

Department : Water Affairs and Forestry

Integrated Water Resources Management



Guidelines for Stakeholder Participation in IWRM Full Guideline



DEPARTMENT OF WATER AFFAIRS AND FORESTRY

INTEGRATED WATER RESOURCES MANAGEMENT

GUIDELINES FOR STAKEHOLDER PARTICIPATION IN INTEGRATED WATER RESOURCES MANAGEMENT IN WATER MANAGEMENT AREAS IN SOUTH AFRICA

INTEGRATED WATER RESOURCE MANAGEMENT STRATEGIES, GUIDELINES AND PILOT IMPLEMENTATION IN THREE WATER MANAGEMENT AREAS, SOUTH AFRICA

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TARGET GROUP:	DWAF, IWRM Project Consultants and implementers in three water management areas.	
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DOCUMENTS FOR OUTPUT 4: STAKEHOLDER PARTICIPATION ESTABLISHED AND TESTED IN THE THREE SELECTED WATER MANAGEMENT AREAS THROUGH PUBLIC AWARENESS AND STAKEHOLDER WORKSHOPS:

- 1. a. Guidelines for Stakeholder Participation in Integrated Water Resource Management in Water Management Areas in South Africa, Carl Bro a/s, March 2002
 - b. Guidelines for Stakeholder Participation in Integrated Water Resource Management in Water Management Areas in South Africa: Summary, Carl Bro a/s, 2003
 - c. Guidelines for Stakeholder Participation in Integrated Water Resource Management in Water Management Areas in South Africa: Executive Summary, Carl Bro a/s, 2003
- 2. a. Evaluation of the Involvement of Previously Disadvantaged Individuals in the Catchmant Management Agency Establishment Process in the Three Water Management Areas.
 - b. Evaluation of the Involvement of Previously Disadvantaged Individuals in the Catchmant Management Agency Establishment Process in the Three Water Management Areas. Summary.
 - c. Evaluation of the Involvement of Previously Disadvantaged Individuals in the Catchmant Management Agency Establishment Process in the Three Water Management Areas. Executive Summary.

RELATED DOCUMENTS:

Integrated Water Resources Management Communication Strategy, DWAF.

Generic Communication Strategy for IWRM, DWAF/DANCED, December 2001.

Communication and Implementation Plan for Crocodile West and Marico, Mvoti to Umzimkulu, Olifants-Doorn, Carl Bro a/s, Pravin Amar Development Planners cc, October 2001.

Institutional Roles and Linkages: Phase 1 Report, Carl Bro a/s, IZNA Consortium, February 2002.

Capacity Building Overview Assessment Vol.1, Carl Bro a/s, IZNA Consortium, October 2001.

Capacity Building Overview Assessment Vol.2, Specific Capacity Building Requirements of Role-Players, Carl Bro a/s, IZNA Consortium, October 2001.

Capacity Building Implementation Plan, Carl Bro a/s, IZNA Consortium, April 2002

Guideline on the Viability Study for the Establishment of a Catchment Management Agency, Carl Bro a/s, Pegasus Strategic Management, February 2002.

Guidelines for Groundwater Management in Water Management Areas, South Africa, Carl Bro a/s, IZNA Consortium, February 2002.

Guidelines for the Implementation of Water Conservation and Water Demand Management in the Water Services Sector, Carl Bro a/s, IZNA Consortium, March 2002.

FOREWORD

The promulgation of the National Water Act placed South Africa in a somewhat enviable position. The new Act, perhaps even more so than water legislation in many developed countries, reflects the most recent approaches towards water resources management. However, while this presents significant opportunities for the country, it also provides enormous challenges. The Department of Water Affairs and Forestry has therefore invested considerable effort in developing a wide range of tools and approaches to give effect to the new Act. These both support water resources management at a national level, as well as the management of the water resources within the specified Water Management Areas at a regional level. The DANCED funded IWRM project is just one of the steps in this ongoing process.

However, many of these tools either outline high-level policies and approaches, or tend to be focussed on particular water resources problems. These tools have, nevertheless, been used as the basis for water resources management in South Africa. But, to date, relatively little effort has gone into integrating these tools. It is therefore becoming increasingly important to provide a framework to knit together these various components of water resources management. Integrated Water Resources Management provides this framework, but international approaches will clearly have to be adapted to the South African context. The IWRM process outlined in this report therefore outlines a stepwise process of interaction with stakeholders, which is supported by the water resources management tools that have been, or are still being, developed by the Department, but which also plays particular attention to the South African context. In particular, the report concentrates on the need to redress the inequities inherited from the apartheid system.

As such, the framework proposed in this document outlines a simplified process that focuses on servicing the needs of stakeholders, and not on trying to understand and manage the complex web of interactions that underlie water quantity, quality, aquatic ecosystems and land use interactions. This means that integration is a product of harmonising stakeholders needs for use of the water resource, and the use of tools to realise these needs, rather than a specified task in the process. This focuses attention on those interactions that threaten stakeholders' use, or desired use, of water - or on those processes that may impact on the desired state of the aquatic ecosystem, and not on trying to align all the activities in the catchment. This has two main advantages, stakeholders can more meaningfully contribute to a process that is focussed on meeting their needs for use of the water resource, and secondly it focuses the limited resources on those issues that threaten the stakeholders' ongoing use of the water resource.

One of the greatest challenges for this process is to develop mechanisms to ensure equity in what is still an inequitable environment. This report, therefore, proposes assisting stakeholders to initiate a process of change by establishing goals for the more equitable, beneficial, and sustainable use of the water resource into the future. This is done by highlighting the present inequities in the use of the resource and the economic returns from its use. However, recognising the enormous backlogs left by the apartheid system, the framework also makes provision for the gradual and progressive realisation of these goals, and for the process to contribute to the development of Catchment Management Strategies that provide the legislative and institutional frameworks to realise the goals.

Lastly, the National Water Act makes provision for a number of processes at a Water Management Area level. Most importantly for IWRM are the processes for the establishment of the Catchment Management Agency, and the promulgation of Catchment Management Strategies that provide the institutional and legal instruments to give effect to the IWRM process. The framework proposed in this report parallels these processes, and as such outlines one of the functions of the CMA once it has been established.

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ACRONYMS

CMA	Catchment management agency	
CMS	Catchment management strategy	
DANCED	Danish Cooperation for Environment and Development	
DWAF	Department of Water Affairs and Forestry	
ICM	Integrated catchment management	
IWRM	Integrated water resources management	
NWA	National Water Act	
NWRS	National Water Resources Strategy	
UNCED	United Nations Conference on Environment and Development	
WC/WDM	Water conservation / water demand management	
WMA	Water Management Area	
WRC	Water Research Commission	
WUA	Water users associations	

A SUMMARISED GUIDE FOR STAKEHOLDER PARTICIPATION IN IWRM

This guide outlines a series of themed workshops with stakeholders. These workshops are supported by water resources management tools, which provide information to stakeholders such that they can meaningfully contribute to the process. The guide also highlights things stakeholders should know to ensure the workshops reach their objectives. It is based around establishing a process of change to secure the more equitable, beneficial and sustainable use of the resource. Issues that threaten this process are then identified, and a series of steps are agreed to ensure the progressive realisation of this goal

The CMA (or DWAF) should facilitate this process, and it would be repeated every time the Catchment Management Strategy is revisited. As such, it should be seen as an ongoing process. Moreover, the proposals outlined here are not a rigid series of steps, but rather a process of gradually meeting stakeholders needs for use of the resource, and of identifying and resolving those issues that threaten these needs. Each step in the process is supported by Monitoring Actions, which have not only been designed to support the DANCED funded project, but could also be used to support the ongoing implementation of IWRM in the selected, as well as other, Water Management Areas.

More importantly, the IWRM process outlined here does not seek to align all planning and activities in the catchment, but rather remains focused on addressing the major water resource problems. As such, integration becomes a product of the process, rather than its expressed objective. In this respect this document has been focused around a simpler definition of IWRM as follows:

Integrated Water Resources Management is the process of meeting the needs for use of the water resource, as expressed by the stakeholders, in such a way as to ensure the equitable, beneficial and sustainable use of the water resource.

In addition, the process outlined will run in parallel with a number of processes in the Water Management Area. These would ensure the establishment and functioning of water management institutions, and would ensure the routine water resources management functions such as pollution monitoring and management, the operation of impoundments and interbasin transfers, and administration of the water use process. The process proposed summarised on the following pages, therefore, only focuses on stakeholders needs over and above the institutional and routine requirements for water resources management, as such it helps develop the Supporting Strategies component of the CMS¹.

¹ See DWAFs report on "Development of a generic framework for a Catchment Management Strategy.

In terms of the DANCED funded project, this process would parallel the establishment of the CMA in each of the selected Water Management Areas, and may contribute to the formulation of Catchment Management Strategies for these WMAs.

The Guide outlined on the following pages is a distillation of the main conclusions and proposals made in this report. The reader should refer to the main report for the justification and background for the proposals made.









1 INTRODUCTION

1.1 Background

South Africa's National Water Act (Act 36 of 1998) reflects some of the most up-to-date global thinking on water resources management. The Act, consistent with Agenda 21 principles, has the need for equitable, beneficial and sustainable use of the water resource at its core. It also makes special provision for the management of water resources at a catchment level and recognises the interdependence of land use and water resources management. However, while this provides significant opportunities for improving the management of South Africa's water resources, it also presents new challenges for the country. South Africa's Department of Water Affairs and Forestry (DWAF) is, therefore, investing considerable resources in developing the procedures and strategies to give effect to this new legislation.

In September of 1998 DWAF presented a cluster of related project ideas to Danced to lend further support to this process. The negotiations that followed recognised the interlinked nature of three of the project ideas. This resulted in the formulation of a project document outlining a single project with three components:

- The establishment and implementation of institutional arrangements and the promotion of integrated water resource management (IWRM) in three selected water management areas (WMAs).
- The development of strategies and instruments for the sustainable management of groundwater resources within the new IWRM framework.
- The development of sound water conservation and water demand management practices to be used by water services institutions and local government.

The single project - "Integrated Water Resources Management Strategies, Guidelines and Pilot Implementation in Three Water Management Areas, South Africa (the IWRM Project)" was started in August 2000. Unfortunately, the project document was still largely a product of its evolution from three separate project proposals. As such, the combined project did not place much emphasis on the integrated nature of the 3 components. The inception phase of the project has therefore revised and consolidated the project into 8 new outputs that retained the original intentions of the three components, but which also emphasised the "IWRM nature" of the project. The revised immediate project objective:

Integrated Water Resource Management, through functional CMAs, established in three selected Water Management Areas, (Crocodile West – Marico, Olifants – Doorn, and Mvoti to Umzimkulu),

now reflects this emphasis.

The revised Output 4 - Mechanisms for stakeholder participation established and tested in the three selected WMAs – underlines the need to both build awareness of IWRM among stakeholders, and to develop the mechanisms to ensure their participation in formulating the Catchment Management Strategies. This report forms part of this output, and proposes mechanisms for stakeholder participation in IWRM. However, the report also draws on the other outputs of the project to further strengthen the integrated nature of IWRM.

1.2 Ongoing DWAF initiatives

The IWRM project has taken some time to both formulate and establish. DWAF has in the interim continued with the development of guidelines to support the establishment and functioning of catchment management agencies. These include:

- Guides 1 4 on:
 - The CMA as an organisation;
 - Establishing a water user association;
 - Establishing a CMA;
 - Public participation for CMAs and WUAs;
- Development of a generic framework for a catchment management strategy (final draft);
- Implications for regional office involvement in water resource management;
- Roles and relationships between institutions involved in catchment management;
- Facilitating the process of implementing catchment management at a regional level;
- Financial viability of CMAs;
- Guidelines for the water quality management component of a CMS, and
- Generic public participation guidelines and suite of models (Draft).

These documents have paid particular attention to the need for stakeholder participation in the establishment of the CMA, the formulation of the CMS, and in the formulation of goals for water resources management. They have also provided useful tips and methodologies for interacting with stakeholders, and have outlined the statutory requirements in this regard. However, these guides have remained largely at a policy or generic level, and have not tackled the mechanics of stakeholder participation in IWRM in detail.

Nevertheless, DWAF's generic public participation guidelines and suite of models (Draft), Guide 4 – Public participation in CMAs and WUAs, and Danced's – Participation in Environmental Assistance have provided valuable "Rules of Engagement" for interaction with stakeholders. This report does not repeat these lessons, but rather focuses on stakeholder participation in the IWRM process. However, every effort has been made to ensure that the proposals made in this report are consistent with these generic approaches. Wherever possible cross-references have been made to these tools.

In addition to this, DWAF has produced a number of other technical tools, many of which are routinely used in the Department, and which support IWRM. These tools have been summarised in Appendices that explain where it can be used to support the proposed IWRM process.

1.3 Tools being developed by the Danced project

The IWRM project is also developing a number of tools that can be used to support this process. Most importantly,

- Output 7.2 Guidelines and tools for groundwater resource allocation.
- Output 7.5 Elaborate groundwater resource assessment tools
- Output 7.8 Protocols to address groundwater in the Catchment Management Strategy.
- Output 8.1 Elaborate generic procedures, manuals and guidelines for WC/WDM for CMAs
- Output 8.2 Generic procedures and guidelines for WC/WDM for water services institutions developed.

These tools are also cross-referenced in text, and are outlined in more detail in Appendices.

1.4 Objectives of this report

The National Water Act (s10 (2c)) requires the catchment management agency to consult with any persons or organisations that may impact on the water resources when establishing a catchment management strategy. The Act (s10 (1)) also indicates that the Minister of Water Affairs and Forestry may establish guidelines for the preparation of these catchment management strategies. The intention of this report is to serve these provisions of the Act, by building on the policy and guides already produced by DWAF so as to;

- Propose a framework for stakeholder participation in IWRM,
- Formulate a procedure to give effect to this at a water management area level,
- Identify the awareness and training material needs with respect to this procedure.

This is done by firstly providing a background to IWRM, and how stakeholders can contribute to the IWRM in their water management areas (Chapter 2). The report then proposes a framework for stakeholder participation in IWRM (Chapter 3). Chapter 4 proposes stepwise procedure for stakeholder participation in IWRM, and Chapter 5 highlights what awareness and training materials need to be produced to support the process. Chapter 6 makes some recommendations for the ongoing development and testing of the proposals made.

However, in proposing a framework for stakeholder participation in IWRM, the report has also had to propose part of a wider IWRM framework. As such, the report can also form the basis for a framework that can knit together the various Outputs of the Danced funded IWRM project.

1.5 Mission Plan

This report is the product of a six week input into the IWRM Project, and has been formulated in the following steps:

- 1. Propose a generic framework for stakeholder participation in IWRM.
- 2. Test these proposals in an iterative way with stakeholders at DWAF Head Office.
- 3. Use this feedback to outline the first draft of Guidelines for stakeholder participation in IWRM.
- 4. Test this approach with DWAF staff in the three selected WMAs.
- 5. Use these experiences to update and modify the approaches.
- 6. Outline the second draft of the Guidelines for Stakeholder Participation in IWRM.

This report represents the second draft of the report, and has been produced as part of Step 6.



IMPORTANT CONCLUSIONS, ISSUES AND EXAMPLES

Important conclusions, issues stakeholders' need to be made aware of, or examples of using the IWRM framework are highlighted in these boxes. Readers may scan the document for these text boxes to get an overview of the main principles contained in text.

2 THE CONTEXT OF STAKEHOLDER PARTICIPATION IN IWRM IN SOUTH AFRICA

2.1. What is IWRM?

The concept of integrated water resources management or catchment management is not new, and was proposed as early as the late 1800's in USA. These early proposals where based on the understanding that water flows downstream from one user to the next, and water use by one user potentially robs downstream users of a share in the water. Similarly, waste discharged into the water resource also impacts on downstream users. As such, in order to maximise the benefits of use of the water resource, and to ensure equitable use of water, you must balance the needs of all the water users (and discharges) in the catchment. This relatively simple concept remains the cornerstone of IWRM and should serve as the basis for building an awareness of IWRM among stakeholders.

WHAT STAKEHOLDERS SHOULD KNOW: 1

Stakeholders individually are a small part of a whole catchment, and their actions affect downstream users, and upstream users in turn affect them. This, together with the need to ensure the equitable use of the resource, requires that we look at all the users in the WMA.

The concept of IWRM (or integrated catchment management) has grown from these early ideas and is now seen as the method of choice for managing the world's water resources in Agenda 21. (South Africa, as a signatory to Agenda 21, is tied to these policies.) The Global Water Partnership now sees IWRM as a process that "aims to ensure the co-ordinated development and management of water, land and related resources by maximising economic and social welfare without compromising the sustainability of vital ecosystems."

However, many developed countries; in particular Australia, the USA, and some countries in Europe, are expressing increasing disillusionment with this concept of IWRM. Statements like *"the concept remained fragmented…..it did not improve regional integration nor contribute to regional economic development"* (Vengert - USA), and *"attempts to develop an integrated strategy failed"* (Blackmore - Australia)² now underline that this concept of IWRM is not a universally successful approach. Be this as it may, there have been a number of cases where IWRM has contributed to more equitable and efficient use of the water resources, and where environmental sustainability has been secured by balancing the increasing demands for water with environmental and other waters user's needs.

In many of these success stories IWRM has remained focussed on managing the water resource. The impact on land use planning has therefore been secondary, for example by making water available for some activities in some parts of the catchment.

² Extracted from a presentation by Mr Fred van Zyl at a workshop on Catchment Management in South Africa – April 2000

What makes this approach more attractive is that in South Africa the mandates for control over the water resource, land use and the environment are spread over a number of agencies, and across three spheres of government, each of which jealously guards their territory. IWRM in South Africa should therefore focus on managing the water resource – a sentiment that was echoed by DWAFs Director-General at the April 2000 Catchment Management workshop. In this project's context, IWRM should therefore be promoted as the process that contributes to the formulation of catchment management strategies in each of the selected water management areas, and should serve the development and updating of catchment management strategies in other WMAs once the project finishes.

In this respect this document proposes a simpler definition of IWRM as follows:

Integrated water resources management is the process of meeting the needs for use of the water resource, as expressed by the stakeholders, in such a way as to ensure the equitable, beneficial and sustainable use of the water resource.

WHAT STAKEHOLDERS SHOULD KNOW: 2

IWRM is not about dictating stakeholders' rights to live, mine or irrigate in an area, but is about ensuring the equitable, beneficial and sustainable use of the water resource. This use includes both consumptive use and the use of the resource to carry their waste, or for the recreational use of the resource. IWRM should also seek to maintain aquatic ecosystems as desired by the stakeholders.

2.2. What is an IWRM stakeholder?

A stakeholder would be anyone (or group) who uses water. Water use, as per the definition in the National Water Act³, includes consumptive use of water, the use of water to carry waste, or the recreational use of water. Stakeholders may also include groups with particular environmental concerns for the water resource, or the Department of Water Affairs and Forestry with respect to the need to make provision for the Reserve and for the requirements of the National Water Resources Strategy. Stakeholders also include land use activities that, by virtue of their placement, directly impact on the quality of the water resource via nonpoint source contamination or destruction of riparian or instream habitat. This can occur irrespective of whether that stakeholder has any direct abstraction or discharge to the water resource.

Stakeholders may also associate in water services institutions, catchment forums, or water users associations to strengthen their participation in IWRM. These groups would share a common use of the water resource, may share a common desire to maintain the resource in a particular state, or may represent users in a particular sub-catchment of the whole WMA. Stakeholders should be encouraged to associate in groups with similar uses of the water resource, within a particular sub-catchment, to ensure administrative simplicity.

³ This broader definition of water use is used throughout this document.

WHAT STAKEHOLDERS SHOULD KNOW: 3

All the potential stakeholders must be identified, made aware of the fact that they are stakeholders, and made aware of other stakeholders in the water management area. Stakeholders should be encouraged to associate in groups with similar uses or needs for use of the resource.

2.3. Subsidiarity and IWRM

Subsidiarity - the process of devolving decision making down to the lowest possible level – is becoming the increasingly accepted way of managing natural resources. Agenda 21 makes special provision for this by promoting Local Agenda 21 activities to improve sustainable use of resources. This is because local people can best identify their needs with respect to use of the resource, derive direct benefit from its sustainable use, and are placed at the point of use and can therefore best manage this use. Schedule 5 of South Africa's Constitution makes provision for subsidiary by devolving governance of selected issues to local or provincial government. While Schedule 5 excludes water resources management, the principle of subsidiarity should still underlie IWRM within the water management areas.

Subsidiarity in water resources management in South Africa is given effect by Chapters 2 and 7 of the National Water Act, which make provision for the establishment of catchment management agencies (CMAs) that will manage the water resources within water management areas (WMAs). Catchment management agencies will give effect to IWRM by formulating catchment management strategies (CMSs) for each WMA. However, strategic uses of water, international obligations, transfers of water between WMAs and the Reserve (see Section 2.5) are still managed at a national level via the National Water Resources Strategy. The Department of Water Affairs and Forestry has established 19 WMAs across South Africa. Eventually CMAs will be established in each of these WMAs. The responsibilities for IWRM at a local level will therefore rest with the catchment management agencies, or on DWAF where these agencies have not yet been established.

South Africa has other special needs with respect to subsidiarity. The majority of South Africans have long been denied any say in their own governance or the use of resources. This together with a history of inequitable access to resources has meant that the requirements for stakeholder participation are particularly high in South Africa. More importantly, there is an increasing demand from previously deprived communities for the more equitable use of resources. Unfortunately, many of these communities remain at a disadvantage due to their remote position and poor education. This means that the larger water users often dominate and subjugate poorer communities' needs. One of the greatest challenges facing IWRM in South Africa is to ensure that these stakeholders' needs are absorbed into the process of formulating the Catchment Management Strategies.

There is also a potential inconsistency between IWRM principles, which require integrated management of the water resource over the whole WMA, and the need for local management of the water resource. Stakeholder involvement in IWRM must consequently find the balance between local needs and the Water Management Area wide management of the water resource.



WHAT STAKEHOLDERS SHOULD KNOW: 4

The process of IWRM in the water management area secures stakeholders needs for, and contributions to, management of the water resource, But the differing needs expressed by stakeholders will have to be balanced with the management needs of the whole area.

2.4. Batho Pele and IWRM

Integrated water resource management is a complex task and the ability to recognise potential conflicts between the different stakeholders needs, to suggest management options to address these conflicts, and finally to balance these needs in an equitable way, needs technical expertise. It will be impractical to try and provide all the stakeholders with this technical expertise. However, stakeholders need to know that the technical process, just like the medical profession, will be bound by an ethical code.

The South African Government has committed itself to people orientated governance, as captured in the *Batho Pele* (or people first) principles. These principles provide the ethical code that should guide IWRM and interactions with stakeholders in the water management areas. Most importantly, these principles spell out the relationship between the people with the technical expertise to give effect to IWRM and the stakeholders. Perhaps more importantly, experts who are seen to be impartial, and who bound by the *Batho Pele* principles, should facilitate the IWRM process. These facilitators would have to have some experience with the various components of water resources management, but need not necessarily be experts in these components. However, it is recommended that these facilitators receive training specifically in the IWRM process (see Chapter 5).

WHAT STAKEHOLDERS SHOULD KNOW: 5

The objective of IWRM is to serve stakeholders needs. However, the process is complex and would have to be facilitated by skilled professionals. These professionals must serve the needs of the stakeholders, and should be bound by the *Batho Pele* principles.

2.5. Ensuring Equity

One of the most important IWRM issues in the South African context is that use of the water resource still remains skewed towards people advantaged by the apartheid system. This inequality pervades all aspects of interactions with stakeholders and their ability to use the resource. There is therefore a risk that the IWRM process would perpetuate these inequalities. For example, there may be a desire to increase the use of irrigation water by emerging farmers, but given that the access to land, or wealth to purchase land, is skewed the inequity may only be addressed when people get land and wealth.

In this respect there may be a tendency to continue supplying users that generate wealth and jobs in the catchment, particularly when faced with the difficulties of ensuring equity in all aspects of life.

However, it is impractical to forcibly change the water use patterns in the short term by taking water away from the present users – just to secure more equitable use. It is, therefore, critical to establish a process moving towards the more equitable use of the water resource within the longer term (15 - 20 years), and to decouple this from the practicalities of trying to achieve this in the short term. This is only possible by highlighting the present inequities in the use of the water resource, and in the economic returns from use of the resource, and then establishing a process of change. In this way the practicalities around changing water use patterns only determine the size of the step taken, and not whether the step is taken. It is also possible to test whether the short-term steps still lead towards the long-term goals.

WHAT STAKEHOLDERS SHOULD KNOW: 6

It is important that IWRM and stakeholders establish a process of change that will lead to the more equitable use of the water resource. Stakeholders should, therefore, be made aware of the current inequitable use of water, and the inequities in the economic returns from water use. However, in order ensure the process does not create unrealistic expectations, stakeholders must recognise the need for gradual change.

2.6. Resource Directed Measures and IWRM

The National Water Act focuses attention on the protection of water resources via resource directed measures. These include the Reserve and the water resources classification system, both of which have implications for stakeholder participation in IWRM.

The Reserve represents that volume and quality of water that is required for basic human needs, and for the functioning of the aquatic ecosystem. It is the only water use by right, and it is possible to expropriate existing water rights to meet these Reserve requirements. Stakeholders cannot impinge on this Reserve, and this portion of water resource management therefore lies outside of their influence over IWRM. However, in cases where the Reserve is threatened by existing uses of water, stakeholders will have to participate in identifying where water use would have to be curtailed to secure the Reserve.

The National Water Act also requires the Minister of Water Affairs and Forestry to promulgate a water resources classification system. This system is still in development, and it is therefore difficult to see how the system may influence stakeholder participation in IWRM Nevertheless, some conclusions can be drawn from the development of the system to date. The water resources classification system is intended to provide the framework to balance protection and use of the water resources in such a way as to ensure national uniformity. It will include procedures to classify both surface and groundwater resources, and will specify resource quality objectives for different classes of water resource. The water resource class may also determine the allowable uses of the resource within that class.

Classification of water resources must also be driven by stakeholder participation. At this point it is still unclear whether classification of the water resources will be driven by the catchment management agencies or will be driven from a national level. In the former case, classification must be merged with IWRM process in the water management area, in the latter case stakeholders need to be made aware of the requirements of the resource class, and how this impacts on meeting their needs⁴.

WHAT STAKEHOLDERS SHOULD KNOW: 7

Stakeholders need to know that the concept of the Reserve secures their basic needs, but that the IWRM process in the water management area must secure their needs over and above this. They also need to know that the requirements of the Reserve and resource class may curtail or support the realisation of their goals.

2.7. Ensuring participation in IWRM

South Africa has only recently emerged from an apartheid system that not only denied people a say in their own future, but also actively robbed them of capacity. Stakeholders are therefore demanding both a high level of participation, but also require capacity building to ensure that they can meaningfully participate in the process. Unfortunately most government agencies are actively developing and implementing new policies and strategies, all of which require stakeholder participation. This has placed significant demands on stakeholders, and in many cases "stakeholder fatigue" has limited effective longer-term participation – particularly from previously disadvantaged groups. Much of this seems to be associated with projects without clearly defined end points i.e. those that ask stakeholders to "Contribute to a better South Africa". More successful participation is gained in projects with clearly defined end points, with clear benefits for participation (see DWAF's Guide 4 of the CMA/WUA series, and the Generic Guidelines for Public Participation).

Stakeholder participation in IWRM should, therefore, be based on a well-defined process leading to clear benefits to participation. As such, stakeholders need to be able to express their needs, but also to see how these needs are going to be progressively realised by ongoing participation. Similarly, conflict resolution and consensus seeking processes encourage ongoing participation (see DWAF's Guide 4 of the CMA/WUA series). Many of the stakeholders will also be poor and will not have ready access to transport. Ongoing participation is only possible if stakeholders from poorer communities are provided with transport. In addition, salaried officials or elected representatives are often too busy to participate on an ongoing basis, and ordinary community members are often called on to represent the community. In these cases, stakeholders must act as "liaison officers", and they should receive some compensation.

⁴ As the National Water Act specifies that all water resources management must give effect to the Resource Class, it is difficult to prepare final guidelines for stakeholder participation in IWRM before the Water Resources Classification System is promulgated.



WHAT STAKEHOLDERS SHOULD KNOW: 8

Stakeholders must be shown a clearly defined path and endpoint to participation. The various needs and capacities of stakeholders must also be recognised to secure ongoing participation.

3 A FRAMEWORK FOR IWRM

3.1 Background

Integrated water resource management is a complex task, particularly in a country like South Africa where the water management areas are large, where inter-catchment transfers are common, and where so much needs to be done to ensure equitable use of the resource into the future. There is therefore a need to change the way in which water is used, but also to ensure that this does not impact on water users far removed from local needs and priorities. However, South Africa is characterised by periodic water stress, which increases the potential for these impacts. Moreover, a lack of both skills and money means that IWRM processes are unlikely to be successful if they demand significant human and financial input.

Stakeholder participation in IWRM in this context must therefore not only accommodate the conflicting requirements of stakeholders that may be geographically distant, but must also provide a context within which stakeholders can *"Think water management area (or catchment), but act locally"*⁶. The IWRM process must also establish a process of change that will lead to the more equitable use of the water resource, but must be simple and focused on meeting stakeholders' needs for use of the resource. This is only possible by providing a clear and understandable framework for IWRM. This framework must;

- Contribute to the development of the catchment management strategy in each WMA.
- Gain the advantages of local management, while maintaining a WMA wide perspective.
- Remain focused on managing the water resource.
- Include all the water users in the WMA in a representative way.
- Serve the needs of these water users and be consistent with the Batho Pele principles.
- Balance the needs of these users on the basis of equity, beneficial use and sustainability
- Make best use of the technical skills and tools available.
- Merge with the requirements of the resource directed measures and the Reserve.
- Provide stakeholders with a clearly defined process and endpoint.
- Be facilitated by trained and unbiased staff.

The rest of this Chapter proposes a framework for IWRM⁶ based on these principles.

3.2 Establishing a process of change

If IWRM is to serve stakeholders' needs, then they must be given the opportunity to express these needs. Similarly, if IWRM is to realise equity in the use of water, given the existing inequities, stakeholders must express the need for change.

This could include requirements for consumptive use of water (with respect to quantity and quality), for waste discharge, for recreation, or their vision for the aquatic environment.

 $^{^5}$ This statement is made with apology to local Agenda 21 initiatives which urge people to "Think $_$ globally, act locally"

⁶ This framework has been adapted for IWRM needs from that proposed in DWAFs Guidelines for the Water Quality Management component of a Catchment Management Strategy

(In the latter case, this may be expressed via the Classification System).

Alternatively, stakeholders may indicate a need for a gradual change towards greater equity in the use of water, and in the economic returns from the use of water. Stakeholders can also express requirements not directly related to use of the water resource, but which may impact on the availability or quality of water, for example to develop housing with on site sanitation.

However, these ideals may seem impractical, and may therefore never be achieved. It is therefore important to decouple long-term needs from the practicalities of short-term goals. In this respect long-term goals are needed to initiate a process of change (see Section 2.5). Stakeholders' ongoing participation in the IWRM process should be designed around ensuring that this gradual change is set in motion. However, in order to ensure that this does not lead to unrealistic expectations, stakeholders need to recognise that the needs they express ensure a process of change and not a short-term goal.

WHAT STAKEHOLDERS SHOULD KNOW: 9

Stakeholders must be encouraged to identify their long-term goals for use of the water resource or for the environmental status of the resource, or to express a need for more equitable access to water and economic returns for the use of water. But stakeholders must recognise that the purpose of this is to ensure a process of positive change, and not to establish short-term goals.

3.3 Moving towards common ground

Stakeholders may express conflicting needs for use of the resource, which may not be able to be met with the current water resources, or given the planned development in the water management area. Similarly, stakeholders may express a need for more equitable use of the resource, or economic returns from its use, which may conflict with other users needs to increase the economic returns from their use of the resource. These needs would have to be reconciled into a common goal for the long-term use of the water resources of the water management area. This should accommodate the conflicting demands for use of the resource in a manner that is equitable, but also which ensures the beneficial and sustainable use of the resource. More importantly, this common goal would have to be viable.

The move towards a common goal for use of the water resource therefore involves identifying conflicting needs for use of the resource, and resolving or negotiating these conflicts. This process would use IWRM tools like water demand management, water quality management, or the conjunctive use of surface and ground water resources. This process would also rely on water resource assessment techniques such as water resources yield models or water quality modelling. It is an iterative process of interaction with stakeholders, and of bringing conflicting stakeholders together to resolve potential conflicts.

WHAT STAKEHOLDERS SHOULD KNOW: 10

Stakeholders must be aware of the fact that their needs for use of the resource may conflict with other users' needs, and that a technical process will identify these conflicts. Resolving these will be based on the principles of equity, efficiency and sustainability.

3.4 The gradual and progressive realisation of these goals

The value of establishing a long-term goal for the use of the water resource is that it sets a clear direction for IWRM, which will help secure ongoing stakeholder participation. However, it is also important for stakeholders to recognise that it will take some time to realise these goals, and that this process will require them to take some action. For example stakeholders may have to initiate water demand management and water conservation measures to make water available for other users, while other may have to implement pollution control measures. Their goals would therefore be reached in a gradual and progressive manner.

The time that it would take to realise these goals will depend on whether the catchment is stressed, unstressed or marginal (see DWAFs Guidelines for the Water Quality Management Component of a Catchment Management Strategy). In stressed catchments, it may take a number of years to realise the stakeholders' goals for the resource. In these cases it will be important to set interim goals for management, typically in a five-year cycle to fit in with the revision cycle of the CMS. The diagram on page 15 outlines how the ongoing revisions of the catchment management strategies can serve to ensure the gradual realisation of these long-term goals.

WHAT STAKEHOLDERS SHOULD KNOW: 11

IWRM is a gradual and progressive process of realising the long-term goals for use of the water resource, or for the environmental status of the resource. As such stakeholders would have to identify interim goals for the catchment management strategy.

3.5 Contributing to the Catchment Management Strategy

The process outlined in this report will be just one of the water resources management activities within the WMA, and will run in parallel with a number of other processes in the water management area. These other processes would, *inter alia*, ensure the establishment and functioning of water management institutions, and would ensure the routine water resources management functions such as pollution monitoring and management, the operation of impoundments and interbasin transfers, and administration of the water use process.

The process proposed in this document only focuses on stakeholders needs over and above these institutional and routine requirements for water resources management. However, IWRM encompasses all of these issues.

DWAFs *Generic Framework for a Catchment Management Strategy* indicates that the CMS would consist of a situation assessment, foundation strategies that provide the institutional and financial framework for the CMA, and supporting strategies that address water resources management issues. The process outlined here will contribute to the supporting strategies, but would influence the foundation strategies, as these would provide the financial and human resources required to drive the process forward.

In this respect, successive catchment management strategies would have to outline a gradual process of realising the long-term needs of the stakeholders. The IWRM process must therefore move from establishing the long-term goals for the WMA, to determining what step can be taken in the next five years (i.e. what are the goals?) The next step is to determine the management objectives associated with these goals (i.e. what has to be done?). This will be followed allocating these tasks to stakeholders (i.e. who would do this?). The final step would be to decide what local actions are required to achieve this (i.e. how will they do it?). Ultimately, these steps would be outlined in the supporting strategies component of the CMS.

This process will be revisited every 5 years, to fit into the revision of the catchment management strategy. Stakeholders could then reaffirm or modify their long-term goals, and could then establish new interim objectives for the next 5 years. In this scenario the "integrated" component of IWRM is a product of reconciling the different users needs and of identifying options to address these conflicts. Similarly, the use of a range of water resources management tools to support different steps in this process also ensures integration of the various components of water resources management. It is therefore not necessary to understand all the complex land use/water use interactions, but only those that result in conflicting water use. This limits the resources required to give effect to IWRM. More importantly, building stakeholder participation within this framework ensures that the public participation process can be planned and merged completely with the IWRM process itself. This ongoing process is illustrated overleaf.

WHAT STAKEHOLDERS SHOULD KNOW: 12

Stakeholders need to be made aware of the process outlined overleaf, and that the IWRM process will contribute to the development of the CMS. In addition they need to recognise that the CMS provides the legal tool to ensure that their needs can be realised.

3.6 Conclusions

The framework for IWRM proposed here, and outlined on the following page, has several advantages:

- It is simple and can be explained to stakeholders early in the process;
- It remains focused on the water resource;
- It ensures that the technical process serves the needs of the stakeholders;
- It provides a clear goal and hence benefits to stakeholder involvement in IWRM, and
- It is compatible with the process of formulating the CMS, and its regular revision.



A DIAGRAMMATIC REPRESENTATION OF THE PROPOSED IWRM PROCESS (FROM DWAF'S GUIDELINES FOR THE WATER QUALITY COMPONENT OF A CATCHMENT MANAGEMENT STRATEGY)

4 A PROCEDURE FOR STAKEHOLDER PARTICIPATION IN IWRM

4.1 Background

This chapter outlines a stepwise process to engage stakeholders in a series workshops, based on the framework proposed in the previous chapter. The following hypothetical catchment is used to illustrate this process and the interactions with stakeholders.



4.2 Step 1 – Identify the stakeholders

Stakeholders in the IWRM process must include all water users in the water management area. This includes consumptive users of water, as well as stakeholders who use the resource to carry waste, land uses that impact on the resource, irrespective of any discharge to the resource, and groups concerned with protecting the aquatic environment. As it is impractical to include everyone it is suggested that users be workshopped on a catchment or sub-catchment basis, and in the following groups.

 Urban domestic water users Rural domestic water users Irrigators Mining and Industrial users National and provincial government 	 Environmental groups Bulk water services suppliers Local government Recreational users
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Stakeholders from each of these should have a mandate to represent that group, and should carry issues back to that group. However, workshops and meetings with stakeholders should be open to all. Stakeholders may also what to associate in catchment forums, water user associations, or water services institutions which would better represent their needs for use of the water resource⁷.



TOOLS AND TIPS 1

The following tools will help identify stakeholders. Water users identified for water balance models, land use mapping, and the experience of regional DWAF staff. Similarly, water use licensing and registration processes can provide a list of water users in the WMA.

DWAF may also develop a generic stakeholders list. Lastly, the CMA establishment process in the WMAs identifies stakeholder groups that can form the nucleus of stakeholders for the IWRM process. **(See Appendix A)**

WHAT STAKEHOLDERS SHOULD KNOW: 13

Stakeholders must be made aware of the other stakeholders in the process and their mandates. This will strengthen the concept that they are part of a bigger whole.

⁷ The CMA establishment process in each of the selected WMAs has already identified stakeholder groups. The IWRM process could use these groups as a starting point.



EXAMPLE

Stakeholders in the example catchment would include the urban domestic and industrial users, as well as the urban discharge to the resource. Recreational users of the impoundments, the irrigation board (WUA), the rural community, and conservation groups throughout the catchment must also be included.

4.3 Step 2 – Work to build awareness of the IWRM process (Workshop theme – Understanding IWRM)

The purpose of this step is to make stakeholders aware of the IWRM process in the water management area, the procedure that will be followed, and their role in this process. The stakeholder awareness issues raised in Chapter 2, as well as the process outlined in the previous chapter should serve as a basis for this interaction. Stakeholders will also have to be made aware of basic characteristics of their WMA (i.e population distributions, the drainage network (rivers), interbasin transfers, and major urban mining or industrial areas). This first interaction should finish with a recommendation that stakeholders begin thinking about what their goals for use of the resource would be. This would best be done by visiting the stakeholders in their areas, and should be based on "community group presentations" as outlined in DWAFs generic guidelines.



TOOLS AND TIPS 2

This process should be supported by generic IWRM briefing material (being produced by this project), and maps of the WMA. Most of the basic land use information required for this process is readily available from DWAF in GIS format. (See Appendix B)



WHAT STAKEHOLDERS SHOULD KNOW: 14

Stakeholders boxes 1 – 12 should form part of the initial workshop. The workshop should be themed around "Understanding IWRM" as per the simplified definition on page iv. Stakeholders should also be given a brief description of the Water Management Area. Stakeholders may also wish to associate into groups once they are aware of the process. This workshop should finish by getting stakeholders to complete the IWRM assessment questionnaire prepared for this Output.

EXAMPLE

Stakeholders in the example catchment could be addressed in separate workshops. This would include workshops for the urban users, the recreational users, the irrigation board, and the rural communities. Existing catchment forums and conservation groups should also be approached.

It should also be recognised that each of these stakeholders will differ in their existing knowledge of IWRM, workshops would have to be sensitive to these differing needs.

4.4 Step 3 – Workshop stakeholders long-term goals for use of the resource (Workshop theme – The road ahead)

The intention of this series of workshops would be to establish a process of change, and to ensure that short-term practicalities don't hamper the long-term goals of more equitable use of the resource. These workshops will help stakeholders formulate their future needs for use of the water resource, which may have to be translated into quantity and quality requirements, or in terms of waste discharge needs or environmental health indexes. Participatory group techniques would be best for this step (See DWAFs generic guidelines). (Note that the needs for use of the resource may be made up of a number of different requirements for different parts of the whole water management area.)

In order to develop meaningful goals, stakeholders would need to know the present status of the resource. For example, water supplies in some areas may pose chronic health risks of cancer, or may result in a yield loss in irrigated crops. Stakeholders are unlikely to address these concerns when identifying their needs without this information. This step must, therefore, be supported by briefing documents that highlight current and future water quality and quantity problems, as well as the current state of the aquatic ecosystem. Perhaps more importantly, stakeholders must be informed of the current inequitable use of the resource, both in terms of water volumes used by different sectors, as well as in the economic returns from use of the water.



TOOLS AND TIPS 3

This process must be supported by briefing documents that highlight current, and potential future, water quality and quantity problems, as well as the state of the aquatic environment. This briefing document must include information on the current water use patterns and the economic returns from use of the resource. The guidelines being produced in Output 7.5

returns from use of the resource. The guidelines being produced in Output 7.5 of this project, DWAFs *Guide to Conduct Water Quality Assessment Studies* could support this process and DWAFs SEA processes can guide the development of this briefing document. **(See Appendix C)**



WHAT STAKEHOLDERS MUST KNOW: 15

Stakeholders must be made aware of the existing and potential future water quality and quantity issues, as well as the health of the aquatic ecosystem. Similarly, they must understand the current inequities with respect to use of the resource. However, it is important for stakeholders to recognise that this is only to establish a process of change, and not to identify short-term goals.

EXAMPLE

In the example catchment existing problems may include a poor quality of water supplied to the rural community, eutrophication of the second impoundment, and the potential shortage of water in the lower catchment.

The stakeholders' needs for their use of the resource may be as follows:

- Urban demands should increase to meet expected population and industrial growth. This will also increase the volume of effluent returned to the resource.
- The discharger may not wish to improve the quality of the effluent (over and above the national standards) given costs of improved treatment.
- Recreational users may express the need for fishable and swimable waters. This would have to be translated into indexes of trophic status.
- Irrigators may express the need to expand the irrigation area, and hence their demand for water.
- Conservationists may like to see a more natural aquatic ecosystem in the lower reaches. This will have to be translated both into ecosystem health indexes, and into quantity and quality needs.
- The rural community may express a desire for on site sanitation and water supply, as well as a need for water to irrigate small vegetable plots. (many of these needs could be expressed as resource quality objectives)

4.5 Step 4 - Identify conflicting needs for use of the resource This is a technical process that supports the following step

This is a technical process aimed at identifying conflicts in the stakeholders' long-term needs for use of the water resource. (Note: These are not conflicts between stakeholders, but conflicts in their needs to use the resource.) As some of these conflicts may only be realised in drought periods, this process would have to address the risks of conflicts occurring under different rainfall/runoff regimes. This would require detailed water balance and water quality modelling using stochastic modelling tools. However, simpler heuristic models based on an expert understanding of water resources may also indicate potential conflicts.



TOOLS AND TIPS 4

This is a technical step that must be supported by water balance and water quality modelling, or by expert assessments of the potential risks. It is important that this process includes techniques that can identify possible conflicts in both wet and dry conditions. **(See Appendix D)**

X

WHAT STAKEHOLDERS SHOULD KNOW: 16

Stakeholders must be made aware that a technical process will be used to identify potential problems, but that this technical process is bound by the *Batho Pele* ethical code of conduct.

EXAMPLE

In the example catchment the existing problems already indicate conflicts between the irrigators needs and quality of the water supplied to the community in terms of the quality of the irrigation return flow. This may also be related to the use of water in the urban and irrigation areas that rob the lower reaches of dilution water. The urban discharge also conflicts with the recreation use of the second impoundment. Present demand for water also means that reduced flows in the lower reaches in dry periods impact on the functioning of the aquatic ecosystem.

Potential future problems could include;

- The rural community's demand for more water cannot be met given the increases in demands from the urban and irrigation areas.
- Recreational users will suffer increasing problems of eutrophication given the increased effluent volume at the same standard.
- There will be increasing impacts on ecosystem functioning in the lower reaches as demands for water grow.
- There will be insufficient water in the longer term for irrigators to expand their irrigation area.

4.6 Step 5 – Identify a common goal (Workshop theme – Finding Common Ground)

This step in the process aims to resolve the conflicts identified. It is an iterative process aimed at getting consensus on common goals for the water management area. This could include proposing water development schemes with longer planning horizons (for example to build new impoundments or transfer schemes) to address stakeholders needs, or may involve the more efficient use and management of the present water resources. These workshops would focus on identifying and agreeing on options to address conflicting use of the resource. The options to address these conflicting needs would include:

- Finding "additional" water by managing water demands and by water conservation practices;
- Removing alien vegetation;
- Exploiting previously ignored groundwater resources;
- Implementing groundwater protection protocols;
- Profit sharing schemes for irrigation use to promote emerging farmers use of water;
- Improving effluent treatment processes over and above national standards;
- Improving the management of storage in the system;
- Protecting wetlands and other "natural" sections of the river, and
- As a last resort, asking stakeholders to modify their needs.

These workshops would bring stakeholders with conflicting goals together, to present options for resolving these conflicts. These conflicts would have to be resolved using the principles of equity, beneficial use and sustainability. For example, water demands from an irrigation area may not be able to be met in dry conditions given the increase in water demand from upstream urban areas – But water demand management in the urban areas may address the problem and realise economic benefits for the whole water management area.

TOOLS AND TIPS 4

Output 8.1 of the IWRM project will provide a tool for assessing the WDM/WC potential of different users. Output 7.8 will provide tools for identifying options for use of the groundwater resource. DWAF currently uses a wide range of other scenario modelling tools to generate and assess different options for addressing potential conflicts. Joint stakeholder workshops

different options for addressing potential conflicts. Joint stakeholder workshops should be used to highlight the conflicts and to propose options to address these. **(See Appendix D)**

WHAT STAKEHOLDERS SHOULD KNOW: 17

Stakeholders must understand that a technical process would identify a range of options that could be used to help realise their goals for use of the water resources, and that they will be involved in assessing the different options. But they must recognise that all the options have implications for some stakeholders. This process must therefore as far as possible be consensus driven, where options are presented to conflicting stakeholders in joint workshops, and the process driven to the point where potential conflicts in use are eliminated.

Stakeholders should also recognise that this is an iterative process aimed at identifying what has to be done in the longer-term to ensure more equitable, beneficial and sustainable use of the resource. The next step in the process would focus on what needs to be done in the next 5 years. The process of identifying or re-affirming the goals, and conflict resolution would therefore be repeated.



EXAMPLE

The principle of equity demands that the needs of the rural community should be addressed. However, there may have to be a trade off between the expected increases in industrial use and the irrigators needs to expand the area under irrigation. This conflict would have to be decided using the principle of beneficial (or most economic) use. Improved effluent quality may also resolve conflicts between the recreation users and the discharge of urban waste. In this case the principle of polluter pays (i.e. increased taxes in the urban area) may have to be weighed against the recreational users needs. Similarly, the removal of alien vegetation would realise increased flow, and hence improved ecosystem functioning, as well as providing more water.

The common vision, therefore, may include meeting the rural community's needs, but compromises between the other users.

4.7 Step 6 – Establish interim objectives (Workshop theme – Taking the first step)

The previous step aims to identify the long-term goals, and hence to ensure a process of change. However, it may not be possible to realise this within the 5-year time frame of the Catchment Management Strategy. In these cases, stakeholders must agree on interim objectives, which take the first step towards these goals. These interim objectives would be influenced by:

- Are they a step towards the long-term goals?
- The need for equity.
- The economic investment required.
- The possibility of gradual improvements, for example a 10% reduction in demand in the first 5 years, a further 5% in the next, and so on.
- The need for immediate action, for example some conflicts may only emerge within 10 years.
- The type of impact, for example human health impacts need to be addressed first.

The interim objectives should as far as possible be identified in water quality, quantity and ecosystem health terms, and could be linked to the resource quality objectives established under the resource directed measures. However, interim objectives also have to be associated with the management objectives required to reach these goals. As such, interim objectives could also be expressed as certain actions, for example to increase the use of the groundwater resource. Interim objectives could also be established for problem sub-catchments and could focus on selected stakeholders.

TOOLS AND TIPS 5



This step must include an assessment of the feasibility of reaching the objectives and as such it iterates with the next step - establishing management objectives. This is therefore a negotiated process with the various stakeholders that must be supported by an understanding of the implications of taking the step. (See Appendix D)



WHAT STAKEHOLDERS SHOULD KNOW: 18

Stakeholders should understand the implications of reaching their long-term goals, and hence the need to identify objectives using the guidelines outlined above.

EXAMPLE

The interim objectives should recognise that the needs of the rural community should be addressed first. However, the urban users of water may feel that they could accept a more gradual increase in demands given the economic benefits to water conservation. As such they may agree to a reduction of 5% in water losses in the first 5 years, and then to curtail demands in the following five years. The effluent quality of the urban discharge may be addressed only in the longer term due to the investment required for more efficient treatment. Irrigation users may be trade off increasing their irrigation area against reducing their demand in the short term.

4.8 Step 7 – Identify management objectives and local actions (Workshop theme – Who will be doing what?)

Once stakeholders have identified their goals for the next five years, they would have to contribute to identifying how this will be achieved, and who will do it. This would be done in workshops, where the interim goals will be linked to specific actions that need to be taken to achieve these goals. Stakeholder groups would have to agree in principle to undertake these actions. For example local authorities may agree to reduce water losses, or the CMA may agree to investigate the groundwater potential as an alternative supply. These workshops could also focus on water resources issues within sub-catchments, and on selected stakeholders. For example workshops could focus on identifying eutrophication management actions within relatively small sub-catchments of the whole WMA.

Once stakeholders have agreed to undertake specific management actions, they should be requested to develop more specific Action Plans, which will indicate how they will achieve their goals. These action plans should include information on who will take the action, what will be done and how the actions will be financed. These action plans will form a component of the supporting strategies of the CMS (see DWAFs Generic Framework for a CMS). These action plans should also include monitoring requirements so that the CMA can ensure that the agreed actions are being carried out.

TOOLS AND TIPS 6

This process must be supported by action plans that aim to achieve the interim objectives agreed in step 6. DWAF has produced a number of information documents that stakeholders can use to help them prepare these action plans. These include WC/WDM strategies for different sectors, various guidelines to address particular pollution problems, and groundwater protection protocols. Outputs 7 and 8 of the IWRM project will also provide some of the tools to support this process. (See Appendix D)

WHAT STAKEHOLDERS SHOULD KNOW: 14

Stakeholders must understand the implications of agreeing to certain actions, and that they would have to develop action plans. The must recognise that these action plans must outline what they would do, who would do it, and how it would be financed, in more detail. Most importantly, that these action plans would form part of the CMS and are, therefore, binding.



EXAMPLE

Management objectives should be aimed at meeting the needs of the rural community as a priority. The first objective may therefore be to remove all the alien vegetation in the upper reaches of the catchment. This would also improve ecosystem functioning. This process could be managed by catchment forums the action plan developed by these forums would therefore outline who would initiate aliens removal, and in what catchments

The local authority will be required to implement water conservation measures in the first five years, their action plan would indicate exactly what they would be doing. This action plan may also indicate what demand management techniques would be initiated in the first 5 years to ensure that demands do not grow too rapidly in the following 5 years. The urban discharger may agree to start the process of improving effluent quality by starting construction of improved treatment works.

4.9 Step 8 - Contributing to the Catchment Management Strategy

The end point of stakeholders' involvement in IWRM in the water management area is to contribute to the "supporting strategies" of the catchment management strategy. These should also be sent to stakeholders' for their comments. However, the CMS may be a long and sometimes technical document that is not suited to most stakeholders needs. The CMS should therefore be summarised into a document that spells out the above process, and its outcomes. In this way stakeholders should be able to clearly identify their needs for use of the resource, where and if these have had to be modified to accommodate other stakeholders needs. Similarly, the interim objectives should be clearly identified, and the actions required from stakeholders spelt out.

More importantly, the CMS should indicate how the catchment management agency would support the Action Plans being developed by the stakeholders. For example, in the above example catchment the CMA may decide to financially support the removal of alien vegetation, but may only provide technical support to the urban area. As such the development of the CMS needs to iterate with the formulation of the action plans.

5 CAPACITY AND AWARENESS BUILDING NEEDS

5.1 Background

The process described in the previous chapters can only be successful if it satisfies two requirements. Firstly stakeholders need to be made aware of the process, what is required of them, and its eventual outcomes. Secondly, the process will have to be facilitated and driven by trained staff. It is therefore important that the Danced project builds capacity and awareness with respect to the IWRM process outlined in this report. In this respect, "awareness" refers to an understanding of the process, where stakeholders can contribute, and of the final outcomes of the process, - "capacity" refers to the ability to run the process.

Awareness building should therefore focus on providing the information for stakeholders to meaningfully contribute to the process. Capacity includes the technical understanding of the process, and the IWRM tools that support the process, the ability to arrange and facilitate workshops, the equipment required to run the workshop, and the financial resources required to drive the process. The Danced project can only provide financial resources to drive the process in the 3 selected WMAs in the short-term, and could therefore initially focus on building the technical capacity in staff. However, the CMA (or DWAF) would have to ensure that they have the resources to drive the process in the other WMAs in the longer-term. Capacity building should therefore also address how the process described could be financed and driven in other WMAs.

5.2 Capacity building needs

As indicated capacity refers to the ability to give effect to the procedure outlined in the previous Chapters. This would typically require staff who can interact with stakeholders, who are familiar with the approaches outlined in this document, but who also have a broad understanding of the tools that must support the process. (This does not, require an in depth understanding of these tools, but rather an understanding of when they would be required to support the IWRM process).

Unfortunately, there few people in South Africa that have this broad base of skills and capacity building will be required if the IWRM Project is to be sustainable. It is therefore recommended that a Training Programme is developed and implemented within the IWRM Project to ensure that there is a core of trained staff to carry the process forward. This should firstly occur within the three selected water management areas, but should also include other staff who could support the process in the other 16 WMAs once the project finishes.

The technical component of the training course should include two main sections. The first component should concentrate on IWRM as a process and philosophy, which would outline the approaches presented here, as well as how IWRM can be supported by tools like water conservation and water demand management, conjunctive use of the ground and surface water resources, and water quality and quantity modelling tools. The second component should concentrate on how to interact with stakeholders and ensure their ongoing participation in the process. DWAFs generic public participation guidelines and suite of models could be used as a basis for this component of the training.

The training materials should be compatible with the National Qualifications Framework, and course participants should receive a certificate of completion. This will allow trained staff to move between the CMAs once they have been established.

In this respect it is also recommended that the training course be taken up into a tertiary education institution in South Africa, so as to provide an ongoing source of trained staff for newly established CMAs.

Initially, the IWRM project could focus on training DWAF staff both at headoffice and in the three water management areas, as well as on stakeholders drawn from the already established catchment forums⁸. These staff could initiate the testing of the approaches in the three selected water management areas, and could also serve as a core of well-trained staff that other WMAs could draw on for advice.

Lastly, Output 6 should address options to ensure that the CMA will have the financial capacity required to drive this process. However, it should also be recognised that wherever possible, action plans should be financially supported by the stakeholders involved based on clear economic incentives for these stakeholders, for example to implement water conservation measures. In this respect, the CMA would play more of a co-ordinating rather than an executive role.

5.3 Awareness building needs

Stakeholders can only meaningfully participate in the process outlined in this document if they are aware of the intent of IWRM in their water management area. More importantly, stakeholders would need material to take back to their constituencies. This recommends that the IWRM Project produce simple awareness materials based on the process outlined in this report. This material should cover the following issues:

- What is IWRM? This would cover the issues raised Chapter 2, as well as provide an overview of the Water Management Areas and the process of establishing a CMA. The project team is currently in the process of developing a generic IWRM guide.
- Your involvement in the IWRM process in your water management area. This would describe the process outlined in Chapters 3 and 4.
- Water related issues in your water management area. This would provide a simplified water resources assessment of the water management area, outlining current and potential future problems, as well as providing maps of the WMA, and lists of stakeholders.

These materials should ideally be written in a simple form, should be translated into local languages and should include simple diagrams and drawings of the process. The objective of this process would be to ensure that stakeholders have all the information they need to meaningfully contribute to the process. Additional poster materials could be provided to schools and to support workshops with the stakeholders.

⁸ It is assumed that the people who would be trained will have a basic understanding of water resources issues, and the interactions between human use of the resource and quantity, quality and aquatic ecosystem impacts.

6 **RECOMMENDATIONS**

6.1 Further development of the process

The process outlined in this report has been developed in six weeks of expatriate consultancy input. This has provided little time to test the process with stakeholders outside of DWAF, or to exhaustively analyse all the tools that can support the process. It is, therefore, suggested that the process is developed further. In this respect the following process is recommended.

- Local service providers at a national level should further develop the concepts outlined here, specifically after consulting with stakeholders from the catchment forums and WUAs in the three water management areas. This forms part of Work Package 1b.
- The Appendices outlining the tools that can be used to support the process need to be expanded to include more tools. This forms part of Work Package 1b.
- Once the process has been further refined, local service providers in each of the WMAs should test implement the process, under guidance from the project team. This forms part of Work Packages 2 and 3.
- Lessons learnt from this process should be noted, such that the procedure can be updated in Phase 2 of the project.
- The expatriate consultant can return in the last six months of 2002, firstly to assist with the testing of the process, and secondly to help update the process based on the lessons learnt.
- The updated process should be published by DWAF, as one of the WUA/CMA Guides.

6.2 Testing the process

As indicated above, the process must be tested in each of the selected WMAs. This can be done in a number of ways.

- 1. Local service providers could be appointed to drive the process.
- 2. DWAF staff could be trained to drive the process, and could then make sure the process is tested.
- 3. Stakeholders from each of the WMAs, as identified in the process of establishing the CMA, could be trained to drive the process.
- 4. Local service providers could be appointed to assist trained DWAF and/or trained stakeholders to drive the process.

Option 4 appears to hold the greatest opportunities for sustainability and is therefore recommended.

6.3 The training programme

The ongoing process of developing the ideas expressed in this report, as recommended above, rests largely on training DWAF staff and stakeholders to carry the process forward. The training programme outlined in section 5.2 should therefore be developed as soon as possible. Ideally the first training course should be presented early in the second half of 2001 to ensure that there is sufficient time to test the approaches within the Danced IWRM project.

APPENDIX A: TOOLS THAT SUPPORT THE SELECTION OF AND INTERACTIONS WITH STAKEHOLDERS

Generic public participation guidelines and suite of models (Draft)

What is this?

This document provides generic guidelines on how to interact with the public. It outlines the legal requirements for public participation, as enshrined in the Constitution, the National Water Act and the Water Services Act. It also highlights the principles of public participation, why it is necessary and the pitfalls associated with poor participation.

Most importantly, the document provides guidelines on how to interact with the public, the different techniques that can be used and their advantages and disadvantages. The document also provides hints on how to hold workshops and how to report back to stakeholders. The report also suggests that DWAF develops a stakeholders database, which would prove a valuable tool to help select stakeholders.

When should it be used?

This report supports the whole process of interaction with stakeholders, and therefore should be used throughout the process. In particular staff facilitating stakeholder participation in IWRM should be familiar with the various approaches, and should identify appropriate techniques for each step in the process that suit the stakeholders being engaged and the step in the process.

Who should you contact?

This work has been produced by the Chief-Directorate: Water Use and Conservation of DWAF. Further information is available from the Chief Director. Water Use and Conservation

GUIDE 4 - Public Participation for CMAs and WUAs

What is this?

This document suggests public participation guidelines more specific to the establishment of CMAs and WUAs. The detail of the information presented is much the same as that outlined in DWAFs Generic Guidelines, and the document also highlights various techniques and pitfalls for public participation. However, the document focuses on the process of establishing the CMA or WUA and rather less on the job of these institutions after establishment. As such, the value of this report is mostly as background information.

When should it be used?

This report should serve as background reading before the process of interaction with stakeholders starts.

Who should you contact?

This work has been produced by the Directorate: Catchment Management of DWAF. Further information is available from the Director: Catchment Management.

APPENDIX B: TOOLS THAT SUPPORT BUILDING AWARENESS OF IWRM

What is IWRM?

What is this?

One of the outputs of the Danced IWRM project will be an overview document explaining the concepts of IWRM (as seen by this project), and why stakeholders should be involved. It will use the information outlined in Chapters 2 and 3 of this report, which would be supplemented by information from the other Outputs. In particular, the generic document will address; What is IWRM?, You and IWRM, and Who will drive IWRM? The document will be prepared in a simple format with lots of graphics, and will be suitable for all levels of stakeholders. The document should preferably be available in local languages, and should be available in large numbers. (While it is recognised that some stakeholders may be illiterate, most would have access to someone who could help them understand the document.)

This document will be to outline the process of interaction with stakeholders, where they can contribute to the process, and to indicate where the process is going. The main aim of this will be to encourage ongoing participation in the process.

When should it be used?

This document supports Step 2 in this process, and should be handed out at the end of the first workshop with stakeholders. Stakeholders should then be asked to take the document back to their constituencies to explain the process further.

Who should you contact?

This work will be produced by the Danced funded IWRM project. Further information is available from the Chief Director. Water Use and Conservation.

WMA specific Briefing Documents

What is this?

These will be briefing documents specific to each WMA. They should highlight the main water quantity and quality issues, as well as the state of the aquatic ecosystem. The documents should also outline the major natural and man made features of the WMAs, together with the hydrological features and interbasin transfers.

The Briefing document prepared for the process of establishing the Crocodile West Marico CMA, and a document prepared by the Institute for Water Quality Studies on the Swartkops Catchment are good examples of what should go into these documents. DWAFs Guidelines for the Water Quality Management component of a CMS provide some useful hints on how to produce these documents.

When should it be used?

These briefing documents should given out at the end of the first workshop with stakeholders. The intention of this would be to highlight the main problems in the WMA, such that stakeholders recognise the need to become involved in finding solutions to these.

Who should you contact?

These documents should be produced within each WMA. Appendix C presents some tools that could be used to help develop these documents. Further information is available from the Director: Catchment Management.

Groundwater resource assessment tools

What is this?

Groundwater has often been ignored in previous attempts at IWRM in South Africa. It is therefore important that special attention be given to the groundwater component in the WMA specific briefing documents. The groundwater assessment tools being produced as part of the Danced project will provide guidelines as to how this could be done. These assessment tools will indicate how to assess groundwater yield potential, present abstractions and groundwater quality issues.

When should it be used?

This document should guide the development of the groundwater component of the briefing documents, and should be given to people developing these briefing documents. As such this report should support the development of the briefing document prepared for Step 2 of the process.

Who should you contact?

This work will be produced by Danced funded IWRM project. Further information is available from the Chief Director. Water Use and Conservation or the Director: Geohydrology.

APPENDIX C: TOOLS THAT SUPPORT THE FORMULATION OF GOALS FOR STAKEHOLDERS

Stakeholders can only meaningfully identify where their needs for use of the resource when they understand the current and likely future situation in the catchment. DWAF has developed, and has been using, a number of tools that provide water resources situation assessments, in terms of quantity and quality problems, as well as to assess the state of the aquatic ecosystem. Some of these tools are highlighted here. (It is important to note that these tools should also be used to identify present inequitable use of the resource.)

Tools for Water Quality Assessments

What is this?

These tools highlight how to assess the current water quality problems in the WMA. They explain how to access water quality data, how to present these data, and how to interpret these data. In many cases they also outline what database presentation and management tools are available within DWAF. DWAFs Directorate: Water Quality Management has produced a generic guide on how to do water quality assessments, which is a very useful tool. Other DWAF tools include the WATERMARQUE system. (WATERMARQUE is a GIS compatible water quality information tool that interrogates the DWAF water quality database to provide water quality information on maps of the catchment.) Other useful tools include the Water Quality Guidelines, and a Guide on Assessing the Quality of Domestic Water Supplies.

The Institute for Water Quality Studies has produced a number of catchment water quality assessments using these tools, which provide useful examples of what can be done.

When should it be used?

These tools help identify current water quality and aquatic ecosystem problems. This can be used to provide the basis for stakeholders to develop their goals for the quality of the resource. As such it can be used in Step 3 –To establish the process of change, as well as in Steps 5 and 6 that develop the objectives for IWRM.

Who should you contact?

This work has been produced by the Directorate: Water Quality Management, and the Institute for Water Quality Studies. These Directors should be contacted for further information..

Water resources yield and water resources planning models

What is this?

DWAFs Project Planning directorate uses a number of systems wide water resources models. Of these, the Water Resources Planning Model (WRPM) and the Water Resources Yield Model (WRYM) are most commonly used. These models simulate water availability under different water resources planning scenarios, and under different operational scenarios. As such they are particularly useful to identify future water availability problems.

These models have been calibrated for most of the major catchments and systems in South Africa., and the data are readily available. However, it will be important to develop options to present the inforAmation in a way stakeholders can easily understand.

These models can be used to help identify current and future water resources availability problems, and current water use patterns in the WMA. As such they can provide valuable support to the Briefing Documents needed for Step 2.

Who should you contact?

These models are routinely used by the Directorate: Project Planning. Further information is available from the Director: Project Planning.

Groundwater resource allocation and assessment tools

What is this?

Groundwater has often been ignored in previous attempts at IWRM in South Africa. It is therefore important that special attention be given to the groundwater component in the WMA specific briefing documents. The groundwater assessment tools will provide guidelines as to how this could be done. In specific these assessment tools will indicate how to assess groundwater yield potential, present abstractions and groundwater quality issues.

This document should guide the development of the groundwater component of the briefing documents, and should be given to people developing these briefing documents.

When should it be used?

This report should support the development of the briefing document prepared for Step 2 of the process.

Who should you contact?

This work will be produced by Danced funded IWRM project. Further information is available from the Chief Director. Water Use and Conservation or the Director: Geohydrology.

The river health programme

What is this?

DWAF has initiated a national programme to assess the aquatic ecosystem health in the country's surface water resources. This programme will yield a wealth of information regarding the status of the South Africa's surface water resources, and is likely to detect potential water quantity and quality problems at an early stage. Data from the river health programme will be stored on the national database, from where it could be readily accessed by any CMA.

When should it be used?

Data and assessments of aquatic ecosystem health should be used to support the development of the briefing document prepared for Step 2 of the process. This may also provide the basis for setting objectives for management in Steps 3, 5 and 6.

Who should you contact?

The River Health Programme was developed by the Institute for Water Quality Studies. Further information is available from the Director: IWQS.

APPENDIX D: TOOLS THAT SUPPORT THE IDENTIFICATION OF CONFLICTS AND OPTIONS TO ADDRESS THESE CONFLICTS

Water resources yield and water resources planning models

What is this?

DWAFs Project Planning directorate uses a number of systems wide water resources models. Of these, the Water Resources Planning Model (WRPM) and the Water Resources Yield Model (WRYM) are most commonly used. These models simulate water availability under different water resources planning scenarios, and under different operational scenarios. They can be used to simulate the impacts of increasing water use on availability, as well as the impacts of further developing the water resources (i.e. constructing new schemes). In some cases these models have been linked to simple water quality (salinity) models, to show the impacts of different scenarios on water quality.

These models have been calibrated for most of the major catchments and systems in South Africa., and the data are readily available. However, it will be important to develop options to present the information in a way stakeholders can easily understand.

When should it be used?

These models support a number of the steps in the IWRM process. Firstly, they can be used to help identify stakeholders as they include all current demands on the system. They can also be used to support Step 3 – to establish a process of change by highlighting the current and future water resources availability problems, and current water use patterns in the WMA. These models would be particularly useful to determine conflicts in water availability given the current and future demands on the system. As such they would form the major component of Step 4. Similarly they can be used to support Steps 5 and 6 to help stakeholders determine objectives for the more equitable use of the resource. Lastly, these tools can be used to develop and evaluate options to address water shortages by identifying the need for new schemes, as well as where existing resources can be used more effectively.

Who should you contact?

These models are routinely used by the Directorate: Project Planning. Further information is available from the Director: Project Planning.

Procedures to assess the impacts of effluent discharges

What is this?

This report describes DWAFs current approaches towards managing the impacts of effluent discharges on the water resource. This ranges from outlining DWAFs policies, methodologies to assess the water quality effects of discharges, and advice on how to determine water quality targets for the receiving water resources.

Most importantly, the report presents a wide range of water quality models currently being used in South Africa. This listing includes the name of the model, a summary of its capabilities and local contacts (service providers) that could provide additional information.

This report and the models outlined in the report also support a number of steps in the IWRM process. Firstly, they can be used to help identify the links between present (or likely future) discharges and downstream water quality problems in Step 4. The models can also be used to identify and evaluate options to address these issues in Steps 6 and 7. The report would be particularly useful in catchments with significant point source discharges.

Who should you contact?

This report was developed by the Directorate: Water Quality Management. Further information is available from the Director: Water Quality Management

Nonpoint source tools

What is this?

This WRC series of reports outline the current status regarding nonpoint source identification, management and assessment in South Africa. The first report in the series outlines the status quo with respect to nonpoint source management in South Africa, and provides an assessment of the major nonpoint source problems in the country. The second report presents a number of case studies where nonpoint source models were used to identify and address pollution problems. The third report in the series, The Nonpoint Sources Assessment Guide outlines a procedure to identify suitable nonpoint source models based on the type of nonpoint source problem, and the management needs.

This series of reports therefore also provides lists of non-point source models (assessment tools), as well as advice on which are best suited to particular management needs. The reports also provide preliminary scans of the most important non-point source problems in different parts of the country.

When should it be used?

These reports can be used to help identify the links between known water quality problems and potential non-point source pollution sources. As such they are valuable in Step 4 help identify the links between present (or likely future) non-point source pollution and downstream water quality problems. The models outlined in the Guide can also be used to identify and evaluate options to address these issues in Steps 6 and 7. The report would be particularly useful in catchments with significant non-point source problems.

Who should you contact?

This work was sponsored by the Water Research Commission, and further information is available from this source.

Tools for groundwater resource allocation.

What is this?

This Output of the IWRM project will outline the procedures that could be used to support the allocation of groundwater resources to different uses. It is specifically focused on providing guidelines for CMAs in areas where the conjunctive use of surface and groundwater resources will be important.

This tool can be used to further develop the options for use of groundwater, once the potential for use of this resource has been identified. It is therefore particularly useful to support Steps 5, 6 and 7 of the IWRM process, to both develop the objectives for use of the groundwater, and to develop Action Plans to give effect to these objectives. It will be particularly useful in catchments where conflicting demands for water can be satisfied by more efficient use of the groundwater resource.

Who should you contact?

This work will be produced by Danced funded IWRM project. Further information is available from the Chief Director. Water Use and Conservation or the Director: Geohydrology.

WC/WDM Tools

What is this?

DWAF and the Danced IWRM project have produced a number of tools in support of the Department's drive for more efficient use of water. Output 8.1 of the Danced project will develop highlight procedures for screening water users in any WMA to determine the potential for water conservation or demand management. This will be based on the expected water use for that sector in that area. Output 8.2 aims to produce more detailed Guidelines for implementing water conservation and demand management within the urban environment. Other tools developed by DWAF address WC/WDM approaches for other water use sectors.

When should it be used?

Output 8.1 is useful to support Step 5, where it can assess the potential for WC/WDM as a means of meeting conflicting demands for water. It can also help focus attention on those sectors where the greatest potential lies, and as such can support Step 7. However, the Action Plans developed by the various stakeholders as part of Step 7 would be supported by sector specific guidelines.

Who should you contact?

These reports were produced by Danced funded IWRM project and by DWAF. Further information is available from the Director: Water Use and Conservation.

Source specific pollution management tools

What is this?

DWAF's Directorate: Water Quality Management has produced a number of documents focusing on the management of specific pollution sources. These include a series of documents outlining management practices for the mining sector, a national strategy for managing pollution from densely populated settlements, and solid waste management strategies.

These reports proposed management practices and methodologies to manage pollution from these sectors, and in most cases include advice on how to make the links between the observed water quality problem, and the type of pollution at the source.

These tools can be used to further develop the links between the water quality problems noted, and the source of these problems. As such they can be used to support Step 4, to identify where use of the resource (specifically use to carry waste) causes conflicts with the downstream needs for water of a particular quality. However, these tools would be most valuable to support Steps 6 and 7 where management objectives are set, and Action Plans developed. In this case these tools help identify pollution management options for particular sectors.

These tools are best suited for situations where particular pollution sources dominate downstream water quality.

Who should you contact?

These tools were developed by the Directorate: Water Quality Management. Further information is available from the Director: Water Quality Management