Chapter 1* - Policy and Principles

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1.1 Introduction

During recent years there has been increasing awareness of, and concern about, water pollution all over the world, and new approaches towards achieving sustainable exploitation of water resources have been developed internationally. It is widely agreed that a properly developed policy framework is a key element in the sound management of water resources. A number of possible elements for such policies have been identified, especially during the preparation of Agenda 21 as well as during various follow up activities.

This chapter proposes some general principles for the policy making process and for policy document structure. Some examples of policy elements which support the overall sustainable management of water resources are also given.

1.2 Policy framework

Policy statements regarding water pollution control can be found within the legislative framework of most countries. However, the statements are often "hidden" in official documents, such as acts of government, regulations, action and master plans. Moreover, government statutes and constitutional documents often include paragraphs about environmental policies. Such statements are rarely coherent, and inconsistencies with other policies often exist because they have been developed separately with different purposes.

Water pollution control is usually specifically addressed in connection with the establishment of environmental legislation and action plans, but also within the framework of water resources management planning. Moreover, documents related to public health aspects may also consider water pollution. These three interacting areas are often administered in different line ministries - typically a Ministry of Environment, a Ministry of Water and a Ministry of Health. In addition, the policy making process, if it exists, may often take place independently.
To reach a situation where the adopted political intentions can result in a real impact on the practical management of water resources, it is important to define policy statements clearly and in proper policy documents. It is recommended that the water pollution control policy statements either be placed within a water resources policy document or within an environment policy document, or the statements can form a document in themselves, referring to overall health-water and resources-environment policies. The approach selected will depend on the administrative organisation of water resources and environmental management in a particular country.

Some general principles that should be considered within the policy making process are as follows:

- A water pollution control policy, ideally, should be seen as part of a coherent policy framework ranging from overall statements such as can be found in government statutes, constitutions, etc., to specific policy statements defined for environment and water resources management as well as for particular sector developments.

- The policy making process should therefore incorporate consultations and seek consensus with all line ministries relevant for water resources management, including organisations responsible for overall economic development policies. In addition, when formulating new development policies for other sectors, water resources policy statements should be taken into account where appropriate.

- Policy statements must be realistic. Good intentions reflected in statements such as "No pollution of surface waters shall occur..." cannot be applied in practice and therefore become meaningless in the context of an operational policy.

- The statements in a policy document need to be relatively long-lived because they must pass a laborious political adaptation process. Thus, detailed guidelines, which may need regular adaptation to the country's actual development level, should be avoided and placed into the more dynamic parts of the legislation system, such as the regulation framework, that can be amended at short notice.

1.2.1 The policy document

A policy document should be formulated clearly and concisely, but at the same time it must be operational. This means that the statements should be easily understood and the document should form a guide for administrators formulating laws and regulations as well as those enforcing, and thereby interpreting, such texts. To fulfil these requirements the policy document should include, in addition to very general statements, well explained guiding principles for water pollution management as well as outlines for strategies for the implementation of the policy.

1.2.2 Overall policy statements

The overall policy statements, relevant for water pollution control, define a government's concept of the water resources as well as its long-term priorities for exploitation of the resource. These statements should, preferably, be derived from the country's general environment and water resources management policies. They should also document the government's willingness to let management instruments ensure the long-term protection
and sustainable exploitation of water resources along with social and economic development.

Agenda 21 adopted some conceptual statements concerning water resources, but which apply to water pollution control as well as to other elements of water resources management. Two central statements were "Fresh water should be seen as a finite and vulnerable resource, essential to sustain life, development and the environment" and "Water should be considered as a social and economic good with a value reflecting its most valuable potential use". The latter statement suggests an overall concept for prioritising water-related development activities.

1.3 Guiding principles for water pollution control

The guiding principles of the policy document put the political intentions into more practical terms by setting a more detailed conceptual framework that supports the overall policy objectives. It is recommended that these principles should be clarified by a short narrative interpretation. The following guiding principles provide a suitable basis for sound management of water pollution.

Prevent pollution rather than treating symptoms of pollution. Past experience has shown that remedial actions to clean up polluted sites and water bodies are generally much more expensive than applying measures to prevent pollution from occurring. Although wastewater treatment facilities have been installed and improved over the years in many countries, water pollution remains a problem, including in industrialised countries. In some situations, the introduction of improved wastewater treatment has only led to increased pollution from other media, such as wastewater sludge. The most logical approach is to prevent the production of wastes that require treatment. Thus, approaches to water pollution control that focus on wastewater minimisation, in-plant refinement of raw materials and production processes, recycling of waste products, etc., should be given priority over traditional end-of-pipe treatments.

In many countries, however, an increasing proportion of water pollution originates from diffuse sources, such as agricultural use of fertilisers, which cannot be controlled by the approach mentioned above. Instead, the principle of "best environmental practice" should be applied to minimise non-point source pollution. As an example, codes of good agricultural practice that address the causes of water pollution from agriculture, such as type, amount and time of application of fertilisers, manure and pesticides, can give guidance to farmers on how to prevent or reduce pollution of water bodies. Good agricultural practice is recognised by the United Nations Economic Commission for Europe (UNECE) as a means of minimising the risk of water pollution and of promoting the continuation of economic agricultural activity (UNECE, 1993).

Use the precautionary principle. There are many examples of the application and discharge of hazardous substances into the aquatic environment, even when such substances are suspected of having detrimental effects on the environment. Until now the use of any substance and its release to the environment has been widely accepted, unless scientific research has proved unambiguously a causal link between the substance and a well-defined environmental impact. However, in most cases it takes a very long time to establish such causal links, even where early investigations suggest clear indications of such links. When, eventually, the necessary documentation is
provided and action can be taken to abandon the use of the substance, substantial
environmental damage may already have occurred. Examples of such situations include
a number of pesticides which are now being abandoned because contamination of
groundwater resources has been demonstrated.

The examples clearly show that action to avoid potential environmental damage by
hazardous substances should not be postponed on the grounds that scientific research
has not proved fully a causal link between the substance and the potential damage
(UNECE, 1994).

*Apply the polluter-pays-principle.* The polluter-pays-principle, where the costs of pollution
prevention, control and reduction measures are borne by the polluter, is not a new
concept but has not yet been fully implemented, despite the fact that it is widely
recognised that the perception of water as a free commodity can no longer be
maintained. The principle is an economic instrument that is aimed at affecting behaviour,
i.e. by encouraging and inducing behaviour that puts less strain on the environment.
Examples of attempts to apply this principle include financial charges for industrial
waste-water discharges and special taxes on pesticides (Warford, 1994).

The difficulty or reluctance encountered in implementing the polluter-pays-principle is
probably due to its social and economic implications (Enderlein, 1995). Full application
of the principle would upset existing subsidised programmes (implemented for social
reasons) for supply of water and removal of wastewater in many developing countries.
Nevertheless, even if the full implementation of the polluter-pays-principle is not feasible
in all countries at present, it should be maintained as the ultimate goal.

*Apply realistic standards and regulations.* An important element in a water pollution
control strategy is the formulation of realistic standards and regulations. However, the
standards must be achievable and the regulations enforceable. Unrealistic standards
and non-enforceable regulations may do more harm than having no standards and
regulations, because they create an attitude of indifference towards rules and
regulations in general, both among polluters and administrators. Standards and
regulations should be tailored to match the level of economic and administrative capacity
and capability. Standards should be gradually tightened as progress is achieved in
general development and in the economic capability of the private sector. Thus, the
setting of standards and regulations should be an iterative and on-going process.

*Balance economic and regulatory instruments.* Until now, regulatory management
instruments have been heavily relied upon by governments in most countries for
controlling water pollution. Economic instruments, typically in the form of wastewater
discharge fees and fines, have been introduced to a lesser extent and mainly by
industrialised countries.

Compared with economic instruments, the advantages of the regulatory approach to
water pollution control is that it offers a reasonable degree of predictability about the
reduction of pollution, i.e. it offers control to authorities over what environmental goals
can be achieved and when they can be achieved (Bartone *et al.*, 1994). A major
disadvantage of the regulatory approach is its economic inefficiency (see also Chapter
5). Economic instruments have the advantages of providing incentives to polluters to
modify their behaviour in support of pollution control and of providing revenue to finance
pollution control activities. In addition, they are much better suited to combating non-point sources of pollution. The setting of prices and charges are crucial to the success of economic instruments. If charges are too low, polluters may opt to pollute and to pay, whereas if charges are too high they may inhibit economic development.

Against this background it seems appropriate, therefore, for most countries to apply a mixture of regulatory and economic instruments for controlling water pollution. In developing countries, where financial resources and institutional capacity are very limited, the most important criteria for balancing economic and regulatory instruments should be cost-effectiveness (those that achieve the objectives at the least cost) and administrative feasibility.

**Apply water pollution control at the lowest appropriate level.** The appropriate level may be defined as the level at which significant impacts are experienced. If, for example, a specific water quality issue only has a possible impact within a local community, then the community level is the proper management level. If environmental impacts affect a neighbouring community, then the appropriate management level is one level higher than the community level, for example the river basin level.

On a wider scale, the appropriate management level may be the national level for major water bodies where no significant water pollution impacts are anticipated for neighbouring states. Where significant impacts occur in several nations, the appropriate management level is international (e.g. an international river basin commission). The important point is that decisions or actions concerning water pollution control should be taken as close as possible to those affected, and that higher administrative levels should enable lower levels to carry out decentralised management. However, in considering whether a given administrative level is appropriate for certain water pollution control functions, the actual capacity to achieve these functions (or the possibility of building it) at that level should also be taken into account. Thus, this guiding principle intends to initiate a process of decentralisation of water pollution control functions that is adapted to administrative and technical feasibility.

**Establish mechanisms for cross-sectoral integration.** In order to ensure the co-ordination of water pollution control efforts within water-related sectors, such as health and agriculture, formal mechanisms and means of co-operation and information exchange need to be established. Such mechanisms should:

- Allow decision makers from different sectors to influence water pollution policy.
- Urge them to put forward ideas and plans from their own sector with impacts on water quality.
- Allow them to comment on ideas and plans put forward by other sectors. For example, a permanent committee with representatives from the involved sectors could be established. The functions and responsibilities of the cross-sectoral body would typically include at least the following:
  - Co-ordination of policy formulation on water pollution control.
  - Setting of national water quality criteria and standards, and their supporting regulations.
  - Review and co-ordination of development plans that affect water quality.
• Resolution of conflicts between government bodies regarding water pollution issues that cannot be resolved at a lower level.

*Encourage participatory approach with involvement of all relevant stakeholders.* The participatory approach involves raising awareness of the importance of water pollution control among policy-makers and the general public. Decisions should be taken with full public consultation and with the involvement of groups affected by the planning and implementation of water pollution control activities. This means, for example, that the public should be kept continuously informed, be given opportunities to express their views, knowledge and priorities, and it should be apparent that their views have been taken into account.

Various methods exist to implement public participation, such as interviews, public information sessions and hearings, expert panel hearings and site visits. The most appropriate method for each situation should take account of local social, political, historical, cultural and other factors. In many countries in transition, for example, only professional and scientific experts usually participate and other groups have mostly been excluded from the process. Public participation may take time but it increases public support for the final decision or result and, ideally, contributes to the convergence of the views of the public, governmental authorities and industry on environmental priorities and on water pollution control measures.

*Give open access to information on water pollution.* This principle is directly related to the principle of involvement of the general public in the decision-making process, because a precondition for participation is free access to information held by public authorities. Open access to information helps to stimulate understanding, discussions and suggestions for solutions of water quality problems. In many countries, notably the countries in economic transition and the developing countries, there is no tradition of open access to environmental information. Unfortunately, this attitude may seriously jeopardise the outcome of any international co-operation that is required.

*Promote international co-operation on water pollution control.* Trans-boundary water pollution, typically encountered in large rivers, requires international co-operation and co-ordination of efforts in order to be effective. Lack of recognition of this fact may lead to wasteful investments in pollution load reductions in one country if, due to lack of co-operation, measures are introduced upstream that have counteractive effects. In a number of cases (e.g. the Danube, Zambezi and Mekong rivers), permanent international bodies with representatives from riparian states have been successfully established, with the objective of strengthening international co-operation on the pollution control of the shared water resources.

A framework for international co-operation on water pollution control that has been widely agreed is the Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (UNECE, 1994). Although some countries have already started international co-operation on water pollution control, there is still a huge need for concerted planning and action at the international level.
1.4 Strategy formulation

Strategy formulation for water pollution control should be undertaken with due consideration to the above mentioned guiding principles, as well as to other principles for water resources management laid down in various documents, e.g. Agenda 21, that have been widely agreed. When formulating a water pollution control strategy, it should be ensured that various complementary elements of an effective water pollution control system are developed and strengthened concurrently. For example, financial resources would not be used very effectively by spending them all on the formulation of policies and the drafting of legislation, standards and regulations, if there is no institutional capacity to fill the established framework and enforce the regulations.

The main components of a rational water pollution control system can be defined as:

- An enabling environment, which is a framework of national policies, legislation and regulations setting the scene for polluters and management authorities.

- An institutional framework that allows for close interaction between various administrative levels.

- Planning and prioritisation capabilities that will enable decision-makers to make choices between alternative actions based on agreed policies, available resources, environmental impacts and the social and economic consequences.

All three components are needed in order to achieve effective water pollution control and it is, therefore, advisable to develop all three components hand-in-hand.

At the policy level the strategy must provide general directions for water quality managers on how to realise the objectives of the water pollution control policies and on how to translate the guiding principles into practical management. The strategy should provide adequate detail to help identify and formulate concrete actions and projects that will contribute to achieving the defined policies.

1.5 References


