REPUBLIC OF SOUTH AFRICA

WATER LAW
IMPLEMENTATION PROCESS

A Strategic Plan for the Department of Water Affairs and Forestry to Facilitate the Implementation of Catchment Management in South Africa

Discussion Document

Department of Water Affairs and Forestry
&
Water Research Commission

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WRC REPORT NO KV 107/98

Department of Water Affairs and Forestry
&
Water Research Commission

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APPROVAL

This document is approved for implementation by the
Department of Water Affairs and Forestry

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PREFACE

A general review of South Africa's Water Law has been in progress since 1995. As part of this process, a White Paper on a National Water Policy was published in April 1997. The Policy sets out the principles on which the New Water Law is to be based and formulates the government's approach to future water governance. The drafting of the new National Water Bill is currently well advanced and the Bill is expected to be promulgated by Parliament before the end of 1998.

The National Water Policy is firmly founded on the concept of "*integrated water resource management on a catchment basis*". It foresees the formal and wide-spread establishment of statutorily-directed Catchment Management (CM) processes. Statutorily-directed CM will largely be a new experience for the South African water management and water user communities, and will require a certain degree of facilitation, familiarisation and training in all water-related interest spheres. CM will also need to evolve through gradual application and the lessons of experience.

The National Water Policy binds the Department of Water Affairs and Forestry (DWAF) to play a distinctive and pioneering role in promoting and facilitating the establishment of CM. This obligation requires extensive planning and preparation on the part of DWAF to meet the implementation needs of CM.

This two-part document forms part of such planning and preparation by DWAF. Part I proposes a CM Implementation Strategy and Programme for DWAF, over the short- to medium-term, and elucidates budget and human resource requirements. Part II sets out the Policy context and elements of the underlying "debate" on the issues surrounding DWAF's role in facilitating CM implementation in South Africa. This debate helped to clarify the required contents of Part I. As the formulation of Part II occurred early in the process, some of its contents, though relevant at the time, may have been overtaken by the fast-unfolding events surrounding the Water Law Process.

This document is intended to be a Discussion Paper primarily aimed at:

⇒ DWAF officials, who will need to engage CM in the near future in either planning or implementation capacities
⇒ Decision-makers in public and private sectors, who need to appreciate the budgetary and resource implications of DWAF's CM obligations
⇒ CM participants and stakeholders, who require an overview of DWAF's CM implementation preparations.

It should be noted that *this document has not been designed to be a guideline on future CM practice in South Africa, nor is it a manual for CM implementation in any specific catchment*. For such purposes, other documents published by DWAF and the WRC in this series may be consulted. It must also be stressed that *the narrow focus this document has to put on the needs of DWAF, in no way implies that DWAF regards CM as a burocratised "top-down" process*.

Both in terms of the philosophical background to CM and the institutional options for a restructuring of water resource management in South Africa, this study builds on the insights gained and findings made during various preceding studies under the auspices of DWAF and the Water Research Commission. Such preceding studies are identified in Section 1 of Part I.

Much of the material in this document has been distilled from discussions with senior and middle management staff in DWAF, inputs by knowledgeable practitioners in fields related to CM and inputs from the members of DWAF's *Policy Implementation Task Team (PITT) for Planning Institutions and Catchment Management*. The drafting process was funded by the Water Research Commission.

EXECUTIVE SUMMARY

Background: A complete reform of the Water Law in South Africa has been underway since 1995. Two landmarks in this process have been the publication of a White Paper on a National Water Policy, in April 1997, and the drafting of a new National Water Bill during the rest of 1997. These two events necessitated the establishment of a *planning process for Policy implementation* inside DWAF. Consequently, a number of Policy Implementation Task Teams (PITTs), consisting mostly of DWAF officials, were formed. The objectives of these PITTs were twofold: to alert the drafting team to practical and managerial issues relating to Policy implementation, and to develop strategies, plans and procedures for the orderly and gradual implementation of the Water Policy, under the umbrella of the New Water Act.

The National Water Policy entrusts DWAF with custodianship of the water resources of South Africa and is firmly founded on the concept of "*integrated water resource management on a catchment basis*". Amongst others, the Policy binds DWAF to play a distinctive and pioneering role in promoting and facilitating the establishment of statutorily-directed *catchment management* (CM) in fulfillment of the above approach. This obligation requires extensive planning and preparation on the part of DWAF to meet the implementation needs of CM. This document, developed by the PITT for Institutions for Planning and Catchment Management, forms part of such planning by DWAF.

Objectives and Target Audience: The condensed objectives are:

+ *to present a Strategic Plan and the required Human Resources Schedule for DWAF to facilitate the implementation of CM in South Africa*

+ *to present the issues and options, regarding DWAF's role in CM implementation, that underlie the Strategic Plan and Schedule.*

The target audience of this document comprises:

⇒ *DWAF officials*, who will need to engage CM in the near future in either planning or implementation capacities

⇒ *Decision-makers in political, public and private sectors*, who need to appreciate the budgetary and required human resource implications of DWAF's CM obligations

⇒ *CM participants and stakeholders*, who require an overview of DWAF's CM implementation preparations.

Anatomy of the Document: The document is divided into two parts. Part I is designed to meet urgent management interests in the form of an Implementation Strategy, a Programme of Activities and a Schedule of Human Resources, while Part II provides the motivation and context for individual proposals in Part I. This Executive Summary focuses only on Part I.

Conceptual and Institutional Context: For completeness this section provides a condensed overview of the concepts, functionalities and institutional structures surrounding "Integrated Water Resource Management on a Catchment Basis", as implied in the National Water Policy and implemented in the National Water Bill, as follows:

◊ *Key Concepts Relating to CM:* In order to promote consistent usage, plausible definitions of certain key concepts are provided. These are: Water Resource; Sustainable Water Resource Use; Integrated Water Resource Management (IWRM); Catchment Management (CM); Water Management Areas; Declared CM Areas; CM Agency (CMA); CM Committee (CMC); Catchment Forum; Water User Association.

◊ *Framework for IWRM in RSA:* IWRM in South Africa will evolve in a three-tiered framework comprising a *National Water Resources Strategy (NWRS*), a *Statutory Framework for CM* and *CM Processes/ Strategies/ Plans in particular catchments*. The NWRS provides a coherent large-scale planning framework within which all water resources in South Africa should be managed, and thus facilitates the coordination of CM in and between "*declared CM Areas*". The NWRS ensures coherence in the functions of CM through a "*Statutory Framework for CM*", comprising statutory tools and processes and, iteratively, informs *CM Processes/ Strategies/ Plans* in declared CM Areas, or is informed by these. The Framework for CM includes: declaring CM Areas, classifying the water resource, determining the Reserve, setting resource quality objectives and developing a water allocation plan.

◊ *CM Functions:* Three classes of CM Functions are distinguished: Core, Physical Development and Administrative functions, while 35 individual types of CM Activities are identified.

◊ *Institutional Context and Evolution of CM:* DWAF is foreseen to play a leading role regarding CM, both through a National CM Facility (Directorate), and through the Regional Offices. Initially, the whole country will be divided into Water Management Areas, whereafter "pilot" CM processes will be formally started in a small number of declared CM Areas, which have been prioritised. Given adequate financial and technical capacity in a particular pilot CM Area, a self-regulatory CMA may be established. In other pilot CM Areas, CM functions may be performed by DWAF under supervision of statutory CMCs. In all other areas DWAF Regional Offices will perform CM functions, usually with consensual participation by representative but non-statutory Catchment Forums.

Implementation Strategy: The Strategy for CM implementation was formulated using an hierarchical approach, with the *long term goal* of the Strategy being supported by three *strategic objectives*. These are enabled by the *implementation tasks*, which in turn are elaborated by *detailed activities.*

The long-term goal is: *For DWAF to facilitate the implementation of CM*. The strategic objectives required to achieve this goal are:

- *Formulate a coherent national CM policy*: which should provide a common understanding of the aims of and approach to CM in South Africa.
- *Initiate CM at the catchment level*: which should provide the pilot CM experience within catchments needed to guide further implementation.
- *Promote and link IWRM at national and catchment levels*: required to provide the link between the National Water Resources Strategy and CM, as well as the link between catchment and other water-related management functions.

Implementation Programme and Human Resource Schedule: A Programme of 14 distinct CM Implementation Tasks, divided into 57 Activities, which require almost 200 Actions, is presented, spanning the calendar years 1998 - 2000. Responsibilities inside DWAF are identified and the human resource requirement associated with each Activity is suggested, allowing distinction between DWAF personnel requirements at different levels of seniority, and external assistance in the form of consultancies. External assistance comprises both technical and capacity-building/ public awareness-building inputs. The total internal requirement for DWAF over the three years comprises some 3400 person-days at various levels of seniority, while the budget requirement for personnel inputs by external consultancies is about R7.5 million. Part I is concluded with a list of potential "target" catchments from which a limited number can be selected for priority CM implementation on a "pilot" basis.

PART I

A STRATEGIC PLAN FOR DWAF
TO FACILITATE IMPLEMENTATION OF CATCHMENT MANAGEMENT

TABLE OF CONTENTS

PART II

QUESTIONS, ISSUES AND OPTIONS FOR DWAF REGARDING CM IMPLEMENTATION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

1.1 Background

A general review of South Africa's Water Law has been underway since 1995 and has led to the drafting of a National Water Bill, which would not only replace the existing Water Act, but would completely *reform* the Water Law. The Water Law Reform has been informed by two processes: a public consultation process, and a research process, conducted under the auspices of various "Task Teams" of the Department of Water Affairs and Forestry (DWAF). A landmark of the Water Law Reform process was the publication of a White Paper on a National Water Policy, in April 1997. The Policy set out the principles on which the New Water Law was to be based and enunciated the Government's approach to future water governance. The New Water Act is expected to be promulgated by Parliament before the end of 1998.

The White Paper triggered the initiation of the process of actual drafting of the National Water Bill. It furthermore necessitated the establishment of a *planning process, and infrastructure, for Policy Implementation* inside DWAF. Consequently, a number of Policy Implementation Task Teams (PITTs), consisting mostly of DWAF officials and a few advisors, were formed. The objectives of these PITTs were twofold: to alert the drafting team about practical and managerial issues relating to Policy implementation, and to develop strategies, plans and procedures for the orderly and gradual implementation of the Water Policy, under the umbrella of the New Water Act. The following PITTs were established:

- ◊ Water Use Authorisations
- ◊ Water Resource Assessment and Protection
- ◊ Water Use and Conservation
- ◊ Water Pricing
- ◊ Institutions for Resource Planning and Catchment Management

The National Water Policy entrusts DWAF with custodianship of the water resources of South Africa and is firmly founded on the concept of "*integrated water resource management on a catchment basis*". Amongst others, it foresees the formal and wide-spread establishment of statutorily-directed Catchment Management (CM) processes. In some areas these CM processes are foreseen to take place under the auspices of self-regulatory catchment management authorities with extended water allocation, regulation, control and planning functions. In other areas the CM processes are foreseen to initially fall under state-driven catchment management structures, which acquire increased decision-making powers in accordance with their growing capacity to assume more responsibility.

Statutorily-directed CM will largely be a new experience for the South African water management and water user communities, and will require a certain degree of facilitation, familiarisation and training in all water-related interest spheres. CM will also need to evolve through gradual application and the lessons of experience.

The National Water Policy binds DWAF to play a distinctive and pioneering role in promoting and facilitating the establishment of CM. This obligation requires extensive planning and preparation on the part of DWAF to meet the implementation needs of CM. This document forms part of such planning and preparation by DWAF. The forementioned obligation clearly falls in the domain of the last-mentioned PITT for Institutions for Resource Planning and Catchment Management and has led to a deliberation process among the relevant PITT members, which resulted in the development of this document.

Much of the material in this document has been distilled from discussions with senior and middle management staff at DWAF, from inputs by knowledgeable practitioners in fields related to CM and from contributions by the members of the PITT for Planning Institutions and Catchment Management, chaired by Mr Sakkie van der Westhuizen, Director of Water Quality Management, at DWAF. The drafting of the document was the

responsibility of Prof André Görgens, Dept.of Civil Engineering, University of Stellenbosch and Dr Guy Pegram, Ninham Shand, Nelspruit, under guidance of Mr Sakkie van der Westhuizen. The drafting process was funded by the Water Research Commission.

1.2 Objectives and Target Audience

The objectives of this document are:

+ *to present a Strategy, a Programme of Tasks and Responsibilities and a Human Resource Schedule for DWAF to facilitate the implementation of CM in South Africa*

+ *to present the questions, issues, options and criteria regarding DWAF's role in CM implementation that underlie the forementioned Strategy, Programme and Schedule.*

The target audience of this document comprises:

⇒ *DWAF officials*, who will need to engage CM in the near future in either planning or implementation capacities

⇒ *Decision-makers in political, public and private sectors*, who need to appreciate the budgetary and required human resource implications of DWAF's CM obligations

⇒ *CM participants and stakeholders*, who require an overview of DWAF's CM implementation preparations.

It should be noted that *this document has not been designed to be a guideline on future CM practice in South Africa, nor to be a manual for CM implementation in any specific catchment*. For that purpose, other documents published by DWAF and the WRC in this series (see Section 1.4 below) may be consulted. It must also be stressed that *the narrow focus that this document has to put on the needs of DWAF in no way implies that DWAF regards CM as a narrow and burocratised "top-down" process*. The conceptual and institutional contexts appropriate to this document are provided in Section 2 below.

1.3 Anatomy of this Document

This two-part document forms part of DWAF's planning and preparation to facilitate the implementation of CM in South Africa. In Part I, it proposes a CM Implementation Strategy and Programme for DWAF, over the short- to medium-term, and elucidates budget and human resource requirements. Part I also provides a list of candidate "target" catchments which may qualify for the early implementation of formal CM authorities. Part I can be said to represent the "business" end of the document, whereas Part II provides the foundation, motivation and detailed context for Part I. Part II sets out the Policy context and some of the questions, issues and options relating to DWAF's role in facilitating CM implementation. This is done in terms of five basic questions:

- *What does the form of CM implied by the Policy and the National Water Bill entail?*
- *What should DWAF decide/plan/undertake to promote/ facilitate/ implement CM?*
- *What should be done in the short-, as opposed to the long-term?*
- *By which options can DWAF achieve this?*
- *Which problems/limitations/requirements need to be addressed?*

Of necessity, the compilation of Part II preceded that of Part I, as it formed the basis for the Implementation Strategy and Programme. Consequently, some of the material in Part II may be overtaken by events under the fast-unfolding Water Law Process. For completeness of background all the original material is retained. Furthermore, a "landscape" type of layout and format was deemed useful for Part II, as it allowed the juxtaposition of concepts or issues with their related explanations or elaborations. For the sake of uniformity, the same landscape layout was employed in Part I.

1.4 The Legacy of Preceding Studies

Invaluable conceptual development regarding Integrated Water Resouce Management and Catchment Management took place in various South African studies during the past few years, some of which underlay the Water Law Reform. In this study, reliance was placed on the insights emanating from documents produced by the forementioned studies, and, in reality, this document may be seen as being in the direct lineage of such preceding documents, which are as follows:

+ *The Philosophy and Practice of Integrated Catchment Management: Implications for Water Resource Management in South Africa*, 1996, DWAF/Water Research Commission, Pretoria.

+ *Research into Alternative Institutional Models for Integrated Water Resource Management in South Africa (Draft), 1997, DWAF, Pretoria.*

+ *Guidelines for Catchment Management to Achieve Integrated Water Resources Management in South Africa* (Draft), 1997, Report to the Water Research Commission, by Görgens, Pegram, Uys, Grobicki, Loots, Tanner and Bhengu.

2 THE CONCEPTUAL AND INSTITUTIONAL CONTEXT

This section provides a condensed overview of the concepts, functionalities and institutional structures surrounding "Integrated Water Resource Management on a Catchment Basis" as implied in the National Water Policy and implemented in the National Water Bill. As such, this section merely serves as a conceptual framework for the proposed CM Implementation Strategy and Programme in Part I. The reader is referred to Part II for more detailed discussions.

2.1 Key Concepts Relating to CM

Certain key concepts have emerged regarding the topics of integrated water resource management and CM in South Africa. For the purposes of consistency and uniformity in this document, plausible definitions of these concepts are presented below. (It should be noted that in some cases the definitions are not necessarily identical to definitions in the National Water Bill, while in other cases the given key concepts are not defined in the Bill.):

- *Any particular **Water Resource** consists of an indivisible complex of naturally occurring surface water or groundwater, related aquatic and riparian ecosystems, certain related catchment characteristics, and return flows from upstream human water use activities.*

- ***Sustainable Water Resource Use** occurs where, with effective management, the rate of resource withdrawal, consumption, or depletion is always equal to or exceeded by the rate of resource replenishment, while maitaining certain selected and agreed characteristics of the resource (e.g. water quality, bio logical diversity, degree of resilience to external disturbance or change).*

- ***Integrated Water Resource Management (IWRM)** is simultaneously a philosophy, a process and an implementation strategy to achieve equitable access to and sustainable use of water resources by all stakeholders at catchment, regional, national and international levels, while maintaining the characteristics and integrity of water resources at the catchment scale within agreed limits.*

- ***Catchment Management (CM)** foreseen by the National Water Policy is simultaneously a philosophy, a process and an implementation strategy to achieve a sustainable balance between utilisation and protection of water resources in a particular catchment. CM recognises the need for mutual dependence of water, land-use and aquatic ecology management and is achieved by concensual participation by relevant stakeholders, communities and organs of state.*

- ***Water Management Areas** are large-scale contiguous regions of the country, defined by macro-hydrological boundaries, which provide the focus for national water balance planning under the "National Water Resources Strategy"described in section 2.2. Any number of "declared CM Areas" may fall in a particular Water Management Area.*

- ***Declared CM Areas** is a concept devised for this document to describe individual catchments, or parts of catchments, or groups of catchments, in which a CM Process is formally underway according to the "Statutory Framework for CM" described in section 2.2.*

- ***Catchment Management Agency** is a self-regulatory body corporate with a Governing Board and an Executive/Administrative Structure that has the statutory responsibility, power and financial autonomy to perform a range of CM functions in a declared CM Area.*

- ***Catchment Management (Advisory) Committee** is a statutory body, representative of stakeholders and organs of state in a declared CM Area, that supervises the execution of CM functions on its behalf by DWAF. It is not a body corporate, has no technical infrastructure of its own, but may have delegated responsibilities and authority.*

- ***Catchment Forum*** *is a non-statutory body, representative of stakeholders and organs of state in a declared CM Area or part thereof, which promotes CM implementation through consensual participation.*

- ***Water User Association*** *is a statutory body, representative of water user institutions in a declared CM Area or part thereof, which has the power to develop and operate individual water supply schemes.*

2.2 Framework for Integrated Water Resource Management in South Africa

Integrated Water Resource Management (IWRM) in South Africa will evolve in a three-tiered framework comprising a *National Water Resources Strategy (NWRS*), a *Statutory Framework for CM* and *CM Processes/ Strategies/ Plans in particular catchments*. The NWRS provides a coherent planning framework within which all water resources in South Africa should be managed, and thus facilitates the coordination of CM in and between "*declared CM Areas*".

The NWRS ensures coherence in the functions of CM through a "*Statutory Framework for CM*", comprising statutory tools and processes and, iteratively, informs *CM Processes/ Strategies/ Plans* in individual "declared CM Areas", or is informed by these. It is important to accentuate this *iterative* management process by which the NWRS provides the context for CM, but in turn is informed by the application of the "Statutory Framework" and CM Processes/ Strategies/ Plans in different CM Areas. The national IWRM process is outlined in Table 2.1.

2.3 What Form of CM is Foreseen by the National Water Policy?

The Framework for IWRM, sketched in section 2.2, ensures considerable *vertical and horizontal integration of water resource management with catchments as a basis.* Nevertheless, such *water-focused CM* falls short of the internationally accepted concept of Integrated Catchment Management (*ICM*), which is aimed at a sustainable balance between utilisation and protection of *all environmental resources in a catchment.*

A fundamental principle of ICM is that land and water form a continuum and must therefore be managed together in an integrated way. However, beyond forestry and certain aspects of mining and solid waste disposal, DWAF has no jurisdiction over land-use planning and regulation. Given this intimate inter-dependence between land-use and the characteristics of runoff, this means that, for water-focused CM to become more *integrated and effective*, other national and provincial government departments and local authorities, as well as water-related stakeholders in the catchment, need to be brought into the process both formally and informally. This implies three crucial needs:

+ a need for CM Institutions that are *representative of both stakeholders and organs of state* in a catchment;
+ a need for CM Processes based *not only on direct intervention or control and enforcement, but also on persuasion, influencing and advocacy*;
+ a need for CM-related *policy and planning coordination at middle and high Government levels*.

In recognition of South Africa's shortfall in relevant skills and capacity, the implementation of statutory CM can be expected to be a gradual process, depending on the development of management, technical and financial capacity (through water charges) in any particular catchment. For this reason, state-driven CM Processes, though not the preferred approach, are expected to be common-place during the short- to medium-term future.

Table 2.1: The National IWRM Framework and Process

Process Element	***Possible Components***	***Process for Formulation***
National Water Resources Strategy (NWRS)	ϕ manage the long-term strategic national water balance according to WM Areas ϕ inter-catchment/region allocation plans ϕ international water sharing agreements ϕ national water infrastructure master plan ϕ national water conservation campaign ϕ coordinate and mentor "Statutory Frameworks for CM" ϕ restructure DWAF to reflect IWRM ϕ strategic alliance: all organs of state to influence land use and waste control ϕ inter-Departmen. CM Policy development	The National Water Resources Strategy must take cognisance of social, economic and ecological needs in South Africa at a regional and national scale, and balance these with international obligations and the resource availability, in order to ensure sustainable development of the water resources. Thus, it should be informed by the opportunities and constraints identified in the "Statutory Framework for CM" in all the declared CM Areas throughout the country (in particular the Water Resource Classification and Reserve). However, it must provide a preliminary indication of the water available for allocation within each CM area (after meeting Reserve, inter-catchment transfer and international obligations). ***Thus a first draft NWRS is required as a priority for implementing CM***. Later updates of the NWRS may reflect issues raised during the formulation of the Statutory Framework details and CM Processes/Strategies/Plans in different CM Areas.
Statutory Framework for Catchment Management	◊ Water Resource Classification ◊ definition of the Reserve ◊ Resource Quality Objectives ◊ declared "CM Areas" ◊ Water Allocation Plans ◊ statutory CM Institutions	The components of the "Statutory Framework for CM" will be required, under the new Water Act, to be approved by DWAF. It should be based on a process of scientific assessment and stakeholder consultation/negotiation, given the constraints imposed by the NWRS and the natural, infrastructural, economic and social characteristics of the catchment. It should indicate the current status of the water resource, as well as proposing an agreed future desired state, which should be achieved through implementation of the CM Process/Strategy/Plan.
Catchment Management Process/Strategy/ Plan in each declared CM Area	o agreed vision/goals for CM o programme for CM implementation, to achieve the "Framework for CM" o institutional/legal structure for CM o roles and responsibilities for authorities, stakeholders and residents o local CM guidelines and procedures o definition of sub-catchments for specific Action Plans	The CM Process/Strategy/Plan for a declared CM Area should give effect to the "Statutory Framework for CM", in that it represents a programme, responsibilities, guidelines and procedures for implementation of CM in the declared CM Area, given the constraints imposed by the Water Resource Classification, Reserve, Objectives and Water Allocation Plans. Where necessary, it should outline a Programme of Actions required to achieve the long term desired state proposed in the Classification. In cases where it is not possible to fulfill the required conditions, it will be necessary to revisit the components of the "Statotory Framework for CM", and thus CM Processes/StrategiesPlans will have an iterative impact on later updates of the NWRS.

2.4 Functions of CM

CM functions are foreseen to be executed in terms of "declared CM Areas". The generic functions of CM may be divided into *Core*, *Physical Development* and *Administrative* functions, as Table 2.2 shows. In Part II, Section 2, it is shown that 35 individual types of CM activities flow from these functions.

2.5 Institutional Context and Evolution of CM

The initiation, establishment and sustenance of statutory CM are foreseen to require the collaboration of a range of statutory institutions, as well as appropriate linkages between them, as summarised in Table 2.3. Six "new" institutional concepts are present in the foregoing table: self-regulating CMAs; representative (Advisory) CMCs; Water User Associations; National CM Facility; National Water Utility; as well as a formal linkage of a range of authorities and other organs of state. The requirements for and issues surrounding each of these are addressed in Part II, sections 4 and 5. Plausible linkages among these institutions are presented as schematic diagrams in Part II, Appendices A and B. Initially, the whole country will be divided into Water Management Areas, whereafter "pilot" CM processes will be formally started in a small number of declared CM Areas (see Part II, section 6) which have been prioritised (see Part II, section 7). Given adequate financial and technical capacity in a particular pilot CM Area, a CMA may be established. In other pilot CM Areas, CM functions may be performed by DWAF Regional Offices under supervision of CMCs. In all other areas DWAF Regional Offices will perform CM functions, usually with consensual participation by representative Forums. CM processes can be either state-initiated/ driven, or catchment-stakeholder-initiated/ driven, but given the paucity of management and technical capacity in South Africa, facilitation and support by DWAF will be crucial in the short- to medium-term.

Table 2.2: Summary of Generic Functions of CM

Core Functions	***Physical Development Functions***	***Administrative Functions***
Strategic water resource planning	Water supply scheme planning/ operation	Governance of and funding of water management institutions
Water allocation/ regulation	Bulk water development facilitation	Facilitation & coordination: relevant state organs and stakeholders
Resource quality protection	Water-related problem/ disaster management	Communication & training: internal, stakeholders, communities
Water conservat./demand management	Monitoring & information services	Legislation, licensing, local policy-making, conflict resolution

Table 2.3: The Institutional Context of CM

In the Catchment	***DWAF***	***Formal Linkages with Other Organs of State***
CM Agencies (CMAs) (new)	Regional Offices	Local Authorities
CM Committees (CMCs) (new)	National CM Facility/ Directorate(new)	Provincial Govt. Depts.: Agric., Nature Cons., Local Govt., Planning, Housing
Catchment Forums	Other National Directorates of DWAF	Other National Depts.: Mining, Land Affairs, Environment, Const.Dev., Health
Water Boards/Irrigation Boards	National Water Utility (new)	Research and educational institutions and relevant parastatals (eg. Eskom, ARC)
Water User Associations (new)		International authorities/ Govt. Depts. in neighbouring countries.
International advisory bodies		

3 DEVELOPMENT OF A STRATEGY FOR DWAF TO FACILITATE IMPLEMENTATION OF CM

The Strategy for CM implementation was formulated using an hierarchical approach, with the *long-term goal* of the Strategy being supported by three *primary strategic objectives*. These are enabled by the *implementation tasks*, which in turn are elaborated by *detailed activities*, as outlined in Figure 3.1 and Table 1a. The long-term goal is:

For DWAF to facilitate the national implementation of CM.

The strategic objectives required to achieve this goal are:

- *Formulate a coherent national CM policy*: which should provide a common understanding of the aims of and approach to CM in South Africa.
- *Initiate CM at the catchment level*: which should provide the pilot CM experience within catchments needed to guide further implementation.
- *Promote and link Integrated Water Resource Management at national and catchment levels*: required to provide the link between the National Water Resources Strategy and CM, as well as the link between catchment and other water-related management functions.

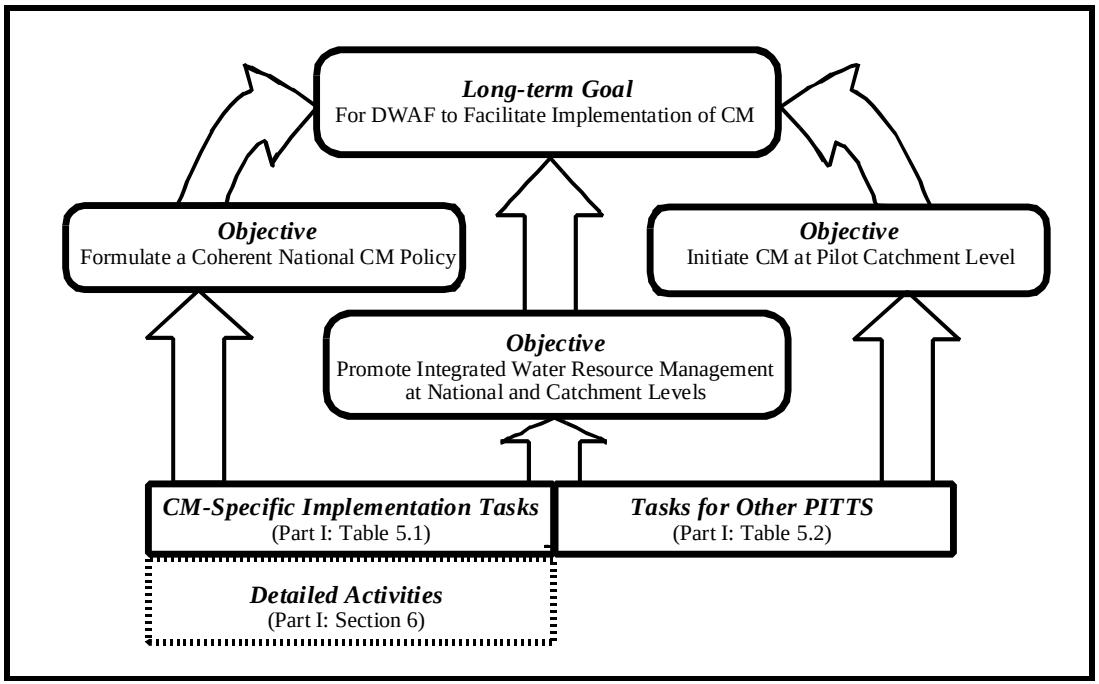


Figure 3.1. Outline of the Strategy for Catchment Management Implementation

4 CRITICAL PRECONDITIONS FOR CM IMPLEMENTATION

The implementation of Catchment Management (CM) in South Africa will depend both on institutional and functional developments in the water resource management sector, and on collaboration among stakeholder groups (including organs of state over and above DWAF). Listed below are a number of critical developments which are *preconditions* for the successful implementation of CM. Some of these will be addressed through the Strategy for CM Implementation, and these have been incorporated in Figure 3.1 and Table 5.1a. However, other factors which are outside the ambit of those responsible for CM (including even DWAF itself), may have a significant influence on, and thus represent risks to, the implementation of CM in South Africa.

4.1 General Preconditions

- *Statutory support for CM in the Water Law, and the political will for its implementation.*
- *Promotion of a coherent CM policy by DWAF, and its acceptance by stakeholders and DWAF personnel.*
- *Restructuring of DWAF (national and regional) to facilitate CM implementation.*
- *Adequate intra-departmental (inter-directorate) communication and coordination to support CM.*
- *Availability of adequate human and financial resources in DWAF and RSA to implement CM.*
- *Fostering effective inter-departmental collaboration for efficient CM implementation.*

4.2 Specific Preconditions which are the Focus of Other PITT Teams

The translation of the National Water Policy and Water Law into implementable strategies, regulations and procedures is also required, both for CM interventions and for other components of the Water Law which support CM, but which are not the direct jurisdiction of those responsible for CM. The latter include (see Table 5.2):

- *The elaboration and development of the National Water Resource Strategy (NWRS).*
- *The further development and application of the water resource classification system.*
- *The specification and application of appropriate techniques for:*
  - ⇒ *estimation of the Reserve;*
  - ⇒ *setting of water resource objectives;*
  - ⇒ *and formulation of water allocation plans.*
- *The development of source-directed standards and management criteria/measures.*
- *The formulation of a water resource pricing policy and development of mechanisms and procedures for its application.*

5 THE IMPLEMENTATION PROGRAMME REQUIRED TO ACHIEVE THE STRATEGY OBJECTIVES

A range of implementation tasks are needed to achieve the strategic objectives outlined above. These are presented in the following tables, with a provisional programme (schedule). The tasks are separated into *those exclusively required to implement CM* (Tables 5.1a,b,c) and *those which merely support CM*, but are in any case required to complete implementation of the NWRS under the New Water Law (Table 5.2). Tables 5.1 (a,b,c) are the focus of this PITT, but Table 5.2 requires attention from other PITTs. In Table 5.1a&b distinction is made between human resource requirements inside DWAF, and those from outside DWAF, in the form of either technical/ scientific or public relations/ social consultancies. The lead responsibility inside DWAF for each implementation activity is also indicated in Table 5.1a, while in Tables 5.1a,b&c resource requirement distinctions are made among Senior Management (Director-level and above), a specific Chief Director (CD), a specific national Directorate, or the Regional Office Staff (Reg.). Tasks 1 - 9 relate to institutional structures, administrative arrangements and management tools required for CM, while Tasks 10 - 14 relate to the initiation and expansion of actual CM Processes in defined areas. The "X" in the Schedule signifies relatively intense, linear activity, while the "O" represents periods with low intensity, iterative activities.

Table 5.1a: Tasks, Human Resources and Schedule Required by DWAF to Facilitate CM Implementation

CM Implementation Tasks	*DWAF Responsibility*	*Resources (Person-days)*		*Schedule for the Implementation Programme*											
		DWAF	*Consul.*	*1998*				*1999*				*2000*			
1 Make Interim (Short-term) CM Arrangements		*130*	-												
1.1 Designate DWAF National "caretaker" directorate	Management	5		X											
1.2 Resolve Priority CM Issues	Management	10		X											
1.3 Participate in Planning Policy Processes	Caretaker Dir	15		X	X										
1.4 Require DWAF Regions to operate as CMA's	Regions	100		X	X										
2 Establish Permanent National CM Facility		*140*	*50*												
2.1 Revisit Requirements for a National CM Facility	Management	20		X											
2.2 Establish CM Directorate Structure	Management	20		X	X										
2.3 Conduct CM Strategic Planning	CM Dir	30			X	X									
2.4 Formulate Operational Linkages in DWAF	CM Dir	20			X	X									
2.5 Provide Training for CM Directorate	CM Dir	50				X									

CM Implementation Tasks	*DWAF Responsibility*	*Resources (Person-days)*		*Schedule for the Implementation Programme*											
		DWAF	*Consul.*	*1998*				*1999*				*2000*			
3 Enable DWAF Regional Office CM Functioning		*250*	*100*												
3.1 Resolve Issues about Regional CM Operation	CM Dir & Reg	40			X										
3.2 Formulate a Programme of Action	CM Dir & Reg	30			X	X									
3.3 Implement Regional "Transformation"	Regions	80				X	X	X	X						
3.4 Build Capacity in Regional CM Staff	CM Dir	100					X	X	X	X	X				
4 Resolve DWAF Budgetary Implications of CM	CM Dir & Finance Dir?	*150*	*100*												‘
4.1 Define DWAF Budget Responsibilities		20			X	X									
4.2 Evaluate CM Budget needs of Directorates		30				X	X	X							
4.3 Specify CM Financing Mechanisms		50					X	X	X	X					
4.4 Develop Financing Procedures for CM Partners		50					X	X	X						
5 Formulate CM Policy for DWAF		*150*	*200*												
5.1 Coordinate Water Bill and CM Implementation	PITT	20		X	X	X									
5.2 Formulate a Coherent Internal DWAF CM Policy	CM Dir	100			X	X	X	X							
5.3 Integrate DWAF CM Policy with Other Government Policy Processes	CM Dir	30				X	X	X	X	O	O	O	O	O	O
5.4 Translate this Policy into an Inter-Departmental Implementation Strategy	CM Dir	50						X	X	X	X	O	O	O	O
6 Develop a Range of Guidelines and Procedures for CM-related Needs		*280*	*1150*												
6.1 Develop a Plan for Implementation of this Task	Water Cons&Util CD	30		X	X										
6.2 Formulate a Generic and Flexible CMA Constitution	DWAF Man.	20			X	X	X								
6.3 Guidelines and Procedures for DWAF Regions' Initiation and Support of CM Processes	CM Dir & Regions	100				X	X	X	X	X					
6.4 Guidelines and Procedures for CM Directorate	CM Dir	30		X	X	X	X	O	O	O	O				
6.5 Guidelines for the Evolution of CM Institutional	CM Dir &	50					X	X	O	O	X	X			

CM Implementation Tasks	*DWAF Responsibility*	*Resources (Person-days)*		*Schedule for the Implementation Programme*											
		DWAF	*Consul.*	*1998*				*1999*				*2000*			
Structures	Regions														
6.6 Guidelines and Procedures for CMAs	CM Dir	50					X	X	X	X	O	O	O	O	O
7 Develop CM Information/ Decision Support System	CM&IT Dir	*350*	*300*												
7.1 Formulate a Plan for Implementation		20			X										
7.2 Standardise CM Information Needs/ Procedures		30				X	X								
7.3 Develop CM Information System		100					X	X	X	O	O	O	O	O	O
7.4 Develop CM Decision Support Tools		100						X	X	X	X	O	O	O	O
7.5 Install CM Information System		100								X	X	O	O	O	O
8 Conduct CM Training/ Awareness Programmes	CM Dir	*500*	*250*												
8.1 Develop a Plan for Implementation		20				X						X	X		
8.2 Provide CM Capacity Building		350					X	X	X	X	X	X	X	O	O
8.3 Create CM Programmes at Tertiary Institutions		50				X	X	X	X	X	X	O	O	O	O
8.4 Conduct National Awareness Programme for CM		80					X	X	X	X	X	O	O	O	O
9 Audit the Implementation of CM	CM Dir	*150*	-												
9.1 Implement the CM Audit System		50							X	X	O	O	O	O	O
9.2 Audit the Regional Offices		50								X	X	O	O	O	O
9.3 Audit the Pilot CM Processes		50									X	X	O	O	O
10 Define Interim Boundaries of Water Management Areas and Potential CM Areas	Planning CD & Water Cons/Util CD	*80*	-												
10.1 Outline a Vision for CM Area Expansion		30		X											
10.2 Define National Water Management Areas		30		X	X										
10.3 Select CM Target Catchments in each WMA	CM Dir	20			X										

CM Implementation Tasks	***DWAF Responsibility***	***Resources (Person-days)***		***Schedule for the Implementation Programme***											
		DWAF	***Consul.***	***1998***				***1999***				***2000***			
11 Establish Pilot CM Area Administrative Arrangements		*370*	*150*												
11.1 Prioritise Target Catchments for Pilot CM Implem.	CM Dir	30			X										
11.2 Formulate Detailed Plan for Pilot CM Implem.	CM Dir & Reg	40			X	X									
11.3 Establish Appropriate Pilot CM Institutions	Regions	200				X	X	X	X						
11.4 Install Pilot CM Financing Mechanisms	Regions	100						X	X	X	X				
12 Initiate Pilot CM Processes	CM Dir & Reg	*450*	*700*												
12.1 Create Mechanisms for CM Communication		50				X	X	X	X						
12.2 Contribute to Developm. of CM "Framework"		200						X	X	X	X				
12.3 Develop CM Strategies/ Plans for each Pilot		200							X	X	X	X	X	X	X
13 Support Ongoing Pilot CM Implementation		*200*	-												
13.1 Coordinate Pilot CM Initiatives	CM Dir	100						X	X	X	X	X	X	X	X
13.2 Expand Pilot CM Implem. where appropriate	CM Dir & Reg	100										X	X	X	X
14 Extend CM Implementation to Other Areas	CM Dir	*Indeterminate*	*?*												
14.1 Develop a Plan for General CM Implementation		50					X	X							
14.2 Initiate CM Implementation according to the Plan		?						X	X	X	X	X	X	X	X
14.3 Expand CM Implementation		?												X	X

Table 5.1b: Total Human Resource Requirements For CM Implementation Over 3 Years

DWAF Personnel	***Person-Days***	***1998***	***1999***	***2000***	***Personnel***
• Management (PITT, Directors, CD)	80	70	10	0	5 person-days/month for 16 months)
• CM Directorate (and other national Directorates	2 020	840	1 000	330	4 people (90% time for 30 months)
• Regions (Regions CD and Nine Offices)	1 300	340	760	200	1 person/ region (35% time for 24 months)
TOTALS	3 400	1 250	1 770	530	
External Support	***Person-Days***	***1998***	***1999***	***2000***	***Finance (@ R2500/day)***
• Technical consultancy	2 550	400	1 450	700	R 6.4 million
• Training and Awareness consultancy	450	150	250	50	R 1.1 million
TOTALS	3 000	550	1 700	750	R 7.5 million

Table 5.1c: Total Human Resource Schedule for CM Implementation

CM Implementation Tasks	***Human Resource Schedule* (Person-days)***														
	1998					1999					2000				
	Man	Dir	Reg	Tec	Trai	Man	Dir	Reg	Tec	Trai	Man	Dir	Reg	Tec	Trai
1 Make Interim CM Arrangements	10	20	100												
2 Establish National CM Facility	20	120		20	30										
3 Enable DWAF Regional Office CM Functioning		40	50				30	130		100					
4 Resolve DWAF Budgetary Implications of CM	10	70		50			50		50			20			
5 Formulate CM Policy for DWAF	10	70	10	100		5	30	10	50			50		50	
6 Develop CM Guidelines and Procedures	5	65	20	150		5	115	50	700			20		300	
7 Develop CM Information and DSS System		50	10	30	70		250	40	200						50
8 Conduct CM Training & Awareness Programmes		50	30		50		130	140		150		70	80		
9 Audit the Implementation of CM		25					75					50			
10 Define Water Management and CM Areas	10	70													
11 Establish Pilot CM Administrative Arrangements		70	70	50			30	200	100						
12 Initiate Pilot CM Processes		20	50				80	150	350			50	100	350	?
13 Support Ongoing Pilot CM Implementation							80	30				70	20		
14 Extend CM Implementation to Other Areas		20					20	10				?	?	?	
Total	**70**	**690**	**340**	**400**	**150**	**10**	**890**	**760**	**1450**	**250**	**0**	**260**	**200**	**700**	**50**

*Man = Manager; Dir = CM Directorate; Reg = Regional Office; Tech = Technical Consultancy; Trai = Training & Awareness Consultancy

Table 5.2. Tasks Required by Other PITTs, which Enable and Support CM Implementation

Other Implementation Tasks	***DWAF Responsibility***	***Time Schedule***											
		1998				*1999*				*2000*			
A. DWAF Restructuring	DG; DDG's; Policy and Strategy TT; Institutional PITT												
- national		X	X	X	X								
- regional			X	X	X	X	X						
- longer term										X	X	X	X
B. Water Law Implementation	DG; DDG'S; Policy and Strategy TT												
- National Water Act passed		X	X	X									
- resources allocated for implementation			X	X	X								
- enabling legislation and political will for CM				X	X	X	X						
C. National Water Resource Strategy/Plan	Various PITTs; Strategic Planning; Project Planning												
- define NWRS approach		X	X	X	X								
- develop the interim NWRS			X	X	X	X	X						
- develop the NWRS								X	X	X	X	X	X
D. Water Resource Classification System	Resource Protection PITT; IWQS												
- develop classification approach		X	X	X	X								
- pilot implementation				X	X	X	X	X	X	O	O	O	O
- general river (catchments) classification								X	X	X	X	X	X

Other Implementation Tasks	***DWAF Responsibility***	***Time Schedule***											
		1998				*1999*				*2000*			
E. Reserve, WR Objective and Allocation Plans - develop approach/methodologies - outline linkages to NWRS - pilot implementation - general implementation	Allocation PITT; IWQS; Water Utilisation PITT; Water Conserv. PITT	X	X X	X X X	X X X	X	X	X	X	X X	X X	O X	O X
F. Water Resource Pricing Policy Development - complete policy development process - methodology for estimating charges/levies - mechanisms: collection/allocation of charges	Pricing/Economics PITT Strategic Planning	X	X X X	X X	X X								

6 DETAILED DESCRIPTION OF DWAF ACTIVITIES REQUIRED TO IMPLEMENT CATCHMENT MANAGEMENT

In this section, the tasks outlined in Table 5.1a are developed further into associated *activities* and *actions*, which will be required for CM implementation. General cross-references are made to other tasks (or discussions in Part II of this document) which are related, or are required for implementation.

6.1 Make Interim (Short-term) CM Arrangements

There are a number of administrative tasks which require action and policy issues which need to be resolved immediately, before CM implementation can occur.

6.1.1 Designate DWAF National "caretaker" Directorate

+ identify possible candidates (WQM, Regional coordination, Strategic Planning)
+ select a DWAF Directorate and appoint responsible official(s)

6.1.2 Resolve Priority CM Issues (Part II: section 9)

+ constitute DWAF interim CM policy task team
+ define CM functions for DWAF and CMAs (Part II: section 2)
+ allocate DWAF departmental (directorate) responsibilities for CM functions
+ address DWAF "restructuring / transformation" issues i.t.o. CM
+ adopt a position on appropriate CM Areas (and CMAs) with respect to Water Resource Management Areas (Part II: section 6)
+ dictate appropriate level of CM interaction / cooperation with other government authorities

6.1.3 Participate in Inter-departmental Planning Policy Processes (Part II: section 8)

+ present CM issues for Green Paper (mid-1998) to the Forum for Effective Planning and Development (FEPD)
+ review and comment on Provincial Planning and Development Bills, through FEPD
+ review and comment on Local Government White Paper/Bill, including Integrated Development Plans (IDP)

6.1.4 Require DWAF Regional Offices to operate as CMAs (Part II: section 4.2)

+ highlight "CM functions" being performed in regional offices
+ identify regional office personnel performing "CM functions"
+ require identified personnel to perform relevant functions under "CM banner"
+ require regional office budgets and spending to be separated between CM functions and other functions (task 6.4)
+ regional directors to act as CMA chief executive officers, signing papers in that capacity

6.2 Establish Permanent National CM Facility

6.2.1 Revisit the Requirements for a National CM Facility (see Part II: section 4.3)

+ assume it will be a CM Directorate in the short- to medium term
+ develop longer term strategy to upgrade CM Directorate to Chief Directorate, or even a CM Commission
+ develop programme for long-term implementation, linking to evolving CM policy (task 6.5)

6.2.2 Establish CM Directorate Structure / Organogram (Table 5.2.A)

+ identify necessary responsibilities, functions and linkages to other DWAF directorates
+ formulate relevant Sub-Directorates, with staffing and skill requirements
+ estimate budgetary requirements of CM Directorate
+ dedicate required posts and resources
+ advertise posts, interview candidates and appoint staff

6.2.3 Conduct Strategic Planning (task 6.5.1)

+ workshop strategic plan for the Directorate: vision, functions and linkages
+ refine Sub-Directorate objectives and responsibilities
+ develop Directorate budget and obtain/earmark required departmental funds (task 6.4: short-term and on-going)
+ if necessary, revise organogram

6.2.4 Formulate Operational and Communications Linkages

+ develop mechanisms for prioritisation of catchments for CM expansion
+ create channels of communication between Directorates
+ resolve budgetary allocation channels for CM
+ specify the CM "project management" process

6.2.5 Provide Training for CM Directorate

+ identify skills deficiencies in CM Directorate staff, based on defined functions
+ select or develop training programmes or workshop requirements
+ conduct required capacity building/training of directorate staff

6.3 Enable DWAF Regional Office CM Functioning

6.3.1 Resolve Issues concerning DWAF Regional Office CM Operation (see Part II: section 4.2)

+ define Regional DWAF office CM responsibilities (functions) and associated skill requirements
+ identify possible structures for CM implementation (eg. status quo with common philosophy, separate CM Sub-Directorate or restructured office)
+ identify possible CM implementation procedures (eg. communication channels, filing systems and budgeting) under alternative structures
+ consult with Regional staff and select appropriate approach
+ ensure consistency with evolving CM policy (task 6.5)

6.3.2 Formulate a Programme of Action for Regional Office CM-based "Transformation"

+ address restructuring, staffing, capacity building, budgeting and procedural issues

6.3.3 Implement CM-based "Transformation" of Regional Offices (Table 5.2.A)

+ restructure Regional Offices, if necessary
+ fill vacant CM posts at Regional Office level
+ adopt budgetary and financing process (linking with pricing policy formulation: task 6.4)
+ implement internal DWAF departmental procedures for CM (task 6.6)

6.3.4 Build Capacity in Regional CM Staff (task 6.8)

+ identify skills and capacity limitations in different Regional Offices
+ develop appropriate training programmes or workshops
+ conduct required capacity building/training of regional staff, focussing on DWAF CM functions (task 6.3.3) and pilot implementation (tasks 6.9, 6.10 and 6.11)
+ link to broader and ongoing capacity building initiatives, where possible (task 6.8)

6.4 Resolve DWAF Budgetary Implications of CM Implementation

6.4.1 Define DWAF National and Regional Budget Responsibilities (see Part II, section 4.1)

+ review proposed CM Directorate and Regional Office CM budgets (tasks 6.2 and 6.3)
+ compare with functions and responsibilities (task 6.1.2) for planning, regulation, development and administration

6.4.2 Evaluate CM Budget Requirements of Directorates

+ on-going budget requirements: planning, operation, protection, development and administration
+ implementation requirements: restructuring, capacity building and procedural development
+ evaluate DWAF internal resource requirements versus possible external (consultancy) requirements

6.4.3 Specify CM Financing Mechanisms (Table 5.2.F) (see Part II, section 4.2)

+ assess implications of the water resource pricing policy
+ identify appropriate source of funding, between CM charge and DWAF budgets
+ formulate policy on financing CM functions (task 6.5)
+ outline the functioning of the "Bedryfsrekening" for CM charges.

6.4.4 Develop Financing Procedures for non-DWAF CM Partners

+ identify CM partners who may need empowerment through CM financing (eg. Provincial Depts. of Agriculture and of Nature Conservation, NGOs)
+ evaluate their funding requirements for effectiveness in CM
+ develop and consult mechanisms for allocating and distributing CM funds to these partners
+ outline procedures which facilitate these mechanisms.

6.5 Formulate CM Policy for DWAF

6.5.1 Coordinate New Water Act Implementation and CM Implementation Strategy (Table 5.2.B)

+ review draft Water Bill according to CM Implementation Strategy
+ revisit (and if necessary modify) the CM Implementation Strategy based on final Water Act

6.5.2 Formulate a Coherent Internal DWAF CM Policy (extending task 6.1.2)

+ constitute a CM Policy task team
+ identify issues which needs to be addressed by the CM Policy (addressing issues from Part II, section 9), including:
    * functions of catchment management (and conditions under which they apply)
    * the medium and long term specification of CM Areas and relations with WMA's
    * relationship between NWRS, CM Framework and CM (Part II: section 2)
    * institutional arrangements and evolution of CM institutions (Part II: section 3 and 5)
    * DWAF's short and long term role in CM (Part II: section 4)
    * funding and financing issues (task 6.4)
    * role and dialogue with other authorities (Part II: section 8)
+ formulate a Draft Policy on CM
+ consult within DWAF and with relevant external stakeholders
+ produce a position paper on the DWAF Policy on CM

6.5.3 Integrate DWAF CM Policy with Other Governmental Policy Processes (Part II: section 8)

+ formulate a focus, programme and responsibilities for DWAF's CM involvement/ collaboration in inter-governmental policy development
+ engage national planning policy development (eg. FEPD)
+ engage provincial planning processes (eg. Provincial Bills, Provincial Growth and Development Strategies)
+ engage local government planning frameworks and processes, through Integrated Development Plans (IDP)
+ initiate Inter-Departmental White Paper on CM

6.5.4 Translate this Policy into an Inter-Departmental Implementation Strategy

+ establish an Inter-Departmental Steering Committee
+ formulate an Inter-Departmental Implementation Strategy
+ consult relevant stakeholders about the Inter-Departmental Strategy

6.6 Develop a Range of Guidelines and Procedures for CM-Related Needs

6.6.1 Develop a Plan for Implementation of this Task

+ identify the required guidelines, procedures and minimum requirement documents for implementation of the CM policy (task 6.5)
+ prioritise these for development and develop an associated programme for completion

+ allocate responsibilities and resources for development

6.6.2 Formulate a Generic and Flexible CMA Constitution (task 6.5)
+ governing board, with composition, powers, accountability
+ administrative branch, functions and resource requirements
+ DWAF's responsibilities, both for CMAs with and without an executive/ administrative branch (Part II: section 5)

6.6.3 Guidelines and Procedures for DWAF Regions' Initiation and Support of CM Processes (Part II: sections 4 and 5)
+ procedures for CM Forum initiation and constitution, including criteria for "organic" or bottom-up local CM processes
+ guidelines/procedures for seed funding and continued funding
+ procedures and minimum requirements for catchment assessment studies
+ guidelines outlining the requirements for public participation and consultation of stakeholders during CM processes
+ guidelines for evaluation of other authorities' land-use-related applications in the context of CM
+ explanation of the relationship between NWRS, CM Frameworks and CM Strategies/ Plans
+ procedures for intra-departmental and inter-departmental coordination and communication
+ guidelines for auditing of DWAF CM infrastructure

6.6.4 Guidelines and procedures for CM Directorate
+ CM auditing system
+ communications procedures between CM Directorate and rest of DWAF
+ guidelines for prioritisation of CM expansion

6.6.5 Guidelines for the Evolution of CM Institutional Structures (Part II: section 7)
+ minimum requirements for evolution from Forum, to CM (Advisory) Committee, to CMA (with DWAF), to full CMA
+ guidelines and procedures for establishing CMC's and CMAs

6.6.6 Guidelines and Procedures for CMAs (Part II: section 5)
+ information documents for board members
+ reference guidelines and procedures to assist CMA administrators in performing CM functions (Part II: section 2.4)
+ minimum requirements for the development of CM Strategies/ Plans, within the context of NWRS
+ guidelines for the publication and consultation of CM Strategies/ Plans
+ guidelines for hierarchical CMA structures consisting of sub-catchment committees in the case of large CM Areas, or sub-function committees in the case of very complex catchments.

6.7 Develop CM Information and Decision Support System

6.7.1 Formulate a Plan for Implementation of this Task
+ constitute an Information and Decision Support System (IDSS) task team for CM support
+ identify preliminary requirements of a CM information system, decision support tools and review existing initiatives
+ consolidate existing systems, propose CM IDSS capabilities and programme for completion
+ consult within DWAF
+ allocate responsibilities and resources

6.7.2 Clarify and Standardise CM Information Needs and Communication Procedures
+ hardware and software requirements
+ data monitoring, capture, screening and storage procedures
+ assessment and analysis techniques
+ CM information storage, access and presentation facilities
+ criteria for simplicity, flexibility and adaptation

6.7.3 Develop CM Information System (IS)
+ develop CM IS software
+ create linkages between CM functional groupings and geographic areas

6.7.4 Develop CM Decision Support Tools
+ develop a hierarchy of modelling procedures

+ develop a Graphical User Interface to aid access to the CM IS and to modelling procedures

6.7.5 Install CM Information System
+ provide resources for installation, operation and maintenance
+ install at DWAF national, regions and CMA's (when appropriate)
+ conduct training (task 6.8)

6.8 Conduct CM Training and Awareness Programmes

6.8.1 Develop a Plan for Implementation
+ prioritise DWAF involvement in training and awareness for CM
+ develop a corresponding plan dictating types of training, a programme and resource allocations
+ review plan during pilot implementation, and revise if necessary

6.8.2 Provide CM Capacity Building (see Part II, section 4)
+ identify capacity limitations in DWAF, CM institutions, stakeholders and other authorities (tasks 6.2.5 and 6.3.4)
+ explore mechanisms for multi-departmental training (joint with DWAF CM infrastructure)
+ develop training programmes, either in DWAF or in collaboration with other existing programmes
+ conduct training of DWAF, CM personnel, stakeholders, NGOs
+ link training material with CM guidelines and procedures (task 6.6), to mitigate the impact of staff turnover

6.8.3 Create CM Education & Training Programmes at Tertiary Institutions
+ identify possible institutions
+ support, create and/or develop appropriate CM E&T programmes

6.8.4 Conduct a National Awareness Programme for CM
+ identify the needs for an awareness programme, in terms of stakeholder "buy-in" and participation
+ develop appropriate programmes aimed at government, stakeholders and/or the public
+ implement these programmes, either directly or through external institutions and organisations

6.9 Audit the Implementation of CM

6.9.1 Implement the Audit System
+ Test the CM audit system developed under task 6.6.3 on a selection of CM Processes
+ Publicise the audit system among all Regional Offices and existing CM Institutional Structures

6.9.2 Audit the Regional Offices
+ compare the Regional Offices' Programme of CM Actions with actual developments
+ evaluate the effectiveness of Regional CM
+ propose and implement changes

6.9.3 Audit Pilot CM Processes
+ investigate the functionality of the CM administrations/institutions
+ evaluate the effectiveness of CM strategies in implementation
+ propose and implement modifications to the CM Processes or CM Strategies/ Plans

6.10 Define Interim Boundaries of Water Management and Potential CM Areas

6.10.1 Outline a Vision for CM Area Expansion (following from tasks 6.1.2 and 6.5.2)
+ specify the relationship between Water Management Areas (WMAs) and CM Areas (Part II: section 6)
+ formulate positions concerning the long term expansion of CM Areas within WMA's
+ publicise these issues

6.10.2. Define National Water Management Areas

+ select criteria for definition of WMAs (Part II: section 6)
+ propose boundaries of WMAs
+ consult within DWAF
+ publish the final WMAs by Gazette

6.10.3 Select "Target" Catchments in each WMA to Initiate CM (see Table 6.1)

+ identify possible target catchments within each WMA (Part II: section 7)
+ evaluate identified target catchments, based on selected criteria (see Table 6.1)
+ select the most appropriate target catchments to initiate CM in each WMA
+ define the target catchment areas and probable associated long term CM Areas (for extension)

6.11 Establish Pilot CM Administrative Arrangements

6.11.1 Prioritise Target Catchments for Pilot Implementation

+ evaluate identified target catchments, based on pilot study criteria (with other Water Law pilot initiatives)
+ select the most appropriate target catchments to initiate CM on a pilot project basis
+ identify appropriate level of CM institution and initial functions (where appropriate)
+ determine resource requirements and availability for CM implementation, both nationally and locally

6.11.2 Formulate a Detailed Plan for Pilot Implementation

+ outline linkages to the development of guidelines and procedures (task 6.6), both use of and feedback to guidelines
+ propose a sequence for implementation which can be supported
+ develop an Implementation Plan for each pilot CM project, specifying organisational, resources, functional, etc. arrangements

6.11.3 Establish Appropriate Pilot CM Institutions

+ mobilise relevant stakeholders and obtain nominations for representation
+ constitute (or establish statutorily) the appropriate CM institution (Forum, CMC or CMA) as specified in the Pilot Implementation Plan
+ specify the required powers and functions of the CM institutions and DWAF Regional Office

6.11.4 Install Pilot CM Financing Mechanisms (task 6.4)

+ source and use seed funding to initiate the process, based on proposed financing mechanisms
+ finalise financing arrangements, DWAF budget allocation and/or CM charge evaluation, collection and distribution
+ implement financing arrangements

6.12 Initiate Pilot CM Processes

6.12.1 Create Mechanisms for CM Communication

+ establish channels of communication between DWAF and each CM institutional structure (board and/or administration)
+ establish communication between DWAF CM infrastructure and other stakeholders/authorities
+ develop communication procedures between DWAF CM infrastructure and those responsible for NWRS and CM Framework

6.12.2 Contribute to the Development of the CM "Framework" through the DWAF CM infrastructure

+ assist DWAF in the catchment water resource classification (Table 5.2.D)
+ assist in the evaluation and formulation of the Reserve, water resource objectives and allocation plan (Table 5.2.E)
+ contribute towards the development of a preliminary NWRS (Table 5.2.C)

6.12.3 Develop CM Strategy/ Plan for each Pilot CM Area (task 6.5)

+ conduct an assessment of the catchment resources, focussing on the critical issues
+ develop CM Strategy/ Plan to address these issues, within the constraints of the NWRS and CM framework
+ consult with relevant stakeholders and forward the CM Strategy/ Plan to DWAF

+ ensure that the CM institution's designated powers and functions enable it to implement the CM Strategy/ Plan
+ where appropriate, promulgate CM Strategy/ Plan

6.13 Support Ongoing Pilot CM Implementation

6.13.1 Coordinate Pilot CM Initiatives
+ coordination of pilot CM initiatives at a national level
+ test guidelines and procedures and inform their development (task 6.6)
+ perform non-delegated DWAF CM functions in the pilot study areas, but coordinate with DWAF CM infrastructure

6.13.2 Expand Pilot CM Implementation, where appropriate (task 6.4)
+ upgrade level of CM institution, and incorporate further stakeholders (and/or administration)
+ extend pilot CM Area towards designated CM Area
+ promote expanded CM functions, as other issues are incorporated and capacity increases

6.14 Extend CM Implementation to Other Areas

6.14.1 Develop a Plan for General CM Implementation
+ prioritise and sequence implementation of Target catchments' CM implementation
+ identify appropriate level of CM institution and initial functions
+ determine resource requirements and availability for CM implementation, both nationally and locally
+ outline mechanisms for coordinating implementation between national, provincial-regional and catchment levels

6.14.2 Initiate CM Implementation According to the Forementioned Plan
+ coordinate CM initiatives at a national level
+ initiate CM in all pilot CM areas at a regional level

6.14.3 Expand CM implementation
+ upgrade level of CM institutions, and incorporate further stakeholders (and/or administration)
+ extend pilot CM Area towards designated CM Area
+ promote expanded CM functions, as wider issues are incorporated and capacity increases.

Table 6.1. Evaluation of Possible Target CM Areas for Prioritisation of Pilot CM Implementation

Target CM Area	***Selection Criteria (Detail in Part II, section 7.1)***									***Score***
	Need for CM					***Likelihood of Success***			***Experience***	
	sensitive	severe	urgent	complex	informat.	resources	capacity	support	unique	
Loskop Dam										
Lower Olifants (north) Catchmt										
Sabie Catchment										
Komati / Vygeboom Catchment										
Komati / Onderberg region										
Assegai / Usutu Catchment										
Crocodile (east) Catchment										
Lake St Lucia Catchment										
Mgeni / Midmar Catchment										
Mkomaas Catchment										
Jukskei Catchment										
Apies-Pienaar Catchment										
Klip River Catchment										
Vaal Barrage Catchment										
Sand-Vet Catchments										

Target CM Area	***Selection Criteria (Detail in Part II, section 7.1)***									***Score***
	Need for CM					***Likelihood of Success***			***Experience***	
	sensitive	severe	urgent	complex	informat.	resources	capacity	support	unique	
Zwartkops Catchment										
Amatole / Buffalo Catchments										
Wilderness Catchments										
Plettenberg Bay Catchments										
False Bay Catchments										
Lotus River Catchment										
Palmiet Catchment										
Breede Catchment										
Berg Catchment										
Knysna River Catchment										
Upper Kei Catchment										
Shongweni Dam Catchment										
Umtata River Catchment										
Mooi River (North-West)										
Blesbokspruit										

7. CRITICAL TASKS REQUIRING URGENT ATTENTION BY DWAF

The preceding two chapters have outlined an Implementation Programme for DWAF. At the risk of being repetitive, the tasks and activities in the Programme that require very urgent attention (i.e. during 1998) by DWAF are re-stated in the four sections presented below, to ensure that they each aquire an adequate profile. These actions are designed to meet the following critical needs:

⇒ The need for a CM "champion" in DWAF.
⇒ Fostering a CM culture within DWAF and with external stakeholders.
⇒ Developing tools to support the implementation of CM.
⇒ Testing the implementation of CM in practice and early identification of adjustments to the implementation planning.

7.1 Establish a CM Directorate in DWAF

Section 6.2 deals with the actions this task requires; suffice it here to emphasise the following. During 1998 the minimum aims should be to:

+ appoint a director and at least five deputy/assistant directors in the CM Directorate.
+ drive CM implementation inside DWAF
+ estimate and procure DWAF's budgetary requirements for CM implementation
+ formulate and effect linkages with other relevant Directorates and Regional Offices.

7.2 Initiate a Process to Foster a Common Understanding of DWAF

This set of actions are aimed at urgently developing a culture of CM inside DWAF and with external stakeholders, and are described in detail in sections 6.5.2, 6.5.3 and 6.8.4. It is important that this process should simultaneously focus on three target groups:

+ DWAF: formulation and dissemination of a coherent CM policy within the whole Department (medium: 5-10 page discussion document and local workshops)
+ External stakeholders: broad consultaion on CM policy (regional workshops)
+ General public: increasing public awareness about the policy and implications of CM.

Coordinating and driving these processes should be a central task of the CM Directorate and is likely to require at least 80 person-days of CM Director input, a full-time Deputy Director and about R200 000 external consultant input during the 1998/1999 financial year.

7.3 Develop Key CM-related Guidelines and Procedures

The implementation of CM under the New Water Act requires the development of guidelines and procedures (tools) as support for a learning process at many levels inside DWAF and in external stakeholder groups. The following CM-related issues are the most acute in this regard and preliminary tools to address these should be drafted by early 1999:

+ legal arrangements for the establishment and evolution of CM institutional structures and a generic CMA constitution
+ financing mechanisms and associated procedures for CM and CMAs, in line with the new Act and the evolving pricing policy
+ the relationship between the NWRS, CM Framework elements (classification, the Reserve, resource quality objectives, and allocation plans), and CM Strategies/ Plans in particular catchments
+ an Aide Memoire for the development of CM Strategies/ Plans, including for catchment assessment studies
+ requirements for stakeholder consultation and participation in CM.

The development of these provisional tools should be driven and coordinated by the CM Directorate, in collaboration with other relevant DWAF Directorates, DWAF Regional Offices and external stakeholders. Current capacity constraints inside DWAF necessitate significant assistance by consultancies for these tasks, by professionals who have previously been engaged in CM-related processes. Such consultancies may require a budget of about R500 000 in the 1998/1999 financial year. This would also require about 60 person-days at the Deputy-Director level in the CM Directorate during the year.

Tools such as these should be honed by practice; therefore lessons from the pilot CM implementations (see sections 6.11, 6.12, 6.13 and 7.4)should be incorporated. This requires iterative development of these guidelines and procedures, distributed as updated versions or editions as new information becomes available.

The implementation of CM under the New Water Act must be tested through a limited number of pilot CM processes (as outlined in sections 6.11, 6.12 and 6.13). These "CM laboratories" will inform policy formulation and the development of CM-supporting tools. These pilot processes should be launched by early 1999, which necessitates the following urgent actions with a focus on administrative arrangements:

+ DWAF must define Water Management Areas (section 6.10.2) by late-1998
+ each Regional Office must identify priority CM target catchments (section 6.10.3), based on the criteria presented in Table 6.1 (from Part II: section 7.2)
+ 5-6 pilot CM areas must be selected (in collaboration with other Water Law pilot initiatives by other PITT teams) (section 6.11.1)
+ implementation plans must be formulated for each pilot CM area (section 6.11.2), including organisational arrangements and resource allocations
+ appropriate pilot CM institutional structures must be established (section 6.11.3) and appropriate funding mechanisms must be identified (section 6.11.4)
+ extend pilot processes to full-scale CM during 1999 (section 6.12).

The Regional Offices must carry DWAF's responsibility for launching these pilot processes, with pro-active support from the CM Directorate in the form of two Deputy Dirctors; one each for 4-5 of the provinces.

7.4 Launch Pilot CM Implementations

PART II

QUESTIONS, ISSUES AND OPTIONS FOR DWAF REGARDING CM IMPLEMENTATION

1 THE NATIONAL WATER POLICY AND CATCHMENT MANAGEMENT

1.1 Key Concepts

The White Paper on a National Water Policy introduces a number of key concepts about water resource management which, for the sake of consistency of usage, are re-stated here, and, in some cases, elaborated in terms of the Policy's evident implications:

Key Concept	***Elaboration***
Integrated water resource management.	Water quality can only be managed jointly with quantity; environmental and social considerations should accompany economic ones; groundwater has to be managed with surface water; inter-catchment or international water allocations cannot be considered in isolation from the local context; water management cannot succeed when separated from management of activities such as land-use, crop cultivation, human settlement, industrial activity and mines, which all impact upon the water cycle and are affected by it and its management.
Water management for optimum and sustainable benefit.	Optimum water use balances different social, economic and environmental objectives and the practicality of their achievement; it includes phased redress of inequalities in access to water caused by past policies; but it precludes levels of use which destroy the ability of water resources to recover.
Functions of integrated water resource management.	The functions and activities that need to be approached in an integrated manner include water allocation, resource protection, water conservation, strategic and project planning, resource development, scheme operation and monitoring.
Geographic unit for integrated water resource management.	The primary management of water resources should occur in a natural catchment context, given that all characteristics of runoff from, and groundwater recharge in, any contiguous part of a catchment are sensitive to upstream land-use and other human interference in that catchment. (For practical reasons, the institutional unit of management may be extended from a single natural catchment to cover a cascading group of sub-catchments that constitute all or part of a major river basin, or a water supply system in which a number of separate catchments are linked.)

Key Concept	***Elaboration***
Delegation of water management to catchment level.	The responsibility for water resource management is to be delegated to the catchment or regional level in such a manner as to enable interested parties to participate.
Co-operative governance.	While many governmental functions are undertaken in national, provincial or local spheres, in catchment-based water resource management there must be a commitment to co-operation among all organs of state in all spheres, as well as to inclusivity in terms of the interests of water stakeholders and communities resident in particular catchments.
Capacity building in water management at catchment level.	The current generalised shortage of technical and managerial expertise means that mere delegation of functions will not ensure responsive and effective water governance. Such delegation will be accompanied by systematic capacity building through partnerships between public, NGO, research, academic and private sectors, as well as effective monitoring and technical support from DWAF.
A definition of Catchment Management compatible with National Water Policy:	Catchment Management entails the management of water in a declared area in a way that recognises its mutual dependence on the management of land and aquatic ecology, and that follows the principles of optimum socio-economic benefit, equity in access to water, sustainability and co-operative governance.
Catchment Management will be implemented in a phased manner.	In recognition of the need for a period of adjustment and transition, given the complexity of the changes required, the National Policy foresees the implementation of Catchment Management as a phased process, primarily directed by DWAF or other organs of state. In reality, the rate of implementation of Catchment Management will be limited by availability of capacity and resources in different regions, but will also accelerate according to the pressure of "bottom-up" demands by catchment residents.
Catchment Management remains subject to national authority.	In future, the same volume of water will have to be shared between a growing number of users and the demands of a developing society. As custodian of the nation's water resources, DWAF is obliged to retain such authority in the public interest.

1.2 Institutional Evolution of CM Implied by the Policy

The evolution of the institutional arrangements to implement CM statutorily is expected to follow a number of routes simultaneously, some relevant to the short- to medium-term and others to the medium- to long-term. These are indicated below. During the short- to medium-term transition period, the Policy foresees a dominant role for DWAF in CM through its Regional Offices. Ultimately, the logical outcome of the National Water Policy will be that integrated water resources management through Catchment Management Agencies will be the norm, rather than the exception.

Institutional Arrangement	***Discussion***
Declared Water Management Areas (according to the National Water Bill) and Declared CM Areas (a utility concept devised for use in this document)	The whole country will be divided into relatively large Water Management Areas, each encompassing a number of areas where CM Processes may need to be initiated. The boundaries of a CM Area will be statutorily "declared" or designated according to the aforementioned geographic definition of a management unit. An institutional structure for CM will then be established gradually, ranging from DWAF Regional Offices, through to CM Forums, through to CM Committees, and through to Catchment Management Agencies.
Catchment Management Agencies (CMAs).	A CMA will be a body corporate, could have a wider or more restricted range of CM functions delegated to it, will be developmental in nature, and must serve the interests of optimum use of water, equity and corrective action. The governance structure of CMAs will balance the requirement to reflect the interests of various stakeholders with the need to ensure the effective management of the catchment area.
Catchment Management (Advisory) Committees (CMCs) and Catchment Management Forums.	Where CMAs are not established, the Regional Office of DWAF will carry out CM; this could be done under advice of a CM (Advisory) Committee, which will not be a body corporate, but which may have delegated powers and which will provide a focus for the development of local capacity for an increasing range of water management functions. CM Forums may be precursors to the CM Committees, but Forums will not receive delegated powers and have a merely consultative role.
DWAF's role in statutory CM.	DWAF's contribution to statutory CM will follow any one of four institutional routes: • Direct management by DWAF Regional Office and without the benefit of representative stakeholder Forums. In most catchments this is likely to be the case immediately after promulgation of the New Act. • Direct management by DWAF Regional Office, but with the benefit of Forums that are representative of stakeholders. This is a realistic short-term target in many catchments. • Indirect or direct management by DWAF Regional Office, under advice of a statutory CM Committee. This is a realistic short- to medium-term target in many catchments. • Direct management by the CMA, with variable degrees of facilitation and technical support by DWAF. In most catchments, this is a medium- to long-term target.

Institutional Arrangement	*Discussion*
Prioritisation of "Declared Areas"for CM implementation.	Certain elements of CM will be most efficiently implemented through a phased process according to the social, economic and technical circumstances prevailing in each CM Area. An assessment of the management problems in each CM Area will enable the implementation of the new approaches to be phased in on the basis of objective criteria. The introduction of the new water allocation and resource classification systems will be coordinated Area by Area, with priority Areas first.
Representation on the CMA, or the CMC.	The governing board of the CMA, or the composition of the CMC, will balance the requirement to reflect the interests of various stakeholders with the need to ensure effective water management in the CM Area.
Funding of CM by water pricing.	All significant water resource use will be charged for, regardless of where it occurs, and including the use of water for effluent disposal or the interception of water to the detriment of other users. The price of water will reflect CM costs, as well as a resource conservation (scarcity) charge. Income from water charges will be divided between CM institutions and DWAF in accordance with their contributions and responsibilities.

1.3 Potential Shortcomings of the National Water Policy in terms of CM Requirements

The paraphrasing above makes it evident that the National Water Policy elucidates many aspects of CM; nevertheless, specific potential shortcomings in the Policy may hinder the implementation of CM, or undermine the sustainability of a thriving CM Process in the long-term. Some of these potential shortcomings are being accommodated in the draft National Water Bill, but for the record these are summarised below:

Shortcoming	*Elaboration*
Inadequate recognition of the "bottom-up" potential for CM establishment.	The Policy conveys CM as largely a state-initiated and -driven ("top-down") process. In reality, there are catchments where local concern over and interest in water matters are "alive and well" and that offer incipient skills for "bottom-up" CM. Examples are parts of the Mgeni, Breede, Vaal and certain Mpumalanga and Western Cape catchments.
Little recognition that the definition of the declared CM Area should be informed by "bottom-up" inputs during the CM Process.	"Top-down" imposition of CM Area boundaries will undermine the legitimacy of the CM process. The initial stages of CM implementation should allow stakeholders and residents in affected catchments a role in the definition of the declared CM Areas.

Shortcoming	***Elaboration***
Inadequate focus on building consensual CM skills in a catchment around "single issue" situations.	The scope of CM foreseen by the policy is quite wide and may overwhelm participants in its initiation. Lessons derived from comparable processes in other countries indicate that small beginnings and single issues lead to more sustainable participation.
No recognition that statutory criteria should guide the progressive assigning of CM functions to CMAs and CMCs, and no mechanism to compell this process.	The Policy foresees that initial CM institutions with informal, or limited formal, functions would gradually be empowered as decision-making capacity improves through experience. This empowerment process should not be left to the discretion of DWAF officials, nor to the manipulation of dominant stakeholders with narrow goals, but should be statutorily circumscribed through threshold criteria..
Little indication of the degree of self-regulation CMAs should achieve.	CM should mature into consensual management that is not an authoritarian process of command and control, but that eminates from the commitments, roles, responsibilities and accountabilities of all organs of state and of stakeholder and community representatives involved in the management process. This is a long-term goal, but needs to be acknowledged from the implementation stage.
No reference to the desirability (or not) that some members of CMAs be elected.	It should be acknowledged that there are expectations in the water community that the governance of an institution, as significant to society's welfare as the CMA is, should include elected representatives. Disregard of this expectation may undermine the CMA's long-term sustainability through erosion of legitimacy.
No recognition of the need for institutional sub-structures where the complexity or the extent of the catchment requires it.	Economy of scale and the reality of basin-wide water linkages may dictate that declared CM Areas would tend to be larger, rather than smaller. However, localised hydrological or socio-economic considerations may necessitate the creation of, say, sub-catchment institutions to bring aspects of CM closer to the needs.
Inadequate focus on the implications of the fact that DWAF has little jurisdiction over land-use planning and regulation.	Beyond forestry and certain aspects of mining and solid waste disposal, DWAF has no jurisdiction over land-use planning and regulation. Given the intimate inter-dependence between land-use and the characteristics of runoff, this means that, for CM to be effective, other national and provincial government departments and local authorities need to be brought into the process both formally and informally. This requires policy coordination at Cabinet level.
Inadequate recognition that the evolution of CM institutions will be unique in each catchment.	The vast variability in the physical and human developmental history of South African catchments may dictate that the institutional format needs to be unique in most cases.
No indication of the need for "seed" funds to establish and carry the CMA process at first.	In the short- to medium-term the operation and management of CM charges will be less than certain; therefore, the State may need to consider "seed" funding for initial CM.

2 FUNCTIONS OF CATCHMENT MANAGEMENT AND A NATIONAL WATER RESOURCES STRATEGY (NWRS)

2.1 CM and a National Water Strategy (NWRS)

In this section, the scope of CM, as implied by the Policy, is mapped out through a broad view of potential CM functions and their component activities. The functions of CM need to derive coherence from a *National Water Resources Strategy (NWRS)*, the components of which are outlined here. *These functions and activities are applicable regardless of the institutional route by which CM takes place*. The functions may be said to eminate from four sets of basic strategies for management intervention in catchments, outlined in Section 2.2. Details of the functions, activities and the generic process of CM are provided in Sections 2.3, 2.4 and 2.5, respectively.

Integrated Water Resources Management (IWRM) in South Africa will evolve under a *National Water Resources Strategy (NWRS*). The NWRS provides a coherent framework within which all water resources in South Africa should be managed, and thus facilitates the coordination of catchment management in and between declared CM Areas. The NWRS ensures coherence in the functions of CM through a "*Statutory Framework for CM*", comprising statutory tools and processes and, iteratively, informs *CM Plans/Strategies* in individual catchments, or is informed by these, as well as by the CM processes in individual "declared CM Areas". It is important to accentuate this *iterative* management process by which the NWRS provides the context for CM, but in turn is informed by the application of the Statutory Framework and CM Plans/Strategies in different CM Areas. The national IWRM process is outlined below:

Process Element	***Possible Components***	***Process for Formulation***
National Water Resources Strategy (NWRS)	ϕ manage the long-term strategic national water balance according to WM Areas ϕ inter-catchment/region allocation plans ϕ international water sharing arrangements ϕ national water infrastructure master plan ϕ national water conservation campaign ϕ coordinate CM Statutory Frameworks ϕ restructure DWAF to reflect IWRM ϕ strategic alliance with other organs of state to influence planning of land use and waste control ϕ inter-Departmental CM Policy development	The National Water Resources Strategy must take cognisance of social, economic and ecological needs in South Africa at a regional and national scale, and balance these with international obligations and the resource availability, in order to ensure sustainable development of the water resources. Thus, it should be informed by the opportunities and constraints identified in the "Statutory Framework for CM" in all the CM Areas throughout the country (in particular the classification and Reserve). However, it must provide a preliminary indication of the water available for allocation within each CM area (after meeting Reserve, inter-catchment transfer and international obligations). ***Thus a first draft NWRS is required as a priority for implementing CM***. Later updates of the NWRS may reflect issues raised during the formulation of the Statutory Framework details and CM Plans/Strategies in different CM Areas.
Statutory Framework for Catchment Management	◊ water resource classification ◊ definition of the Reserve ◊ resource quality objectives ◊ declared "CM Areas"	The components of the Statutory Framework for CM will be required under the Water Act (to be approved by the Minister of Water Affairs). It should be based on a process of scientific assessment and stakeholder consultation/negotiation, given the constraints imposed by the NWRS and the natural, infrastructural, economic and social characteristics

Process Element	*Possible Components*	*Process for Formulation*
	◊ Water Allocation Plans ◊ statutory CM Institutions	of the catchment. It should indicate the current status of the water resource, as well as proposing an agreed future desired state, which should be achieved through implementation of the CM Plan/ Strategy.
Catchment Management Plan/ Strategy in each declared CM Area	o state vision/goals for CM o programme for CM implementation, to achieve the "Statutory Framework for CM" o institutional structure for CM o roles and responsibilities for authorities, stakeholders and residents o local CM guidelines and procedures o definition of sub-catchments for specific Action Plans	The CM Plan/ Strategy for a declared CM Area should give effect to the "Statutory Framework for CM", in that it represents a programme, responsibilities, guidelines and procedures for implementation of CM in the declared CM Area, given the constraints imposed by the catchment classification, Reserve, objectives and water allocation plans. Where necessary, it should outline a Programme of Actions required to achieve the long term desired state proposed in the classification. In cases where it is not possible to fulfill the required conditions, it will be necessary to revisit the components of the "Statutory Framework for CM", and thus CM Plans/ Strategies will have an iterative impact on later updates of the NWRS. The *process* by which the CM Plan/ Strategy is, firstly, developed and then, secondly, implemented, is as important as the Plan/ Strategy itself. This process is outlined in Section 2.5 below, but discussed in more detail in the WRC Report - "Guidelines for Catchment Management to Achieve Integrated Water Resource Management in South Africa", Görgens, *et al*, 1997 - referred to in Section 1 of Part I..

2.2 Intervention Strategies in Catchments

Intervention	***Examples***
Direct intervention.	Planning, building and operating water infrastructure; clearing pollution sources; treating raw water or effluent; etc.
Control and enforcement.	Set resource quality objectives; water allocation licences; waste discharge licences; legislation and regulation; monitoring; prosecution; etc.
Co-operative governance.	Coordinating CM details with planning and management activities of other organs of state active in a particular catchment; drawing on commitments by resident water institutions and other resident stakeholders; public consultation; etc.
Advocacy, training and education.	Promotion of public awareness of and support for CM issues; building relevant management and technical skills; information and technology transfer actions; etc.

2.3 Catchment Management Functions

Core Functions	***Physical Development Functions***	***Administrative Functions***
Strategic water resource planning	Water supply scheme planning/operation	Governance of and funding of water management institutions
Water allocation/regulation	Bulk water development facilitation	Facilitation/coordination: relevant state organs and stakeholders
Resource quality protection	Water-related problem/disaster management	Communication & training: internal, stakeholders, communities
Water conserv./demand managem.	Monitoring & information services	Legislation, licensing, local policy-making, conflict resolution

2.4 Catchment Management Activities

Planning	***Regulation***	***Physical Development***	***Administration***
Formulate vision and goals	Licensing and permitting	Water scheme planning	Establish Forums, CMCs, CMAs
Assessment: physical/social/economic/legal	Monitor and regulate water use	Water scheme construction	Maintain CM Secretariat
Classify water resources	Monitor resource quality objectives	Water scheme operation	Promulgate CM and other Plans
Determine resource quality objectives	Source-directed waste control	Raw water treatment	Develop business plan
Determine and maintain the Reserve	Prosecution and enforcement	Effluent/solid waste managemt.	Coordinate other state functions
Prioritise management issues	Manage water demand	Infrastructure maintenance	Develop stakeholder consensus
Develop water allocation plan	Water pricing	Rehabilitation/mitigation	Inform/educate/consult residents
Develop CM Strategies/Plans	Dam safety	Stormwater management	Collect CM and other charges
Develop water conservation/disaster plans		Disaster response	Audit CM periodically and adjust.

2.5 The CM Process in a Nutshell

It must be recognised that the CM functions and activities summarised above occur as part of *a process that is continuous, iterative, recursive and perpetual.* The generalised CM process should start in a provisionally declared or designated "CM Area", and can be said to consist of the following non-chronological and overlapping stages: (The CM Process is discussed in more detail in the WRC Report - "Guidelines for Catchment Management to Achieve Integrated Water Resource Management in South Africa", by Görgens, *et al*, 1997 - referred to in Part I, Section 1.)

Stage	***Explanation***
Initiate	the CM process (top-down and/or bottom-up), preferably based on single concerns, as well as an interim CM institution/forum
Assess	the provisionally declared CM Area's physical, environmental, institutional, legal, administrative, social and economic conditions
Define	final boundaries of the declared CM Area through inputs of stakeholders and residents of the concerned region
Establish	a CMC/CMA and Gazette its make-up
Formulate	a catchment vision and water-related goals, recognising the available Reserve and water resource classification
Plan	catchment management solutions and strategies, in response to water demands and prioritised concerns and issues
Gazette	a CM Plan/Strategy, setting out institutional/stakeholder responsibilities and time-frames of Programmes of Actions
Implement	decisions/agreements made, as well as programme of actions formulated, during the planning process
Administer	the CM process according to principles of equity, co-operative governance, capacity building and consensual management
Monitor	water use and catchment water health in terms of quality and quantity indicators
Review/Audit	components of the CM process and revise/fine-tune CM Plan/Strategy as necessary.

NB: The detail of the foregoing sub-sections must not be allowed to obscure the basic dictum of CM:
"CM must at all times facilitate the provision of good quality water to water users in a manner that is, as far as possible, optimal, equitable, corrective and sustainable."

3 NATIONAL INSTITUTIONAL ARRANGEMENTS REQUIRED FOR CM

From a statutory perspective, the initiation, establishment and sustenance of statutory CM require the collaboration of a range of statutory institutions, as well as appropriate linkages between them, as the following table shows. Five "new" institutional concepts are present in the foregoing table: CMAs; CMCs; National CM Facility; National Water Utility; as well as a formal linkage of a range of authorities and other organs of state. The requirements for and issues/questions surrounding each of these are addressed in some of the subsequent sections. The administrative and executive structures and the membership of the different CM institutions are also addressed below. Plausible linkages among these institutions are presented as schematic diagrams in Appendices A and B. It is self-evident that DWAF is expected to play a significant part in CM at many levels and in many spheres. This is discussed in the following section.

In the Catchment	***DWAF***	***Linkage with Other Organs of State***
CMAs CMCs Forums Water Boards Irrigation Boards Water User Associations International water management bodies	Regional Offices National CM Facility (CM Directorate) (new) Other National Directorates National Water Utility (new)	Provincial Govt. Depts.: Agriculture, Nature Conservation, Local Govt, Planning, Housing, etc Local authorities Other National Depts.: Mining, Land Affairs, Environmental Affairs and Tourism, Constitutional Development, Health, etc. Research and educational institutions and relevant parastatals (eg. Eskom)

4 REQUIREMENTS FOR DWAF'S ROLE IN CATCHMENT MANAGEMENT

The National Water Policy foresees a pioneering role for DWAF during the initiation and establishment of statutory CM, and a facilitating role thereafter. This does not imply that "bottom-up" initiation of CM by non-governmental stakeholders is not possible. On the contrary, "bottom-up" approaches are highly desirable. However, the lack of capacity in many regions implies a prominent medium-term role for DWAF in CM.

4.1 Modes of DWAF Involvement in CM

In the short- to medium-term, any one of the following modes of involvement in CM can be foreseen for DWAF: in any particular catchment, regionally and nationally:

DWAF's Role In the Catchment Through Regional Offices	***DWAF's National Role Through its Central Office***
⇒ Direct execution of all CM functions and activities, without structured/formal consultation; OR ⇒ Direct execution of all CM functions and activities, supported by structured consultation with catchment forums; OR ⇒ Act as the executive arm of a CMC, providing full technical, administrative and secretariat service in all CM activities, but with certain core CM functions delegated to the CMC, according to its management capacity; OR ⇒ Facilitate the functioning of a CMA, providing the executive arm of the CMA with support in any part of the full range of technical and administrative CM activities, particularly in training, skills building and monitoring.	⌦ Establishment of a National CM Facility , such as a Directorate of CM, to oversee the national CM process, as well as national capacity building in relevant CM functions; ⌦ Coordination and facilitation of each and any of the four modes of CM involvement by the Regional Offices; ⌦ Policy development and coordination at Cabinet level and at Provincial Government level on subjects such as Spatial Planning, Development Initiatives, Land-use Regulation, Urbanisation, International Rivers; ⌦ Interfacing the national and international strategic planning functions in DWAF with those at the CM level; ⌦ Interfacing the bulk water supply development functions of a National Water Utility with those at the CM level; ⌦ Developing and advocating a water resource classification system; ⌦ Administering legislation relating to CM Plans and CMAs/CMCs; ⌦ Auditing the CM process nationally.

4.2 Implications for the Regional Offices of DWAF

Although it could be said that many of the above listed CM activities have always been part of the scope of work of the Regional Offices, the dawning of statutorily-driven CM imposes a need to re-structure aspects of the modus operandus of these Offices. Here, both short-term and medium-/long-term perspectives are required. The functional areas that are implicated are: line function structure, human resources, training, infrastructure, budgeting/finances. For each, various options for action need to be recognised. The overall picture can be analysed as follows:

Functional Areas	***Questions/Issues for DWAF***	***Options for DWAF***	***Time Horizon***
Line Function Structure	o What CM preparation can be done immediately?	◊ "Think" CM in all routine activities (eg. Reg. Director signs correspondence as "Acting CMA Executive", where CMAs do not exist).	→ Immediate
	o Does CM require a specialist division to champion it continuously?	◊ Keep present structure and create an additional CM division in Regional Offices.	→ Short
	OR:	◊ Re-structure Regional Offices according to logical CM function groupings.	→ Medium
	o Is CM a series of line functions performed according to a common philosophy?	◊ Re-structure Reg. Office documentation system according to "declared CM Areas".	→ Short
Human Resources	o Does CM require additional/modified skills for the different modes of DWAF involvement?	◊ Extend the skills base of existing officials in the areas of integrated planning, environmental management, communication, conflict resolution.	→ Immediate
	o Apart from active skills, what other attributes would enhance DWAF-staff's CM capability?	◊ Awareness and understanding of other national, provincial, regional and local planning processes and their relevance to CM.	→ Immediate
	o Do DWAF's CM obligations require additional staff in any particular Office, or does the present complement suffice?	◊ Employ additional staff with appropriate technical and communication skills, as well as secretariat staff for CMCs.	→ Medium
	o How to ensure future skills availability ?	◊ Create bursaries, research grants and loans for CM studies for development of CM professionals.	→ Medium

Functional Areas	*Questions/Issues for DWAF*	*Options for DWAF*	*Time Horizon*
Training	o If technical and management capacity needs to be built, what training route would be preferable?	◊ Training by: • National Human Resources Directorate, • National Directorate of CM, • Regional Office • Universities and technikons.	→ Medium → Short → Immediate → Short
	o What training requirements does DWAF face?	◊ Skills are needed in water resource appraisal, communication and conflict resolution.	→ Short
	o What role does DWAF have in the building of management and technical capacity in CMCs and CMAs?	◊ Facilitate the building of management and communication skills in CMCs, and management and technical skills in CMAs.	→ Short
Infrastructure	o What additional/modified technical infrastructure will CM require?	◊ Infrastructure requirements span reviews of monitoring networks, information/ data base equipment/ tools and communication networks.	→ Medium/Long
	o What additional/modified administrative infrastructure will CM require?	◊ Regional Offices with large areas may require new branch offices to bring administration of CM closer to the relevant catchments.	→ Short
Budgeting and Finances	o Should budgeting for CM functions be an additional part of routine line function budgets, or does it require a separate budget?	◊ Separate budget, initially, to accentuate the additional efforts going into CM; line function budgets, later, when CM governance has stabilised nationally.	→ Immediate to Long
	o Is the income from the CM charge available to the Regional Office for CM activities?	◊ Determine formula for split between National and Regional DWAF.	→ Short
	o How is the CM charge collected, administered and used?	◊ Develop national framework for collection and administration of CM charges.	→ Short
	o How will CM costs in under-developed catchments be covered: Treasury funds or cross-subsidisation from national CM fund?	◊ Develop formula to split CM charge spending between direct CM activities and costs related to CMCs and catchment forums.	→ Short

4.3 The Need for a National Facility for CM

The extent of DWAF's involvement in statutory CM foreseen by the Policy, will require coordination and facilitation nationally. The current DWAF Directorate structure has no particular home for such a national facility. Consideration needs to be given to the *level of administrative seniority*, as well as *independence*, that the functions of such a facility require; also, whether or not such a facility should perhaps be *outside the formal structure of DWAF*, for instance, as a permanent CM Commission. The institutional options for this facility are listed below, subsequent to a list of potential functions and activities, which stem from DWAF's obligations ito statutory CM. Appendix B depicts the possible relationship of a national facility to other DWAF directorates and the CM infrastructure.

Functions of National CM Facility	***Activities of National CM Facility***
o Develop various CM frameworks, procedures, plans and codes o Mentor and coordinate CM nationally o Build CM capacity nationally o Monitor/Audit CM nationally o Advocate CM principles publically o Promote National CM Policy evolution o Administer funds for CM o Promote quality control in national hydro-data networks and storage o Promote and coordinate imternational CM initiatives	◊ Develop and maintain framework of criteria for declaration of CM Areas ◊ Develop a strategic plan for CM establishment, according to Regional Office plans ◊ Develop framework for criteria for evolution of CM structures from Forums to CMCs to CMAs. ◊ Administer legislation related to promulgation of CM Plans and functioning of CMAs/CMCs ◊ Develop a code of governance ethics for CM institutions ◊ Develop and maintain framework for CM charge collection and administration ◊ Develop formulas for split of income from CM charges and for cross-subsidisation of CM ◊ Develop and implement CM auditing system nationally ◊ Promote and administer in-house training in CM-related skills ◊ Promote expansion of human resources in CM-related fields through tertiary education funding and research promotion ◊ Obtain regular feed-back on CM processes nationally and intervene/facilitate as necessary ◊ Coordinate national public CM education programme ◊ Establish inter-departmental/ inter-provincial forum for coordination of national and regional land-use-related Government functions ◊ Promote the concept of a White Paper on National Catchment Management Policy.

The options for the creation of a national facility for CM are as follows:

Options for Creation of National CM Facility	***Pros of Options***	***Cons of Options***
⌧ *Sub-Directorate of CM* in one/each of the Directorates : • Water Quality Management • Strategic Planning • Project Planning	+ WQM has sound experience of aspects of CM and would be functional rapidly. + Strat. Plan. currently has holistic functions and would find CM philosophy easy to promote. + Proj. Plan. pioneered consultative actions in catchments and has a useful "systems" perspective.	* All three these National Directorates can only be a temporary home for a National CM facility, because their core functions are not wide enough. * A Sub-Directorate may not have adequate seniority to facilitate CM accross intra- and inter-departmental boundaries.
⌧ *Directorate of CM* in one of the Chief-Directorates: • Regions • Planning • Scientific Services	+ Regions: As Regional Offices will have a primary role in CM, this option would promote synergy and coordination. For short-term progress, this would be the desirable option and this C-D could eventually be re-structured into the C-D: CM. + Planning: The holistic, multi-disciplinary character of CM would fit this option, but the C-D would need re-structuring. + Sci. Serv.: Regulatory and monitoring functions are part of this option and would fit in with aspects of CM, but the C-D would need re-structuring.	* This option would be more costly than a Sub-Directorate. * This option would only make sense in the long-term if the intention is to upgrade it to a C-D as part of a general re-structuring of C-Ds and their functions.
⌧ *New Chief Directorate* of Catchment Management	+ This option is desirable as it would raise the profile of CM to a level justified by the Policy, and would precipitate a necessary re-structuring of all C-Ds and their functions.	* This option would need a number of years to be actualised, because of its comprehensive impact on DWAF structures. * For the same reason it may be a costly option.
⌧ *Permanent CM Commission*, reporting directly to the Minister, with an executive arm separate from DWAF structure.	+ Provides a formal platform for involvement in CM of senior officials from all organs of state with land-use related functions. + Suitable seniority and independence, to engage other organs of state effectively. + Facilitates development of a staff complement that is fully multi-disciplinary.	* It may not be politically tenable for DWAF to seek indirect jurisdiction over land-use in this way. * Coordination inside DWAF may be problematic; falls outside line function structure of DWAF. * Likely low synergy with DWAF structures.

5 DWAF AND THE CATCHMENT MANAGEMENT AGENCY (CMA)

5.1 CMA Governing Board and Executive/Administrative Structure

DWAF will not necessarily be a significant role-player in the operation of CMAs. Nevertheless, despite having a DWAF-oriented focus, this document would be incomplete without examination of issues and options that surround CMA functioning and without elucidation of the possible scope of DWAF's involvement in CMAs. Appendices A and B indicate a relative position for the CMA *vis a vis* the national CM institutional arrangements. CMAs will, of course, *exercise any or all of the CM functions and activities* listed in Section 2. As a body corporate, a CMA should be governed by a Board and will fulfill its functions through an executive/ administrative structure, managed by an Executive Director and operating via line function departments. Governance considerations regarding CMAs are as follows:

CMA Component	***Issues***	***Options***
Governing Board	o Water-related representivity, ie a "water parliament", may be crucial for viability, but how to avoid being paralysed by election complications?	o Fully nominated; part nominated, part elected per sector; chairperson nominated, or elected?
	o Which sectors should be recognised in CMA composition?	o Classes of users/abusers, water institutions, organs of state, environment, tourism, research/academic.
	o Should Board members be paid (out of CM charges)?	o Yes/no/conditional.
	o Should a Board have prosecuting powers ito licences/permits?	o Yes, but compelled to consult DWAF.
	o Should DWAF have *ex officio* membership of Boards?	o Yes/no/conditional
Executive and Administrative Structure	+ CMA staff structures should not duplicateRegional DWAF structures, and should reduce Regional DWAF work load....	+ This is a long-term goal; in the short-term, CMA support will require additional DWAF resources.
	+ For accountability, should line function departments report to technical committees on which some Board members serve?	+ Yes, but educate Board members for particular committee tasks.
	+ For optimality, could a Water Board with technical capacity be contracted to provide an executive arm for its CMA?	+ Yes, but avoid conflict of interests ("gamekeeper/poacher" syndrome).
	+ For optimality, should some CMAs share executive and administrative structures?	+ Yes, if logistically sensible.
	+ For optimality, should DWAF's Regional Offices support all CMAs in their regions in some technical activities (eg. GIS)?	+ Yes, if logistically sensible.

CMA Component	*Issues*	*Options*
Technical Committees: Groupings by CM Functions	◊ Which CM functions group logically together? ◊ How to avoid parochial agendas on these committees?	◊ National CM Directorate to develop frameworks for committee structures. ◊ Communication, transparency and leadership.
Sub-Catchment Committees: Special Interest Areas	⊃ Defined according to physical or socio-economic criteria? ⊃ Should these be seen as statutory CMCs?	⊃ Physical "homogeneity" vs economic integration. ⊃ Yes, but advising the CMA, rather than DWAF.

5.2 Specific Implementation Questions Surrounding CMAs

Questions	*Discussion*
Interface with DWAF: Is the CMA not just a third-tier DWAF structure, a mini-Regional Office?	DWAF's potential interface with a CMA is at many levels: Membership of the Board; represented on certain technical sub-committees; permanent provision of certain technical services so that the CMA Executive does not need to develop those services; offering continuing skills building. Ultimately, though, within its delegated powers, the CMA operates as an independent body corporate, its Board members are not Government officials and local stakeholders have direct access to both the Board (through membership) and the executive arm through technical functions. In the long-term, a proliferation of CMAs should bring about significant reductions in the staff numbers and budget requirements of DWAF Regional Offices. Furthermore, there is a school of thought that CMAs should evolve to eventually be both Water Management and "Land Care" Authorities.
Role of Water Boards: are they fledgling CMAs?	Most Water Boards have developed effective technical and managerial capacity and infrastructure to fulfil their primary brief of bulk water supply and raw water treatment. It is tempting to view such Water Boards as fledgling CMAs. However, the "gamekeeper - poacher" dilemma and the need for a catchment-as-source focus, rather than an infrastructure-as-source focus, eliminate this option.
Gradual and phased establishment?	Recognition of four sets of realities in South African society prompted the concept of gradual establishment of CMAs: the lack of a culture of accountability in the water community; generally inadequate understanding of/experience in the integration process required by CM; general back-log of technical/management skills; the need for the Government to control the current national transition. However, in the same way that a woman cannot be half pregnant, gradualness cannot mean that a CMA can be partially established. Its establishment has serious statutory, financial and resource implications. The gradualness relates to the considered expansion of a CMA's functions as its capacity grows, through a "learn as you go" approach.

Questions	***Discussion***
Forum⇒CMC⇒CMA: a false expectation of membership?	Water resource management may well be moving from its current position of DWAF dominance under the occasional advice of catchment forums to statutory CMAs, but the nature of this evolution and public expectations about it still need to be examined. Negative experiences by DWAF with one or two evolving forums has led to the insight that a "conflict-ridden beginning" can haunt a public management process for years. Therefore, the erroneous expectation among members of the public that members of a forum automatically go on to serve on a CMC, and from there onto a CMA, needs to be countered with sound education and communication. There may be areas in the country where, for many years, CMAs, or even CMCs, will not be viable.
Start CM functions?	In pursuit of the basic guideline that CM should initially grow around a single, or few, issues, the question can be asked: In a mainly top-down CM implementation process, what are the most urgent, but also simultaneously viable, CM functions that should be pursued at the start of CMA operation?
Sequence of CM functions?	What is a practicable sequence of CM functions that should progressively be delegated to an evolving CMA as its capacity and experience grows?
Criteria to determine evolution of Forums to CMCs to CMAs?	A set of criteria that would guide the process whereby a Forum or a CMC could evolve to the next higher level of CM institution, may be needed, to prevent ad hoc decision-making in this regard. However, these criteria would need to be applied with flexibility in recognition of the vastly variable dvelopment and mangement needs in different parts of the country. Section 7 develops this requirement further.
"Pilot catchments" as a mechanism to initiate a CMA	An approach is needed that avoids the overwhelming prospect of initiating a CMA for an entire CM Area of perhaps tens of thousands of km².An effective mechanism to initiate CM within such a large declared CM Area, may be to implement CM (through a CMC or CMA) in one or two small identified "pilot" catchments, which have critical water resource problems. Such a "pilot catchment" should have a viable resource base and be representative of stakeholders in the larger CM Area, in order to provide the starting point for CM, which could grow geographically into the entire CM Area, as well as functionally and institutionally.

6 DEFINITION OF DECLARED "CATCHMENT MANAGEMENT AREAS"

6.1 Criteria for Definition of CM Areas

Statutory CM takes place inside a delared geographical area of jurisdiction, with defined boundaries, here called *CM Areas* for convenience. The wide variability of conditions in South African catchments - physical, climatic, socio-economic development, reconstruction needs - dictates that a wide range of criteria be used to define such CM Areas. The following table provides an overview of some of these criteria and relevant considerations:

Criteria	***Description***	***Pros and Cons***
Administrative utility	To facilitate the "launch" of statutory CM, it may offer administrative benefits to initially define CM Areas as quite large - say, each Regional Office area divided into a few large "water resource regions", according to macro-hydrological boundaries.	As this would contradict the National Water Policy principle of devolution of water management to the catchment level, this can only be a transitional arrangement while DWAF and catchment residents gear up for more localised CM institutions.
Economy of scale	For CMAs to achieve economy in management infrastructure and expertise, statutory CM Areas will need to be defined larger, rather than smaller, in the short- to medium-term. Inside these larger Areas, forums and, preferably, sub-committees (statutory CMCs?) can advise the CMA or its surrogate, DWAF, on CM needs in specific sub-catchments.	Larger CM Areas will avoid proliferation of costly administrative infrastructures and may facilitate an integrative perspective in the management of complex water resource systems. However, larger CM Areas may make it more difficult to actualise CM among stakeholders and communities.
Combining that which belongs together: Hydrological integratedness	Sub-catchments that form a naturally integrated supply system, such as the total natural catchment of a major impoundment, or of a cascading system of impoundments, constitute an intuitively logical CM Area.	CM Areas linked to single water sources may be the optimal arrangement for CM ito human scale, localised need and common interests. However, such a scale may not be economical if it leads to proliferation of administrative infrastructures.
Combining that which belongs together: Linked water-infrastructure, or shared issues and regional vision	Separate natural catchments that are linked by transfer schemes may also constitute a logical CM Area, where each separate catchment could have a CMC under a CMA, or its surrogate, DWAF. Separate small catchments in the same region with a shared view of issues and a common vision for their region, may be in the same category.	Such transfer schemes and/or such shared vision effect and reflect economic inter-dependence between separate catchments and their water management will need to be linked at the strategic level. Localised CM structures will then be needed to cater for interests at the intra-catchment level.
Combining that which belongs together: Common ecological functioning	Separate natural catchments that feed a strategic coastal lake, estuary or environmentally sensitive region, may also constitute a logical CM Area, where each separate catchment could have a CMC under a CMA, or its surrogate, DWAF.	The environmental (or eco-tourism) significance of a whole sub-region comes in focus in this case. Localised CM structures will be needed to cater for interests at the intra-catchment level.

6.2 Examples of Different Categories of Potential CM Areas

It may be illustrative to provide some examples of South African catchments and river systems that would potentially conform to one or more of the criteria mentioned above (no attempt was made to produce an exhaustive list):

Description	***Examples***
Total natural catchment of small to medium size	Lotus; Blesbokspruit; Zwartkops; Mgeni; Breede
Naturally linked sub-catchments feeding one water source	Hartbeespoort Dam catchment; Clanwilliam Dam catchment
Total multi-catchment system: transfer scheme linked	Amatole; Western Cape System
Part of large multi-catchment system: natural or transfer linked	Upper Vaal + Upper-Komati/Usutu; Olifants (northern)
Separate catchments with common ecological function	Southern Cape Coastal Lakes catchments; Lake St Lucia catchments
Separate catchments with specific shared characteristics, such as common issues and a shared vision for a region	Southern KwaZulu-Natal catchments.
Several catchments that feed into the same bay or estuary	False Bay; Table Bay; Saldanha Bay

6.3 Strategic Exceptions

For strategic reasons it may be thought prudent to preclude, in the medium-term, particular catchments from evolving their CM institutions to the level of a CMA. Possible examples are:

- ◊ catchments linked into strategic basin-transfers, such as the Upper Vaal (upstream of Vaal Barrage);
- ◊ or internationally shared catchments where treaties with downstream countries determine the allocation of resources between the countries, such as the Komati catchment (treaty with Swaziland).

7 PRIORITISATION OF DWAF CM IMPLEMENTATION

7.1Implementation of CM at Different Levels

The limited capacity, resources and experience available to DWAF for CM implementation requires the specification of criteria for the short-term prioritisation of catchments for CM. This will guide the DWAF in terms of the allocation of resources and the type of intervention appropriate for CM in different catchments throughout South Africa. However, an appropriate prioritisation strategy (criteria) will also be needed to guide the DWAF about the possible evolution of catchments to higher levels of CM implementation, as conditions change in the medium to long term.

As was outlined in Section 4, CM may be implemented at a number of levels. In fact it is appropriate that the DWAF promotes CM at a number of different levels in different catchments in the short-term, with the promotion of a general evolution to higher levels over time. The following sections outline possible criteria for evaluating the appropriate level of implementation for different catchments in South Africa.

Type of CM Implementation	***Implications for Implementation***
Establish a CMA	This is unlikely to be generally possible in the short-term, due to lack of capacity and experience in South Africa. However, it is the long-term goal for CM in South Africa.
Constitute a CM (Advisory) Committee	In the short-term, this level of implementation will only be possible where there is already an established CM process, but promotion of this level should at least be DWAF's medium-term objective for high priority catchments, possibly with the requirement for a CM Strategy/ Plan before constitution of the CMC.
Support an existing Forum	All legitimate ongoing CM initiatives in low to medium priority catchments should be supported by DWAF, with the development of a CM strategy/ Plan being promoted, but being careful not to be seen to "dominate" the process.
Organise a Forum	This should be the focus of DWAF's short-term efforts in many of the medium to high priority catchments, starting with a few key problems. The process of developing a CM strategy/ Plan should be initiated.
DWAF Regions	CM in low priority catchments may be performed by DWAF, through the Regional Director, preferably with some restructuring of DWAF Regions along CM functions. This level is likely to represent the minimum short-term objective for many catchments in South Africa.
No explicit CM (DWAF status quo)	The final option is that nothing is done to implement CM in certain catchments, either due to lack of resources or for strategic reasons (as outlined in section 6.3). It represents an alternative to DWAF Regions implementation, where there is no restructuring. However, if DWAF regions are restructured for CM, it may be more appropriate to implement DWAF Regional responsibility for these catchments, albeit without promoting stakeholder consultation.

7.2General Short-term Catchment Prioritisation Criteria

The prioritisation of catchments for CM, and the appropriate level of implementation, should primarily be based on need and capacity. However, this may be influenced by the degree of local support for CM, and DWAF's requirement to gain CM experience in a range of catchments with different conditions.

Issue	***General Criteria***	***Discussion***
*The **Need for CM in a** particular catchment*	◊ *sensitivity* of the receiving environment ◊ *requirements* of water users ◊ acceptable *risk* of impact	The new water law will introduce a classification of catchments, based upon the aquatic environment and the requirements of users. The condition, importance and resilience of the aquatic environment, as well as the requirements of water users (instream, local or abstracted) will influence the sensitivity of the catchment (and the acceptable risk of impact). Sensitive catchments must have priority.
	◊ type and *severity* of the water resource problem	Catchment water resource problems may be associated with water supply (and demand), water quality (fitness-for-use) and/or the health of the aquatic ecology. Catchments with severe problems and those which can only be resolved by integrated water resource management should have priority for CM.
	◊ social, economic and environmental *effects* of water resource problems	Water resource problems may result in environmental degradation, have economic consequences, cause social disruption and/or impact on human health. These are the issues that catchment inhabitants will mobilise around. Thus, catchments in which any of these effects are significant or obvious should be a priority.
	◊ *urgency* for management ◊ *understanding* of problems and effects	Water resource problems and their effects may already be occurring or may be threatened at some time in the future; existing problems should have priority, all else being equal. However, sensitive catchments (i.e. limited acceptable risk), with perceived problems (concerns) or limited knowledge, should be a priority under the "precautionary principle".
	◊ *complexity* of the catchment ◊ need for wider *integration*	The underlying causes of water resource problems in certain complex catchments require influence of socio-economic, spatial, infrastructural or environmental resource development and management. This requires integration of more than water resource management, which may be coordinated through CM, and thus these catchments may have higher priority. Furthermore, catchments in which other planning initiatives which are ongoing may be appropriate for CM.

Issue	*General Criteria*	*Discussion*
*The **Resources** available to support CM*	◊ human ◊ financial ◊ equipment	CM requires the allocation of people, money and equipment, either from the DWAF or from other organisations and stakeholders. Those catchments which have the greatest resources therefore have a higher priority, because successful implementation of CM is more likely. Catchments with access to economic and social resources are generally more developed, and are thus also likely to be a priority in terms of problems. Furthermore, if the economic base is strong, financial resources should be available to address other resource deficiencies at a micro-level. This assumes the resources are available at a macro level in RSA.
*The **Capacity** and Motivation for implementing CM*	◊ technical ◊ managerial ◊ administrative ◊ political will	The institutional, organisational and stakeholder capacity (managerial, technical and administrative experience and skills), motivation and political will to implement CM, will determine the effectiveness of CM implementation. However, this can be addressed through training and awareness-building, if the resources are available. Political will by both DWAF and non-DWAF stakeholders features as a primary criterion for success
*Local **Support for a CM initiative***	◊ existing CM initiatives ◊ general awareness ◊ sectoral interest ◊ stakeholder representivity ◊ legitimacy of the process	Effective CM is based upon community and stakeholder participation. Therefore, CM implementation is more likely to be successful in catchments where there are already legitimate CM processes, or at least a stakeholder awareness of and a desire to address problems. The representivity (and inclusivity) of stakeholder groupings associated with CM, and the legitimacy of the CM process, have a significant impact on the appropriate level of implementation for a catchment.
*DWAF's requirement to gain CM **Experience***	◊ integration ◊ institutional/resources ◊ social/economic ◊ land use/physical	Experience with CM in South Africa is still limited. Therefore, in the short-term, the CM implementation strategy should be to attempt CM in the complete range of social, economic, land use and physical conditions found in RSA. Different institutional models and approaches to CM integration should also be facilitated, in order to identify the "best" ways of promoting CM in different situations.

7.3Catchment Types and Key Prioritisation Criteria

DWAF's CM implementation strategy requires some degree of catchment characterisation, in order to identify the appropriate level of implementation which should be attempted in the short-term. The following catchment characterisation is based on the main water resource related features, while the sub-categorisation is based on the pertinent prioritisation criteria, in terms of need, resources, capacity and local support (existing CM initiatives). Many catchments could fall into a number of groups, but the dominant character of the catchment (or the causes of the most pressing problems) should govern this prioritisation.

To assist this process, the catchment characterisation is presented in a generally descending (but not absolute) order of importance from the perspective of CM, based on the likelihood of serious water resource problems (i.e. water supply, sensitive aquatic ecology, urban, rural and undeveloped). The level of implementation has been represented as a short term *minimum level* leading to (=>) an appropriate medium term *target level*. The example catchments should only be taken as a preliminary indication, even though some may well fall into another group.

Catchment Characterisation	***Key Prioritisation Criteria***	***Level of Intervention***	***Example Catchments***
Water supply *(domestic, industrial, irrigation or donor):* o *CM need may be related to quantity, quality or ecology* o *resources may be available through water charges* o *capacity may be built if resources are available*	urgent need & existing CM initiative	CMC => CMA	• Mgeni (& Mooi) catchment • Palmiet catchment • Mlazi
	existing or perceived need, some capacity	Forum => CMC	• Komati & Crocodile catchments • Vaal catchment (Vaal Dam) • Amatole system
	existing or future need, but limited resources and capacity	DWAF Region => Forum	• Marite catchment (Nyaka Dam) • Upper Mkomaas (Impendle)
	limited need	DWAF Region/status quo	• Usutu system (Jericho)

Catchment Characterisation	*Key Prioritisation Criteria*	*Level of Intervention*	*Example Catchments*
Sensitive *aquatic environment, or expected large develop./growth:*	high risk & existing CM initiative	CMC => CMA	• Wilderness catchments • Sabie catchment (KNP rivers)
o *risk is due to changing water flow, quality or habitat*	high sensitivity, but no current initiative	Forum => CMC	• Olifants (southern) • Lake St Lucia catchment
o *effect may be on the aquatic ecology or recreation (tourism)*	future/unknown risk or limited resources	DWAF Region => Forum	• Wakkerstroom catchments
	low risk	DWAF Region/status quo	• KZN Drakensberg catchments
Urban *(residential-industrial):* o *CM need is due to degraded water quality or habitat*	urgent need and existing CM initiative	CMC => CMA (Unit)	• Jukskei (Jhb) catchment • Msunduzi (Pmb) catchment • Swartkops (PE) catchment • Lotus (CT) catchment
o *resources may be available through the Local Authority*	need, but no CM initiative or limited resources	Forum => CMC	• Apies-Pienaar (Pta) catchment • Pienaar (Dbn) catchment • Durban Bay (Dbn) catchment
o *should these be special sub-units of larger CM initiatives?*	limited need	DWAF Region/status quo	• urban catchments in formal residential areas
Rural *(industrial-mining, agricultural or settlement):*	urgent need and existing CM initiative	CMC => CMA	• Nkongolwane catchment
	urgent need, but no CM initiative	Forum => CMC	
o *CM need is due to fitness-for-use of aquatic environment*	perceived need, but limited resources	DWAF Region => Forum	• Mzimvubu catchment
o *resources are limited, except for CM charges on agriculture*	limited need	DWAF Region/status quo	• all other rural catchments
Undeveloped-pristine:	possible future development	DWAF Region => Forum	• Tugela catchment
o *threat from development?*	low risk of development	DWAF Region/status quo	

7.4Longer-term Prioritisation of CM Implementation

Criteria also need to be identified to determine when a particular catchment is ready to move to a higher level of CM implementation. Obviously, these criteria would be similar to the general criteria presented above and would be associated with changing conditions within a catchment, either in terms of the needs for CM, or the resources, capacity or support for CM implementation.

Upgrade Criteria	***Implication***
Greater Need	If conditions in the catchment change, so that the types and severity of water resource problems and effects increase, this would imply the need to implement CM at a higher level. This may also be applicable to the need for integration of other planning and development processes with water resource management.
More Resources	The resource availability for CM is a constraining factor for implementation, therefore if additional resources become available within the catchment or from outside sources (on a sustainable basis), a higher level of CM implementation may be supported.
Improved Capacity	As the skills and experience of CM increase, both at a catchment level and nationally, the opportunities for higher levels of CM increase. This is relevant for the management (leadership) and administrative (technical) functions of CM.
Increased Support	CM is ultimately dependent on stakeholder participation, so as the support, participation and political will of all stakeholders increases, the chances for sustainable CM processes improve. This implies an evolution to a higher level of implementation, with a representative and inclusive management structure taking more and more control over CM functions.

8 INTERFACES BETWEEN CMAs, CMCs, DWAF AND OTHER ORGANS OF STATE

8.1Guiding Principles

The fragmentation that has hitherto characterised South African environmental, water and land-use legislation and administration, will largely persist, despite comprehensive legal reforms. In the interests of integrated water resource management, this fragmentation needs to be consciously countered, through institutional linkages between CM structures and all other relevant organs of state, and through the principles of co-operative governance.

CM is part of a wider planning and development environment in South Africa, which is largely dictated by the Constitution and Policy Development processes. CM initiatives must explicitly address this environment, in order to refine the scope of CM relative to other initiatives, to identify and understand the opportunities and constraints that this environment places on CM, and to indicate the most appropriate functional interfaces between catchment managers (DWAF, CMC or CMA) and other regulatory authorities.

Guiding Principle	***Implications***
CM must be consistent with the Constitution	♦ National, provincial and local spheres of government are "distinctive, interdependent and interrelated." ♦ All organs of state must adhere to the principles of cooperative government, which includes not encroaching on the integrity of another sphere of government. ♦ The Bill of Rights outlines the obligations of the state in terms of environment, property, equality, in addition to other rights. ♦ Certain areas of planning, management and service delivery which may impact on catchment water resources are designated functional areas of provincial or local government.
The relationship between Catchment Managers and other organs of state should reflect the spirit of the National Water Policy.	The new water resource management approach and organisational arrangements will be designed to provide integration, which should be reflected in CM: ♦ vertically, to outline roles and functions of organisations involved in water management; ♦ horizontally between authorities or organisations with interests in and needs for water resources; ♦ cooperatively within water sectors with a joint interest in particular resources; ♦ coherently between organisations active in the development, management and use of scarce environmental resources; and ♦ geographically, between areas connected through the water cycle and human activity.

Guiding Principle	***Implications***
CM requires that land use planning and management reflects the needs of the water resource.	The National Water Policy (pg 20) states that "The government agency responsible for water resource protection must be able to influence or prevent land use planning decisions which could lead to unacceptable impacts on water resources," and that, "Consideration will also be given to control over other activities which can have serious impacts on water resources". This is at the heart of ***catchment*** management, rather than water resource management, but the manner in which this is done is still quite unclear. It may involve one or more of the following approaches (as indicated earlier in this document): ♦ *direct intervention*: through water resource development and CWSS interventions; ♦ *control and enforcement*: through regulations and licensing; ♦ *cooperative governance*: through joint coordination with other organs of state; and/or ♦ *advocacy, training and education*: through programmes, guidelines and interaction with authorities and stakeholders.
Catchment Managers should interact and/or integrate with other planning and development initiatives in RSA.	CM initiatives should be consistent with (incorporate or reflect) and/or influence (guide or advise) the strategies and plans of social, economic, spatial, infrastructural and environmental resource programme, planning, development and management initiatives or processes which occur at different national, provincial, regional, local or project levels (see Figure 8.1):
Fostering of cooperative governance and integration of functions with CM is a long term process, which should be initiated as soon as possible.	Ideally, catchment managers (including the DWAF) should be aware of, understand, and play an active role in other planning and development initiatives in South Africa. In its broadest interpretation, this is likely to be a longer term process, which will not always be possible in the short to medium term. Although, it is not a prerequisite for CM, catchment managers should begin to interact and explore ways of creating partnerships with other authorities in the achievement of certain common goals, as soon as possible. This ongoing "fostering" process will provide much needed experience and indicate the most appropriate approaches to cooperative governance: ⇒ The formulation of a national inter-departmental catchment management policy should be initiated as soon as possible, in order to facilitate cooperative governance associated with CM.

8.2Functional Interfaces between CM and Other Authorities

There is no doubt that water resource management *per se*, is the functional jurisdiction of the DWAF or their delegated Catchment Managers. However, this is largely oriented towards managing the discharge to, functioning and operation of, and allocations from the water resource. CM, in the broadest sense of the concept, requires that decisions being made about land use patterns and activities reflect the requirements of, opportunities created and constraints imposed by the water resource. Although this is critical to CM, it will depend upon the approach that is ultimately adopted in the implementation of the National Water Policy and National Water Bill.

Issue	***Focus***	***Discussion***
What level of management integration should CM involve?	In the short-medium- versus long-term, and in terms of planning and management of: o social and economic development o spatial development o land use and infrastructure o environment resources o water resources	Δ In the short- to medium-term, CM is only likely to involve integration of water resources management. Δ This may be extended to environmental resource (and possibly land use and infrastructure) management in the longer-term, which will involve restructuring current institutional and legal functions. Δ Incorporating the planning of spatial (and land use and infrastructure) development is unlikely, because this is more related to the social and economic development, which is likely to remain outside CM.
Should CM influence other planning and development initiatives and/or processes ?	o socio-economic development o spatial development and urbanisation o land use development and activities o infrastructure development o environmental resource management	Spatial, land use and infrastructural development patterns reflect both the political and socio-economic driving forces, as well as the natural environmental resource endowments, in an area. However, these cross watersheds, rather than being neatly contained within catchments. Management of land use development and associated economic activities within catchments provides a mechanism to control key elements of the water cycle, as well as the spatial demand for water. While this is desirable (and even optimal) from a water management perspective, a number of other social and economic developmental imperatives drive land use and infrastructure development and socio-economic activities associated with the environmental resources within a catchment. Δ CM should attempt to guide or at least advise all of these processes.

Issue	***Focus***	***Discussion***
What type of Intervention Strategies are appropriate for CM to influence these other processes ?	o direct intervention o control and enforcement o cooperative governance o advocacy, training and education	In the short to medium term, catchment managers are unlikely to obtain control over the functions of authorities outside of the water sector. This implies that the main focus should be on cooperative governance and advocacy, training and education: Δ Cooperative governance requires that catchment managers set up or join structures to foster coordination, and ensure that representatives of appropriate authorities are represented on CM structures. Δ Advocacy, training and education involves significant energy and focus on communication and information dissemination.
At what sphere of government or scale of other initiatives should CM influence be active?	o national o provincial o regional o local o project	Δ Policy, legislation and programmes, which provides the context for all other planning and development, are formulated in the national and provincial spheres of government. It should be the responsibility of the National CM Facility to influence these processes, possibly through the formulation of a *national inter-departmental catchment management policy*. Δ These are generally translated into Development Strategies at the provincial and regional level, a process that should be actively engaged by the regional DWAF and/or catchment managers, through cooperative governance and advocacy. Δ Development Plans are formulated at the regional and local levels, and should be guided by the CM Plan (Strategy), together with the other provincial and regional strategies, based on cooperative governance and advocacy, and supported by CM-based regulations. Δ Evaluation of projects, which have an impact on CM, should be based on criteria outlined in the CM Plan, imposed through regulation (eg. licencing of "controlled sites") or cooperative governance (eg. through Environment Affairs' EIA regulations and IEM).

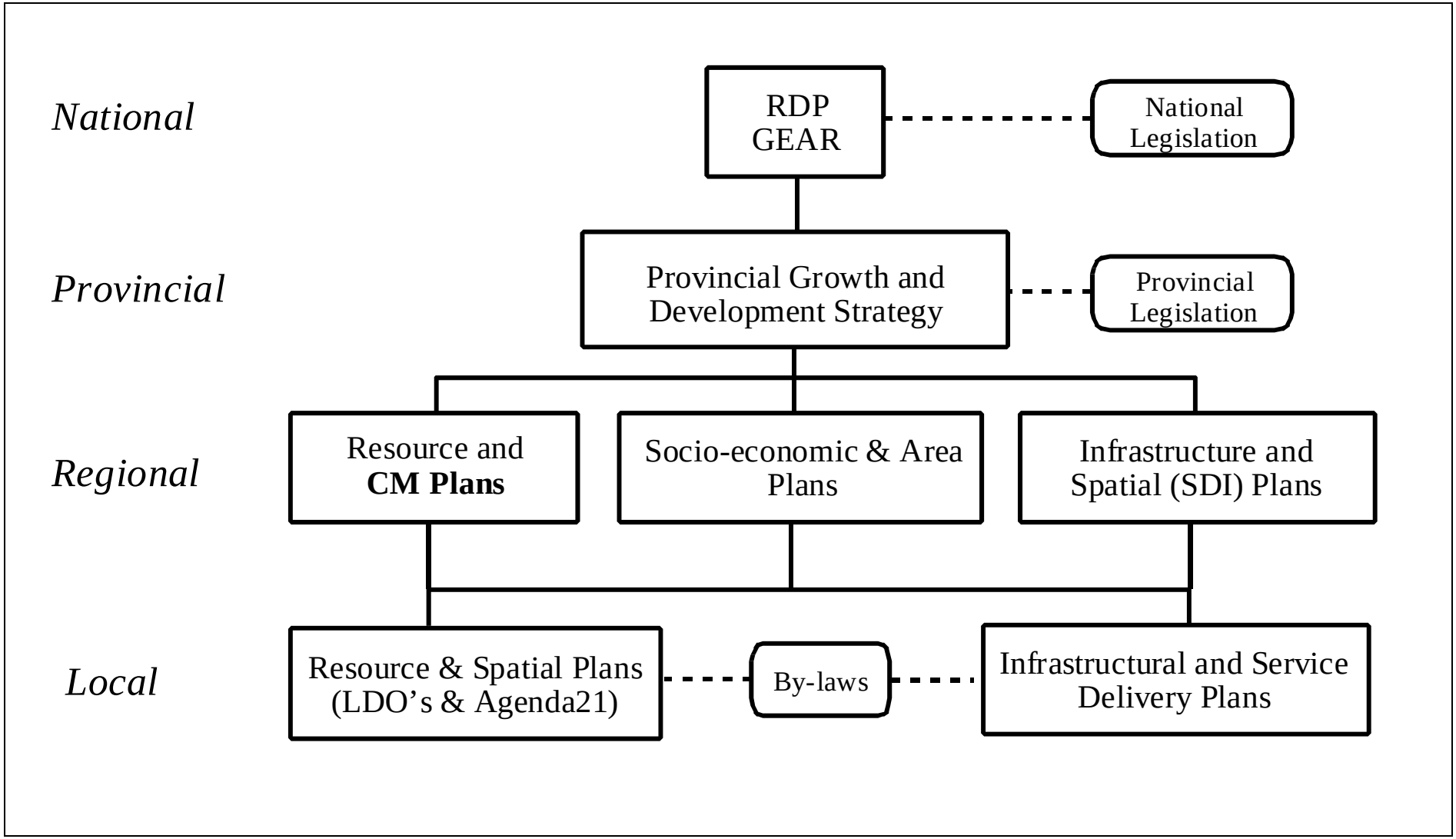
8.3Fostering Cooperative Government with National and Provincial Authorities in the Context of CM

At least in the medium term, DWAF is likely to be largely responsible for executing the functions of catchment management. This should involve creating relationships with other regulatory authorities at national and provincial level, in the spirit of cooperative governance. This should assist in raising the profile and achieving the aims of CM, as well as developing channels of communication which should coordinate provincial-regional and CM planning processes.

Issue	***Alternatives***	***Discussion***
Which national and provincial (non-water) authorities or sectors are important in terms of cooperative governance for CM ?	• local government; housing • land affairs and agriculture • provincial (strategic) planning • environment; tourism; conservation • trade and industry; economic affairs • mineral and energy; transport • constitutional development; provincial • health; welfare; traditional affairs • statutory agencies (eg. housing boards)	Each of these sectors and regulatory authorities have a different role to play in terms of socio-economic development, spatial planning, land use management and environmental resource use. Thus all should be included as potential targets of CM influence. However, those that address the issues of natural resource use (environment, mining and agriculture), those that control land use and infrastructure development (local government, housing and transport), and those involved in spatial planning (provincial planning, land affairs and economic affairs) should be directly targeted, depending upon the characteristics of the area and the water resource impacts.
What is the most appropriate structure to ensure CM's coordination with provincial-regional processes ?	• Provincial inter-departmental/heads-of-department (HOD) committee • Provincial water liaison committee • Provincial CM coordinating committee • The CMA, CMC or Forum	There is a need for coordination of CM with other initiatives at a provincial and regional level, which requires catchment managers to interact with, inform and advise provincial authorities and agencies. + Provincial decision making takes place in these inter-departmental committees, at which CM should be represented; being a provincial committee, provincial authorities are bound by its resolutions. + The existing water liaison committees provide a forum for discussing issues, but not all relevant authorities seem to be represented. + Initiating a new CM oriented committee places the focus on CM, but would require commitment from the province, both to attend and to implement recommendations (could act as an advisory of the HOD). + Representation on catchment management structures may contribute towards coordination, but not all authorities can be represented, and representatives may not necessarily have adequate power.

Issue	***Alternatives***	***Discussion***
Which national-regions and/or provincial authorities should be represented on a CMA, CMC or Forum ?	• all those identified above • always certain key authorities • selected catchment-specific sectors • none	Not all authorities can necessarily be represented on CM structures, nor is it necessarily appropriate. However, depending upon the critical issues in the "CM Area", some authorities must be included, but with representatives with adequate authority to implement CM resolutions. These could be uniform in all catchments (eg. land, urban, agriculture and environment), or be catchment specific.
How should other national-regions or provincial authorities be represented on a CMA, CMC or Forum ?	• full status at committee level • observer status at committee level • technical sub-committee level	Full status will provide motivation for other authorities to take CM seriously, but will limit the number of representatives, while observer status may have the opposite effect. Alternatively, membership of authorities on technical sub-committees enables representation on sectoral issues, which will go forward as recommendations, but without enlarging the management structure.
Which provincial and regional initiatives should CM incorporate and/or advise (Figure 8.1) ?	• Provincial Growth and Dev. Strategy, including Spatial Dev. Strategy • Regional, Sectoral and Infrastructural Dev. Strategies (eg. SDI's) • Land redistribution, housing etc.	The development of a CM Plan for legislation must be consistent with other provincial and regional initiatives (strategies and plans), otherwise conflict will develop and the effectiveness of CM will be reduced. However, the converse is that CM must actively lobby for these strategies to reflect the needs of CM and the opportunities and constraints associated with the water resources in different areas. Because CM is regionally based and reflects local interests, it is potentially less "threatening" for provincial authorities; this feature should be highlighted by catchment managers.
How should CM coordinate with statutory water sector authorities, which may not be functionally part of CM ?	• water boards • irrigation boards • DWAF-CWSS	If water infrastructure planning and development is not a functional area of CM, then interaction with these authorities and statutory agencies is required, possibly in similar ways to other national-regions and provincial authorities, albeit also using the water law.
If more than one Act applies, which has legal precedence?	n/a	The overlap between CM and the functions of many regulatory and planning authorities external to DWAF requires that the issue of legal precedence be resolved.

Figure 8.1. Schematic Illustrating the Different Planning Levels in South Africa.



8.4Fostering Cooperative Government with Local Authorities

Local governments are Constitutionally responsible "to ensure the provision of services to communities in a sustainable manner" and "to promote a healthy and safe environment, " while their specified functional areas of competence include a number of activities which are central to CM, including municipal planning, waste management, water supply and sanitation systems, and stormwater management systems. Thus it is imperative that they are addressed within CM structures and strategies, both to identify their needs and aspirations and to gain their cooperation and support. Unfortunately, the resources, capacity and structure of local government in South Africa is highly variable, which complicates the formulation of a strategy to engage and involve them in CM.

Issue	***Alternatives***	***Discussion***
Which local authorities should be targeted by CM ?	◊ District, Regional or Services Councils ◊ Metropolitan Councils ◊ Urban Local Councils (TLC or TMLC) ◊ Rural Local Councils (TRC's or TLC's)	Although the Constitution delineates local government as one sphere, it is currently functionally split into two tiers (by the Local Government Transition Act until 1999, after which the situation is still unresolved): the upper tier includes metropolitan councils in urban areas and district councils in rural areas; the lower tier includes metropolitan local councils and local councils in urban areas and rural, representative, local, and local area councils in rural areas. Urban councils tend to have greater capacity and resources, while rural councils are often hardly functioning. ⇒ All relatively well functioning local government should be targeted, but upper tier local authorities may be a means of accessing local authorities without having to include every one individually.
How should local authorities be included in CM ?	◊ CMA, CMC or Forum (full or observer status) ◊ technical sub-committees (all or some local authorities in a catchment)	Similar problems are raised for local authority inclusion as for provincial authority inclusion in CM, except local authorities only need to be included at a catchment level, and there are far more of them but with varying capacity. The larger, more politically powerful authorities (including metro councils), together with upper level structures (district councils) and possibly some smaller lower level local authorities, will have to be represented on the CM structures. All local authorities may be invited to attend an urban CM technical sub-committee.

Issue	*Alternatives*	*Discussion*
Which local initiatives should CM attempt to guide ?	◊ Land Development Objectives (LDO's) conducted by local authorities ◊ Urban Structure Plans and Town Planning Schemes ◊ Rezoning of agricultural land ◊ Water Service Development Plans ◊ All proposed projects evaluated by provincial or local government	Spatial planning and zoning at a local level provides a very effective mechanism for CM. Therefore catchment managers should attempt to forge a partnership with relevant authorities in local government (as well as the provincial and national authorities of housing, environment and agriculture) who are functionally responsible for formulating guidelines for development and evaluating development proposals. This is particularly important in the urban and rural settlement context, which is guided by LDO's and Structure Plans.
Are there ways to compel local authorities to cooperate or follow CM Strategies/ Plans ?	◊ legal ◊ financial ◊ resource (eg. water) allocation ◊ training/education of personnel ◊ public pressure ◊ other national or provincial authorities	It is in the interests of local authorities to cooperate with CM, because they are generally the beneficiaries of water supply. It may be possible to link CM water supply to implementation of appropriate elements of a CM Strategy/ Plan by the local authority. Furthermore, cooperation with national and provincial authorities may bring other (financial and legal) pressures to bear where necessary through existing mechanisms.

8.5 Fostering Collaboration with NGOs and CBOs

Although this section is particularly aimed at fostering cooperation regarding CM among statutory bodies and organs of state, it would be a serious shortcoming if the need to foster collaboration with Non-Government Organisations (NGOs) and Community-Based Organisations (CBOs) is not included. Many NGOs and CBOs have missions that relate to water and land management, and are investing in relevant capacity building among their members and client communities and common interest groupings. This resource and capacity base needs to be supported and drawn into the CM process.

8.6 Fostering Collaboration among CM Partners through Shared Allocation of CM Charges

In the past a major problem experienced by DWAF with advisory committees and forums relating to water management was that representivity on these bodies was very fluid and often by individuals without delegated powers. This was likely due to the fact that a sense of statutory responsibility in the water field did not lie with non-DWAF members of such bodies. The levying of CM charges to fund the CM Process, foreseen in the Draft National Water Bill, will create an opportunity to foster more effective collaboration among all national, provincial and local governmental and NGO "Partners" in CM by making the income from CM charges available to all such "Partners", on condition that the CM charges be utilised only for Partner activities that facilitate and support CM.

9 CRITICAL QUESTIONS FOR DWAF FOR CM IMPLEMENTATION.

The implementation of statutory CM requires DWAF to play a pioneering, proactive role. In preparation for this role, DWAF needs to plan strategically and to allocate internal responsibilities to ensure that all components of the Implementation Strategy receive appropriate attention. The components of the Strategy are elucidated in Part I of this document. However, translation of the Strategy into a Programme of Actions, such as that proposed in Part I, has required that certain crucial implementation questions and issues be addressed by DWAF Management. Some of these are already receiving attention, but for the sake of a complete background, the full list is given below.

9.1 Summary of Implementation Questions and Issues

9.1.1 Functional responsibility of CM:

Are any of the following in the direct domain of CM ?:

- ◊ formulation of the CM Framework (Classification, Reserve, Resource Quality Objectives, Water Allocation Plan)
- ◊ infrastructure planning and/or development (CWSS and/or water resource systems)
- ◊ water resource (river-reservoir) systems operation and/or maintenance
- ◊ control and enforcement (including prosecution)
- ◊ water resources and catchment monitoring and assessment

It is assumed that translation of the CM "Framework" into a CM Plan/Strategy and its implementation is definitely the responsibility of CM.

9.1.2 Restructuring of DWAF in terms of CM:

- ◊ What is the soonest that a National CM Facility can be established inside DWAF ?

- ◊ What type of National CM Facility is envisioned in the short-term?
  - ⇒ if departmental, at what level (Chief Directorate, Directorate) will this CM Facility be?
- ◊ Will restructuring be:
  - ⇒ functional (line functions within CM groupings), or
  - ⇒ philosophical (CM activities undertaken within line functions groupings)?
- ◊ Will/should the DWAF regional offices be restructured to be interim CMA executivea/administrations?

9.1.3 Personnel and capacity for CM implementation:

- ◊ Will additional staff (eg. social, public communication, conflict resolution, financial skills) be:
  - ⇒ recruited for DWAF to implement CM, or
  - ⇒ will these be selected from existing resources?
- ◊ Should training/capacity building be performed by the
  - ⇒ Human Resources Directorate,
  - ⇒ National CM Facility,
  - ⇒ Regional DWAF offices, and/or
  - ⇒ Tertiary educational institutions?
- ◊ Depending upon the structure, should short-term DWAF CM budgeting/financing be:
  - ⇒ through the national CM Facility (to regional/catchment functions)
  - ⇒ in terms of relevant national/regional line function budgets
  - ⇒ as separate items under line function budgets?

9.1.4 CMA establishment and CM implementation:

◊ Can it be assumed that CM implementation may be based on the following approach?:
  ⇒ more than 20 CM Areas will be defined,
  ⇒ possible target or pilot sub-catchments may be identified within each CM Area, along with a few key CM issues with social, economic or ecological importance,
  ⇒ these target/pilot sub-catchment areas and issues will be the focus of short term CM acceleration, and
  ⇒ longer term implementation will grow institutionally (to a CMA), geographically (to the entire CM Area) and functionally (to all relevant CM functions/issues) from these.

◊ Should CM Forums be initiated in all identified target sub-catchments (at least one in each CM Area)?

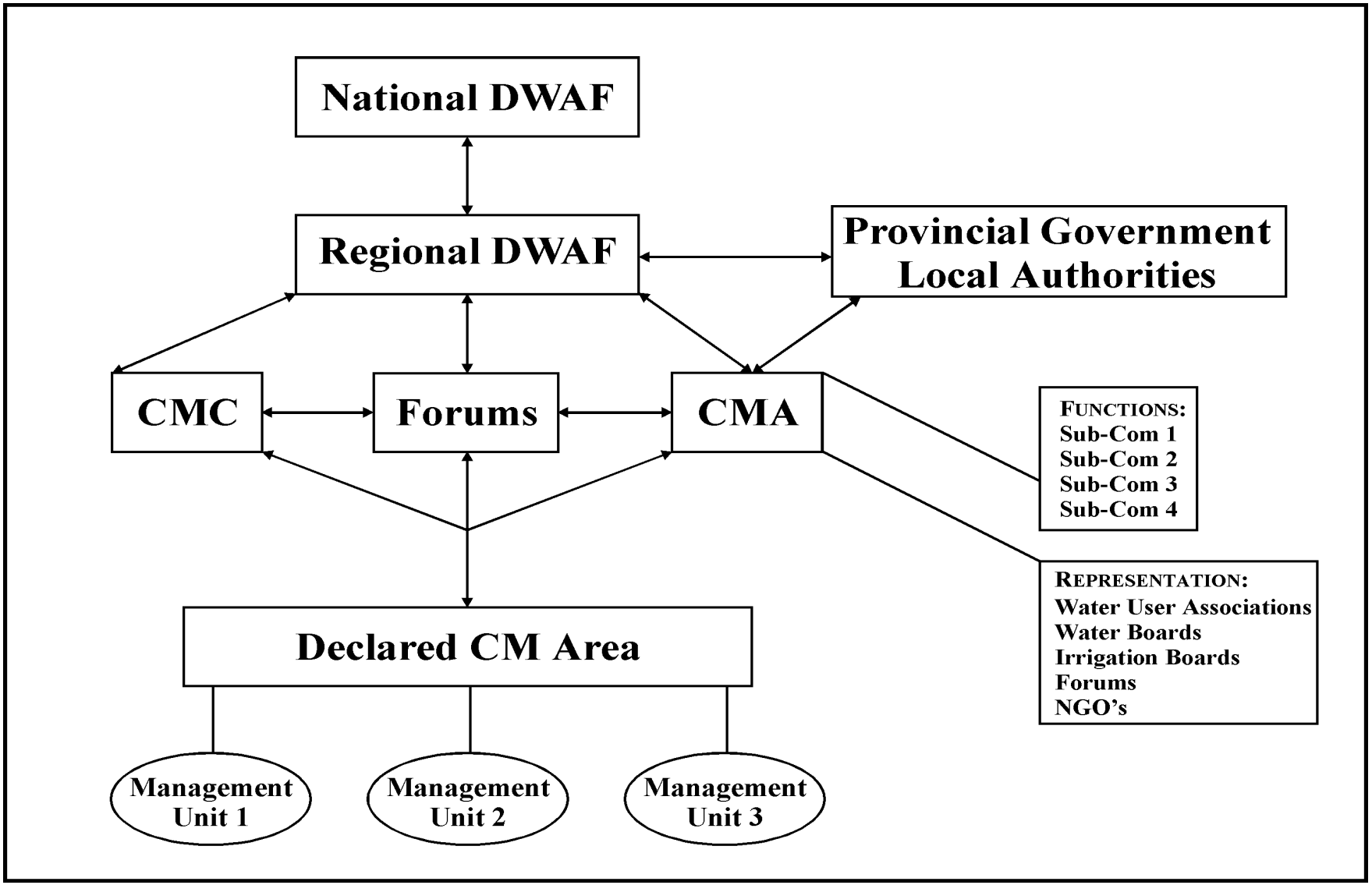
◊ Should
  ⇒ CMA executive/administrative arms be established at the same time as CMA governing boards, or should
  ⇒ the Regional DWAF act as the executive until the CMA board has proven its capacity and available resources to address all (integrated) CM issues?

◊ How should CM interact with ongoing national, provincial and local policy and planning processes?

◊ Is there an opportunity for a DWAF-led inter-Departmental CM Policy (White Paper) process?

9.1.5 Degree of interface with other authorities for CM in the short term:

Appendix A: Schematic of Alternative CM Infrastructures in a Particular Catchment or "Declared CM Area"



Appendix B: Schematic of Plausible Linkages between CMAs and Various Components of DWAF