



Department : Water Affairs
and Forestry

Integrated Water Resources Management



Guideline on Capacity Building
Volume 2. Overview Assessment - Specific Requirements
Full Guideline



DEPARTMENT OF WATER AFFAIRS AND FORESTRY

INTEGRATED WATER RESOURCES MANAGEMENT

**GUIDELINE FOR CAPACITY BUILDING
OVERVIEW ASSESSMENT**

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

DANIDA
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TITLE: GUIDELINE FOR CAPACITY BUILDING
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PURPOSE: Identify the capacity building requirements of role-players within the context of IWRM and to identify a few general guiding principles to which capacity-building programmes should adhere. To propose a framework for Capacity Building within IWRM, formulate a procedure to give effect to this at water management area level and identify the awareness and training material needs with respect to this procedure.

TARGET GROUP: DWAF, IWRM Project Consultants and implementers in three water management areas.

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ENQUIRIES: Department of Water Affairs and Forestry
Private Bag X 313
Pretoria
0001
Republic of South Africa

Tel: (012) 336 7500 / +27 12 336 7500

Fax: (012) 323 0321 / +27 12 323 0321

Email: qma@dwaf.pwv.gov.za

Website: www.dwaf.gov.za

LIST OF ABBREVIATIONS

ABET	Adult Basic Education and Training
AC	Advisory Committee
APP	Approved Professional Person
CMA	Catchment Management Agency
CMC	Catchment Management Committee
CMF	Catchment Management Forum
CMS	Catchment Management Strategy
CMSC	Catchment Management Steering Committee
CSB	Civil Society Body
DANCED	Danish Co-operation for Environment and Development
DM	Demand Management
DWAF	Department of Water Affairs and Forestry
DWSS	Drinking Water and Sanitation Supply
E & T	Education and Training
FET	Further Education and Training
FPCD	Foundation for People-Centered Development
GET	General Education and Training
HET	Higher Education and Training
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management
	LGWETQA Local Government, Water and Related Services
	Sector Education and Training Quality Assurer
	LGWSETA Local Government, Water and Related Services
	Sector Education and Training Authority
MTEF	Medium-Term Expenditure Framework
NQF	National Qualifications Framework
NWA	National Water Act
NWRS	National Water Resources Strategy
OBE	Outcomes-Based Education
O&M	Operation and Maintenance
PDC	Previously Disadvantaged Community
PDI	Previously Disadvantaged Individual
RG	Reference Group
ROTA	Results Oriented Training Approach
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
UN-ECOSOC	United Nations Economic and Social Council
	UNESCO United Nations Educational, Scientific and Cultural
	Organisation
WB	World Bank
WC	Water Conservation
WMA	Water Management Area
WMI	Water Management Institution
WMO	World Meteorological Organisation
WMR	Water Resources Management
WRM	Water Resources Management
WSA	Water Services Authority
WSP	Water Service Provider
WSS	Water Services Sector
WUA	Water User Association

VOLUME 2

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VOLUME 2

1. INTRODUCTION

The Capacity Building Overview Assessment (Volumes 1 and 2), is part of a series of documents that have been prepared as part of Output 5 of the DWAF/Danced Integrated Water Resources Management (IWRM) Project. The Department of Water Affairs and Forestry (DWAF) had developed a basic Capacity Building Plan that served as point of departure for the further development of a more comprehensive description of the range of capacity that would be required to promote IWRM within the context of catchment management. The focus of work for the elaboration of the Plan has related to the provision of a description of the subject matter to be covered in capacity building and the importance of the subject within the context of Integrated Water Resources Management. The Generic Overview (Volume 1) is supported by this document (Volume 2), which details the specific 'units' of knowledge or learning required by DWAF and the proposed Catchment Management Agencies (CMAs) within each activity area (as described in the National Water Act (Act of) as well as Policy and Strategy documents relevant to Catchment Management and IWRM. As far as possible, the timing of specific activities as these relate to the phases of development within the catchment (e.g. initiation, establishment, etc.) has been considered in the development of this document.

2. PERCEIVED PRIORITY AREAS FOR CAPACITY BUILDING

Capacity building initiatives will, at minimum, need to focus on the following priority areas for the development of training courses:

- The concept and implications of integrated water resources development and management
- The involvement of women and other stakeholders in decision-making, planning, implementation, monitoring and evaluation of programmes
- Catchment level and inter-sectoral planning
- Institutional and legal frameworks governing IWRM
- Relevant information related to concepts such as the SADC protocol on shared watercourse systems, etc.

3. CATCHMENT MANAGEMENT STRUCTURES: DESCRIPTION AND MAIN ACTIVITIES

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
Catchment Management Agency (CMA)	
<p>A CMA is a statutory body responsible for the planning, implementation and management of the water resources and other water management institutions in a Water Management Area (WMA).</p>	<ul style="list-style-type: none"> • Planning and implementation of Water Resource Management (WRM) within a WMA • Investigate and advise interested persons on the protection, use, management, conservation and control of water resources • Develop and give effect to the Catchment Management Strategy (CMS). This must be compatible with the National Water Resource Strategy • Coordinate activities of water users and Water Management Institutions (WMI) • Promote the coordination of the catchment management strategy and water service development plans • Promote community participation and seek co-operation and agreement on water related matters
Governing Board	
<p>The CMA Governing Board members can be elected or nominated by the different water user groups for appointment by the Minister ensuring that the interests of the various stakeholders are represented or reflected on the Board in a balanced manner, and that they have the necessary expertise to operate effectively.</p>	<ul style="list-style-type: none"> • Evaluate the consultation process and representation • Ensure participation and buy-in from stakeholders through consultation and information dissemination • Guides, monitors and oversee the consultation / participation process • Provides capacity building towards establishing a CMA • Perform delegated interim management functions • Develop and broadly implement CMS within a WMA • Manage water resources in a WMA

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
	<ul style="list-style-type: none"> • Manage water resources in a WMA • Seek cooperation and agreement on water related matters • Operate CMA on daily basis and ensure that CMA implements its powers and duties in line with the NWA
Catchment Management Committee (CMC)	
<p>A CMC is a statutory body formed by a CMA to perform specific delegated functions with a specified area, and to broaden its technical management capacity and/or stakeholder presentation.</p>	<ul style="list-style-type: none"> • Specific delegated functions within a specified area (e.g. focusing on a specified WRM problem in a sub-catchment area)
Catchment Management Forum (CMF)	
<p>Catchment Management Forums are voluntary non-statutory participatory organisations representing various viewpoints to guarantee stakeholder involvement in the management of water resources at a local level. They form a “link” between the CMA and the stakeholders.</p>	<ul style="list-style-type: none"> • Enable stakeholder participation around WRM and the functioning of CMAs • Facilitate stakeholder consultation and participation • Disseminate information about WRM • Play a communication and watchdog role • During the establishment process of CMA, the CMF plays an institutional development role and consultative advisory role to DWAF • Develop institutional capacity mainly prior to CMA establishment and during consolidation period • Promote integrated planning and cooperative resource management • Foster cooperative governance (with the focus on WMI and local government) • Support the development and implementation of the Catchment Management Strategy • Support the WRM operation

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
	<ul style="list-style-type: none"> • Support the CMA by serving as vehicles for consultation on WRM issues, assisting with the development of WRM institutional capacity (build capacity around WRM), playing an institutional coordinating role, and providing support to the WRM activities • Monitor water resources and/or users to identify problems • After the establishment of the CMA, the CMF plays a consultative advisory and integrated planning role
Catchment Management Steering Committees	
<p>Non - statutory interim representative stakeholder body that may evolve from the CMF prior to the establishment of the CMA.</p>	<ul style="list-style-type: none"> • Investigate and develop the proposal for establishing a CMA with DWAF's assistance • (The Catchment Management Steering Committee will be disestablished once the CMA is established).
Water User Association (WUA)	
<p>Water User Associations are statutory cooperative associations (local management body) of water users established by the Minister acting on behalf of its water user members.</p>	<ul style="list-style-type: none"> • Undertake water-related activities on a local scale for mutual benefit e.g. management of local water resources infrastructure and some local WRM functions. • The WUA can represent similar users e.g. recreational use or agriculture, or be multi-sectoral.
Advisory Committee (AC)	
<p>An AC is established by the Minister to provide him/her with advice or perform functions in a specified area.</p>	<p><u>Advisory Committee Governing Board:</u></p> <ul style="list-style-type: none"> • Provide Minister with advice (e.g. recommendations regarding composition and nominations to the Governing Board) or perform functions delegated to it in a specified area (Disestablish when Governing Board has been appointed) • Evaluate the consultation process leading to the establishment of the CMA

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
	<p><u>Advisory Committee Process:</u></p> <ul style="list-style-type: none"> • Guides, oversees and monitors consultation process, capacity building and establishment process (Disestablish when Governing Board has been appointed) <p><u>Advisory Committee Management:</u></p> <ul style="list-style-type: none"> • Interim delegated management function
Reference Group	
Optional and non-statutory body established to guide and oversee process	<ul style="list-style-type: none"> • Guide, oversee and evaluate the consultation process to ensure that it is fair, transparent and legitimate (Disestablished after CMA establishment)
Water Services Authority (WSA)	
WSAs are district or metro municipalities responsible for ensuring the delivery of water services within the local authority jurisdiction	<ul style="list-style-type: none"> • Ensure the delivery of water services within the local authority jurisdiction
Water Service Provider (WSP)	
WSPs are public, private or mixed entities or municipal government itself which delivers bulk and/or reticulation water services on behalf of a WSA (e.g. Water Boards)	<ul style="list-style-type: none"> • Delivers bulk and/or reticulation water services on behalf of a WSA (e.g. Water Boards)
DWAF Head Office (HO)	
DWAF is the public trustee of the nation's water resources. Amongst others, DWAF must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons (effective water management).	<ul style="list-style-type: none"> • DWAF Head Office Directorates formulate water resources management policy and guidelines • Formulate the National Water Resources Strategy • DWAF will continue to perform catchment management functions until the CMA is established • Specify resource directed measures, the Reserve and resource quality objectives

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
	<ul style="list-style-type: none"> • Audit Regional Offices and CMAs • Capacity Building role in terms of DWAF RO and CMAs
DWAF Regional Office (RO)	
<p>DWAF Regional Office acts as CMA until a CMA has been established, but can play the role of initiator, facilitator or mediator in the establishment of a CMA.</p>	<ul style="list-style-type: none"> • Provide support to the CMA and CMF • Audit CMA in its implementation in compliance with the purpose and requirements of the NWA • Audit representivity and involvement of CMF. DWAF must ensure that the CMF is representative of all stakeholders and not dominated by any one stakeholder • Ensure cooperation between CMAs • Ensure that the CMF is provided with advice on the WRM policy and that the CMF complies with WRM policy, legislation and guidelines • Ensure that the CMF is operating in an appropriate catchment area without compromising or marginalizing any interest group • Ensure that the CMF has an effective leader, facilitator, sponsor and mediator • Ensure that the CMF operates within a co-operative governance framework.
Local Government	
<p>Local Government is the Water Service Authority (WSA).</p>	<ul style="list-style-type: none"> • Ensure access to water supply and sanitation services to people within its area of jurisdiction • Responsible for municipal spatial planning, environmental management and service provision that may affect water resources.
Provincial and National Government	
	<ul style="list-style-type: none"> • The Provincial and National Government should provide the energy to support and maintain the CMF.

DESCRIPTION OF STRUCTURE IN TERMS OF CMA	MAIN AREA OF ACTIVITIES OF STRUCTURE
Civil Society Bodies	
Stakeholder organisations with an interest in WRM e.g. NGOs, CBOs, mining sector etc.	<ul style="list-style-type: none"> • Represent community interests and priorities • Can provide valuable information regarding local conditions • Disseminate information to key stakeholders

4. CATCHMENT RELATED CAPACITY BUILDING FOCUS AREAS

There is a need to ensure that capacity building addresses the functional competency requirements of institutions/stakeholder groups within the context of the priority learning areas (as described in Volume 1). Based on this, this Chapter provides information regarding the different capacity building themes that will serve to form the basis for the development of capacity building material. The suggested capacity building topics as well as the level of competency required by different stakeholder groups/institutions are described in this Chapter. The following **broad over-arching / cross-cutting themes** have been identified for capacity building initiatives within the context of promoting conflict resolution, promoting participation and promoting practices that will support IWRM:

- The need for promoting a co-operative, problem-solving approach to IWRM and promoting capacity building for conflict resolution at different levels (0 to 5);
- Capacity building and awareness creation aimed at ensuring that the objective of participation as an integral basis for institutional development as well as IWRM; The specific components of capacity required by different stakeholder groups in respect of this focus area.
- Gender mainstreaming, including the requirement that the needs of women and men should be considered in any planned action, including legislation, policies or programmes in all areas and at all levels and the implications thereof with regard to water resource management;
- Capacity building as it relates to institutional development. A catchment management approach requires a paradigm shift for water resources management and decision-making that promotes a decentralised, participatory model based on cooperative governance and coordination. The need for capacity building is therefore to support this paradigm shift while developing the skills of stakeholders and officials to promote institutional development and to participate fully within this institutional context.

While **Chapter 5** serves as a continuation of the description of capacity requirements contained in Chapter 4, it addresses the specific capacity building and integrated water resource management requirements for the Department of Water Affairs and Forestry and Catchment Management Authorities within the context of the following six functional areas for WRM:

- Development of Policy and Strategy
- Regulation of Water Use
- Physical implementation
- Promoting Support Organisations – facilitating and supporting the establishment, development, management and coordination of water management institutions
- Information management
- Water Resource Management Auditing.

4.1 Capacity Building for Conflict Resolution

TABLE 1: SUMMARY: CAPACITY FOR CONFLICT RESOLUTION¹

	STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
CAPACITY BUILDING ASPECT: CONFLICT RESOLUTION	CM Directorate Regional communication officers Capacity building steering committee Any person(s) performing the function of capacity building coordinator	Public, relevant communities/ organisations Community leaders Communication officers (Cos)	CMFs ² ; CMSC ³ Stakeholder groups; Reference groups; IWMB.	Statutory: <u>WMIs</u> ; CMCs; WUA; IWMB ⁴ ; Person fulfilling WMI function(s) <u>WSIs</u> : Water Boards; Water Services authorities, providers, and committees	Catchment Management Advisory Committee (Governing Board; process; management) .	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
Capacity building						
Communication skills	✓	✓ (COs)	✓	✓	✓	✓
Conflict analysis	✓	✓			✓	✓
Facilitation skills	✓		✓	✓	✓	✓
Mediation skills	✓	✓	✓	✓	✓	✓

¹ Source: Warner, April 2000, unless stated otherwise.

² Catchment Management Forums

³ Catchment Management Steering Committees

⁴ International Water Management Bodies?

STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL						
CAPACITY BUILDING ASPECT: CONFLICT RESOLUTION	CM Directorate Regional communication officers Capacity building steering committee Any person(s) performing the function of capacity building coordinator	Public, relevant communities/ organisations Community leaders Communication officers (Cos)	CMFs ⁵ ; CMSC ⁶ Stakeholder groups; Reference groups; IWMB.	Statutory: WMIs: CMCs; WUA; IWMB ⁷ ; Person fulfilling WMI function(s) WSIs: Water Boards; Water Services authorities, providers, and committees	Catchment Management Advisory Committee (Governing Board; process; management).	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Negotiation skills	✓	✓	✓	✓	✓	✓
Substance: Proficiency in strategies						
Force; Withdrawal; Accommodation; Consensus	✓	✓	✓	✓	✓	✓
Compromise:	✓	✓	✓	✓	✓	✓
Distributional Impact Analysis (part of stakeholder analysis)				✓	✓	
Process:						
Office based analysis	✓		✓		✓	✓
Participatory conflict analysis	✓		✓		✓	✓

⁵ Catchment Management Forums
⁶ Catchment Management Steering Committees
⁷ International Water Management Bodies?

4.2 Capacity and Awareness Building in Respect of Participation

TABLE 2: SUMMARY: CAPACITY AND AWARENESS BUILDING IN RESPECT OF PARTICIPATION

	STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
CAPACITY BUILDING ASPECT	CM Directorate Regional communication officers Capacity building steering committee	Public, relevant communities/ organisations Communication officers (COs)	CMFs ⁸ ; CMSC ⁹ Stakeholder groups; Reference groups; IWMB.	Statutory: WMIs: CMCs; WUA; IWMB ¹⁰ ; Person fulfilling WMI function(s)	Catchment Management Advisory Committee (Governing Board; process; management) .	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
PARTICIPATION	Any person(s) performing the function of capacity building coordinator			WSIs: Water Boards; Water Services authorities, providers, and committees		
1. Awareness Building						
Nature of IWRM (emphasize link between water supply & water resource issues)	✓	✓	✓	✓	✓	✓
Institutional arrangements: IWRM in a WMA						
Process of establishing a CMA	✓	✓	✓	✓	✓	✓
Overview of WMA	✓	✓	✓	✓	✓	✓
Simplified water resource assessment of WMA	✓	✓	✓	✓	✓	✓

⁸ Catchment Management Forums

⁹ Catchment Management Steering Committees

¹⁰ International Water Management Bodies

	STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Maps of WMA & list of stakeholders	✓	✓				
Capacity Building						
Strong interpersonal skills	✓	✓	✓	✓	✓	✓
Understanding of technical nature of IWRM process and tools that support it.	✓					✓
Planning activities	✓	✓	✓			✓
Clear understanding of link between IWRM & socio-economic development	✓	✓	✓			
Implementation activities	✓	✓	✓			✓
Funding activities	✓	✓	✓			✓
Managing finance	✓	✓	✓			✓
Input to composition of any program	✓	✓	✓			✓
Knowledge of local technology		✓	✓			
How to adapt new technology to the local context		✓	✓			
Monitoring & evaluation, incl. tracking progress and adapting programs		✓	✓			

STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL						
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
CAPACITY BUILDING ASPECT	CM Directorate Regional communication officers	Public, relevant communities/ organisations Communication officers (COs)	CMFs ¹¹ ; CMSC ¹² Stakeholder groups; Reference groups; IWMB.	Statutory: <u>WMIs</u> ; CMCs; WUA; IWMB ¹³ ; Person fulfilling WMI function(s) <u>WSIs</u> : Water Boards; Water Services authorities, providers, and committees	Catchment Management Advisory Committee (Governing Board; process; management) .	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
PARTICIPATION	Capacity building steering committee Any person(s) performing the function of capacity building coordinator					
Decision making	✓	✓	✓	✓	✓	✓
Leadership	✓	✓	✓	✓	✓	✓
Participation in CMFs						
Understanding of technical nature of IWRM process and tools that support it.						
Representation	✓	✓	✓			

¹¹ Catchment Management Forums

¹² Catchment Management Steering Committees

¹³ International Water Management Bodies

STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL						
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
CAPACITY BUILDING ASPECT						
PARTICIPATION	CM Directorate; Regional communication officers; Capacity building steering committee; Any person(s) performing the function of capacity building coordinator	Public, relevant communities/ organisations Communication officers (COs)	CMFs ¹⁴ ; CMSC ¹⁵ Stakeholder groups; Reference groups; IWMB.	Statutory: <u>WMIs</u> ; CMCs; WUA; IWMB ¹⁶ ; Person fulfilling WMI function(s) <u>WSIs</u> : Water Boards; Water Services authorities, providers, and committees	Catchment Management Advisory Committee (Governing Board; process; management) .	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
Clear understanding of roles & responsibilities	✓	✓	✓			✓
Skill to effectively & efficiently discharge roles and responsibilities within CMF, incl.						
Chairing meetings & taking minutes						
Monitoring & data management	✓	✓	✓			✓
Negotiation	✓	✓	✓			✓
Reporting	✓	✓	✓			✓

¹⁴ Catchment Management Forums

¹⁵ Catchment Management Steering Committees

¹⁶ International Water Management Bodies

	STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
4. Capacity of DWAF HO/RO Staff						
Ability to interact with stakeholders	✓					✓
Ability to ensure ongoing participation of stakeholders	✓					✓
Awareness re. Gender and traditional management practices and institutions	✓					✓
Familiarity with IWRM process / philosophy	✓					✓
Ability to enforce enabling IWRM legislation	✓					✓
Familiarity tools that support IWRM	✓					✓
Monitor & evaluate efficacy of capacity building	✓					✓
Knowledge when to render support to IWRM process in WMA	✓					

4.3 Capacity Requirements: Integrated Water Resources Management

TABLE 3: SUMMARY: CAPACITY AND AWARENESS BUILDING IN RESPECT OF INTEGRATED WATER RESOURCES MANAGEMENT

	STAKEHOLDERS TO BE CAPACITATED AND CAPACITY BUILDING LEVEL					
	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
CAPACITY BUILDING ASPECT	CM Directorate; Regional communication officers; Capacity building steering committee; Any person(s) performing the function of capacity building coordinator	Public, relevant communities/ organisations Communication officers (COs)	CMFs ¹⁷ ; CMSC ¹⁸ Stakeholder groups; Reference groups; IWMB.	Statutory: <u>WMIs</u> ; CMCs; WUA; IWMB ¹⁹ ; Person fulfilling WMI function(s) <u>WSIs</u> : Water Boards; Water Services authorities, providers, and committees	Catchment Management Advisory Committee (Governing Board; process; management) .	CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives
IWRM RELATED SUB-CONTRACTED FUNCTIONS						
Competency: Assist in WMA (sub-catchment;) vision establishment	Provide training to CMF ito specific functional domain		CMF			CMA personnel manage contracts, agreements. Monitor compliance.
Competency: Facilitate participation of stakeholders in IWRM	As above.		CMF			As above
Competency: Facilitate effective, equitable and efficient local decision making (based on local knowledge/priorities),	As above		CMF			As above

¹⁷ Catchment Management Forums

¹⁸ Catchment Management Steering Committees

¹⁹ International Water Management Bodies

	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
<p>CAPACITY BUILDING ASPECT</p> <p>IWRM RELATED SUB-CONTRACTED FUNCTIONS</p>	<p>CM Directorate; Regional communication officers; Capacity building steering committee; Any person(s) performing the function of capacity building coordinator</p>	<p>Public, relevant communities/ organisations Communication officers (COs)</p>	<p>CMFs²⁰; CMSC²¹ Stakeholder groups; Reference groups; IWMB.</p>	<p>Statutory: <u>WMIs</u>; CMCs; WUA; IWMB²²; Person fulfilling WMI function(s) <u>WSIs</u>; Water Boards; Water Services authorities, providers, and committees</p>	<p>Catchment Management Advisory Committee (Governing Board; process; management) .</p>	<p>CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives</p>
<p>Competency to foster cooperation and integrated planning between institutions (eg. local authorities)</p>	<p>As above.</p>		<p>CMF</p>			<p>CMA personnel manages contractual agreements & monitors compliance</p>
<p>Competency to advise the CMA on IWRM issues</p>	<p>As above.</p>		<p>CMF</p>			<p>As above.</p>
<p>Competency to foster stakeholder buy-in and ownership of IWRM decisions</p>	<p>As above.</p>		<p>CMF</p>			<p>As above.</p>
<p>Competency to perform monitoring, auditing and information collection functions</p>	<p>As above.</p>		<p>CMF</p>			<p>As above.</p>

²⁰ Catchment Management Forums

²¹ Catchment Management Steering Committees

²² International Water Management Bodies

	Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
<p>CAPACITY BUILDING ASPECT</p> <p>IWRM RELATED SUB-CONTRACTED FUNCTIONS</p>	<p>CM Directorate; Regional communication officers; Capacity building steering committee; Any person(s) performing the function of capacity building coordinator</p>	<p>Public, relevant communities/ organisations Communication officers (COs)</p>	<p>CMFs²³; CMSC²⁴ Stakeholder groups; Reference groups; IWMB.</p>	<p>Statutory: <u>WMIs</u>; CMCs; WUA; IWMB²⁵; Person fulfilling WMI function(s) <u>WSIs</u>: Water Boards; Water Services authorities, providers, and committees</p>	<p>Catchment Management Advisory Committee (Governing Board; process; management).</p>	<p>CMA Personnel; CMA Governing Board (post CMA establ.); Contractors involved in CMA training or operational functions Relevant DWAF representatives</p>
<p>Competency to disseminate information to stakeholders and water users.</p>	<p>As above.</p>		<p>CMF</p>			<p>CMA personnel manages contractual agreements & monitors compliance</p>

23 Catchment Management Forums
 24 Catchment Management Steering Committees
 25 International Water Management Bodies

5. CAPACITY REQUIREMENTS OF THE DEPARTMENT OF WATER AFFAIRS AND FORESTRY AND CMAs

DWAF: ANALYSIS OF INSTITUTIONAL FUNCTIONS AND CAPACITY BUILDING REQUIREMENTS²⁶

Primary Tasks	Capacity / Competence
5.1 Functional Area: POLICY AND STRATEGY DEVELOPMENT	
5.1.1 Develop legislation, internal policy & policy about international water resources obligations	
<ul style="list-style-type: none"> - Create & maintain internal strategic planning trust - Derive principles & strategic objectives - Advocate principles - Support legal drafting team - Support Portfolio Committee - Plan implementation 	<ul style="list-style-type: none"> - Legal - Technical WRM - Communications

²⁶ Based on an analysis of the regulatory, policy and guideline requirements for institutional functioning by G Schoeman and the further elaborations with acknowledgement to the work under leadership of Dr Guy Pegram as part of the current DWAF restructuring process.

Primary Tasks	Capacity / Competence
<ul style="list-style-type: none"> - Derive legal objectives - Derive technical “tools” - Support legal drafting team - Support Portfolio Committee - Plan implementation 	<ul style="list-style-type: none"> - Legal - Technical WRM - Communications
<ul style="list-style-type: none"> - Create & maintain internal strategic planning trust - Refine strategic objectives - Derive pragmatic targets - Advocate policies 	<ul style="list-style-type: none"> - Technical WRM - Financial - Communications
<ul style="list-style-type: none"> - Derive principles & strategic objectives - Support legal drafting team - Support Portfolio Committee - Plan treaty implementation 	<ul style="list-style-type: none"> - International Law - Technical WRM - Financial

Primary Tasks	Capacity / Competence
5.1.2 Develop the national water resources strategy (NWRs)	
<ul style="list-style-type: none"> - Classify water resources [s13] - Specify RQOs [s13] - Determine the Reserves [s16] 	<ul style="list-style-type: none"> - Scientific (ecological & hydrological) - Social - Economic
<ul style="list-style-type: none"> - Reconcile water resource availability & demand in & between WMAs (national assessment) - Establish principles and strategy for water conservation & demand management - Develop national quality/ instream management strategy - Formulate infrastructure development strategy, incl. inter-catchment transfers - Develop strategy to meet international obligations 	<ul style="list-style-type: none"> - Technical WRM - Economic - International Law - Communications
<ul style="list-style-type: none"> - Develop a strategy to establish CMAs and WUAs in all WMAs - Set out the functional domains of DWAF vis a vis CMAs, WUAs & Forums - Derive a cooperative governance strategy for WMLs 	<ul style="list-style-type: none"> - Institutional development - Communications - Financial

Primary Tasks	Capacity / Competence
<ul style="list-style-type: none"> - Establish/ maintain a national WRM database at suitable scale - Establish/ maintain suitable DSS tools and procedures - Initiate data updates - Perform foregoing tasks under this Function (1.2) - Formulate (updated) NWRs 	<ul style="list-style-type: none"> - Information technology - Technical WRM - Communications - Legal
<ul style="list-style-type: none"> - Mobilise and maintain a re-structuring task team - Derive strategic objectives for re-structuring - Develop organisational change model & programme - Implement programme 	<ul style="list-style-type: none"> - Institutional development - Technical WRM - Financial - Organisational design - Communications
5.1.3 Develop catchment management strategies (CMSs)	
<ul style="list-style-type: none"> - Description: natural attributes; anthropogenic impacts; RDM; economic profile; monitoring - Reconciliation of water demand and availability - Configure DSS tools 	<ul style="list-style-type: none"> - Technical WRM - Social - Economic - Communication

Primary Tasks	Capacity / Competence
<ul style="list-style-type: none"> - Refine RQOs - Derive water use allocation principles & plans - Develop regulatory plans - Plan demand management - Physical development plans - Water quality/ instream plans 	<ul style="list-style-type: none"> - Technical WRM - Social - Economic - Communications - Institutional development
<ul style="list-style-type: none"> - Establish/ maintain a WMA database at suitable scale - Establish/ maintain suitable DSS tools and procedures - Initiate data updates - Perform foregoing tasks under this Function (1.3) - Formulate (updated) CMSs 	<ul style="list-style-type: none"> - Technical WRM - Social - Economic - Communications - Institutional development

Primary Tasks	Capacity / Competence
5.1.4 Develop and maintain guidelines, methodologies and procedures for strategic functions	
<ul style="list-style-type: none"> - Derive objectives of procedural or guiding document - Assemble technical and experience-based knowledge on subject - Workshop the organisation and prioritisation of this knowledge - Assemble supporting technical and administrative information - Prepare document and conduct review process - Distribute documents - Update documents 	<ul style="list-style-type: none"> - Technical WRM - Communications - Social - Institutional development - Financial - Legal

Primary Tasks	Capacity / Competence
5.1.5 Develop and maintain a Pricing Strategy (s56; 57)	
<ul style="list-style-type: none"> - Derive/ refine objectives of pricing strategy - Assemble/ update catchment water use data base - Assemble technical and experience-based knowledge on subject - Formulate/ refine components of pricing strategy - Financial modelling with proposed charges - Finalise/ update strategy 	<ul style="list-style-type: none"> - Financial - Economic

5.1.6 Formulate the water resource components of the Medium-Term Expenditure Framework (MTEF) on the basis of DWAF's Strategic Business Plans	
<ul style="list-style-type: none"> - Translate the National Water Policy, as well as the NWRS, into strategic planning objectives for each Functional Area - Using the above planning objectives, draw up a Strategic Business Plan for each Business Planning Unit in the Water Resources Component of DWAF - Plan the rolling-out of right-sizing measures in response to the Business Plans and derive personnel budgets 	<ul style="list-style-type: none"> - Technical WRM - Business management - Financial - Human resource management

5.1.7 Plan for DWAF's and other WMI's public safety responsibilities in terms of water resources	
<ul style="list-style-type: none"> - Develop and maintain a national dam safety policy - Review/ refine dam safety regulations & procedures (s123) - Maintain/ develop Register of Dams & "Approved Professionals" - Review/ refine dam break warning & evacuation procedures 	<ul style="list-style-type: none"> - Technical WRM - Legal - Regulatory administrative
<ul style="list-style-type: none"> - Develop and maintain a national flood management and protection policy and strategy - Review/refine relevant regulations - Support Portfolio Committee - Review/ refine flood warning & evacuation procedures - Develop dam operating procedures for flood attenuation - Set up joint procedures with other relevant National and Provincial Government Departments and the National Disaster Management Centre 	<ul style="list-style-type: none"> - Technical WRM - Scientific - Legal - Economic - Social - Communications

<ul style="list-style-type: none"> - Review/ refine zoning and requirements of physical barriers - Review/ refine water craft regulation policies and practices - Set up joint procedure with the Department of Police Services - Develop/maintain data base of safety zonings 	<ul style="list-style-type: none"> - Technical WRM - Social - Communications - Information technology
<ul style="list-style-type: none"> - Develop and maintain national policy jointly with National Department of Health - Set up joint procedures with the Provincial Departments of Health and Environmental Affairs and the National Disaster Management Centre. - Develop step-wise in-house response procedures - Acquire and resource water tankers and mobile pump/pipe systems - Mobilise water tankers, stand-by pumps and mobile pipe systems 	<ul style="list-style-type: none"> - Technical water services & WRM - Medical/Health - Social - Communications

<ul style="list-style-type: none"> - Develop and maintain national policy jointly with Department of Environmental Affairs and Tourism - Set up joint procedures with Provincial Departments of Environmental Affairs and Health and the National Disaster Management Centre. - Develop step-wise in-house response procedures - Develop and maintain national data base of pollution clean-up contractors 	<ul style="list-style-type: none"> - Scientific - Technical WRM - Medical/Health - Administrative - Communications
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5.1.8 Develop or support other statutes, strategies, plans and WRM-related bodies	
<ul style="list-style-type: none"> - Develop EIP for DWAF according to the requirements of Section 13 of NEMA - Develop EMP for DWAF according to the requirements of Section 14 of NEMA - Submit EIP & EMP to CEC and update periodically 	<ul style="list-style-type: none"> - Strategic visioning - Scientific (Environmental management) - Technical WRM
<ul style="list-style-type: none"> - Mobilise suitable line function staff to fulfil all prescribed statutory or other appropriate duties relevant to ex officio membership of WRC, CEC, JTPCs, NDMC and SANCOLD - Mobilise suitable line function staff to provide both formal and informal support to SANCIAHS and WISA - Utilise any and all the above institutions to support implementation of the NWA. - Derive suitable protocols for the DWAF inputs to each of these bodies to ensure their adequate functioning 	<ul style="list-style-type: none"> - Technical WRM - Scientific (Environmental management) - International law - Advocacy - Communications
<ul style="list-style-type: none"> - Mobilise appropriate line function staff to provide these inputs - Reconcile these inputs with requirements for implementation of the NWA. - Derive suitable protocols for the DWAF inputs to each of these processes to ensure their adequate functioning 	<ul style="list-style-type: none"> - Technical WRM - Scientific (water quality) - Communications

5.2 Functional Area: WATER USE REGULATION	
5.2.1 Registration of water users	
<ul style="list-style-type: none"> - Develop and refine Registration procedures - Develop Register and supporting meta-database 	<ul style="list-style-type: none"> - Administration - Technical WRM
<ul style="list-style-type: none"> - Develop and refine Registration procedures - Administer Registration process - Develop and maintain Register and supporting meta-database 	<ul style="list-style-type: none"> - Information technology - Database administration - Stakeholder consultation - Correspondence administration
5.2.2 Authorise water use	
<ul style="list-style-type: none"> - Develop and execute licence application and administration procedures for all types of licences - Develop and execute consultation and negotiation procedures - Issue individual licences - Prepare and publish notices to this effect - Support Portfolio Committee - Plan Implementation 	<ul style="list-style-type: none"> - Regulatory administrative - Legal - Information technology - Technical WRM - Regulatory administrative - Communications - Consultative

<ul style="list-style-type: none"> - Prepare an allocation schedule (s45-s47) - Issue compulsory licences 	<ul style="list-style-type: none"> - Legal - Economic - Information technology
<ul style="list-style-type: none"> - Perform technical/ scientific assessments to delimit the nature of any particular regulation - Perform extensive stakeholder consultations and negotiations & advocate principles - Support legal drafting team - Support Portfolio Committee - Plan implementation 	<ul style="list-style-type: none"> - Technical WRM - Legal - Regulatory administrative - Communications - Consultative - Cooperative governance
<ul style="list-style-type: none"> - Perform scientific & economic assessments of candidate SFR or controlled activities - Develop & advocate guidelines for quantifying such activity impacts - Perform extensive stakeholder consultations and negotiations & advocate principles - Support legal drafting team - Support Portfolio Committee - Plan implementation 	<ul style="list-style-type: none"> - Technical WRM - Legal - Economic - Regulatory administrative - Communications - Consultative - Cooperative governance

<ul style="list-style-type: none"> - Develop and advocate guidelines for Schedule 1 uses - Record enquiries and responses in Register 	<ul style="list-style-type: none"> - Technical WRM - Regulatory administrative - Communications
<p>5.2.3 Collect water use charges</p>	
<ul style="list-style-type: none"> - Develop and execute procedures to: - Record monitored water use - Invoice water use - Collect invoiced amounts - Administer revenue - Prosecute to force payment or redress 	<ul style="list-style-type: none"> - Regulatory administrative - Financial - Business management - Legal - Information technology

5.2.4 Enforce compliance with water use authorisation conditions	
<ul style="list-style-type: none"> - Develop and execute water use monitoring and recording procedures 	<ul style="list-style-type: none"> - Technical WRM - Information technology - Regulatory administrative
<ul style="list-style-type: none"> - The following actions may be taken: - Directive to prevent and/or remedy effects of pollution [s19] - Notice to rectify contravention of water use provisions [s53] - Withdrawal of water use entitlements [s54] - Prosecute to force compliance or redress 	<ul style="list-style-type: none"> - Technical WRM - Scientific - Regulatory administrative - Legal - Information technology

5.2.5 Regulate dam safety	
<ul style="list-style-type: none"> - Maintain Register of Dams and of “Approved Professional Persons” (APPs) (for dam safety-related work) - Maintain cycle of five-yearly dam safety investigations - Ensure dam safety-related work is done by APPs - Make/refine Regulations regarding dam safety [s123] - Advocate dam break warning & evacuation procedures - Safety zoning of dams 	<ul style="list-style-type: none"> - Technical Engineering - Regulatory administrative - Legal - Consultative
5.3 Functional Area: PHYSICAL IMPLEMENTATION / MAKE WATER AVAILABLE	
5.3.1 Water resource infrastructure development	
<ul style="list-style-type: none"> - Supervise final scheme evaluations & designs (incl. groundwater) - Develop IEM Plans for schemes - Supervise construction - Raise capital - Manage finance flows 	<ul style="list-style-type: none"> - Technical WRM - Financial - Contract Admin. - International Law - Consultative

5.3.2 Water resource system operation and maintenance	
<ul style="list-style-type: none"> - Develop operating rules (quantity, quality & ecological requirements) - Monitoring-led operational responses 	<ul style="list-style-type: none"> - Technical-scientific WRM - Consultative - Contract Admin.
<ul style="list-style-type: none"> - Develop and execute inspection procedures - Attain budget allocations for maintenance - Manage preventative maintenance contracts 	<ul style="list-style-type: none"> - Technical Engineering - Contract Administration
5.3.3 Water conservation (WC) and demand management (DM)	
<ul style="list-style-type: none"> - Develop and execute WC procedures - Advocate and publicise WC - Manage contracts for invasive alien plant clearing 	<ul style="list-style-type: none"> - Technical - WRM & Water Services - Consultative - Advocacy - Social - Legal - Contract administration

<ul style="list-style-type: none"> - Develop and execute DM procedures - Detect and eliminate losses in bulk infrastructure - Make Regulations to support DM - Build in-house capacity for DM implementation - Support Water Services Providers regarding loss control and DM - Monitor demand patterns and responses to measures - Promote research on technological innovations 	
<p>5.3.4 Flood and drought management activities</p>	
<ul style="list-style-type: none"> - Support National Disaster Management Centre - Develop and execute flood management procedures on large river systems - Monitoring via telemetry - Operate large dams for floods - Publicise flood warning procedures - Execute early warning procedures - Engage relevant other state organs - Engage downstream countries 	<ul style="list-style-type: none"> - Technical-scientific WRM - Information technology - Consultative - Social - Communications - International law

<ul style="list-style-type: none"> - Support National Disaster Management Centre - Monitoring of trends in availability - Monitoring of trends in water use - Publicise trends - Intensify WC & DM, including making Regulations - Publicise WC & DM - Determine and implement required restrictions of supply to safeguard high priority demands - Engage relevant other state organs - Engage downstream countries 	<ul style="list-style-type: none"> - Technical-scientific WRM - Information technology - Consultative - Social - Communications - Legal - International law
<p>5.3.5 Emergency response interventions</p>	
<ul style="list-style-type: none"> - Implement joint procedures with the Provincial Departments of Health and Environmental Affairs and the National Disaster Management Centre. - Execute step-wise in-house response procedures - Maintain water tankers and mobile pump/pipe systems - Mobilise water tankers, stand-by pumps and mobile pipe systems 	<ul style="list-style-type: none"> - Technical water services & WRM - Medical/Health - Social - Communications

<ul style="list-style-type: none"> - Implement joint procedures with Provincial Departments of Environmental Affairs and Health and the National Disaster Management Centre. - Execute step-wise in-house response procedures - Maintain national data base of pollution clean-up contractors - Mobilise clean-up actions - Monitor during & after clean-up 	<ul style="list-style-type: none"> - Scientific - Technical WRM - Medical/Health - Administrative - Communications
<p>5.3.6 Rehabilitation of water resources</p>	
<ul style="list-style-type: none"> - Perform EIAs - Design rehabilitation - Manage rehabilitation contracts - Monitor recovery 	<ul style="list-style-type: none"> - Scientific (Environmental management) - Technical Engineering - Consultative - Align with CMS

5.4 Functional Area: INSTITUTIONAL SUPPORT	
5.4.1 Establish statutory Water Management Institutions	
<ul style="list-style-type: none"> - Develop, submit and process "Proposal to establish CMA" [s77] - Publish notice in Gazette - Establish Advisory Committee [s81] - Appoint Governing Board [s81] - Make Regulations on CMAs [s90] 	<ul style="list-style-type: none"> - Institutional development - Communications - Consultative - Technical WRM - Financial - Legal
<ul style="list-style-type: none"> - Develop, submit and process "Proposal to establish WUA" [s91] - Publish notice in Gazette - Draw up constitution of WUA - Establish Terms of Reference for Advisory Committee by Regulation [s100] - Appoint members - Publish notice in Gazette [s102] - Appoint members 	<ul style="list-style-type: none"> - Institutional development - Consultative - Communications - Legal - Consultative - Technical WRM - International Law

5.4.2 Delegate or assign powers, duties and functions to Water Management Institutions

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| <ul style="list-style-type: none"> - Assign by notice in <i>Gazette</i> [s73] - Delegate by Minister [s63] or CMA [s86] in writing - Delegate by Regulation [s100] - Delegate by Minister [s63] or CMA [s86] in writing - Delegate by notice in <i>Gazette</i> [s102] | <ul style="list-style-type: none"> - Institutional development - Technical WRM - Consultative - Communications - Legal - Consultative - Technical WRM - International Law |
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5.4.3 Facilitate establishment of non-statutory participatory bodies

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| <ul style="list-style-type: none"> - Identify and mobilise WRM-related stakeholders - Provide technical and secretarial (& limited financial) support - Facilitate meetings of Forums and other participatory groups | <ul style="list-style-type: none"> - Institutional development - Communications - Consultative - Technical water services & WRM |
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5.4.4 Build WRM-related capacity in both statutory and non-statutory Water Management Institutions	
<ul style="list-style-type: none"> - Recruit & establish “new” specialised skills: institutional and social development; conflict resolution; public participation; resource economics; process and technical auditing - Develop Training Networks to foster all the above “new” skills, including school curricula - Develop cross-discipline capacity-building 	<ul style="list-style-type: none"> - Institutional development - Capacity-building - Communications - Consultative - Technical WRM
<ul style="list-style-type: none"> - Pursue high skill levels in WR planning, surface & groundwater hydrology, water quality science, applied hydraulics; ecological sciences, etc. 	<ul style="list-style-type: none"> - Technical-scientific WRM - Capacity-building
<ul style="list-style-type: none"> - Facilitate leadership development in WMIs - Provide basic WRM-technical & social skills & responsibility training courses & material - Foster WRM-related community and schools projects - Facilitate Forum, etc., membership mix with adequate WRM-related expertise - Facilitate sharing of lessons learnt & of common resources 	<ul style="list-style-type: none"> - Institutional development - Communications - Consultative - Technical water services & WRM - Technical and social development capacity-building

5.4.5 Coordinate activities of Water Management Institutions	
<ul style="list-style-type: none"> - Link participatory bodies to each other and to the CMA's committees - Foster cooperative governance - Pursue private-public partnerships - Consult participatory bodies on water resource operation strategies - Coordinate components of DWAF 	<ul style="list-style-type: none"> - Communications - Consultative - Technical water services & WRM - Institutional development
5.4.6 Intervene to support and re-direct WMIs	
<ul style="list-style-type: none"> - Give a directive to a WMI in relation to any power or duty [s74], or to remedy a situation in which it does not operate effectively [s87], [s95] 	<ul style="list-style-type: none"> - Consultative - Institutional development - Legal

5.5 Functional Area: INFORMATION MANAGEMENT	
5.5.1 Information system design	
<p>Define:</p> <ul style="list-style-type: none"> - Aims and objective of WRMAIS office - Roles and responsibilities of key role players - Develop: - Portfolio of sub-systems to meet the needs of the core functions of water resource management 	<ul style="list-style-type: none"> - Institutional development - Financial - Organizational design - Communications - Administrative & governance
<ul style="list-style-type: none"> - Strategic HR development plan - Strategic technology plan - Infrastructure and budget - Protocols (commercial, agreements etc) to exchange water resource data with non-DWAF organizations <p>Ensure compliance with:</p> <ul style="list-style-type: none"> - Corporate IT architecture - Corporate standards, guidelines & procedures - Statutory requirements 	<ul style="list-style-type: none"> - Technical: WRM and - Information & communication technology - Legal

<ul style="list-style-type: none"> - Design of WRMAIS - Creating or migrating sub-systems making up the WRMAIS - Managing master plan execution 	<ul style="list-style-type: none"> - Strategic visioning - Integrated monitoring design skills - Technical: information and communication technology
<p>Development of:</p> <ul style="list-style-type: none"> - GS&P for MIS design - GS&P for storage and maintenance of electronic and non-electronic data - GS&P for data exchange - GS&P for meta-data 	<ul style="list-style-type: none"> - Technical: Information And Communication Technology - Communication
<p>Development of:</p> <ul style="list-style-type: none"> - QA/QC procedures for DWAF data providers - QA/QC requirements for non-DWAF data providers 	<ul style="list-style-type: none"> - Technical: Scientific, analytical, Information And Communication Technology

5.5.2 Data acquisition	
<ul style="list-style-type: none"> - Sub-systems operational and effectively managed. This includes owner and roles and responsibilities defined, service level and contractual agreements have been established, operational data collection procedures exist and adhered to and evaluation of sub-system performance undertaken regularly. - Sub-system designed according to WRMAIS criteria - Adequate infrastructure and resources secured to maintain sub-system - Data collection QA/QC procedures are applied - Data exchange with non-DWAF suppliers is operational 	<ul style="list-style-type: none"> - Communication - Administrative - Auditing - Information And Communication Technology - Technical: WRM
5.5.3 Data and information storage and management	
<ul style="list-style-type: none"> - Migration of sub-systems onto central WRMAIS - Maintenance of sub-systems - Auditing sub-system operations 	<ul style="list-style-type: none"> - Information technology - Administration & auditing
<ul style="list-style-type: none"> - Development of data exchange protocols for non-DWAF sub-systems - Implementation of data exchange protocols 	<ul style="list-style-type: none"> - Information technology - Administration & auditing

5.5.4 Information generation and dissemination	
<ul style="list-style-type: none"> - Ongoing determination and review of the needs of complex knowledge products - Design, maintain and update data and information access systems 	<ul style="list-style-type: none"> - Communications - Consultative - Technical WRM - Scientific - Information technology
<ul style="list-style-type: none"> - Ongoing determination and review of the information required in standardized report formats - Design, maintain and update standardized report formats 	<ul style="list-style-type: none"> - Communications - Consultative - Technical WRM - Scientific - Information technology
<ul style="list-style-type: none"> - Determine user training needs - Develop training material for users of data access and information systems - Training of users in data access & information systems 	<ul style="list-style-type: none"> - Communications - Consultative - Information technology

5.5.5 Support for complex knowledge products	
<ul style="list-style-type: none"> - Identify generic information needs for policy and strategy development - Develop generic information products for policy and strategy development 	<ul style="list-style-type: none"> - Consultative - Technical WRM - Scientific - Information technology
<ul style="list-style-type: none"> - Identify generic information needs for physical implementation activities - Develop generic information products for physical implementation activities 	<ul style="list-style-type: none"> - Communications - Consultative - Regulatory administrative - Technical WRM - Business management - Information technology
<ul style="list-style-type: none"> - Identify generic information needs for auditing functions - Develop generic information products for auditing functions 	<ul style="list-style-type: none"> - Communications - Consultative - Regulatory administrative - Institutional development - Information technology

5.5.6 Information Management Research	
<ul style="list-style-type: none"> - Development of data acquisition (monitoring) guidelines, standards, procedures and QA/QC protocols - Technology transfer of monitoring guidelines, standards, procedures and QA/QC protocols 	<ul style="list-style-type: none"> - WR Monitoring
<ul style="list-style-type: none"> - Identify appropriate new water resource assessment technology - Pilot test and evaluate new WR assessment technologies - Implement new WR assessment technologies where appropriate 	<ul style="list-style-type: none"> - Technical WRM - Scientific WRM - Contract administration - Assessment technologies
<ul style="list-style-type: none"> - Identify gaps or shortcomings in current monitoring technologies - Identify and evaluate new monitoring technologies - Implement new monitoring technologies 	<ul style="list-style-type: none"> - Technical –scientific WRM - Monitoring technologies
<ul style="list-style-type: none"> - Identify needs to new information dissemination technologies - Develop and evaluate new user interfaces - Implement new information dissemination technologies 	<ul style="list-style-type: none"> - Information and communication technology - Needs assessment

5.6 Functional Area: AUDITING WATER RESOURCES MANAGEMENT	
5.6.1 Audit strategies and their outcomes	
<ul style="list-style-type: none"> - Identify key outputs and performance indicators for each strategy - Develop & execute inspection and auditing procedures, both for outputs and process - Identify audit-relevant information bases & procedures for access - Develop and implement feed-back and follow-up procedures 	<ul style="list-style-type: none"> - Auditing (Non-financial) - Technical WRM - Consultative - Legal
5.6.2 Audit water use regulation	
<ul style="list-style-type: none"> - Identify performance indicators for each component of authorisation process - Develop & execute inspection and auditing procedures for authorisation process - Identify audit-relevant information bases & procedures for access - Develop and implement feed-back and follow-up procedures 	<ul style="list-style-type: none"> - Auditing (Non-financial) - Technical WRM - Regulatory administrative - Consultative - Legal

<ul style="list-style-type: none"> - Develop & execute inspection and auditing procedures for compliance - Identify audit-relevant information bases & procedures for access - Develop and implement feed-back and follow-up procedures 	<ul style="list-style-type: none"> - Auditing (Non-financial) - Technical WRM - Regulatory administrative - Consultative - Legal
<p>5.6.3 Audit Water Management Institutions</p>	
<ul style="list-style-type: none"> - Develop & execute inspection and auditing procedures for <i>institutions</i> - Identify audit-relevant information bases & procedures for access - Develop and implement feed-back and follow-up procedures 	<ul style="list-style-type: none"> - Auditing (financial & non-financial) - Technical WRM - Regulatory administrative - Consultative - Legal
<ul style="list-style-type: none"> - Develop & execute inspection and auditing procedures for <i>statutory interventions</i> - Identify audit-relevant information bases & procedures for access - Develop and implement feed-back and follow-up procedures 	<ul style="list-style-type: none"> - Auditing (non-financial) - Technical WRM - Regulatory administrative - Consultative - Legal

5.6.4 Audit physical WRM-related interventions

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| <ul style="list-style-type: none">- Develop & execute inspection and auditing procedures for <i>physical WRM-related interventions</i>- Identify audit-relevant information bases & procedures for access- Develop and implement feed-back and follow-up procedures | <ul style="list-style-type: none">- Auditing (non-financial)- Technical-scientific WRM- Regulatory administrative- Consultative |
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