National Water Quality Management Strategy

Water Quality Management –

An Outline of the Policies

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Australian and New Zealand Environment and Conservation Council

Agriculture and Resource Management Council of Australia and New Zealand

Foreword ....

Without water, there would be no life. Many Australians take water for granted, expecting it to be available at the turn of a tap or as a steady flow in our rivers.

Our striving for a better life has put unprecedented pressures on water resources.

These pressures are placed on every part of the water cycle, and can affect the amount of water harvested from our catchments, the water we drink, and the life in the ocean and rivers.

This document deals with managing the quality of our water resources.

Water quality is important to all communities. They are encouraged to participate in the development of management plans to protect the quality of local waters.

"Policies and Principles - A Reference Document" provides more detail on the policies and principles which underpin the National Water Quality Management Strategy.

Managing Water Quality

Introduction

Water is vital for life, as a water supply for people, for the diverse ecosystems on which we depend, for agriculture, industry and recreation.

Effective water quality management is a vital step towards ecologically sustainable development

Commonwealth, State and Territory Governments are working together to develop a National Water Quality Management Strategy for Australia. The strategy is part of the national program for ecologically sustainable development and aims to deliver a nationally consistent approach to water quality management.

The strategy sets out a national framework within which all stakeholders can contribute to better water quality management. The strategy is based on policies and principles for water quality management that apply nation-wide and will include guidelines covering key elements of the water cycle.

A process has been developed that sets a national, strategic direction for water quality management. This strategic direction will form the basis of action plans designed to manage water quality in particular catchment areas, while allowing for local conditions and the needs of the local community. The regional community will be encouraged to identify environmental values to be protected.

States and Territories will develop appropriate action plans for the waters in their region. These action plans will flow from the national policies and guidelines after taking local conditions and community needs into account.

This paper outlines the policies that form the basis of the National Water Quality Management Strategy. A more detailed discussion of the policies and principles underlying the Strategy is provided in "Policies and Principles - A Reference Document".

The Issues

The Environment and Water Quality

Water of adequate quality and quantity is central to the integrity of the environment.

Water of adequate quality and quantity is central to the existence of every life form, everywhere.

The amount of available fresh clean water is changing because of growing populations, changes in farming and the new needs of industry.

Water pollution has the potential to become a limiting factor for growth. Pollution may have adverse effects on drinking water supply, on the use of water for the production of food and by other industries, on the environment and on activities such as fishing, recreation and tourism.

Three key conclusions describe the links between water quality and environmental

management:

> *Water has two dimensions, quantity and quality, both of which are changeable in time and space.*
>
> *Water is needed for the environment and to support the nation's social and economic structures.*
>
> *The continued availability of water, in terms of both quality and quantity, is open to change, not only through the natural variation, but also through the impacts of water use within the water cycle.*

The Community and Water Quality

The goal of natural resource management is to improve community welfare through sustainable use and protection of the natural environment. The management of water resources is an integral part of environmental management and is essential to the continuing viability of our society. The general community, therefore, has an important interest in water quality.

However, the community's use of water can affect water quality. Some examples include domestic water use practices, disposal of wastes and garden management techniques on urban blocks.

Industry also has both an interest and involvement in water quality management.

Industry, particularly rural industry, has a major interest in maintaining water quality adequate for its needs. Industry may also locate its plant near a waterway without understanding the impact the plant may have on water quality.

Government and Water Quality Management

Responsibility for environmental management is divided between the Commonwealth, the States and the Territories.

Several mechanisms are in place to enable Ministers with responsibility for water and the environment to develop a joint approach to water quality management.

Need for an agreed framework to ensure Ecologically Sustainable Development

The Australian and New Zealand Environment and Conservation Council (ANZECC) is the peak Ministerial Council for inter-governmental consultation and co-ordination on environmental and nature conservation matters.

The Australian Water Resources Council (AWRC) was the peak forum of the water industry for consultation, co-operation and liaison on the development of water industry policy at international, national, and State levels. This Council has now combined with the Agricultural Council of Australia and New Zealand and the Australian Soil Conservation Council to form a new Council, the Agriculture and Resource Management Council of Australia and New

Zealand (ARMCANZ). It comprises Commonwealth, State and Territory Ministers responsible for agriculture, soil conservation and water matters.

The National Health and Medical Research Council (NHMRC) is actively involved in areas affecting public health. It consists of representatives of Commonwealth, State and Territory health authorities and medical, nursing, industry, environment and scientific groups as well as a broad spectrum of community representatives.

ANZECC, ARMCANZ and NHMRC are working together to develop a co-ordinated approach to water quality management.

Policy Principles

The concept of sustainable development has been adopted as the base environmental philosophy in the National Conservation Strategy, in Commonwealth working groups and by Ministerial Councils such as ANZECC and ARMCANZ. Ecologically sustainable development provides the basis for water quality management.

The National Strategy for Ecologically Sustainable Development was published in December 1992. The core objectives of the Strategy are:

?? to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations

?? to provide for equity within and between generations

?? to protect biological diversity and maintain essential ecological processes and life-support systems.

The Guiding Principles are:

?? decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations

?? where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation

?? the global dimension of environmental impacts of actions and policies should be recognised and considered

?? the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised

?? the need to enhance and maintain international competitiveness in an environmentally sound manner should be recognised

?? cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms

?? decisions and actions should provide for broad community involvement on issues that affect them.

These guiding principles and core objectives need to be considered as a package. No objective or principle should predominate over the others. A balanced approach is required that takes all of these objectives and principles into account to pursue the goal of ecologically sustainable development.

Policy Objective

There are costs related to both the conservation of and the use of water resources. Whether these costs are acceptable is a judgement to be made by society.

Commitment to ecologically sustainable development implies a clear predisposition to protect and enhance the quality of the nation's water resources. As a policy principle, it gives a fundamental strategic direction to water quality management.

Thus, the policy objective of the National Water Quality Management Strategy is:

> *to achieve sustainable use of the nation's water resources by protecting and enhancing their quality while maintaining economic and social development*

The Process

The process for water quality management is based on national guidelines that are implemented at State, regional and local levels. The national water quality guidelines will be the basis for development of State and local plans and objectives.

A water quality management process should incorporate:

?? national consistency in methods for setting goals, objectives and standards

?? clear and explicit administrative processes

?? clear and explicit assignment of responsibilities for the various phases of administration and operation

?? accountability, where progress towards the desired water quality goal is monitored and reported

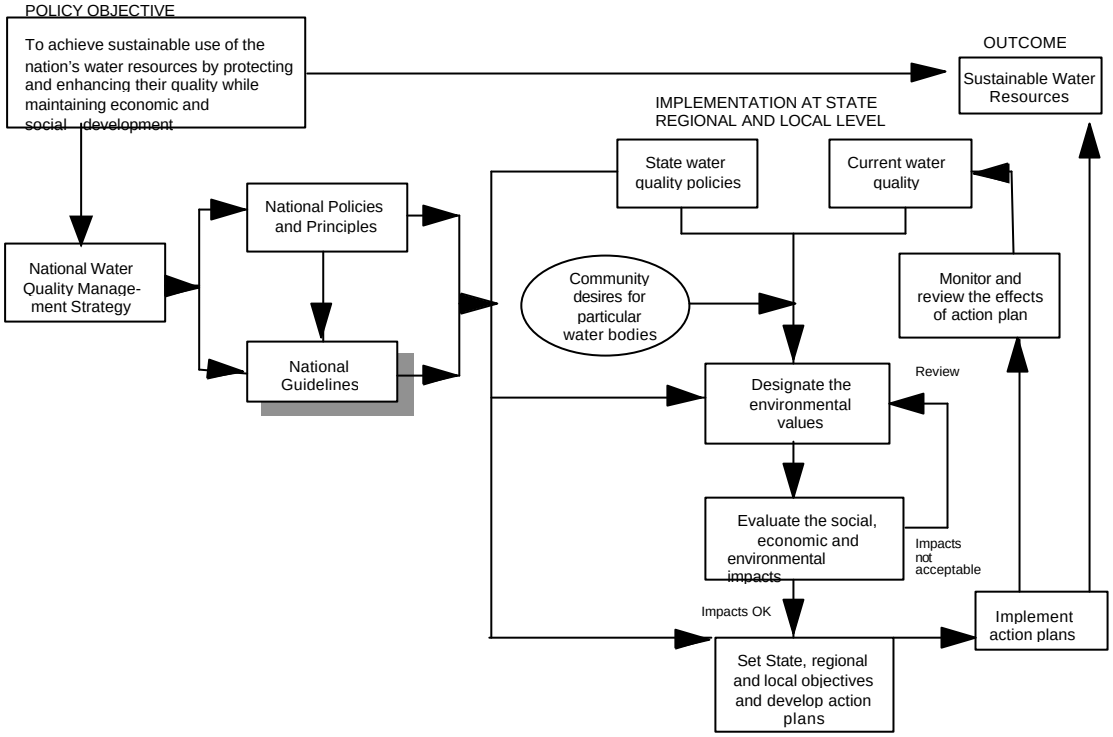
?? matching of the administrative structures to the physical and social constraints, commonly on a catchment or sub-catchment basis

?? involvement of stakeholders in definitions of goals, development of plans and implementation of strategies

?? administrative mechanisms responsive to change and development, including changing physical conditions over time, changing public preferences for water quality and resource management, and new technical options

?? opportunities for harnessing market forces to the water quality management task.

A flow chart of the proposed water quality management strategy is set out below.



National Water Quality Management Strategy

Water Quality Goals

The adoption of a particular water quality goal can close as well as open resource-use opportunities. Regional water quality goals and objectives must consider the ranges of environmental resources, economic opportunities and community preferences.

The particular values or uses of the environment which contribute to public or private benefits (welfare) are called environmental values or beneficial uses. They require protection from the effects of pollution and waste discharges. The determination of the regional community's preferred values and uses is an essential step in developing a water quality management program.

Water quality guidelines define desirable ranges and maximum levels for certain parameters that can be allowed (based on scientific evidence and judgement) for specific uses of waters or for protection of specific values. They are generally set at a low level of contamination to offer long-term protection of environmental values.

Environmental Values (Beneficial Uses)

The environmental values defined in "Australian Water Quality Guidelines for Fresh and Marine Waters" (ANZECC 1992) are:-

?? Protection of Aquatic Ecosystems
Freshwater and marine ecosystems, production of fish and shellfish, wildlife protection.

?? Recreational Water Quality and Aesthetics
Primary and secondary contact, visual appreciation.

?? Raw Water for Drinking Water Supply

?? Agricultural Water Use
Irrigation, stock watering, farmstead use

?? Industrial Water Quality

Integrating National, State and Regional Planning

Approaches to water quality management would be focused at the State level using water quality planning and policy instruments while taking account of national goals and obligations to other States and Territories.

This would translate into a process where:

?? a State uses its own water quality planning and environmental policy tools to set water quality objectives and goals, which are in line with the agreed national guidelines.

?? regional communities are encouraged to participate on a catchment basis in the identification of local environmental values and the associated water quality criteria.

?? local management strategies are developed and implemented.

The identification of regional water quality goals by the community may require strengthening of locally based structures and community consultation processes. Local government councils and catchment management boards are two possibilities.

A Mix of Regulatory and Market-Based Approaches

The strategy for the achievement of sustainable water quality management should build on the strengths of both regulatory and market based approaches.

Regulatory measures may work in a number of ways, for example, by setting limits on the

quantity of effluent an individual firm may produce, or by setting limits on the nature and extent of any impact on the environment as a result of the disposal of its effluent.

Market-based measures can be used to influence decisions on production methods and waste management. The adoption of a polluter-pays approach, for example, can ensure that the cost of managing the waste by-product is included in the costs of production. Similarly, trading in pollution permits could have the potential to promote both maintenance of the water quality objective and efficient resource use.

Identification of the best mix of regulatory and market-based instruments will depend significantly on the particular stage of the water cycle that is involved and the particular circumstances of time and place.

Waste management can be approached through one or more of the following actions that are listed in decreasing order of environmental desirability:

. waste avoidance
. recycling or waste reclamation
. waste re-use
. waste treatment to reduce potential degrading impacts
. waste disposal

Catchment Management

Usually, the final responsibility for determining environmental values and the objectives to be derived from them will rest with State agencies.

Most States and Territories are moving to establish catchment management structures to handle problems of diffuse water pollution and soil conservation. These could play a leading role in encouraging community participation and consultation in the determination of environmental values. Catchment management builds community ownership of water quality goals. Catchment managers, using the legislative or management structures within their State or Territory, could:

?? participate in the setting of goals, by

- seeking community, government and industry input on the specific environmental values to be adopted,

- resolving, as far as they are able, competing interests for adoption of environmental values having varying cost consequences for the community and different environmental impacts, and then

- recommending to the relevant State or Territory authority the proposed environmental values to be designated for specific waters.

?? develop strategic plans for water quality management within specific catchments based on the goals and objectives adopted.

?? promote control of diffuse sources not amenable to licensing and encourage sound land use practices which minimise diffuse pollution.

?? participate in water quality monitoring and reporting

?? ensure that the management of discharges is consistent with the strategic direction and the specific directions adopted

?? co-ordinate the activities of governmental authorities and private interests within a catchment for resource management purposes.

Any broadly based approach to environmental management and wastewater management in particular, will depend for its success on strong monitoring and reporting arrangements.

National Water Quality Management Strategy

This paper presents the key elements of a more comprehensive document prepared jointly by ARMCANZ and ANZECC, entitled "Policies and Principles - A Reference Document". It is the cornerstone of the national water quality management strategy as it sets down the policies and processes to deliver sustainable water resources for Australia. These policies and processes then flow through to the other guidelines which form part of the strategy. Each of the other guidelines focuses on a part of the water cycle, or on a particular activity within the water cycle. The guidelines can be used to develop State and regional water quality goals that are based on a national vision while also allowing for local conditions, policies and community wishes.

Other detailed papers address the following areas:

?? *Water Quality Implementation Handbook.*
This paper will provide information to help States, Territories and local communities to prepare water quality management plans for catchments, aquifers and marine waters.

?? *Australian Water Quality Guidelines for Fresh and Marine Waters* lists a range of environmental values of water resources, such as drinking water, recreation and ecological values. It also provides water quality criteria (scientifically-based benchmark values) for a wide range of parameters for each of the environmental values.

?? *Australian Drinking Water Guidelines* will replace the 1987 Guidelines for Drinking Water Quality issued by NHMRC and AWRC.

?? *Guidelines for Sewerage Systems*
- *Acceptance of Trade Wastes (Industrial Wastes)* provides information on developing a trade waste management program including trade waste surveys, compliance monitoring, charging policy, and acceptance criteria.
- *Effluent Management* gives guidelines for the discharge of effluent from municipal wastewater treatment plants to land, to inland waters and to oceans and other marine waters.
- *Sludge Management* provides a basis for the use and disposal of sludge from municipal wastewater treatment plants.
- *Use of Reclaimed Water* is a revision of the 1987 Guidelines for the Use of

Reclaimed Water issued by AWRC and NHMRC.

- *Sewerage System Overflows* contains guidelines for the management of sewerage systems in times of high flow.

?? *Guidelines for the Impact of Rural Land Uses on Water Quality* includes sections on causes and effects of pollution in rural areas, with detailed information on management options to reduce the impacts on water quality of a series of land uses such as dry land farming, irrigation farming, forestry, recreation, mining, urban development, etc.

?? *Groundwater Protection Guidelines* explains the basic principles and need for groundwater protection. The document includes a variety of ways of protecting groundwater, as there is no single approach that would meet the needs of all the levels of government or the different groundwater systems in Australia.

?? *Guidelines for Urban Stormwater Systems* adopts the perspective that stormwater is a resource rather than a nuisance. The paper proposes an integrated approach to urban stormwater planning and management. It gives a range of management practices to be considered, and describes the analytical techniques that may be used to consider options in a comprehensive manner.

?? *Guidelines for Specific Industries*
A series of guidelines will cover industries such as tanneries, dairies, wineries etc.

?? *Water Quality Management – Monitoring and Review* aims to develop a nationally consistent water quality monitoring and reporting framework using consistent and appropriate indicators, testing protocols and data storage and retrieval. When the framework is in place, information on the water quality status of priority water bodies as well as trends in water quality will be available.

The aim is to have a shared vision for water quality management, a vision that will deliver ecologically sustainable water use policies and practices for Australia.