

Chapter 1:

**Conceptual Overview of
Guideline**

CONTENTS

LIST OF FIGURES _____	ii
LIST OF TABLES _____	ii

CHAPTER 1. CONCEPTUAL OVERVIEW OF GUIDELINE _____ 1-1

<i>1.1 Introduction and context</i>	<i>1-1</i>
1.1.1 Context	1-1
1.1.2 Importance of assessment, planning and management	1-2
1.1.3 Importance of developing the guideline	1-2
1.1.4 Use of the Guideline	1-3
<i>1.2 Purpose of the Guideline</i>	<i>1-4</i>
<i>1.3 Goals of the Guideline</i>	<i>1-4</i>
<i>1.4 Overview of Aquifer Types in South Africa</i>	<i>1-6</i>
<i>1.5 Overview of the Regulatory and Policy Framework</i>	<i>1-8</i>
<i>1.6 Principles and Approaches</i>	<i>1-12</i>
<i>1.7 Institutional Arrangements</i>	<i>1-13</i>
1.7.1 Description of the Role-Players	1-13
1.7.2 Roles and Responsibilities	1-14
1.7.3 Structure and the Integration of Functions	1-17
1.7.4 Reporting and Auditing Functions	1-18
<i>1.8 Public Participation</i>	<i>1-18</i>
1.8.1 What is Public Participation?	1-19
1.8.2 Benefits of public participation	1-19
1.8.3 Public participation's role in achieving sustainable development	1-20

LIST OF FIGURES

Figure 1.1: Aquifer types of South Africa _____	1-7
Figure 1.2: Proposed institutional framework _____	1-18
Figure 1.3: Contributions to sustainability _____	1-20

LIST OF TABLES

Table 1.1: Goals of the Guideline _____	1-5
Table 1.2: Summary of aquifer types _____	1-8
Table 1.3: Summary of the regulatory and policy framework in South Africa _____	1-9
Table 1.4: Institutional roles, responsibilities, opportunities and challenges _____	1-15

CHAPTER 1. CONCEPTUAL OVERVIEW OF GUIDELINE

1.1 Introduction and context

1.1.1 Context

The National Water Act (Act 36 of 1998) (NWA) was promulgated to provide for 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 NWA 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 (NWA, 1998).

The aquifer systems of South Africa represent important water resources that are relied on by many. Water users include the ecology (wetland areas around springs and surface water flow originating from the groundwater), urban and rural dwellers, irrigation and livestock farmers, industry and mining.

Development and protection of the groundwater resources is currently being undertaken in response to local pressures and decisions, potentially taking cognisance of the NWA but without the benefit of standard procedures. The Department therefore identified the need for the development of a guideline document that can be followed and adhered to when undertaking *assessment, planning and management* of the groundwater resources of the country. This document will assist in the sustainable development, protection and management of the groundwater resources, and will assist in achieving the overall goal of integrated water resources management (IWRM) within the Department.

This Guideline is aligned to, and integrated with, other guidelines prepared by the Department, which together aim to address the overall objectives of IWRM. The Guideline is presented as a separate document, albeit within the context of IWRM, because:

- The assessment, planning and management of groundwater resources are seen as important functions within the overall scope of IWRM. Of equal importance is the interaction between surface and groundwater and the contribution of groundwater to baseflow in many instances, and
- Although a significant amount of information is available on the assessment, planning and management functions as it pertains to groundwater resources, this has not been collated into a single co-ordinated series of documents. The Guideline series addresses this need.

1.1.2 Importance of assessment, planning and management

The assessment function is required to enable and inform the planning and management functions. Information of sufficient accuracy is currently unavailable to ensure integrated water resource management. Assessment also provides a better understanding of the local interactions between people and the water resource and provides details on current impacts and the use/abuse of the resource. The integration of the assessment, planning and management functions is important because:

- These functions are linked in the management of the groundwater resources. Thus, if assessment is undertaken poorly, then the planning will also be poor. In turn, poor planning can lead to the adoption of unsuitable options and hence the unsustainable use of the resource.
- Given the linked nature of the functions, poor assessment, leading to poor planning can result in the inefficient use of the Department's assessment, planning and management budgets.

1.1.3 Importance of developing the guideline

The overall rationale and motivation for developing a guideline for the assessment, planning and management of groundwater resources include the following factors:

- No such guideline currently exists to guide the Water Manager/Service Provider in the procedures required for the assessment, planning and management of the groundwater resources
- Groundwater represents an important water resource as part of conjunctive use for bulk and local use, as well as for extensive irrigation. In some areas, groundwater from various aquifers represents the sole source of water use or is a critical resource in times of drought. In these areas or circumstances, the such aquifers would be considered to be of strategic importance
- Overall planning and management of aquifers are essential to ensure their sustainable development. Individual private abstractions often take no account of the impact of these abstractions on the total resource
- Past experiences have indicated that a lack of effective assessment, planning and management of the resource can result in significant detrimental impacts on the aquifer systems. For example, unmanaged and uncontrolled abstraction and/or dewatering of the aquifers can lead to boreholes, wetlands and springs drying up; and in the case of karst aquifers, sinkhole formation.
- Potential groundwater yields from certain aquifer systems (i.e. karst formations) can be significantly higher than yields from other rock formations. However, these same characteristics that allow high borehole yields (e.g. fracture flow) can also be responsible for sudden failure of the resource (e.g. dewatering of a fracture).

- Aquifer systems can be, due to the physical characteristics of the host rock, vulnerable to over-exploitation, unsustainable practices and pollution. This vulnerability aggravates the potential impact of land use on the groundwater resources
- The direct interaction between aquifer systems and adjacent ecosystems makes these ecosystems particularly vulnerable to pollution and abstraction impacts, to the same degree as the aquifers themselves. Protection of the aquifers will therefore lead to the protection of these ecosystems

1.1.4 Use of the Guideline

The Guideline is aimed primarily at the Water Manager/Planner and Service Provider in a Water Management Area (WMA) who will be responsible for the assessment, planning and management of the groundwater resources in the area. The responsible person will thus make comprehensive use of Chapters 2 and 3 of the Guideline to enable him/her to undertake these functions. The Guideline is presented in three separate chapters to improve user-friendliness. The details included in each chapter, and the proposed use, are:

- **Chapter 1:** Provides a conceptual overview of the Guideline in terms of the purpose of the guideline, the location of the groundwater resources, the regulatory framework, principles and approaches, and the institutional arrangements. Chapter 1 can be used by role-players who seek to gain an initial insight into the assessment, planning and management of groundwater resources
- **Chapter 2:** Provides details of the process and related activities that should be followed during the assessment, planning and management functions. This chapter is aimed at the role-players who require a detailed understanding of the processes to be followed during assessment, planning and management, to enable the overall management, integration and control of these processes, and
- **Chapter 3:** Provides detailed procedures, in the form of check-lists with guiding notes, for carrying out the assessment, planning and management functions. This chapter is aimed at those role-players tasked with the operational aspects of these functions.

Various other stakeholders may have different uses for the Guideline, depending on their specific organisational positions, work areas and responsibilities. In particular:

- Personnel at management level within the Department's Head Office, Regional Office and within the CMA are likely to make use of Chapter 1 to obtain an overview of the nature and applicability of the Guideline
- Water Resource Management personnel involved in assessment, planning and management for the sustainable use of water resources will make use of Chapters 2 and 3, and

- Water User Associations, Aquifer Management Committees, Water Service Providers, task teams and water users themselves will find Chapters 2 and 3 useful, especially the technical specifications in the appendices.

1.2 Purpose of the Guideline

The purpose of the Guideline can be described briefly as follows:

- To provide assistance and guidance to all role-players involved in the assessment, planning and management of the groundwater resources of South Africa, and
- To ensure that all role-players in the management of groundwater resources of the country have clear guidance on the processes to follow.

The Guideline will therefore assist in ensuring that the water management function in the above areas is streamlined and meets the objectives of both the Department and other role-players.

1.3 Goals of the Guideline

The goals of the Guideline are presented in terms of strategic, operational and other goals in Table 1.1. Key success factors are also provided for each of the Guideline goals.

Table 1.1: Goals of the Guideline

Level	Goals	Role-players involved in meeting the goals	Key success factors
Strategic	Provide guidance for sustainable development and management of the resource	<ul style="list-style-type: none"> ▪ DWAF Head Office ▪ DWAF Regional Office ▪ CMA management ▪ Other national departments 	<ul style="list-style-type: none"> ▪ Increased understanding and appreciation of sustainable development and management of the resource ▪ Improved development and management techniques
	Assist in ensuring equitable access to the resource		
Management	Enable optimum management, protection and use of the resource to ensure sustainable development	<ul style="list-style-type: none"> ▪ DWAF Regional Offices ▪ CMA management ▪ Water User Associations ▪ Water Forums and reference groups 	<ul style="list-style-type: none"> ▪ Sustainable use of the resource
	Integrated water resources management		
Operational	Provide information that will feed into the Department's planning process	<ul style="list-style-type: none"> ▪ CMA operational level ▪ Water User Associations ▪ District and local municipalities ▪ Water Boards ▪ Individual users (e.g. irrigation farmers, mines and industrial enterprises) 	<ul style="list-style-type: none"> ▪ Operational guidelines that are: ▪ Clear, concise and user-friendly ▪ Contain sufficient details to be used as a primary information reference by role-players
	Ensure the sustainable use of the resource according to guidance given.		
Other	Integration with existing and new initiatives within the Department	<ul style="list-style-type: none"> ▪ DWAF Head Office 	<ul style="list-style-type: none"> ▪ Inclusion of links to other relevant initiatives

1.4 Overview of Aquifer Types in South Africa

Most South African aquifers occur in fractured rock ranging in age from earliest Pre-Cambrian to Jurassic. Aquifers consisting of recent to Tertiary formations are restricted to coastal dune belts and unconsolidated deposits associated with rivers and Aeolian sands. The aquifer regions developed by DWAF are:

- Intergranular Aquifers,
- Fractured Aquifers,
- Karstic Aquifers and
- Intergranular and Fractured Aquifers.

Figure 1.1 shows the aquifer types. Table 1.2 summaries these aquifer types.

Please note that 1 : 500 000 scale Hydrogeological map series is available from DWAF.

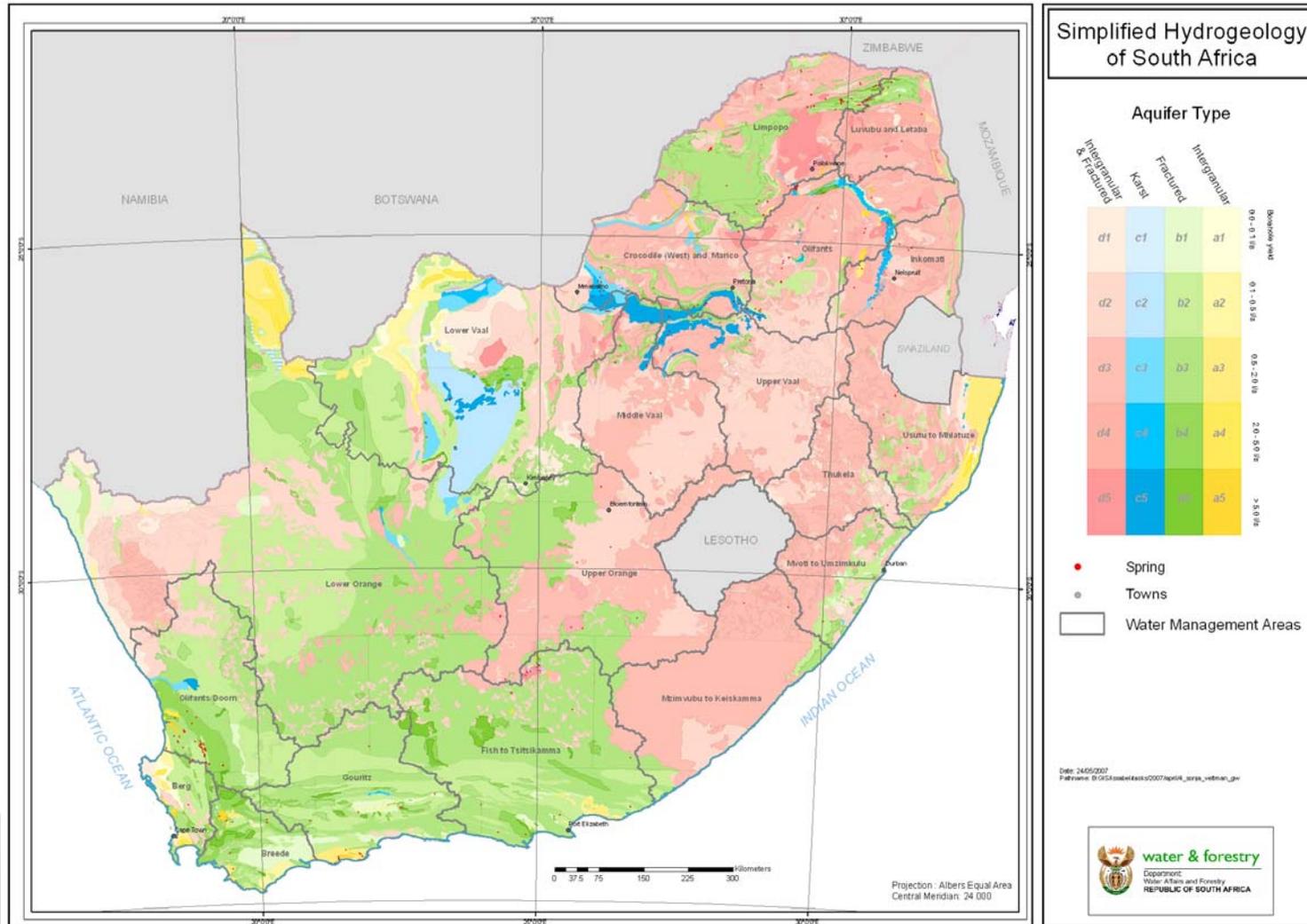


Figure 1.1: Aquifer types of South Africa

Table 1.2: Summary of aquifer types

Aquifer Type	Basic Information
Intergranular Aquifers	<ul style="list-style-type: none"> ▪ Generally unconsolidated but occasionally consolidated. ▪ Groundwater within interstices in porous medium and in basal conglomerate. Moderate areal extent. ▪ Examples include Tertiary-Quaternary coastal deposits and alluvial deposits along river terraces.
Fractured Aquifers	<ul style="list-style-type: none"> ▪ Fissured and fractured bedrock resulting from decompression and/or tectonic action. Groundwater occurs predominantly within fissures and fractures. ▪ Extensive in area. ▪ Examples include sedimentary and metamorphic rocks within limited overlying unsaturated residual weathered products.
Karstic Aquifers	<ul style="list-style-type: none"> ▪ Water-bearing properties depend on fractures, joints and cavities in Namibian ages calcareous rocks. ▪ Very limited in areal extent. ▪ Examples included limestone and interbedded shale is particularly groundwater bearing in valleys where sizable alluvial deposits occur.
Intergranular and Fractured Aquifers	<ul style="list-style-type: none"> ▪ Largely medium to coarse grained granite, weathered to varying thicknesses, with groundwater contained in intergranular interstices in the saturated zone and in jointed and occasional fractured bedrock. ▪ Occurs extensively throughout South Africa but its characteristics varies in space and time.

1.5 Overview of the Regulatory and Policy Framework

It is not intended in this section of the Guideline to provide comprehensive details of the various acts, policies and strategy documents that make up the regulatory framework of the water sector in South Africa. It is assumed that role-players using the Guideline have sufficiently detailed knowledge of the regulatory framework to understand where and how the Guideline fits in. Table 1.3 provides an overall summary of the regulatory and policy framework for South Africa. It should be noted, however, that this summary does not represent an exhaustive list of all acts, policies and strategies, but rather a summary of those relevant to the assessment, planning and management of groundwater resources. Other useful references relating to the assessment, planning and management of groundwater resources are provided in the bibliography at the end of the Guideline.

Table 1.3: Summary of the regulatory and policy framework in South Africa

National Department	Act/Policy/Strategy	Act No.	Key details/principles
Water Affairs and Forestry	National Water Act	36 of 1998	<ul style="list-style-type: none"> ▪ Promulgated to provide for reform of the law relating to water resources ▪ Recognises that water is a scarce and unevenly distributed national resource belonging to all people ▪ Provides mandate to protect, use, develop, conserve, manage and control the water resources in an integrated manner ▪ Key principles: <ul style="list-style-type: none"> - Ultimate aim: Sustainable use of water for the benefit of all users - Protection of water quality is necessary to ensure sustainability - Integrated management is required, with delegation to regional or catchment level where appropriate
	Water Services Act	108 of 1997	<ul style="list-style-type: none"> ▪ Key principles: <ul style="list-style-type: none"> - Rights of access to basic water use and sanitation - Duty of government, through co-governance, to ensure efficient, equitable and sustainable water use services - All spheres of government to work towards this objective ▪ Goals: <ul style="list-style-type: none"> - Provide for rights of access to basic water use and sanitation - Set and provide the national standards and norms - Provide framework and details for developing Water Services Development Plans (WSDP) - Provides the regulatory framework for water services institutions - Provide the mechanisms for the establishment and dis-establishment of water boards - Monitoring of water services - Financial assistance to institutions - General powers of the Minister - Information-gathering in national information system

National Department	Act/Policy/Strategy	Act No.	Key details/principles
Water Affairs and Forestry	National Water Policy for South Africa	1997	<ul style="list-style-type: none"> ▪ Key principles: <ul style="list-style-type: none"> - Formalise water as an indivisible national asset - Only water required to meet basic human needs and to maintain environmental sustainability will be guaranteed as a right - Riparian system of allocation is abolished - Pricing to include full financial costs (infrastructure and catchment management activities) - Pricing may be waived to promote equitable access to water for disadvantaged groups - Major water users to develop water use, conservation and protection policy - Management of water through the Catchment Management Agency (CMA) ▪ Goal: <ul style="list-style-type: none"> - Some water, for all, growing prosperity and equity
	National Water Resource Strategy	2004	<ul style="list-style-type: none"> ▪ Details how the Department plans to give effect to the principles and policies in the NWA ▪ Key sections: <ul style="list-style-type: none"> - Objective: manage water resources in an integrated way to ensure equitable, sustainable social and economic transformation and development - Progressive decentralisation: Head Office as policy-maker, regulator and monitor; CMAs will take on operator responsibilities - Description of aggregated estimates of present water availability and requirements - Details on strategies, objectives, plans, guidelines and procedures required to implement the NWA - Broad overview of methods to build capacity - Indicative programme of capital development
	Integrated Catchment Management (ICM)	2004	<ul style="list-style-type: none"> ▪ Central Government role in ICM: <ul style="list-style-type: none"> - Leadership, aimed at facilitating and coordinating the development and transfer of skills set - Institutional arrangements required for effective inter-government collaboration - Landowners and communities to be seen as competent partners - Lead agent to assist in developing skills, where lacking

National Department	Act/Policy/Strategy	Act No.	Key details/principles
Environment and Tourism	National Environmental Management Act (NEMA)	107 of 1998	<ul style="list-style-type: none"> ▪ Promulgated to give legal effect to the principles of sustainability ▪ Purpose: <ul style="list-style-type: none"> - Give effect to the vertical application of Section 24 of the Constitution, guaranteeing the right to all people of a healthy and safe environment - Create an enabling framework for cooperative governance in environmental matters - Establish a legislative framework for environmental management principles and integrated environmental management ▪ Legislation for compulsory Environmental Impact Assessments (EIA), promulgated in terms of Sections 21, 22, and 26 of the Environmental Conservation Act ▪ Objectives: <ul style="list-style-type: none"> - Thorough and uniform control of the environmental impact of development projects - Promote a sustainable development - Ensure that social and economic interests are taken into account - Regulate the process and reports required
Minerals and Energy	Minerals and Petroleum Resources Development Act (MPRDA)	73 of 1989	<ul style="list-style-type: none"> ▪ This Act requires the provision of an Environmental Management Programme (EMP) for all mining activities and an Environmental Impact Assessment (EIA) for proposed new mines ▪ These programmes and reports regulate environmental management and protection for all mining activities, including the management and protection of water resources

1.6 Principles and Approaches

The guidelines, operational procedures and detailed practices included in this Guideline are aligned to the principles and approaches included in the various acts, policies and strategies that are summarised in Table 1.3.

Some of the key principles adopted are:

- **Equity:** Fairness to people and communities who do not have equal access to natural resources and/or to social and economic goods.
- **Participation:** All interested and affected parties have a right to participate in the management of water resources; participation includes meaningful, timely and representative consultation with interested and affected parties in order to contribute to effective and informed decision-making.
- **Freedom of information:** Openness and transparency in decision-making and information dissemination.
- **Sustainable development:** Promotion of actions and practices that focus on conservation and sustainable use of the water resource, such that future generations have access to the resource and that it meets their needs.
- **Stewardship:** All water users are required to ensure and strive for the same water quantity and quality goals at agreed risk levels.
- **Flexibility:** In undertaking the management of the dolomite water resource, the regulator has the flexibility to consider the application of different alternatives and approaches, provided that each of these is capable of meeting the desired objectives and requirements of the NWA.
- **Continual improvement:** The policies, strategies and guidelines developed by the Department focus on encouraging continual improvement in the water resource management actions and practices of both government and the regulated community.
- **Delegated responsibility:** The Department focuses on placing responsibility for achieving the goals and objectives of the NWA at the lowest (most local) level possible while maintaining effective performance.

The procedures and practices in the Guideline are also based on the following key approaches:

- **Precautionary approach:** The regulatory system adopts a risk-averse and cautious approach to water management, recognising that the water resource is vulnerable to threats from pollution and that there are certain constraints to the current knowledge base. Active measures are therefore required to be taken to avert or minimise the potential risk of undesirable impacts on the water resource. The implications of the precautionary approach include:
 - Avoiding potential risks to the water resource, wherever possible

- Minimising risks to the water resource by being conservative in all decision-making steps on water resource management, and
- Encouraging conservation and sustainable use of the water resource to reduce the need to develop new resources.
- **Prevention approach:** The Department's strategies on water resource management include a hierarchy of control measures that will govern such management, including, in order of priority:
 - Waste elimination, substitution, recycling, re-use and disposal, effected through the adoption of Best Practice guidelines and cleaner technology, and
 - Control, through the water use authorisation process, either of developments taking place, or of 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.
- **Differentiated approach:** This approach recognises that applying the same degree of management input to all water resources can be both inefficient and wasteful. South Africa's water management policy and strategy do not aim to prevent impacts to the water resource at all costs, since this could hinder much needed social and economic development. The approach rather calls for a differentiated level of management effort in order not only to use the available resources most effectively but also to meet the water resource objectives.
- **Integration:** Integration ensures uniformity and consistency of approach between departments, eliminates duplication, ensures cooperation, rationalises resources and ensures the consideration of all media. Integration aims to ensure effective enforcement of regulations through a coordinated regulatory and enforcement interface with the regulated community.
- **Risk-based approach:** This approach recognises the need for a link between the level of control required to manage resource development and the risks posed on the resource by that development. A lower level of control can be motivated if it can be demonstrated that the risks posed by the development are within acceptable limits, and vice versa. The risk-based approach allows for the identification of areas of risk and impact mitigation in these risk areas in order to achieve focussed and effective water resource management actions.

1.7 Institutional Arrangements

1.7.1 Description of the Role-Players

The various role-players involved in the assessment, planning and management of groundwater resources are:

- National institutions: Department of Water Affairs and Forestry (Head Office) and Department of Environmental Affairs and Tourism
- Regional institutions:
 - Department of Water Affairs and Forestry (Regional Offices)

- Catchment Management Agencies (CMAs)
- Aquifer Management Committees
- Department of Agriculture
- Provincial Environmental Offices
- Local institutions:
 - Catchment Committee(s)
 - Water User Associations (WUAs)
 - District and local municipalities
 - Water Boards
 - Water forums and reference groups (groups of forums)
 - Ward Councillors and Ward Committees, and
 - Specific task teams or technical committees.

1.7.2 Roles and Responsibilities

Table 1.4 summarises the roles and responsibilities of the institutions at the various levels of government and society. The table also describes the opportunities and challenges facing the various institutional bodies in the assessment, planning and management of groundwater resources.

Table 1.4: Institutional roles, responsibilities, opportunities and challenges

Level	Institution	Roles and responsibilities	Opportunities	Challenges
National	Department: Water Affairs and Forestry (National Office)	<ul style="list-style-type: none"> ▪ Responsibility to “protect, use, develop, conserve, manage and control water resources in a sustainable manner, for the benefit of all” ▪ Develop policies, strategies and guidelines for effective resource management ▪ Organisational approach: <ul style="list-style-type: none"> - Centralised planning and policy-making - Support function to Regional Offices - Decentralised implementation, regional and catchment level 	<ul style="list-style-type: none"> ▪ Integration of resource management functions at a high level 	<ul style="list-style-type: none"> ▪ Ensuring Strategic goals are met ▪ Participation of stakeholders in initiatives ▪ Developing relevant useful tools for implementation of policies & strategies
	Department of Environment and Tourism	<ul style="list-style-type: none"> ▪ Protection, conservation and maintenance of terrestrial and aquatic ecosystems and water resources 	<ul style="list-style-type: none"> ▪ Protection of the national water resource 	<ul style="list-style-type: none"> ▪ Integration of stakeholders
Regional	Department: Water Affairs and Forestry (Regional Offices)	<ul style="list-style-type: none"> ▪ Delegated responsibility of water resource management ▪ Implementing agents for the Department of water resources policy and strategy ▪ Audit of CMA with its related functions and responsibilities 	Pivotal role in decentralised water resources management, having greater knowledge of the groundwater resource issues at regional level <ul style="list-style-type: none"> ▪ Opportunities from decentralised strategy: ▪ Enhanced groundwater management ▪ Increased participation 	Limited geohydrological capacity and skills in Regional Offices to take on the decentralised responsibilities: <ul style="list-style-type: none"> ▪ Institutional capacity ▪ Historic neglect of groundwater in overall water management ▪ Lack of clear integrated management structure
	Catchment Management Agency (CMA)	<ul style="list-style-type: none"> ▪ Responsible for the day-to-day management of groundwater resources ▪ Delegated responsibility for some water management activities, including water use allocation ▪ Delegation managed and monitored against a specific catchment management strategy for each WMA 	<ul style="list-style-type: none"> ▪ Pivotal role in the day-to-day management of water related issues in the WMA ▪ Opportunities from decentralised strategy 	<ul style="list-style-type: none"> ▪ WMAs defined according to surface water systems ▪ Aquifers extend over a number of WMAs, leading to complex trans-boundary management issues

STRATEGY AND GUIDELINE DEVELOPMENT

CHAPTER 1 : CONCEPTUAL OVERVIEW

Level	Institution	Roles and responsibilities	Opportunities	Challenges
	Environmental section of the Department of Agriculture and Land Affairs	<ul style="list-style-type: none"> Protection, conservation and maintenance of terrestrial and aquatic ecosystems and water resources 	<ul style="list-style-type: none"> Protection of the national water resource 	<ul style="list-style-type: none"> Integration of stakeholders
	Aquifer Management Committee	<ul style="list-style-type: none"> Responsible for cross-boundary coordination where the aquifer spans more than one WMA 	<ul style="list-style-type: none"> Pivotal institutional role for the coordination of the management of the water resources 	<ul style="list-style-type: none"> Institutional capacity Knowledge base – user defined
Local	Catchment Committee	<ul style="list-style-type: none"> Responsible for day-to-day management of the groundwater resources within the WMA or local catchment 	<ul style="list-style-type: none"> Key role in ensuring optimum sustainable development 	<ul style="list-style-type: none"> Licensing Resource assessment Management of the available resources
	Water User Association	<ul style="list-style-type: none"> Responsible for the management of the water resources being utilised, including groundwater resources 	<ul style="list-style-type: none"> Key role in the institutional structure for the management and use of water Major users of water 	<ul style="list-style-type: none"> Lack of capacity and financial resources Lack of clarity in terms of divisions of roles and responsibilities
	District and Local Municipalities	<ul style="list-style-type: none"> Planning and developing water services and infrastructure to ensure acceptable minimum levels of provision to their constituents Management of local water source 	<ul style="list-style-type: none"> Key role in the institutional structure for the management and use of water Major users of water 	<ul style="list-style-type: none"> Lack of capacity and financial resources Lack of clarity in terms of divisions of roles and responsibilities
	Water Boards	<ul style="list-style-type: none"> Organs of state established to provide water services to other water services institutions 	<ul style="list-style-type: none"> Strategic and operational management input 	<ul style="list-style-type: none"> Future role unclear: Economic viability of Water Boards as opposed to Local and District Councils in providing the service is being debated
	Water forums and reference groups	<ul style="list-style-type: none"> Monitoring and management of water resource development schemes 	<ul style="list-style-type: none"> Local water resource management 	<ul style="list-style-type: none"> Representation on water institutions
	Ward Councillors and Ward Committees	<ul style="list-style-type: none"> Representation of communities' needs Local management of water schemes Set up and operate water management committees 	<ul style="list-style-type: none"> Local water resource management 	<ul style="list-style-type: none"> Representation on water institutions
	Task teams	<ul style="list-style-type: none"> Responsible for specific projects of a short-term nature, relating to assessment, planning and management of water resources 	<ul style="list-style-type: none"> Focussed input to water management issues 	<ul style="list-style-type: none"> Retention of institutional memory

1.7.3 Structure and the Integration of Functions

Figure 1.2 indicates the proposed institutional framework for the assessment, planning and management of water resources in South Africa. This framework is underpinned by the formation of Aquifer Management Committee (AMC) in areas where the aquifer(s) span(s) more than one WMA and Catchment Committees for addressing site-specific issues.

Aquifer Management Committee (AMC)

The AMC will be an advisory body (not legislated) set up by the various role-players in the catchments to provide strategic input to the assessment, planning and management of the groundwater resources in the affected areas.

The primary representation on each of the established AMCs will be from the various CMAs where the aquifer(s) span(s) more than one WMA. Other representation will be from the Department's National Office, Regional Office/CMA, Water User Associations, Water Boards, District and Local Municipalities, as well as other relevant government Departments with an interest in the specific area. The representatives should be sufficiently or appropriately informed and knowledgeable about the area. The AMC will:

- Ensure the integration of the different functional groups for the assessment, planning and management of the groundwater resources in the specific area
- Provide all necessary strategic and operational input to ensure that the use of the aquifers is planned and managed on a sustainable basis. Ensure cooperative governance with other spheres of government, for example, in respect to land-based activities and zoning within important/significant groundwater resources.
- Assess the cumulative impacts of water use together with stakeholder groups on the integrity of the groundwater resources and devise action plans to mitigate this impact, if required, and
- Receive assistance and input on the assessment, planning and management of the water resources from Catchment Committees and task teams.

Catchment Committee

The Catchment Committee will be a legal entity, set up by the Catchment Management Agency (CMA) in accordance with Section 82(5) of the National Water Act and will:

- Be delegated powers from the CMA for the day-to-day management of the water groundwater resources,
- Be responsible for management functions, such as water use control, resource assessment and management of the available resources, and report to the CMA on a regular basis on the effectiveness of management of the water resources. Correspondence, reports and minutes of the Catchment Committee activities should also be provided to the CMA and Department's Regional Office, and
- Integrate the management functions between a Water User Association (if a WUA is in place) and other stakeholders in the area.

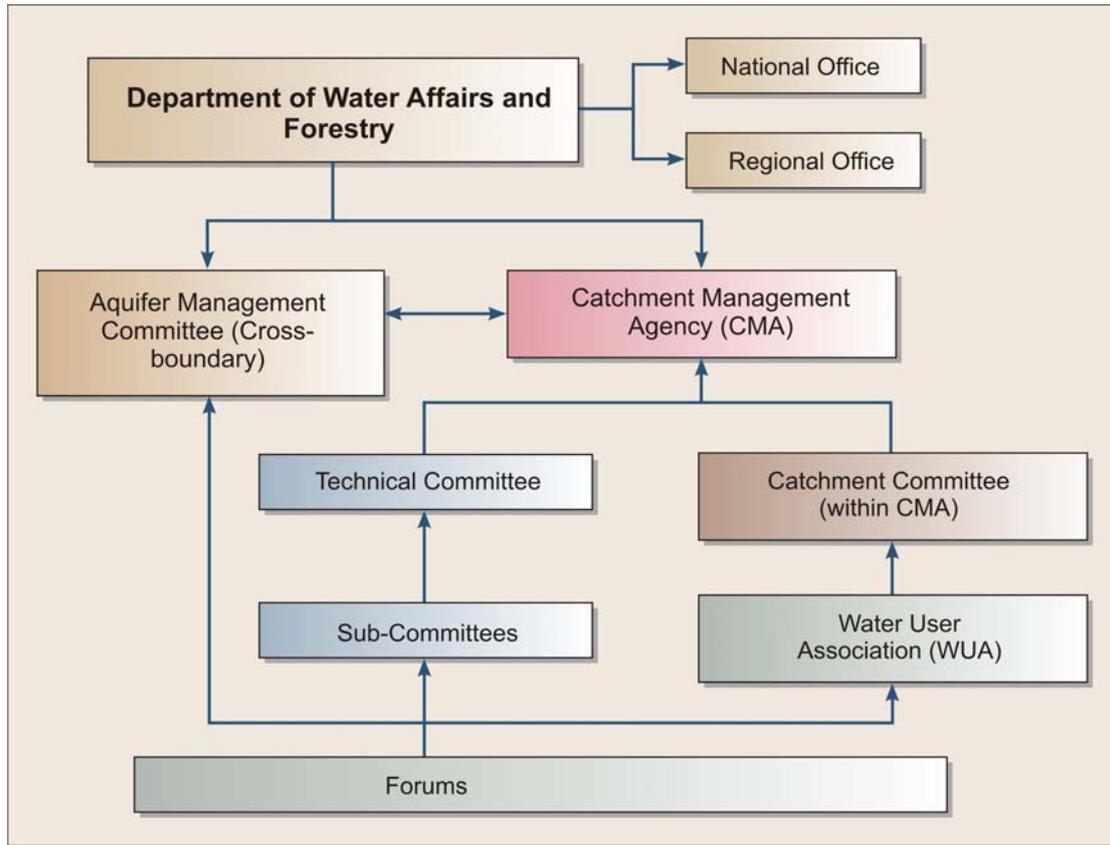


Figure 1.2: Proposed institutional framework

1.7.4 Reporting and Auditing Functions

Regular (monthly) operational reporting will primarily be from the Catchment Committee to the CMA. These reports will be collated and summarised into quarterly reports to be submitted to the CMA and AMC. The CMA will then provide an audit function of the effectiveness of management of the groundwater resources.

1.8 Public Participation

Public participation in this project will serve as a vehicle to provide assistance and guidance both to the Water Manager and all other role-players involved in the assessment, planning and management of water (including groundwater) resources within the country. If conducted effectively, public participation will contribute to informed and integrated decision-making aimed at achieving sustainable development.

1.8.1 What is Public Participation?

Public participation is the involvement of all parties who may potentially have an interest in a development or project, or be affected by it. It entails a wide range of activities, ranging from providing information, through consultation to direct involvement of the public in aspects of the decision-making process.

The Department of Water Affairs and Forestry's Generic Guidelines for Public Participation (September 2001) defines public participation as the *“ongoing interaction between role-players that is aimed at improving decision-making during the planning, design, implementation and evaluation of the Department’s development projects and processes. It requires the involvement of all stakeholders, including groups that are often marginalised, such as women and the youth. Decision-makers have to consider the views of stakeholders during the decision-making process.”*

1.8.2 Benefits of public participation

In its submission to the World Summit on Sustainable Development, the International Association for Public Participation (IAP2) described the benefits of public participation:

- Builds public understanding of the need for a proposed policy, programme, plan or project and leads to better and more durable decisions
- Creates trust in decision-makers and their processes, leading to stable policies and enduring decisions
- Provides an early warning of issues that require mitigation
- Builds public ownership and a stronger stake in initiatives leading to participants carrying out their responsibilities during implementation – they do not want to be seen letting their co-participants down
- Identifies local customs or institutions that could be barriers to implementation, with opportunities to adapt the activity before the implementation begins
- Creates opportunities for stakeholders to discuss their differences directly, often leading to creative new solutions
- Manages single-issue viewpoints through an interactive process which allows a broad range of balancing perspectives and values
- Enriches decision-making through a diversity of opinion and the local and traditional knowledge and collective wisdom of a range of stakeholders, and
- Builds “legitimacy” for decisions that allows them to withstand changes in government or company policy and leadership.

1.8.3 Public participation's role in achieving sustainable development

The greatest benefit of public participation is its contribution to achieving sustainability. For a project, policy or programme to be sustainable, it has to take into consideration all three dimensions of sustainability, namely, economic growth, social equity and ecological integrity.

These three dimensions are seldom in balance as there are always trade-offs based on local needs and circumstances, and the point of sustainability differs from project to project. Public participation assists decision-makers to establish the point of sustainability for each project. It contributes essential local knowledge and wisdom to project assessment, planning and design, and management, and clarifies the degree to which stakeholders are willing to accept, or live with, the trade-offs (Figure 1.3). Thus, public participation assists decision-makers to make informed and integrated decisions about the sustainability of a proposed project, policy, programme or plan.

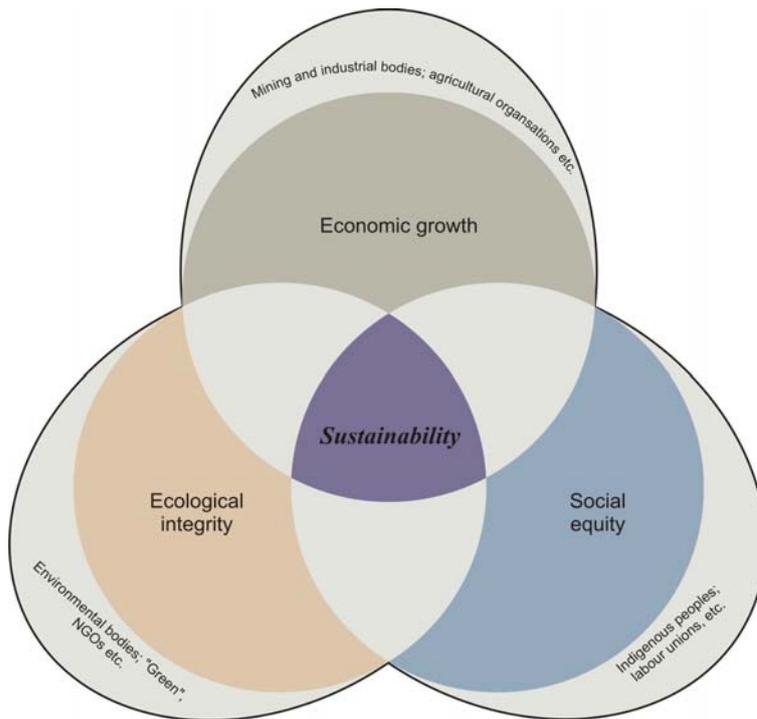


Figure 1.3: Contributions to sustainability

Public participation therefore assists in achieving sustainable development through stakeholders deliberating the trade-offs between ecological integrity, social equity and economic growth.