

A New Regulatory Framework for Drinking Water Quality in Victoria

Consultation Paper





**A New Regulatory Framework
for Drinking Water Quality
in Victoria** **Consultation Paper**

Department of Natural Resources
and Environment

Department of Human Services

August 2000

© The State of Victoria, Department of Natural Resources and Environment, August 2000

Published by
Water Sector Services
Catchment and Water Division
Department of Natural Resources and Environment
PO Box 500,
East Melbourne VIC 3002
Australia

NRE Customer Service Centre 136 186
<http://www.nre.vic.gov.au>
water.services@nre.vic.gov.au

ISBN 0 7311 4625 5

Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.



Foreword

The Bracks Labor Government is committed to improving services to all Victorians in a financially responsible manner.

This Government is committed to protecting and improving the quality of drinking water supplies. Access to a reliable supply of good quality drinking water is fundamental to community health and well being, and is essential for the development of many value-adding industries in regional Victoria, particularly in the food and tourism industries.

Improvement in drinking water quality takes a number of steps. This consultation paper covers the important step of establishing a regulatory framework by which drinking water quality is to be managed in Victoria. Implementation of the regulatory framework will facilitate consistent practices in the provision of drinking water, such as drinking water standards and a risk management approach. These factors will therefore be addressed in detail following establishment of the regulatory framework.

In summary, the regulatory framework proposes to:

- Provide a consistent regulatory framework for drinking water quality across Victoria.
- Improve the incentives for water businesses to take responsibility for drinking water quality.
- Establish a more transparent and consultative approach for setting drinking water quality standards.
- Adopt a benefit-cost approach to establishing drinking water standards.
- Allow community-based local variations to standards.
- Emphasise a risk management approach to drinking water quality.
- Clarify accountabilities for handling contamination incidents.
- Provide consumers with information on the performance of water businesses in relation to drinking water quality.

This consultation paper is provided to seek the views of all stakeholders and the community. Accordingly we encourage you to contribute your views on the Drinking Water Quality Regulatory Framework by providing written comments on the proposals.

JOHN THWAITES MP
Minister for Health

SHERRYL GARBUTT MP
Minister for Environment and Conservation

How to Have Your Say

The Government welcomes written comments on the issues raised in this consultation paper. You are encouraged to provide comment on the questions raised and on any other issues related to the proposed regulatory framework that you consider relevant.

All written comments will be made public, and where possible will be available on the Department of Natural Resources and Environment website at:

<http://www.nre.gov.au>

It would be helpful if you could provide the Department of Natural Resources and Environment with an electronic copy of your comments as a Microsoft WORD file or equivalent, or alternatively by email.

Written comments should be directed by **Friday 13th October 2000** to:

Drinking Water Quality Regulatory Framework –
Response to Consultation Paper
Director, Water Sector Services
Department of Natural Resources and Environment
Level 5, 240 Victoria Parade
EAST MELBOURNE VIC 3002

Telephone: 03 9412 4020
Facsimile: 03 9412 4360
Email: **water.services@nre.vic.gov.au**

Table of Contents

Foreword	iii
How to Have Your Say	iv
List of Definitions	vi
List of Abbreviations	vi
Executive Summary	1
1 Introduction	3
2 Objectives	3
3 Background	4
3.1 Victoria's Catchments	4
3.2 The Nature of Drinking Water Quality	4
3.3 Current Regulatory Arrangements	5
3.4 Drinking Water Standards	6
3.5 Australian Drinking Water Guidelines	6
4 Deficiencies in the Current Regulatory Framework	7
4.1 Introduction	7
4.2 Comments from Recent Reports	7
4.3 Summary of Deficiencies	9
4.4 Observations	9
5 Regulatory Framework Proposal	10
5.1 Overview	10
5.2 Good Quality Drinking Water	11
5.3 Benefit-Cost Analysis	12
5.4 Non-Potable Supplies	12
5.5 Stakeholder Responsibilities	12
5.6 Government	13
5.6.1 The Minister for Health	13
5.6.2 The Minister for Environment and Conservation	13
5.7 Service Providers	13
5.8 Regulator	14
5.9 Consumer	15
5.10 Other Stakeholders Impacting on the Delivery Chain	16
5.10.1 Bulk Water Suppliers	16
5.10.2 Catchment Management Authorities and Local Government	16
5.10.3 Body Corporate and Developments	16
5.11 Risk Management Auditor	17
6 Proposal Implications	17
6.1 Benefits	17
6.2 Costs	17
Figure 1: Drinking Water Quality Roles and Responsibilities	19
Figure 2: Stakeholder Inter-Relationships	20
Figure 3: Drinking Water Quality Regulations – Overview of Enforcement Procedures	21
Figure 4: Drinking Water Quality Audit Cycle	22
Appendix A: Current Regulatory Arrangements	23
Appendix B: Integration Structure	24
Endnotes	26
Box 1: Productivity Commission – Best Practice Principles	8

List of Definitions (for the purposes of this report)

Auditor

Independent suitably skilled reviewer, whose principal role is to assess a service provider's performance against their (the service provider's) risk management plans and systems.

Community- based variation to a standard

A standard agreed to with a local community (usually a small or remote town) for the quality of drinking water supplied, that varies from the general drinking water quality standards otherwise applying to Victoria.

Good Quality Drinking Water

Water that is aesthetically pleasing and which does not contain any pathogen, substance, object, chemical or blue-green algae toxin, whether alone or in combination, at levels that may at any time pose or be suspected to pose a risk to human health.

Improvement zone

A water quality zone where the supply does not currently meet drinking water quality requirements and which must meet such requirements within a specified period of time.

Incident management plans and systems

Comprehensive set of procedures and protocols that describe how incidents that could affect a water supply system are managed. (Incidents typically relate to possible short-term contamination of the supply or interruption to the normal mode of operation).

Minimum audit scope

Minimum range of activities, plans and systems to be reviewed by the auditor as specified by the drinking water quality regulator.

Non-potable supply

A water supply that is not intended for drinking (also known as a non-drinking supply).

Potable water (Drinking water)

Water that is intended primarily for direct human consumption, but which may have other domestic uses.

Regulatory Framework

Series of interlinked regulatory activities designed to ensure that the quality of drinking water supplied in Victoria meets specified standards and that risks are managed.

Regulator or regulatory body

The Government agency principally responsible for ensuring compliance with regulatory requirements, relating to the quality of drinking water supplied in Victoria.

Risk management plan and system

Holistic and comprehensive management strategy from catchment to tap. It considers all management and operational procedures and practices implemented to ensure that the water supplied does not pose a risk to public health, that it continuously meets specified standards and that the service provider is managing hazards and risks to the water supply with due care and diligence. This incorporates water quality information plans and systems and incident management plans and systems.

Service Provider

A body, such as a water authority, responsible for supplying drinking water.

Standard

A standard (usually numerical or quantifiable) against which some measured parameter is assessed. In the context of this report, the term water quality standard refers to a measure of the quality of water supplied to consumers.

Undertaking

Agreement between a service provider and the regulator on achievement of specified requirements within a specified period, usually in response to a non-compliance or incident.

Water quality information plans and systems

Specification of the sampling procedures and schedules that a service provider intends to implement over the coming year to meet regulatory requirements.

Water quality zone

A town, or other geographically distinct area, served by a distribution system, in which the water supplied to consumers could reasonably be expected to be of similar quality throughout all parts of the zone.

List of Abbreviations

ADWG	Australian Drinking Water Guidelines
DWQ	Drinking Water Quality
NHMRC	National Health and Medical Research Council
OECD	Organisation of Economic Cooperation and Development
WHO	World Health Organization



Executive Summary

Access to a reliable supply of good quality drinking water that meets specified requirements is fundamental to community health and well being.

It is proposed that there be a comprehensive, Victorian statewide regulatory framework for drinking water quality that provides clarity of roles and responsibilities (Government, service provider, regulator and consumers) and greater confidence in the supply of good quality water. The proposal overcomes the current difference in regulatory frameworks applying to the metropolitan and non-metropolitan water sectors, enabling consistent quality standards and management requirements to be put in place. Implementation of the proposal will support a consistent approach to the establishment of drinking water quality standards and associated risks.

An Interdepartmental Working Group from the Department of Natural Resources and Environment and the Department of Human Services has developed the proposal.

The regulatory framework has four key features:

- i. Enforceable and achievable health- and non-health-related standards for drinking water quality.
- ii. Flexibility for agreed local community-based variations to standards for drinking water quality.
- iii. Public disclosure of water quality information.
- iv. General obligations placed on service providers that are based on public health risk analysis, due diligence, hazard management and third party auditing.

Responsibility for supplying drinking water lies with the service provider. Each service provider will be required to meet a set of water quality standards, generally measured at or near the point at which water is supplied to consumers, and have in place independently-audited drinking water risk management plans and systems to provide

assurance in service delivery. There will be flexibility for specific locally relevant water quality standards to be established through community consultation, provided there is no risk to public health. The service provider will be required to report to consumers on actual performance in water quality delivery.

A drinking water quality regulator will oversee the performance of the service providers. The regulator will primarily rely on undertakings from the service provider to achieve specified requirements, independent external audit of the approach adopted and public disclosure of service delivered. The regulator will also report annually to the Minister for Health on the status of drinking water quality in Victoria.

The drinking water quality standards and risk management requirements will be set through regulations recommended by the Minister for Health, after consultation with the Minister for Environment and Conservation who has overall water portfolio responsibilities. The process for making regulations will ensure that standards are set in a transparent manner, with the community benefits and costs of particular standards clearly identified. The intention is to develop standards based on the *Australian Drinking Water Guidelines 1996*.

Implementation of the proposed framework is intended to address the concerns expressed by the Victorian Auditor-General in the *Report on Ministerial Portfolios, May 1999*. These included concerns about current drinking water quality regulatory arrangements, inconsistencies in the quality of drinking water supplied and different standards presently applying to drinking water in metropolitan and non-metropolitan urban areas. The report suggested establishment of a separate body to monitor the quality of water provided by the entire water sector. The Regulator-General has made similar comments in the report *Melbourne Retail Water & Sewerage Companies Performance Report, January 2000*.



The proposal is consistent with national directions developed as part of the National Water Quality Management Strategy for drinking water quality endorsed by the Council of Australian Governments, and is based on the *Australian Drinking Water Guidelines 1996*. In addition, the proposal supports the best practice regulatory practices identified by the Productivity Commission study – *Arrangements for Setting Drinking Water Quality Standards, International Benchmarking, 2000*.

There will be a common regulatory framework for all drinking water supplies operated by Victorian service providers. These include the three Melbourne metropolitan water companies, the fifteen regionally-based non-metropolitan urban water authorities, the six Alpine Resorts Management Boards and Parks Victoria. Smaller service providers could also be brought under the regulatory framework if this were considered necessary.

The proposed framework will also clarify roles and responsibilities amongst stakeholders for incident management in Victoria. Within the current Victorian water quality regulatory framework, responsibilities for managing risks are unclear in a number of areas. In 1998, both the Sydney water incident and the Longford gas explosion highlighted risks inherent in providing utility services and, in particular, the effects of major and prolonged disruptions to services. The Sydney water quality incident showed that blurred management responsibility is a major cause of risk to the community.

The main benefits of the proposed regulatory framework can be summarised as:

- Protection of public health, and the needs and preferences of consumers.
- Replacement of a complex and incomplete set of accountabilities with a single, statewide regulatory framework with clear roles and responsibilities, but with sufficient flexibility to allow for specific local circumstances.
- Adoption of a comprehensive preventive approach to manage risks to drinking water quality, from catchments to consumer supplies.
- Increased communication and disclosure of drinking water quality information to the public and consumers.
- Clarity of roles and responsibilities in incident management by water industry stakeholders.



1 Introduction

Access to a reliable supply of good quality drinking water is a fundamental requirement for community health and well being. The community has a right to receive consistently good quality drinking water. Meeting this expectation involves ensuring: the safety of water from a public health point of view, the water's aesthetic quality and that the community has confidence in its water supply.

Sensitivity about water quality issues and reduced confidence in incident management were aptly demonstrated by the 1998 contamination events in Sydney and the Longford gas explosion. In Sydney, lack of adequate information led to widespread community distress and outrage, resulting in a Commission of Inquiry¹ and significant changes to the manner in which the water supply in that city is managed. The Longford incident demonstrated the importance of effective incident and emergency management procedures to address community concerns when there is disruption to an essential utility service.

The Victorian Auditor-General² and the Regulator-General³ have both highlighted inadequacies in the current regulatory framework, including inconsistencies in the quality of drinking water supplied around Victoria and different standards applying to the metropolitan and non-metropolitan sectors. The recent report by the Productivity Commission⁴ also revealed that there is considerable scope to improve regulatory processes in Australia and in particular to draw on benefit-cost analysis to identify appropriate standards.

The Victorian Departments of Human Services and Natural Resources and Environment have jointly prepared this consultation paper.

Section 2 of the consultation paper sets out the proposal objectives and Section 3 provides a background to drinking water quality arrangements in Victoria. Section 4 describes the deficiencies with current arrangements. Section 5 outlines the proposed regulatory framework and its impact on the various stakeholders. Section 6 describes the benefits and costs of the proposed framework.

A series of questions is posed in Section 5 in relation to establishing the regulatory framework. Stakeholder response to these questions is requested.

2 Objectives

It is proposed that there be a comprehensive, Victorian statewide regulatory framework for drinking water quality that provides clarity of roles and responsibility to stakeholders and assurance in outcomes. This is to be achieved through provisions contained in proposed legislation.

Specifically, the principal objectives of this proposal are to:

- Protect public health in Victoria, in relation to drinking water supplies.
- Create a consistent statewide regulatory framework for drinking water quality.
- Give Victorians access to objective information about the quality of drinking water that they receive.
- Provide communities with the opportunity to establish local non-health-related standards for drinking water quality.
- Put in place a comprehensive risk management strategy for drinking water quality that covers the overall delivery chain from the catchment to consumer supplies.
- Ensure that proposed drinking water standards are subjected to a rigorous benefit-cost analysis.
- Provide clarity in drinking water incident management.

The four key features of the proposal are:

- (i) Enforceable and achievable health- and non-health-related standards for drinking water quality.
- (ii) Flexibility for agreed local community-based variations to standards for drinking water quality.



- (iii) Public disclosure of water quality information.
- (iv) General obligations placed on service providers that are based on public health risk analysis, due diligence, hazard management and third party auditing.

The main groups of stakeholders identified in delivery of the objective are Government, service providers, the regulator and consumers. Figure 1 outlines how the desired objective is reflected in the proposed roles and responsibilities of the key stakeholders.

3 Background

3.1 Victoria's Catchments

The Great Dividing Range is the dominant feature of Victoria's landscape and influences the distribution of rainfall across the State. The higher average altitude of the Divide in the east causes the major proportion of the State's rainfall to occur in the eastern half of the State. The State's major water resources and reservoirs are therefore in this area. The natural river systems and man made distribution systems transfer water from these high rainfall areas for use in other drier parts of the State.

Much of Victoria's land area provides catchments for water supplies. While Melbourne has the benefit of water catchments that are closed to public access and act as an important barrier for the prevention of contamination of drinking water, virtually all other catchments are open and used for a variety of productive purposes as well as water supply. It is impractical to reserve all water supply catchments for the single purpose of water supply. Water supplies must, therefore, be managed for quality having regard to the full range of activities that occur in the catchments, reservoirs, rivers and distribution systems.

Victoria has established an institutional structure to manage urban water supplies from the catchment to the consumer. In the metropolitan area this involves Melbourne Water and the metropolitan water companies. In the non-metropolitan sector, catchment management authorities, rural water authorities and the non-metropolitan urban water authorities all have important roles and responsibilities.

Melbourne Water manages dams, reservoirs, transfer mains and treatment plants that harvest and transfer water from Melbourne's catchments. Approximately 85% of the supply comes from closed catchments. The remainder is harvested from open catchments and is fully treated prior to supply. Melbourne Water is responsible for the supply of bulk good quality water to the metropolitan retail water companies.

The metropolitan water companies provide water services to urban consumers in and around Melbourne and the Mornington Peninsula. The companies operate the distribution and reticulation systems to provide services in their separate geographic areas.

The catchment management authorities have responsibilities for water quality through maintaining and improving river health, by managing drainage schemes, nutrient management and waterway catchment protection.

The rural water authorities are responsible for the supply of bulk water to some non-metropolitan urban water authorities as well as industry and agriculture. They operate a series of reservoirs and distribution systems, to provide bulk water entitlements and allocations to meet the water requirements of their customers.

The non-metropolitan urban water authorities are responsible for the provision of urban water supply services including the quality of supply to urban communities within their areas of operation. They operate reservoirs, treatment plants, distribution and reticulation systems to provide services to their consumers. A significant financial investment has been made in recent times to improve the quality of water supplied to consumers in regional Victoria.

3.2 The Nature of Drinking Water Quality

A wide range of substances can potentially be found in drinking water and affect its quality. These characteristics, compounds or constituents normally fall into the following categories:

- Biological / Microbiological (for example, bacteria, viruses or blue-green algae).



- Chemical (for example metals, pesticides or organic compounds, some of which are carcinogens or disinfection by-products).
- Physical (for example, taste, odour, colour or hardness).
- Radiological.

The paradox of assessing drinking water quality is that substances that make the water unappealing are often in themselves harmless, whilst the greatest health risk usually derives from micro-organisms or chemicals that are not visible and have no taste. Some parameters are of significance to health (e.g. micro-organisms, heavy metals, pesticides and disinfection by-products) while others generally are of aesthetic significance only (e.g. iron or physical parameters such as colour or hardness).

The most common and widespread health risk associated with drinking water is the presence of micro-organisms that can cause illness (pathogenic organisms). Poor drinking water quality has the potential to pose a risk to public health by aiding the transmission of infectious diseases. The Milwaukee drinking water quality incident, for example, resulted from a waterborne outbreak of cryptosporidiosis.⁵ Ongoing exposure to poor quality drinking water due to such problems as poor disinfection or recontamination caused by a breakdown of the barriers to contamination, may also affect the levels of background illness in the community.

Producing safe drinking water generally means minimising the risk of background illness as well as local widespread illness by killing, removing or rendering harmless pathogens and other microbiological contaminants in the water. In addition, the level of chemical contaminants which may have either short-term or long-term health-related effects should be minimised without compromising disinfection and microbiological quality.

International and national drinking water quality guidelines have been developed over time, providing advice to practitioners on the level of the characteristics, compounds and constituents found in water that can be regarded as consistent with good quality. These guidelines usually also

incorporate concepts of due diligence and effective risk management. Effective risk management methodologies are actively used in areas of the food industry and are gaining application in the water industry.

3.3 Current Regulatory Arrangements


In Victoria, drinking water is supplied to consumers principally by three metropolitan water companies in Melbourne and by fifteen regionally-based non-metropolitan urban water authorities in provincial cities and towns. In addition, the six Alpine Resorts Management Boards supply the ski resorts, such as Mt Buller, while Parks Victoria supplies national park areas such as Tidal River at Wilsons Promontory. As well, Government departments, statutory authorities, local government, and incorporated and unincorporated co-operatives provide supplies to a small number of remote towns, roadside amenities, caravan parks and leisure resorts.

The Departments of Human Services and Natural Resources and Environment, and the Office of the Regulator-General regulate drinking water supplies.

The Department of Human Services is the principal Victorian Government agency with overall responsibility for public health. In particular, it employs its powers under the *Health Act 1958* to administer water quality regulation systems and manage incidents, to ensure that drinking water supplies in Victoria do not pose a risk to public health.

The Health Act 1958 does not specify any particular standard for drinking water in Victoria, but provides for action to be taken by the Department if a supply presents a threat or potential threat to public health. The Act provides for regulation on a wide range of purposes associated with protecting water supplies – the *Health (Quality of Drinking Water) Regulations 1991*, and the *Health (Infectious Diseases) Regulations 1990*.

All water authorities in Victoria, including Melbourne Water, the metropolitan water companies and the non-metropolitan urban water authorities, must comply with the provisions of the *Health (Quality of Drinking Water) Regulations 1991*. The Regulations



do not apply to bodies supplying water in Victoria that are not water authorities (such as Alpine Resorts Management Boards, Parks Victoria, local co-operatives or private water suppliers).

Obligations in respect of drinking water quality are also imposed on the metropolitan water companies who operate licences issued under the *Water Industry Act 1994*. The *Water Act 1989* regulates the Victorian non-metropolitan water sector. These Acts are administered by the Minister for Environment and Conservation.

In addition, water suppliers also face general duty of care obligations under common law and obligations under the *Trade Practices Act 1974*. These can be used by consumers who suffer illness or loss to take action for damages.

Appendix A provides a detailed overview of the current regulatory arrangements for drinking water in Victoria.

3.4 Drinking Water Standards

Standards for the quality of drinking water in Victoria presently vary between the Melbourne metropolitan sector and the non-metropolitan urban sector. This has resulted largely from historic institutional arrangements and some differing local conditions affecting the quality of drinking water around Victoria.

The drinking water quality standards presently applying to the Melbourne metropolitan supply are set out in the operating licences and associated customer contracts of the metropolitan water companies.

The customer contracts give consumers "... a right to the supply of drinking water ... which is clear and free from objectionable odour and taste and that complies with the health-related parameters of *Guidelines for Drinking Water Quality in Australia 1987*, or any other requirements set by the *Department of Human Services...*"⁶ The operating licences also spell out performance standards that are also based on the *Guidelines for Drinking Water Quality in Australia 1987*.

These guidelines, commonly known as NHMRC 1987, were published by the National Health and Medical Research Council (NHMRC) and the Australian Water Resources Council. These 1987 guidelines have now been superseded by the *Australian Drinking Water Guidelines 1996* (ADWG 1996). The 1987 guidelines were applied to the metropolitan water supply because these applied to Melbourne Water at the time the licences were originally prepared in 1994.

The State Government established standards for drinking water quality for the non-metropolitan urban sector prior to 1994. They are now set out in the 1997 Memoranda of Understanding between the non-metropolitan urban water authorities and the former Minister responsible for the water portfolio. The standards are based on the World Health Organization's *Guidelines for Drinking-Water Quality* (1984 edition, commonly known as WHO 1984). Although the 1984 guidelines were revised by the World Health Organization in 1993, the revised guidelines are generally similar to those in the 1984 edition.

The 1997 Memoranda of Understanding established obligations to meet 31 specified health-related drinking water quality standards⁷ by 31 December 1999 and to carry out a sampling program over the following 12 months. A number of small and/or remote non-potable (non-drinking) water supplies managed by these authorities have been exempted from these standards. These exempted supplies are not intended for human consumption.

The principal difference between the standards applying in the metropolitan and non-metropolitan sector relates to compliance with total coliform bacteria levels.

3.5 Australian Drinking Water Guidelines

ADWG 1996 was published by the NHMRC and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) in 1996. It was based on the World Health Organization's *Guidelines for Drinking-Water Quality* (1993 revision). The WHO 1993 guidelines were framed as a document from which a national or local set of



guidelines can evolve, taking economics, health risk and other local factors into account.

ADWG 1996 was supported by all Australian State Ministers for Health and Water Supply as appropriate drinking water requirements, consistent with national directions developed as part of the National Water Quality Management Strategy endorsed by the Council of Australian Governments.

ADWG 1996 provides a comprehensive and informative base for setting performance standards for individual parameters, by defining the characteristics of good quality drinking water and procedures for managing water supply systems to ensure that consumers receive good quality drinking water. However, ADWG 1996 is not intended to be enforceable in its own right.

The Policy Review Steering Committee of NHMRC has identified best practice management of drinking water systems as the main issue to be added to ADWG 1996. Accordingly, a regulatory framework for managing drinking water quality is being developed.⁸

It is important that Victoria's regulatory framework for drinking water quality is consistent with the main features of ADWG 1996 and provides transparency in deciding what guideline values should be adopted as standards.

4 Deficiencies in the Current Regulatory Framework

4.1 Introduction

The current legal and regulatory framework for drinking water quality in Victoria has been criticised as deficient in a number of fundamental respects by both the Auditor-General and the Regulator-General. It also falls short of the characteristics of best practice in drinking water quality regulation identified by the Productivity Commission. In addition, regulatory experience demonstrates deficiencies that need to be addressed.

4.2 Comments from Recent Reports

The Victorian Auditor-General and Regulator-General have highlighted inadequacies in the current regulatory framework for drinking water quality. Their reports indicated inconsistencies in the quality of drinking water supplied around Victoria, with different standards applying to drinking water in the metropolitan and non-metropolitan sectors. Their reports suggested establishment of a separate body to monitor the quality of water provided by the entire water sector.

The Productivity Commission report is part of an ongoing program of research benchmarking the performance of economic infrastructure industries. It compares regulatory processes (not standards) for establishing and enforcing drinking water standards in Australian jurisdictions with those in Canada, France, New Zealand, the United Kingdom and the United States. Box 1 outlines the basis for examining best practice regulation and enforcement.

The report reveals that there is considerable scope to improve regulatory processes in Australia, and in particular to draw on benefit-cost analysis to identify appropriate standards.

The report found New Zealand and the United States to be leaders in providing readily understood consumer information on water quality. In the United States and the United Kingdom enforcement mechanisms are much stricter and large penalties are applied for non-compliance. Australia relies on self-reporting as in the United States and United Kingdom, with the latter having better mechanisms in place to scrutinise the information provided.

The Productivity Commission identifies the United States as demonstrating best practice through wide consultation and a very transparent process of rigorously assessing the benefit-cost of standards.

As described in the following sections, Victoria's existing regulatory practices fall short of the best practice principles described by the Productivity Commission.



Box 1: Productivity Commission – Best Practice Principles

The following principles are widely recognised by Australian governments as best practice in government administration and regulation making.

Institution settings:

- *Clearly defined objectives.* The success of an institution is judged by the extent to which it achieves clearly defined regulatory objectives.
- *Avoidance of shared responsibility.* Shared responsibilities can lead to confusion and a lack of accountability for regulatory outcomes.
- *Transparent processes.* Accountability requires processes that are transparent and a clear understanding of who is responsible for what.

Regulatory Process:

- *Adequate communication and consultation.* Community acceptance of regulation and the incorporation of design features that recognise any relevant constraints in its implementation, are best achieved if there is adequate communication and consultation with those affected by the regulation, prior to finalisation.
- *Clearly defined regulatory objectives.* The desired objective(s) of all proposed regulation should be identified and clearly defined so that it is possible to assess how effective proposed regulations would be in the achievement of the objectives.
- *Identification of regulatory alternatives.* A range of regulatory options that represent viable means of achieving the desired objectives should be identified. Regulators should look beyond regulatory approaches used in the past.
- *Benefit-cost assessment of all proposals.* Regulatory opinions should be subject to benefit-cost assessment. This enables alternatives to be ranked and the expected net benefits of the proposed regulations to be confirmed. Without this assessment process, resources may be wasted in developing and complying with a regulation that does not achieve its intended purpose.
- *Flexibility, provided that it is compatible with objectives.* Regulations should focus on outcomes that are consistent with the regulatory objectives, but subject to this constraint, they should be sufficiently flexible to allow different means of compliance that are cost effective.

Source: Productivity Commission (p XXII) – *Office of Regulation Review 1998*, Audit Office of NSW 1997.



4.3 Summary of Deficiencies

A number of deficiencies in regulatory arrangements have been identified.

First, unlike countries such as the United States, Japan, and member states of the European Community, there is **no specific obligation on service providers to supply water that meets a comprehensive set of microbiological, chemical and physical (aesthetic) requirements enshrined in legislation**. Also, there is no specific obligation to have effective risk management strategies in place. As a consequence, existing obligations are incomplete by comparison with other OECD countries.

Second, as a corollary of the above, there is **no coherent regulatory and enforcement framework** for drinking water quality in Victoria. The Department of Human Services has some intervention powers granted by regulations made under the *Health Act 1958* and the Office of the Regulator-General monitors metropolitan retail licensees' performance under their Licences and Customer Contracts. As with other essential utility services and food, however, the general disciplines of common law and trade practices legislation do not provide an effective regulatory and enforcement framework. By contrast, the majority of other OECD countries have formal compliance assessment arrangements and dedicated legal enforcement provisions to support their detailed formal water quality obligations.

Third, there are **no uniform arrangements for the generation and publication of objective and comprehensive information on drinking water quality in Victoria**. In the United Kingdom, for example, times and location of each sample are specified in advance, and audit trails are subject to external inspection by the regulator. All water quality information must be made publicly available. Any consumer can therefore request full information on the quality of water in their zone, and have confidence in the accuracy of the data. By contrast, in some non-metropolitan areas of Victoria, water quality information is either not available or not externally verifiable.

Fourth, **the division of responsibilities for the prevention and management of water quality incidents is blurred**. Service providers must provide water that is not harmful to public health, but the regulations made under the *Health Act 1958* provide general step-in powers for the Chief General Manager, Department of Human Services to deal with certain types of water quality incident. As a consequence, responsibility for prevention and management of water quality incidents is not as clear as it should be. The risk of compounding an already difficult water quality incident through a lack of clarity of responsibilities was illustrated by the handling of Sydney's water quality incident in 1998.

Fifth, **current regulatory arrangements do not cover smaller yet significant service providers** such as the Alpine Resorts Management Boards and Parks Victoria. Mt Buller, Falls Creek and Mt Hotham, the three largest alpine resorts, and Tidal River each provide seasonal accommodation for well over 500 overnight visitors. They can be considered to be small towns and thereby can be expected to provide similar service standards for drinking water.

Sixth, outside of the metropolitan area, **no formal arrangements exist to deal with the quality of bulk water supplied** to the non-metropolitan urban water authorities. In the metropolitan sector formal bulk water supply agreements provide the means to communicate water quality requirements between the bulk supplier Melbourne Water and the three metropolitan water companies. To support good management practices, it is necessary to consider the roles and responsibilities of all institutions along the delivery chain with the potential to impact on drinking water quality. In particular, the interactions between catchment management authorities, rural water authorities and the non-metropolitan urban water authorities need to be clearly expressed.

4.4 Observations

The lack of a common regulatory framework means that there are significant differences between the metropolitan and non-metropolitan urban water sectors. In particular, the water quality standards are inconsistent and different forms of regulatory oversight are applied.

The incompleteness of current institutional arrangements reduces confidence in overall management of potential risk. Recent experience has shown that provision of good quality drinking water cannot depend only upon requiring compliance with specified numerical outputs but that it also depends upon the management practices used in delivery. The regulatory framework should encourage adequate management of risks in the delivery chain. Effective outcomes are achieved through numerical results and confidence in continued delivery by adoption of a planned approach to mitigate potential risks.

As a consequence of inadequate consumer awareness about drinking water quality, water industry stakeholders are vulnerable to extreme outrage and loss of public confidence in the event of a water quality incident, as occurred in Sydney in 1998. No water supply system can be completely immune from the risks posed by a serious contamination incident. However, a comprehensive regulatory framework for drinking water quality, under which imperfections and risks are made transparent and are better understood by the community, would improve consumer confidence.

The need for a suitably resourced and managed regulatory framework is well demonstrated by the drinking water incident that occurred in Walkerton, Ontario, Canada in May 2000.⁹ This incident has prompted significant debate on drinking water quality in Canada. The Canadian Environmental Law Association has argued the need for comprehensive laws to ensure the safety of drinking water; such laws would give people a legal right to clean drinking water, set province-wide standards for drinking water, contain enforcement mechanisms and offer legal remedies for violations.¹⁰

5 Regulatory Framework Proposal

5.1 Overview

It is proposed that there be a comprehensive, Victorian statewide regulatory framework for drinking water quality. Such a proposal is to be implemented by new legislation that will replace existing legislation.

The regulatory framework is to provide clarity in roles and responsibility to stakeholders (Government, service provider, regulator and the community) and assurance in outcomes. It is consistent with national directions developed as part of the Council of Australian Governments and aims to incorporate the best practice principles described in the Productivity Commission's recent report. The proposal is designed to create a consistent framework that overcomes the current difference in regulatory approach and quality standards applying between the metropolitan and non-metropolitan water sectors.

The regulatory framework is designed to bring about good drinking water quality outcomes through cooperation and openness, with clear enforcement provisions available for use if necessary.

The intention is that common, statewide drinking water quality obligations be placed on all drinking water service providers. The regulatory framework will, however, allow for local flexibility, particularly for aesthetic criteria. Specifically, it will permit departures from statewide obligations where a case can be made based on no risk to public health. This is intended for small towns where costs of meeting particular standards may be very high. In such a case, notification and common awareness of the risks associated with the water supply must be clearly evident.

The four key features required to ensure ongoing provision of a good quality drinking water supply are:

- (i) Enforceable and achievable health- and non-health-related standards for drinking water quality.



- (ii) Flexibility for agreed local community-based variations to standards for drinking water quality.
- (iii) Public disclosure of water quality information.
- (iv) General obligations placed on service providers that are based on public health risk analysis, due diligence, hazard management and third party auditing.

In the past heavy reliance has been placed on compliance monitoring for managing drinking water quality. There is a weakness in relying solely on results based from water quality monitoring programs because of inherent shortcomings of sampling and analytical techniques, as well as inadequate consideration of the range of events that impact on drinking water quality. In addition, not all public health risks are fully understood or quantifiable (eg pathogens such as *Cryptosporidium*). As a result there is greater attention being paid to preventative system management starting in the catchment and encompassing all aspects of drinking water production and supply.

Consumers want assurance of a continuous supply of good drinking water quality. This requires demonstrated delivery of required outputs, together with continuous assurance of effective management of risks in the delivery chain.

All consumers would benefit from improved certainty in service delivery through transparency in management processes and routine disclosure of results achieved, and the establishment of a single regulator to carry out the associated monitoring and enforcement functions.

This is consistent with the approach of *Australian Drinking Water Guidelines 1996*.

5.2 Good Quality Drinking Water

Drinking water should be aesthetically pleasing and safe for the majority of consumers, including infants and the aged. Water quality and reliability should be sufficient to allow household, tourism, industrial and commercial activities (such as export food processing) to take place or be developed, thereby

providing sustainable economic benefits to the region concerned and to Victoria in general. The specialised needs of individuals or firms operating renal dialysis, medical equipment or certain food or industrial processes would continue to be the responsibility of those consumers.

With formulation of the regulatory framework it is intended to create statewide standards using as a basis the *Australian Drinking Water Guidelines 1996*.

The application of auditable **Risk Management Plans and Systems**¹¹ is an essential component of ensuring that the quality of drinking water supplied in Victoria is satisfactory. The audit process provides independent third party confirmation that plans and systems are operating as intended. The application of such plans and systems addresses the scientific shortcomings of a regulatory system based on output standards alone. The risk management plans and systems will comprise:

- **A holistic and comprehensive risk management strategy** from catchment through to consumer supplies. It considers all management and operational procedures and practices implemented to ensure that the water supplied does not pose a risk to public health, that it continuously meets specified standards, and that the service provider is managing hazards and risks to the water supply with due care and diligence.
- **Water quality information plans and systems** to ensure that sample data on water quality is as objective and accurate as possible. These plans and systems will specify in detail the sampling procedures and schedules that service providers will implement over the coming year to meet regulatory requirements.
- **Incident management plans and emergency response capability** – a comprehensive set of procedures and protocols that describe how incidents that could affect a water supply system are managed. (Incidents typically relate to possible short-term contamination of the supply or interruption to its normal mode of operation). Incidents may range from minor events to those



where the Department of Human Services or other Government agencies would be involved under the emergency management powers of the State.

5.3 Benefit-Cost Analysis

The regulatory framework aims to provide clear drinking water outcomes that consider community preferences including cost. The clear intention is to enable public health investment to be placed where it creates the greatest benefit, and accordingly to discourage unnecessary expenditure.

Benefit-cost assessment of proposed standards will therefore be a key component of the proposal. New standards and the detailed requirements for risk management plans and systems will be set by regulation.

A regulatory impact statement, as specified under the *Subordinate Legislation Act 1992*, must accompany new regulations. The regulatory impact statement is a statutory requirement aimed to ensure that the benefits and costs of, and alternatives to, all new and amending regulations are examined and that public comment is sought.

The Productivity Commission report advocated benefit-cost assessment to provide economic evaluation of risk preferences. While recognising that standards do not guarantee public health outcomes, the benefit-cost process is seen to provide a more explicit approach to decision making.¹²

5.4 Non-Potable Supplies

The main focus of the proposed regulatory framework is drinking water that is intended for human consumption or for use in activities associated with the preparation of food. However, it is proposed to improve some obligations of service providers in relation to non-potable supplies.

Some small communities are supplied with water that does not meet drinking water standards and is not intended to be used for drinking water purposes. These communities typically rely on water

from rainwater tanks for drinking purposes and the reticulated supply for non-consumptive use such as washing and garden watering.

In such cases there may not be any demand for improvement in the quality of the water supplied, with no adverse impact on public health or regional development. The community may not support the increased costs associated with improving the supply. Such supplies are regarded as non-potable.

Often, however, it may be unclear whether a supply is potable or non-potable. This is not acceptable. It is proposed that the service provider be responsible for ensuring that consumers are fully aware when a supply is non-potable, and for managing the public health risks through their risk management plans and systems. It may, for example, be necessary to specify minimum requirements for alerting consumers and visitors through regular notification on consumers' bills and public notices.

Before classifying a water supply zone as non-potable it is important that a water authority fully consults with its community. It is proposed that where the service provider is a water authority, it should be required to consult with consumers before making the decision that a supply is non-potable.

Question Box 1

How should non-potable supplies be identified, managed and regulated to safeguard public health and ensure adequate consumer disclosure?

5.5 Stakeholder Responsibilities

The Minister for Health, the Minister for Environment and Conservation, service providers, the regulator and consumers are the main stakeholders with responsibilities in regard to drinking water quality. An overview of the proposed roles and responsibilities for these and other important stakeholders in implementation of the regulatory proposal is provided.



Figure 2 describes the roles, responsibilities and inter-relationship between the main stakeholders in implementation of the regulatory framework objective.

5.6 Government

5.6.1 The Minister for Health

The Minister for Health will administer the drinking water quality legislation and manage the public health risks. The Minister will:

- Administer the *Health Act 1958* and *Health (Fluoridation) Act 1973*.
- Provide a primary role in management of public health risks arising from water supply systems (e.g. relating to boil water notices).
- Receive the annual statewide report on drinking water quality from the drinking water quality regulator.
- Specify other service providers of reticulated drinking water from time to time.
- Prepare regulations in consultation with the Minister for Environment and Conservation establishing:
 - i. Minimum requirements for drinking water quality risk management plans and systems.
 - ii. Health and non-health numerical water quality standards. It is intended that the standards will be based on *Australian Drinking Water Guidelines*.
- Grant departures from the numerical non-health-related standards through community-based variations to standards in respect of the water quality in any zone. In exercising this power the Minister will have regard to potential risks to public health, the views of the local community, and the benefits and costs involved. The variations may be time limited (with the opportunity for renewal as appropriate).

Question Box II

How should consumer-based variations to standards be established?

5.6.2 The Minister for Environment and Conservation

The Minister for Environment and Conservation is responsible for the water portfolio and has overall responsibility for matters related to the water supply industry. The Minister will be consulted in the development of new standards and requirements relating to risk management plans and systems.

5.7 Service Providers

It is proposed that the new legislation will specify the service providers covered by the new regulatory regime and will enable other smaller service providers to be brought under it by the Minister as appropriate. It is proposed that the legislation will apply in the first instance to the following:

- The three metropolitan water companies.
- The fifteen non-metropolitan urban water authorities.
- The six Alpine Resorts Management Boards.
- Parks Victoria.

The service provider will be subject to a clear and comprehensive set of regulatory obligations. This will include:

- To supply good quality drinking water that meets the specified standards.
- To participate with the consumer in developing proposals for community-based variations to non-health-related standards for consideration by the Minister for Health.
- To develop and comply with risk management plans and systems, as described in section 5.2, to address hazards to drinking water quality.



Appendix B outlines an integration structure for achieving the desired drinking water quality outcomes.

- To establish contractual and/or other mechanisms that ensure collaborative action amongst stakeholders impacting on the drinking water quality delivery chain. Each stakeholder should have a clear knowledge of their role and responsibilities and how their actions interact in delivering the required outcomes.
- To publish a detailed annual drinking water quality report that is provided to the regulator and consumers. This report is to provide information on the quality of water supplied to each water quality zone, comparing actual results against regulatory requirements. In addition, the report is to describe the service provider's adherence to a set of requirements (minimum audit scope) as established by the regulator, through their risk management plans and systems. The reporting process is intended to encourage continual improvement based on service provider experience and feedback received from the auditor and regulator.

Transitional arrangements for implementing this proposal may be necessary to allow requirements to be imposed progressively. In any case it will be some time before the new standards are in place.

The metropolitan and non-metropolitan water businesses will already have in place many of the features described within this proposal, as well as the associated management capabilities. Other service providers may require additional time to develop the required management capabilities and systems. As appropriate, further small suppliers, such as school camps, may be included within the scope of this proposal over time as deemed appropriate by the Minister for Health.

Question Box III

What factors should be considered in establishing the implementation timetable for each service provider?

5.8 Regulator

A regulator will carry out monitoring and enforcement functions related to drinking water quality.

The function of the regulator will be to:

- Monitor the performance of drinking water service providers against their risk management plans and systems and the statewide water quality standards, or, where appropriate, variations to those standards.
- Establish the minimum audit scope for the annual audit of drinking water risk management plans and systems.
- Obtain and monitor the discharge of undertakings agreed to with drinking water service providers to rectify cases of non-compliance.
- When necessary, take action to secure compliance. This would occur where the regulator is satisfied that a breach of an obligation is not trivial, or has not been remedied, or that a service provider is not complying with an undertaking to secure compliance with the relevant provisions.¹³ Figure 3 shows the steps involved in the enforcement process. It demonstrates primary reliance on undertakings between the service provider and the regulator rather than punitive measures to achieve compliance.
- In extreme cases, prosecute drinking water suppliers in the event that they supplied water that was unfit for human consumption.
- Publish an annual report on drinking water quality in Victoria. The annual report will be submitted to the Minister for Health and will contain a detailed summary of trends in water quality across the State and performance against standards. The report will include an analysis of the service providers' related obligations, a listing of incidents, and a comparative analysis of the service providers' risk management plans and systems to encourage the industry to be innovative and to operate to best practice. The report will become publicly available.



- Undertake post water quality incident investigations and publish reports with recommendations. The purpose of these reports is to clarify what happened and why it happened, and to provide an appropriate learning opportunity from the experience for service providers.
- Approve analytical laboratories and independent third party auditors for the risk management plans and systems.
- Promote awareness and understanding of drinking water quality.

Appropriate right of appeal against regulatory decisions is to be provided.

Institutional arrangements for the regulator remain to be determined. Options include:

- A function within the Department of Human Services.
- A separate agency responsible to the Minister for Health.
- A function within the Department of Natural Resources and Environment.
- A separate agency responsible to the Minister for Environment and Conservation (the Minister responsible for the water portfolio).

It has also been suggested that the proposed Essential Services Commission should regulate drinking water quality. However, the recently released *Essential Services Commission – Consultation Paper* proposes that the Essential Services Commission’s role and responsibilities be confined to those of an economic regulator. It would not be appropriate for an economic regulator to have responsibilities for the regulation of drinking water.

Issues to be considered in choosing the most appropriate institutional arrangements include:

- The extent to which responsibilities for public health management (policy development, standards setting and incident responsibility) and regulatory functions should be separated.

- How to ensure that both public health and aesthetic quality issues are considered.
- The extent to which the regulator should be independent.
- How the desired degree of independence is to be achieved and maintained.

To ensure that long-term health effects are adequately considered the regulator requires a secure source of funding. Funding options include direct government funding or a levy on service providers. The levy could be determined in a number of ways including the number of customers, amount of water supplied or service provider revenue. It should be noted that Office of the Chief Electrical Inspector and the Office of Gas Safety are both partially funded through levies imposed on utilities.

The impact of different arrangements on the cost of establishing the regulator and subsequent operational costs need to be considered.

- How the costs of regulation are to be met.

Question Box IV

What institutional arrangements best enable the regulator to undertake its drinking water quality responsibilities?

5.9 Consumer

The consumer will:

- Participate in establishing local variations to drinking water quality standards. Such participation is not intended to address the public health aspects of drinking water quality, which are the responsibility of the Department of Human Services; rather, participation will focus on the aesthetic qualities of supply. The consumer should be provided with the information to evaluate the tradeoffs between supply standards, perceived benefits, associated costs and risks to enable informed decisions to be made.

- Be empowered to review the service provided through receipt of published information. The consumer will thereby be able to provide informed comment on performance to the service provider.

Question Box V

What additional processes and practices would lead to a community better informed about drinking water quality matters?

5.10 Other Stakeholders Impacting on the Delivery Chain

Despite no direct involvement in the supply of drinking water to consumers, other agencies and water industry businesses play an important role in providing assurance to service providers that risks to water quality are suitably managed. Areas outside the direct control of a service provider but with the potential for significant impacts on water quality include catchment management, incident management (e.g. blue green algal outbreaks), and reservoir and source water management.

5.10.1 Bulk Water Suppliers

The bulk water suppliers to service providers are Melbourne Water Corporation and three of the rural water authorities – Goulburn-Murray Water, Southern Rural Water and Wimmera-Mallee Water. The regulatory framework should encourage bulk suppliers to contribute to the supply of good drinking water.

Risk management plans and systems provide the means to demonstrate that risks associated with water supply are well managed. Accordingly, it is proposed that bulk suppliers to service providers have such plans in place. Also it is proposed to place a duty of disclosure on both the bulk suppliers and the service providers to ensure transparency in their risk management plans and systems process.

The rural bulk water suppliers are responsible for the quantity of water supplied. Introducing a requirement to have risk management plans and systems for water quality recognises the impact of bulk water management on water quality and formalises the requirement to consider water quality impacts. Greater transparency in the relationship between the bulk water supplier and the service provider will encourage a more cooperative approach to achieving drinking water quality outcomes.

Question Box VI

What relationships should the service provider have with the bulk supplier to ensure good quality drinking water?

5.10.2 Catchment Management Authorities and Local Government

The activities of catchment management authorities and local government potentially impact on the drinking water delivery chain. The roles of these authorities are outside the scope of the proposed regulatory framework but the new arrangements should encourage service providers to improve their relationships with these authorities.

Question Box VII

What relationships should the service provider have with catchment management authorities and local government to ensure good quality drinking water?

5.10.3 Body Corporate and Developments

Private entities such as body corporates and developments receiving a water supply potentially have a role in the management of drinking water quality. The body corporate is responsible for management of water supply infrastructure within the development. In large developments there may be extensive infrastructure in place that can impact on the quality of water provided to the consumer. For example, it is important to ensure adequate



circulation of water to prevent the sort of degradation in quality that may occur in the dead end of a water main. The regulatory framework should clarify the respective roles of the service provider and the body corporate in maintaining drinking water quality in large developments.

Overall, to achieve desired outcomes the service provider is best placed to ensure that suitable relationships are established with the other water industry stakeholders involved in the drinking water delivery chain. The relationship is to provide assurance through establishing roles and responsibilities, providing transparency and ensuring disclosure of practices undertaken.

Question Box VIII

What additional regulatory support, if any, is required to encourage better relationships between the service providers and other agencies whose activities impact on drinking water quality?

5.11 Risk Management Auditor

The risk management plans and systems operated by the service provider must be independently audited to determine whether these plans and systems have addressed required practices and were implemented according to plan. Results from the annual audit are presented to the service provider and to the regulator.

The independent auditor will be selected by the service provider and confirmed by the regulator. This is the same approach adopted for the asset management audit required for the metropolitan water companies.

Figure 4 describes the audit cycle for management of drinking water quality.

6 Proposal Implications

6.1 Benefits

The proposal's benefits include:

- Protection of public health.
- Creation of the opportunity for consumer participation in the overall process of establishing needs and preferences in drinking water quality.
- Consumer participation with the service provider to establish local drinking water quality requirements, where appropriate.
- Replacement of a complex and incomplete set of accountabilities with a single, statewide regulatory framework that has clear accountabilities for stakeholders, but with sufficient flexibility to allow for specific circumstances.
- Application of a holistic approach that considers all the processes involved and manages associated risks to provide good quality drinking water.
- Openness and co-operation in the pursuit of compliance, rather than punitive enforcement – although the potential for enforcement does need to be available in the background.
- Incentive for service providers to perform well in management of drinking water quality through regular public disclosure of information.
- Confidence in the quality of water supplied.
- Provision of a focused response for water quality incident management.

6.2 Costs

Costs of the proposal will include the following factors:

- The cost of a drinking water regulator will depend on the administrative arrangements implemented.



- There will be additional compliance and auditing costs for service providers, associated with the preparation of risk management plans and systems, water quality information plans and systems, incident plans and emergency response capability. Most businesses, however, already undertake some form of risk management planning and have incident management plans, emergency response capabilities and water quality monitoring schedules in place.
- There will be additional costs in meeting the public reporting requirements on drinking water quality. Some service providers already publish an annual report on drinking water for consumers.
- There may be some additional capital cost impact involved but this will depend on the actual standards selected. Such costs will be considered as part of the benefit-cost analysis associated with the adoption of new standards.

The costs will be developed in the process of setting standards and the detailed requirements relating to risk management plans and systems. These costs will be balanced against the cost to service providers and the community of drinking water quality incidents.

Figure 1: Drinking Water Quality Roles and Responsibilities

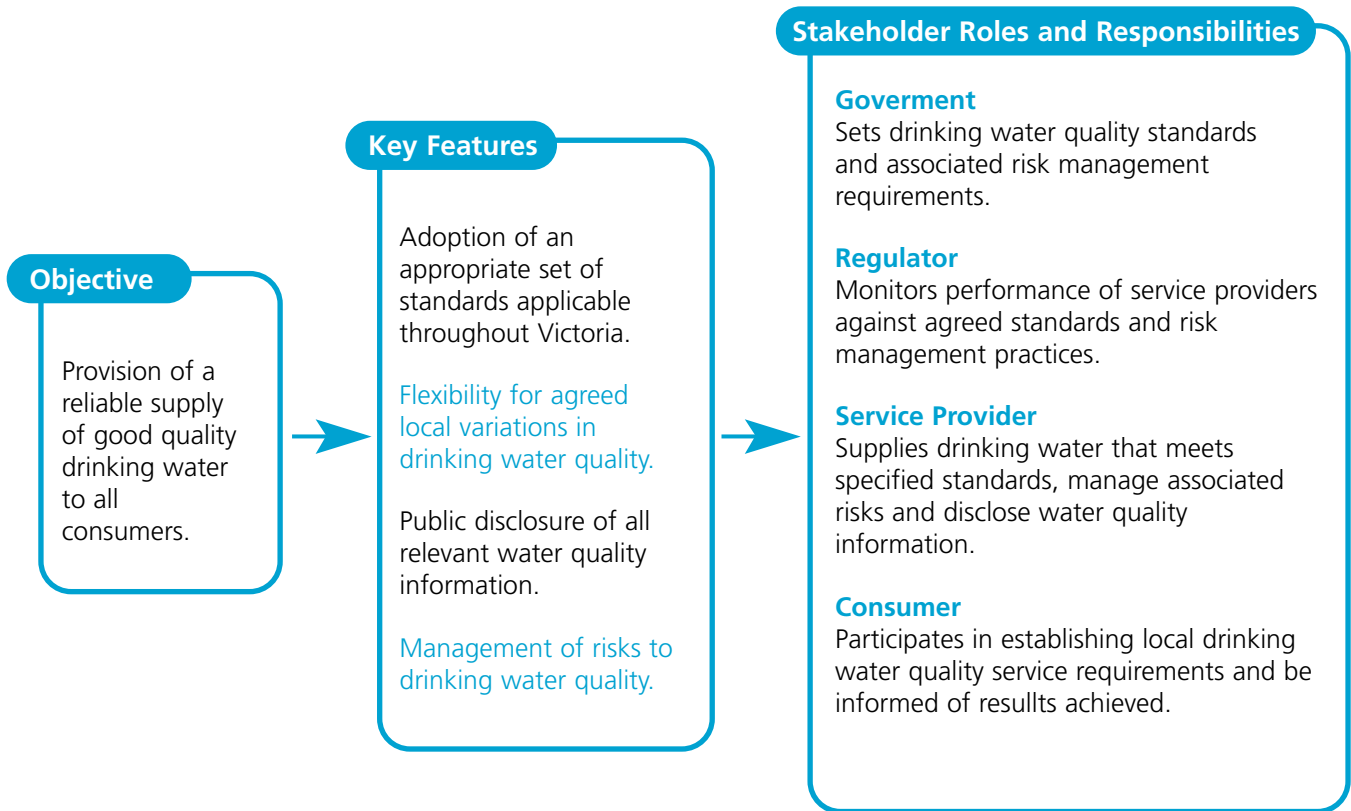


Figure 2: Stakeholder Inter-Relationships

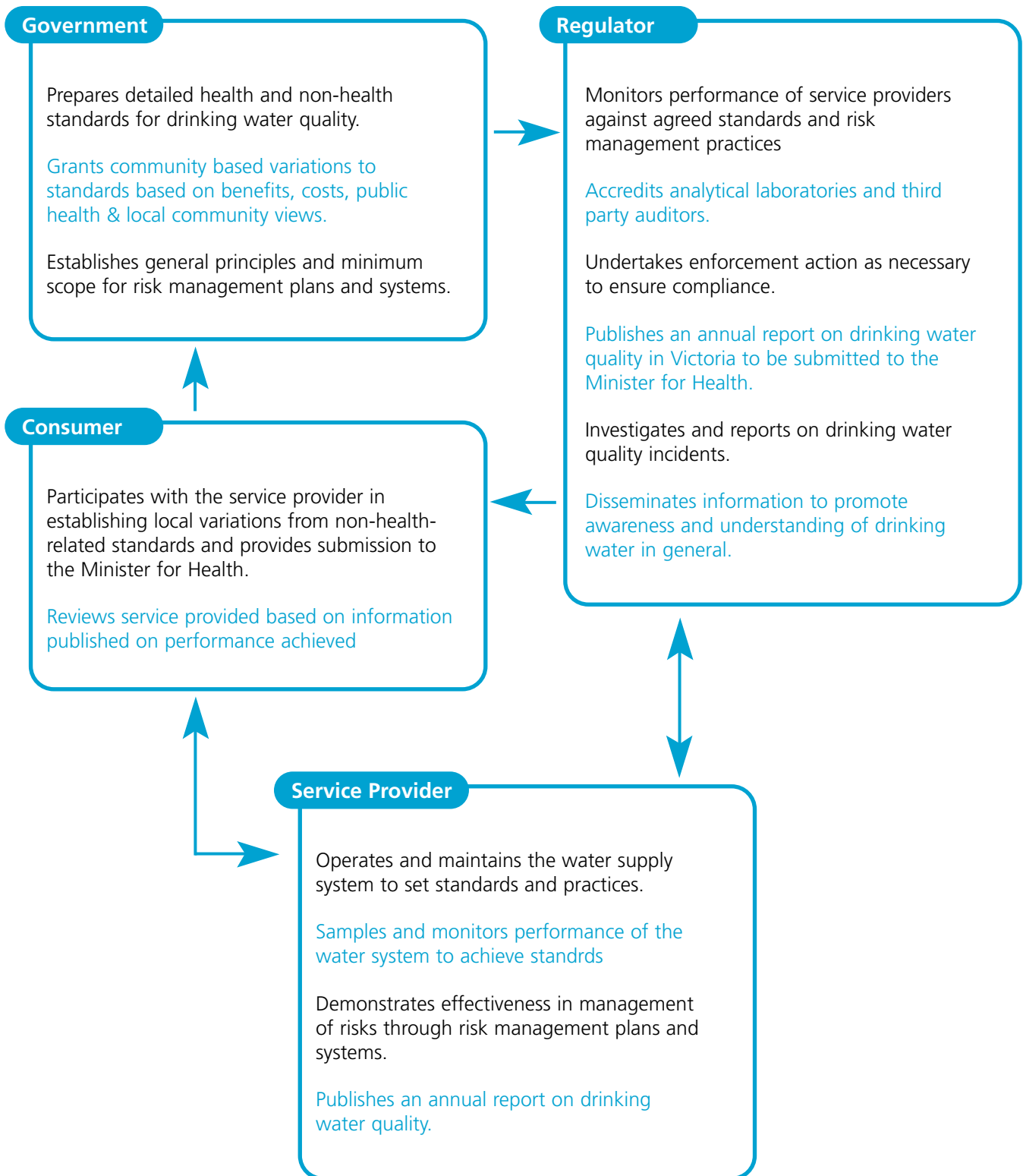


Figure 3: Drinking Water Quality Regulations – Overview of Enforcement Procedures

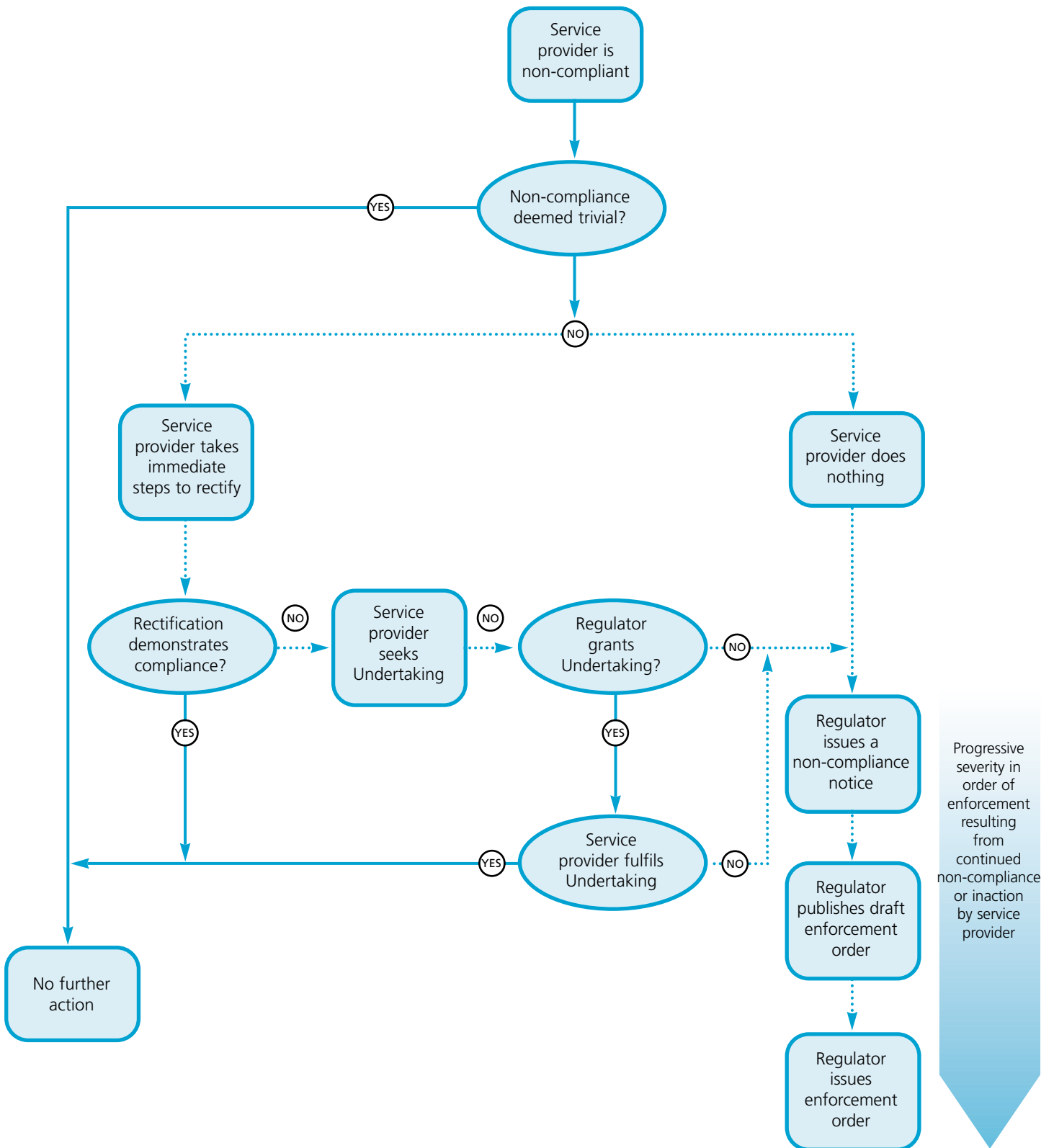
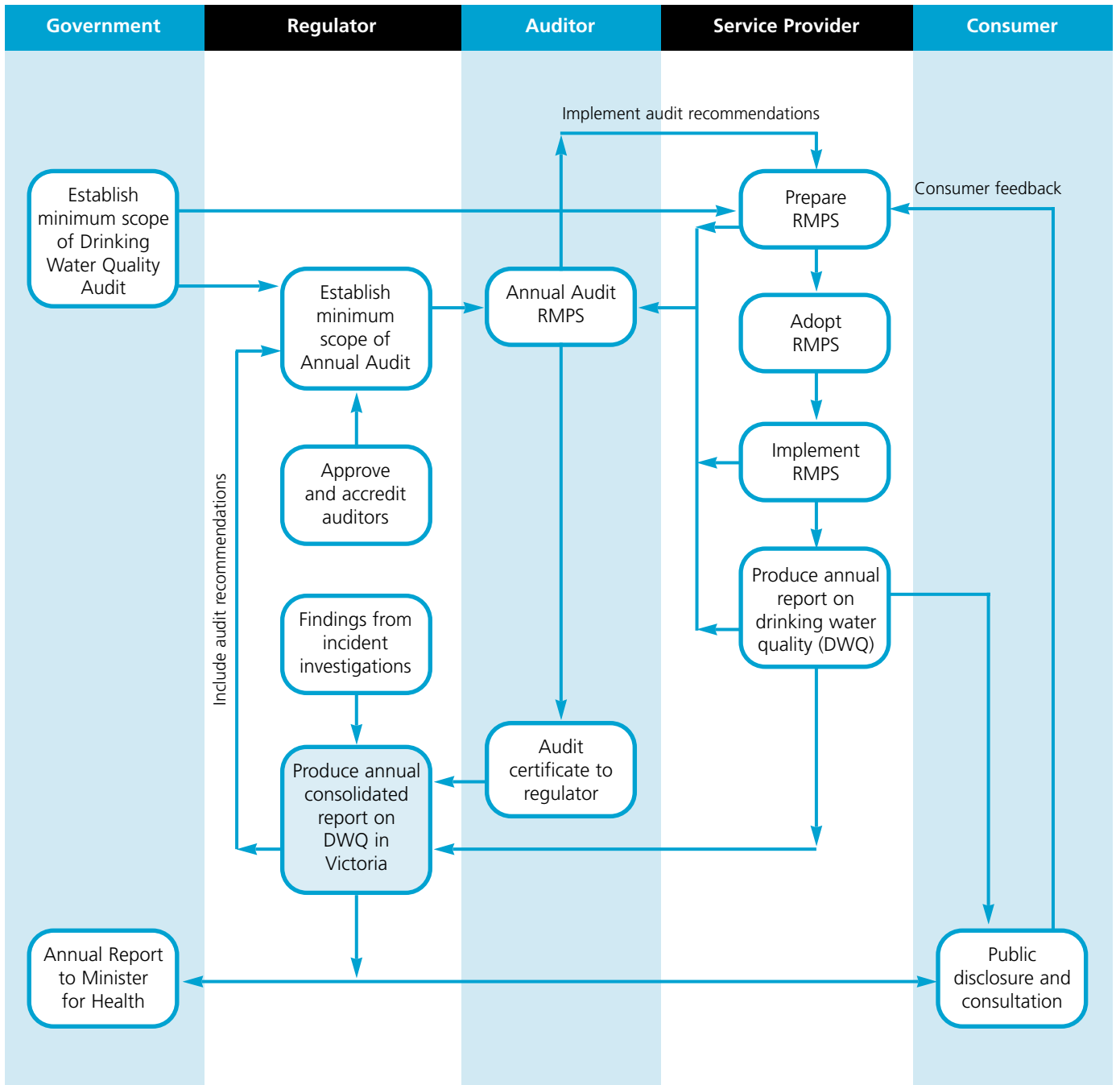


Figure 4: Drinking Water Quality Audit Cycle



Footnote: RMPS = Risk Management Plans and Systems

Appendix A: Current Regulatory Arrangements

Drinking water supplies in Victoria are regulated by the Department of Human Services, the Department of Natural Resources and Environment, and the Office of the Regulator-General.

The Department of Human Services is the principal Victorian Government agency with overall responsibilities pertaining to public health. In particular, it employs its powers under the *Health Act 1958* to administer water quality regulatory systems and incident management systems designed to ensure that drinking water supplies in Victoria do not pose a risk to public health.

The *Health Act 1958* does not specify any particular standard for drinking water in Victoria, but provides for action to be taken by the Department if a supply presents a threat or potential threat to public health (Section 80 of the Act). Section 81 provides for regulation on a wide range of purposes associated with protecting water supplies.

The *Health (Quality of Drinking Water) Regulations 1991* are made under Section 81 of the Act. These Regulations require water authorities to inspect their catchments, monitor the microbiological quality of their supplies in a particular manner, forward the results to the Department without delay and immediately notify the Department if drinking water is suspected of being contaminated or a cause of a waterborne illness. These Regulations do not specify a particular water quality standard for reticulated drinking water supplies.

The Regulations do not apply to bodies supplying water in Victoria that are not water authorities (such as Alpine Resorts Management Boards, Parks Victoria, local co-operatives or private water suppliers) and do not apply to non-potable water supplies.

The *Health (Infectious Diseases) Regulations 1990* are also made under the *Health Act 1958*. Regulation 8 requires laboratories in Victoria to notify the Department if certain pathogenic organisms (including *Cryptosporidium*) have been detected in drinking water samples, but does not require any other specific response from water

authorities. Similarly, Regulation 7 requires medical practitioners to notify the Department if certain diseases (waterborne or otherwise) are detected in patients. The other Regulations describe intervention powers at the Department's disposal to control infectious diseases in the community (waterborne or otherwise).

The *Health (Fluoridation) Act 1973* allows the Department to direct water authorities to fluoridate their supplies in a prescribed manner. It also specifies the maximum allowable level of fluoride in water supplied from fluoridation plants and allows the Department to specify operational requirements for fluoridation of public water supply systems (*Standards for Fluoridation of Public Water Supplies*, Department of Health and Community Services, 1993). Section 4 of the Act provides immunity from action relating to fluoridation of a public water supply that is in accordance with the Act.

All water authorities in Victoria, including Melbourne Water, the metropolitan water companies and the non-metropolitan urban water authorities, must comply at all times with the provisions of the *Health (Quality of Drinking Water) Regulations 1991* and, where applicable to them, the *Health (Fluoridation) Act 1973*. These statutory requirements apply whether or not they are referred to in other instruments such as licences or any Memorandum of Understanding.

In Melbourne, drinking water is supplied by the three metropolitan water companies which in turn are supplied with bulk water by the Melbourne Water Corporation.

The metropolitan water companies operate under the provisions of the *Water Industry Act 1994*. This Act is administered by the Minister for Environment and Conservation. The three Melbourne metropolitan water companies operate licences issued under the Act by the Governor-in-Council. The licences contain water quality obligations that are to be achieved in all water quality zones other than in nominated 'improvement zones'. The operating licences are monitored by the Office of

the Regulator-General. These operating licences incorporate customer contracts and specify requirements for the quality of drinking water supplied to consumers in the Melbourne metropolitan supply area. The companies are also obliged to disclose water quality information to their consumers in annual reports.

Melbourne Water principally operates under the *Melbourne Water Corporations Act 1992* and the Melbourne and Metropolitan Board of Works Act 1958. These Acts do not include specific water quality provisions. Melbourne Water and the three metropolitan water companies have established contractual arrangements (known as Bulk Water Supply Agreements) that specify, among other things, the quality and volume of water Melbourne Water supplies to the three metropolitan water companies.

The *Water Act 1989*, also administered by the Minister for Environment and Conservation, regulates the Victoria non-metropolitan water sector. The Act does not specify any particular standard for non-metropolitan urban drinking water supplies. The non-metropolitan urban water authorities constituted to provide water supplies are nevertheless expected to supply water that is safe to drink and that meets the needs of their consumers. They are required to include information in their Corporate Plans setting out their projected performance targets for turbidity, colour, pH and the microbiological quality of the water in each water supply zone. Authorities must also publish information in their Annual Reports on

each of these parameters. This requirement was made through the Corporate Planning and Annual Reporting guidelines.

Industry, irrigators, agriculture and non-metropolitan urban water authorities receive water from rural water authorities in Victoria, in accordance with their bulk allocation and entitlements.

There are no specific arrangements between the non-metropolitan urban water authorities and rural water authorities with regard to water quality. Also, in most instances no service contracts exist between non-metropolitan urban water authorities and rural water authorities.

In addition to these Acts, water suppliers also face general obligations of duty of care under common law, in relation to merchantability, public safety, disclosure of information and related matters. For example, the *Trade Practices Act 1974* may be used by consumers who suffer illness or loss to take action for damages.

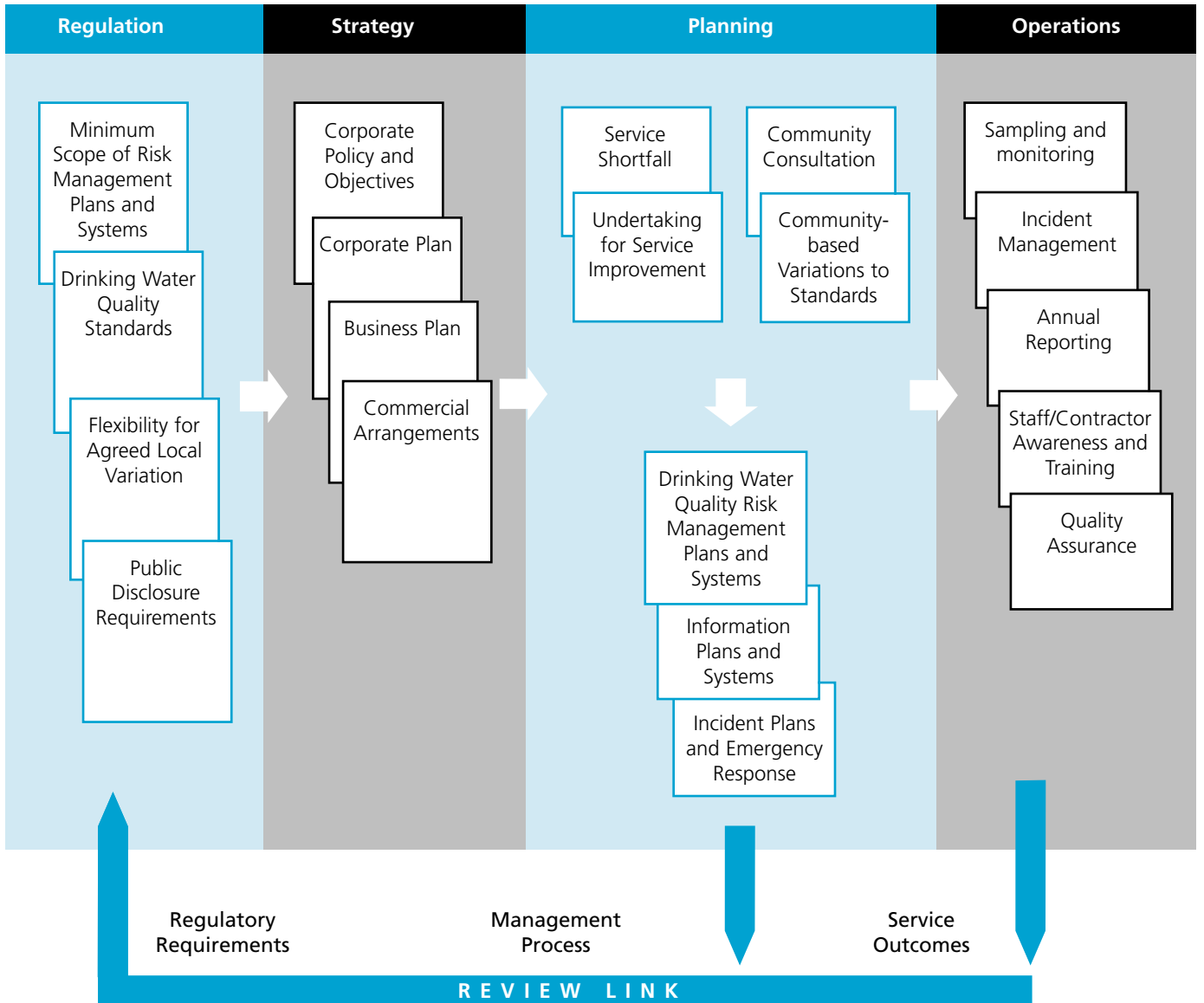
Water authorities that own or operate water treatment plants are also subject to the requirements of the *Dangerous Goods Act 1985*, the *Occupational Health and Safety Act 1985* and various Regulations pursuant to these Acts. These Acts are administered by the Victorian WorkCover Authority and are designed to ensure safety in handling and storage of materials, safety of personnel and minimisation of environmental risk. They do not prescribe the quality of drinking water to be supplied by water authorities.

Appendix B: Integration Structure

Figure B1 seeks to explain how the various business activities and the proposed regulatory framework interact.

To achieve desired drinking water quality outcomes, a structure to integrate all relevant activities is required. Figure B1 provides an overview of such a structure. It demonstrates that desired service outcomes are achieved through an approach that incorporates the strategic, planning and operational activities undertaken by the service provider and associated stakeholders.

Figure B1: Structure for Integrating Business Activities to Achieve Outcomes



Endnotes

- ¹ The Sydney Water Inquiry 1998, headed by Peter McClellan QC. The main finding of the Inquiry was that the catchments were seriously compromised by many possible sources of contamination and that Sydney Water did not have sufficient regulatory control of the catchments to guarantee safe drinking water. The Sydney Catchment Authority was created by the *Sydney Water Catchment Management Act 1998* and became operational on 2 July 1999.
- ² Auditor-General, Victoria, *Report on Ministerial Portfolios*, May 1999, Section 3.5.4 Water Quality.
- ³ Office of the Regulator-General, Victoria, *Melbourne's Retail Water & Sewerage Companies Performance Report, July 1998–June 1999*, January 2000, Page 9.
- ⁴ International Benchmarking, *Arrangements for Setting Drinking Water Standards*, Productivity Commission, April 2000.
- ⁵ In April 1993, a *Cryptosporidium* outbreak sickened 403,000 people in Milwaukee USA. This was linked to inadequate treatment of drinking water taken from Lake Michigan. No specific source of the *Cryptosporidium* was identified, but runoff from abnormally heavy spring rains most likely carried the *Cryptosporidium* to the lake from a variety of sources. Wisconsin Department of Natural Resources.
- ⁶ Section 4.4 Water Quality, South East Water Limited Customer Contract, 5th Edition, effective from February 2000; as approved by the Office of the Regulator-General. Similar sections are included in the City West Water and Yarra Valley Water customer contracts.
- ⁷ Based on Tables 1, 2, 3 and 5, *World Health Organization* 1984.
- ⁸ For further information see: P. R. Nadebaum, L. M. Adlem, A. J. Baker, K. Walsh & S. Rizak, 'Improved Management of Drinking Water Quality', 62nd Annual Water Industry Engineers and Operators Conference, Civic Centre – Wodonga, 8 and 9 September 1999.
- ⁹ Walkerton is a town of 5,000 people in Ontario, Canada. The drinking water incident in May 2000 claimed six lives and infected an estimated 2,000 residents as a result of a pathogenic strain of *E. coli* 0157 infection. This is thought to have resulted when effluent produced by intensive livestock production (piggeries) contaminated a groundwater well after heavy rainfall in the area. The chlorination system for the water supply had reportedly been performing unreliably.

A list of media articles on the Walkerton incident is provided in FSnet News Articles Re Walkerton Ontario Incident – FSnet is produced by researchers at the Agri-Food Risk Management and Communications Project at the University of Guelph, and is edited by Douglas Powell (dpowell@uoguelph.ca) and Amanda Whitfield (awhitfie@uoguelph.ca).
- ¹⁰ 'Regulations Won't Protect Ontario's Drinking Water Critics'; 6 June 2000 – CP Wire.
- ¹¹ For further information see: P. R. Nadebaum, L. M. Adlem, A. J. Baker, K. Walsh & S. Rizak, 'Improved Management of Drinking Water Quality', 62nd Annual Water Industry Engineers and Operators Conference, Civic Centre – Wodonga, 8 and 9 September 1999.
- ¹² Productivity Commission 2000, *Arrangements for Setting Drinking Water Standards*, International Benchmarking, AusInfo, Canberra; Box 6.
- ¹³ The enforcement style is intended to bring about the appropriate drinking water quality outcomes through cooperation and openness rather than through coercion and direction.

