an earlier evaluation of B.C.'s Utility Regulation Section / program[24]; a recent Water Utility Regulation Program review[25]; other evaluative government reports[26]; and, case study research literature.[27] After reviewing the criteria set forth in these various documents, the following criteria were chosen based on their perceived ability to assess key aspects of B.C.'s regulatory system.

The first criterion is that of administrative and cost effectiveness. It evaluates the ability of the utility regulator to achieve its goals in a manner which is both administratively and cost

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[24] Ernst and Whinney (1986).
[25] British Columbia, Ministry of Environment Lands and Parks (1996c).
[26] Perry (1996a) at pp. 39-41.
[27] Watson et al. (1996).

effective. The following five principles provide a basis for determining how well this criterion is being met.

- *Degree of cost recovery*: the regulator should engage in cost recovery to recoup the administrative costs of regulation to the maximum extent possible.
- *Minimization of regulatory costs*: the regulator should run cost effective regulatory programs.
- *Adequacy of skills and resources of regulators*: the regulator should have enough financial resources and adequate human resources with appropriate skill sets and expertise to fulfill its mandate.
- *Clear distinction of roles and mandates among regulators*: the roles and mandates of entities regulating various aspects of utility activities, such as drinking water quality, economic efficiency and environmental behaviour, should be clear and distinct.
- *Degree of coordination*: the activities, programs and policies of the water utility regulator should be coordinated both with those of environmental and health regulators, and with those of regulators responsible for wastewater systems and watershed management.

The second criterion focuses on the regulator's ability to promote economic efficiency in the water sector, using the following principles as indicators.

- *Financial viability of utilities*: the regulator should control the proliferation of non-viable utilities, and ensure that existing utilities have rate structures which allow them to become/remain financially viable without earning any extra returns.
- *Degree to which rates reflect the true costs of water*: the regulator should set rates which approximate or reflect costs, subject to other rate setting considerations and other regulatory objectives (e.g. health and environmental regulations).

The third criterion focuses on issues related to equity and the regulator's efforts to ensure that both regulatory processes and outcomes are fair such that the interests of ratepayers and utility operators are balanced. The following two indicators were used.

- *Equitability of processes*: there should be mechanisms in place to ensure public input into the regulatory process and to ensure appropriate action is taken on public appeals (public accountability).
- *Fairness of outcomes*: regulation should result in the outcomes which balance the interests of ratepayers, utility operators and other affected parties.

The final criterion evaluates the regulator's ability to adapt to changing conditions in the future using the following characteristics as indicators.

- *Adaptive capacity*: the regulatory system should be flexible enough to respond to changes in relevant social, political, economic and environmental factors, including other provincial initiatives, policies and legislation.
- *Range of management choice*: the regulator should be able to innovate and implement a broad range of regulatory policies and procedures to fulfill their mandate.
- *Flexibility to tailor regulation*: the regulator should be able to tailor its policies and procedures when regulating utilities of different size and ownership.

### 2.3 Review of Alternative Strategies

The review of alternative strategies is a phase of the research which involved a number of steps. The first of these is a review of the generic rationale for economic regulation of privately-owned water utilities. This step identified the broad challenges facing water utility regulators. The second is a review of: current research literature on water utility regulation, as well as on regulation of public utilities in general; and the experience of water utility regulators in other Canadian provinces and other countries. This step identified the broad range of regulatory alternatives which can be pursued in the realm of

economic regulation. The third is the solicitation of input from both regulators and affected interests in British Columbia through the administration of the telephone questionnaire (described below). The insights gained from participants' responses provides some measure of the applicability of various theoretical or generic alternatives in the British Columbian context.

Two main tools were used during this phase of the research. The first is an analytical framework to structure the discussion of regulatory alternatives. The second is a telephone questionnaire (including a section on evaluation of the current system, using the evaluative criteria described above in Section 2.2 in combination with a ranking scheme) to solicit the input of both regulators and affected interests in British Columbia and gain some measure of the applicability of various theoretical or generic alternatives in the British Columbian context. These tools are described in detail below.

### *2.3.1 Analytical Framework*

Improvements to the current system of water utility regulation may be brought about through changes to the legal, political, institutional, and regulatory process elements of the existing system. For example, regulatory alternatives for various aspects of the current system can be identified: the institutional structure; organizational resources; scope of jurisdiction and authority; and methods of oversight; viability policies and assessment methods[28] (see Table 2-1). This categorization of regulatory alternatives is used as an analytical framework throughout the report (especially in Chapters 5 and 6) to structure the discussion of options for British Columbia.

[28] See note 92.

Table 2-1: Analytical framework for discussing regulatory alternatives.

| | |
|---|---|
| Institutional Structure | Which agency (if any) should regulate water utilities for economic purposes? |
| Organizational Resources | What organizational resources are required to support the cost of regulation and how would they be recovered? |
| Scope of Jurisdiction | Who are the regulated water utilities and what are the thresholds (e.g., revenue, size of utility) that define jurisdiction? |
| Scope of Authority | How will regulated utilities be regulated in terms of the scope of authority over rates, returns and other issues? |
| Methods of Oversight | What specific regulatory tools are required for oversight of the water industry? |
| Viability Policies and Assessment Methods | What specific policies and assessment methods are required to ensure the long-term viability of the water industry? |

Source: Adapted from Beecher (1995a), p. 105.

### *2.3.2 Telephone Questionnaire*

The second tool used to carry out this phase of the research is a telephone questionnaire. As noted in the introduction, during the early stages of research, information was collected regarding: broader trends in the water sector; more specific issues and challenges facing water utility regulators in B.C.; and the variety of regulatory alternatives available to water utility regulators being explored nationally and internationally. The insight gained from this research informed the design of a telephone questionnaire. The intent was to survey key government agencies and other affected stakeholders in the province to gain some insight into both the receptivity of various parties to regulatory alternatives and the feasibility of implementing regulatory alternatives. The questionnaire did not attempt to deal with all categories of regulatory alternatives outlined in the analytical framework (see Table 2-1). It focused primarily on the institutional structure (identity of the regulator), the scope of jurisdiction, and to a limited extent, the scope of authority with respect to utilities operated under public-private partnerships. The evaluation section also addressed, again in a limited way, the allocation of organizational resources. Given that not all the

survey participants are familiar with alternative methods of regulatory oversight, these were not explicitly addressed in the questionnaire.

The survey included 9 questions divided into three sections (Figure 2-1). The first section (3 questions) explored responses to alternative scopes of jurisdiction: what ownership structures justify the economic regulation of a water utility? Alternative scopes of authority were also considered in this section in the context of public-private partnership structures. The second section (5 questions) explored responses to alternative identities for the provincial economic regulator: which provincial entity should be responsible for economic regulation? The final section (1 question, 13 subsections) asked respondents to evaluate the current regulatory system based on a ranking system and the evaluative criteria described above.

A total of 12 potential participants were approached to complete the survey, all of whom accepted. These participants were chosen for their ability to represent the interests of a variety of government agencies, private organizations and independent stakeholders. The sample included one or two participants representing each of the following interests:

- the Utility Regulation Section (which carries out the day to day responsibilities of the Comptroller of Water Rights with respect to economic regulation);
- other sections/branches of the Ministry of Environment, Lands and Parks (which administers the environmental regulation of water systems and wastewater discharges);
- the Ministry of Health (which administers the regulation of all water systems and some wastewater discharges with respect to human health protection);
- the Ministry of Municipal Affairs (which oversees the provision of water and wastewater service provision in unincorporated (rural) areas);
- water and wastewater management professional associations;
- municipal governments expressing interest in and engaging in public-private partnerships for the provision of water and/or wastewater services;
- the Union of British Columbia Municipalities;

- private firms involved in financing/operating water and wastewater systems operated under public-private partnership agreements;
- owners / operators of large privately-owned and/or regulated water utilities;
- legal counsel for various parties; and
- environmental groups.

The insight gained from participants' responses provided some measure of the performance of the existing regulation system and of the applicability of various theoretical or generic alternatives in the British Columbian context. The results of the evaluation section of the questionnaire are presented in Chapter 4, while the responses to the first two sections of questions are discussed in Chapter 5.

Figure 2-1: Telephone questionnaire.

***Throughout the survey, the word regulation, unless otherwise specified, refers to economic regulation of utilities. Regulation to protect human and environmental health is not explicitly addressed here. The first set of questions ask about government intervention and the need for provincial economic regulation of water utilities and wastewater utilities.***

1. Do you think that any government intervention, in the form of economic regulation, is warranted for ***water*** utilities under the following kinds of ownership:
   - public ownership (e.g. owned and operated by a public agency: municipality, regional district, improvement district) ❒ YES ❒ NO ❒ DEPENDS
   - private ownership (e.g. owned and operated by a developer or investor) ❒ YES ❒ NO ❒ DEPENDS
   - public-private partnership (e.g. owned and operated jointly by the public and private sectors under a variety of models) ❒ YES ❒ NO ❒ DEPENDS

2. Do you think that any government intervention, in the form of economic regulation, is warranted for providers of ***wastewater*** services under the following kinds of ownership:
   - public ownership (e.g. owned and operated by a public agency: municipality, regional district, improvement district) ❒ YES ❒ NO ❒ DEPENDS
   - private ownership (e.g. owned and operated by a developer or investor) ❒ YES ❒ NO ❒ DEPENDS
   - public-private partnership (e.g. owned and operated jointly by the public and private sectors under a variety of models) ❒ YES ❒ NO ❒ DEPENDS

3. Assuming that the provision of water and wastewater services through public-private partnerships will be subject to some form of provincial regulation, what aspects of their functioning should be regulated?

***The next set of questions assume that some form of provincial economic regulation is occurring, and ask you to identify which provincial entity should be the regulator.***

4. Do you think that the ***economic*** regulator and ***environmental*** regulator of water (and possibly wastewater) utilities should be the same entity?
   ❒ YES ❒ NO
   Why?

5. Do you think that the economic regulator of ***water*** utilities and providers of ***wastewater*** services (assuming the latter were economically regulated) should be the same entity?
   ❒ YES ❒ NO
   Why?

6. Who do you think should regulate ***water*** utilities with respect to economic efficiency?
   ❒ British Columbia Utilities Commission (BCUC)?
   ❒ Utility Regulation Section under the Comptroller of Water Rights?
   ❒ Other: _____

   Why?

Figure 2-1: Telephone questionnaire (continued).

7. Assuming that ***wastewater*** utilities were to be regulated, who do you think should be their economic regulator?
   - ☐ British Columbia Utilities Commission (BCUC)?
   - ☐ Utility Regulation Section under the Comptroller of Water Rights?
   - ☐ Other: _____

   Why?

8. Assuming that the staff of the Utility Regulation Section under the Comptroller of Water Rights remains the economic regulator of water utilities, should the section:
   - ☐ YES ☐ NO remain housed in the Water Management Branch of the Ministry of Environment?
   - ☐ YES ☐ NO be moved to arm's length of government?

   Why?

***The next set of questions asks you to evaluate the existing regulatory system for water utilities. The ranking scale is set from 1 to 5 in the following way:***

***1 = the existing system is excellent***
***2 = the existing system is good or adequate***
***3 = you are neutral or uncertain***
***4 = minor improvements to the system are needed***
***5 = major improvements or reforms are needed***

***Please rate the following aspects of the existing water utility regulation system in B.C.:***

| | Excellent 1 | Good 2 | Neutral Don't Know 3 | Minor Changes Needed 4 | Major Changes Needed 5 |
|---|---|---|---|---|---|
| Administrative and Cost Effectiveness | | | | | |
| 1. degree of cost recovery for regulation programs | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. cost effectiveness of regulatory programs | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. adequacy of skills and resources of regulators | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. clear distinction between mandates of various regulators (health, economic, environmental) | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. coordination between provincial regulators (health, economic, environmental) | ☐ | ☐ | ☐ | ☐ | ☐ |
| Economic Efficiency (ability of the economic regulator to promote economic efficiency in the water supply sector) | | | | | |
| 6. the economic regulator' control of the creation of non-viable utilities | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. ability of the economic regulator to ensure that existing utilities have rate structures which allow them to become/remain financially viable without earning any extra returns | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. ability of the regulator to set rates which reflect costs, subject to other regulatory objectives | ☐ | ☐ | ☐ | ☐ | ☐ |

Figure 2-1: Telephone questionnaire (continued).

| | Excellent 1 | Good 2 | Neutral Don't Know 3 | Minor Changes Needed 4 | Major Changes Needed 5 |
|---|---|---|---|---|---|
| Equity (fairness of regulatory processes and outcomes) | | | | | |
| 9. fairness of the processes soliciting public input, or dealing with disputes, appeals, and complaints | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. degree to which outcomes (e.g. rate structures) balance the interests of ratepayers and utility operators | ☐ | ☐ | ☐ | ☐ | ☐ |
| Adaptability (ability to adapt to changing conditions in the future) | | | | | |
| 11. the system's response to changes in relevant social, political, economic and environmental factors and priorities, including other provincial initiatives, policies and legislation | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. the regulator's to implement a broad range of management initiatives, policies and procedures to fulfill their mandate | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. the ability of regulators to tailor their policies and procedures when regulating utilities of different size and ownership | ☐ | ☐ | ☐ | ☐ | ☐ |

# 3. THE EXISTING REGULATORY REGIME

## 3.1 Introduction

A variety of mechanisms have evolved over time to deal with the need for regulation of various aspects of water utility operation in British Columbia. These have grown in complexity over the years to form a system of overlapping institutions. This chapter will describe the history, and state of current regulation, of both public and private water utilities with respect to drinking water quality, economic efficiency and environmental considerations. Some of the characteristics used to describe the existing regulatory system are: legislation and regulation; policies and guidelines; administrative structures; economic and financial arrangements; political structures and processes; historical trends; and, key participants and stakeholders.[29]

First, however, it is useful to describe the main components of water and wastewater systems, and the main characteristics of the water industry. It is also important to highlight the various aspects of the water industry, and activities of water utilities, which require regulation in order to protect the health and pocketbooks of consumers, as well as the environment. Furthermore, the allocation of regulatory functions among various provincial agencies in British Columbia is better understood in the context of the structure of the water industry: there is a wide variety of institutions providing community water services throughout the province.

## 3.2 Water: System Components, Industry Characteristics and Regulation

There are a number of components which form a community water and wastewater system (Figure 3-1). These include: bulk storage reservoirs, water treatment facilities, service storage reservoirs, pumping stations, distribution systems for delivering water to

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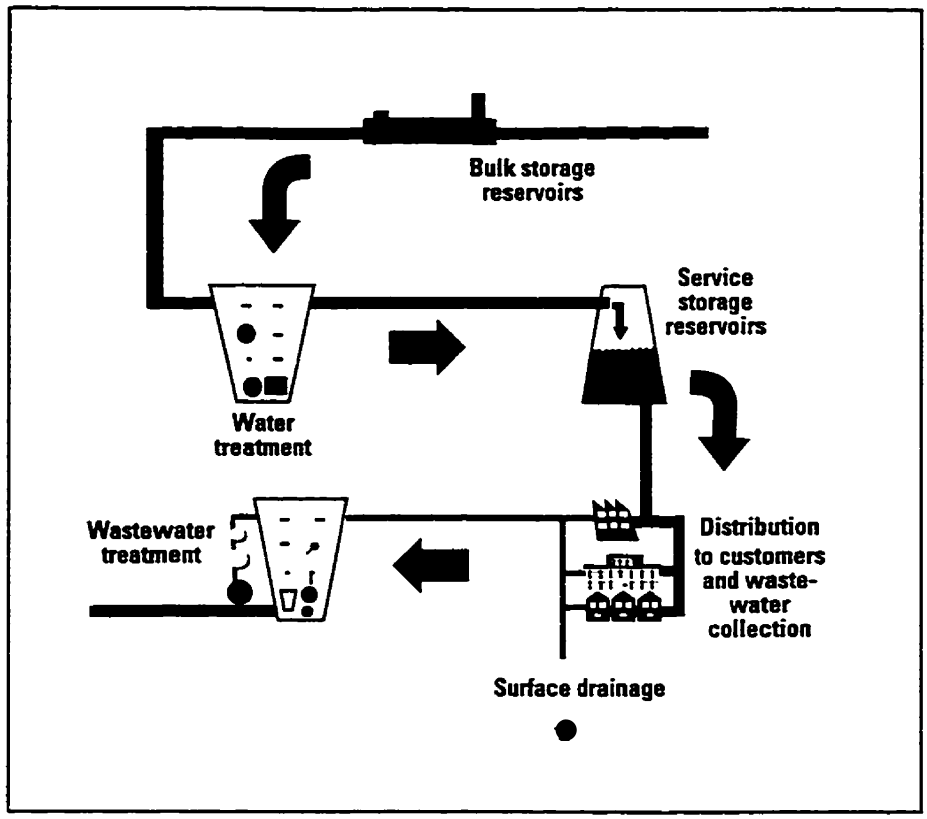
[29] Mitchell (1989). On p. 245, Mitchell suggests that consideration of all these variables and their interaction is helpful both in conducting a meaningful analysis of institutional arrangements, and in facilitating predictions of possible futures and prescriptions for altering existing patterns.

customers, collection systems for receiving wastewater from customers, and, wastewater treatment facilities.

Figure 3-1: Main components of water and sewage systems.




Source: North West Water, "The Advanced Water Cycle" (1994), in Klein and Irwin (1996), p.86.

Public utilities, including water utilities, share a number of characteristics that shape their industries. Many of these qualities are shared not only by public utilities, but also of what are referred to as *natural monopolies*, when one firm can provide service more cheaply than two. In general, the following are characteristic of monopolistic public utilities: they are capital intense; they enjoy significant economies of scale; their customers are captive; duplication of their physical facilities would be highly inefficient; they are enfranchised by government authorities (at some level) to operate within a given territory without competition; and they are obligated to serve and are expected to provide reliable service

on demand[30]. The abuse of their monopoly power is usually mitigated either by public ownership or by economic regulation of privately-owned utilities.

Another characteristic, which is particular to the water sector, is that the quality of the product -- water -- is crucial but difficult for consumers to assess.[31] Water utilities are also rare, although not alone, among public utilities in that their product is derived from a renewable natural resource, which is also subject to other forms of regulation.[32] These unique characteristics of the water industry have led to the evolution of an equally unique regulatory structure. Regulators need to ensure that: water is allocated and withdrawn in a manner which does not threaten aquatic ecosystems; water utilities are supplying consumers with a reliable supply of safe, potable water which does not pose any risks to human health; water and wastewater utilities are charging reasonable rates for their service and not abusing their monopoly power; and, wastewater utilities are dealing with their effluent discharges in a manner which does not pose environmental or health risks. Therefore, the three main objectives of regulators in the water sector are: human health protection (drinking water quality protection), environmental protection, and the promotion of economic efficiency. Quality of service is a fourth objective which spans, and is an integral part, of the previous three.

In designing their regulatory frameworks to meet these objectives, governments have the option of amalgamating some or all of these functions under one agency. In most jurisdictions, the three main regulatory functions are carried out by separate agencies. While this allocation may be efficient in one sense, there is a danger in this separation if there is not sufficient coordination of legislation, policies and programs of the various regulators. For example, the responsibility for regulating water utilities with respect to price and to environmental and health concerns are often vested in separate agencies. In such situations, environmental and health regulators may impose regulatory requirements

[30] Beecher (1995b).
[31] Klein and Irwin (1996).
[32] See note 30.

without taking into account the cost implications of their decisions for water and wastewater system owners, and ultimately ratepayers' bills.[33] Similarly, price regulators need to take into account the cost to utilities of meeting environmental and health requirements when setting rates. In British Columbia, the regulation of water utilities with respect to drinking water quality is carried out by the Ministry of Health, while the environmental and price regulation functions are carried out by different sections of the Ministry of Environment, Lands and Parks. The allocation of regulatory jurisdiction is a key component of this chapter. But first, the specific characteristics of the water supply industry in British Columbia are described.

## 3.3 Water Services: Who's Providing in British Columbia?

While one quarter of British Columbians obtain their water from groundwater sources34, the remainder of the provincial population is served by community water systems (utilities) that obtain their water from surface water sources. Most of these utilities are publicly-owned (e.g., by a municipality or regional district) and are not economically regulated. Only 2 % of British Columbian residents (30,000 households) are served by privately-owned utilities economically regulated by the Comptroller of Water Rights. A more detailed breakdown of the kinds of organizations providing community water services to the residents of British Columbia is provided in Table 3-1 . The following subsections provide an overview of British Columbia's water industry based on the size, organization and ownership of its community water systems.

### *3.3.1 Privately-Owned Water Utilities*

Over 200 community water systems in this province are privately-owned by companies and individuals and are regulated with respect to economic efficiency by the Comptroller of Water Rights under the *Water Utility Act*, as described later. Many of these utilities have been created in rural areas to provide water service to land development where no

[33] Glynn et al. (1992).
[34] Speech by Cathy MacGregor, March 6, 1997.

water authorities existed. These water utilities can be divided into 3 classes[35] (A, B, and C) according to the amount of their annual operating revenues as follows:

- Class A: utilities with revenues over $750,000;
- Class B: utilities with revenues between $150,000 and $750,000;
- Class C: utilities with revenues under $150,000.

An analogous classification scheme according to size, as defined by the number of approved service connections, roughly corresponds with the three financial classes:

- utilities serving over 5,000 connections;
- utilities serving between 500 and 5,000 connections;
- utilities serving under 500 connections.

Table 3-2 provides a breakdown of regulated water utilities in the province by size and by regional district. The numbers have changed slightly since 1992, but the basic picture remains the same: there are very few large privately-owned utilities (2), a few medium sized utilities (9) and a large contingent of small utilities (202). A total of some 30,000 households (2 % of all households36) in the province are served by utilities that are regulated by the Comptroller of Water Rights. Two major utilities are the Greater Victoria Water District[37] for service to the western communities, and White Rock Utilities Ltd. which serves the City of White Rock.

The remainder of British Columbian households are served by community water systems which are not economically regulated by the Comptroller of Water Rights. These utilities

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[35] This classification scheme was developed by the National Association of Regulatory Commissioners (NARUC) and modified for application in British Columbia. The scheme was mandated for application by the Comptroller of Water Rights in Orders No. 1 and 2, dated July 20th, 1973.

[36] As of 1996, there were 1,469,777 households in British Columbia, based on personal communication Pat Bluemell.

[37] Legislative changes are currently being made to the institutional structure of the Greater Victoria Water District. Once these changes are complete, the GVWD will no longer fall under the jurisdiction of the Comptroller of Water Rights with respect to economic regulation.

Table 3-1: Analysis of providers of community water services in British Columbia.

| Provider of Water Services | No. of Utilities |
|---|---|
| Privately-owned and regulated by Comptroller: | 213 |
| • Class A | 2 |
| • Class B | 9 |
| • Class C | 202 |
| Privately-owned and unregulated by Comptroller (mobile home parks, campgrounds) | ? |
| Publicly-owned and unregulated by Comptroller: | >> 538 |
| • Regional District water systems (each district likely operating one or more water systems) | >> 27 |
| • Municipal water systems (all but 5-6 of 150 municipalities operate water systems) | 145 |
| • Improvement District water systems | 241 |
| • Water Users Communities | 125 |

Source: Authors construct based on data provided by British Columbia's Ministry of Environment, Lands and Parks, and Ministry of Municipal Affairs and Housing, March, 1997.

are either small and privately-owned (e.g., in mobile home parks, campgrounds), or publicly-owned (e.g., municipalities, regional districts). This latter category is considered next.

### *3.3.2 Publicly-Owned and Unregulated Water Utilities*

The majority of British Columbia's population resides in areas where community water services are provided by one of the following four types of public corporate bodies: municipalities, regional districts, improvement districts, and water users communities. These bodies fall outside the jurisdiction of the Comptroller of Water Rights with respect to economic regulation, with the exception of water users communities as described below. A draft report[38] prepared by the Ministry of Municipal Affairs clarifies the roles of, and distinctions among, these four types as providers of local services such as water.

[38] British Columbia, Ministry of Municipal Affairs and Housing (1993).

Table 3-2: Analysis of regulated water utilities in British Columbia by size and regional district.

| Size (Approved Connections) | No. of Utilities | Cumulative Frequency | Reverse Cumulative Frequency | Regional Districts With More Than 5 Utilities | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CK | Co | C | CS | CSh | CV | Car | Da | EK | FC | GV | NO | OS | TN | Other | Utility |
| > 20,000 | 1 | 1 | 202 | | | 1 | | | | | | | | | | | | | |
| 5,000 - 20,000 | 1 | 2 | 201 | | | | | | | | | | | 1 | | | | | |
| 2,000 - 5,000 | 1 | 3 | 200 | | | | | | | | | | | | | | | 1 | KBRD |
| 1,000 - 2,000 | 2 | 5 | 199 | | | | | 1 | | | | | | | | | | 1 | NRD |
| 500 - 1,000 | 6 | 11 | 197 | | 2 | | | 1 | 1 | | | 1 | | | | | | 1 | SCRD |
| 200 - 500 | 17 | 28 | 191 | | 3 | | 1 | | 2 | 1 | | 4 | 3 | | 1 | | | 2 | |
| 100 - 200 | 35 | 63 | 174 | 1 | 5 | 2 | 1 | 5 | 2 | 2 | 1 | 4 | 1 | 1 | 2 | 2 | 1 | 5 | |
| 50 - 100 | 10 | 103 | 139 | 3 | 5 | 2 | 1 | 1 | 3 | 4 | 1 | 3 | | 1 | 3 | 4 | 6 | 3 | |
| 5 -- 50 | 99 | 202 | 99 | 7 | 5 | 4 | 8 | 10 | 10 | 2 | 4 | 16 | 6 | 5 | 4 | 4 | 1 | 13 | |
| Total: | 202 | 202 | 202 | 11 | 20 | 9 | 11 | 18 | 18 | 9 | 6 | 28 | 10 | 8 | 10 | 10 | 8 | 26 | |

Key for Regional Districts

| | | | | |
|---|---|---|---|---|
| CK = Central Kootenay | CSh = Columbia Shuswap | EK = East Kootenay | OS = Okanagan-Similkameen | NRD = Nanaimo |
| Co =- Central Okanagan | CV = Cowichan Valley | FC = Fraser-Cheam | TN=Thompson-Nicola | |
| C = Capital | Car = Cariboo | GV = Greater Vancouver | KBRD = Kootenay Boundary | |
| CS= Comox-Strathcona | Da = Dewdney-Allouette | NO = North Okanagan | SCRD = Sunshine Coast | |

Source: Utility Regulation Section, Water Management Branch, British Columbia Ministry of Environment Lands and Parks. Prepared May 1994 with 1992 data.

***Municipalities***

Municipalities are the primary form of local government in the province. Full local representation is achieved through the general election of a council by secret ballot. The *Municipal Act* sets out the responsibilities and jurisdiction of municipalities, as well as the process and criteria for the creation or restructure of municipalities. There are 150 municipalities in British Columbia, and all but a few own and operate water systems.[39] The financial support for the provision of community services, such as water supply, is obtained either through the levying and collection of taxes and/or user fees, or through the access to borrowing through the Municipal Finance Authority, and to assistance programs such as the Infrastructure Works Program.

***Regional Districts***

Under this structure, governance is by a board of directors made up of electoral area directors and representatives appointed by municipal councils within the regional district. As such, regional districts have a key role to play in coordinating land use planning and the delivery of community services, such as water supply, in rural unincorporated areas. In this way, their mandate overlaps with that of improvement districts, described below. There are 27 regional districts in the province, and according to the Ministry of Municipal Affairs, each of them operates one or more water systems[40]; however, it is unclear exactly how many water systems are owned and operated by regional districts in total. Like municipalities, regional districts have full access to borrowing through the Municipal Finance Authority as well as to assistance programs.

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[39] Correspondence with Rob Rounds, February 4, 1997.
[40] See note 39.

***Improvement Districts***

Improvement districts were created by the provincial government in the 1920's to enable small groups of residents to provide shared services, such as water. In these organizations, representation is achieved by election of a board of trustees. While an improvement district may provide any number of community services, drinking water and irrigation water are the most common services provided: 241 out of 286 improvement districts operate water systems.[41] Improvement districts have no jurisdiction in land use planning and regulation; however, they do have a referral role in the subdivision approval process. Unlike municipalities and regional districts, improvement districts do not have access to infrastructure assistance programs, although they do still have access to borrowing through the Municipal Finance Authority. This restriction on their access to assistance is part of the Ministry of Municipal Affairs' policy to encourage the transfer of responsibility for community service provision in rural areas from improvement districts to regional districts.

***Water Users Communities***

These communities, as defined and empowered under the *Water Act*[42], are public corporate bodies of 6 or more water licensees, which may acquire and hold property and works. These communities operate their water systems on a cost recovery basis, and as such, collect fees directly from members. The Comptroller of Water Rights has the authority to incorporate and dissolve water users communities and to approve rates, as well as process rate appeals, if a community submits its rate schedule for approval. There are 125 such water users communities currently operating in the province.[43]

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[41] See note 39.
[42] British Columbia (1979), R.S. Chap. 429.
[43] Personal communication, Chris Morgan, March 18, 1997.

### 3.4 Drinking Water Quality

There are a number of historical factors which have shaped efforts to protect drinking water quality in the province today.[44] Prior to 1992, drinking water systems were regulated directly under the *Health Act*.[45] Requirements of the *Health Act* were difficult to enforce effectively to ensure optimal public health outcomes because authority was usually vested in the minister and the provisions were not clearly defined. During the 1980's, when the significance of waterborne disease in British Columbia became apparent, it was realized that enhancements to the Ministry of Health's drinking water program were required.

As a result, in the late 1980's, more funds were made available for water chemistry analysis and, in October of 1992 the *Safe Drinking Water Regulation*[46], pursuant to the *Health Act*, became effective. Following promulgation of this new regulation, additional human resources were also allocated to the drinking water program. At the time of its introduction, however, it was understood that requirements of the regulation would be introduced gradually to minimize financial implications to water purveyors. The subsequent implementation of purveyor self monitoring programs has allowed health units to decrease the amount of time dedicated to routine sampling and to focus their efforts on those systems which present the highest risk to consumers and which have the least resources to address water quality issues.

Currently in British Columbia, all water system purveyors are regulated for drinking water quality by the Ministry of Health. The ultimate goal of this regulation to reduce the incidences of waterborne disease. Under the *Safe Drinking Water Regulation* of the

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[44] The first two paragraphs of this section describing the recent history of water quality regulation in the province are a summary of an Appendix of an unpublished draft policy paper entitled "Options for Type of Drinking Water Protection", drafted by Ministry of Environment Lands and Parks, obtained from Bruce Morgan in March 1997.

[45] British Columbia (1996) *Health Act* R.S.B.C. 1996, Chapter 179

[46] See note 45, Safe Drinking Water Regulation. (B.C. Reg. 230/92, O.C. 1072/92).

*Health Act*, a number of responsibilities are conferred upon the province and waterworks operators with respect to various aspects of waterworks systems as follows:

- any construction, alteration or extension of a waterworks system must be approved by a public health engineer;
- in situations where water quality in the system poses a health hazard, a water purveyor must notify public / medical health officials, and follow their instruction with respect to notification of the public, usually through boil water advisories, and the minimization of public risk (which may involve upgrading works);
- the terms and conditions for operation and maintenance of all waterworks systems are set out in operating permits issued and periodically reviewed by public / medical health officials;
- public/ medical health officials establish water potability monitoring procedures and microbiological schedules which must be followed; the results of water sampling and testing must be reported to public / medical health officials, and to the public, on request; the ministry has adopted standards for potability in the form of National Drinking Water Quality Guidelines[47] established by the Federal-Provincial Subcommittee on Drinking Water Quality[48]; compliance is monitored by community health inspectors;
- community health inspectors perform routine surveillance for diseases potentially transmitted through water borne routes.

In addition, the Sanitary Regulations under the *Health Act* provide medical health officers with specific authority to issue orders regarding the contamination of domestic water supplies, including source waters, either following contamination of a water supply or where evidence exists that a proposed activity may present an unacceptable risk to the quality of the water supply.

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[47] Canada, Health Canada (1996).

[48] Barry Willoughby, of the Ministry of Health and Ministry Responsible for Seniors, is the British Columbia representative on the committee.

The Ministry of Health is currently developing a risk assessment model for community water supply systems in the province.[49] The aim is to estimate the risk associated with the individual components of any community water supply system -- the water source, the treatment system and the distribution system -- as well as with the system as a whole. This model will help public and medical health officials and water purveyors to identify and prioritize the need for system improvements, both within individual systems and throughout the province. At the provincial level, the findings of such a model could help make informed decisions regarding the allocation of increasingly scarce public sector funding for infrastructure improvement. The Ministry of Health is also considering options to increase the availability of appropriate training opportunities for water purveyors throughout the province.[50]

## 3.5 Environmental Considerations

Clearly, there is a wealth of environmental legislation in the province governing many aspects of environmental management. This section will focus solely on environmental legislation, policies and initiatives which have a direct bearing on the operation of water and wastewater systems.

### *3.5.1 Water*

The primary piece of provincial legislation governing the management of water resources is the *Water Act*.[51] The main focus of the Act is on water allocation and regulation, and it has become clear in recent years that major reforms to, and perhaps a complete overhaul of, the Act are needed to deal with a host of issues.[52] To date, however, no major legislative changes to the *Water Act* have occurred.

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[49] Personal communication, Barry Willoughby, January 28, 1997.

[50] For example, the Ministry of Health is soliciting the cooperation of the British Columbia Water and Waste Association in providing such training opportunities, according to an unpublished draft policy paper entitled "Options for Type of Drinking Water Protection", drafted by Ministry of Environment Lands and Parks, obtained from Bruce Morgan, March 1997

[51] See note 42.

[52] In 1993, The Ministry of Environment, Lands and Parks initiated a three- to five-year consultation process on water management process and issues. This process involved the development of a series of

Under the provisions of the *Water Act*, all water utilities using surface water must obtain water licenses from the Comptroller of Water Rights in order to divert and use water. The Comptroller may issue conditional licenses based on terms it establishes: no one can make changes in and about a stream unless these have been approved.[53] The daily administration of allocation programs is handled by the regional Water Management Branch Offices of the Ministry of Environment, Lands and Parks. As previously noted, under provisions of the *Local Services Act*, any new subdivision or extension of an existing development served by a privately-owned water utility, must also have its water supply system approved by the Comptroller before the subdivision can be registered. This approving function is currently carried out by the Utility Regulation Section under the same branch of the Ministry of Environment, Lands and Parks.

The Ministry of Environment, Lands and Parks is currently conducting a review of existing tools for water quality protection.[54] Since both the Ministry of Health and the Ministry of Environment both have mandates related to water quality protection, this will involve examining existing, and identifying opportunities for implementing new, legislative and policy tools under the jurisdiction of both ministries.

### *3.5.2 Wastewater*

The primary piece of legislation governing the management of wastewater discharges is the *Waste Management Act*[55], which replaced the *Pollution Control Act* in 1982. One of the most significant aspects of this new Act was the introduction of the concept of Solid and Liquid Waste Management Plans. While all regional districts were required to submit a Solid Waste Management Plan by December 31, 1995, the submission of Liquid Waste

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discussion papers, entitled "Stewardship of the Water of British Columbia," which identified the challenges facing water management and made policy recommendations.

[53] *Water Act*, s.7 as amended by S.B.C. (1992) Chap. 26, effective June 2, 1995.

[54] Personal communication, Bruce Morgan, March 1997. This review may lead to the drafting of new preventative environmental protection legislation (i.e. Clean Air and Water Act) designed not to improve protections without duplicating the provisions already set out in other legislation.

[55] British Columbia (1996) *Waste Management Act* R.S.B.C. 1996, Chap. 482.

Management Plans remains optional. To date, a few, but certainly not all, municipalities and/or regional districts have submitted liquid waste management plans.[56]

Wastewater systems are subject to end-of-pipe regulation at the provincial level. Wastewater discharges under 22.7 $m^3$ per day are regulated by the Ministry of Health under the Sewage Disposal Regulation of the *Health Act.*[57] Discharges over 22.7 $m^3$ per day are regulated by the Ministry of Environment, Lands and Parks under the *Waste Management Act.*[58] Given the differences in legislation and mandates of the two ministries (protection of human health versus protection of the environment), their regulatory requirements often differ as well. Efforts are being made to improve the coordination of these programs in order to ease the burden on both wastewater system owners and ministry employees in cases of transition from one discharge volume category, and ministerial jurisdiction, to another.

Operators of wastewater systems are granted permission to discharge effluent under permits which quantify the allowable discharge as well as setting criteria for effluent quality. In this way, both ministries are able to regulate wastewater discharges, but not the operation of wastewater systems. A joint initiative is underway to develop a new sewer discharge regulation which would replace this existing sewage discharge permitting system.[59] In addition, the Ministry of Environment, Lands and Parks, in cooperation with other agencies, is also developing an overall municipal sewage management strategy.[60]

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[56] Personal communication, Orest Maslany, March 11, 1997. Sixteen such plans have been reviewed and approved, while another 20 are under development, as per personal communication with Chris Jenkins, June 5, 1997.

[57] Personal communication, Bob Smith, April 14, 1997.

[58] See note 56.

[59] See note 56, and personal communication, Bill Lightowlers, Canadian Environmental Technology Advancement Corporation, March 1997. The new regulation would govern: the quality of discharges to water / land and the quality of water destined for reuse; monitoring and reporting; design, management and operation of facilities; security requirements for private owners/operators; and enforcement. Organizations collaborating on the development of the regulation include: the Ministry of Health; the Ministry of Municipal Affairs; the Ministry of Environment, Lands and Parks; Sierra Legal Defense; and, the Canadian Environmental Technology Advancement Corporation.

[60] Aside from the new regulation, and improved coordination with the Ministry of Health, some other key elements of the strategy include: enabling local governments to increase their control over sewage discharges within their geographical boundaries; and, increasing the use of certified professionals in the

This strategy addresses almost all aspects of management, with the exception of economic regulation.

## 3.6 Economic Efficiency

### *3.6.1 Privately-Owned Water Utilities*

The economic regulation of independent (privately-owned) water utilities initially occurred under the Public Utilities Commission of the 1960's. When that commission was dissolved in 1973, the responsibilities for water and energy utility regulation were transferred to separate departments in government. In the water sector, regulatory responsibilities were transferred to the Comptroller of Water Rights. The staff that had worked on water utilities at the Public Utilities Commission were transferred over to the Ministry of Environment where they continued their work. Concurrent with this transfer, a significant addition was made to their portfolio: the Comptroller of Water Rights became responsible for approving the satisfactory completion of water works prior to the registration of subdivisions under the *Local Services Act*. In the energy sector, regulatory responsibilities of the previous Public Utilities Commission were re-enacted by the *Energy Act*. That Act was repealed and replaced by the *Utilities Commission Act*[61] in 1980.

The *Utilities Commission Act* established the British Columbia Utilities Commission (BCUC) as the quasi-judicial provincial regulator of electric and natural gas utilities. This resulted in the economic regulation of the energy sector being placed at arms length from government. At the same time, analogous legislation was passed in the water sector in the form of the *Water Utility Act*[62]. This Act applies only to water utilities that are subject to the legislative authority of the provincial government. The duties, responsibilities and restraints to which a water utility is subject are the same as are imposed on a public utility

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provision of environmental impact information and the design and operation of system for sewage treatment/disposal and water reuse. Canadian Environmental Technology Advancement Corporation (CETAC), *Awareness Workshop for Public-Private partnerships for Wastewater Treatment in British Columbia*, a summary of Vancouver Island Workshop (February 17, 1997), Section 4(a).

[61] *Utilities Commission Act* (1996), S.B.C. Chap. 60.

[62] British Columbia (1996) *Water Utility Act* R.S.B.C. 1996, Chap. 473.

under the *Utilities Commission Act*, other than Sections 33, 34 and 51(2) and 51(3). The Comptroller of Water Rights is designated as the BCUC's counterpart in the water sector, and as such, plays a quasi-judicial role in the economic regulation of private water utilities. However, the Comptroller of Water Rights was never granted the same independence or arms length from government as the BCUC in its role as economic regulator in the sense that: 1) the regulatory staff remain housed at the Ministry of Environment, Lands and Parks, and 2) the Comptroller and Deputy Comptrollers also occupy managerial positions within the ministry and, as a result, are in a potential conflict of interest situation.

The Comptroller of Water Rights has a number of responsibilities under various pieces of legislation. The day-to-day administration of those responsibilities pertaining to economic regulation and water works approval is carried out by the staff of the Utility Regulation Section. The section is currently housed in the Water Management Branch of the Ministry of Environment, Lands and Parks. Its responsibilities are set out in two pieces of legislation: the *Local Services Act* and the *Water Utility Act*.

- Under the *Local Services Act*, the Comptroller is responsible for the approval of waterworks for new subdivisions, to ensure that water systems installed by land developers are properly designed and constructed.
- Under the *Water Utility Act*, the Comptroller is responsible for ensuring that utilities' customers receive acceptable water service at reasonable rates. This involves:
    - processing applications for Certificates of Public Convenience and Necessity;
    - setting tariffs (rate regulation); and,
    - administering reserve trust funds.

The section also carries out another unofficial but important function: it provides assistance to the Ministry of Municipal Affairs, in the matter of transfers of privately-owned water utilities to local governments, usually regional districts.

In the *Water Utility Act*, all water system operators are placed under the jurisdiction of the Comptroller of Water Rights, *except* for the following:

- municipalities;
- a person who furnishes services or commodity only to himself, his employees or tenants, where the service or commodity is not resold to, or used by, others;
- the Greater Vancouver Water District under its Act;
- an improvement district or water users community;
- a regional district in respect of the service of the supply of water
    - in bulk to a municipality or electoral area; or,
    - to consumers in a municipality;
- a person who supplies water by tanker truck; or
- a person who sells bottled water.[63]

In the last decade, staff reductions have decreased the number of full-time employees in the section from 15 to 8 and eliminated support from all regional offices. This has meant that some important aspects of regulation are at times carried out with considerable delay: routine inspections of water systems; monitoring of trust fund balances; routine financial and administrative reviews; and, maintenance of databases for information and documents such as water system drawings.[64]

In order to address some of these issues, the Ministry of Environment, Lands and Parks, has mandated the present study as well as a review of the programs related to the regulation of water and wastewater service providers. The Water and Sewer Committee has been asked to review the way in which private water and sewer systems in the province are currently regulated (or not), and to consider alternatives in consultation with other stakeholders such as the British Columbia Utilities Commission, Ministry of Municipal Affairs, the Union of British Columbia Municipalities.[65]

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[63] *Ibid.*, Section 1.
[64] British Columbia, Ministry of Environment Lands and Parks (1996c).
[65] E-mail correspondence, Ingrid Taggart, April 3, 1997.

### *3.6.2 Publicly-Owned Utilities*

There are a number of historical factors which have shaped the development and regulation of the publicly-owned segment of the community water supply industry.[66] Publicly-owned water utilities were subject to economic rate regulation by the Ministry of Municipal Affairs until the early 1980's. At that time, the primary focus of oversight by the ministry shifted to the regulation of capital borrowing and loans through the Municipal Finance Authority. However, improvement districts must still obtain approval for their annual rate increases from the Ministry of Municipal Affairs in the sense that their rate bylaws have to be approved by the ministry. At the same time, the approving function for water rates in municipal fringe areas was shifted from the Comptroller of Water Rights (who had performed the function until then) to the Inspector of Municipalities under the *Municipal Act.*

In a related vein, the responsibility for oversight of improvement districts was held by the Ministry of Environment, Lands and Parks until 1979, when it was transferred to the Ministry of Municipal Affairs. Since that time, the provincial policy has been to encourage the transfer of responsibility for small water systems (owned by private operators or improvement districts), serving unincorporated rural areas, to regional governments. Improvement districts rose in number until the mid 1980's then declined to the current level of 281, of which 246 operate water systems. Some of this decline can be attributed to the province's transfer policy, described above, while the remainder has resulted from the extension of some municipal boundaries.

Publicly-owned water utilities are outside the jurisdiction of the Comptroller and are essentially self-regulated with minimal oversight by the Ministry of Municipal Affairs. This limited oversight, includes, for example, the requirement that rate increases in municipal fringe areas be approved by the Inspector of Municipalities, in accordance with the *Municipal Act.* In essence, public corporate bodies providing community water

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[66] The information for this section was obtained through personal communication with Rob Rounds, January 28, 1997.

services are free to set their own rates, and to provide that service directly, or contract out service delivery under terms and conditions laid out in the *Municipal Act*. While municipalities, regional districts, and improvement districts all have access to borrowing through the Municipal Finance Authority, only municipalities and regional districts have access to provincial infrastructure assistance programs.

Provincial financial assistance for infrastructure works has taken a number of forms over the years. Until a few years ago, grants were provided under the *Revenue Sharing Act*, and then through the Infrastructure Works Program. The most current funding program is the water and sewer capital grant component of the *Local Government Grants Act*.[67] Over time, funding for these programs is declining, while capital needs for infrastructure repairs, upgrades and improvements are steadily increasing. Due to limited program funding, priority is currently given to urgently required public health and environmental protection works, such as water and wastewater treatment systems. The total estimated cost of top priority water projects presently listed with the Ministry of Municipal Affairs, for which no funding commitments have been made, is approximately $37.0 million.[68] This figure only includes costs for priority projects where a formal application has been made, and does not include the costs of upgrading the multitude of small systems operated by improvement districts and water users communities, which are not eligible for such grants.

Many issues facing the Ministry of Municipal Affairs as the provincial agency overseeing the provision of community water services by publicly-owned utilities are the same as, or linked with, those facing water utility regulators of privately-owned utilities. For example, the ministry is actively involved in trying to address two major issues related to the provision of water services by public agencies. The first is the tenuous viability of many

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[67] British Columbia, Ministry of Municipal Affairs (1994).

[68] This figure does not include works in progress for which provincial funding has or has not been provided. This figure also only includes projects where local governments have formally applied for grant assistance. Information obtained through personal correspondence with Rob Rounds, Manager, Municipal Financial Services Branch, Ministry of Municipal Affairs and Housing, on February 4, 1997.

water systems currently owned and operated by improvement districts. The second is the coordination of the changing roles and responsibilities of regional districts with those of water utility regulators. These issues are described in greater detail later in this chapter.

### *3.6.3 Utilities Owned and/or Operated by Public-Private Partnerships*

Public-private partnerships are not a new phenomenon: many municipalities and regional districts contract out various activities related to the operation for their water systems (e.g., meter reading contracts, operation and maintenance contracts). Public-private partnerships fall along a number of continuums, including the degree of responsibility, authority and risk transferred from the public to the private sector and the proportion of public vs. private ownership. Municipalities are free to engage in some public-private partnerships arrangements under terms and conditions set out in the *Municipal Act* as it currently stands.

However, some municipalities are now seeking to engage in public-private partnership models which would fall outside the envelope of acceptable models, as defined by the terms and conditions set out in the existing Act.[69] These models approach the more significant, complex, and risky end of the public-private partnership spectrum where a system may be placed under full private ownership for an extended period. It has not yet been established whether and how water utilities operated under various models of public-private partnerships are to be subject to any form of economic regulatory oversight.

### *3.6.4 Wastewater Systems*

Wastewater systems are not identified as "public utilities" as such in legislation and are not currently subject to economic regulation. However, just like water utilities, they are natural monopolies in that they: are capital intense and duplication of their physical

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[69] Personal communication, Donald Lidstone, March 11, 1997. The Association of Vancouver Island Municipalities has retained legal counsel to review the Municipal Act, identify actual and potential barriers to implementing public-private partnerships, and drafts amendments to the Act which would remove those barriers. At their October 1997 Convention, the Union of British Columbia Municipalities will decide whether to endorse a package of proposed legislative amendments, and whether to present it to the Province.

facilities would be highly inefficient; enjoy significant economies of scale; and have captive customers. They have the same potential for abuse or neglect of monopoly power as water utilities, the result being either excessive or insufficient rates. As with water utilities in the province, it wastewater system operators are more likely to be charging rates which do not reflect the true long-term cost of the service, as a result of poor capital planning, and many are now facing capital crises.[70] In such cases, the collection of insufficient rates is contributing to deteriorating levels of service, neglect of necessary repairs and infrastructure upgrades, and non-compliance with environmental and/or health regulations.[71] There is also at least one case in the province where the unregulated monopoly situation in the wastewater sector is resulting in customers being charged excessive rates for their wastewater services.[72]

### 3.7 Synopsis

Water utilities in British Columbia fall under the jurisdiction of three regulators with differing, but overlapping, mandates: an environmental regulator, the Ministry of Environment, Lands and Parks; a drinking water quality regulator, the Ministry of Health; and an economic regulator, the Comptroller of Water Rights, whose economic regulation programs are administered by the Utility Regulation Section of the Ministry of Environment, Lands and Parks). There are a number of challenges facing these regulators in ensuring that British Columbian receive an adequate supply of safe, potable drinking water and pay the true costs of receiving that service. These issues, which are the topic of the next chapter, suggest a need for reform.

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[70] Personal communication, Chris Jenkins, June 5, 1997.
[71] Personal communication, Dale Wetter, March 1997.
[72] Personal communication, Bill Grant, February 1997. Personal communication, Ingrid Taggart, June 3, 1997.

# 4. FORCES OF CHANGE

This chapter presents the results of the evaluation of the existing water utility regulation system by the participants in the telephone survey. Areas of performance which could be improved are highlighted, as are the major forces of change in British Columbia's water industry.

## 4.1 Evaluation of the Current System

The last section of the telephone questionnaire (described and reproduced in Chapter 2), focused on evaluating the current regulation system, which includes the Comptroller of Water Rights (as decision maker), staff of the Utility Regulation Section (as administrator), and economic regulation programs. Participants were asked to evaluate the regulator and regulatory programs based on a set of criteria and principles combined with a ranking scheme (Table 4-1). The responses of 12 participants yielded useful feedback regarding their perception of the performance of the current system. Tables 4-2 and 4-3 provide summaries of participants' rankings of the system. The general intent of the evaluation was not to collect data to perform sophisticated statistical analysis, but rather to identify trends in participants' responses, and to identify areas most in need of improvement.

Table 4-1: Evaluative criteria, principles and ranking scheme used by telephone questionnaire participants to evaluate the current water utility economic regulation system.

| CRITERIA | PRINCIPLE |
|---|---|
| Administrative and Cost Effectiveness | 1. degree of cost recovery for regulation programs |
| | 2. cost effectiveness of regulatory programs |
| | 3. adequacy of skills and resources of regulators |
| | 4. clear distinction between mandates of various regulators (health, economic, environmental) |
| | 5. coordination between provincial regulators (health, economic, environmental) |
| Economic Efficiency<br><br>(ability of regulator to promote economic efficiency in water supply sector) | 6. the economic regulator' control over the creation of non-viable utilities |
| | 7. ability of the economic regulator to ensure that existing utilities have rate structures which allow them to become/remain financially viable without earning any extra returns |
| | 8. ability of the regulator to set rates which reflect costs, subject to other regulatory objectives |
| Equity<br><br>(fairness of regulatory processes and outcomes) | 9. fairness of the processes soliciting public input, or dealing with disputes, appeals and complaints |
| | 10. degree to which outcomes (e.g. rate structures) balance the interests of ratepayers and utility operators |
| Adaptability<br><br>(ability to adapt to changing conditions in the future) | 11. the system's response to changes in relevant social, political, economic and environmental factors and priorities, including other provincial initiatives, policies and legislation |
| | 12. the regulator's ability to implement a broad range of management initiatives, policies and procedures to fulfill their mandate |
| | 13. the ability of regulators to tailor their policies and procedures when regulating utilities of different size and ownership |

The ranking scale was set from 1 to 5 in the following way:
1 = the existing system is excellent
2 = the existing system is good or adequate
3 = you are neutral or uncertain
4 = minor improvements to the system are needed
5 = major improvements or reforms are needed

Source: Based on criteria, principles and telephone questionnaire described in Chapter 2.

Table 4-2: Summary of participants evaluation of water utility regulator and regulatory programs. Rankings are based on the criteria, principles and ranking scheme shown in Table 4-1.

| | CRITERIA AND PRINCIPLES | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Effectiveness | | | | | Efficiency | | | Equity | | Adaptability | | | | |
| Participant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Average | Total |
| A | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 65 |
| B | 3 | 3 | 4 | 5 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 4 | 56 |
| C | 5 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 2 | 2 | 2 | 4 | 2 | 3 | 42 |
| D | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 4 | 5 | 4 | 2 | 3 | 36 |
| E | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | 1 | 2 | 5 | 5 | 2 | 4 | 52 |
| F | 3 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 5 | 59 |
| G | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 5 | 5 | 4 | 3 | 39 |
| H | 5 | 5 | 2 | 5 | 2 | 4 | 2 | 2 | 2 | 2 | 5 | 5 | 5 | 3 | 45 |
| I | 3 | 3 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 3 | 1 | 1 | 2 | 22 |
| J | 5 | 5 | 5 | 5 | 5 | 3 | 5 | 3 | 2 | 2 | 5 | 5 | 5 | 4 | 54 |
| K | 3 | 3 | 5 | 5 | 5 | 5 | 5 | 5 | 2 | 3 | 5 | 3 | 5 | 4 | 54 |
| L | 5 | 2 | 3 | 4 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 4 | 2 | 30 |
| Average | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 2 | 3 | 4 | 4 | 3 | | |
| Total | 48 | 44 | 43 | 49 | 42 | 45 | 42 | 40 | 28 | 34 | 52 | 48 | 41 | | |

Source: Based on information collected during telephone questionnaire interviews.

It is somewhat difficult to identify trends based on the data. The sample size is small, and the variation between participants' responses is often large. This may be the result of a polarization of views and opinions among participants. Alternatively, it may be that participants interpreted the ranking scheme significantly differently. Perhaps the most discernible trend in the responses was the *relatively* positive evaluation of the system with respect to the two equity criteria: the fairness of processes and of outcomes. The majority of respondents commented favourably on the ability of the Comptroller of Water Rights to conduct his/her processes in a fair manner and return fair decisions, although many of those same participants also commented on the lengthy and time consuming nature of public hearings. Overall, however, the evaluation section of the telephone questionnaire did not prove useful in identifying priorities for improvement, as participants indicated a need for reform in most aspects of the system.

Table 4-3: Summary of participants' evaluation of water utility regulators and regulatory programs grouped according to criteria.

| | Cost Effectiveness Questions 1 - 5 | Economic Efficiency Questions 6 - 8 | Equity Questions 9 - 10 | Adaptability Questions 11 - 13 |
|---|---|---|---|---|
| **Participant** | **Average** | **Average** | **Average** | **Average** |
| A | 5 | 5 | 5 | 5 |
| B | 4 | 5 | 5 | 4 |
| C | 4 | 3 | 2 | 3 |
| D | 3 | 2 | 3 | 4 |
| E | 5 | 5 | 1 | 4 |
| F | 4 | 5 | 5 | 4 |
| G | 3 | 2 | 2 | 5 |
| H | 4 | 3 | 2 | 5 |
| I | 2 | 2 | 1 | 2 |
| J | 5 | 4 | 2 | 5 |
| K | 4 | 5 | 3 | 4 |
| L | 3 | 2 | 1 | 3 |
| **Average across participants** | **4** | **4** | **3** | **4** |

Source: Based on information collected during confidential telephone questionnaire interviews.

Most participants qualified their numerical responses with comments. Often, respondents indicated that their responses in this evaluation section were very much tied to their responses in the remainder of the telephone questionnaire, which are presented in the next chapter. There was a strong feeling that the implementation of options for reform, discussed in other parts of the questionnaire, would have a positive impact on the aspects of performance or programs being evaluated. Respondents' comments on broader issues, sparked by the evaluation, are integrated into the section below, which identifies the main issues and challenges facing the province today.

## 4.2 Emerging issues and future challenges

A review of key documents and comments collected from interviews suggest that a number issues and challenges are currently emerging in the water utility regulation system of British Columbia. Many of these are tied to the traditional evolutionary pattern of water utilities in the province, which is described in a recent program review of the Utility Regulation Section.[73]

Many water utilities go through an evolutionary process that begins with their creation and ends with the transfer of the system to a public agency. Initially, a land developer must enter into the water utility business as a private operator in order to achieve the primary objective of developing and selling lots. During the initial stages of land development the owner is interested in properly maintaining the utility to maximize lot sales. At this stage the developer typically subsidizes the water utility operations. Most water utilities are eventually transferred to a public agency. However, some utilities have expanded to the point where they represent a substantial investment by their owners, and may not be transferred in the foreseeable future. Potential growth may lead the owners to consider making capital investments on which they are entitled to a fair and reasonable return. There is a strong rationale, based on the potential for abuse of monopoly power in such situations, to continue with the regulatory oversight of these utilities.

The following paragraphs describe the main issues and challenges facing the provincial government as policy-makers, the Utility Regulation Section under the Comptroller of Water Rights as economic regulator, as well as other affected ministries. Many of these concerns are shared by various arms of government, and all of the issues are interrelated. As such, these issues and challenges can be considered as forces or drivers of change in British Columbia's water industry.

[73] British Columbia, Ministry of Environment Lands and Parks (1996c).

### *Fiscal Constraints and Public-private Partnerships*

At the end of January 1997, the Ministry of Employment and Investment released "Building Partnerships," the report of the Task Force on Public-private Partnerships.[74] The report cites a number of factors which have contributed to increased demand for new and improved public services: high population growth, accelerated economic growth, and infrastructure investment backlogs. At the same time, the growth of tax-supported debt and reduced budgets for provincial transfers to local governments has left the provincial government facing a challenge. Public-private partnerships are being explored as a solution to this fiscal dilemma.

There is growing support for public-private partnerships on the part of municipalities, and growing interest in opportunities on the part of private investors.[75] Public-private partnership's are already being pursued in the water and wastewater sector in British Columbia.[76] This brings up a key question: *is there a need for some form of economic regulation of water and wastewater utilities operated under certain public-private partnership models?* A concern exists for both public and private partners engaging in these arrangements that no system is in place to economically regulate these new public-private utilities.[77] There is a need for clear policy direction on this issue so that if these utilities are to be regulated, their economic regulator can begin developing regulatory programs tailored for public-private partnerships.

### *Economic Regulation of Wastewater Systems*

There is also a question arising regarding the possibility of initiating the economic regulation of existing privately-owned wastewater systems. As noted earlier, wastewater

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[74] British Columbia, Task Force on Public-Private Partnerships (1996).

[75] See note 69. Also, personal communication with Steve Davis, March 5, 1997.

[76] For example, the District of Lake Country is currently reviewing proposals from the private sector for a wastewater utility public-private partnership. The District of Chilliwack is reviewing expressions of interests from the private sector for the provision of complete Municipal utility services.

[77] In the case of the District of Lake Country wastewater utilities, both the mayor and one of the short-listed candidates have expressed interest in exploring the possibility of the British Columbia Utilities Commission taking an active role in such regulation. Personal communication, Jonathan Huggett, November 1996.

systems are natural monopolies and have the same potential for abuse or neglect of monopoly power as water utilities. Such abuse can result in customers being charged either excessive or artificially low rates. Examples of both cases exist in the province.

***Long-Term Viability of Water Utilities***

As stated in a recent Program Review of the Utility Regulation Section of the Ministry of Environment Lands and Parks, the viability of most small utilities is often dependent upon the willingness of the owner to provide support, largely through the donation of time, in managing and administering the business and operating the system. With this support the utilities are viable and they have been successfully regulated. The degree of support that the owner must provide is dependent on a number of factors such as rates, number of customers and complexity of operation.

At the moment, there is growing concern over the viability of many of the small privately-owned utilities and improvement districts in the province. This concern is shared by economic, health and environmental regulators. In recent years, the province has adopted a policy to explore all other avenues for water service delivery in an area (i.e. provision by neighbouring public corporate bodies) before establishing a new private utility, in order to prevent the proliferation of non-viable utilities. In addition, the province is encouraging and supporting the transfer of small utilities in unincorporated areas to regional districts. While this is a clear step toward addressing the viability issue, there may also be additional policies to be explored by economic regulators; for example, acquisition incentive and/or uniform ratemaking policies, which encourage larger utilities or other investors with more capital and expertise to assume the responsibility of smaller, non-viable utility operations.

***Role of Regional Governments***

The changing role of regional governments throughout the province has resulted in increased awareness of the links between land-use planning, provision of water and wastewater services in unincorporated (developing) areas, and proliferation of potentially non-viable utilities. As such, it identifies the need to address the changing role of regional

districts in developing future policy regarding water utility regulation. Regional districts have traditionally played a minimal role in the provision of water services in the province. Now, however, they are creating local authorities to provide water service, acquiring utilities, and in some cases, creating local service areas to serve new subdivisions. The involvement of regional districts in water service provision in unincorporated areas is increasing generally, although at different rates throughout the province.

It has also been suggested that regional districts should assume responsibility for all aspects of land development, including among others: the approving officer function, which is currently held by the Ministry of Transportation and Highways; the management of water utilities and on-site sewage disposal; the right of first refusal for the delivery of local services such as water; the determination of servicing requirements; and, the approval of the satisfactory construction of works, currently performed by the Comptroller of Water Rights under the *Local Services Act* for privately-owned waterworks.[78] While there is an argument to be made for having many of the functions carried out by regional districts, an equally compelling argument could be made for some of them to be carried out at the provincial level. The main point is for symmetrical functions concerning water and wastewater systems to be carried out by the same entity or at least at the same level of government. Clearly, decisions regarding the future role and powers of regional districts will need to be coordinated with those regarding the future role of water utility regulators.

***Public Participation and Accountability***

As noted in a recent Program Review of the Utility Regulation Section,[79] utilities are being regulated in a climate of greater public interest and scrutiny. Intervenors at hearings make well-prepared presentations in objection to, as well as in support of, the servicing of new developments, proposed rate increases, and options for meeting growing water supply requirements. As a result, the Utility Regulation Section must engage in more

[78] Gary Paget (1997).
[79] British Columbia, Ministry of Environment Lands and Parks (1996c).

comprehensive investigation and reporting prior to making decisions: this is a challenge at current staff levels. During the telephone surveys, some participants expressed concern that while regulatory processes, especially hearings are certainly thorough, they are also extremely time consuming. There is a need to consider alternatives for improving public representation in decision making processes related to water utility regulation.

***Capital Planning and Future Water Supply***

Although water supply is still adequate throughout most of the province in the short term, there is an increasing realization that water is becoming a scarce good like any other. This is a greater concern during the summer season and in some areas of the province; for example, some parts of the Okanagan Valley. There is also a growing awareness that even where water is not scarce and alternative sources of supply exist, there are often significant environmental impacts associated with the development of new alternative supply. Guidelines, policies and legislation need to be reoriented to enable water managers to balance supply and demand management strategies when planning for future water needs. Over the long term, there will be a need to use existing supplies more efficiently to mitigate the combined effects of continued population growth and the lack of new water sources feasible for development. This may involve the adoption of planning and regulatory frameworks whose goal is to optimize supply and demand management efforts with respect to both resource allocation and capital investment; for example, integrated resource planning (IRP).[80]

The need for such a planning framework is highlighted by recent decisions regarding future water supply, demand-side management, and the disposition of watershed lands in

[80] IRP can be defined as ". . . a comprehensive form of water utility planning that encompasses least-cost analysis of demand-management and supply-management options, as well as an open and participatory decision-making process, the construction of alternative planning scenarios, and recognition of the multiple institutions concerned with water resources and the competing policy goals among them. . . Least-cost-planning or analysis emphasizes a balanced consideration of supply-management and demand-management options in identifying feasible least-cost alternatives for meeting future water needs. Compared with traditional planning, least-cost planning recognizes that water demand is malleable and that forecast demand does not have to be taken as a given in the planning process" (Beecher, 1995b).

the Greater Victoria Water District (GVWD). Recently, the GVWD underwent a significant public process to address a number of issues currently facing, or soon to be facing, many other publicly-owned utilities. In 1996, a Special Commission was:

> ". . . appointed in response to public criticism of the GVWD for many of its policies, particularly controversies about pricing of water for areas unrepresented in the present structure, about proposed uses of GVWD land in the Sooke Hills, and about the adequacy of public participation in key water supply decisions."[81]

A key issue related to the long-term management of water supply in the GVWD, and particularly the controversial proposed expansion of the Sooke Dam reservoir, is that of demand-side management and the role it should play. An independent consultant was contracted to evaluate the potential for water conservation measures in the GVWD.[82] Special Commissioner Perry found the conclusions of the consultant's report to be "startling": a large number of demand-side management measures which have proved effective in other jurisdictions, and which have the potential to be cost-effective in reducing water demand, have never been tried in the Victoria area.[83]

The situation in the Greater Victoria area is similar to that of most other publicly-owned, and larger privately-owned, utilities throughout the British Columbia. While there is certainly a growing awareness throughout the province of demand-side management and its potential benefits, programs being implemented remain focused largely on public education and voluntary initiatives.[84] There has been some specific policy and technical work done by larger regional districts facing supply constraints; for example, the Greater Vancouver Regional District, the Capital Regional District, the Okanagan-Similkameen Regional District, and the Nanaimo Regional District. However, the majority of utilities in the province have not engaged in any significant quantitative analysis of the potential for,

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[81] Perry (1996a) at 9.
[82] Perry (1996b).
[83] Perry (1996a) at 121-122.
[84] Personal communication, Trent Berry, June 9, 1997.

and cost effectiveness of, demand-side management in their jurisdiction.[85] There are likely opportunities for cost-savings in areas throughout the province that are being missed because DSM options are not being considered. While engaging in IRP-like planning processes is currently the prerogative of the utility, it may be that the economic regulator could play a more significant role in promoting the adoption of such an approach throughout B.C.'s water industry.

### *Synergies in Water and Wastewater System Planning*

The water and wastewater components of a community service system are inextricably linked. Perhaps the most obvious link is that between water consumption and the generation of wastewater for treatment. Therefore, the implementation of demand-side management has positive spin-offs for the wastewater sector. DSM can reduce the burden on wastewater infrastructure and delay the need for capital investment in new treatment facilities. Therefore, long term management of water supply and demand should be integrated with planning for wastewater treatment needs. As long as planning for, and regulation of, water and wastewater systems occurs separately, opportunities for taking advantage of these synergies will continue to be missed.

### *Water Pricing*

There are two water pricing challenges facing water utility owners / operators in the province. The first is that water prices in the province may not be sending consumers the right price signals regarding the benefits and costs associated with their level of consumption. If we have a strong natural monopoly, there are still economies of scale to expansion, which means that having a price signal that is too high is of greatest concern. The utility must recover all its costs but by setting a price to do that it does not give a signal to consumers of the benefits they bring to everyone by increasing their consumption. In today's world, however, it is increasingly the case that water utilities are in a situation of weak monopoly, meaning that the incremental unit cost (marginal cost) of

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[85] *Ibid.*

expansion exceeds the average unit cost. If prices are set at marginal cost, the utility will earn excess profit. So prices are generally set at average cost, which does not give the correct signal to consumers of the costs caused by seasonal or peak time increases in consumption. The rate design solution is to set the marginal price at marginal cost while adjusting other charges downward (intra-marginal rate, fixed part of the rate) to ensure that excess profits are not earned.

The second challenge is that because many water utilities are municipally-owned and operated, and their prices are set by municipal politicians, there has been evidence to suggest that rate increases have been politically constrained such that rates may not even recover average cost (current fixed and operating costs plus capital renewal). The rate design (rate setting) solution is to ensure that average rates are at least sufficient to recover average costs in a sustainable manner.

### *Efficiency and Effectiveness of Regulation*

There is a growing consensus that some reform of the institutional arrangements for water utility regulation is needed. In particular, the appropriateness of the Utility Regulation Section being housed in the Ministry of Environment, Lands and Parks has been called into question, for two main reasons. The first is that the economic regulation mandate of the section does not fit with the environmental protection mandate of the ministry as a whole. The second is that there may be potential for greater administrative efficiency if all utility regulation in the province is the responsibility of a single agency, such as the British Columbia Utilities Commission.

## 4.3 Role of the Economic Regulator in Addressing the Need for Change

Clearly the emerging issues and future challenges facing water industry in British Columbia can not all be addressed by the economic regulator. The mandate of the economic regulator is limited to ensuring that social, environmental, health, and other public policy objectives are met by water utilities at the least-cost to the customer, while still promoting the long term financial viability of the utility. Currently, the mandate of the

economic regulator is further limited to carrying out this task only with respect to privately-owned utilities. Nonetheless, the economic regulator will have an important role to play in coordination with other agencies responsible for other aspects of water management, in helping to shape the future of privately-owned community water systems. There is also the potential to expand the mandate of the regulator, by making some of its programs available to the public sector on a voluntary basis, to promote positive reform throughout British Columbia's entire water industry. However, such changes to the institutional structure and scope of the economic regulator's authority and jurisdiction will require legislative reform and therefore action on the part of the provincial government.

A range of alternatives for reform of the water utility regulation system is presented in the next chapter.

# 5. ALTERNATIVE STRATEGIES

## 5.1 Introduction

While the previous chapter discussed all the aspects of the water industry which are regulated, this chapter focuses on the specific challenges facing economic regulators and the options available to them. Alternative strategies for economic regulation can be discussed at a number of levels. The categories of alternatives which are used to discuss options throughout this chapter are adapted from those identified by Beecher.[86] These categories, summarized in Table 5-1, include a range of options for: institutional arrangements; organizational resources; scopes of jurisdiction and authority; methods of oversight including regulatory processes and ratemaking methods; and, strategies for addressing the viability of small utilities.

Table 5-1: Comprehensive framework for reviewing regulatory alternatives.

| | |
|---|---|
| Institutional Structure | Which agency (if any) should regulate water utilities for economic purposes? |
| Organizational Resources | What organizational resources are required to support the cost of regulation and how will they be recovered? |
| Scope of Jurisdiction | Who are the regulated water utilities and what thresholds or forms of ownership define jurisdiction? |
| Scope of Authority | How will regulated utilities be regulated in terms of the scope of regulatory authority over rates, returns and other issues? |
| Methods of Oversight | What specific regulatory processes and ratemaking methods are required for oversight of the water industry? |
| Viability Policies and Assessment Methods | What specific policies and methods are required to ensure the viability of small water utilities? |

Source: Adapted from Beecher (1995a) p. 105.

Alternatives are described based on a review of literature and reports, and in light of experience in other jurisdictions, including that of other provinces in Canada, and of other

[86] Beecher (1995a) at 105.

countries. The applicability of options in British Columbia is also discussed. Participants' responses to the relevant sections of the telephone questionnaire (Chapter 2) are presented where applicable and provide a useful initial measure of the feasibility, desirability and acceptability of certain options for the province. Before examining possibilities for reform, however, it is important to understand the underlying challenges facing economic regulators as they carry out their mandate in the water sector.

## 5.2 Economics: the Industry and the Challenge

There are a number of economic characteristics of the water industry which regulators must bear in mind. The first of these is the business of providing water and wastewater services is a natural monopoly, as described above. Two other key features of the water industry are that:

1. the production and consumption of water and wastewater services impose economic "externalities" (positive and/or negative impacts) on other individuals or communities not directly involved (e.g. wastewater pollution); and
2. water and wastewater systems assets tend to be very long-lived (e.g. distribution networks underground) and their neglect may not affect quality of service until some period of time has passed.[87]

A final characteristic of public utility industries, which is not particular to the water industry, is that utility owners / operators generally have better financial information than the regulator.[88]

The challenge facing economic regulators of water utilities is to promote economic efficiency in the water sector given these characteristics. Ideally regulators do this via cost effective policies and programs which incorporate equity considerations and which are flexible enough to allow for adaptation to changes in policy objectives and the water

[87] See Glynn et al. (1992).
[88] *Ibid.*

industry. The main objectives of these programs and policies should be to: protect consumers from high prices and low quality; and set rates which ensure a reasonable rate of return to water service providers so that they can afford to provide high quality service, meet other regulatory requirements, and have some incentive to stay in the business. In British Columbia, as in the United States, other challenges exist because the water industry is characterized by numerous small community water systems, many of which are operating at financial, managerial and technical deficits, additional challenges exist. Water utility regulators are thus faced with the task of monitoring and promoting the long-term viability of privately-owned water systems. The following sections outline options available in rising to these challenges.

### 5.3 Alternative Institutional Arrangements

The basic question addressed here is: which agency, if any, should regulate water utilities for economic purposes? Inevitably, this question is also tied to the issue of ownership, and the classic debate concerning the relative efficiency of public versus private ownership. The jury is still out on this debate although recent empirical studies suggest that: on average, publicly-owned water utilities are more efficient than privately-owned utilities although they exhibit wider dispersion between best and worst practice[89]; and for small scale water systems, private ownership is comparatively more efficient while for large scale operations, public ownership is comparatively more efficient.[90] The relative efficiencies of water utilities under the two arrangements do suggest that alteration of the ownership structure of the water supply sector is an option, and one which will have important implications for the institutional arrangements for economic regulation in the province.

As noted in previous chapters, 2% of households in British Columbia are served by 212 privately-owned water utilities, while the majority of the remaining 98% are served by

[89] Bhattacharyya (1994).
[90] Bhattacharyya (1995).

over 500 publicly-owned water utilities. One possible model would be to transform all publicly-owned water systems into private ownership and have them all be subject to the same regulatory policies. This complete divestiture of public assets was pursued in England in recent years. Another possible model would be to create a market characterized by public ownership and competitive contracts for operation with no state regulatory involvement, as is the case in France. Figure 5-1 provides a profile of the water industries in British Columbia, France, the United States, and England and Wales, based on a public private continuum.

Both of these models seem equally unfeasible in the current British Columbian context. The transformation from private to public ownership implies that municipalities and regional districts would purchase existing privately-owned utilities, which seems unlikely given the current fiscal realities of local governments. The transformation from public to private ownership at a significant scale in the near future is also unlikely, although some initiatives in this direction may occur as part of the strategy to address looming capital constraints. Thus, the provincial government needs to accommodate the continued coexistence of public and private ownership in the water supply sector in reforming the water utility regulation system.

Figure 5-1: Nature of public-private partnerships in various jurisdictions according to responsibility.

**Increasing private sector responsibility** → → → → → →

← ← ← ← ← ← **Increasing public sector responsibility**

**BRITISH COLUMBIA**

| | | |
|---|---|---|
| Municipal Service | ? ? ? Public-private Partnerships ? ? ? | Privately-Owned Utility |

**FRANCE**

| | | | | |
|---|---|---|---|---|
| Municipal Service | Management Contract | Leasing System | Privatization Contract | |

**UNITED STATES**

| | | | | | |
|---|---|---|---|---|---|
| Municipal Service | Contracting Out | Contract Management | Contract Operations | Privatization Contract | Privately-Owned Utility |

**ENGLAND AND WALES**

| |
|---|
| Privatized Water Authorities |

Terminology:

Management Contract: Arrangements whereby the local authority delegates one or more, and sometimes all, of the operations, maintenance, and management functions of a water and/or wastewater system to the private firm. The municipality is responsible for the financing, design, construction, replacement (or possibly renewal or modernization) of the facility, as well as its ownership. The average length of these contracts is 10 years or less.

Leasing System: Under this system, the municipality is responsible for new works and the private company is responsible for the operation of an already existing water and/or wastewater service. Plants / facilities are leased to the private company for the duration of the contract. The typical length of contracts under this system is 10-20 years.

Privatization Contract: A type of delegated management contract under which the municipality signs a contract with a single private company. The private company is responsible for the design, construction, operation, management, and maintenance of the facility and meets the expenditure involved either from its own financial resource or by means of external financing. The contracts are signed for 20-30 year period during which the private company effectively acts as owner and operator of the utility.

Contracting Out: See Management Contract.

Contract Management: These arrangements include models where the private partner is responsible for any of the following combinations of functions: Design Build, Design Build Major Maintenance, Design Build Operate.

Contract Operations: These arrangements include models where the private partner is responsible for any of the following combinations of functions: Lease Develop Operate, Build Lease Operate Transfer, Build Transfer Operate.

Source: Adapted from J.F. Petry, "Privatization -- Worldwide Trend," Proceedings, AWWA 1986 Annual Conference: Water -- Key to Life, Denver, Colorado, June 22-26, 1986, American Water Works Association, Denver, Colorado, U.S.A., 1986, in Moraru-de Loe and Mitchell (1993), p. 139.

A survey of other jurisdictions reveals that a variety of models exist in the area of institutional arrangements.[91] The differences in the characteristics of the water sectors in these jurisdictions provide insight into the need for regulatory systems to adapt to those characteristics. At an international level (Table 5-2), institutional arrangements have evolved based on the characteristics of the water industry, and especially the ownership structure, in the country.

Table 5-2 Comparison of global regulatory alternatives.

| Country | Nature of Regulation | Selected Features |
|---|---|---|
| United States | State public utility commissions | Ratebase/rate-of-return regulation |
| Great Britain | Centralized incentive regulation | Price caps, single administrator (Office of Water, OFWAT) |
| France | Municipal contract regulation | Indexing, negotiations, reviews |
| Chile | Regulation by national tariff boards | Performance measures, yardstick competition |
| Argentina | Price-cap regulation by a regulatory agency | Operational contract, 5-year price caps, 30-year planning horizon |

Source: Beecher et al. (1995), p. 169. Based on a World Bank Workshop held in April 1994.

The system in British Columbia is very similar to that in the United States, where: water utilities may be under public, private, or joint ownership and operation; and the economic regulation of water, and in some cases wastewater, utilities is carried out by state public utility commissions. The only real difference is that in British Columbia, regulation is not carried out by the public utility commission (BCUC). However, as noted in Chapter 3, the water utility regulator in the province (Comptroller of Water Rights) is granted the same powers and responsibilities in legislation as the BCUC.

[91] The meaning of some of the unfamiliar regulatory terms in the table are clarified in the section on alternative ratemaking processes and methods.

Table 5-3: Comparison of provincial institutional arrangements for economic regulation of water utilities.

| PROVINCE | NATURE OF REGULATION | |
|---|---|---|
| | **Privately-owned utilities** | **Publicly-owned utilities** |
| British Columbia | Provincial water utility regulator (separate provincial energy utility commission) | Self-regulated with limited oversight by Ministry of Municipal Affairs and Housing |
| Alberta | Provincial public utility commission | Self-regulated |
| Saskatchewan | No private utilities | Rate approval by local government and then by provincial Municipal Board |
| Manitoba<br>**sewer also** | Provincial public utilities board | Provincial public utilities board (except City of Winnipeg) |
| Ontario | No provincial economic regulation: privately-owned utilities are overseen by local governments | Self-regulated with some oversight by Ministry of Municipal Affairs |
| Quebec | No private water utilities | Self-regulated with some oversight by Ministry of Municipal Affairs |
| New Brunswick | No private water utilities | Self-regulated |
| Prince Edward Island | Provincial regulatory and appeal commission | Self-regulated for larger municipalities<br>Provincial regulatory and appeal commission for remaining smaller municipalities |
| Nova Scotia | Provincial public utility board | Provincial public utility board |
| Newfoundland | No private water utilities | Self-regulated |
| Note: The words commission and board are used interchangeably. | | |

Source: Based on telephone interviews with representatives from provincial agencies and public utility commissions in Canada.

At a national level, a telephone survey of other Canadian provinces provided the information summarized in Table 5-3. Of note again is that British Columbia is the only province, of those regulating private water utilities, where regulation of water utilities is dealt with separately from the regulation of other utilities, and where the regulator is not an independent commission. Also of interest is that Manitoba is the only province where wastewater utilities are economically regulated.

A number of alternative institutional arrangements for water utility regulation are available for consideration in British Columbia (Table 5-4). These options are discussed here primarily with respect to privately-owned water utilities, although they could potentially apply to public-private partnerships and publicly-owned utilities as well if the economic regulator were given any authority over them. Given the current institutional arrangements and the characteristics of the water sector in the province, some may be more appropriate or feasible. These options include regulation by: public utility commission, an existing provincial agency (as is the case at present), a new provincial water agency (which would need to be created), local governments, agencies at various levels of governments coordinated by a memorandum of understanding. A final option would be to deregulate water utilities and allow market forces and monopoly power to prevail.

Table 5-4: Alternative institutional arrangements considered.
Alternative shown in italics identifies the current structure.

| **Alternative** | **Implications** | **Key Advantages** | **Key Disadvantages** |
|---|---|---|---|
| Economic regulation is transferred to the provincial public utility commission (BCUC) | The public utility commission would need to integrate water utilities into its mandate and develop cost-recovery mechanisms to recover the costs of regulating the water industry. | Pooling of expertise among economic regulators of all sectors; oversight would be more effective with consolidated authority; substantial experience and expertise in emerging methods of public utility oversight. | Challenge of developing cost-recovery mechanisms to recover costs of water utility regulation programs. |
| *Economic regulation is retained by an existing provincial agency (status quo)* | Economic regulatory function continues is performed by the Comptroller's Staff in the Ministry of Environment Lands and Parks. | No disruption; no changes to legislation required; links to other departments and ministries well established; well situated for coordination with other initiatives and policies related to water management. | Incongruence with other regulatory functions of ministry; does not take advantage of administrative economies of scale. |

Table 5-4: Alternative institutional arrangements considered (continued).

| Alternative | Implications | Key Advantages | Key Disadvantages |
|---|---|---|---|
| Economic regulation is transferred to a new provincial water management agency responsible for all regulatory functions (economic, health, and environmental) | A new provincial agency is created to perform economic and other regulatory functions affecting the water industry. | More coordinated and comprehensive regulation; greater ability to advance provincial policy goals; management functions all working together to achieve a shared objective; savings to existing agencies. | Current political climate may not be conducive; startup costs are high; combining multiple regulatory functions would be complex. |
| Economic regulation is transferred to local governing bodies | The economic regulatory function is assumed by municipalities and/or regional districts. | Province no longer pays for economic regulation directly; local self-rule may be enhanced; oversight is maintained. | Lacking expertise, experience, and resource; potential for inefficiency, inequity and abuse is very high; long-term consumer protection and policy goals of the province may not be served. |
| Economic regulation is coordinated | The basic economic regulatory function is maintained by the public utility commission but responsibilities are actively coordinated and shared with other provincial and local agencies through memoranda of understanding and other institutional arrangements. | Reduces total administrative costs; promotes information sharing; reduces duplicative or conflicting efforts. | Developing coordination mechanisms can be costly; agency cultures and goals may not be compatible. |
| Water utilities are deregulated | Market forces and monopoly power are allowed to prevail, and consumers are left unprotected with respect to potential abuses of monopoly power by their utility. | Direct costs of economic regulation to the provinces will be saved; staff and other resources can be dismantled or reallocated; the cost of regulation to utilities will be reduced. | Surrenders provincial responsibility and the benefits of regulation; increases potential for monopoly abuse, especially with limited competition; sacrifices consumer protection. |

Source: Adapted from Beecher (1995a), p. 115-6.

The current situation of the Utility Regulation Section in the Ministry of Environment, Lands and Parks, is not ideal. For example, the mandate of the section is at odds with the general mandate of the ministry. Also, the current situation creates the potential for conflict of interest for some ministerial staff who have management responsibilities as well as formal decision making responsibilities in their role as Deputy Comptroller. The underlying issue is the section's lack of independence, or arm's length, from the government. Based on the need to address this concern, the list of alternatives identified in Table 5-4 was narrowed during the development of the telephone questionnaire. The two main alternatives presented were: 1) to move the Utility Regulation Section to arm's length of government (and the ministry); and 2) to amalgamate the section with the British Columbia Utilities Commission. Respondents were free, however, to suggest other alternatives.

One of the questions asked of survey participants regarding institutional structures was whether any form of regulatory intervention was warranted for water utilities and providers of wastewater services under various ownership structures. The detailed responses to this line of questioning are presented under the section on alternative scopes of jurisdiction. Most respondents did not support deregulation of those water utilities already subject to regulation. Participants were also asked a number of questions related to the identity of the economic regulator of water, and possibly wastewater, utilities. Responses to each question are discussed below.

- *Do you think that the economic regulator and environmental regulator of water, and possibly wastewater, utilities should be the same entity?*

  Eleven out of twelve respondents indicated no: economic and environmental regulation functions should be kept separate. The most common reason stated for this was the potential conflict of interest created if the same agency is responsible for carrying out both these functions. The provincial government has a clear role to play in setting environmental and health standards governing all water and wastewater utilities. The role of economic regulation, then, is to ensure that those standards are met at the least-cost to the consumer. While the majority of

respondents were in favour of keeping the functions separate, several pointed out the need for coordination between agencies carrying out these functions. A few also indicated that their response was a pragmatic "no": ideally, all water management functions should be housed under one roof and working together to achieve a shared objective; but realistically, given the structure of the current system, environmental and economic functions are best kept separate. The one participant who responded "yes" was in favour of pursuing an ideal, integrated model of water management under a new provincial water management agency.

- *Do you think that the economic regulator of water utilities and providers of wastewater services, assuming the latter were economically regulated, should be the same entity?*

  Eleven out of twelve participants agreed that water and wastewater service providers should be regulated by the same agency. The most commonly cited reason was that the same basic principles underlie the economic regulation of all utilities, and the same regulatory expertise is required in dealing with them. Furthermore, there are economies of scale in dealing with the two together. The lone respondent who felt that it should be a separate entity dealing with wastewater cited the need for the regulator to have expert knowledge of issues specifically related to wastewater systems. S/he suggested that at the very least, if water and wastewater were to be dealt with by the same entity, there should be a separate section within the agency with specific expertise.

- *Who do you think should regulate water utilities with respect to economic efficiency?*
  - ☐ *British Columbia Utilities Commission (BCUC)?*
  - ☐ *Utility Regulation Section under the Comptroller of Water Rights?*
  - ☐ *Other:* _____

- *Assuming that providers of wastewater services were to be regulated, who do you think should be their economic regulator?*

In response to the first question, 9 out of 12 respondents indicated they were in favour of moving the responsibility for water utility regulation to the BCUC. Of the remaining participants, one suggested that there were advantages to the regulation of utilities being retained by the Ministry of Environment, Lands and Parks. His/her reasoning was that this allowed for sharing of engineering expertise within the ministry; however, s/he also admitted that the section did need more independence and fully cost recovered programs. Another participant suggested creating a new provincial water agency capable of integrating the management of all aspects of water management, including utility regulation. The last of the group indicated s/he had no particular preference.

With respect to the identity of the economic regulator for wastewater systems, should they come under regulation, 11 out of the 12 participants would choose the BCUC. The exception was not in total disagreement but felt that wastewater systems should either be regulated by a separate entity, such as a Comptroller of Wastewater or, if under regulation by the BCUC, by a specialized section within the commission.

- *Assuming that the staff of the Utility Regulation Section under the Comptroller of Water Rights remains the economic regulator of water utilities, should the section:*
  - ❒ *remain housed in the Water Management Branch of the Ministry of Environment? or*
  - ❒ *be moved to arm's length of government?*

All of the respondents indicated they would be in favour of a move to arm's length, and most believed that almagamation with the BCUC was the preferable way of accomplishing this move.

### 5.4 Organizational Resources

Regulatory alternatives falling under the umbrella of organizational resources must answer the question: what organizational resources are required for regulation and how will costs

be recovered? Options in this category of alternatives are not dealt with extensively in literature nor were they incorporated in the telephone questionnaire. However, one author summarizes a number of models (Table 5-5). Regardless of source of funding, the challenge for water utility regulators is the development of cost-effective regulatory programs, and cost-recovery mechanisms.[92] This challenge exists for two main reasons. Firstly, due to the high caseload, the financial and human resources allocated to water utility regulation by public utility commission are often greater than those allocated to the regulation of other industries. In addition, the funds recovered from the water industry to pay for the cost of regulation are usually insufficient.

Table 5-5: Alternative organizational resource arrangements for funding of regulatory programs considered. Alternative shown in italics indicates the current situation.

| **Alternative** | **Implications** | **Key Advantages** | **Key Disadvantages** |
|---|---|---|---|
| Fees assessed on regulated water utilities | The cost of regulating each industry is fully allocated to each industry, and regulatory fees based on water industry revenues, are expected to support the cost of regulation. | Avoids inter-industry subsidies; supports the user-pay principle; forces cost control on regulators. | Revenues of the regulated water industry are not sufficient to support even basic regulatory function; ratepayers could be unduly harmed by excessive fees in water rates. |
| Fees assessed on other regulated utilities | The cost of regulating the water industry is supported in part by the fees assessed to the other regulated utilities, such as electric or gas utilities. | Spreads the cost of regulation progressively according to industry revenues; recognizes economies of scope in regulation. | Inter-industry subsides are perceived as unfair and discriminatory; calls into question the cost-effectiveness of water industry regulation. |
| *General revenues from the province* | The public utility commission seeks funding from the province to cover the entire cost of regulation or the cost of regulation not covered by utility assessments. | Recognizes importance and benefits of provincial economic regulatory function, even if it must be supported through tax dollars. | Runs contrary to the user-pay principle, fee-based regulation, and avoidance of subsidies and taxes. |

Source: Adapted from Beecher (1995a) p. 116-7.

[92] Beecher (1995a)

If the choice is made to move the responsibility for water utility regulation to the BCUC, or some other arms length arrangement, the issue of funding and cost recovery will need to be addressed. In both of these scenarios, the costs of water utility regulation may be recovered through self-funding mechanisms (fee assessments), through financial support from the provincial government, or some combination of both. It may also be that the model changes over time with more financial assistance from the provincial government during the initial transition period, to arms length, or to the BCUC. This support could then be phased out as cost recovery mechanisms are phased in. If amalgamation with the BCUC, and the introduction of cost recovery programs, are pursued, then a further decision would need to be made: would the costs of water utility regulation programs be fully covered by water industry fees or would they be partially covered by the regulatory fees assessed to electric and gas utilities?

The Utility Regulation Section already has some excellent ideas on how to move towards cost recovery for some of its programs. For example, the CPCN application and processing fee could be increased substantially and still be on par with development fees charged by other provincial agencies. The section estimates that increasing CPCN fees from $50 for an entire subdivision application, to $800 per lot, would allow it to recover 34% of the cost of their CPCN program.[93] Other options the Utility Regulation Section has identified for cost recovery include: a regulatory charge per lot once the connection to that lot is in service; and a trust fund management fee charged to each utility to cover the costs of monitoring and administering trust funds accounts.[94]

### 5.5 Alternative Scopes of Jurisdiction

The choice of alternatives in this category determines which water utilities are under the jurisdiction of the regulator and what thresholds, if any, define that jurisdiction. In the

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[93] British Columbia, Ministry of Environment Lands and Parks (1996a).
[94] Personal communication, Bill Worobets, February 12, 1997

United States, whose system is similar to that in British Columbia, the types of water and wastewater utilities under the jurisdiction of a state public utility commission varies from state to state. Similarly, not all states regulate the same categories of utilities (Table 5-6).

Table 5-6: Approximate number of commission-regulated water and wastewater utilities in the United States.

| | Number of Utilities Under Regulation | Percentage of Utilities by type | Number of Commissions Carrying out Regulation | Percentage of States Engaging in Regulation |
|---|---|---|---|---|
| Commission-Regulated Water Utilities | | | | |
| • Privately-owned | 4,178 | 48% | 46 | 92% |
| • Municipal | 1,677 | 19% | 12 | 24% |
| • Water Districts | 1,208 | 14% | 8 | 16% |
| • Non-profit | 1,617 | 18% | 11 | 22% |
| Total | 8,752 | 100% | 46 | 92% |
| Commission-Regulated Wastewater Utilities | | | | |
| • Privately-owned | 1,325 | 61% | 28 | 56% |
| • Municipal | 626 | 29% | 6 | 12% |
| • Water Districts | 199 | 9% | 5 | 10% |
| • Non-profit | 37 | 2% | 4 | 8% |
| Total | 2,187 | 100% | 28 | 56% |

Note: The state public utility commissions do not regulate water or wastewater utilities in Georgia, Minnesota, North Dakota, South Dakota or Washington, D.C., primarily because of the limited presence of major privately-owned water and wastewater utilities in these areas.

Source: Adapted from 1995 NRRI Survey on Commission Regulation of Water and Wastewater Utilities, in Beecher et al. (1995), p. 124.

In comparison to the U.S., all of the regulated water utilities in British Columbia fall under the privately-owned category.[95] Neither municipal water utilities nor wastewater systems under any form of ownership are economically regulated in B.C.. There are currently no size-thresholds, such as revenues or the number of customers served, used to bound the jurisdiction of regulators. A number of options are available to the province in reconsidering the scope of jurisdiction of the provincial water utility regulator (Table 5-7).

[95] The exception used to be the Greater Victoria Water District, but as of 1997, it is no longer economically regulated by the Comptroller of Water Rights.

Table 5-7: Alternative scopes of jurisdiction considered.

| Alternative | Implication | Key Advantages | Key Disadvantages |
|---|---|---|---|
| Maintain existing regulatory jurisdiction | Continue regulating the existing configuration of water systems, primarily privately-owned, as defined in existing legislation. | Familiar methods of oversight. | Limits the base from which to collect regulatory fees; does not further consumer protection goals with respect to wastewater systems or systems operated under public-private partnerships. |
| Limit regulatory jurisdiction according to system size | Decrease the number of regulated utilities by creating size threshold(s), such as revenues or the number of customers served, for economic regulation. | Could exempt a large number of water systems from provincial oversight; reduces the costs of regulation to water systems and the regulator. | Limits regulation; further limits the base from which to collect regulatory fees; effectively deregulates during a period of rising costs and uncertainty; cost-effectiveness not improved. |
| Expand regulatory jurisdiction to include wastewater systems | Extend regulation to include privately-owned wastewater systems. | Advances consumer protection and provincial policy goals; more equitable; improves economies of regulatory scope; increases base from which to collect regulatory fees. | Increases cost of regulation to regulator and wastewater utilities; requires more interagency coordination; expands regulation without altering authority or methods of oversight. |
| Expand regulatory jurisdiction beyond existing categories, possibly based on a modified scope of authority and/or methods of oversight | Extend regulation to water systems under different forms of ownership, such as publicly-owned systems, and systems operated under public-private partnerships. | Advances consumer protection and provincial policy goals; more equitable and expensive; improves economies of regulatory scope; increases base from which to collect regulatory fees. | Increases cost of regulation to regulator and utilities; may require more interagency coordination; requires modification of scope of authority and/or methods of oversight. |
| Define regulatory jurisdiction according to criteria other than size | Define the scope of jurisdiction over privately-owned and other systems according to a non-size criterion, such as consumer complaints. | Should reduce the number of regulated utilities requiring oversight; provides an incentive for utilities to comply with standards; emphasizes consumer satisfaction with service. | Number of regulated utilities requiring attention is very uncertain; difficult to raise and allocate regulatory resources; raises procedural and due process issues; can be very arbitrary. |

Source: Adapted from Beecher (1995a), p. 117-8.

The fourth option in the table of alternatives bears some further elaboration since it is an option which also involves making concurrent changes to the scope of authority. Currently in British Columbia, two main categories of water utilities exist which are not economically regulated by the economic regulator: publicly-owned utilities, and water utilities operated under public-private partnerships. Expanding regulatory jurisdiction to include either or both these categories of utilities could involve creating corresponding scopes of authority modified according to the category. For example, in the case of publicly-owned utilities, jurisdiction could be expanded to allow publicly-owned utilities to transfer their authority over rate setting to the economic regulator on a voluntary basis. Similarly, the jurisdiction of the economic regulator could be expanded such that systems operated under public-private partnerships would be economically regulated, unless they met certain exemption criteria. The economic regulator could also be identified by public and private partners as the arbitrator of disputes arising in respect of their contract. Further, if the economic regulator were to be made responsible for the approval of capital investments for either of the two categories of water utilities, one would have to expand the scope of jurisdiction accordingly. Options for developing and implementing modified scopes of authority are discussed further in Sections 5.6 and 5.7.3.

In the telephone questionnaire, participants were asked two main questions related to the scope of water utility regulators' jurisdiction:

1. *Do you think that any government intervention, in the form of economic regulation, is warranted for water utilities under the following kinds of ownership:*

- *public ownership (e.g. owned and operated by a public agency: municipality, regional district, improvement district)* ☐ *YES* ☐ *NO* ☐ *DEPENDS*
- *private ownership (e.g. owned and operated by a developer or investor)* ☐ *YES* ☐ *NO* ☐ *DEPENDS*
- *public-private partnership (e.g. owned and operated jointly by the public and private sectors under a variety of models)* ☐ *YES* ☐ *NO* ☐ *DEPENDS*

2. *The same questions were then repeated with reference to wastewater systems.*

All participants indicated that their responses and comments on the first question applied to both water and wastewater systems equally. Their responses are discussed below:

- ***Public Ownership***. There was significant disagreement among participants in this category, with responses split fairly evenly between yes, no and depends. The main arguments in favour of regulation were that although publicly-owned utilities are not operating under the profit motive, they are not necessarily operating efficiently. Regulation could provide greater discipline, cost control, accountability, transparency, and incentives for efficiency. Respondents who were against implementing regulation cited the following reasons.
    - Municipalities and regional districts are capable of looking after the interests of consumers through the local government public input process. Another layer of regulation would be superfluous.
    - The provincial government's role should be limited to setting environmental and health standards.
    - Regulation is not the solution to the inefficient management of publicly-owned water utilities.

  Some comments recorded in the "depends" category were as follows.

    - There might be room for economic regulation of municipalities and regional districts on a voluntary basis. Such a move would allow publicly-owned water utilities to claim their rates are truly based on the "user pay" principle.
    - There is a need for greater accountability and transparency in the rate setting process. This might be provided by some form of regulation, although not full regulation, as it is currently practiced for privately-owned utilities.
- Not now, but maybe later. Local governments are not ready for economic regulation right now, but once provincial and federal fiscal constraints bring about the need for rate increases and consumer resistance begins to mount, they may look for ways to rid themselves of the responsibility for rate setting. Regulation by an external entity could provide them with a way to do that.

***Private Ownership***. The majority of respondents indicated that regulation was necessary for privately-owned utilities, although some qualified their responses with a "depends". Their arguments are outlined here.

- Water utilities are providers of a monopoly service, and their activities are unchecked by competition. Therefore, regulation is necessary to protect consumers from abuses of monopolistic power and to protect the long-term financial viability of utilities in order to ensure the service continues to be provided.
- Regulation provides a necessary mechanism for resolving customer complaints regarding rates or quality of service.
- Regulation allows decisions to be made based on sound business practice, rather than on emotionally or politically charged issues.
- Regulation prevents cross-subsidization (e.g. from logging revenues).

Some comments recorded in the "depends" category were the following.

- An economic regulator might want to create a benchmarking report card so that regulatory intervention would only be triggered if the utility was performing poorly.
- Some form of protection is necessary for consumers and utilities, but maybe this would be better accomplished through direct contracts, either between local governments and the utility, or between ratepayers and the utility.

- ***Public-Private Partnerships***. Most participants (9 out of 12) responded in favour of regulation, although most qualified their response with a "depends". Comments on this issue included those below.
  - The need for regulation will depend on the public-private partnership model, and whether the ownership, responsibility and liability for a utility remain in the hands of local government or are transferred to a private company or investor.

- Utilities operated under public-private partnership arrangements should be eligible for economic regulation on a voluntary basis.
- A well established regulatory structure for public-private partnerships can provide greater certainty for the private partner and thereby reduce the risk factor. This lower risk means that the private partner will not expect as high a return on equity, which, in turn, will keep rates down.
- Ratepayers need assurance of independent review given the perception of private investors as profit-takers.

- ***Wastewater Systems***. All 12 participants indicated that their responses with respect to regulation of water utilities under the various forms of ownership applied equally to wastewater systems. A specific concern voiced by more than one participants was that a number of wastewater system owners have not adequately maintained their systems, nor have they set aside adequate reserve funds for future infrastructure upgrades and improvements. Economic regulation is seen as having potential to bring about a positive shift in this area of financial viability. However, it may not be the most appropriate option given other policy objectives. For example, environmental regulators would like to see regulatory reform in the wastewater sector provide them with tools for addressing the managerial and technical deficits of many wastewater systems as well as the environmental non-compliance those same systems.

## 5.6 Alternative Scopes of Authority

The scope of authority determines how regulated utilities are regulated with respect to rates, returns, and many other issues. In British Columbia, the economic regulator performs a number of functions in regulating privately-owned water utilities under their jurisdiction (Figure 5-2).

Figure 5-2: Regulatory functions currently performed by the Comptroller of Water Rights in British Columbia in respect of its regulation of water utilities.

- Issue certificates of convenience and necessity for new waterworks and extensions to existing water systems
- Review certificates for major construction projects
- Approve territory boundaries and changes in boundaries for authorized service lots
- Approve financial issuances and loans
- Approve mergers, acquisitions, and other ownership changes
- Review financial accounts and management practices
- Review utility management prudence
- Review conservation and drought management practices
- Review / approve metering, billing, and disconnection practices
- Approve revenue requirements, cost allocation, and rate structures
- Determine an allowed rate of return
- Review record-keeping and reporting
- Resolve consumer complaints
- Provide management of utilities under direct supervision (seized by the Crown)

Source: Adapted from Beecher et al. (1995) p. 123.

One function which the Comptroller of Water Rights is not currently empowered to carry out is that of requiring and reviewing long-term resource management plans of utilities. Some aspect of this is necessarily involved, however, in reviewing utility management prudence with respect to new capital investments if they involve increases in water supply. One approach, integrated resource planning, combines the review of utility management prudence with respect to capital planning with the explicit evaluation of both supply and demand-management options for meeting long-term resource needs. The alternatives for implementing such a planning process for capital planning are described in Section 5.7.3. The expansion of the scope of authority to include such a process could also be made to apply to publicly-owned utilities and/or systems operated under public-private partnership arrangements.

Table 5-8: Alternative scopes of authority considered.

| Alternative | Implications | Key Advantages | Key Disadvantages |
|---|---|---|---|
| Maintain existing regulatory authority | Regulation continues to cover all areas of economic activity for regulated systems, such as rates, rate structure and profits, as set out in current legislation | Familiar and fairly comprehensive; protects economic welfare of both utilities and consumers. | Very costly to implement; very reactive; can be unnecessarily cumbersome to the regulator and utilities. |
| Limit the scope of regulatory authority | Regulatory authority over all regulated utilities is limited to certain areas, such as consumer complaints about the quality of service. | Focused authority can be effective and cost-effective, even if the number of regulated utilities is expanded. | Sacrifices some areas of authority considered essential for protecting the public interest; may be difficult to implement because of the inter-relatedness of utility activities. |
| Expand the scope of regulatory authority | Existing authority over all regulated utilities is expanded to include functions not already defined by legislation or policy. | Enhances long-term water system viability; furthers other provincial policy goals; reinforces interagency coordination. | Requires additional resources, capability and expertise. |
| Define specific scopes of regulatory authority for different categories of regulated water utilities | Regulatory authority is modified depending on the category of utility. | Allows regulatory authority to be tailored and focused for each category of regulated utility; can be a more effective and cost-effective uses of limited regulatory resources. | May require additional resources, capability and expertise. |

Source: Adapted from Beecher (1995a) p. 118.

There is a range of modifications related to the scope of regulatory authority which could feasibly be applied, as noted under the last option in the table. The economic regulator's authority could cover all areas of economic activity for privately-owned utilities, and be limited to certain areas for other utilities (e.g., publicly-owned utilities and water systems

operated under public-private partnerships. Examples of modified scopes of authority are considered for various categories of utilities are discussed below.

As outlined in the previous section, the scope of jurisdiction could be expanded, based on a modified scope of authority, to give publicly-owned water utilities options with respect to rate-setting. Under such conditions, publicly-owned utilities could be given the option of: remaining unregulated with respect to its rates; requesting that the economic regulator make non-binding recommendations regarding its rate levels; or turning over authority for rate setting to the economic regulator. It may actually be advantageous in some cases for publicly-owned water utilities to submit themselves to economic regulation. For example, independent review can create greater public accountability with respect to rate setting.

Similarly, the scope of authority with respect to public-private partnerships could be expanded. One option is to place all water and wastewater utilities operated under public-private partnerships under economic regulation, subject to exemption based on criteria established by the economic regulator. Compliance with these criteria would provide the regulator with the assurance that consumers are protected from potential monopoly abuse under the partnership arrangement. For example, in California, the economic regulator requires that the public partner (municipal or regional government) maintain the following authorities and powers in order to be exempted from regulation:

- the exclusive authority to establish all rates and rate changes charged to the public;
- approval powers over any proposal of the private partner to provide new, additional or alternate service to any other public or private entity or to change the service fee paid to the private partner to the public partner;
- approval powers over the original design and construction of the project, including any changes in design, alterations or additions to the project;
- approval powers over any changes in ownership of the party or parties subject to the contingent agreement;
- the authority to impose fines and penalties for non-compliance with any provision of the executed agreement, or for failure to provide the service within the time period agreed to in the agreement;
- the authority to ensure that the project is adequately maintained;

- adequate opportunity to monitor compliance with the agreement and to ensure that the project is operated to meet any applicable federal or state water quality standards or other applicable laws; and
- adequate opportunity to amend the agreement in the event of unforeseen circumstances or contingencies, such as flood, earthquake, fire, or other natural disasters or federal tax law changes.[96]

The implementation of such a policy would have the economic regulator reviewing public-private partnership contracts to ensure that these criteria were met, and carrying out regulation of utilities which are not exempt. Another option would be for the regulator not to play a role in reviewing public-private partnerships, but to be designated in the contract as the arbitrator of disputes arising in respect of the partnership arrangement.

The telephone questionnaire did not explicitly address options for altering the scope of regulatory authority in the case of privately- and publicly-owned water utilities. However, participants were asked to consider what scope of regulatory authority might be appropriate for water utility regulators to govern their dealings with water, and possibly wastewater systems operated under public-private partnership models. The question was asked of participants as follows:

- *Assuming that the provision of water and wastewater services through public-private partnerships will be subject to some form of provincial regulation, what aspects of their functioning should be regulated?*

  Some of the comments made by participants on this topic are presented in the following paragraphs.

  - They should have the same aspects of their behaviour regulated as electric and gas utilities have by the British Columbia Utilities Commission.
  - They should have the same aspects of their behaviour regulated as private water utilities which are currently under regulation by the Comptroller.

[96] Beecher et al. (1995) at 125-6.

- The key areas that should be regulated are profits and cost of service, and the regulator should also ensure that sufficient reserve funds are set aside for future infrastructure requirements.

- These utilities, and all water utilities, should be subject to benchmark regulation. This would involve the regulator developing provincial or regional benchmarks for costs, returns, rates and performance standards. As long as utilities were meeting these benchmarks, no more detailed regulatory oversight would be required. However, regulatory intervention would be triggered in cases where utilities were not meeting the benchmark.

- Private investors in public-private partnerships need some assurance of earning a reasonable rate of return (i.e. one which allows them to recover their costs and provides them with some incentive to be in business): regulation should ensure this.

- The economic regulator should be primarily involved in dealing with quality of service complaints and in resolving disputes between public and private partners or between ratepayers and a utility. As such, they would be established as the arbitrator in an arbitration clause embedded in the partnership contract. Alternatively, the regulator might be assigned a quasi-arbitrator role, whereby it would be responsible for establishing a dispute resolution process, monitoring that process to ensure that due process is followed, and enforcing decisions resulting from the process.

- The regulation of water and wastewater services provided by public-private partnerships, and the regulation of all regulated water utilities for that matter, should be based on a deintegrated view of waterworks systems. In other words, the form of regulation would depend on a component of the water system under consideration, as well as on whether or not that component is newly installed by the public-private partnership.

In the case of new infrastructure, such as a new water treatment plant, regulation should be by contract. There would be a competitive bidding process for the contract; for example, a 20-year contract. The initial rate structure would be set in the contract, and adjustments would be carried out periodically (e.g. annually) based on some economic index (e.g. the Consumer Price Index). Formal detailed review of the rates, and of the ability of the chosen index to reflect changing costs, would occur every 5 years or so, as set out in the contract. The role of the economic regulator in all this could be to review and approve the initial contract, and to carry out the 5-year reviews.

In the case of existing infrastructure, and particularly buried distribution and collection pipe networks, contracts would like only be signed for a 5-year period. This is because assuming responsibility for existing systems entails more risk since the investor can not always be sure of what he is getting, or quantify the risks of system failure. Again, the contract would be reviewed and approved by the economic regulator. The utility would be required to provide a capital expenditure plan with the economic regulator at the mid-point of the contract, or every 2-3 years. In order to get the best performance out of the utility, the regulator could establish some incentives. For example, the utility might be allowed to keep part or all of the profits it generates through gains in their efficiency, as long as those gains do not come at the expense of performance.

## 5.7 Alternative regulatory processes and ratemaking methods

In recent years, there have been dramatic changes in the world of economic utility regulation. These changes have resulted in the development and evolution of a variety of regulatory techniques, which can be classified as either processes or methods. Today's regulator's options for regulatory processes include: generic processes ("mass" hearings), adversarial public hearings (written and oral), complaints-based regulation, and alternative dispute resolution processes. The range of ratemaking methods includes: rate-of-return

regulation; incentive regulation; refined benchmarking; performance-based regulation. Once the utility's income (as defined by total revenue, prices, or rate of return) has been established, the regulatory process turns to the design of the rate structure. The following sections will review the main characteristics, advantages and disadvantages of the techniques listed above. The information regarding alternative regulatory processes is summarized in tabular form (Table 5-9) as is the information regarding alternative ratemaking methods (Table 5-10). The application of both regulatory processes and ratemaking methods in the context of water utility regulation in British Columbia is discussed throughout.

One alternative which applies generally to methods of oversight and is applicable to both regulatory processes and ratemaking techniques is that of simplified procedures.[97] Many water utility regulators, among them the Comptroller of Water Rights in B.C., are facing the challenge of regulating hundreds of small water systems. Smaller utilities often lack the resources to meet regulatory requirements designed for much larger public utilities. One option for alleviating the regulatory burden on both regulators and utilities is to implement simplified procedures for utilities under a certain size. Aspects of the regulatory process which can be simplified include: filing requirements; proceedings; and reporting methods for annual financial reports. This method is appropriate for medium- and small-sized utilities.

### *5.7.1 Regulatory Processes*

***Public Hearings***

Historically, the most common regulatory processes have been public hearings based on the adversarial model. Hearings may be held to deal with any issue before a regulatory commission. For example, they may be held to resolve a specific dispute or to review and approve rates on an annual or periodic basis. During the hearing, written and/or oral submissions are made to the regulatory commission by a utility owner / operator and by ratepayers or other intervenors. The regulatory commission considers these submissions

[97] See note 86.

in rendering its decisions on the matter at hand. The most recent public hearing held by the Comptroller of Water Rights with respect to its economic regulation duties was the March 1996 rate hearing for the Greater Victoria Water District.

### *Generic Processes*[98]

These processes, which are essentially "mass" public hearings, allow for the determination of common cost elements used to calculate a utility's revenue (as described in the next section on ratemaking methods), such as rate-of-return or other specific types of expenditures. They provide opportunities to make determinations and develop guidelines which will affect many or most, if not all, utilities under the jurisdiction of a regulatory commission; for example, benchmarks and performance standards, among others. They can result in substantial time and cost savings since they avert the need for individual public hearings on the issue for each affected utility. The application of these processes, though, should be limited to determinations on issues which are truly regional or province-wide in scope. An example of an issue related to water utility regulation which could be best dealt with in a generic process is that of deciding whether to allow uniform ratemaking, which involves setting uniform rates across physically disconnected systems owned by the same utility.

### *Complaints-Based Regulation*[99]

This method of regulation shifts the onus from the regulator to customer groups. Under this model, the trigger for regulatory intervention comes from ratepayers. While this process can lead to more cost-effective regulation, it may also limit the degree of ongoing regulatory oversight in certain areas of a utility's performance. This model is not appropriate for large utilities because it affords very limited oversight. It is usually applied in the case of smaller utilities since it reduces the regulatory burden significantly for the regulator, and for the utility owner / operator.

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[98] Information for this section provided by personal communication, Bill Grant, February 1997.
[99] *Ibid.*

*Alternative Dispute Resolution Processes*[100]

These processes, sometimes also referred to as negotiated settlement processes, are designed to complement an existing regulatory process, rather than replace it, and may not be appropriate in all cases. The negotiated settlement process is a flexible and voluntary one: participants can choose to opt out at any time and pursue traditional channels if they are unsatisfied with the process. The main benefits of the negotiated settlement process, when it is used appropriately and approached in a spirit of innovation, are potentially better regulatory decisions and usually, cost and time savings.[101] However, it is an alternative which is new to participants thus increasing initial costs for familiarisation.[102] In some cases, due process requirements will limit the applicability of this model. [103]

The Comptroller of Water Rights has made use of alternative dispute resolution processes when resolving complaints or mediating disputes between parties. For example, after the recent rate hearings for the Greater Victoria Water District, there were a number of issues which remained unresolved after the rate hearings held in March 1996. The Comptroller encouraged the GVWD and affected parties to reach consensus on these issues within a specified period and/or make written submissions on any unresolved issues by the end of that period.

The British Columbia Utilities Commission (BCUC) also has experience in applying the negotiated settlement process in British Columbia. As energy utility regulators in a quasi-judicial, decision-making environment, the BCUC faces a number of issues when engaging in these processes, key among them the maintenance of fundamental principles of natural justice and fairness. The BCUC has developed a series of procedures and guidelines which deal with the various aspects of the process.[104]

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[100] BCUC (1996a).
[101] *Ibid.*
[102] See note 86.
[103] See note 100.
[104] See note 100.

Table 5-9: Analysis of alternative regulatory processes.

| Alternative | Implications | Key Advantages | Key Disadvantages |
|---|---|---|---|
| Public hearings | Decision making and dispute resolution mechanism based on the adversarial model. Submissions made to regulatory commission by utilities and intervenors. | Provides an opportunity for all parties to have input into the decision-making or dispute resolution process. | Costly and time consuming; highly formalistic and legalistic. |
| Generic Processes ("mass hearings") | Based on the adversarial model but allows for a regulator to make determinations on issues which will affect many or all regulated utilities | Substantial time and cost savings over holding public hearings for each affected utility. | Not applicable for dealing with all issues which come before regulators. |
| Complaints - based regulation | Shifts the onus for initiating regulatory activity from the regulator to customer groups. | Reduces agency and utility costs. | Not suitable for larger utilities; results in limited oversight. |
| Alternative Dispute Resolution or Negotiated Settlement Processes | Emphasizes resolving disputes outside of the formal regulatory process. | Can be used in conjunction with other methods; reduces costs to the province and utilities; facilitates consensus building; can help coordinate interagency oversight. | Lack of familiarity increases initial costs; participants may resist the process for strategic and other reasons; due process considerations can present a barrier to implementation. |

Source: Adapted from Beecher et al. (1995a) p. 118-9.

### *5.7.2 Ratemaking Methods*

The following are a variety of methods which can be used in the calculation of a utility's revenue requirements and rate structure. In dealing with its two largest water utilities under its jurisdiction, the Greater Victoria Water District and White Rock Utilities Ltd., the Comptroller of Water Rights has employed rate-of-return regulation in establishing and approving rates. Having had its utilities under rate-of-return regulation, the BCUC more recently turned to alternative mechanisms.

While the discussion below is structured to consider rate-of-return regulation versus incentive regulation, the distinction is arbitrary. Both methods involve a rate-of-return calculation, and both provide incentives for the utility. A more useful distinction might be based on the frequency of formal regulatory reviews of rates. For example, one could consider regulation programs characterized by less frequent formal regulatory reviews and long periods when rates are adjusted automatically using indexing mechanisms ("long programs"), and programs characterized by more frequent formal reviews and relatively short periods of time of automatic adjustment ("short programs"). The long programs usually referred to as incentive regulation, where as short programs are characteristic of rate-of-return regulation. Long review programs have greater potential for reduction of regulatory costs since the expense of frequent hearings is avoided. However, long review programs also imply greater reliance on performance-based approaches (to ensure quality of service is maintained) and on well-tuned indexing mechanisms (to ensure that rates continue to reflect the true costs of providing the service).

Table 5-10: Analysis of alternative rate setting methods.

| Alternative | Implications | Key Advantages | Key Disadvantages |
|---|---|---|---|
| Rate-of-return regulation | Maintains the traditional process of economic oversight by which the regulator evaluates and approves the utility's ratebase, rate of return, and revenue requirements. | Familiar and fairly comprehensive; protects economic welfare of both utilities and consumers; provides relatively strong economic incentives. | Very costly to implement; highly formalistic and legalistic; does not necessarily ensure efficient utility behaviour; can thwart competition. |
| Incentive regulation | Replaces traditional ratemaking with new incentive models which may include any or all of the following mechanisms: price or revenue caps, indexing mechanisms for periodic adjustment, performance standards, and profit sharing mechanisms. | Streamlines the regulatory process in the long-term; reduces regulatory costs; decreases the frequency of formal regulatory review processes; encourages efficient utility behaviour and better planning; provides clearer and more consistent incentives. | Startup and transition costs may be high; requires development of caps, indexes, benchmarks, and other standards and mechanisms; may not be effective unless other changes in the regulatory process are implemented. |

Source: Adapted from Beecher et al. (1995a), p. 119.

### *Rate-of-Return Regulation*

Also known as cost-of-service regulation, this is the traditional ratemaking method. It "allows firms to set prices which, given costs, yield a specified rate of return on investment capital."[105] The total revenue requirement of a firm is calculated as a function of operating costs and the rate base (the purchase price or capital cost minus the accumulated depreciation of the utility's assets) multiplied by the rate of return.[106] Usually rate of return regulation, as a ratemaking method, is combined with a public hearing process, or an annual rate review by an economic regulator. During these hearings or reviews, the regulator, intervenors and the utility assess acceptable levels of operating costs, the value of the rate base, and the appropriate rate of return, and the regulator then sets the rates.

This method has the advantages of being familiar and fairly comprehensive and protecting both ratepayers and utilities in a manner which is perceived to be fair.[107] On the other hand, there are a number of disadvantages of this method: it can be very expensive and time consuming to carry out annual review processes; it provides the utility with weak incentives to pursue efficiency and innovation because the resulting gains are passed almost directly to ratepayers; in certain cases, it may indirectly encourage utilities to make larger than necessary, or unnecessary, capital investments in order to expand their rate base, and thereby their profits.[108]

### *Incentive Regulation*

There are a wide variety of regulatory mechanisms which fall under the category of incentive regulation.[109] It is often difficult to distinguish between them, partly as a result of inconsistent terminology, but also because they are not necessarily mutually exclusive.

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[105] Liston (1993) and Deloitte & Touche (1993).

[106] The rate-of-return (ROR) formula can generally be represented as: Revenue requirement = Total Cost = Variable Costs + ROR x Rate Base (after Liston (1993)). A more specific formula for calculating total revenue requirements is as follows: $R = C + (V - D)^k$, where R is the total revenue requirement, C is the total of operating costs including taxes, V is the gross value of the firm's assets, D is accumulated depreciation of assets, and k is the rate of return allowed on assets. The quantity (V - D) is referred to as the firm's rate base (after McGuigan and Moyer (1993) at 697-719).

[107] Beecher (1995a) at 105.

[108] See note 105.

[109] Pfeifenberger and Tye (1995), Brown et al. (1991), Hahn and Stavins (1991), Irvin and Peters (1992).

Incentive regulation mechanisms have emerged to try and correct some of the shortcomings associated with rate-of-return regulation, and in that way, could almost be said to include all ratemaking techniques which are not strictly rate-of-return. As noted above, however, the differences between incentive and rate-of-regulation are not as great as they might first appear. Similarly, although many authors have created distinctions between various types of incentive regulation, variations on the theme of incentive regulation are not as distinct as they first appear either. Regardless, the main characteristic of incentive forms of regulation is that they attempt to provide the utility with greater incentives for cost reduction while at the same time reducing the need for frequent rate hearings.

A number of techniques are commonly associated with incentive regulation programs: profit sharing mechanisms, indexing mechanisms, performance-based approaches and benchmarking techniques. Profit sharing mechanisms create explicit procedures for sharing the benefits and costs of an incentive program. Indexing mechanisms allow a base, such as rates, costs or revenues, to be adjusted periodically using an index, to reflect changes in underlying cost structures. Adjustments are made between rate hearings without a formal regulatory proceeding and can therefore result in substantial regulatory cost savings. Three main kinds of indexing mechanisms are: cost adjustment, price caps, and revenue decoupling mechanisms.[110]

- Cost adjustment mechanisms, also called automatic rate adjustment mechanisms, allow rates to be adjusted based on indexed cost changes. The variation between actual costs and indexed costs is either appropriated by a utility, in the case of cost savings, or absorbed in the case of overruns.
- In the case of price cap mechanisms, the regulator establishes a price ceiling or "cap" for individual or average rates. The utility has full pricing freedom below these caps, which are adjusted periodically.

[110] Pfeifenberger and Tye (1995).

- Revenue adjustment mechanisms (also called revenue decoupling mechanisms) result in the placement of any differences between actual and projected revenue requirements being placed in an accrual account. Periodic rate adjustments for the next period reconcile these differences.

Indexing mechanisms provide improved incentives to utilities to improve their efficiency in order to increase their profits, whether it be through adjustments to costs, prices, revenues, or rate of return. Opportunities for utilities to increase their profits are also often tied to performance targets set by a regulator. As a result, some economists and/or regulators refer to certain forms of incentive regulation as performance-based regulation. Whatever label is attached, performance-oriented approaches tie profits to performance rather than to costs, prices, revenues or rate of return, thereby removing the incentive to invest in capital assets to boost profits.

Benchmarking techniques are yet another tool associated with incentive regulation, and allow for non-detailed regulation of many similar utilities. These techniques involve establishing standards in a various areas of performance: for example, financial, technical, operational, customer satisfaction, and reliability. These benchmarks are used in incentive regulation systems; for example, as the targets set for utilities in a performance-based regulation system. Benchmarks can also be established for certain components used to calculate rates, such as operating costs, capital assets, and depreciated value, in order to make the determination of reasonable expenses easier.

Most forms of incentive regulation incorporate some aspect of each of the tools described above: profit sharing mechanisms, indexing mechanisms, performance-oriented approaches and benchmarking techniques. As a result, using these tools to distinguish between different variations of incentive regulation, as many authors do, is not a fruitful exercise. They are better left under the umbrella of incentive regulation and described in detail.

### *5.7.3 Approval of Capital Expenditures*

As was noted in the sections on alternative scopes of jurisdiction and authority, another aspect of the regulatory system is the approval process for major capital investments. Commonly, utilities are asked to justify major capital investments on the basis of least-cost. A further step can be taken to ask utilities to give equal consideration to supply- and demand-management options when undertaking least-cost analysis. When such a requirement is added, the capital planning process then becomes an exercise in integrated resource planning (IRP), which can be defined as:

> ". . . a comprehensive form of water utility planning that encompasses least-cost analysis of demand-management and supply-management options, as well as an open and participatory decision-making process, the construction of alternative planning scenarios, and recognition of the multiple institutions concerned with water resources and the competing policy goals among them. Least-cost-planning or analysis emphasizes a balanced consideration of supply-management and demand-management options in identifying feasible least-cost alternatives for meeting future water needs. Compared with traditional planning, least-cost planning recognizes that water demand is malleable and that forecast demand does not have to be taken as a given in the planning process."[111]

One alternative available to an economic regulator in promoting the adoption of such an approach is to promote IRP through the creation of guidelines for water utilities. Compliance with these guidelines could be voluntary or mandatory, depending on the scope of the regulator's authority with respect to each category of utility. In the case of regulated water utilities, the options are presented in Table 5-11. For water and wastewater utilities operated under public ownership or under public-private partnership, the options are presented in Table 5-12. Given the growing incentive for considering demand-side management options, for their potential to meet environmental and social as well as financial objectives, IRP is a valuable capital planning method for any water or wastewater utility.

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[111] Beecher (1995b).

Table 5-11: Alternatives for the implementation of integrated resource planning for regulated (privately-owned) water utilities in British Columbia considered.

| Alternative | Implications |
|---|---|
| IRP remains voluntary for regulated utilities, and discretionary for the regulator (current situation) | Regulated water utilities may choose to engage in IRP on a voluntary basis. Also, the regulator may request (at their discretion) that regulated utilities follow an IRP process to justify all major capital investments prior to their approval for inclusion in the ratebase. |
| IRP is explicitly required in legislation for regulated utilities | Regulated water utilities must produce an integrated resource plan, to be reviewed by the regulator, as part of the approval process for major capital investments. |

In the case of regulated water utilities which are already subject to economic regulation with respect to their rates, IRP can be combined with the rate making process. For example, rates can be approved for a 5 year basis, subject to automatic periodic adjustment of all the rate factors except for major capital expenditures. Such investments, can be reviewed separately, as the need arises and in the context of an IRP, without needing to revisit the entire rate approval decision.

Table 5-12: Alternatives for the implementation of integrated resource planning considered for currently unregulated water and wastewater utilities in British Columbia.

| Alternative | Implications |
|---|---|
| Unregulated water and wastewater utilities may engage in IRP on a voluntary basis (current situation) | Unregulated water and wastewater utilities, such as municipally-owned utilities, may engage in integrated resource planning, without review by the regulator. |
| Unregulated utilities engaging in IRP may request a non-binding review of their plan by the regulator with recommendations | Non-regulated utilities, such as municipally-owned utilities, may request that the regulator review their plan and make non-binding recommendations. These recommendations would be made available to the public. |
| Unregulated utilities engaging in IRP may request a binding review of their plan by the regulator | Non-regulated utilities, such as municipally-owned utilities, may request that the regulator review their plan and make binding determinations. These determinations could be overridden through Special Direction from the municipality. |
| IRP, and the approval of capital investments by the regulator, is explicitly required in legislation for all water and wastewater utilities | All water and wastewater utilities must produce an integrated resource plan, to be reviewed by the regulator, as part of the approval process for major capital investments. |

A fundamental question which must inevitably be addressed when considering the implementation of any of these options related to IRP is the following: Which institution(s) is(are) best suited to internalize externalities or social costs[112] in the water and wastewater sectors in the province? The mandate of economic regulators, such as the Comptroller of Water Rights and the British Columbia Utilities Commission, are not completely restricted to economic efficiency as defined on a solely financial (private) cost basis.[113] Water utilities could be allowed to incur costs, with approval of the economic regulator, in order to address environmental and social externalities.

The question remains whether the provincial government would rather implement social costing via the economic regulator on a sector-specific basis, or via other provincial environmental and social regulators on an economy-wide basis. These two alternative approaches are described below.

If the economic regulator were chosen, there are a number of mechanisms it could use to consider externalities. One of these is IRP, as described above, which can involve explicit consideration of environmental externalities and social costs when making decisions about capital investments, future water supply, and demand-side management. If this option were pursued, the economic regulator could require that social and environmental costs be considered explicitly as part of the capital planning process. The economic regulator could also encourage water and wastewater utilities to adopt rate structures that take externalities into account.

If the responsibility for social costing were left with social and environmental regulators, different mechanisms would be employed. For example, the province might implement a

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[112] "An externality is defined as a positive or negative impact that a third party experiences because of an activity, for which the party neither gives nor receives complete compensation. Externalities are generally referred to as social or environmental and they may be negative or positive" (BCUC, 1996b, p. 2). "Social costs are defined as the full costs to society of some activity and are calculated as the sum of private costs (reflected by current prices in the market - also referred to as financial costs) plus or minus all externalities ... social costs are the sum of private costs plus externalities in the case of negative externalities" (BCUC, 1996b, p. 3).

[113] BCUC (1996b).

province-wide surcharge on water licenses. Alternatively, it might implement a provincial or regional market for tradable wastewater discharge permits. Province-wide subsidy programs to encourage environmentally desirable behaviour on the part of utilities would be a further option.

There are a number of arguments against implementing a sector-specific approach and involving the economic regulator.[114] One of these is that social costing is not in the mandate of economic regulators. Their role is solely to ensure that firms are providing reliable service in compliance with other regulations at the least-cost to the consumer. A second argument is that other social and environmental policies are already doing an adequate job of internalizing externality costs.

On the other hand, there a number of arguments in favour of having economic regulators carrying out the internalization of social costs.[115] The first is that current policies and regulations are not achieving full social costing. There are still incentives for ratepayers to consume excessive amounts of water and for utilities to encourage that behaviour to meet their revenue requirements. A second reason for working on a sector-specific basis is that economy-wide approaches may be very costly and/or politically difficult to implement. For example, the implementation of a surcharge on water licenses is likely to be perceived as a tax grab.

Given that better water pricing has the potential to address the capital crisis facing many water utilities in the province as well as other social and environmental objectives, sector-specific social costing via the economic regulator is likely to be more effective and efficient than other economy-wide initiatives.

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[114] *Ibid.*
[115] *Ibid.*

### *5.7.4 Applications in British Columbia*

Many, if not all, of the regulatory processes and ratemaking methods discussed above widespread applicability in B.C., although some processes and methods will be best suited to dealing with different sizes or financial classes of utilities. This argues in favour of tailoring regulatory processes and ratemaking methods to the financial/size classes of utilities in the province. As noted in the chapter describing existing institutional arrangements, regulated water utilities in British Columbia are divided into 3 classes[116] according to their annual operating revenues as follows:

- Class A: utilities with revenues over $750,000
- Class B: utilities with revenues between $150,000 and $750,000
- Class C: utilities with revenues under $150,000.

An analogous classification scheme according to size, as defined by the number of approved service connections, roughly corresponds with the three financial classes.

In general, complaints-based regulation and simplified procedures are most applicable to smaller (Class C) utilities in the province. Most of the alternative ratemaking approaches (i.e., various forms of incentive regulation), require that the same financial information (i.e., detailed review of costs and justification of those costs) as rate-of-return regulation. The application of such alternatives in B.C.'s regulated water sector is likely limited to large, and possibly medium-sized, utilities (Class A and B). Currently, in the province, a variety of regulatory processes and ratemaking methods are used to regulated the different categories of utilities (Table 5-13).

[116] This classification scheme was developed by the National Association of Regulatory Commissioners (NARUC) and modified for application in British Columbia. The scheme was mandated for application by the Comptroller of Water Rights in Orders No. 1 and 2, dated July 20th, 1973.

Table 5-13: Regulatory processes and ratemaking methods currently employed by class of utility in British Columbia.

| Category of Utility | Regulatory Processes | Ratemaking Methods |
|---|---|---|
| Class A | • public hearings<br>• alternative dispute resolution | • rate-of-return regulation |
| Class B | • public hearings for those coming under rate-of-return regulation<br>• simplified hearing procedure for remainder | • working towards rate-of-return regulation for some utilities<br>• for remainder, review and approval by Comptroller based on benchmarked costs |
| Class C | • complaints-based regulation | • review and approval by Comptroller based on benchmarked costs |

Source: Based on information obtained from the staff of the Utility Regulation Section, Water Management Branch, Ministry of Environment Lands and Parks, March 1997.

On the whole, the nature of current economic regulatory programs for water utilities in British Columbia is reactive rather than proactive. Provincial water utility regulators could benefit from developing a clear vision and articulating a strategy to guide their use of various regulatory processes and ratemaking methods. The Water Business Plan developed by the Water Division of the California Public Utilities Commission (CPUC) is an excellent example of how such a strategy might be shaped (Appendix C). The CPUC Plan identifies the goals of the commission for the next two to three years and identifies specific objectives and strategies for achieving those goals. These objectives and strategies address the commission's need to regulate two distinct size classes of water companies with different requirements and to ensure that long-term water supply needs are met.

While rate regulation of water utilities is a useful tool in protecting both consumers and utility owners financially, it may not necessarily be the best way to ensure the viability of utilities. The next section reviews some additional tools available to regulators in dealing with small nonviable utilities.

## 5.8 Alternatives for Addressing the Viability of Small Utilities[117]

The viability of small water utilities is a prominent and pressing issue for water utility regulators in British Columbia. Water utility viability can be defined in a number of ways, but what is common to all definitions are six key dimensions of viability.[118] Three of these are performance dimensions, namely technical, financial and managerial; three are institutional dimensions, namely regulatory, structural and comprehensive (Figure 5-3). The viability of water utilities in the province could be assessed and improved in any of these areas. The issue of viability is also of concern to environmental regulators of wastewater discharges since the underlying cause for environmental non-compliance of many of these systems is often the underlying non-viability of a sewer system along its performance dimensions, particularly technical and managerial.

Figure 5-3: Dimensions of water system viability and some key questions.

| | |
|---|---|
| **PERFORMANCE DIMENSIONS** | |
| Technical | • Can the system provide safe, adequate and reliable water service? |
| Financial | • Does the system have or can it acquire the capital need to provide water service that meets regulatory standards?<br>• Do the existing or proposed rates accurately, adequately, and equitably reflect the full cost of water service? |
| Managerial | • Is management competent to comply with environmental, public health and economic regulations? |
| **INSTITUTIONAL DIMENSIONS** | |
| Regulatory | • Is the certification process for emerging water systems adequate for ensuring viability?<br>• Is regulatory oversight of existing water systems adequate for ensuring their viability?<br>• Are regulators implementing appropriate tools for improving the viability of the water industry? |
| Structural | • Is the water supply industry structured to exploit economies of scale and scope and operate efficiently?<br>• Are there barriers to industry restructuring? |
| Comprehensive | • Are governmental roles in water resource management coordinated?<br>• Is integrated resource planning a guiding paradigm? |

Source: Adapted from Beecher et al. (1992), p. 19.

[117] The information for this section was obtained from Beecher et al (1992).
[118] See note 117.

A variety of assessment methods and policy models are available to assist economic regulators in addressing viability.[119] The Utility Regulation Section in British Columbia already has some policies in place in this area. These following is a progression of strategies addressing viability.[120] A discussion of policies already in place and administered by the Utility Regulation Section is also included.

*Certification*

This refers to the implementation of non-proliferation policies tied to the issuance of Certificates of Public Convenience and Necessity (CPCN). The idea is to screen any emerging water systems stringently before issuing them a CPCN. A useful tool in evaluating emerging water service providers is a set of established performance standards or viability criteria. The Utility Regulation Section does have technical / engineering design guidelines which it uses to evaluate new waterworks. It also ensures that the financial accounts for the utility be assessed by the accounting staff of the section.

For a number of years now, the section has also had a policy in place to have developers explore all other options for servicing a new development, preferably extension of service by adjacent providers, before issuing a Certificate of Public Convenience and Necessity (CPCN).[121] In recent years, only 3 to 4 of the 30 CPCN applications processed each year are for new water utilities.[122] The remainder are for extensions or amendments of existing certificates. This suggests that water utility regulators are moving towards an effective limitation of the number of new small, and potentially non-viable, water utilities. In addition to preventing the proliferation of new utilities, the CPCN can also be used to encourage prudent capital investment, and thereby promote long-term viability. For example, in reviewing CPCN applications for amendments or extensions, the economic

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[119] See note 117.

[120] This progression of strategies was adapted for the British Columbian context by the author based on the information provided by of Beecher et al. (1992) in Chapter 7 at 169-70 (see note 117).

[121] See note 117, at 54-55: "These certificates are fundamental to the economic regulation of public utilities because of their monopolistic character and the state's responsibility for assuring that they operate in the public interest".

[122] Personal communication, Bill Worobets, April 2, 1997.

regulator may require that the water utility produce an integrated resource plan to justify its proposed capital investments.

***Regulatory Oversight Through Ongoing Monitoring and Rate Reviews***

Regulatory oversight can be used to improve the viability of some, but not all, regulated water utilities. Furthermore, frequent or formal rate reviews for all small utilities in B.C. would not be cost-effective based on the sheer number of utilities to be regulated. Other methods of addressing viability may prove more fruitful given scarce human and financial resources. For example, the regulator might instead focus its efforts on outreach to those utilities which have not communicated with the regulator for a long time. Such outreach would provide an opportunity to determine whether the utility is being run properly, and whether a rate increase is needed to cover reasonable costs, ensure the system is in good working order, and meet environmental and health standards. The regulator may recommend a rate increase higher than requested by a utility in order to improve its financial picture. Another monitoring option for small water utilities is the application of performance assessment techniques.[123] Such techniques can be used to screen utilities based on their technical, financial and managerial performance and to trigger intervention.

The main regulatory program which the Utility Regulation Section has used to address the long-term financial viability of small utilities is one where trust funds are set aside from utility revenue. Under this program, utility owners are required to set aside funds each year in order to cover the costs of future replacements. The Section has had utilities set up bank accounts and irrevocable letters of authority appointing the section as the authority. This prevents utilities from withdrawing funds unless they have the approval of the Comptroller. However, there have been breaches in this system and in some cases, water utility owners have been able to pocket these funds at the expense of ratepayers. While the trust fund administration program is still fulfilling its role to some extent, reform and/or alternatives for achieving the same goal could profitably be considered.

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[123] Beecher et al. (1992) at pp. 113-142.

The second program of the Utility Regulation Section, also aimed at addressing viability, is that of revenue deficit funding. Under this initiative, a developer forming and holding a utility company for the purpose of gaining approval for a subdivision must agree to establish a revenue deficit fund as a condition for approval of their Certificate of Public Convenience and Necessity. The fund is set up to cover the cost of the revenue deficit that results because not all connections in the new systems come into use immediately, while rates are charged based on the total number of connections. The interest from the initial fund deposit made by the developer covers the revenue deficit.

***Consolidation Strategies***

These strategies can include policies and incentive structures intended to encourage mergers and acquisitions. There are economies of scale to be achieved through consolidation, sometimes referred to as regionalization, which amount to an important financial resource for the water supply sector.

Thus far in the province, most activity in this area has focused on the transfer of small non-viable utilities (both publicly- and privately-owned) to local governments, mainly regional districts. The Utility Regulation Section currently provides the Ministry of Municipal Affairs and Housing with assistance in facilitating the transfer of improvement districts to regional districts. Mergers of privately-owned utilities and acquisitions by private owners have not been nearly as common in British Columbia.[124] However, they represent a clear opportunity to address the financial viability of many small utilities. Given decreasing levels of federal and provincial assistance for local infrastructure improvements, the province may need to consider policies such as these in order to ensure adequate water service for British Columbians.

[124] Only one example exists in the province of a larger private company acquiring smaller water utilities. Personal communication, Bill Worobets, April 2, 1997.

***Direct Supervision and Decertification***[125]

These actions are considered last resort options for dealing with utilities in severe financial, technical or managerial distress. Decertification is the retraction of a utility's CPCN, and is not a very helpful option since it results in the interruption of service. Direct supervision involves an economic regulator taking over or delegating the management of the utility.

In British Columbia, water utilities come under direct supervision in one of two ways. The first is for the utility to be seized by the Comptroller of Water Rights under Section 97 of the *Utilities Commission Act*. The second is for the utility to come under *escheat* to the Crown. This happens when the utility fails to file an annual report with the Registrar of Companies for three years in a row. In such cases, jurisdiction for the utility is actually transferred to the Attorney General; however, the Attorney General, in turn, produces an Order in Council to delegate responsibility for those water utilities under *escheat* to the Comptroller. Under both scenarios, the Comptroller of Water Rights assumes responsibility for appointing a new individual(s) to the management of the water utility in question, and providing these new appointees with financial and technical assistance when necessary. There are a currently 5 water utilities under the direct supervision of the Comptroller of Water Rights.[126]

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[125] Information in this section pertaining specifically to water utilities in British Columbia was provided by Ron Simmons through personal communication, June 9, 1997.

[126] Of these 5, 2 are in *escheat*, 2 were seized under Section 97, and 1 was originally seized and will subsequently fall under *escheat* in July 1997. In most escheat cases, the owner has abandoned the utility, while in most cases of seizure, the utility's owner has not complied with an order of the Comptroller of Water Rights.

# 6. RECOMMENDATIONS: A WAY FORWARD

*The water industry: "awaits regulatory reform -- not the kind that opens competitive floodgates, but the kind that will ensure the long-term financial stability of water companies as well as safe, adequate, and affordable supplies for the public".*[127]

A number of alternatives for water utility regulation were outlined in the previous chapter. This chapter makes recommendations and discusses institutional and legislative changes required for implementation. Some recommendations are aimed at the provincial government, others at economic regulators. The recommendations are discussed with respect to alternative models in the same categories outlined in the previous chapter: institutional arrangements; organizational resources; scope of jurisdiction; scope of authority; methods of oversight such as ratemaking processes and methods; and viability policies and assessment methods. However, the discussion of recommended changes to the scopes of jurisdiction and authority has been combined under one heading since these topics are so interconnected.

## 6.1 Institutional Arrangements: Which agency should regulate water utilities for economic efficiency?

Before answering this question, it must be clear at a broader level which utilities are being regulated. Specific scenarios are outlined under the section on scope of jurisdiction and authority. Institutional arrangements for independent economic regulation are discussed here with respect to privately-owned water utilities, although they might also apply to public-private partnerships (on a mandatory basis) and public-owned utilities (on a voluntary basis), as outlined later.

There are a number of factors which speak strongly in favour of moving the responsibility for water utility regulation to arms length of government and converting the Utility Regulation Section of the Ministry of Environment Lands and Parks into a stand-alone,

[127] O'Connor and Patel (1994) at 24.

independent, quasi-judicial regulator. The first of these is the potential conflict of interest for some staff who occupy both a management role in the Ministry of Environment Lands and Parks and a formal decision-making role as Deputy Comptroller of Water Rights. The second of these is the fact that the mandate of the Utility Regulation Section is primarily economic while the general mandate of the ministry is primarily environmental. While the efforts of economic and environmental regulators clearly need to be coordinated, their mandates are nonetheless distinct.

There are other factors which suggest that a further step to amalgamate the Utility Regulation Section with the British Columbia Utilities Commission (BCUC) would be desirable. The first of these is the emerging role of the corporate private sector in the water industry through public-private partnerships. The word corporate here is used to distinguish between two distinct groups within the private sector in British Columbia: the existing private sector in British Columbia which owns and operates the regulated, privately-owned utilities in the province, and the private sector, composed of national and international firms and consortia (e.g., contract operations firms; planning, engineering and technology firms; investment firms) which are seeking to establish a presence in the province through public-private partnerships. The latter category of firms and consortia are often players in other utility sectors (e.g., electric and gas) and are accustomed to sophisticated regulation. As these firms and consortia increase their involvement in water and wastewater utility operations throughout the province, a greater degree of regulatory expertise is required for water utility regulation.

Based on these factors, I am convinced of the need to move the responsibility for water utility regulation out of the Ministry of Environment, Lands and Parks. Furthermore, I believe that in making this move, it would be best to simply amalgamate the Utility Regulation Section with the British Columbia Utilities Commission (BCUC). Not only would it grant water utility regulators the independence they require, but it could also result in significant administrative economies of scale in regulation. In addition, it would take advantage of the BCUC's existing expertise in finance, rate design, capital planning,

demand-side management, return on equity, regulatory process and administrative law. In implementing an amalgamation with the BCUC, it would be beneficial if as many of the water utility regulatory staff were transferred as possible. The existing staff of the Utility Regulation Section have regulatory expertise as well as first hand knowledge of water utilities in the province, and this experience is a valuable asset. The interaction of the staff of the Section, with its expertise in dealing with water utilities, and the BCUC, with its related experience in the energy sector and in dealing with larger firms, should result in the development of more efficient and effective programs for water utility regulation.

*Recommendation: Transfer the responsibility for economic regulation of water utilities from the Comptroller of Water Rights to the British Columbia Utilities Commission.*

Implementation of this recommendation will require legislative reform. The *Water Utility Act* will need to be repealed and the *Utilities Commission Act* will need to be amended to change the definition of "public utility" to include water utilities as they are currently defined under the *Water Utility Act.* In addition, there would also be a need to amend other legislation empowering the Comptroller of Water Rights. As described in the previous chapter, the Comptroller of Water Rights is also responsible, under the *Local Services Act*, for approving the satisfactory construction and completion of waterworks in all new subdivisions served by privately-owned utilities. The question is: assuming that the duties of the Comptroller of Water Rights with respect to water utility regulation are transferred to the BCUC, should the Comptroller's approving function under the *Local Services Act* also be transferred to the BCUC? There is a strong rationale for having this approving function staying tied to the economic regulation function because the soundness of the design, siting, and construction of waterworks clearly affect quality of service and reliability of a water utility. These issues become the concern of the economic regulator.

*Recommendation: Assuming the responsibility for economic regulation of privately-owned water utilities is transferred from the Comptroller of Water Rights to the British Columbia Utilities Commission, transfer the Comptroller's approving function for waterworks under the Local Services Act as well.*

## 6.2 Organizational Resources: What resources are required to support regulation and how will these costs be recovered?

If the Utility Regulation Section is amalgamated with the BCUC, it will need to move toward a cost recovery model. There will need to be assistance from the provincial government while a cost recovery strategy is developed and phased in. The Utility Regulation Section already has some excellent ideas on how to move towards cost recovery for some of its programs. The development of a suitable arrangement for financial support of the water utility regulation program will require consultation among the Utility Regulation Section, their executive administration at the Ministry of Environment Lands and Parks, the British Columbia Utilities Commission and the provincial government.

There are three main factors which suggest that efforts should be made to pursue self-funding. The first of these is the increasing fiscal constraint experienced at the provincial level. The second is the fact that some of the Comptroller's fees have not been updated for many years and are out of line with administrative fees being charged by other provincial agencies. For example, the application fee for a Certificate of Public Convenience and Necessity (CPCN) has not been increased since 1959.[128] Some opportunities and workable solutions for cost recovery have been identified and developed by the Utility Regulation Section. The third and final factor is the user pay principle. Consumers should pay the cost of the regulatory programs which protect them from potential monopoly power abuse.

*Recommendation: Develop a transitional funding strategy for water utility regulation programs, and in doing so, pursue cost-recovery to the maximum extent possible.*

I would also recommend that in developing this strategy, the cost of regulating the water industry not be supported in part by the fees assessed to the other regulated utilities, such as electric and gas utilities. While this may prove difficult given the relatively high per

[128] British Columbia, Ministry of Environment Lands and Parks (1996a).

capita cost of regulating water utilities, the alternative would be inequitable in that it goes against the well accepted principle that the cost of utility regulation in a given sector be borne by the customers who benefit from that regulation.

## 6.3 Scope of Jurisdiction and Authority: Who are the regulated utilities and what are the thresholds, if any, that define jurisdiction? How will regulated utilities be regulated with respect to rates, returns, and capital investments?

### *6.3.1 Existing Privately-Owned Water and Wastewater Utilities*

While there is a need for reform of various aspects of the water utility regulation system, I believe that economic regulation has a key role to play in ensuring the long-term viability of existing privately-owned water utilities in the province. Although it would ease the regulatory burden, I would not suggest decreasing the number of regulated utilities by creating a size threshold such as revenues or the number of service connections. Based on the size breakdown of water utilities currently regulated in the province (Table 3-1) virtually any size threshold would eliminate most of the utilities. Limiting jurisdiction would not be a wise move given that many of the smaller utilities are the ones whose technical, managerial, and financial viability are the most precarious. There is a clear need for water utility regulators to maintain their oversight of all currently regulated privately-owned utilities. There may be benefits, however, to expanding the scope of authority of the regulator over these utilities to include the approval of capital investments.

*Recommendation: Maintain regulatory oversight of all privately-owned water utilities currently under the jurisdiction of the Comptroller of Water Rights.*

As noted in the previous chapter, the one item which could most beneficially be added to the existing scope of authority of the economic regulator is the authority to explicitly require integrated resource planning to justify major capital investments. This would enable the regulator to ensure that only least-cost alternatives are being included in a utility's rate base. Imposing such a requirement would involve the utility submitting a integrated resource plan with any CPCN application for an extension to, or for an

amendment to a CPCN for, an existing waterworks system. This would also provide the regulator with an additional tool for encouraging the long-term viability of existing water utilities by reducing the likelihood of misinvestment.

*Recommendation: Expand the scope of authority of the economic regulator to include the ability to require regulated privately-owned water utilities to produce integrated resource plans to justify any major capital investments.*

*Recommendation: Develop a set of integrated resource planning guidelines for water and wastewater utilities.*

More information is needed before firm recommendations can be made regarding the potential addition of privately-owned wastewater utilities to the portfolio of water utility regulators. There is a need to complete an inventory of existing wastewater systems in the province and to identify cases of monopoly power abuse or neglect in the wastewater sector. Once the inventory is complete, the provincial government will be in a better position to assess the desirability of adding existing privately-owned wastewater systems to the portfolio of economic regulators. According to comments made by several telephone questionnaire respondents, I believe there are enough cases of monopoly power abuse and/or neglect in the existing private wastewater sector to justify economic regulation. Furthermore, as in the case of the private water sector, there is a strong argument to made for the implementation of capital planning approval processes for the wastewater sector. Based on the findings of the inventory, then, the provincial government might choose to have the economic regulator: perform the same oversight (rate regulation and capital planning, possibly under an IRP model) of privately-owned wastewater utilities as it does for privately-owned water utilities; or intervene on a complaints basis only and thereby focus its attention on the most pressing cases of abuse or neglect.

*Recommendation: Complete an inventory of existing wastewater systems in the province and identify any cases of monopoly power abuse or neglect. In light of the findings, and if cases of neglect or abuse do exist, decide whether to place all privately-owned wastewater utilities under full regulation or to have regulatory intervention be triggered on a complaints basis.*

### *6.3.2 Public-Private Partnerships*

Another possible change to the jurisdiction of water utility regulators would be the addition of water and wastewater utilities operated under certain models of public-private partnerships. Given the strong profit motive under which corporate private firms and consortia are operating, there is a need to incorporate some form of regulatory oversight for public-private partnerships in the water and wastewater sector. In particular, when the authority for setting rates, service levels, and practices, lies with the private partner, there is a need for consumer protection based on the monopoly rationale. The recommended scope of the economic regulator's authority over water and wastewater systems can potentially be non-intrusive.

*Recommendation: Expand the jurisdiction of water utility regulators to include water and wastewater utilities operated under public-private partnership arrangements.*

Given that most partnership contracts will govern most service parameters and economic aspects of the behaviour of a utility, placing public-private partnerships under full regulation would be clearly be inefficient and superfluous. However, there may be some cases in which the terms of the contract do not provide adequate consumer protection with respect to potential monopoly power abuse. Therefore, it would be useful for the economic regulator to review these contracts with a view to ensuring that the consumer interest is protected.

In expanding its authority with respect to public-private partnership, one potentially effective and efficient system would be for the economic regulator to develop exemption criteria with which to review and evaluate partnership contracts. These criteria would ensure that sufficient rights and authority over certain aspects of the project, such as rate setting, levels of service, design and construction of the project, monitoring of compliance, and adequate maintenance of the project, are maintained by the public partner. The criteria set out by the California state regulator, outlined in Section 5.6, could provide a useful starting point for the economic regulator in developing a model for British Columbia. If the requisite criteria were met, the partnership would be exempt from regulatory

intervention until the amendment of the contract. The likelihood is that most public-private partnerships would be exempt under such a model, but the economic regulator would have the assurance that the consumer interest is being protected. The regulator, might, however, retain the authority to require that integrated resource plans be produced to justify any major capital investments, for the reasons outlined in Section 6.3.1.

Another option, which is not mutually exclusive of implementing an exemption policy as outlined above, would be to appoint the economic regulator as the entity responsible for resolving disputes arising in respect of the public-private partnership contracts. Under this model, the economic regulator would be responsible for setting up a decision-making or dispute resolution process, acting as arbitrator, ensuring that due process is followed, and enforcing the decision or settlement. I believe that an independent economic regulator would be in a unique and appropriate position to act as arbitrator in resolving such contract disputes.

*Recommendation: Broaden the scope of the water utility regulator's authority to include the following:*

- *the review and evaluation of public-private partnership contracts based on exemption criteria developed by the regulator to ensure the consumer interest is protected;*
- *the economic regulation of utilities operated under public-private partnerships which do not qualify for exemption under the conditions in #1;*
- *approval of capital expenditures; and*
- *arbitration of disputes related to public-private partnership contracts.*

### *6.3.3 Publicly-Owned Water and Wastewater Utilities*

There is a growing rationale for expanding the jurisdiction of water utility regulators to include publicly-owned water utilities. While the interest of consumers is protected by local government through public control of rate setting, many questionnaire respondents characterized publicly-owned utilities as struggling in the areas of efficiency and accountability. Further, local governments responsible for rate increases are often politically constrained such that rates may not even recover the utility's average cost. Many local governments do not have the technical / economic expertise or accountability

mechanisms in place to ensure that least-cost supply and demand management alternatives are the ones being included in the rate base. Rate regulation and approval of capital investments by the economic regulator of water and wastewater utilities has potential benefits for all utilities, and could be implemented on a voluntary basis for publicly-owned utilities. The scope of the economic regulator could be expanded in legislation to allow for rate regulation and/or approval of capital expenditures for publicly-owned water and wastewater systems.

*Recommendation: Expand the jurisdiction of the economic regulator to allow for the voluntary regulation of publicly-owned water and wastewater utilities based on a modified scope of authority.*

Given the potential benefits of rate regulation and capital investment approval for all utilities, it may be that at some point down the road, the provincial government will want to make these regulatory processes mandatory for all water and wastewater utilities in the province. In the meantime, however, the provincial government may want to make legislative changes to expand the scope of authority of the regulator and take a phased approach, moving from a voluntary to a mandatory approach over time. The first step would be to strongly encourage local governments to take advantage of existing expertise, of the Comptroller of Water Rights and the British Columbia Utilities Commission, in such matters. Their combined experience could be brought to bear in bringing due process to capital planning, and ultimately to rate setting decisions for their municipal water and wastewater utilities. Under such a model, local governments could engage in integrated resource planning for their water and wastewater utilities and approach the economic regulator on a voluntary basis to request non-binding review or binding approval of their plan.

The implementation of such a model would require that the local government first charge its water and/or wastewater utility with the task of developing an integrated resource plan. Once the plan is complete, the local governments has two options for having the plan reviewed by the economic regulator. The first is to request that the economic regulator

review the integrated resource plan with a view to developing non-binding recommendations regarding capital investments for local government to consider. The second is to request that the economic regulator review the integrated resource plan and develop binding determinations. Under this option, the local government could reserve the right not to follow the direction of the regulator by issuing a Special Direction. While the first option is the one most likely to be chosen by the majority of local government, it would still be beneficial to leave the second option open to local governments who wanted to initiate a more binding review of their own accord.

Legislative change would be required to implement either option. In particular, with respect to the second option involving binding review, the economic regulator would need to have the authority to grant a certificate of public convenience and necessity (CPCN) for the proposed capital expenditures in the integrated resource plan. This would formalize the binding nature of the process in the second option.

*Recommendation: Expand the scope of authority of the economic regulator to allow for the binding or non-binding review of integrated resource plans for publicly-owned water and wastewater utilities.*

While local governments do have some clear incentives to engage in IRP, namely greater accountability and minimization of their risk of misinvestment, the provincial government could also provide them with additional financial incentives. For example, the provincial government could choose to require that water and wastewater utilities produce an IRP for binding approval by the economic regulator in order to qualify for infrastructure assistance programs. Similarly, it could also adopt a policy that only local governments which have completed an IRP approved by the economic regulator are qualified to borrow from the Municipal Finance Authority. The province could, alternatively, provide grants to local governments to cover the costs of developing of their first IRP.

## 6.4 Methods of Oversight: What specific regulatory tools are required for oversight of the water industry?

Ultimately, it is the appointed water utility regulator that selects the regulatory tools for oversight of regulated utilities. The Utility Regulation Section already tailors its regulatory oversight to the size of utilities in its portfolio. The challenge facing the Section now is to find ways of improving its administrative efficiency and easing the regulatory burden. One exercise which might be useful is to articulate a series of objectives and strategies for regulating each class (A, B, and C) of water utility. Possible strategies are discussed below.

Rate hearings for large (Class A) utilities have proved useful in allowing intervenors to participate in the rate setting process; however, they have also proven time consuming, and thus have not been held frequently. One solution, which would ease the regulatory burden of rate hearings while still ensuring that rates continue to reflect the true costs of providing service, would be to tailor an incentive regulation program for Class A utilities. This might involve: using price cap indexing mechanisms to adjust rates between formal regulatory review, and requiring that capital expenditures be approved using a planning process that requires consideration of all resources for meeting the demand for more water, including options to increase supply and to conserve through demand management.

In the case of medium-sized utilities (Class B), water utility regulators may want to consider developing simplified procedures. As for smaller utilities (Class C), complaints-based regulation does seem to be the best method of oversight, given the limited human and financial resources of water utility regulators. However, easing the regulatory burden on both regulators and utilities should not be the only objective. The lack of ongoing regulatory oversight under complaints-based regulation is of concern given that many smaller utilities do not have the financial resources to meet their existing and future needs for infrastructure improvement. As a result, I strongly recommend that complaints-based regulation for this class of utilities be combined with some assessment of viability, as discussed in the next section.

## 6.5 Viability Policies and Assessment Methods for Small Utilities: What policies and other tools are available to ensure the long-term financial health and stability of the water industry, and especially smaller systems?

The Utility Regulation Section is aware of the urgency of addressing viability, and of the variety of options available to it. Once changes to the institutional arrangements for water utility regulation have been implemented, the regulatory staff will be in a better position to focus on this issue. The development of an explicit strategy to assess and improve the viability of existing systems in the short-, medium- and long-terms could help regulators structure their efforts in this area.

A key component of any such strategy would be the development and implementation of policies to encourage mergers and acquisitions of smaller utilities. Another key component would be to conduct outreach by contacting smaller utilities that have not dealings with the regulator for some time and assess their performance in order to prioritize efforts to improve viability. The articulation of a strategic plan may serve as a useful tool in structuring such efforts.[129]

*Recommendation: The water utility regulator should develop and articulate an explicit strategy to assess and improve the viability of existing small utilities in the province. The strategy should: involve outreach to utilities which have not contacted the regulator in a long time and assessment of their performance; include measures to prevent the creation of utilities which will not be viable in the long-term; and encourage and support the acquisition of existing small non-viable utilities by larger, viable systems equipped with better financial, technical and managerial resources.*

[129] A report by Beecher et al. (1992) highlights the strategies and policies which a number of state public utility commissions have adopted to address viability of small water systems. The California Public Utilities Commission Water Business Plan reproduced in Appendix C also provides a model of a comprehensive strategic plan.

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## APPENDIX A

### Excerpts From 1986 Evaluation of Water Utility Regulation in British Columbia

In 1986, Ernst & Whinney Management Consultants completed an evaluation of water utility regulation. While their research was completed over 10 years ago, many of their assessments still apply today. In their report, they provided an overview of the strengths and weaknesses of the water utility regulation program made a number. They also presented some key principles they felt should be incorporated into any future regulatory program. Both these sections of the report are presented here.

**DESCRIPTION OF THE DESIRED FUTURE**

- There should be no hidden subsidies by government, suppliers, and by groups of users. Interested parties must be able to look at a water utility and easily determine the true water costs and how the costs are being allocated. Delays, work without compensation, absence of a rate of return, overbuilding, all hide the true cost of the enterprise -- both inflating the original lot price and not fairly representing the operating costs. As a first principle, the calculations should be transparent.
- Standards should be easily accessible. Once rate setting becomes rational, then one must ask: "is the rate change consistent with other costs around the province?" Providing provincial standards and comparative rates provides that information.
- Rate setting is not a function for a government department nor for a Minister. Empirical research provides the clue ass all other provinces use a Public Utilities approach in comparable circumstances. B.C. does as well, indirectly, but the appearance is not maintained. Failure to move the initial decision from with the Ministry necessitates at least some independent appeal process.
- The decision maker should be independent of the inceptors and administrators. Again the appearance of independence insulates the Ministry from the results of legislative interpretations which it cannot influence. Rate setting is always controversial and thus is kept at arm's length.
- The price of water must be realistic. Water is a scarce commodity in some parts of the province and is expensive to find and transport. In that way it is no different than gas, oil or electricity. Failure to pay a properly costed price means that the general public loses some of its resources to those who will overuse the resource because the price is low. Properly priced water means that lots are priced fairly and consumers purchase with their eyes open.
- Developing land is a private sector role; supplying water is a public sector responsibility. This again is a principle based on empirical examination. There is a consensus that generally the private sector is best equipped to develop land but most people expect water to be part of local government's role. The task therefore is to work out different ways that can be implemented to fit the public sector responsibility to specific situations.
- If government is to remain in the business of regulating water utilities, then it should do so properly. The current annual budget for the Community Water Supply Section is more than half a million dollars. The government should receive value for money from these expenditures.

## OVERVIEW OF STRENGTHS AND WEAKNESSES

| "TEN COMMANDMENTS" FOR AN "IDEAL" REGULATORY PROGRAM | IS THIS COMMANDMENT MET? | IF NOT, SO WHAT? |
|---|---|---|
| 1. Program officials should have accurate, accessible and concise knowledge about the characteristics of their "client base", including an awareness of current and future issues. | NO, there is data on the number of utilities, by region, but little, if any, information that can be used for analysis and planning. Typical data that ought to be easily accessible for each utility, and for the "universe" of utilities are:<br>• financial status;<br>• age of works and owners;<br>• attitudes of owners; and,<br>• average rate increases. | There is an inadequate information base to plan activities and obtain needed resources. For example, would it cost $75 million or $7.5 million to bring all the waterworks up to 1985 standards? How many utility operators are planning to divest their facilities? |
| 2. The Ministry should clearly state that one of its missions is to be in the business of water utility regulation and that it intends to be a "good" regulator. | NO; instead, there is the perception amongst all staff that the Ministry wants to get out of the business. | It is difficult for staff to be motivated and innovative if they know that the Ministry regards their activities as a "nuisance" to the rest of the Ministry. There is no striving for excitement and vigor! |
| 3. Adequate legislation should be in place to clearly establish the powers, roles and responsibilities of the regulators. | YES; indeed, because of the absence of other management tools and systems, the legislation becomes all-empowering and there can be the tendency to work to the letter of the law. | |
| 4. Staff should have an interest in their work and be dedicated to achieving the program's objectives. | YES; our interviews with owners/operators indicated that staff are well regarded by the people they regulate. Our interviews with staff also demonstrated their commitment to the program's objectives. We were also impressed with the number of innovative ideas they have for improved performance. | |

## OVERVIEW OF STRENGTHS AND WEAKNESSES
(continued)

| "TEN COMMANDMENTS" FOR AN "IDEAL" REGULATORY PROGRAM | IS THIS COMMANDMENT MET? | IF NOT, SO WHAT? |
|---|---|---|
| 5. Adequate resources and skills, of the right type should be in place. | NO; the activities of the program have transformed from being engineering oriented to being finance oriented. But the mix of skills in the Section does not represent this transformation. For example, there are 8 FTE's with an engineering background and only one trained accountant. In addition, 3-5 FTE's (out of the 11 FTE's in the Section) are dedicated to assisting the Ministry of Municipal Affairs, or are otherwise assigned to other duties that are not of a regulatory nature. | The program does not have the resources to carry on the needed regulatory activities; engineers are being asked to make decisions and perform analyses that normally ought to be done by other professionals. This is not economical, it is inefficient and there are doubts that the correct regulatory decisions are being made. |
| 6. The activities of the program should have an overall sense of purpose or direction, there should be a strategy and a sense of priority for daily, monthly , and annual activities. | NO; there is no overall Plan which gives a sense of where the program ought to be headed, what it ought to be doing, and how it will get there. | Staff don't know where the program is going; there is no confidence or sense of certainty that existing problems will ever be resolved. |
| 7. There should be a set of concise and documented Policies and Procedures which are understandable agreed-upon, and approved. | NO; attempts have been made to document some of the policies but they have only scratched the surface and provided little, if any, organized direction to staff. For example, what should be done when an application for a rate increase is received? | Staff are likely carrying out their activities in an inconsistent manner that could cause problems with the utilities; staff have nowhere to go for help and decisions could be made that are inconsistent with the intent of the program managers; it is extremely expensive and time consuming to train new staff (if indeed they can ever be considered trained in the absence of a description of what they are supposed to do). |

## OVERVIEW OF STRENGTHS AND WEAKNESSES
(continued)

| "TEN COMMANDMENTS" FOR AN "IDEAL" REGULATORY PROGRAM | IS THIS COMMANDMENT MET? | IF NOT, SO WHAT? |
|---|---|---|
| 8. There should be an effective and ongoing program of inspecting, monitoring, enforcing and making decisions. | NO; because of staff shortages and the need to react to crises as they occur, there are few such ongoing programs. Attempts are made to enforce orders (if staff have time). There are no inspection programs that have been negotiated with, and delivered by the Regions. The decision making process concerning applications is slow and backlogs are troublesome. Ongoing monitoring activities are limited to a cursory review of annual financial reports and a confirmation of trust fund balances with financial institutions. | There is no ongoing, proactive regulatory program. Instead, the Section reacts to applications and complaints. |
| 9. There should be a "safety valve" to deal with situations which would disrupt the normal ongoing activities of the program. | NO; all issues, no matter how heated and political, must be dealt with by government staff. | The Section is bogged down in dealing with a small number of high profile, volatile crises; management time and energy is diverted from their program tasks and spent on energy-draining, emotional issues, to the detriment of the overall program. |
| 10. Program Managers should have knowledge about the effectiveness of their programs and activities; they should be using the knowledge to plan and modify their future activities. | NO; Program Managers and Ministry executive do not know if they are being effective or if changes should be made to program activities. | More than half a million dollars is spent ever year to achieve the objective of "secure and adequate water supply at a reasonable cost" but no one knows the extent to which this is being accomplished. |

## APPENDIX B

### NRTEE Recommendations to Provincial Governments

In a recent report entitled "Water and Wastewater Services in Canada," the National Round Table on the Environment and Economy (NRTEE) made a number of suggestions to specific stakeholder groups regarding actions they could take to help achieve both environmental and economic goals in the delivery of water and wastewater services. Most of their suggestions relate more directly to publicly-owned utilities, but some of them also apply to privately-owned utilities. The following are the suggestions made to provincial governments.

- Reform regulations governing water and wastewater services, emphasizing environmental performance rather than the technological/technical process.
- Strengthen the provincial role in regulating water quality and setting environmental standards.
- Support the principle of full cost, user pay pricing in the medium and long term, and phase out capital and operational support for water and wastewater infrastructure/services to large- and medium-sized municipalities (the cut-off point would likely vary by province). Once funding support ends, a province could announce that it is no longer the lender of last recourse for water infrastructure debt incurred by large- and medium-sized municipalities. This would improve the provincial debt rating.
- Develop specific water and wastewater funding and support programs for small, rural and remote, communities. These could include direct funding and interest-free loans. They could also include technical services to promote "bundling" of projects among several small, rural, or remote communities and watershed-based planning.
- Factor in water and wastewater costs when calculating transfer payments under welfare and other social assistance programs.
- Ensure the labour agreements are respected in the event of a transfer of ownership/ management from public agencies to private operators.
- Be open to working with environmental groups on regulatory and conservation issues.

# APPENDIX C

## California Public Utilities Commission's Water Business Plan

The California Public Utilities Commission (CPUC) has developed a vision for the water supply and distribution industry in the state of California, as well as a set of strategic goals for their Water Division. This is an excellent example of how a utility commission might structure its efforts to assess and improve the viability of its water sector. The information reproduced below was obtained from the CPUC website, located at: http://www.cpuc.ca.gov/business_plan/sec_10.htm.

### WATER SUPPLY AND DISTRIBUTION INDUSTRY

*VISION 2000: The water industry's monopolistic structure remains unchanged. The industry is highly capital intensive, and the "quality" of its product is highly regulated by state and federal standards. Some competing water sources and bypass opportunities exist -- though limited. Regulatory issues surrounding upgrading facilities, maintaining adequate supply and cost recovery have emerged, and there is some movement toward a performance-based regulation. California's investor owned water companies provide about 20 percent of all the potable delivered in California. The Commission water regulatory role in the year 2000 will focus on consumer protection, safety, economic regulation of monopoly services, and some rules for, and monitoring of, competition.*

**Two to Three Year Outlook**

We continue to project, for the foreseeable future, that the traditional monopolistic structure of water delivery is likely to persist. Unlike some other utility industries the Commission regulates, technological advances are unlikely to dramatically modify the natural monopoly character of the system for delivery of drinking water to California homes and businesses. However, the concept of Alternative Regulatory Methods will be examined with the possibility of an adaptation for one or more of the Class A water utilities.

There remain, however, a number of emerging issues important for California's privately-owned water distribution systems. For example, the Commission will need to continually monitor supply issues, particularly as they relate to conservation, emergency needs,
and privately-owned systems' physical access to larger intrastate water transmission facilities.

The Division has divided its regulated water utilities into two groups, large water utilities and small water utilities/sewer utilities because the two categories require different levels of regulatory oversight. The Water Division has three Branches, one for large water utility regulation, one for small water utility regulation and an Accounting and Finance Branch that performs accounting, auditing and financial analysis on all water utilities and other utilities that the Commission regulates as requested by other divisions.

The Water Division expects to staff and process all water regulatory activities of the Commission. The Office of Ratepayer Advocates is invited to participate in any of the water proceedings that it wants to (for example, ORA may wish to address conservation issues, or it might wish to develop a low-income ratepayer assistance program for water customers). The Division will hold itself ready to work with ORA on any issues it desires to participate in, but will retain an independent perspective that will endeavor to look out for the long-term interests of water ratepayers and utilities.

The justification for this approach is threefold. First, water companies are small when compared to the energy and telecommunications utilities in California. Water utilities have relatively few staff to do regulatory work and consequently staff and the utilities generally stipulate to issues without adversarial proceeding. Secondly, water issues are normally standard monopoly ratemaking issue. The Commission has processed these issues for many years and has an established policy to work from. Thirdly, most water issues are local to the districts being served. There are usually no statewide issue in water proceedings. Where there are, ORA will be expected to also participate.

In formal proceedings before the Commission, such as General Rate Cases, the Water Division project team will not have an advisory role. The advisory needs of the Commission or Administrative Law Judge Division will be provided by other Water Division staff who will be independent of the project team.

**Fiscal Year 1996 - 1997 Objectives and Strategies**
In the next 12 months the Commission will focus on three programs:

**Program I: Large Water Company Regulation**
For the thirteen Class A (greater than 10,000 service connections) water companies, the Commission will try to improve regulation by accomplishing the following objectives.

***Objective A: Ensure just and reasonable rates while minimizing regulatory burden.***
*Strategy 1*: Meet the deadlines established in the Rate Case Plan for general rate case filings.

*Strategy 2*: Process offset, step rate and attrition advice letter filings in a timely manner.

*Strategy 3*: Develop, in the first quarter of 1997, an alternative ratemaking program for Elk Grove Water Works, a Class B company with 7,500 connections. If feasible, this program will be extended to the other six Class B companies. In calendar year 1997, the Division will develop a similar program for a district of California Water Service Company.

***Objective B: Develop efficient, thorough standards for evaluating changes to utility corporate structures.***
Many privately-owned water utilities attempt to purchase other privately-owned or public-owned water systems that would compliment their existing service. Other utilities may choose to privatize operations. Under Section 1001 of the Public Utilities Code the Commission must approve all such acquisitions and corporate structure changes.

*Strategy 1 : District Consolidation*: The Commission in the past has consolidated many water districts for ratemaking and reporting purposes, reducing the total number of districts to 56. As utilities file rate cases for the remaining districts, utilities and staff will consider consolidating districts based on the criteria of geographic location, source of water supply, geographical area, compatibility of operation, and similarity of costs of service.

*Strategy 2 : Standard Practice*: The Commission staff will work with the California Water Association to develop a standard practice that consolidates existing Commission policy in this area and provides an explicit procedure for approval of utility mergers and purchases.

***Objective C: Increase incentives for large water utilities to purchase small water utility systems***
*Strategy : Small System Acquisition*: The Commission will issue, this fiscal year, a rule making proceeding to address streamlining small water company acquisition regulations and issues affecting water company consolidations. The Commission will address the benefits and costs of small system acquisition. Unless a small water company is in reasonably close physical proximity to an existing large water company district, it may not be beneficial for customers of the small company to be served by a large water company rather than by their existing company. Alternatively, though potential customer benefits may exist, small companies may set a high price when a sale is proposed making such sales

unattractive. Currently, several applications to purchase small water companies are being considered by the Commission. The Commission will continue to support the acquisition of small troubled water companies by municipalities and by water districts.

***Objective D: Privatization issues and the use of excess resources***
*Strategy 1 : Privatization:* Commission-regulated large water companies are pursuing a policy of expanding their presence by contracting with municipal water systems to operate all or part of those systems. So far, staff and the utilities have agreed on the methods of allocating costs between regulated and non-regulated activities, but as additional utilities involve themselves in these opportunities, a formal policy may be required. The Water Division will discuss this issue with the California Water Association to determine the needs and best method of meeting those needs.

*Strategy 2 : Excess Resources*: Some large water companies are utilizing existing equipment and personnel to compete for contracts to provides services, such as billing, to other entities. The questions of cost allocation in these areas has still to be resolved, unlike larger contracts when disparate operation or separate subsidiaries make the allocation procedure more or less mechanical. The Water Division will discuss this issue also with the California Water Association to determine the specific issues and to propose a method of addressing these issues.

**Program II: Small Water Company Regulation**
For the 182 Class B, C and D (less than 10,000 service connections) water companies, the Commission will continue to ensure just and reasonable rates through informal small water general rate case and offset advice letter filings. At the same time, the Commission will try to improve regulation by accomplishing the following objectives.

***Objective A: Simplify small water rate case filings***
*Strategy 1 : Streamline Filings*: The Commission has already reduced the number of pages of workpapers that a class D company (less than 500 service connections) must file to initiate an informal General Rate Case from 45 to five. The Commission will attempt to further simplify the five page workpaper, if possible. Instructional seminars will be conducted on the use of these new forms to small companies at California Water Association meetings and by direct outreach to the small companies.

*Strategy 2 : Outreach*: The Commission continues to be concerned that small water companies who do not file for rate changes regularly are possibly being ignored by their owners. When this happens the systems can deteriorate quickly, reducing service quality and increasing the long-term costs to ratepayers. Staff will increase its stated outreach policy to those utilities who have not communicated with the Commission for a long time to determine: a) if the utility is being run properly, and b) if the utility needs a rate increase to cover reasonable costs and keep the system in good operating order.

***Objective B: Provide more responsive rate case processing, by reducing processing time to no more than 5 - 6 months.***
*Strategy 1 : Service Guarantee Plan*: Because rate decreases and service improvements do not require Commission resolution, the Commission has focused on review of filed rate increase applications to ensure just and reasonable rates. Recently, the Commission has approved the Service Guarantee Plan, memorialized in Standard Practice U-9-W. It provides a timeline for processing small water informal General Rate Cases and mandates interim increases, subject to refund, if the process takes longer than five and one-half months. The Water Division will continue to make 6-Month Progress Reports to the Commission and to the Water Industry.

*Strategy 2 : Work Processes*: Staff will develop more simplified work processes as the opportunities present themselves.

*Strategy 3 : Benchmarks*: The Division will continue to develop guidelines for certain operating expenses to make determining reasonable expenses easier.

***Objective C: Develop a process for small company offsets***
The Commission allows cost pass-through for certain items such as purchased water and power rate increases. These offsets have been used extensively by the large water companies but are almost never used by smaller companies. The Division recently proposed a resolution that instituted memorandum account protection for purchased water expenses. Staff will develop procedures to use these memorandum accounts to provide closer tracking for the small companies between incurred costs and revenues.

***Objective D: Health and Safety***
The safety of services provided by monopoly utilities is always a concern for the Commission. The Commission has a Memorandum of Understanding (MOU) with the California Department of Health Services (DHS) that requires the Commission to consider and authorize increased rates to cover facilities required by DHS in conformance with the Federal *Safe Drinking Water Act* (SDWA). While these issues apply to the Commission's Large Water as well as Small Water Programs, they affect smaller water utilities much more than the larger utilities; small companies are also often limited in their ability to respond organizationally to the SDWA requirements. The Division recently developed a revised MOU with DHS to clarify functions of the two agencies. Division management will schedule meetings with Department of Health Services Field Operations Branch and with Department of Water Resources to discuss issues of interest to these agencies and the Commission.

*Strategy 1 : Financing Opportunities*: Staff will continue to investigate alternative financing opportunities, such as special loans or grants, that might be available to the small companies to upgrade facilities to meet health and safety standards. If the SDWA is revised as presently proposed, it will include a State Revolving Fund. This will require the Commission to set standards for handling these funds if a regulated utility utilizes them.

*Strategy 2 : System Operations*: Staff will continue to work on clarifying the requirements for backflow prevention devices. One active proceeding, initiated by a formal complaint, is presently addressing this issue. Staff plans to take a more active role in providing advice in formal complaint proceedings and to participate as necessary as a result of this and similar situations.

*Strategy 3 : Coordination*: Division management will meet with Department of Health Services to identify issues of interest to that agency and ours and address those issues expeditiously.

**Program III: Meeting long-term water supply needs**
In addition to the specific Large and Small Water Programs, the Commission will continue to encounter new and emerging issues with regard to water supply issues.

***Objective A: Conservation***
Conservation affects privately-owned utilities adversely in that it lowers revenues. If some of the utility's fixed costs are included in the consumption charge which is the case for the Class A companies rather than the exception, conservation can also result in an increase in rates because the water companies' fixed costs remain even though less water is sold. Additionally, rates that increase with water use can result in windfall profits to the utility if sales are higher than expected and in significant undercollections, if sales are less than projected.

*Strategy 1: Evaluate Existing Programs*: Utility initiatives such as the low-flow toilet and shower-head programs have proven successful in encouraging customer water conservation. The Commission will continue address these programs on a case-by-case basis.

*Strategy 2: Developing New Programs*: Staff will continue to participate in the California Urban Water Conservation Council (CUWCC). By its participation, staff will address conservation issues to the CUWCC and consider possible policy solutions for recommendation to the Commission. Management will arrange a meeting with the California Department of Water Resources before the end of the second quarter of 1997 to see what conservation activities the two agencies can cooperate in and develop meeting schedules for the future to address appropriate rules for Commission regulated water utilities.

The Division will work with the Water Industry to develop agreed upon procedures for evaluating the cost-effectiveness of conservation programs during the calendar year. The Division will propose a rule that requires the larger utilities to evaluate a reasonable number of realistic conservation programs for districts for which they are requesting rate increases.

***Objective B: Recycled and Reclaimed Water***

Tertiary-treated water from sewage treatment plants is increasingly being used in lieu of potable water for irrigation, landscape watering and some process water needs. Provision of recycled water can displace sales of existing potable water and may result in stranded utility investment. Staff will continue to monitor the potentially affected utilities.

*Strategy : Recycled Water*: To eliminate financial hardship to the utility or increased rates to remaining customers. the Commission has recommended that existing retail utilities be authorized to provide recycled water service, collecting the same fixed dollar margin over cost that each utility presently makes from supplying potable water. Political pressures and potential financial windfalls to the sewer districts make this policy problematic. The Commission will be working closely with the affected water utilities and the legislature on this problem.

***Objective C: Improve Supply Access***

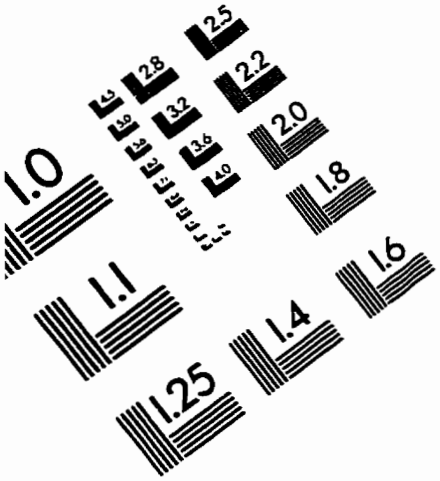
*Strategy 1 : Water Markets*: The Bradley Bill authorized customers of the Federal Central Valley Project to resell federal water without the customer losing rights to the water. This could potentially create a wholesale market for water, but probably only in years with water shortages. While the Commission's jurisdiction over these issues is limited, we will be monitoring water transfers as a result of this legislation to see if regulated utilities should be more active in identifying additional supplies.

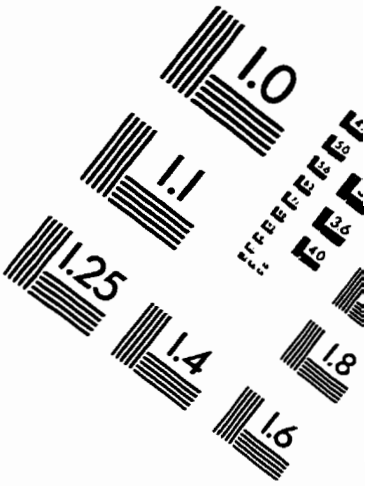
*Strategy 2 : Additional Supply:* California-American Water Company (Cal-Am) is presently under order by the State Water Resources Control Board to reduce its take of water from the Carmel River by approximately 60% and to seek other, long-term, replacements. After more than 15 years of study, the Monterey Peninsula Water Management District determined that a new dam on the upper Carmel River was the best approach to providing a secure, year-round water supply that was not detrimental to the local flora and fauna. Cal-Am filed application No. 96-11-015 on November 14, 1996 to apply for a CPCN and for authority to build the Carmel River Dam, previously called the New Los Padres Dam. An Environmental Impact Report update will probably be required, and is expected to take a minimum of thirteen months to complete.

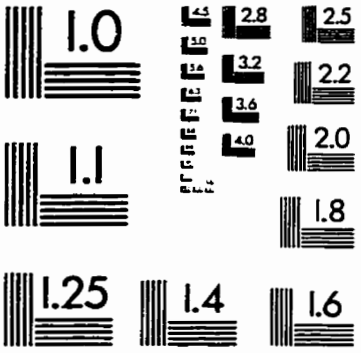
Southern California Water Company has entered into a long-term commitment to obtain State Water Project water via the Central Coast Water Agency for its Santa Maria District near San Luis Obispo. The utility will be seeking Commission approval for this commitment to purchase 500 acre-feet annually and for the authority to pass through to the ratepayers the costs of the intertie to the State Water Project.

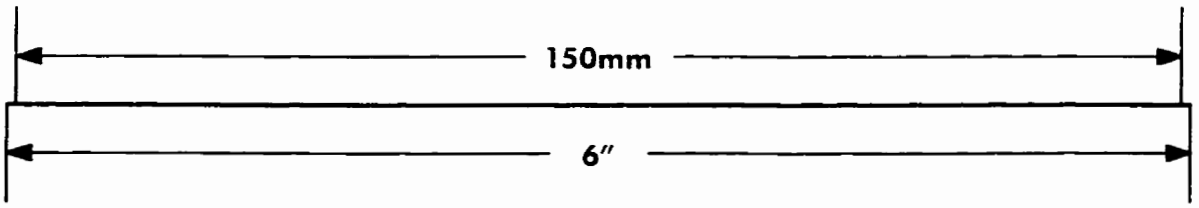
Please call 415-703-1245 for more information or to request a copy of the Water timeline.

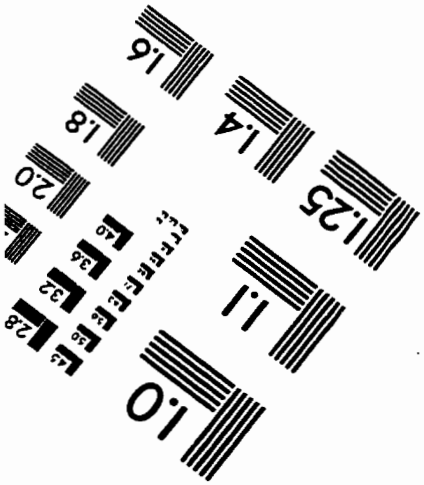
IMAGE EVALUATION
TEST TARGET (QA-3)

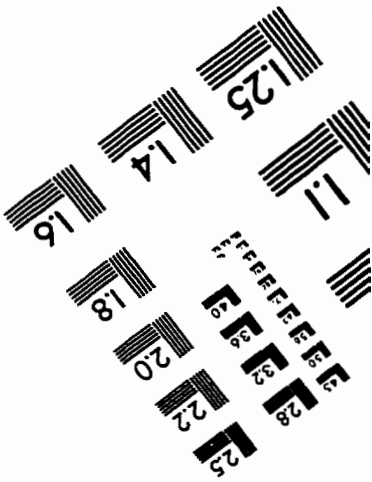
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