SOURCE MANAGEMENT IN SOUTH AFRICA

Department of Water Affairs and Forestry

Republic of South Africa

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PREFACE

The management of water quality in our country provides many challenges. A key issue that needs to be recognised and addressed is that the quality of South Africa's water resources is deteriorating. One of the contributing factors to this water quality deterioration is the increasing level of economic activity and urbanisation in our country, which gives rise to an increasing number and diversity of pollution sources. The management and control of these pollution sources needs attention. Although several source management tools and instruments are available to the personnel in my Department, the use of these instruments in support of the National Water Act requires a co-ordinated and focussed approach.

The Source Management Strategy provides my Department with the vision and mission to address the many issues relating to the management of water quality in our country. This strategy contains the first comprehensive, focussed and co-ordinated approach to manage sources of pollution in such a way as to limit their impact on the resource and to achieve optimal water resource management. Through these various strategic elements, my Department is empowered with the vision and means to effect real water quality changes, not only in arresting the decline, but also in effecting improvements in the quality of the water resources of our country. As such, the Source Management Strategy represents an exciting opportunity for the Department and the regulated community to contribute to the upliftment and improvement of the living conditions of many South Africans. My Department plans to proceed with the implementation of the strategy set out in this document which, together with the implementation of the Resource and Remediation Management Strategies, will reap water quality benefits at an early stage.

My Department is indebted to the many stakeholders who gave of their time and energy to provide valuable input to the Source Management Strategy. The combined sum of this input provides us with a strategy that is practical, well integrated with other departmental initiatives and able to be implemented.

I invite you to provide comments on the Source Management Strategy by writing to the Manager: Waste Discharge and Disposal, Department of Water Affairs and Forestry, Private Bag X313, Pretoria, 0001.

RONNIE KASRILS, MP

MINISTER OF WATER AFFAIRS AND FORESTRY

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EXECUTIVE SUMMARY

INTRODUCTION

Background

The National Water Act, (Act 36 of 1998) was promulgated to provide for fundamental reform of the law relating to water resources, recognising that water is a scarce and unevenly distributed national resource that belongs to all people. The National Water Act acknowledges the National Government's overall responsibility for, and authority over, the nation's water resources and their use and that the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users.

The National Water Act provides the Department of Water Affairs and Forestry (the Department) with a mandate to protect, use, develop, conserve, manage and control South Africa's water resources in an integrated manner. The Department addresses the water quality management function of this mandate through distinct, but integrated, resource, source and remediation strategies.

Present situation

The present situation was reviewed through a water quality situational assessment and interviews with key source management personnel within the Department. One of the main issues that is currently faced by the Department is that of a deteriorating water resource, due to an increasing level of economic activity and urbanisation in the country, giving rise to an increasing number and diversity of pollution sources. Other issues that impact on the effectiveness of the source management efforts of the Department include limited human and financial resources, a lack of focus in the management of sources, management tools and instruments that are not fully operational and co-ordinated and an enforcement function that is not devolved to operational procedures.

The Source Management Strategy is aimed at addressing these issues by developing, integrating and managing in a consistent manner, the regulatory controls and measures that should be applied to all sources of pollution that threaten and/or impact on the quality of the water resource.

Vision

The vision for the Source Management Strategy is as follows:

"The Department will employ focussed and co-ordinated actions to manage potential threats to the water environment so as to effect real water quality improvements to South Africa's water resources"

Source management objectives

The Department achieves its source management vision through affecting the following strategic objectives:

- to stop the deterioration of the water quality of the country's water resources,
- to improve the water quality of the country's water resources, and
- to affect water use authorisation coverage of priority sources throughout the country in the shortest possible time.

The Department has identified the following operational objectives:

- to ensure that all water users adopt and apply Best Practice as a minimum requirement in the management of sources of pollution,
- to implement approaches to source management appropriate to the nature and severity of the threat to the water resource in such a manner as to reduce risk to an acceptable level,
- to implement a comprehensive water use authorisation process, including a Management Information System for data capture, data management and license tracking,
- to provide for effective enforcement of the requirements of the National Water Act through a hierarchical approach and to define the operational procedures for such enforcement, and
- to define the relationship with the various government departments concerned with source management in order to facilitate efficient co-governance.

The strategy also achieves cross-cutting objectives within the Department, such as integration, social, economic, process, environmental, organisational and technological objectives.

PRINCIPLES AND APPROACHES

Guiding principles provide the overall framework for developing the strategy. High-level principles are described in general terms as these are applicable to water resource and water quality management in general. Principles that are specific to source management are described in the manner that these will be applied in the source management field.

High-level principles

Equity: The regulatory system ensures fairness to people and communities who do not have equal access to natural resources and/or to social and economic goods. This is adapted in the use of section 27(1) of the National Water Act to evaluate the water use authorisation applications.

Participation: All interested and affected parties have a right to participate in the management of sources. The water use authorisation procedures and programmes therefore include public participation.

Freedom of information: The regulatory system provides for openness and transparency in decision-making and information is available to the regulated community and the public. Publishing of the Record

of Decision for water use authorisations and the appeal procedure are practical implementations of this principle.

Sustainability: The strategy promotes actions and practises that focus on conservation and sustainable use of the water resource, such that future generations have access to the resource that is fit for use.

Principles in practice

Principles that are particularly applicable to source management include the following:

Best Practice: Best Practice will be developed by a regulator and must be implemented by the regulated community as a minimum for responsible source management and to protect the water resource from unnecessary threat.

Consistent Performance: All water users/impactors within the regulated community are required to ensure and strive for the same water quality goals at the same risk levels.

Flexibility in approach: The regulator, in undertaking the task of implementing the Source Management Strategy, has the flexibility to consider the application of different alternatives and approaches, provided each of these is capable of meeting the desired objectives and requirements of the strategy.

Precautionary approach: The regulatory system adopts a risk-averse and cautious approach that recognises that the water resource is vulnerable to threats from pollution sources and that there are certain limitations on the current knowledge base. The precautionary approach is followed in the water use authorisation and enforcement process unless the risks involved can be demonstrated to be within acceptable levels.

Continuous improvement (Systematic movement of the "goal posts"): The strategy focuses on encouraging continual improvement in the actions and practices of both government and the regulated community.

Thinking strategically whilst implementing locally: The Department focuses on placing responsibility for achieving source management at the lowest (most local) level possible while still maintaining effective performance.

Approaches to be adopted in the strategy

The strategy encompasses the following approaches to source management:

- Prevention approach: a hierarchy of control measures that will govern source management, including waste elimination, substitution, recycling, re-use and disposal and control of activities that have a potential to pollute.

- Differentiated approach: a differentiated level of management input, depending on the level of threat that the source poses to the environment, so as to most effectively use the limited resources at hand while also meeting the water related objectives.

- Integration of source management with the Resource and Remediation Strategies and the initiatives of other government departments.

- Adoption of a risk-based approach in the management of sources,

- A focus on incremental improvements both in the Department's management of sources and in the actions of the regulated community, and

- Consolidation of existing approaches and instruments into the Source Management Strategy.

FUNCTIONAL STRATEGY

The functional strategy defines the tasks that are undertaken by the Department in implementing the strategy. Source classification, Best Practice, water use authorisations, enforcement, Source Management Plans, co-operative incentives and capacity building and co-ordination/integration are all functions covered by the strategy.

Source Classification

Source classification is defined as the categorising of sources according to the level of threat or risk posed by the source to the water resource.

Source classification provides the basis to focus the water quality management efforts of the Department on the sources that pose the greater risks.

The strategy has classified sources at a national level (see Appendix A.1) into:

- five main sectors (mining, industry, agriculture, settlements and national infrastructure, and

- high, medium and low.

The national source classification system must be implemented at the WMA/catchment level, which will be used to focus the Source Management Plans at this level. **Appendix A.2** sets out the process and procedure for adapting source classification from the national to the WMA/catchment level.

The national source classification has been used to identify appropriate source management methods for different sectors and risk classes.

Best Practice

Best Practice are established and effective processes and methodologies which are generally recognised as being the best available in a particular field and provide the Department with a benchmark/norm against which to test the practice and performance of the regulated community. As such, Best Practice represents the cornerstone of the Source Management Strategy and defines the minimum that is required from the regulated community.

Best Practice guidance will be put in place for priority sources based on the national source classification system. **Appendix B.1** sets out the procedure to follow for prioritisation of the development of Best Practice documents. **Appendix B.2** sets out the procedure to follow for the development of Best Practice guideline documents.

Authorisation

Water use authorisation is the primary instrument for source management. The strategy for implementation of authorisation will be effected through the following three routes:

- a harmonised water use authorisation process for individual uses (see Appendix C.1); the guideline document for water use authorisation has to a large degree been based on the guideline document for preparing an Environmental Impact Assessment, so as to enhance co-governance and streamline the evaluation of water use authorisation documents between the two departments,

- general authorisations for designated uses (see Appendix C.2), and

- water use authorisation through co-governance (see Appendix C.3); Memorandums of Understanding (see Appendix C.4) will be entered into with other state departments with the capacity to act as lead agent for the authorisation process.

Enforcement

The Department, as custodian of the water resources of South Africa, is bound to enforce compliance in terms of the National Water Act. Effort must be focussed on the highest risk areas and human resource allocation must be prioritised to conserve scarce resources.

The enforcement strategy contains four levels, which will largely be the responsibility of the Regional of National Offices, as follows:

- Regional Offices:

    - Level 1: monitoring and compliance assessment, and

    - Level 2: discussions and negotiations,

- National Office:

- Level 3: directives, and
- Level 4: legal action.

Monitoring and compliance assessment at Level 1 will be through the Departments water quality monitoring and management system (WMS). This will be web-enabled to allow operational use at a regional level and enable the source control monitoring at a catchment level to be linked to the national water quality monitoring system through the Regional Offices and/or CMA's.

Enforcement at Level 2 will be incident-based intervention based on monitoring at Level 1 and identifying non-compliance. The Regional Office personnel will promote a hierarchy of source control measures for corrective action, including recycling, waste minimisation, cleaner technology and water treatment. Ongoing non-compliance will advance the enforcement to levels 3 and 4.

The Department will adopt an approach of being "firm but fair" in advancing the enforcement function through the levels.

The Department will, in the interests of optimisation and efficiency, promote and encourage voluntary identification by the regulated community of out-of-specification incidents and voluntary submission of corrective action plans and programmes to remediate such incidents.

The Department will use the WDCS as a tool for source control and management, which will provide a strong financial incentive to reduce pollution loads to the water resource, particularly if the pollution loads discharged are in excess of the RRDV and the MARDV. The revenue from the WDCS will be ring-fenced to cover water quality management work within the Department. This work will include rehabilitation and remediation projects, waste abatement work (such as regional treatment facilities or on-site pollution prevention or treatment) and investigative studies.

The Department will develop procedures to engage the regulated community at a strategic level in instances of persistent and significant water pollution problems. The engagement will commence with an amnesty on prosecution, provided that a sustainable development plan is prepared and signed off by the Minister and the Chief Executive Officer of the offending party. The Department will also develop in-house specialist capacity ("Water Scorpions") to identify and prosecute sections of the regulated community that have a significant and persistent negative impact on the water quality of the water resource.

The Department will also use other incentives such as awards for ongoing water quality compliance (the carrot) and, in certain circumstances, publishing out-of-compliance incidents on the Departmental web-site or in the local or national press (the stick).

The principle of co-governance implies that the Department will offer assistance to other government departments (including local government) should these authorities be the offending parties causing an out-of-compliance incident. Assistance will be in the form of joint water quality and water resource management, joint efforts to identify water quality problems and feasible solutions, and jointly identifying appropriate long-term source management action. The hierarchical approach to enforcement must

nevertheless be applied to other government departments, in the case of persistent out-of-compliance incidents.

Source Management Plans

The Source Management Plan (SMP) is an important document on its own, as well as being an integral part of, and informing, the Catchment Management Strategy, which will be used by the Catchment Management Authority (CMA) to manage the water resources in each WMA. The SMP will focus on current and future sources of pollution in the catchment and will:

- support and underpin the objectives and requirements of the Catchment Management Strategy,
- provide the focus for water quality management at the catchment level by prioritising action on high risk pollution sources,
- select appropriate and effective action plans and methodologies for the control of sources of pollution.

Appendix D provides details of the process to follow and aspects to consider in developing a SMP and the information that is required in the plan.

Co-operative incentives

The Department will, in the interests of optimisation and efficiency, promote and encourage action by the regulated community that will serve to minimise government's regulatory costs and maximise the efficiency of enforcement.

Incentives that will be considered by the Department include recognition of activities taken voluntarily by the regulated community to minimise pollution at source. Incentives will be based on the proponent demonstrating full accreditation by the ISO 14 000 organisation of all processes and activities, including on-going incident management and audits. In instances where this can be demonstrated, then:

- if discharge is to sewer, then a relaxation on the requirements for a water use authorisation will be allowed, and
- if the discharge is to stream, then relaxation on the conditions of the water use authorisation may apply.

If the accreditation of ISO 14 000 can not be demonstrated, then no relaxation will be considered.

Capacity building and co-ordination

The Department promotes and encourages active participation by communities, organisations and the local authorities in water management. This participation aims to build capacity to address water

pollution issues by building an awareness of the importance of a healthy environment, the factors that contribute to pollution and the requirements for effective management of these factors.

SOURCE MANAGEMENT PROGRAMMES

The Department will launch a series of source management programmes in order to develop and implement new components of the Source Management Strategy. These programmes will have a clearly defined goal, objectives of the programmes and a time-frame for development. The purpose of each programme will be to develop the required component of the strategy and to ensure that this is implemented and absorbed into the operational regulatory system.

The following programmes will be addressed as a matter of priority:

- Source classification,
- Best Practice,
- Water use authorisation,
- Enforcement and
- Multi-lateral agreements.

ORGANISATIONAL STRATEGY

National Office Organisation: The Waste Disposal and Discharge Manager will have overall responsible for source management functions within the National Office. The Deputy Director: Source Control Policy will have overall responsibility for the following tasks:

- develop and update policy and strategy relating to source management,
- prioritise Best Practice guidelines and oversee the development of the Best Practice documents,
- fully develop the streamlined processes and procedures for authorisations and evolve these to implementation and audit phase,
- oversee the enforcement function: prepare directives (as required) and liaise with the Department's legal section on legal action, where necessary,
- co-ordinate and manage the programmes to develop new aspects of the Source Management Strategy,
- liaise with the Department's IT section to develop and maintain the Management Information System to support the licensing function,

- plan and co-ordinate source management training, and

- plan and co-ordinate research and development projects that will further the Department's knowledge and understanding of source management.

The Deputy Director: Source Control Policy will be assisted by five Assistant Directors in undertaking the above tasks.

The Deputy Directors: Municipal and Agricultural, Industry, Mining and Waste Managment will be responsible for to develop source and resource management policies and strategies pertaining to the particular sector as well as to technically verify, formalise for approval and approve the water use authorisation applications where necessary.

Regional Office Organisation: In the Regional Offices, the Deputy Director: Water Quality Management will be responsible, in the catchments under his/her jurisdiction, for planning source management, for co-ordinating the process for water use authorisations and for monitoring and compliance assessment. Assistant Directors: Planning and Water Use Authorisations, as well as inspectors, will report to the Deputy Director: Water Quality Management and will assist in these tasks

ENABLING THE SOURCE MANAGEMENT STRATEGY

The enabling strategy is designed to ensure that the personnel that are tasked with implementing the Source Management Strategy are in a position to do so by providing them with the necessary guidelines, support and training.

The enabling strategy includes the following:

- Preparing operational guidelines: the strategy has developed the water use authorisation guideline for individual water uses. Other operational guidelines that have been drafted but not fully completed include procedures to review documentation received as part of the co-governance function and develop source classification at WMA/catchment level, General Authorisations and Source Management Plans,

- Technical guidelines, in the form of the prioritised Best practice documents,

- A procedure to develop the Management Information System to support the water use authorisation function,

- The capacity and training requirements within the National and Regional Offices to enable the Source Management Strategy, and

- A change management plan, including a skills analysis, culture survey, short, medium and long-term capacity building and management plans and developing an effective skills retention and attraction strategy.

IMPLEMENTATION

Overall plan

The overall plan includes the following:

- immediate actions that are required by the source management personnel in the National and Regional Offices to commence the implementation of the Source Management Plan

- short, medium and long-term actions in the National and Regional Offices to that are to be undertaken to ensure that the implement of the strategy has impetus and remains on programme,

- an Interim Strategic Plan, which is to be used by the source management personnel in the Regional Offices while the full Source Management Plan is being implemented,

- a resource analysis, in terms of finances, personnel and support equipment required; and

- a programme for implementation.

Management and measurement of implementation

The National Office will act as the lead agent in setting up and co-ordinating the required source management programmes, within the sub-directorate Source Control Policy. Programmes that will be undertaken in the Regional Offices will then be delegated to the appropriate personnel.

Managing implementation requires that detailed action plans are set up by the programme managers, including scope of work, key performance indicators and monitoring and audit forms and protocols. The progress of the programme, and the success of the programme, will then be measured against these protocols. Intervention will be in the form of guidance or providing additional personnel for assistance.

Monitoring and reporting on the on-going source management plans and interventions will be required by the Deputy Director: Water Quality Management in the Regional Offices. Regular quarterly reports will include a management review against the requirements of the Source Management and Catchment Management Plans, authorisations issued or renewed in the period under review, number, duration and severity of pollution incidents recorded in the period, priority actions for the next period and any personnel, technical and/or financial issues and action plans to address these issues.

Measurement of implementation will take the following forms:

- measuring the progress of the source management programmes against the schedules and action plans provided by the programme manager; key success indicators will be programmes that are completed within the envisaged time-frames and budgets; this will be the responsibility of the Deputy Director: Source Control Policy and the Deputy director: Water Quality Management in the Regional Offices,

- measuring implementation progress: key success indicators will be the effective incorporation of the source management programmes into the operational management of sources,

- measuring the progress towards the achievement of the strategy objectives: the key success indicators in this regard will be the level of risk/threat posed by sources to the water resource and the continual decrease in this threat level through the source management actions; this requires the preparation and review of quarterly progress reports by the Deputy Director: Source Control Policy and the Deputy director: Water Quality Management in the Regional Offices, as well as the Manager: Waste Discharge and Disposal, and

- measuring the water quality in the country's water resources: a successful strategy should be mirrored by a medium to long-term continual improvement in the water quality of the water resource over time; this requires that regular water quality status reports are prepared by the Deputy Director: Water Quality Management in the Regional Offices, which will be reviewed and acted on by the Deputy Director: Source Control Policy and the Manager: Waste Discharge and Disposal.

SECTION 1
INTRODUCTION

1.1 Background

The National Water Act, (Act 36 of 1998) was promulgated to provide for fundamental reform of the law relating to water resources, recognising that water is a scarce and unevenly distributed national resource that belongs to all people. The National Water Act acknowledges the National Government's overall responsibility for, and authority over, the nation's water resources and their use and that the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users. The Act also recognises the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources.

The National Water Act provides the Department of Water Affairs and Forestry (the Department) with a mandate to protect, use, develop, conserve, manage and control South Africa's water resources in an integrated manner. Such integrated management of the resource depends *inter alia* on effective management of water quality, which in turn relies on managing both the resource and sources of pollution that threaten the resource.

The Department has divided its water quality management functions into the key areas of resource, source and remediation management. Strategies are currently being developed for resource management and a remediation management strategy is planned. Several aspects of source management, such as the water use authorisation process and co-governance arrangements, are already implemented and in place within the Department, but a specific Source Management Strategy is however not yet in place.

1.2 Present situation

The responsibility for the management of sources of pollution is delegated to the Departments regional personnel. At this level, the source manager is faced with the challenge of implementing the requirements of the National Water Act in general and, in particular, the effective management of sources of pollution. To assist in this task, the source manager has access to a number of tools, such as water use authorisations, which license all users of the water resource, and the uniform effluent standards, which are used as benchmarks and for compliance assessment during enforcement. The source manager also acts in a review role for instruments administered by other departments which assist in water quality management, such as the Environmental Impact Assessment (EIA) process and the Environmental Management Programme Reports (EMPR) for mines.

Several measures are also available to the source manager to manage water quality. These are non-legally binding measures, which are meant to enhance voluntary compliance with regulations. They are effectively directed at guiding and informing the users or the public about the requirements of the law or regulations and include guidelines, awareness raising and educational programs.

A situational assessment of water quality management and source management within South Africa, together with interviews with key source management personnel within the Department, identified the following critical problems and issues:

- there is an increasing level of economic development and urbanisation in South Africa, giving rise to an increasing number and diversity of pollution sources; for example,
- there is a steady decline in the water quality of the country's water resources; for example, Total Dissolved Solids (TDS) in the Loskop dam in the Mpumulanga highveld have shown a steady increase from about 170 mg/l in the early 1990's to about 260 mg/l in 2002,
- although source management tools and instruments are available to the Department's regional personnel, there is a need for a national strategy that co-ordinates and focuses the use of these instruments for effective source management,
- there is a need for effective co-governance to achieve integrated management of water resources, in an arena where the mandates and responsibilities between government departments with regard to water quality management require clarification,
- there is a limited human and financial resource base within the Department for the management of sources,
- the National Water Act provides for promulgation of various regulations, such as General Authorisations for water users, which would allow for a differentiated approach to water quality management and assist in focussing the efforts of the limited resource base within the Department; many of these regulations have however not been promulgated,
- the water use authorisation process that is currently in use within the Department is covered in a guideline document that provides a comprehensive motivation for, and description of, the process. The document is however difficult to use at an operational level as it lacks clear procedures and programmes for licensing water users, and
- the National Water Act makes provision for the enforcement of the regulations and requirements of the Act. These provisions have however not been devolved to operational procedures for use in the enforcement of the Act by the source managers.

These problems and issues are addressed in the Source Management Strategy, which provides a vision and mission for the Department to develop, integrate and manage in a consistent manner, the regulatory controls and measures that will be applied to all sources of pollution that threaten and/or impact on the quality of the water resource. The Source Management Strategy represents the first comprehensive, co-ordinated and focussed approach to source management, which, once implement, will realise real water quality changes to the water resources of South Africa.

1.3 Vision

The vision for the Source Management Strategy must underpin and support the vision and strategic goals of the National Water Quality Management Framework policy and be concise, understandable and achievable with regard to source management. In this context, the vision for the Source Management Strategy is as follows:

"The Department will employ focussed and co-ordinated actions to manage potential threats to the water environment so as to effect real water quality improvements to South Africa's water resources"

1.4 Source management objectives

The Department will achieve its source management vision through affecting the strategic, operational and enabling objectives that are detailed below. Strategic objectives are framed in terms of realised outcomes while operational objectives are a means to be employed to achieve the strategic objectives and through these the vision.

1.4.1 Strategic objectives

- to stop the deterioration of the water quality of the country's water resources,
- to improve the water quality of the country's water resources, and
- to affect water use authorisation coverage of priority sources throughout the country in the shortest possible time.

1.4.2 Operational objectives

- to ensure that all water users adopt and apply Best Practice as a minimum requirement in the management of sources of pollution,
- to implement differentiated approaches to source management, through the use of existing and new instruments and incentives; these approaches will allow for effective and focussed intervention based on the potential threat of the pollution source and the vulnerability - and regional as well as local importance - of the water resource, whilst meeting uniform Resource Water Quality Objectives,
- to implement a water use authorisation process, including a Management Information System for data capture, data management and license tracking, that is easy to understand and use by the Departments personnel tasked with source management and that utilises appropriate information technology,
- to provide for effective enforcement of the requirements of the National Water Act through a hierarchical approach and to define the operational procedures for such enforcement, and

- to define the relationships, role-players and checks and balances with the various government departments concerned with source management, in order to facilitate efficient co-governance.

1.4.3 Enabling objectives

Enabling objectives are required to support the strategic objectives and to provide focus for the implementation of the strategy. Enabling objectives include resourcing, skills development and training (where the relevant Departmental employees become part of a employee-specific training programme geared towards source management), capacity building and the use of technology and information management.

1.4.4 Other objectives

Table 1.1 provides other, broad-based objectives that should be met to underpin the vision of the Source Management Strategy.

Table 1.1: Broad-based objectives of the Source Management Strategy

Aspect	Details of objectives to be achieved
Integration	The strategy must be aligned and integrated with the actions specified in other water quality policy and strategy documents that have been developed or are being developed by the Department of Water Affairs and Forestry and other government departments
Social	The strategy must, as far as possible, be aligned to the Governments stance on social upliftment and poverty alleviation.
Economic	The strategy must, as far as possible, be aligned to the Governments promotion of economic development and job creation.
Process	The strategy must streamline existing processes relating to source management within the Department and ensure that new processes and procedures identified in the strategy are simple and user-friendly
Environmental	The strategy must be aligned with other policy and strategy actions covering the overall gambit of environmental management.
Organisational	The resource requirements of the strategy must be aligned with the latest departmental organisational structure.
Technology	The strategy must utilise, as far as possible, the latest information technology support structures of the Department in the operation of the source management controls and measures.

1.5 Strategic path

The Department will achieve its vision for source management through the following strategic actions:

- the Department will ensure that the required personnel are deployed and empowered to implement the strategy, these personnel will also focus on creating an increased awareness in the Department of the need for and importance of source management,

- the necessary programmes will be prioritised and adequately resourced, and

- the programme deliveries will be incorporated into source management when available.

1.6 Structure and use of the Source Management Strategy

Figure 1.1 provides details on the structure and use of the Source Management strategy document, which comprises the following sections:

- **Section 1** covers the introduction, which provides an overview of the present situation with regard to source management within South Africa and the Department and covers the Departments vision for source management and the strategic path to achieve this vision,

- **Section 2** provides details on the high-level approaches to be adopted as well as the guiding principles and approaches specific to source management,

- **Section 3** covers the functional strategy, which includes strategic, operational and control levels, as follows:

    - Strategic level functions: details are provided on the high-level planning functions within the Department for implementation and on-going support of the strategy; these include source classification at a national level and Best Practice documentation,

    - Operational level functions: details are provided on the operational functions that will be put in place within the Department to effectively implement the strategy, such as water use authorisation and Source Management Plans,

    - Control level functions: details are provided on the procedures to enforce the requirements of the National Water Act, such as compliance assessment and co-governance

- **Section 4** provides details on the programmes that are required to fully implement the strategy,

- **Section 5** covers the organisational strategy, which gives details of the resource requirements within the Department to implement the strategy and the roles and responsibilities of these personnel; these organisational requirements are aligned with the proposed Departmental organisational structure,

- **Section 6** gives details of the internal tools and support mechanisms that will be put in place to ensure that the personnel who will implement the strategy to be in a position to do so in a consistent and structured manner; these include operational and technical guidelines, information technology support systems, empowerment and training and the application of change management;

- **Section 7** presents the implementation of the strategy as an overall plan which provides details on the actions required the resourcing, time schedule and budgets as well as the requirements for the management of implementation.

Figure 1.2 shows the management framework within which the Source Management Strategy will be implemented. The framework includes a cycle of continual improvement in the Department's water quality management. The key elements of this continual improvement are as follows:

- the Department will establish the national water quality management policies, which will set out objectives and targets for water quality management,

- source, resource and remediation strategies will underpin these policies and will set the strategic and operational management requirements,

- ongoing "day-to-day" operations will implement and enforce source management, and

- periodic audits and reviews of operations will be used to reassess the water quality management policies and strategies.

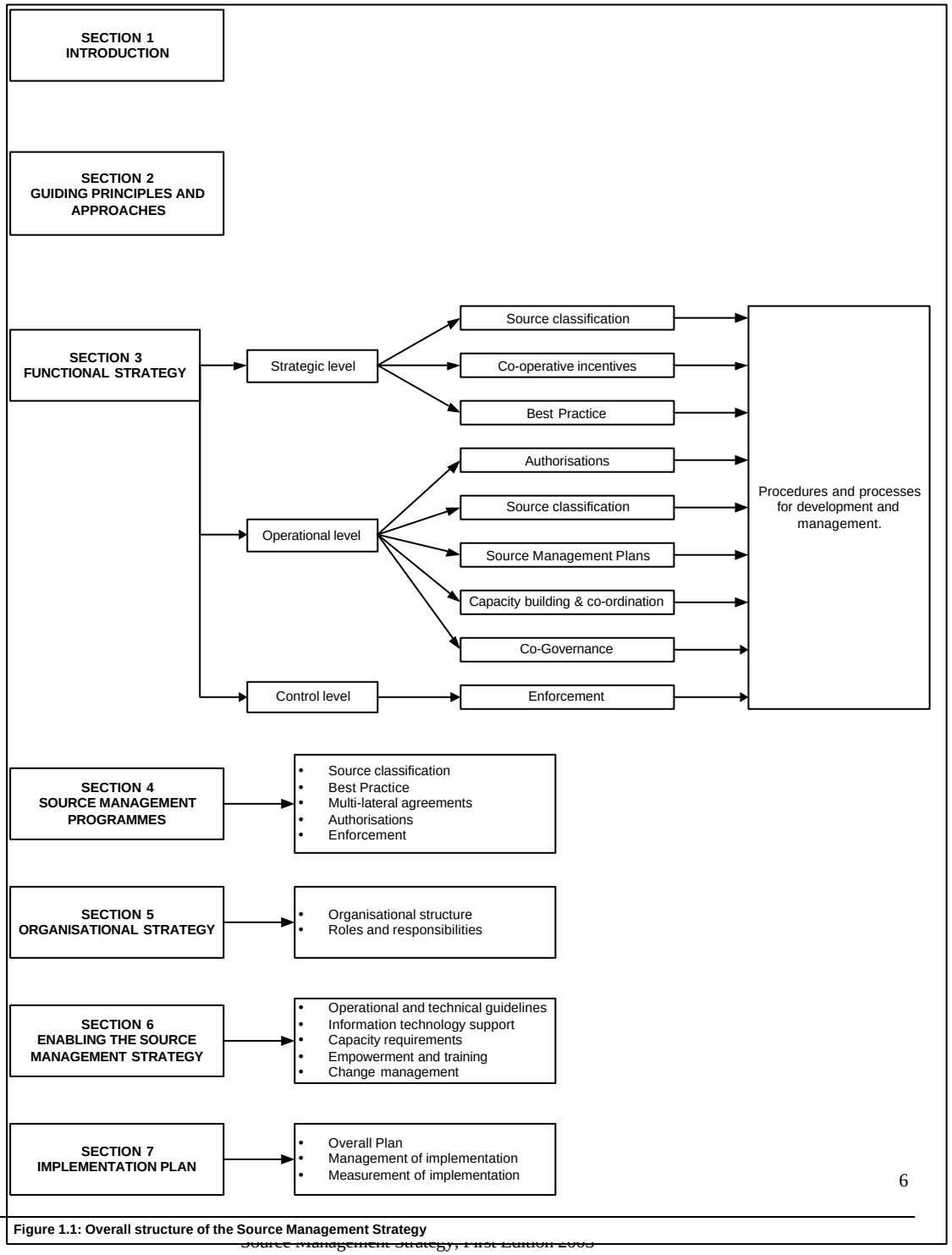


Figure 1.1: Overall structure of the Source Management Strategy

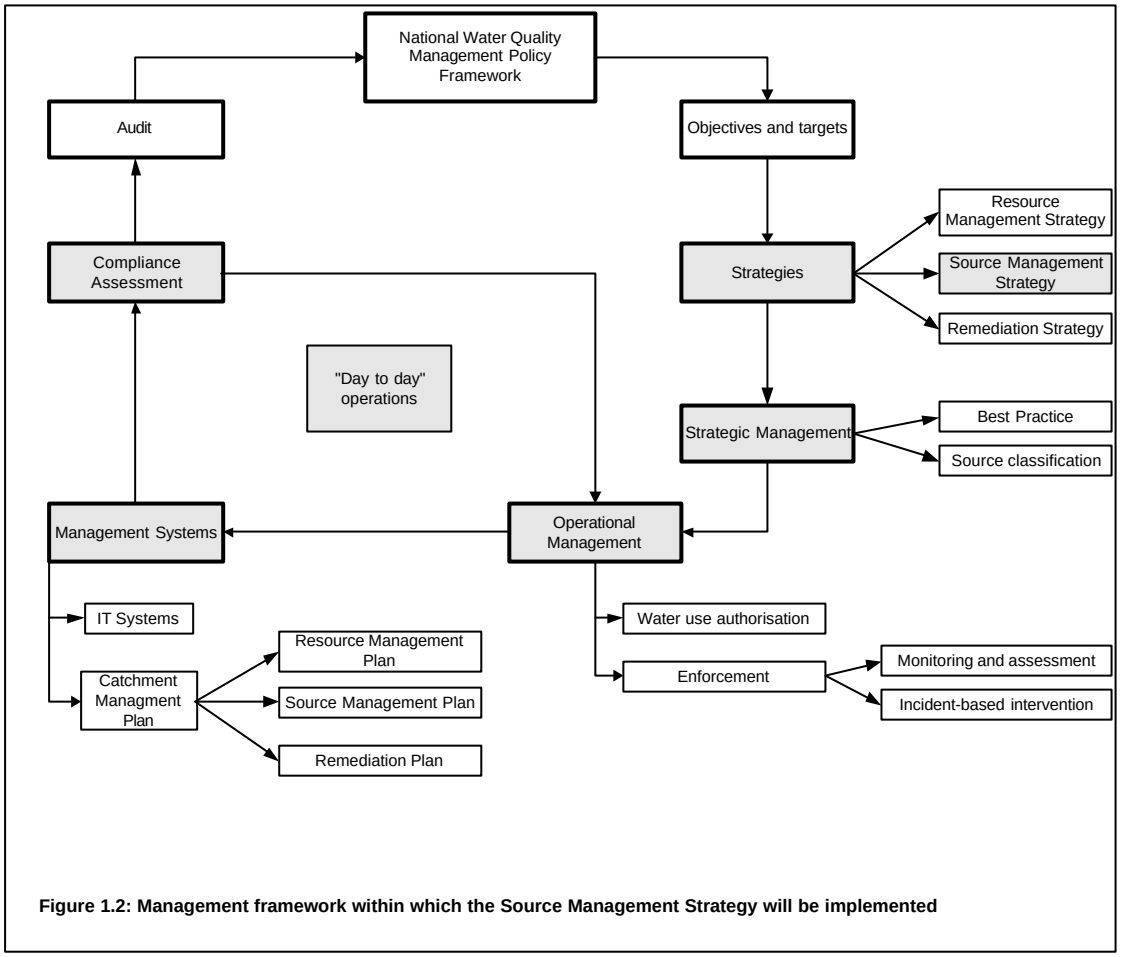
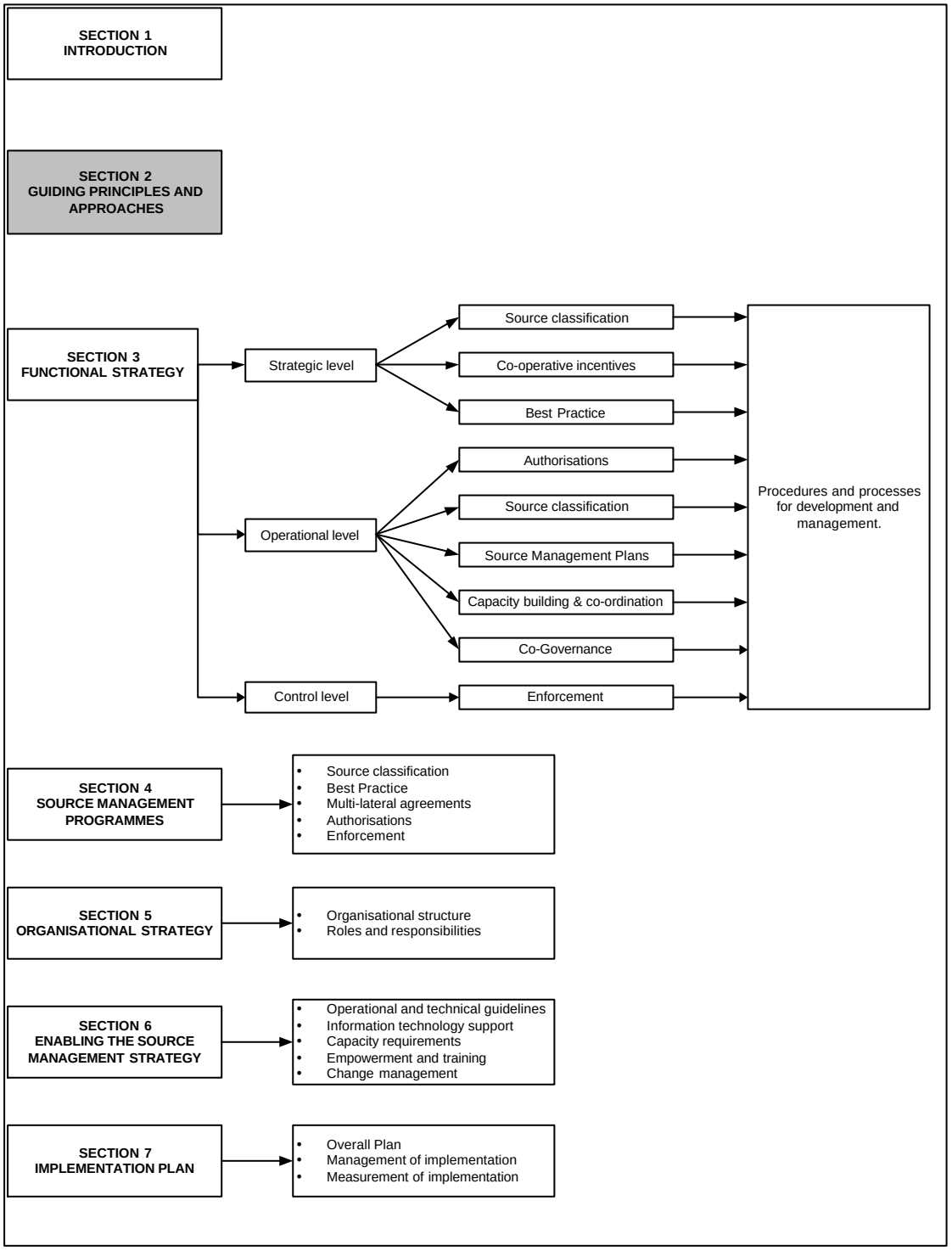


Figure 1.2: Management framework within which the Source Management Strategy will be implemented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SECTION 2
PRINCIPLES AND APPROACHES

Guiding principles are value-orientated and provide the overall framework for developing the strategy, as these define the values that the regulatory system must adopt and support and appear in the strategy in practical terms. Approaches followed in the strategy are process-orientated.

High-level principles are described in general terms as these are applicable to water resource and water quality management in general. Principles that are specific to source management are described in the manner that these will be applied in the source management field.

2.1 High-level principles

Equity: The regulatory system ensures fairness to people and communities who do not have equal access to natural resources and/or to social and economic goods. The equity principle is adopted by following the considerations included in section 27(1) of the National Water Act in the evaluation of individual water use authorisation applications.

Participation: This principle recognises that all interested and affected parties have a right to participate in the management of sources. Participation includes meaningful, timely and representative consultation with interested and affected parties in order to contribute to effective and informed decision-making. The National Water Act includes extensive provision for stakeholder consultation. The authorisation procedures and programmes that are part of source management include public participation.

Freedom of information: The regulatory system provides for openness and transparency in decision-making and information is available to the regulated community and the public. Publishing of the Record of Decision for water use authorisations and the appeal procedure are practical implementations of this principle.

Sustainability: The strategy promotes actions and practises that focus on conservation and sustainable use of the water resource, such that future generations have access to the resource that is fit for use.

2.2 Principles in practice

Best Practice: Best Practice will be developed by the Department and implemented by the regulated community as a minimum for responsible source management and to protect the water resource from unnecessary threat.

Stewardship: All water users/impactors within the regulated community are required to ensure and strive for the same water quality goals at the same risk levels. No person or organisation should have the right to place the water resource at a greater risk than another and should act with due care to avoid damage to others and/or to the water resource.

Flexibility: The regulator, in undertaking the task of implementing the Source Management Strategy, has the flexibility to consider the application of different alternatives and approaches, provided each of these is capable of meeting the desired objectives and requirements of the strategy.

Precautionary principle: The regulatory system adopts a risk-averse and cautious approach that recognises that the water resource is vulnerable to threats from pollution sources and that there are certain limitations on the current knowledge base. The precautionary approach is followed in the water use authorisation and enforcement process unless the risks involved can be demonstrated to be within acceptable levels.

Continual improvement: The strategy focuses on encouraging continual improvement in the actions and practices of both government and the regulated community.

Subsidiarity: The Department focuses on placing responsibility for achieving source management at the lowest (most local) level possible while still maintaining effective performance. The appropriate level is that where all necessary functions can be carried out effectively. The Department will however retain all powers in terms of the National Water Act enabling it to act in instances where the devolution of power has not produced the desired outcomes.

2.3 Prevention approach

The strategy includes a hierarchy of control measures that will govern source management, including, in order of priority:

- waste elimination, substitution, recycling, re-use and disposal, which is effected through the adoption of Best Practice guidelines and cleaner technology, and

- the control, through the water use authorisations process, of either developments taking place or the use of procedures, processes, activities or substances that produce discharges or emissions of water containing waste where there is an unacceptably high risk to the water resource.

2.4 Differentiated approach

A differentiated approach to the management of sources is important for the South African situation, where the availability of water is unevenly distributed across the country and economic development is often locally concentrated. This approach recognises that applying the same degree of management input to all potential sources of pollution can be both inefficient and wasteful. South Africa's water quality policy does also not aim to prevent impacts to the water resource at all costs, since this could thwart much-needed social and economic development in the country. The approach calls for a differentiated level of management effort, depending on the level of threat that the source poses to the environment, so as to most effectively use the limited resources at hand while also meeting the water related objectives.

In practice the Department applies the differentiated approach primarily through the classification of sources, where all sources of pollution in an area, region or catchment are classified according to the

level of risk posed by the source to the water resource. The Department uses the principle of flexibility in adopting different approaches to the management and control of the sources in each risk class (high, medium or low risk) while ensuring that the water quality objectives for the resource are met.

2.5 Integration

Integration is a cross-cutting strategy that is a means to achieve other objectives rather than an end in itself. Integration ensures uniformity and consistency of approach between departments, eliminates duplication, ensures co-operation, rationalises resources, ensures the consideration of all media and ensures effective enforcement of regulations through a single enforcement interface with the regulated community.

The Source Management Strategy is aligned and integrated with the goals and principles in the National Water Act and the National Water Quality Management Policy Framework. The strategy is also integrated with:

- the Resource Management and Remediation Management Strategies, (Section 2.5.1) and
- the strategies of other government departments who are also tasked with management of development that can have an impact on the environment (Section 2.5.2).

2.5.1 Integration between Source, Resource and Remediation Management Strategies

Integration of the Source, Resource and Remediation Management Strategies is achieved at a national level through:

- Best Practice, which sets the standards against which the regulated community will be measured, and
- source classification, which provides for differentiated source management depending on the threat that the source of pollution poses to the water resource.

At the catchment level, integration is achieved through:

- setting Water Quality Management Objectives and developing Catchment Management Plans that provide guidance on the balance of effort required to meet the objectives, and
- defining departmental lead agents and developing Memorandums of Understanding for water use authorisations, as part of co-governance.

Figure 2.1 indicates schematically the management cycle and relationship between the Source, Resource and Remediation Management Strategies. The National Water Act (Chapter 3) provides for the classification of water resources and the determination of the reserve at a catchment level. These form the central consideration of the Resource Management Strategy in the determination of the

Resource Water Quality Objectives and the appropriate management measures that will be required to protect the resource.

At a catchment and local level, the integration of the source, resource and remediation management actions assist in achieving the Resource Water Quality Objectives. These actions include:

- source classification and catchment-level Source Management Plans (SMP's),
- sectoral Best Practice guidelines,
- single source intervention plans within each SMP and, through the available controls and measures, actual intervention to manage single source pollution, and
- monitoring and compliance assessment.

This integration of source and resource functions forms a continuous process for improvement in the setting of objectives, single source intervention, monitoring, review and updating of objectives.

2.5.2 Integration with the initiatives of other government departments

The Source Management Strategy is aligned with the regulatory instruments of other government departments that relate to the control of various types of development and hence the control of pollution sources to the water resource. Other departments consult with the Department of Water Affairs and Forestry for water use authorisation in instances where these other departments are the lead agent, as follows:

- Section 39 of the Minerals Act (1991), administered by the Department of Minerals and Energy, which requires approval of an Environmental Management Programme Report (or the granting of a temporary authority) before a proponent can commence a mining operation; the Minerals Act also covers the requirements for closure of a mining operation,
- Section 20 of the Environmental Conservation Act (1989), administered by the Department of Water Affairs and Forestry, which prevents operation of a landfill site without a permit,
- Regulations in terms of section 20 of the Environmental Conservation Act (1989) where an Environmental Impact Assessment is compulsory for prescribed processes and activities.

The Department of Water Affairs and Forestry consults with other Departments in instances where water use authorisations are required in terms of sections 40 to 48 of the National Water Act (1998).

2.6 Risk-based approach

This approach recognises the need for a link between the level of control required to manage sources of pollution and the risk posed by the source. A lower level of control can be motivated if it can be demonstrated that the risks posed by the source are within acceptable limits. The risk-based approach is

adopted in the process of source classification at a catchment level, in site specific assessments and in developing general authorisations.

The risk-based approach allows for the identification of areas of risk and impact mitigation in these areas and achieves focussed and effective source management actions.

2.7 Incremental approach

The management of sources is incrementally improved through the implementation of the Source Management Strategy. The approach to incremental improvement is applied as follows:

- **Incremental inclusion:** the Department firstly develops and implements action plans that focus on improvements in the control and management of high risk sources of pollution, followed by medium and lower risk sources, and

- **Continuous improvement:** the regulated community is made aware of the imperative to strive for continual improvement so as to comply with increasingly stringent control mechanisms.

2.8 Consolidation

The procedures and processes in the Source Management Strategy consolidate and focus the existing processes, operational tools and functions that are available within the Department. This enables more effective use of the instruments and resources by the relevant personnel within the Department.

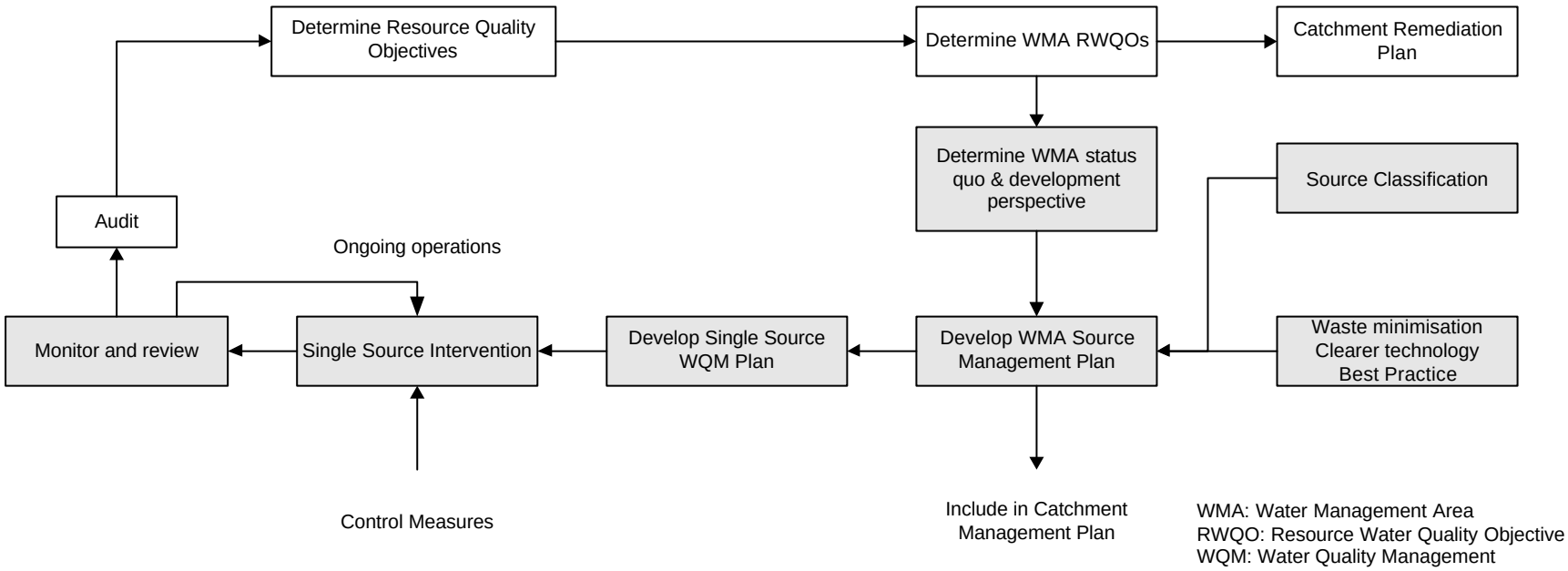
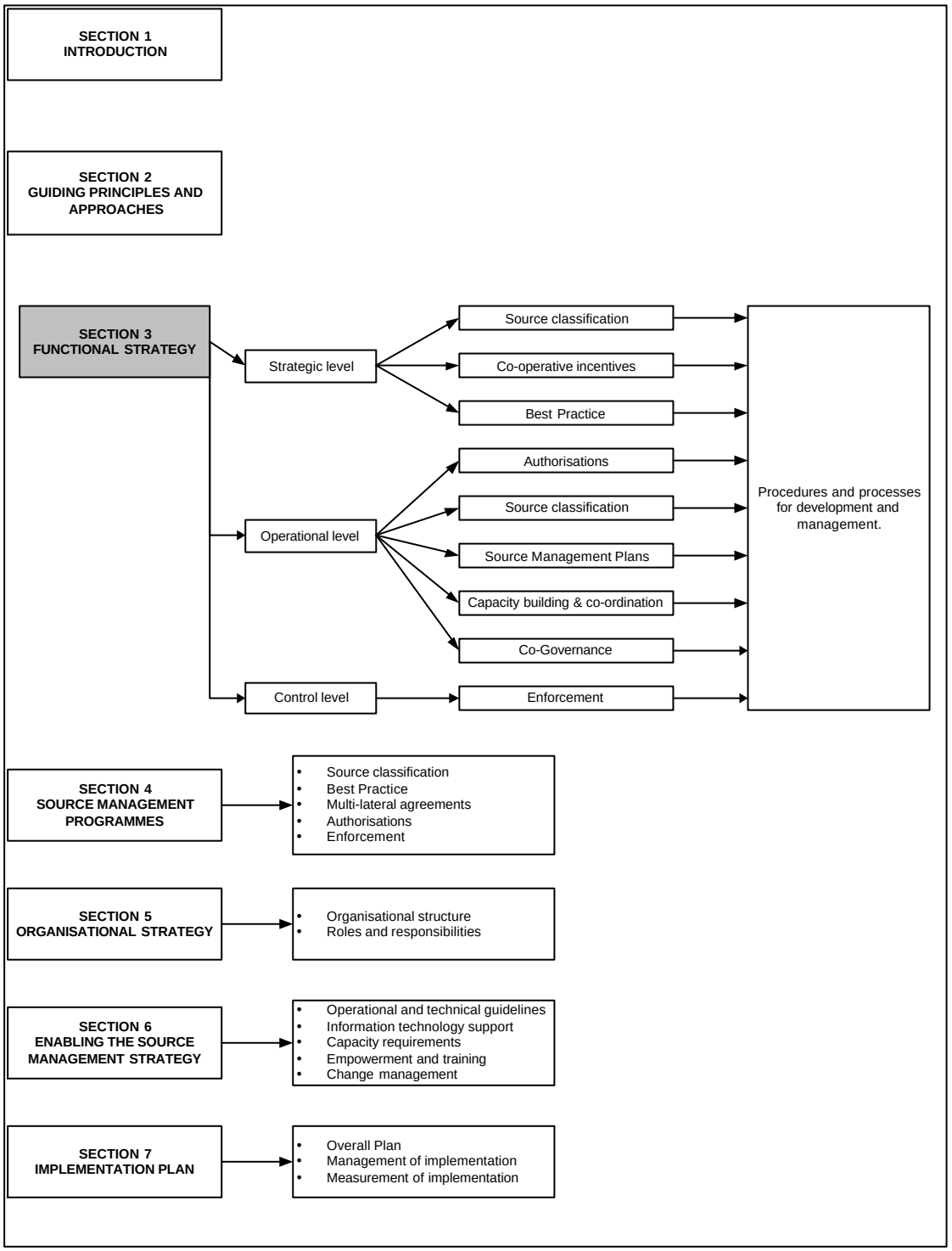


Figure 2.1: Integration between management strategies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FUNCTIONAL STRATEGY

The functional strategy defines the tasks that are undertaken by the Department in implementing the Source Management Strategy. Best Practice, source classifications, authorisations, enforcement, Source Management Plans, co-operative incentives and capacity building and co-ordination/integration are all functions covered by the strategy.

3.1 Source classification

3.1.1 What is source classification

A source includes any anthropogenic or natural process that may impact or currently impacts, either directly or indirectly, on the water resource. Source classification is defined as the categorising of sources according to the level of threat or risk posed by the source to the water resource.

3.1.2 Why is source classification necessary

Source classification is required in order to underpin and support the Departments source management efforts in two key areas, namely:

- source classification provides a means to group sources and focus the water quality management efforts of the Department on the sources that pose the greater risks; thus, source classification is used to focus the water use authorisation process and for prioritising the development of Best Practice guidelines, and

- The focus on the main contributors that impact or can potentially impact on the water resource satisfies the Departments principles of efficiency and differentiation.

3.1.3 Source classification at a national level

Appendix A.1 provides details of source classification at a national level. Five main sectors are identified in **Appendix A.1**, namely a) mining, b) industry, c) agriculture, d) settlements (urban and rural/dense) and e) national infrastructure. Each sector is divided into sub-sectors, which are further categorised into activities and processes of a similar nature.

All activities and process are classified based on the level of risk or threat that is posed to the water resource, i.e. the potential of the source to have a serious detrimental impact to the water quality of the resource. Three levels of risk/threat are used as follows:

- high risk/threat level: a high probability of the occurrence of the impact and a severe consequence,

- medium risk/threat level: a medium probability of occurrence and manageable consequences,

- low risk/threat level: a low probability of occurrence and negligible consequences.

The risk/threat level of all activities and processes in each of the sectors are shown in **Appendix A.1**.

3.1.4 Control strategy based on source classification

Table 3.1 indicates the most appropriate management and control method for each of the sector-based risk classes. In this manner, a differentiated approach is adopted, so as to optimise the use of the available resources and instruments, while still achieving the desired water quality management.

Table 3.1: Appropriate source management methods for different sectors and risk classes

Sector	Discharge	Class	Best Practice	Co-Governance	License	General Authorisations	Exemptions
Mines	Not to sewer	A	Yes	Yes	Yes		
		B	Yes	Yes	Yes		
		C				Yes	
Industry	To sewer	A &B	Yes	Yes			
		C					Yes
	Not to sewer	A &B	Yes		Yes		
		C	Yes			Yes	
Agriculture	Not to sewer	A & B	Yes			Yes	
		C	Yes	Yes			Yes
Settlements Urban	Sewage	A	Yes	Yes	Yes		
		B	Yes	Yes		Yes	
	Waste	A	Yes	Yes	Yes		
		B	Yes	Yes		Yes	
	Water	A		Yes	Yes		
		B		Yes			Yes
Settlements Rural/Dense		A	Yes	Yes		Yes	
National Infrastructure	Not to sewer	A	Yes	Yes			
		B	Yes	Yes		Yes	
		C	Yes	Yes			Yes

Table 3.1 indicates where licensing is focussed on the control and management of high risk activities, such as Class A mines, Class A and B industries and the Class A activities within urban settlements. Exemptions will also be used for low risk impactors, such as Class C mines, Class C agriculture and Class B water utilisation.

3.1.5 Source classification at operational level

South Africa has wide disparities in terms of the abundance and availability of water resources across the country. The potential impacts associated with of a particular risk class in a sector could therefore vary depending on the locality within the country. The national source classification system must therefore be implemented at the WMA/catchment level. The catchment level source classification will then be used to focus Source Management Plans at this level. The procedure to prepare source classification at a WMA/catchment level is set out in **Appendix A.2**. This procedure is to be used by Catchment Agency personnel to classify sources.

3.2 Best Practice

3.2.1 What is Best Practice

The definition of Best Practice to be adopted for the Source Management Strategy, and to be applicable to the South African context, is:

"*An established and effective methodology which is generally recognised as being the best available in a particular field*"

Best Practice must be an established and accepted methodology and must be generally available for use by the regulated community.

3.2.2 What purpose does Best Practice serve

Best Practice provides the Department with a benchmark/norm against which to test the practice and performance of the regulated community. Best Practice can be adapted to suit local circumstances, where applicable, but the measurement against a performance benchmark must be the same.

Best Practice represents a minimum requirement. Anything less than Best Practice is therefore not acceptable as it implies an inequitable level of use of the available environmental resources.

3.2.3 Development of Best Practice

The Department will take the lead in developing Best Practice guidelines for those processes, substances and activities that pose a potential threat to the water resource. The Department will also actively support the initiatives of other government departments in developing Best Practice guidelines and will encourage the regulated community to develop guidelines that are acceptable to the Department.

The classification of sources at a national level is used to identify priority sectors, processes and activities for the development of Best Practice guidelines. The Department is however aware that developing Best Practice, particularly documentation that is relevant to the South African environment and context, is a time and resource consuming task. **Appendix B.1** describes the procedure to be followed for prioritising the development of Best Practice.

Once the prioritisation process is complete, the required Best Practice documents will be produced. The procedure for preparing Best Practice documents is described in **Appendix B.2**.

Table 3.2 sets out the priority ranking for developing Best Practice documents, based on the sectors and risk classes identified in **Appendix A.1** and the details in **Table 3.1**.

Table 3.2: Priority ranking for developing Best Practice

Sector	Discharge	Class	Best Practice	Priority ranking		
				High	Medium	Low
Mines	Not to sewer	A	Yes	Yes		
		B	Yes		Yes	
		C	X	Not applicable		
Industry	To sewer	A & B	Yes		Yes	
		C		Not applicable		
	Not to sewer	A &B	Yes	Yes		
		C	Yes			Yes
Agriculture	Not to sewer	A & B	Yes	Yes		
		C	Yes			Yes
Settlements Urban	Sewage	A	Yes		Yes	
		B	Yes			Yes
	Waste	A	Yes		Yes	
		B	Yes			Yes
	Water	A	No	Not applicable		
		B	No	Not applicable		
Settlements Rural/Dense		A	Yes	Yes		
National Infrastructure	Not to sewer	A	Yes	Yes		
		B	Yes			Yes
		C	Yes			Yes

3.2.4 Deployment of Best Practice

The Department will deploy Best Practice though the water use authorisation process, through General Authorisations and through other regulations. Proponents will be required to demonstrate the use of sector or sub-sector based Best Practice as part of the water use authorisation process.

3.3 Authorisation

3.3.1 Introduction

Section 21 of the National Water Act identifies eleven water uses, encompassing both consumptive and non-consumptive water use. The Act stipulates that these water uses be subject to authorisation requirements, under a tiered authorisation system, which includes scheduled uses, general authorisations, existing lawful use and water use licences. Two types of applications for a water use licence are catered for, namely:

- compulsory applications, where under certain circumstances (such as in an area under water stress), all water users require a licence; these applications are subject to the development of a Water Allocation Plan, prepared by the responsible authority; and

- individual applications

Figure 3.1 illustrates the process to follow, based on the National Water Act (1998), to decide:

- whether a water use authorisation is required, and
- if required, the type of water use authorisation.

The Department focuses on a differentiated approach to streamline the authorisation process. This is achieved through deploying, at different levels, the following regulatory instruments and measures:

- General Authorisations: where possible, a General Authorisation will be issued under section 39 of the National Water Act to authorise all or any category of water use, either generally, in relation to a specific water resource or within a specified area,
- uses covered by co-governance: the Department will not duplicate the water use authorisation function in instances where anther government department is mandated as the lead agent for authorisation ,
- co-operative incentives, where applicable, will be used to reduce the requirement for a water use authorisation, and
- using a harmonised water use authorisation process.

3.3.2 Water use authorisations for individual uses

The Department utilises the authorisation of individual water uses as the key regulatory control mechanism to achieve source management. **Appendix C.1** provides details on the roles and responsibilities and procedural guidelines to operationalise the authorisation of individual water uses. This replaces the current guidance document entitled "Water Use Authorisation Process for Individual Applications" (December 2000).

The procedural guideline for water use authorisation (Appendix C.1) has to a large degree been based on the guideline document for the preparation of Environmental Impact Assessments (EIA's) as published by the Department of Environmental Affairs and Forestry. This approach has been followed to enhance co-governance and to harmonise and streamline the submission and evaluation of water use authorisation documentation between the two departments.

3.3.3 General Authorisations

General Authorisations are covered in Section 39 of the National Water Act. General Authorisations allow the Department to authorise all or any category of water use, subject to any regulations made under section 26 and conditions imposed under section 29. General Authorisations may be imposed either generally, in relation to a specific water resource or within a specified area. General Authorisations are brought into force via a notice published by the Department in the *Government Gazette*. The rationale behind providing the mechanism for General Authorisations is to ease the burden on the proponent and the regulator in those instances where a general authorisation would serve to adequately control/regulate the threat to the water resource.

Appendix C.2 describes the process to be followed by the Department for developing General Authorisations.

Priorities for General Authorisations have been identified based on the source classification in **Table 3.1** and are set out in **Table 3.3**. The priorities are to be used as a departure point for implementation of source management, but will need to first be confirmed through the process set out in **Appendix C.2**. Thereafter, the priority list will be reviewed on an annual basis, after consultation with the WMA/catchment authorities, and resubmitted for approval. The process described in **Appendix C.2** will be used to revise and update **Table 3.3** on an annual basis.

Table 3.3: Priority ranking for developing General Authorisations

Sector	Discharge	Class	General Authorisation	Priority ranking		
				High	Medium	Low
Mines	Not to sewer	A	No			
		B	Yes			Yes
		C	Yes		Yes	
Industry	To sewer	A & B	Yes		Yes	
		C		Exempt from water use authorisation		
	Not to sewer	A &B	No			
		C	Yes	Yes		
Agriculture	Not to sewer	A	No			
		B	Yes		Yes	
		C	N/A	Exempt from water use authorisation		
Settlements Urban	Sewage	A	No			
		B	Yes	Yes		
	Waste	A	No			
		B	Yes		Yes	
	Water	A	No			
		B	N/A	Exempt from water use authorisation		
Settlements Rural/Dense		A	Yes	Yes		
National Infrastructure	Not to sewer	A	Yes		Yes	
		B	Yes			Yes
		C	N/A	Exempt from water use authorisation		

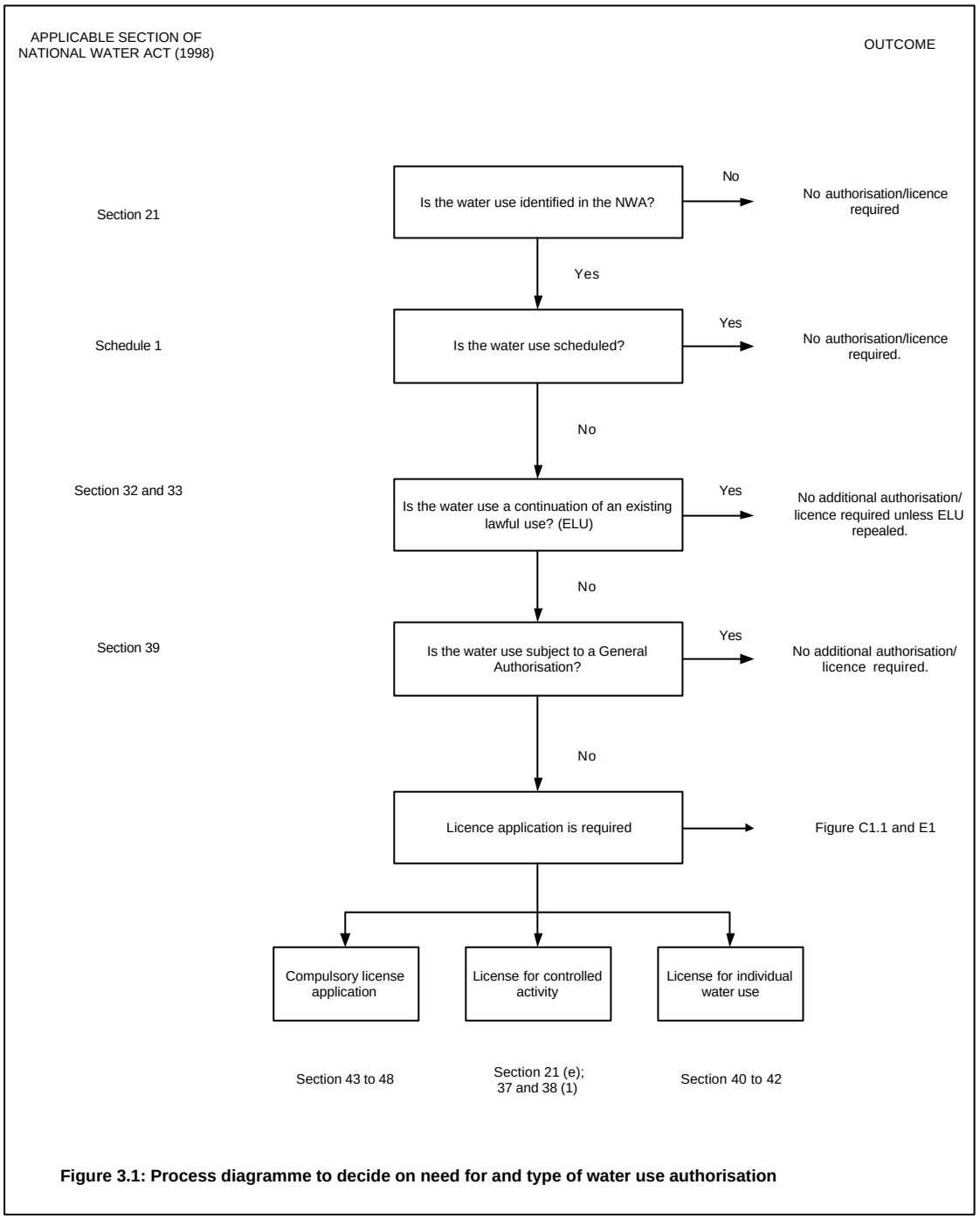


Figure 3.1: Process diagramme to decide on need for and type of water use authorisation

3.3.4 Water use authorisation covered by co-governance

The Department recognises that co-governance plays an important part in the management of sources and supports the initiatives of other government departments in this regard. The Department delegates, through the co-governance process, the lead agency role for licensing to other government departments that have acceptable systems in place. **Table 3.4** identifies the lead agency that is responsible for licensing for each of the sectors and risk classes. **Table 3.5** provides details on the relevant Acts and instruments that are applicable for co-governance, as well as the Departments role, requirements and recourse within the legislative system.

Appendix C.3 describes the process and procedure to be followed by the Department, as part of co-governance, for the review of the water related aspects enclosed in documents that are part of a submission under other legislation, such as the Minerals Act (Act 50 of 1991).

Table 3.4: Lead agency for water use authorisation

Sector	Discharge	Class	Lead Agency for licensing				
			DME	DEAT	DA	Local Government	DWAF
Mines	Not to sewer	A, B & C	Yes				
		Hazardous waste					Yes
Industry	To sewer ISO 14 000 in place	A & B				Yes	
	To sewer No ISO 14 000 in place	A & B					Yes
	To sewer	C	Exempt from water use authorisation				
	Not to sewer	A &B					Yes
		C		Yes			
Agriculture	Not to sewer	A & B					Yes
		C			Yes		
Settlements Urban	Sewage	A					Yes
		B		Yes			
	Waste	A					Yes
		B		Yes			
	Water	A					Yes
		B[1]					Yes
Settlements Rural/Dense		A				Yes	
National Infrastructure	Not to sewer	A (mining)	Yes				
		A (other)					Yes
		B		Yes			
		C					Yes

[1] : Exempt from licensing requirements, based on licensing of bulk water supplier

Department of Minerals and Energy (DME)

The DME acts as the lead agency for the licensing of water use for all classes of mines. No prospecting or mining of minerals may be undertaken without a permit issued by the Regional Director of the DME. In some instances, an Environmental Management Plan (EMP), in terms of regulations under section 39

of the Minerals Act (1991), may be required and be approved before such an activity may be undertaken.

The Department of Water Affairs and Forestry has a review role at regional level, to ensure that the requirements of the National Water Act are adhered to. The Department will consider, based on the content of an EMP, whether it is necessary to authorise any water use(s) that relate to the prospecting or mining of minerals.

The DME will also act as the lead agent for contaminated mining land falling under the Governments jurisdiction.

Other Acts that are applicable to the mining sector include the following:

- Occupational Health and Safety Act,
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983),
- National Heritage Resources Act, 1999 (Act 43 of 1983),
- Air Pollution Prevention Act, 1965 (Act 45 of (1965), and
- Restitution of Land Rights Act, 1994 (Act 22 of 1994).

Department of Environmental Affairs and Tourism (DEAT)

The Environmental Conservation Act (Act 73 of 1989) contains regulations in section 26 relating to the Environmental Impact Assessment (EIA) process as well as provisions dealing with waste management under section 20. The EIA regulations are aimed at controlling activities that may have a detrimental effect on the environment, as prescribed in sub sections 21 and 22. These controlled activities are referred to as controlled activities. These activities appear in Schedule 1 of Government Notice Regulation 1182 (GG 5999) and Government Notice R670-Gazette No. 23401. The administration of the regulations, including the granting or refusal of authorisations, has been delegated to the Provisional Departments of Environmental Affairs (PDEA).

The DEAT, through the EIA process, acts as the lead agency for licensing of water use for:

- low risk (class C) industry that does not discharge to sewer,
- medium risk (class B) sewage treatment works and waste disposal sites in urban areas, and
- regional infrastructure that falls within the Government sector (class B).

The Department has a review role at regional level. The approval of the EIA, under section 26 of the Environmental Conservation Act, by the DEAT serves as the water use authorisation for these activities in the risk classes provided above.

Department of Agriculture

The Department of Agriculture will be the lead agent for water use authorisations for low risk (class C) agricultural activities. This delegation of responsibility to the Department of Agriculture will be covered by a Memorandum of Understanding. (MoU).

Local Government

Water use authorisation of all industry discharging to sewer will be delegated to Local Government as lead agent, provided that the industry can demonstrate that an approved ISO 14 000 system is in place. Local Government will also act as the lead agent for water use authorisations for rural/dense settlements.

Memorandum of Understanding (MoU)

A Memorandum of Understanding (MoU) will be signed between the Department and other government departments, to cover the co-governance process. The MoU will cover the following aspects:

- the scope of the memorandum,
- the fundamental premises of the agreement,
- the key success factors, and
- the principles and obligations of the two parties to ensure effective participation.

Appendix C.4 provides an example of a MoU, which has been developed to cover the interaction between the Department and the DME in the management and control of mining operations.

Table 3.5: Co-governance in water use authorisation

Lead Agency	Sector	Process / Activity and Class	Applicable Act	Equivalent instrument	Departments role	Departments requirements	Departments recourse
Department of Minerals and Energy (DME)	Mining	Class A, B & C	Section 39 of the Minerals Act (1991)	Environmental Management Programme (EMP)	Review application at regional level	Approval of the water related aspects of the EMP	Refuse application; Enforce the need for a water use license by the Department
	National Infrastructure	Contaminated land, Class A	Water Act No. 54 of 1956	Memorandum of Understanding	Review rehabilitation plans	Approval of the water related aspects of the rehabilitation plan	Enforce additional water management measures in the rehabilitation plan, if required.
Department of Environmental Affairs and Tourism (DEAT)	Industry	Discharge not to sewer, Class C	Section 26 of the Environmental Conservation Act (1989)	Environmental Impact Assessment (EIA)	Review application at regional level	Approval of the water related aspects of the EIA	Refuse application; Enforce the need for a water use license by the Department
	Settlements Urban	Sewage treatment works Class B					
	National Infrastructure	Regional infrastructure Class B					
Department of Agriculture (DA)	Agriculture	Discharge not to sewer, Class C	-	Memorandum of Understanding	Enforcement at regional level	Water quality management of diffuse discharge	Extension services; support systems and legal action
Local Government Authority	Industry	Discharge to sewer, Class A, B & C, ISO 14 000 in place	-	Memorandum of Understanding	Enforcement at regional level	Water quality management of discharge from sewage works	Extension services; support systems and legal action
	Settlements Rural/Dense	Class A					

3.4 Enforcement

3.4.1 Introduction

The Department, as custodian of the water resources of South Africa, is bound to enforce compliance in terms of the National Water Act (section 151). This must be done in an efficient manner. Effort must be focussed on the highest risk areas and human resource allocation must be prioritised to conserve scarce resources. The key elements of the enforcement strategy are:

- an effective monitoring system to detect out-of-compliance incidents,
- a hierarchical approach leading from compliance assessment to ultimate prosecution,
- incentives for self-monitoring, reporting and voluntary corrective action.

3.4.2 Monitoring system

The monitoring function includes the collection and analysis of data so as to report on water quality status. The monitoring network will be designed in consultation with the officials responsible for enforcement and will be aimed at identifying non-conformance. This is achieved through:

- active monitoring by the Department through a schedule of sampling and testing of water discharges in the area. The data from the monitoring programme is captured and stored in the Departments WARMS database.
- monitoring, self-auditing and reporting by the regulated community within the catchment; this forms part of authorisations, environmental management programmes (EMP's) and ISO 14 000 programmes.

The Departments water quality monitoring and management system (WMS) will be web-enabled. This will allow operational use at a regional level and enable the source control monitoring at a catchment level to be linked to the national water quality monitoring system through the Regional Offices and/or CMA's.

3.4.3 Enforcement strategy

Figure 3.2 illustrates the enforcement strategy. Level 1 is carried out on a day-to-day basis and forms part of the water quality management responsibilities of the regional offices. Levels 2 to 4 are focussed only on discrete out-of-specification incidents. Enforcement at level 1 and 2 will be the responsibility of the regional staff, while level 3 and 4 will be undertaken at the National Office.

Each of the enforcement levels is described in the sections below.

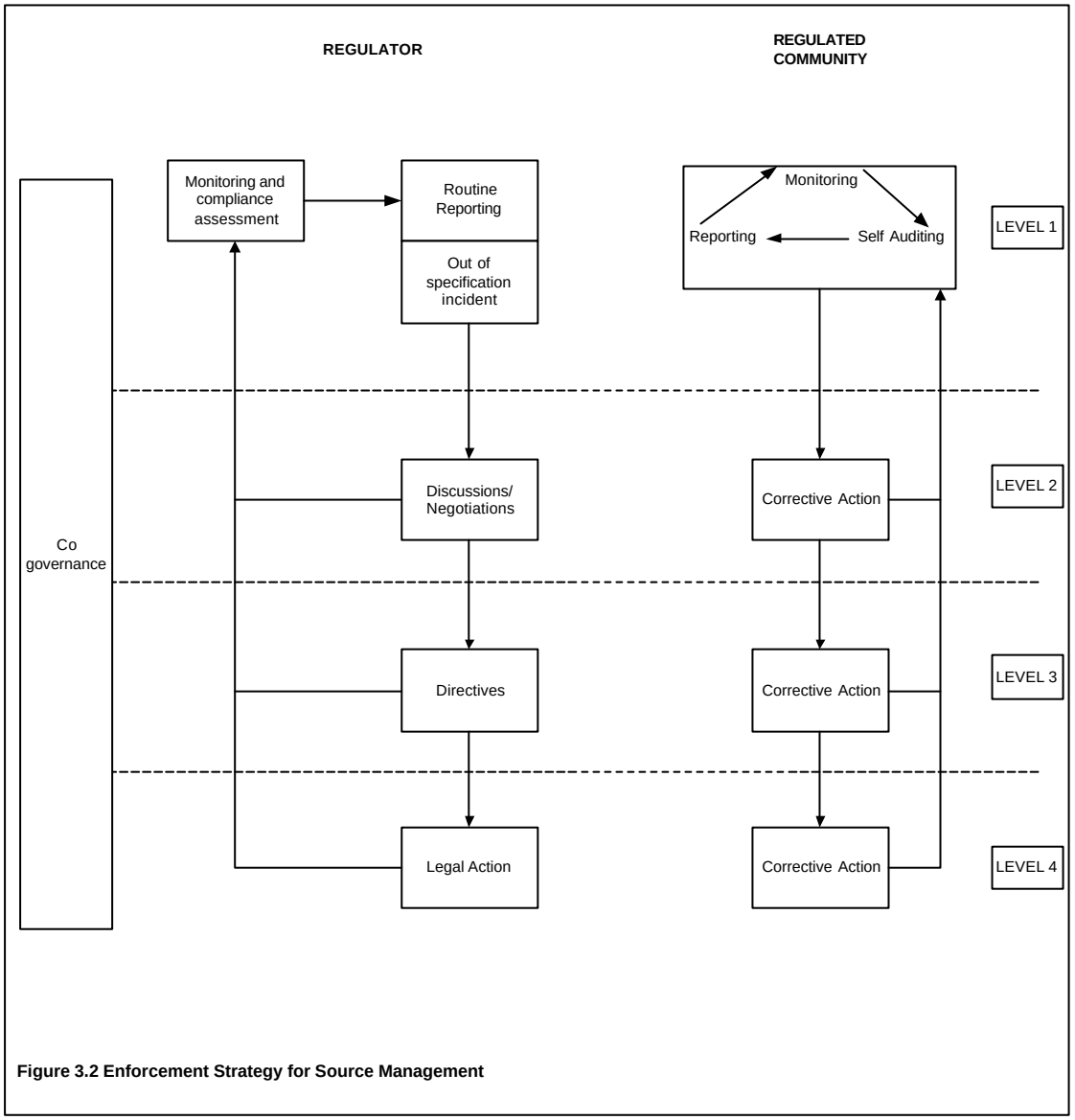


Figure 3.2 Enforcement Strategy for Source Management

Level 1: Compliance assessment

Level 1 of the enforcement strategy involves policing by the Department of the regulated community and reporting on the performance thereof. The Regional Office personnel will carry out the following tasks:

- assessment of environmental compliance according to discharge standards by comparing water quality data captured to WMS to the Resource Water Quality Objectives (or, in their absence, the Uniform Effluent Standards),

- routine monthly reporting on the performance of the regulated community: the regional staff will prepare water quality reports for internal use within the Department and summarised reports for use by the broader stake-holder community and

- identify out-of-compliance incidents through the programme of monitoring, compliance assessment and reporting;

The Regional Office personnel will issue a standard first level warning letter of non-compliance and will be empowered to issue spot fines for non-compliance. Out-of compliance incidents will be managed in levels 2 to 4 of the enforcement strategy.

Level 2: Discussions and negotiations

The Regional Office personnel will discuss the out-of-compliance event(s) with the offending parties and determine the required corrective action. The Regional Office personnel will promote a hierarchy of source control measures in determining the corrective action, including recycling, waste minimisation, cleaner technology and water treatment. This will be documented in writing to the offending parties, who will be responsible to take the necessary actions required to correct the out-of-specification incident(s).

The regional staff will continue to monitor and assess compliance to ensure that the prescribed actions have been implemented and are successful. Should the corrective action not be undertaken, or is not successful, the incident will be referred to level 3.

Level 3: Directives

The National Office will issue a directive to the offending party to take the necessary corrective action to address the pollution incident, within a specified time-frame. The regional staff will continue to monitor and assess compliance to ensure that the prescribed corrective actions are implemented timeously and are successful.

The incident is referred to level 4 should the directive not be successful in addressing the pollution incident.

Level 4: Legal action

At this point, the Department will proceed with legal action, which may take any one of the following forms:

- the Minister will apply (under section 155 of the National Water Act) to obtain an interdict or any other appropriate order from the High Court against any person who has contravened any provision of the Act, including an order to discontinue any activity constituting the contravention and to remedy the adverse effects of the contravention, and/or

- the Department will bring a civil charge (under section 151 (2) of the National Water Act) against any person who contravenes any provision of subsection 151 (1) of the Act, and/or

- the Department, through the Catchment Management Agency and under section 19 of the National Water Act, may take any measures that it deems necessary to remedy the situation and may recover all costs incurred as a result of its acting from the persons responsible.

3.4.4 Time-frames for enforcement

Level 1 of the enforcement strategy is an ongoing activity in the Regional Office. The results of monitoring and compliance assessment will be reported to the Regional Director and National Office on a monthly basis.

The time-frame for level 2 depends on the nature, extent and complexity of the incident. The offending party will be given the opportunity to discuss an applicable programme to address the out-of-compliance incident. This must be communicated in writing to the Departments Regional Office. Once agreed, the offending party must adhere to the programme to avoid advancing to level 3.

At level 3, the Manager: Waste Disposal and Discharge will identify an appropriate time-frame to correct the incident, which will be specified in the directive. Legal action will follow should there be ongoing non-compliance.

The Department will adopt an approach of being “firm but fair” in advancing the enforcement function through the levels.

3.4.5 Incentives

The Department will, in the interests of optimisation and efficiency, promote and encourage voluntary identification of out-of-specification incidents and voluntary submission of corrective action plans and programmes to remediate such incidents. This approach will serve to minimise government’s regulatory costs and maximise the efficiency of enforcement.

The Department will promote the use of the control mechanisms and incentives detailed below to encourage and/or compel the regulated community to comply with the requirements of the National Water Act.

Use of the Waste Discharge Charge system

The Waste Discharge Charge System (WDCS) forms part of the Pricing Schedule for Water Use Charges established in terms of section 56 of the NWA and will be introduced to address the particular issue of excessive water pollution. The implementation of the WDCS will however also achieve the following supportive and additional objectives:

- to encourage efficient resource utilisation (incentive objective),
- to recover costs of activities aimed at pollution abatement and damage caused by pollution (financial objective),
- to discourage excessive pollution (deterrent objective), and
- to promote sustainable water use (social objective).

Four levels of discharge charges are envisaged, as follows:

- Tier 1: Basic/Administrative charge: this charge will cover the administrative and management functions in the catchment,
- Tier 2: Load-based charge, for pollution loads higher than the Recommended Resource-Directed Value (RRDV) for the catchment, and
- Tier 3 and 4: Deterrent charges for pollution loads higher than the Maximum Allowable Resource-Directed Value (MARDV).

The Department will use the WDCS as a tool for source control and management, which will provide the following benefits:

- A strong financial incentive to reduce pollution loads to the water resource, particularly if the pollution loads discharged are in excess of the RRDV and the MARDV, and
- The revenue from the WDCS will be ring-fenced to cover water quality management work within the Department. This work will include rehabilitation and remediation projects, waste abatement work (such as regional treatment facilities or on-site pollution prevention or treatment) and investigative studies.

Rewards and penalties (carrot and stick)

The Department will utilise incentives such as awards and public recognition (the carrot) and publishing out-of-compliance incidents on the Departmental web-site or in the local or national press, (the stick) to improve water quality management and compliance. Details of the out-of-compliance incidents will be published should these be persistent, have a medium to high potential impact to the water resource and

the offending party is not actively addressing the issue or engaging with the Department to seek solutions to address the issue.

Amnesty

The Department will develop processes and procedures to engage the regulated community at a strategic level to address persistent and significant water pollution and water quality issues. This incentive will take the form of an amnesty period on prosecution and the presumption of guilt under section 19 of the National Water Act, provided that a sustainable development plan to address the issues is prepared by the offending party and agreed and signed-off by the Minister and the Chief Executive Officer of the offending party.

Water Scorpions

The Department will develop an "in-house" specialist capacity, termed "Water Scorpions" to identify and prosecute sections of the regulated community that have a significant and persistent negative impact on the water quality of the water resource.

3.4.6 Co-governance

Co-governance forms an integral part of the enforcement strategy. Although other government department are, in some instances, delegated the lead agency role for water use authorisation, it will the responsibility of the Department to ensure compliance with the terms of the National Water Act.

Co-governance is addressed in section 41 of the Constitution of the Republic of South Africa (Act No. 108 of 1996). Section 41 (1) (h) and 41 (3) of the Act state that all spheres of government and all organs of state must co-operate with one another in mutual trust and good faith and must make every reasonable effort to settle disputes by means of mechanisms and procedures provided for that purpose, and must exhaust all other remedies before approaching a court to resolve the dispute.

The principle of co-governance implies that the Department will offer assistance to other government departments (including local government) should these authorities be the offending parties causing an out-of-compliance incident. Such assistance can be in the form of:

- joint water quality and water resource management committees to create a better understanding of water quality problems and issues,
- joint efforts to identify water quality problems and feasible solutions,
- jointly identifying appropriate long-term source management procedures.

The hierarchical approach to enforcement must nevertheless be applied to other government departments, in the case of out-of-compliance incidents.

3.5 Source Management Plans

The Source Management Plan (SMP) is an important document on its own, as well as being an integral part of, and informing, the Catchment Management Strategy, which will be used by the Catchment Management Authority (CMA) to manage the water resources in each WMA. The SMP will focus on the current and likely future sources of pollution in the catchment, the risk level of the impact from the sources and action plans to manage the impact. The SMP therefore forms the basis for:

- prioritising sources according to level of risk in a WMA/CMA,
- identifying priority sources that require immediate actions,
- identifying sources that will require water use authorisations and those that can be managed with other instruments and incorporating these in the source management business plan, and
- promoting the efficient use of resources.

Developing a Source Management Plan for each WMA is therefore an important step in the process towards efficient source management.

3.5.1 Objectives of an SMP

The objectives of an SMP are to:

- support and underpin the objectives and requirements of the Catchment Management Strategy,
- guide water quality management at the catchment level by focussing on high risk pollution sources,
- identify appropriate and effective action plans and methodologies for the control of sources of pollution.

3.5.2 What must a SMP contain

Appendix D provides details on the process to follow and aspects to consider in developing a SMP as well as the information that is required in the SMP. The contents of the SMP will be as follows:

- executive summary
- baseline requirements for the SMP,
- details of the status quo in the catchment,
- the development perspective,
- lists of all processes, substances and/or activities in the catchment of high, medium and low risk,

- appropriate management action plans to control the threats to the water resource,
- a personnel management plan,
- an enabling strategy, and
- an implementation plan.

3.6 Co-operative incentives

The inclusion of co-operative incentives in the strategy gives effect to the guiding principles of participation, flexibility, preventative principal and continual improvement. The Department will, in the interests of optimisation and efficiency, promote and encourage action by the regulated community that will serve to minimise government's regulatory costs and maximise the efficiency of enforcement.

Incentives that will be considered by the Department include recognition of activities taken voluntarily by the regulated community to minimise pollution at source. These incentives are geared towards providing rewards for full ISO 14 000 certification and adhering to the environmental standards therein for waste prevention, i.e. waste elimination, waste substitution and/or waste reduction, with waste discharge being the last resort. **Table 3.6** illustrates a typical incentive scheme, based on the adoption of ISO 14 000.

Table 3.6: Incentive scheme based on adoption of ISO 14 000

		DISCHARGE	
		To sewers in urban/rural settlements	**To stream**
ISO 14 000 CERTIFICATION	**Demonstrated**	No water use authorisation required	Relaxation of water use authorisation conditions
	None	No relaxation	No relaxation

The above incentive scheme is focussed on the mining and industrial sector, but will also be applicable to the agricultural sector. In essence, the proponent must demonstrate ISO 14 000 certification and the use of the environmental standard therein throughout all processes and activities. When the performance of the proponent has been audited and certified as ISO 14 000 compliant, then:

- if discharge is to sewer, then a relaxation on the requirements for a water use authorisation will be allowed, and
- if the discharge is to stream, then relaxation on the conditions of the water use authorisation may apply.

If ISO 14 000 certification and performance adherence can not be demonstrated, then no relaxation will be applicable.

The Department, in implementing the incentive scheme, will put the onus on the proponent to demonstrate ISO 14 000 certification and that the performance standard has been adopted and met.

Appendix E provides details on the procedure to review an application for a relaxation on the requirements for and/or conditions of a water use authorisation as well as details of the supporting documentation required from the applicant.

3.7 Capacity building and co-ordination

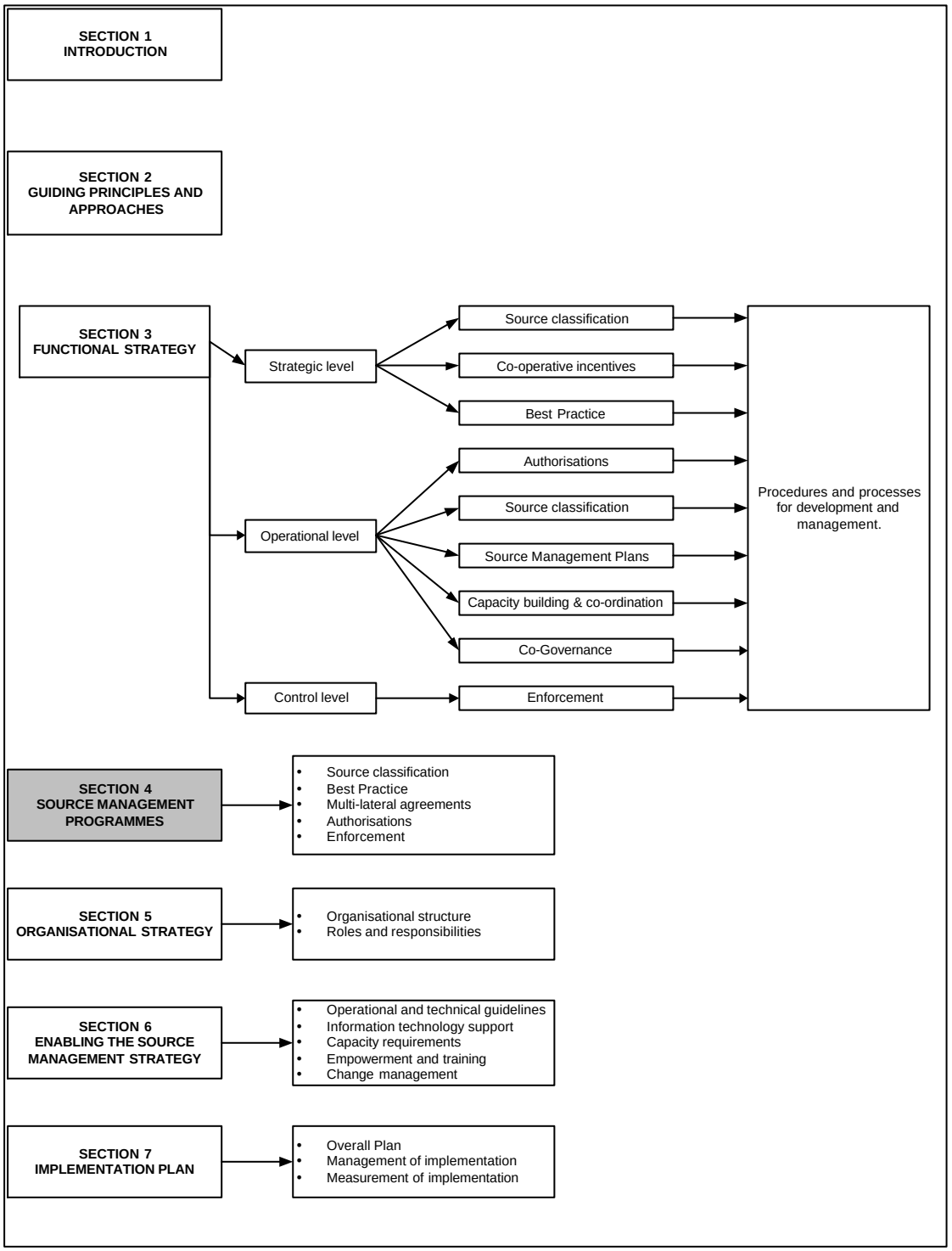
The Department will promote and encourage active participation and liaison with communities, organisations and the local authorities. This participation will aim to build capacity to address water pollution issues by building an awareness of the importance of a healthy environment, the factors that contribute to pollution and the management of these factors.

The role of capacity building and co-ordination lies predominantly with the Departments regional staff. The Department will achieve the aim of capacity building through the provision of extension services out of the Regional Offices. The personnel involved in these extension services will be tasked with the following:

- set up regional workshops to build a common understanding of the water quality problems and issues,
- strengthen co-governance between government departments at a regional level; this will be in the form of joint committees or river and catchment forums,
- promote the participation of community-based organisations in the regional decision-making on water quality issues, and
- identify appropriate management practices and intervention methods and initiate co-ordinated intervention, where required.

The provision of such extension services by the Department will be of assistance to the local government and the agricultural sector as follows:

- assisting local government to prioritise the settlements and waste streams that require management intervention, identifying the stakeholders to participate in this process, defining the problem and identifying an appropriate suite of interventions to address the problems,
- assisting farmers unions and other similar organisations to build awareness within their members of the advantages and consequences of pollution control in the agricultural sector and identifying appropriate methods for pollution control on farms.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SECTION 4
SOURCE MANAGEMENT PROGRAMMES

Source management programmes serve to develop and strengthen the government's capacity to implement the Source Management Strategy. Some elements of the Source Management Strategy, such as the licence application system for individual uses, are already in place, while other aspects of the strategy are either partially implemented or have not yet started.

The Department will thus launch a series of source management programmes in order to develop and implement new components of the Source Management Strategy. These programmes will have a clearly defined goal, objectives of the programmes and a time-frame for development. The purpose of each programme will be to develop the required component of the strategy and to ensure that this is implemented and absorbed into the operational regulatory system.

The following programmes will be addressed as a matter of priority:

- Source classification at regional level,
- Best Practice,
- Water use authorisation,
- Enforcement, and
- Multi-lateral agreements.

4.1 Source classification at regional level

4.1.1 Policy

The Department subscribes at all times to a differentiated approach to water quality management. In this approach, the level and method of management intervention and control is based on the level of threat that a pollution source poses to the water resource. In this way, the limited resources at hands can be used most effectively while meeting the water related objectives.

4.1.2 Objective

The objective of source classification is to identify and classify all processes, substances and/or activities, based on the level of risk, into high risk (class A), medium risk (class B) or low risk (class C).

4.1.3 Tools and support

Successful implementation of source classification depends on the following:

- a national source classification system being in place to provide the parameters for the source classification at WMA/catchment level,
- the delegation of the responsibility for source classification to the Regional Director,
- the appointment of a suitably qualified person in the Regional Office as the Assistant Director: Planning to undertake the required source classification tasks,
- the use of guidance documents to assist in source classification, and
- effective public involvement and co-operation.

4.1.4 Implementation

The Assistant Directors: Planning in each Regional Office (or CMA) will develop actions plans to achieve the above objectives, which, as a minimum, will detail:

- the number of WMA/catchments in the region,
- the methodologies that will be employed to identify the processes, substances and/or activities within each WMA/catchment,
- the methodologies for classifying the processes, substances and activities into risk classes, and
- the deliverables of the programme.

The action plan will also indicate an implementation programme, which should not exceed two years.

4.2 Best Practice programmes

4.2.1 Policy

The Department assumes the responsibility for facilitating the development of Best Practice guidelines as these form a key cornerstone of source management. The Department will take the lead in developing Best Practice guidelines for those processes, activities and substances that are a potential threat to the water resource. The Department will also actively support the initiatives of other departments in developing Best Practice standards and will encourage the regulated community to take the initiative in developing guidelines that are acceptable to the Department.

4.2.2 Objectives

Best Practice guidelines provide the Department with a benchmark/norm against which to test the practices and performances of the regulated community as well as to test the measures that are implemented by the regulated community to prevent or minimise impacts to the water resource.

Best Practice also provides a minimum requirement to enable the achievement of sustainable development.

4.2.3 Implementation

The Best Practice programme will set in place a structured framework within which the Department will facilitate the development of guidelines. Implementation will commence with prioritising the development of Best practice guidelines, so that the critical guidelines are addressed as a priority. Thereafter the specific Best practice guidelines will be developed.

The programme for developing Best Practice guidelines will be the responsibility of the Assistant Director: Best Practice in the National Office. Once appointed, the Assistant Director must develop short, medium and long term action plans, as follows:

- Short term: prioritising the development of Best Practice,
- Medium term: developing the critical Best Practice documents, and
- Long term: completing the development of all Best Practice documents.

The action plan must aim to complete the prioritisation of Best Practice documents within a two-year period, thereafter to complete all high priority Best Practice guidelines within a five-year period. Medium priority guidelines will then be addressed in the following five-year period, followed by the remaining guidelines.

4.3 Water use authorisation

4.3.1 Policy

The Department utilises water use authorisations as the key regulatory instrument to ensure effective source management and control. The Department also adopts a differentiated approach in the use of the available authorisation instruments. The Department thus focuses the use of the various authorisation instruments in areas where these may have the most benefit, given the limited resources.

4.3.2 Objectives

The objectives of the authorisation programme are as follows:

- to identify the areas where the authorisation instruments, including General Authorisations, authorisations for individual water use, the delegation of authorisation under co-governance and the development of co-operative incentives, should be deployed so as to maximise the benefits in the use of these instruments,
- to develop and operationalise the processes and procedures for deploying the various authorisation instruments.

4.3.3 Implementation

The source classification programme, together with the Source Management Plan, will provide the basis for and inform the authorisation programme, in so far as this programme will assist in identifying the areas where each authorisation instruments is best deployed. The authorisation programme for each region/CMA will then:

- identify the priority potential sources of pollution that require immediate attention for licensing,
- identify sources of pollution that will need to be licensed in the medium term,
- identify those sources of pollution that can be covered by either General Authorisations or co-governance, and
- develop actions plans to achieve the above authorisations within a 5 to 10 year period.

4.4 Enforcement

4.4.1 Policy

The Department has a duty, as custodian of the water resources of South Africa, to enforce water quality compliance by the regulated community in terms of the National Water Act. Such enforcement must be undertaken in an efficient manner so as to most effectively utilise the available resources.

4.4.2 Objectives

The enforcement programme must ensure the ongoing control and management of the impacts of potential sources to the water resource by:

- designing a monitoring network, in consultation with the officials responsible for water quality management and enforcement in the regional offices/CMA that will be aimed at identifying non-conformance, and
- developing procedures for addressing out-of-compliance incidents.

4.4.3 Tools and support

Support for the enforcement function will be provided by the ongoing operation of the water quality monitoring network in each region/CMA, including establishing the monitoring points, gathering the necessary water quality data and assessing the data against water quality standards to determine out-of compliance incidents.

The detailed procedures that will be required to be developed in this programme include the following:

- the scope of work , functions, roles, management responsibilities and legal mandate of the "water scorpions" who will be tasked with identifying and addressing sections of the regulated community who have a persistent history of out-of-compliance incidents, and

- the terms of reference for "public-private partnerships" that will aim to prepare sustainable development plans at a strategic level.

4.4.4 Implementation

Implementation of the enforcement procedures will primarily entail an education and awareness campaign for the regional/CMA personnel, as well as with the regulated community, on the method of operation of the various enforcement tools, including:

- The process and time-frames that will be followed,

- how and when to use the various tools, and

- the enforcement responsibilities in the Regional and National Offices.

4.5 Multi-lateral agreements

4.5.1 Policy

The Department recognises that co-governance plays an important part in source management and will support the initiatives of other government departments aimed at water quality management. The Department will thus, through the co-governance process, delegate the lead agency role for licensing to other government departments that have acceptable systems in place.

4.5.2 Objectives

The delegation of the Department's role and responsibility to another department, with respect to water use authorisation, will be covered by a Memorandum of Understanding (MoU). The MoU will address the fundamental premises for the agreement, the roles of the two parties and the principles and obligations of the two parties in mutual support and participation.

4.5.3 Implementation

MoU's will be required in instances where the Department will delegate the role of lead agency for water use authorisation. The Department will thus renew or set up MoU's with:

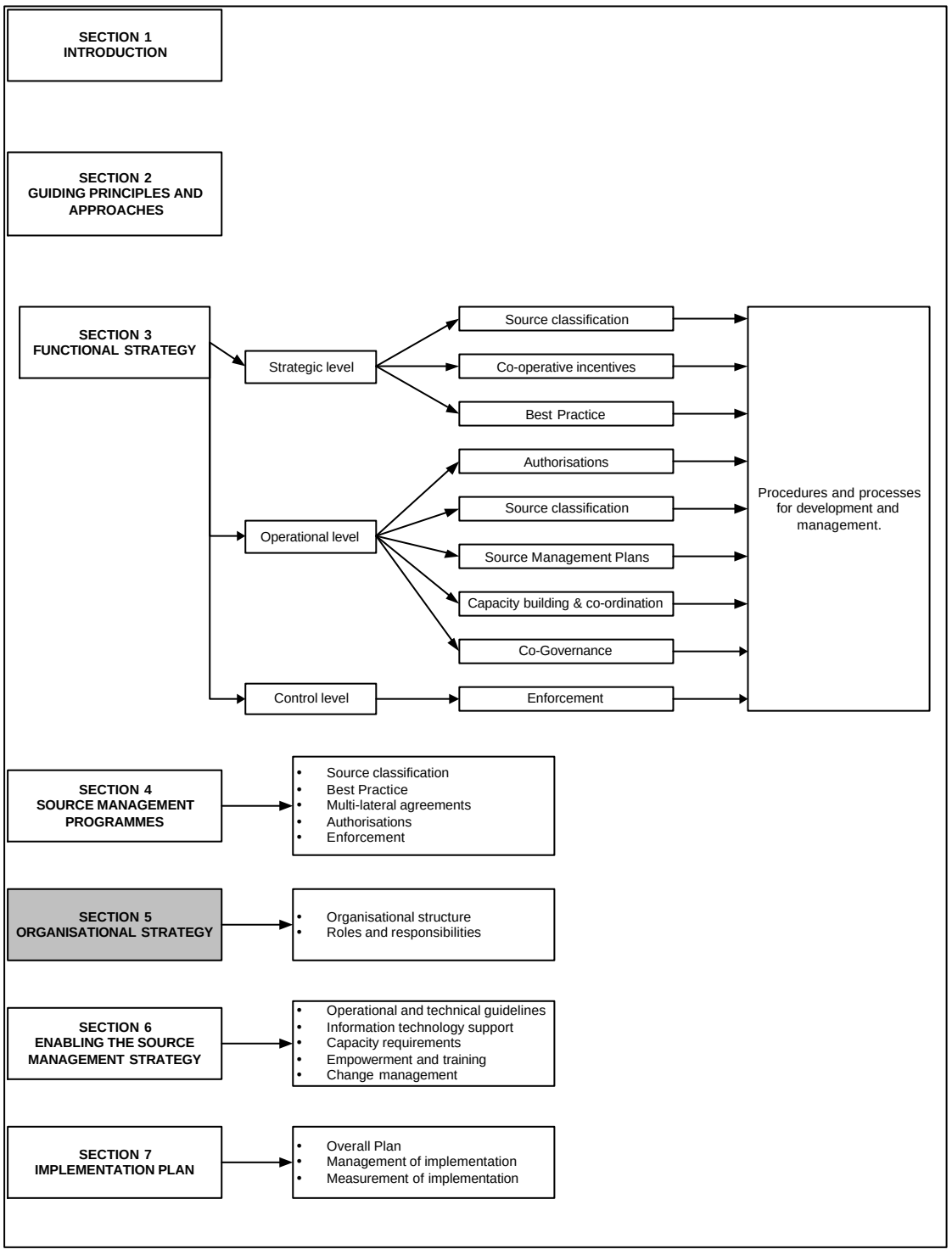
- DME, where the requirements of the Environmental Management Plan (EMP) for new and existing mining operations will serve as the water use authorisation (this MoU has been drafted by the Department),

- DEAT, who will be the lead agent, through the Environmental Impact Assessment (EIA) process, for water use authorisation for low risk industries not discharging to sewer, medium risk sewage works and regional infrastructure,

- Department of Agriculture who will authorise low risk agricultural activities, and

- local government for the management of sources of pollution in rural/dense settlements.

The Department will set targets to draft, review and sign the required MoU's within a two-year period.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SECTION 5
ORGANISATIONAL STRATEGY

5.1 Departmental approach

The Department's organisational approach is based on centralised planning, policy and strategy development (in the National Office) and decentralised implementation of strategy (at a regional and catchment level).

The Department has standardised on the catchment as the basic management unit. The National Water Act requires the phased and progressive establishment of Catchment Management Agencies to manage the water resources on the basis of Water Management Areas (WMA), which are catchment orientated. According to section 72 of the Act, in areas where a Catchment Management Agency is not yet established, or is not functional, all powers and duties of a Catchment Management Agency vest in the Minister.

In the interim and until the Departments national organisational strategy has been implemented, the Department will continue to operate within the current organisational structure (National Office and Regional Offices).

5.2 Organisational structure

Figure 5.1 and 5.2 show the organisational structure within the Department for source management at the National Office and Regional Offices. The line structure for accountability at National Office will be as follows:

- the Manager: Waste Disposal and Discharge will be responsible for source management functions in the National Office,
- the Deputy Director: Source Control Policy will report to the Manager: Waste Disposal and Discharge and will have the following responsibilities:
    - develop and update policy and strategy relating to source management,
    - prioritise Best Practice guidelines and oversee the development of the Best Practice documents,
    - fully develop the streamlined processes and procedures for authorisations and evolve these to implementation and audit phase to improve efficiencies in this functional area,
    - oversee the enforcement function: prepare directives (as required) and liaise with the Department's legal section on legal action, where necessary,
    - co-ordinate and manage the programmes to develop new aspects of the Source Management Strategy,

- liaise with the Department's IT section to develop and maintain the Management Information System that will support the licensing function in the regional offices,

- plan and co-ordinate the required source management training and awareness, and

- plan and co-ordinate research and development projects that will further the Department's knowledge and understanding of source management,

- five Assistant Directors will report to the Deputy Director: Source Control Policy and have responsibilities as shown in Figure 5.1.

- the Deputy Directors: Municipal and Agriculture, Industry, Mining and Waste Management will report to the Manager: Waste Disposal and Discharge; these Deputy Directors will be responsible to develop source and resource management policies and strategies pertaining to the particular sector as well as to technically verify, formalise for approval and approve the water use authorisation applications where necessary,

The line structure for accountability in the Regional Offices will be as follows:

- the Regional Director will be responsible for (amongst others) the source management functions in the Regional Office and will liaise with the Director: Regional Office Co-ordination,

- the Deputy Director: Water Quality Management will report to the Regional Director and will be responsible for all source management activities; these activities will fall into three sections, with the following personnel reporting to the Deputy Director: Water Quality Management:

  - Assistant Director: Planning, who will be responsible for source classification, developing Source Management Plans and General Authorisations,

  - Assistant Director(s): Water Use Authorisation who will co-ordinate the water use authorisation process in the Regional Office, and

  - inspectors who will be responsible for monitoring water quality in the catchment and for compliance assessment.

Appendix F provides job description/job model details for the following National Office positions:

- the Deputy Director: Source Control Policy, and

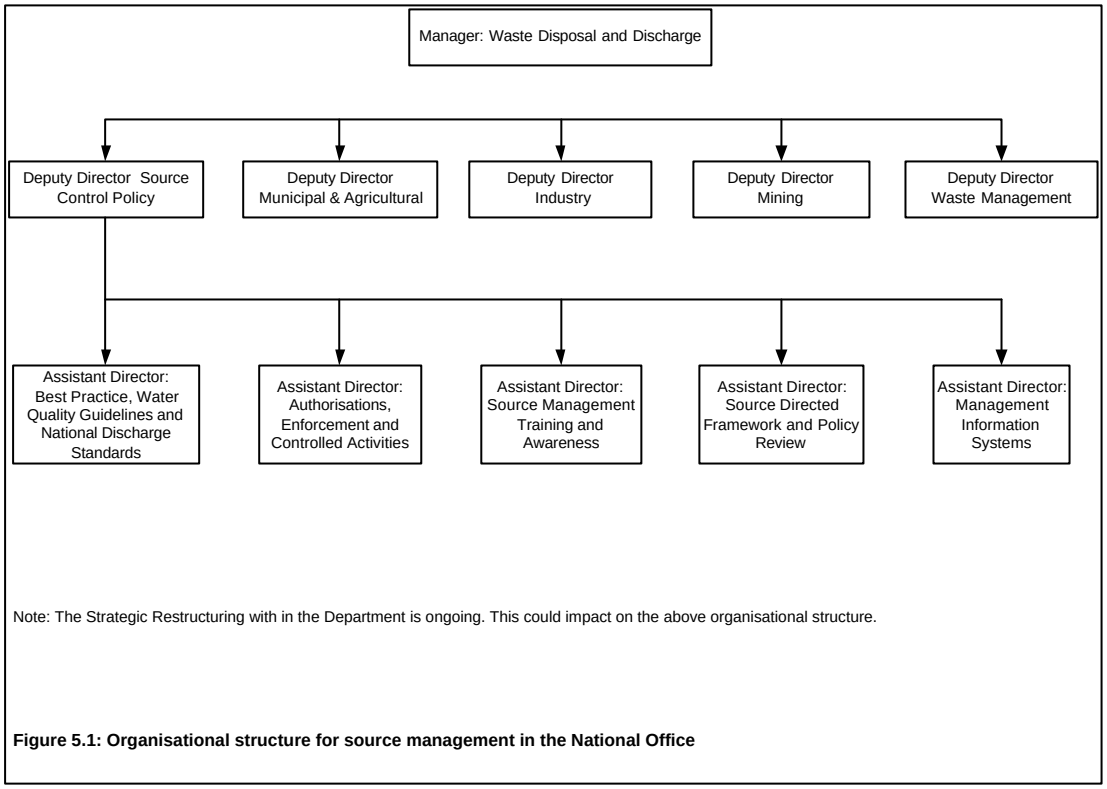
- the five Assistant directors fulfilling the functions shown in Figure 5.1.

Table 5.1 summarises the roles and responsibilities for the various source management personnel in the National and Regional offices.

Table 5.1: Roles and responsibilities for Source Management personnel in the Department

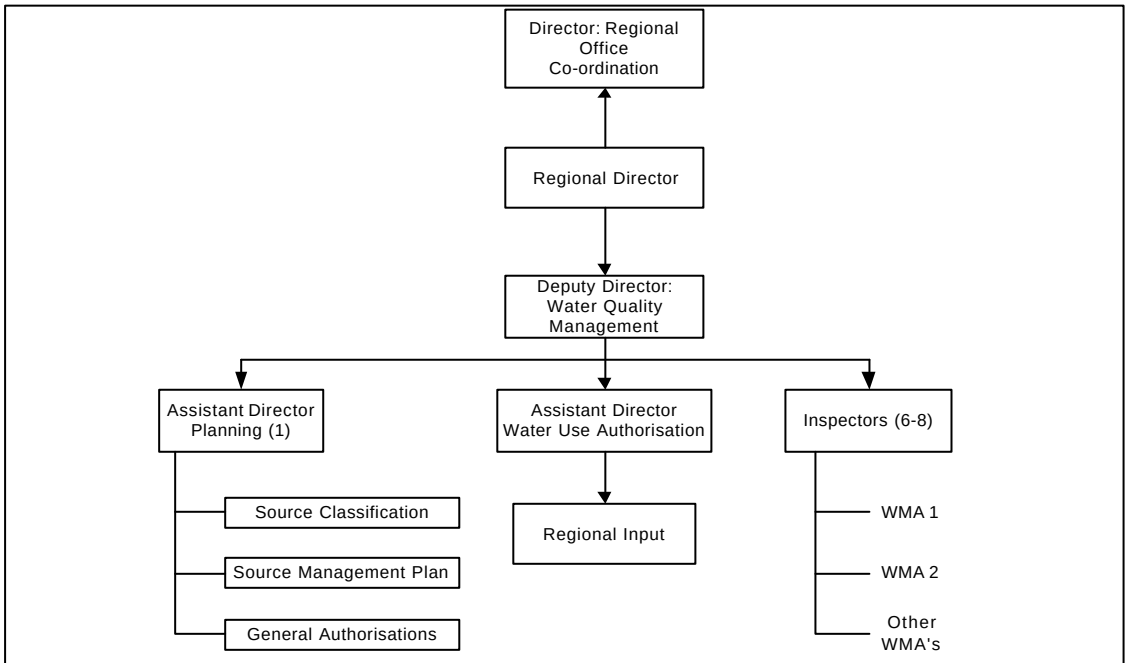
NATIONAL OFFICE	
Position	**Role and responsibility**
Deputy Director : Source Control Policy	• Direct, co-ordinate and control the development, implementation and consistent application of the source management controls and measures identified in the Source Management Strategy, • Supervise and co-ordinate the source management efforts of the Assistant directors, • Draft, review and sign Memorandum of Understanding with other government departments, • Co-ordinate source management inputs to resource directed measures and remediation works.
Assistant Director: Best Practice, Water Quality Guidelines and National Discharge Standards	• Develop and implement a methodology to prioritise the development of Best Practice guidelines, • Manage the process to prioritise the development of Best Practice guidelines, • co-ordinate and manage the development of Best Practice guidelines.
Assistant Director: Authorisations, Enforcement and Controlled Activities	• Co-ordinate the National office input into the evaluation and reporting on water use authorisation applications, • Ensure conformity of evaluation (according to section 27 of the National Water Act) • Maintain National records on authorisations, • Prepare recommendations on authorisations, • Develop and implement procedures for enforcement, including directives and legal action, • Issue directives and prosecute offenders (as required),
Assistant Director: Source Management Training and Awareness	• Prepare a needs assessment which will focus on the particular training needs of the personnel in the National and Regional offices with regard to source management and water quality management, • Co-ordinate programmes that will develop and implement new components of the strategy' • Co-ordinate training requirements for the Regional Offices, • Plan and co-ordinate research and development
Assistant Director: Source Directed Framework and Policy Review	• Setting and reviewing national policies and strategies for water quality management and source management, • Develop the framework within which the water quality management policy and the source management strategy will be designed and implemented • Regular review and update of the framework to ensure that source management programmes, procedures and processes are relevant, informative and accurate, including legal, technical, social and environmental aspects.
Assistant Director: Management Information Systems	• Co-ordinate the development, testing, implementation, training and use of a management information system to support the licensing activities in the Regional and National Offices

REGIONAL OFFICE	
Position	**Role and Responsibility**
Assistant Director: Planning	• Identify and classify all processes, substances and activities into risk classes. • Plan, develop, review and finalise the Source Management Plan. • Evaluate applicability and prepare General Authorisations.
Assistant Director: Water Use Authorisation	• Co-ordinate all administrative tasks. • Facilitate input from and manage technical experts. • Review and evaluation of application.
Inspectors	• Data collection and storage, • Monitoring and compliance assessment, • Preparation of water quality reports.
Co-governance	• Liaison with other government departments.
Extension services	• Providing an advisory service and assistance to the regulated community.
Training	• On-site training to meet local needs.



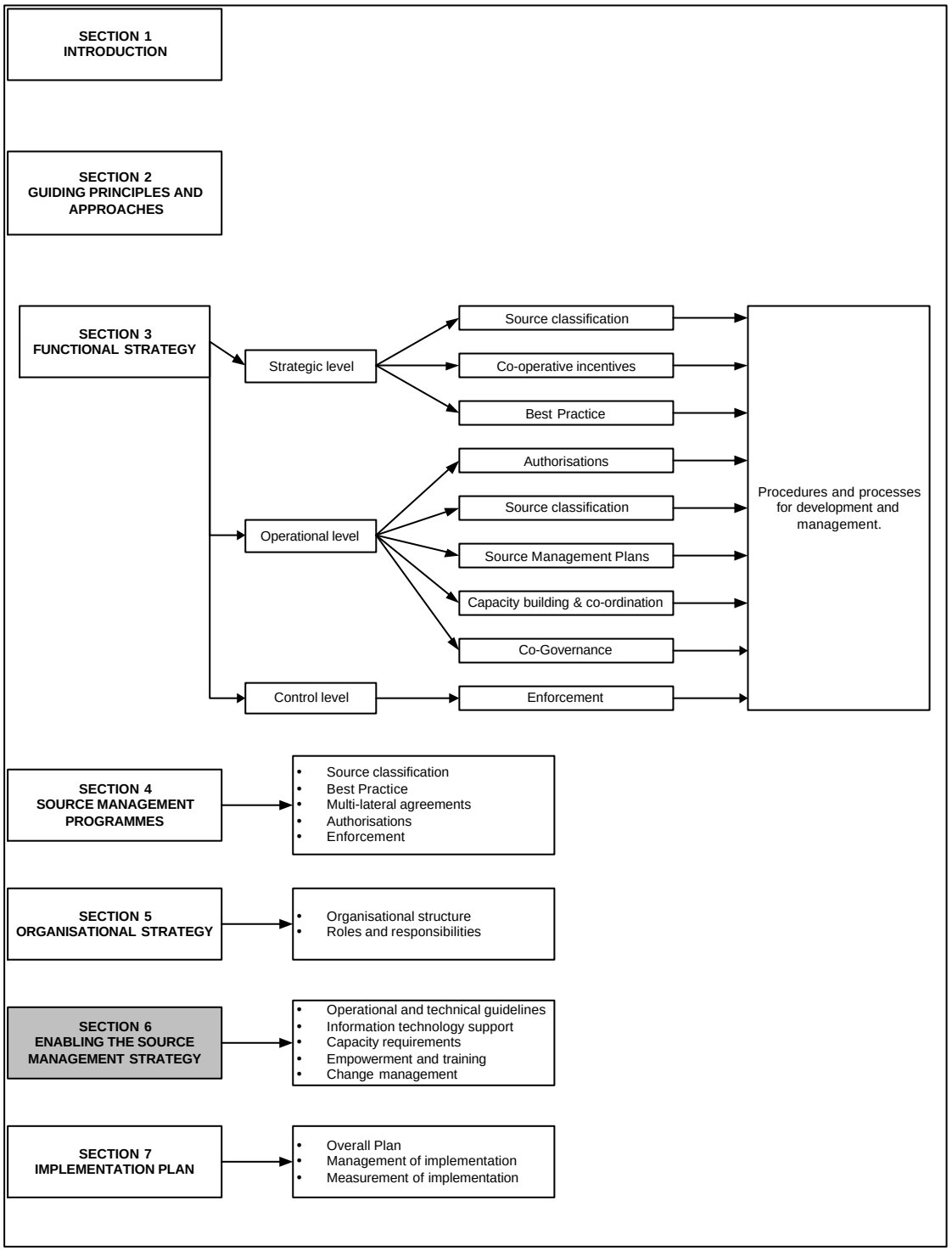
Note: The Strategic Restructuring with in the Department is ongoing. This could impact on the above organisational structure.

Figure 5.1: Organisational structure for source management in the National Office



Note: The Strategic Restructuring within the Department is ongoing. This could impact on the above organisational structure.

Figure 5.2: Organisational structure for source management in the Regional Office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SECTION 6
ENABLING THE SOURCE MANAGEMENT STRATEGY

The personnel who will be required to manage the programmes and undertake the functions in the Source Management Strategy have been identified in the organisational strategy. The enabling strategy is designed to a) ensure that experienced personnel are in the right place and b) ensure that these personnel are in a position to effectively undertake the programmes and functions of the Source Management Strategy by providing them with the necessary guidelines, support and training. This will ensure that these programmes are completed timeously and become part of the operational management.

The personnel who will be tasked with undertaking the programmes and functions identified in the Source Management Strategy must be given the mandate to perform the required tasks, must have sufficient knowledge of the aims and objectives of the strategy and must be empowered and motivated to do what is required.

The following sections focus on the instruments required to enable the Source Management Strategy, namely:

- operational and technical guidelines,
- support systems, and
- empowerment and training.

6.1 Operational guidelines

Operational guidelines assist the Department's official in carrying out their work in a co-ordinated manner. The guidelines provide details on the methods to be employed to carry out the required functions. The guidelines will also assist officials in making judgemental decisions, when required.

The Source Management Strategy has developed an operational guideline for water use authorisation for individual uses, which will assist the Assistant Director: Water Use Authorisation in the Regional Office with the task of licensing water uses. Other operational guidelines that have been drafted, but not fully completed, include procedures to:

- review documentation received as part of the co-governance function,
- develop source classification at WMA/catchment level,
- develop General Authorisations,
- develop Source Management Plans, and

- review an application for either relaxation of conditions on a water use authorisation or the need for a water use authorisation.

6.2 Technical guidelines

Technical guidelines in the form of Best Practice documents are required within source management to provide the Department with a benchmark/norm against which the performance of the regulated community can be measured. The Department will prioritise the development of these Best Practice documents and will then prepare an action plan for the phased development the Best Practice documents.

The initial priority assessment indicates that the Department should focus on developing Best Practice guidelines for the following sectors:

- class A and B (high and medium risk) mines and industrial operations, including abandoned and ownerless mines,

- rural/dense settlements, and

- class A and B (high and medium risk) agricultural activities.

6.3 Information Technology (IT) support

The Department currently supports water use authorisation through a Management Information System (MIS) called the Water Authorisation and Registration Management System (WARMS). WARMS has data available on uses of both surface water and ground water resources, in terms of the eleven possible uses of water stipulated in the National Water Act.

WARMS is currently only used in the source management field to capture the details of existing licenses that have been issued. The Department will extend the functionality of WARMS to include a broader role in source management functions (such as water use authorisation and enforcement).

6.3.1 Essential MIS elements

The essential MIS elements to be included within WARMS are the following:

- tracking of license applications and licenses issued; this will involve the processes covered in **Appendix C.1** including capturing and assessing application details, review of the scoping and assessment reports, the approval process and generating proforma license documents,

- the activities in the enforcement strategy; these processes will be incident-driven and include the requirements for remedial action, time-frames for remediation and penalties for non-compliance.

6.3.2 Key MIS requirements

The key MIS requirements for WARMS are as follows:

- the functions currently used in WARMS are preserved as the Base System,
- WARMS will be web-enabled to allow access by the regional staff to use the system for managing the licensing process and for enforcement; the applicant will also, in the longer term, have access to track the licence application progress,
- facilitate the input of new applications,
- run a completeness test on new applications to check for missing data or information; produce standard reports or proforma requests for information, if required,
- produce standard time, task and evaluation checklists, based on type of water use, to check and evaluate the Scoping Report and the Assessment Report, the standard data required for evaluation, such as reserve determination and Resource Water Quality Objectives, will be available on WARMS at a catchment level, once this has been developed,
- produce a checklist for the approval process,
- generate proforma licence documents, and
- set up proforma enforcement processes, based on incident management and corrective action requirements.

6.3.3 Sections currently in place

The WARMS Base System is currently in place, which is used in the National Office to capture, store and retrieve the details of licenses issued.

6.3.4 Sections to be put in place to enable the strategy

The processes for the input of data and reporting thereon, the task, review and evaluation checklists and the proforma outputs will be required to fully enable WARMS to track the licensing and enforcement functions.

6.3.5 Requirements for development

A scoping report will define the business requirements of the MIS, the business processes to be incorporated and the functional specifications of the system.

6.4 Capacity requirements

Table 6.1 indicates the capacity requirements within the Department to meet the needs of the Source Management Strategy. The table also indicates the skills required and the means of obtaining the required personnel.

6.5 Empowerment and training

The Departments policy is to take responsibility for training and empowering its own staff. The Sub-Directorate of Functional and Technical Training under the Human Resources Development Directorate is responsible for training programmes to satisfy the general training needs.

The department uses a combination of in-house programmes / courses and external courses at academic institutions to meet the training requirements.

Occupational specific training in water quality management is available within the Department. **Table 6.1** indicates where these general training needs to be augmented with training specifically geared towards various aspects and functions of the Source Management Strategy. The Assistant director: Source Management Training and Awareness will be responsible to determine the source management and water quality management training needs within the Department and to develop, implement and manage the required training programmes.

6.6 Change management

Change management focuses on managing the organisational, cultural and behavioural risks that emerge when systems and structures are changed. To manage these risks, the Waste Disposal and Discharge Manager and the Regional Directors, in cooperation with the Director: Human Resources will:

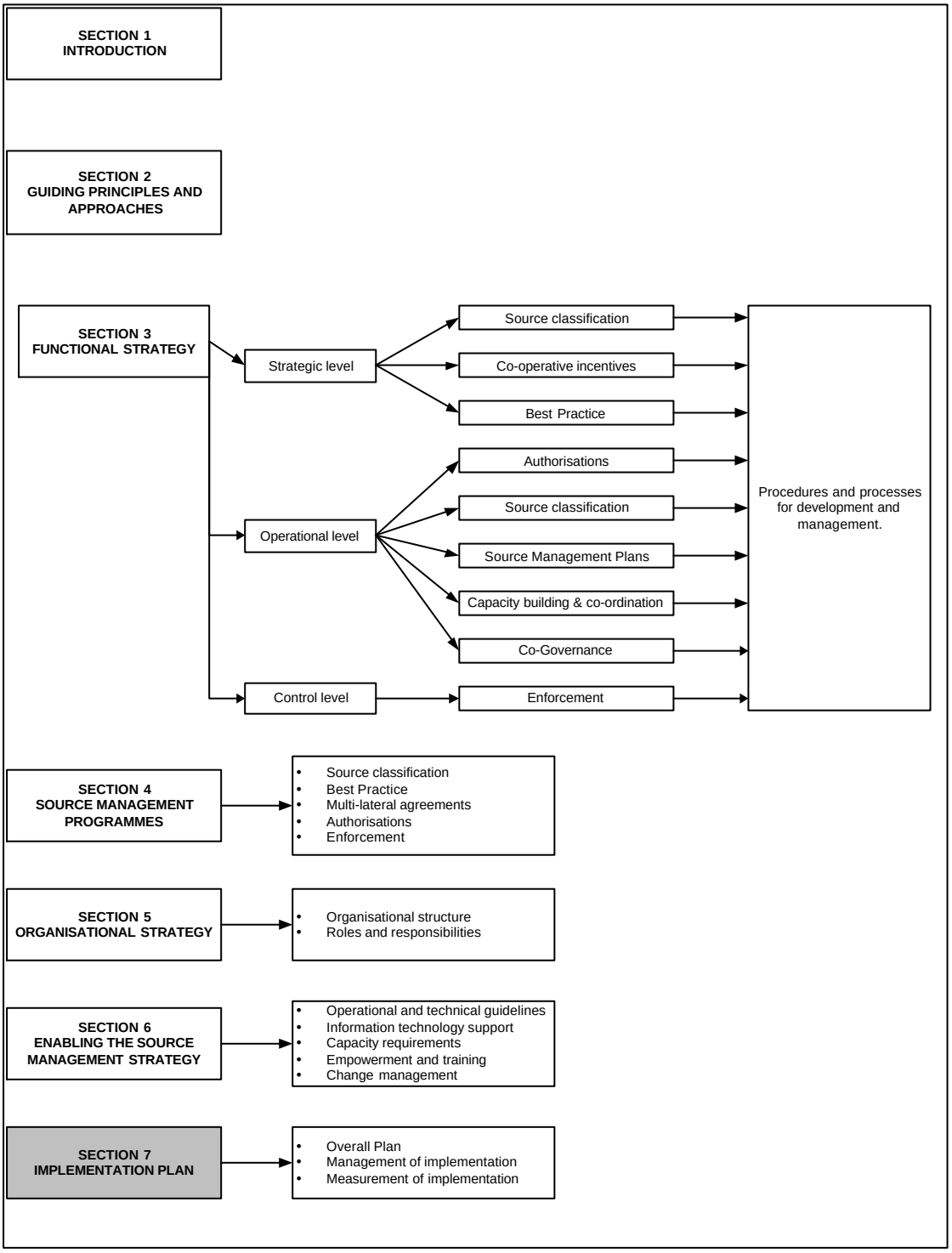
- prepare a skills analysis of the relevant personnel within the organisational structure and actively address areas of skills shortage; in this way, the personnel feel empowered to undertake the tasks,
- conduct a culture survey and prepare a change/culture management strategy,
- develop short, medium and long-term capacity building and management plans,
- develop an effective skills retention and attraction strategy.

Table 6.1: Capacity and training requirements within the Department to enable the Source Management Strategy

Office	Functional area	Role	Skills required	Source	Training required
National Office	Best Practice	• Programme manager • Support staff	Developing guideline documents; sector-based skills	Existing staff complement or recruit externally	• Water Quality Management orientation course, • Courses on development of Best Practice documents, • Courses on risk identification, management and evaluation, • Project Management course, • Junior & middle management courses, • Training on the structure and details of the Source Management Strategy, • Document preparation.
	Multi-lateral agreements	• Programme manager • Three support staff	Legal; sector-based skills; document preparation;	Re-assign internally and train	• Legal document preparation, • Training on co-governance in the Department.
	Authorisations and Enforcement	• Co-ordinate input to the authorisation process, • Maintain national records, • Co-ordinate directives and legal action	Personnel management, project management and legal skills	Existing staff complement	• Water Quality Management orientation course, • Courses on knowledge management, • Project Management course, • Junior & middle management courses, • Training on the legal requirements of National Water Act
	Source Directed Framework and Policy Review	• Set and review national policies and strategies for source management, • Develop framework for implementing source management • Regular review and update of the framework.	Strategic planning, personnel management, scenario planning and policy development and implementation	Existing staff complement or recruit externally	• Water Quality Management orientation course, • Courses on strategy, business development and management, • Courses on risk identification, management and evaluation, • Project Management course, • Junior & middle management courses.
	Management Information Systems	Co-ordinate the development, testing, implementation, training and use of a management information system to support the licensing activities in the Regional and National Offices	Information Technology, particularly developing Management Information Systems.	Existing staff complement or recruit externally	• Information technology and systems architecture, • Water Quality Management orientation course, • Project Management course, • Junior & middle management courses.

Table 6.1: Capacity and training requirements within the Department to enable the Source Management Strategy continued…

Regional office	Authorisation	• Assistant Director: Water Use Authorisation • Administrative assistants	Administrative skills; water quality management; and technical skills; communication and stakeholder management skills	Existing staff complement or recruit externally	• Use of the water use authorisation procedures document • Details of Source Management Strategy • Database management • Project management
	Source Classification	• Programme manager • Assistants	• Risk ranking methods • Local knowledge of area	Existing staff complement or recruit externally	• Risk assessment methods • Database management • Project management
	Source Management Plan	• Programme manager • Planning team	• Integration skills • Understanding of source management controls	Existing staff complement	• Project management • Report preparation • Technical: Source management tools
	General Authorisations	• Programme manager • Assistants	• Legal • Analytical	Re-assign from National Office or recruit externally	• Relevant details of Source Management Strategy • Details of source classification
	Enforcement	Inspectors	• Data gathering • Use of database • Reporting	Existing staff complement and re-assign from National Office	• Details of Source Management Strategy • Database management • Report writing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SECTION 7
IMPLEMENTATION

The Department has committed to implementing the programmes and plans developed as part of the Source Management strategy, both in the National and Regional Offices, to ensure that improved source management will lead to a positive impact on the water quality of South Africa's water resources. To this end, the Department has prepared an Overall Plan for implementation which provides guidance on the actions that are required for implementation, who is to undertake these actions and the time frames within which these actions must be completed.

The Manager: Waste Discharge and Disposal will take overall strategic responsibility for implementing the Source Management Strategy. Responsibility for the day-to-day functions to ensure that the implementation remains focussed adequately resourced and on programme will be delegated to the Deputy Director: Source Control Policy.

7.1 Overall Plan

7.1.1 Environmental analysis

The Source Management Strategy will be implemented within the environment of the strategic transformation and restructuring process that has been underway within the Department. In the short-term, it is therefore important that the functions and programmes that are required to enable the Source Management Strategy be aligned with:

- the proposed new structures and migration strategies that have been identified in the transformation process, and

- the systems/processes, performance management and skills development programmes that are being developed to support the new structures.

The functions and programmes within the Source Management Strategy have also been developed to take cognisance of the goal of the transformation process in the Department to lead to:

- a National Office responsible for setting of policy and strategy, and

- Regional Offices that will become responsible for Water Management Areas (WMA's) , leading to the formation of Catchment Management Agencies (CMA's)

7.1.2 Action plan and time schedule

The action plans provide details on what must be done immediately, as well as in the short, medium and long-terms, to ensure the successful implementation of the Source Management Strategy. The actions

plans are presented in broad outline here; it will be the responsibility of the programme manager or delegated person to provide more detailed action plans to manage the processes.

Immediate actions

Table 7.1 provides details on the immediate actions required in the National and Regional Offices to commence the implementation of the Source Management Strategy.

Table 7.1: Immediate actions required to implement the Source Management Strategy

Office	Task	Responsibility	Duration (months)
National Office	Appoint Deputy Director: Source Control Policy (DD:SCP)	M: WD&D	3
	Appoint Assistant Directors: Best practice, Authorisations/Enforcement, Training, Policy Review and Management Information Systems	DD: SCP	6
	Provide immediate training requirements to new appointees	AD: Training	3
	Embark on an awareness creation campaign, within the Department, to other Departments and externally, to promote the need for and importance of the Source Management Strategy	DD: SCP	6
	Prepare Terms of Reference for a source directed situation analysis/baseline study for the regions	DD: SCP	3
	Prepare Terms of Reference for the programme to prioritise the development of Best Practice documentation	AD: Best Practice	3
	Prepare a programme to train the regional personnel on the use of the streamlined water use authorisation process	AD: Authorisations & Enforcement	1
	Prepare Terms of Reference for the programme to develop enforcement tools		3
	Prepare Terms of Reference for the source directed training needs assessment within the Department	AD: Training	3
	Prepare Terms of Reference for developing the Management Information System for license tracking, based on the scoping work undertaken	AD: Management systems	3
Regional Offices	Appoint the Assistant Directors: Planning and Water Use Authorisation	DD: WQM	3
	Provide immediate training requirements to new appointees	AD: Training	3
	Review and provide input on the requirements of the Source Management Strategy	All	3
	Prepare Terms of Reference for the programme for source classification in the regions	AD: Planning	3

Short, medium and long-term actions

Table 7.2 and 7.3 provide details of the actions required within the National and Regional Offices, in the short (0 to 3 years), medium (3 to 10 years) and long term (greater than 10 years) to implement the Source Management Strategy. These actions are summarised below:

National Office

- Undertake a situational assessment of the sources of pollution in each region and the status quo with regard to source management,

- prioritise the development of Best Practice documents in the short term and develop these documents in the medium and long term,

- scope and develop the Management Information System in the short term, full scale roll-out in the medium term followed by ongoing operational management,

- develop and sign MoU's in the short and medium term and update and extend these in the long term,

- develop internal guidelines for issuing directives and for legal action in the short term and ongoing enforcement in the medium and long term, and

- determine the source directed training needs in the short terms and develop applicable training programmes for use in the medium and long term..

Regional Offices

In the short term, the Regional Offices will focus on the planning activities, such as putting the required personnel in place, training and preparing the base-line data for the various programmes.

In the medium term, the Regional Offices will complete and sign-off the various programmes and incorporate the outcomes of the programmes in the source management operations,

In the long term, the Regional Offices will focus on the operational source management and update the various programmes and functions as required.

Table 7.2: Source Management Action Plan for National Office

Office	Strategy Function	Details of actions required for each period		
		Short-term 0 to 3 years	**Medium-term 3 to 10 years**	**Long-term > 10 years**
National Office	Situational assessment	Undertake a situational assessment/baseline study of the status quo of sources of pollution and source management in the regions/WMA's	None	None
	Best Practice	Prioritise the development of Best Practice documents and determine the order of development of the documents.	Develop the required Best Practice documents for Class A (high risk) and Class B (medium risk) activities within: • Mining • Industry • Agriculture • Urban settlements (sewage & waste) • Rural/Dense settlements, and • National infrastructure	Develop the required Best Practice documents for Class C (low risk) activities within: • Mining • Industry • Agriculture • Urban settlements (sewage and waste) • Rural/Dense settlements, and • National infrastructure
	Water Use Authorisation	Train National and Regional Office personnel in the use of the streamlined water use authorisation process, Develop the Management Information System to track authorisations, including: • scoping phase • detailed specification and programming • pilot scale testing • data migration, and • test phase	Full scale role-out of Management Information System.	On-going operation of the water use authorisation system.
	Memorandum of Agreements (MoU)	Develop and sign MoU's with: • Department of Minerals and Energy • Department of Environmental Affairs and Tourism	Develop and sign MoU's with: • Department of Agriculture • Local Government Authorities	Update and extend MoU's as required.
	Enforcement	Develop internal protocols and guidance documents for: • issuing directives (level 3), and • legal action (level 4)	Ongoing level 3 and 4 enforcement of water use authorisations, as required.	Ongoing level 3 and 4 enforcement of water use authorisations, as required.
	Training	Prepare source directed training programme for National and Regional personnel. Undertake immediate training needs.	Ongoing source directed training and awareness.	Ongoing source directed training and awareness.

Table 7.3: Source Management Action Plan for Regional Offices

Office	Strategy Function	Details of actions required for each period		
		Short-term 0 to 3 years	**Medium-term 3 to 10 years**	**Long-term > 10 years**
Regional Offices	Source Classification	**Stage 1**: For each region: • provide source classification training for the Assistant Director: Planning • identify all processes, substances and activities, within each of the 9 regions, that pose a threat to the water resource.	**Stage 2**: For each region: • evaluate the risks posed by the processes, substances and activities • rank processes, substances and activities according to risk level • undertake public consultation, • finalise source classification, • update and amend on an on-going basis	Update and amend the source classification on an on-going basis.
	Source Management Plan	**Stage 1**: For each region: • appoint the Planning Team • prepare the baseline requirements for the SMP • prepare details of the status quo in each region, and • prepare the development perspective	**Stage 2**: Draft the SMP for each region, to include: • details from Stage 1 (short-term work), • management action plans • personnel management plan, • enabling strategy and • implementation plan Implement the SMP within each region	Update and amend the SMP on an on-going basis as the development in the area and the management action plans changes change
	Water Use Authorisation	**Stage 1**: For each region: • provide training for the Assistant Director: Water Use Authorisation within each region, • finalise the water use authorisation process and publish, • on-going authorisation of existing water uses	**Stage 2**: For each region: • develop a water use authorisation protocol from the SMP, • authorise all existing and new water uses.	Manage and update licences and issue new licenses where required.
	General Authorisations	**Stage 1**: For each region: • identify which water uses may be covered by general authorisations	**Stage 2**: For each region • draft the general authorisations, based on the work in Stage 1 and the SMP, • undertake public participation • amend and finalise general authorisations and include in SMP.	Amend and update general authorisations, and draft new general authorisations, as required.
	Enforcement	• Identify monitoring and enforcement personnel in each region, • Develop guidance documents and provide training on the enforcement strategy.	Ongoing monitoring and level 2 enforcement, as required.	On-going monitoring and level 2 enforcement, as required.
	Co-operative incentives	Set the framework within which to implement co-operative incentives.	Develop strategy for co-operative incentives and guidance documents.	Implement co-operative incentives strategy.

7.1.3 Interim Strategic plan

The Department realises that there is a significant level of work in the short term to fully implement and operationalise the Source Management Strategy. In the interim, while this work is underway, the Regional Office personnel tasked with source management will utilise the Strategic Interim Plan shown in **Figure 7.1** to focus the source management efforts.

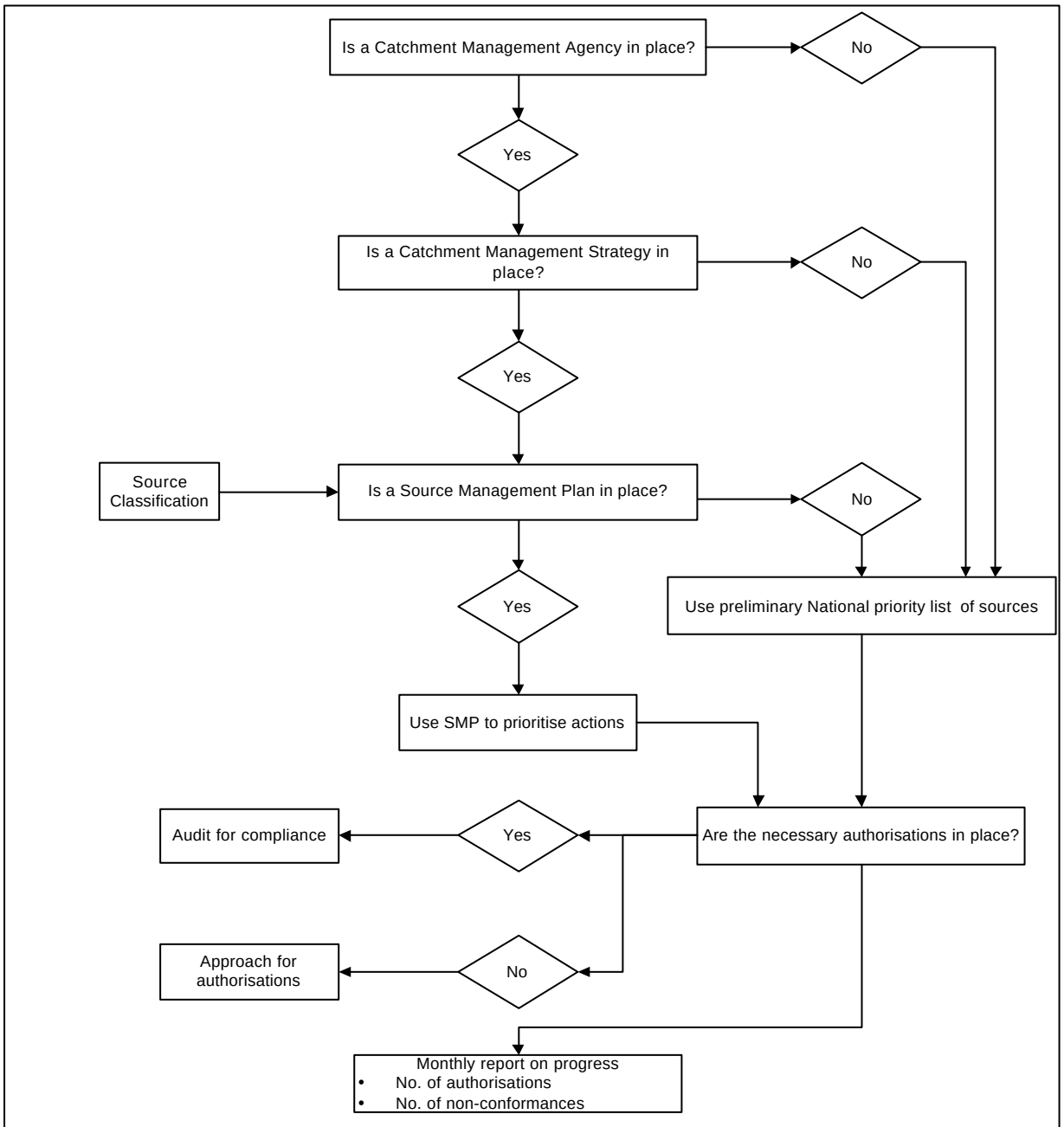

Figure 7.1: Strategic Interim Plan for Regional Offices

7.1.4 Resource analysis

Finances

Appendix G.1 provides indicative overall costs for implementing the various functions and programmes of the Source Management strategy. These costs have been developed based on the assumption that, where internal resources within the Department are unavailable, or unable to undertake the work, these will be supplemented by externally procured expertise.

Personnel

The human capital required to implement the strategy is indicated in **Figures 5.1 and 5.2** and in **Table 5.1 and 6.1**. The Department will, through internal and external training, empower these personnel to be in a position to undertake the necessary implementation tasks.

Support equipment

The Department will ensure, through other programmes and systems, that the personnel tasked with implementing the strategy have:

- sufficient support personnel,
- effective IT management systems in place,
- an organisational structure to provide technical and administrative support, and
- adequate IT hardware and software for the required tasks.

7.1.5 Programme

A provisional programme for enabling and implementing the Source Management Strategy, and ongoing operational management, is enclosed in **Appendix G.2**. The programme is divided into three sections, as follows:

- an enabling strategy, which incorporates creating awareness of the strategy, employing the required personnel, training and change management; the enabling strategy will commence once the strategy is signed-off and will have a duration of about 6 months,
- programmes to be undertaken at National Office and Regional Offices; these will commence once the enabling strategy is complete and will run for between three and nine years,

- the operational management, which is currently ongoing; the deliverables from the various programmes will be incorporated into operational management when these are complete.

7.2 Management of implementation

7.2.1 Monitoring

The National Office will act as the lead agent in setting up and co-ordinating the required source management programmes, within the sub-directorate Source Control Policy. Programmes that will be undertaken in the Regional Offices will then be delegated to the appropriate personnel.

The pre-requisite for monitoring is to set in place adequate systems, protocols and infrastructure to enable effective monitoring. The programme managers will therefore need to, early in the implementation process, and in conjunction with their superiors, set up the following:

- detailed scope of work, action plans and programmes for completion,
- key performance indicators to measure the success of the actions, and
- monitoring and auditing forms and protocols.

The programme managers, both in the National or Regional Officers, will monitor the progress and success of each of the programmes and will report to the relevant personnel in National Office on a quarterly basis. These reports will be reviewed and signed-off by the relevant Assistant Director, the Deputy Director: Source Control Policy and the Manager: Waste Discharge and Disposal.

Monitoring and reporting on the on-going source management plans and interventions will be required, which will be the responsibility of the Deputy Director: Water Quality Management in the Regional Offices. Regular quarterly reports will include:

- management review against the requirements of the Source Management and Catchment Management Plans,
- authorisations issued or renewed in the period under review,
- number, duration and severity of pollution incidents recorded in the period,
- priority actions for the next period, and
- any personnel, technical and/or financial issues and action plans to address these issues.

7.2.2 Intervention

Intervention will be required if there is either a lack of progress on the delivery of the programmes or the actions within the programmes are not successful. Intervention will take the form of:

- guidance on measures to ensure the required progress is achieved or the actions are successful, or
- provision of additional personnel to assist in maintaining adequate progress.

Ongoing intervention will primarily be the responsibility of the programme manager to ensure that the envisaged programmes/progress and budgets are met. Additional intervention may be required from the relevant personnel in the Sub-Directorate Source Control Policy in the National Office, upon review of the quarterly report.

7.3 Measurement of implementation

Measurement of implementation will take the following forms:

- measuring the progress of the source management programmes against the schedules and action plans provided by the programme manager; key success indicators will be programmes that are completed within the envisaged time-frames and budgets,
- measuring implementation progress: key success indicators will be the effective incorporation of the source management programmes into the operational management of sources,
- measuring the progress towards the achievement of the strategy objectives: the key success indicators in this regard will be the level of risk/threat posed by sources to the water resource and the continual decrease in this threat level through the source management actions, and
- measuring the water quality in the country's water resources: a successful strategy should be mirrored by a medium to long-term continual improvement in the water quality of the water resource over time.

Table 7.4 summarises the tasks required for the measurement of implementation of the Source Management Strategy, together with the methods of measurement to be employed and the responsible personnel.

Table 7.4: Summary of tasks for the measurement of implementation

Task	Methodology	Responsible personnel
Measure progress of source management programmes	Quarterly reports prepared by programme managers and submitted to Deputy Director: Source Control Policy	Programme managers
	Review reports and provide guidance/intervention, as required	DD: SCP
Measure implementation progress	Quarterly report from the Deputy Directors: Water Quality Management on: • the work towards developing the Source Management Plan, and • management of sources against the Source Management and Catchment Management Plans	DD: WQM Regional offices
	Quarterly reports from Assistant Directors on: • development and implementation of Best Practice, • water use authorisations, and • enforcement	AD: Best Practice AD: Authorisations and Enforcement
	Review reports and provide guidance/intervention, as required; prepare executive summary reports	DD: SCP
	Review executive summary reports and provide guidance/intervention	M: WD&D
Measure water quality status in the country's water resources, as a key objective of the Source Management Strategy	Design, implement and review the water quality monitoring network	DD: WQM and Pollution Control Officers
	Collect water quality data in the regions Assess water quality data against RWQO's (or in their absence, Uniform Effluent Standards), Prepare monthly summary reports on water quality status	Pollution Control Officers DD: WQM and Pollution Control Officers
	Review water quality status reports	DD: SCP
	Report on the effect and success of the Source Management strategy	DD: SCP and M: WD&D

SECTION 8
GLOSSARY OF TERMS

Benchmark

A norm against which performance / behaviour or outcomes are measured.

Best Practice

Established and effective processes and methodologies which are generally recognised as being the best available in a particular field and provide a benchmark/norm against which to test the practices and performance of the regulated community.

Catchment[1]

The basic unit of water resource management. That is the area from which any rainfall will drain into a watercourse/s or part of a watercourse, through surface flow to a common point/s.

Classification

A mechanism of grouping objects with similar characteristics based on a predetermined set of criteria.

Environmental values

Particular values related to the water resource that are conducive to public and/or environmental benefit/use, welfare, safety or health and that require protection from the effects of impaired water quality. Several environmental values may be designated for a particular water resource.

Guideline

Numerical concentration limit or narrative statement (water quality) established to support and maintain a particular objective.

Instruments

Management tools that are used to achieve water quality objectives.

Pollution[1]

The direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it:

a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or

b) harmful or potentially harmful:

   a. to the welfare, health or safety of human beings;

   b. to the resource quality;

c. to property

Principles

A fundamental truth or law used as the basis of reasoning or action.

Process

The course of action designed to achieve an intended result.

Product

The outcome of a course of action.

Remediation Directed Controls

A subset of remediation directed measures that comprises of legal instruments that will be deployed to ameliorate degraded and/or impaired water resources or contaminated land areas as required by the environmental values adopted for the water resource.

Remediation Directed Measures

A set of management initiatives that will be deployed to ameliorate degraded and/or impaired water resources or contaminated land areas as required by the environmental values adopted for the water resource.

Resource Directed Objectives

These are the objectives that need to be put in place to meet water quality policy directives for each of the 19 water management areas (WMA). The objectives are set in place using the following process:

- classification of each WMA into one of three management classes, either protected, good or fair;
- determination of the Reserve; and
- definition of the resource water quality objectives (RWQO's).

Reserve[1]

The Reserve means the quantity and quality of water required:

- to satisfy basic human needs by securing basic water supply as prescribed under the Water Services Act, 1997 (Act No. 108 of 1997), for people who are now or who will, in the reasonably near future, be relying upon, taking water from or being supplied from the relevant water resource; and
- to protect aquatic ecosystems in order to secure ecologically sustainable development and use of water resources.

Remediation Strategy

The Remediation Strategy identifies objectives, actions and the manner in which these actions will be implemented to effect amelioration of degraded and/or impaired water resources or contaminated land to *acceptable* levels.

Resource Management Strategy

The Resource Management Strategy identifies objectives and actions and the manner in which these actions will be implemented to achieve optimal water resource management.

Source

A source shall include any anthropogenic or natural process that may impact or currently impacts, either directly or indirectly, on the water resource.

Source Directed Control

A subset of source directed measures that comprises of legal instruments that will be deployed to achieve the objectives of the Source Management Strategy.

Source Directed Measure

A set of management initiatives that allow for the setting of standards (or management practices) that are appropriate for different pollution sources. These initiatives provide the means for achieving compliance to the RDO's, and include but are not limited to legal instruments. These initiatives aim to *minimise* the impact on the water resource.

Source Management Strategy

The Source Management Strategy identifies actions and the manner in which these actions will be implemented to manage sources in such a way as to limit the impact of such sources on the resource and to achieve optimal water resource management.

Standard (water quality)

A water quality objective and/or performance target which can be enforced by law.

Waste

Includes any solid material or material that is suspended, dissolved, entrained or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such a volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be polluted.

Water Management Area

An area established as a management unit in the national water resource strategy within which a Catchment Management Agency will conduct the protection, use, development, conservation, management and control of water resources.

Water quality objectives

A set of numbers or guidelines which satisfy all of the environmental values for a particular water body.

Water resource[1]

Includes a watercourse, surface water, estuary or aquifer.

Water use

The National Water Act, 1998, stipulates 11 water uses which require consideration in the execution of the water quality management function. These uses include taking water from a water resource and storing water; conducting activities which reduce stream flow; waste discharge and disposal; controlled activities (activities which could impact detrimentally on the water resource); altering a water course; removing water found underground for certain purposes; and recreational use. Hence, use of water is no longer limited to consumptive use but also includes non-consumptive uses such as recreation or the discharge of waste. Since resource quality encompasses all aspects of the water resource, such as hydrological characteristics, physical, chemical and biological characteristics, and riparian habitat and aquatic biotic aspects, all 11 water uses could potentially affect water resource quality.

[1] Definitions taken from National Water Act (Act 36 of 1998)