

# Development of an Integrated Water Resource Management Plan Guideline for Local Authorities (WRC K8/611)



Water Research Commission





Department of Water  
Affairs and Forestry

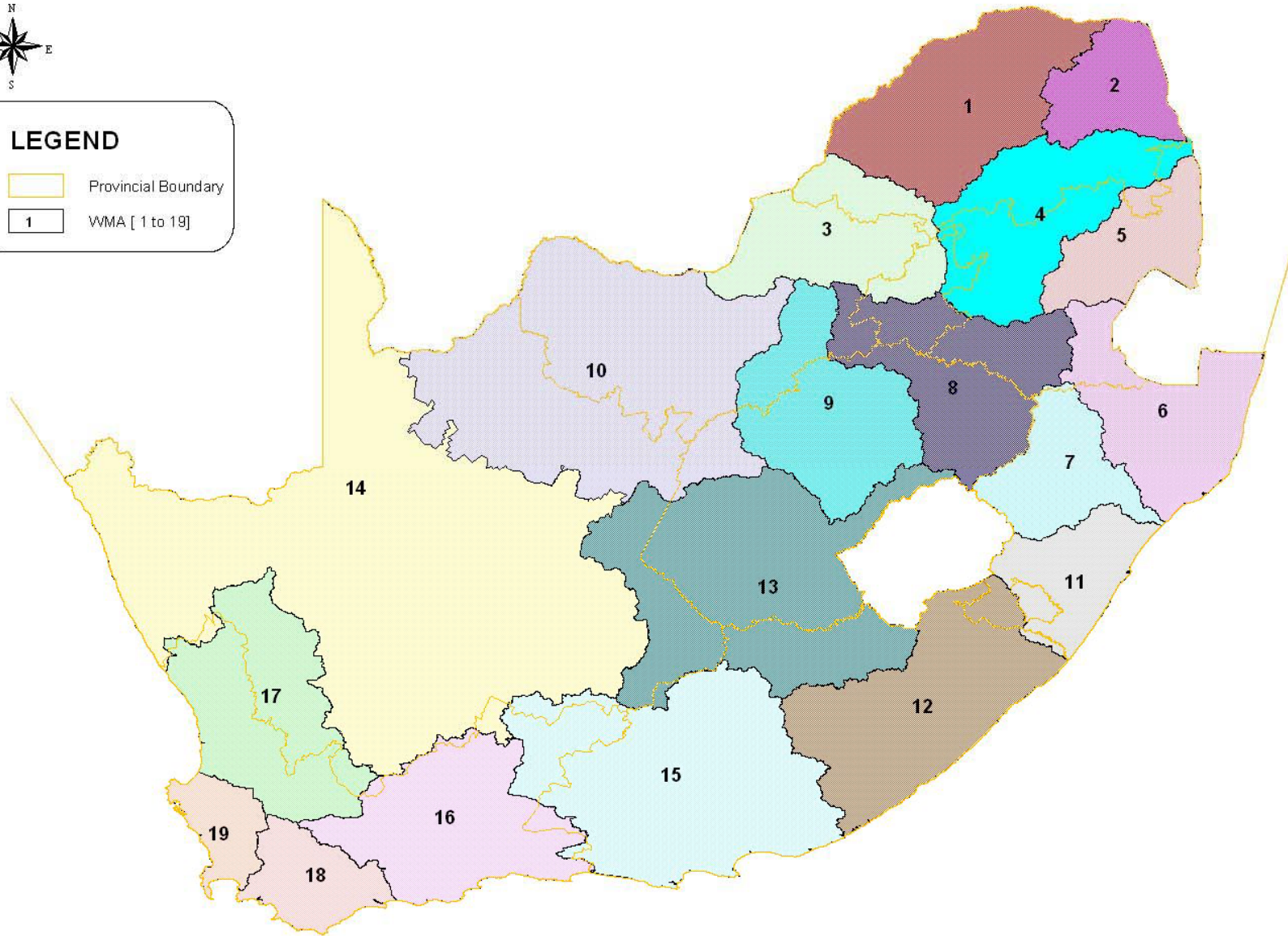
Jacky Burke





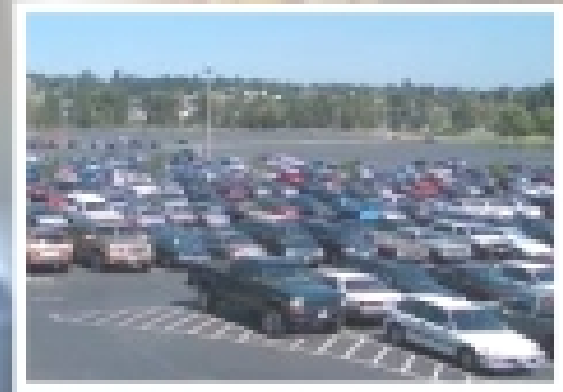
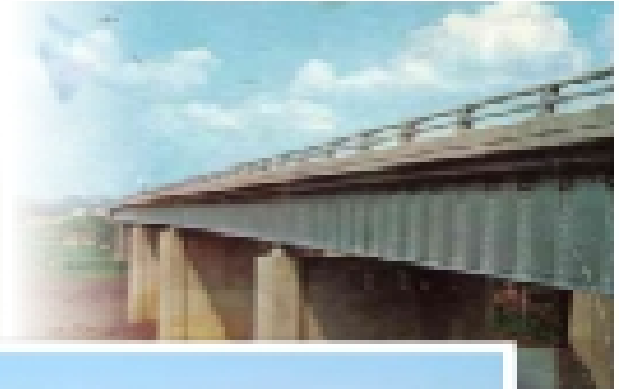
### LEGEND

-  Provincial Boundary
-  WMA [ 1 to 19]



There are currently 284 Local Authorities in South Africa,  
falling within approximately 1 950 quaternary catchments  
in 19 WMAs

❖ Environmental law encompasses three distinct but inter-related areas



◆ Land use planning and development

Worldwide, at least one third of all developed urban land is devoted to roads, parking lots, and other motor vehicle infrastructure (NRDC website).

- ◆ Resource conservation and utilisation



- ◆ Waste management and pollution control



# IWRM

- ❖ IWRM is defined in the NWRS
- ❖ IWRM seeks to reach an appropriate balance between the need to protect and sustain water resources on the one hand, and the need to develop and use them on the other i.e. IWRM enables a Local Authority to provide services to all sectors within its area of jurisdiction but without comprising either environmental integrity or human health.



# IWRMP

- ❖ An IWRMP is a plan aimed at dealing with the socio-economic, technical, financial, institutional and environmental issues as they pertain to management of the water resource.
- ❖ The primary objective of the Guideline is to assist a Local Authority to develop an IWRMP to facilitate implementation of IWRM and apply for a water use authorisation



- ❖ The second objective of the Guideline is to provide clarity on the perceived, primary constraint to implementing IWRM in Local Authorities, namely the limited integration between development planning (land use) and the management of the collective impact of all urban-related water including sanitation, waste disposal, urban stormwater, urban runoff and water reticulation



# Phase 1: Literature review

- ❖ Overview of IWRM
- ❖ International experience
- ❖ African experience
- ❖ 3 Unicities and a DM in South Africa
- ❖ Identified IWRM aspects
- ❖ Conclusions



# Phase 1: Stakeholder participation

- ❖ Stakeholder survey: 34 % return
- ❖ Presentations, one-on-ones, meetings
- ❖ Workshop
- ❖ Conclusions



# Phase 2: Legal assessment

- ❖ The Constitution and current legislation lay the foundation for Local Authorities to consider IWRM but there is no legal requirement to prepare an IWRMP
- ❖ DWAF is the custodian of water resources but Local Authorities are required to provide water and sanitation services, manage stormwater, waste and control pollution

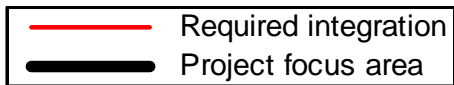
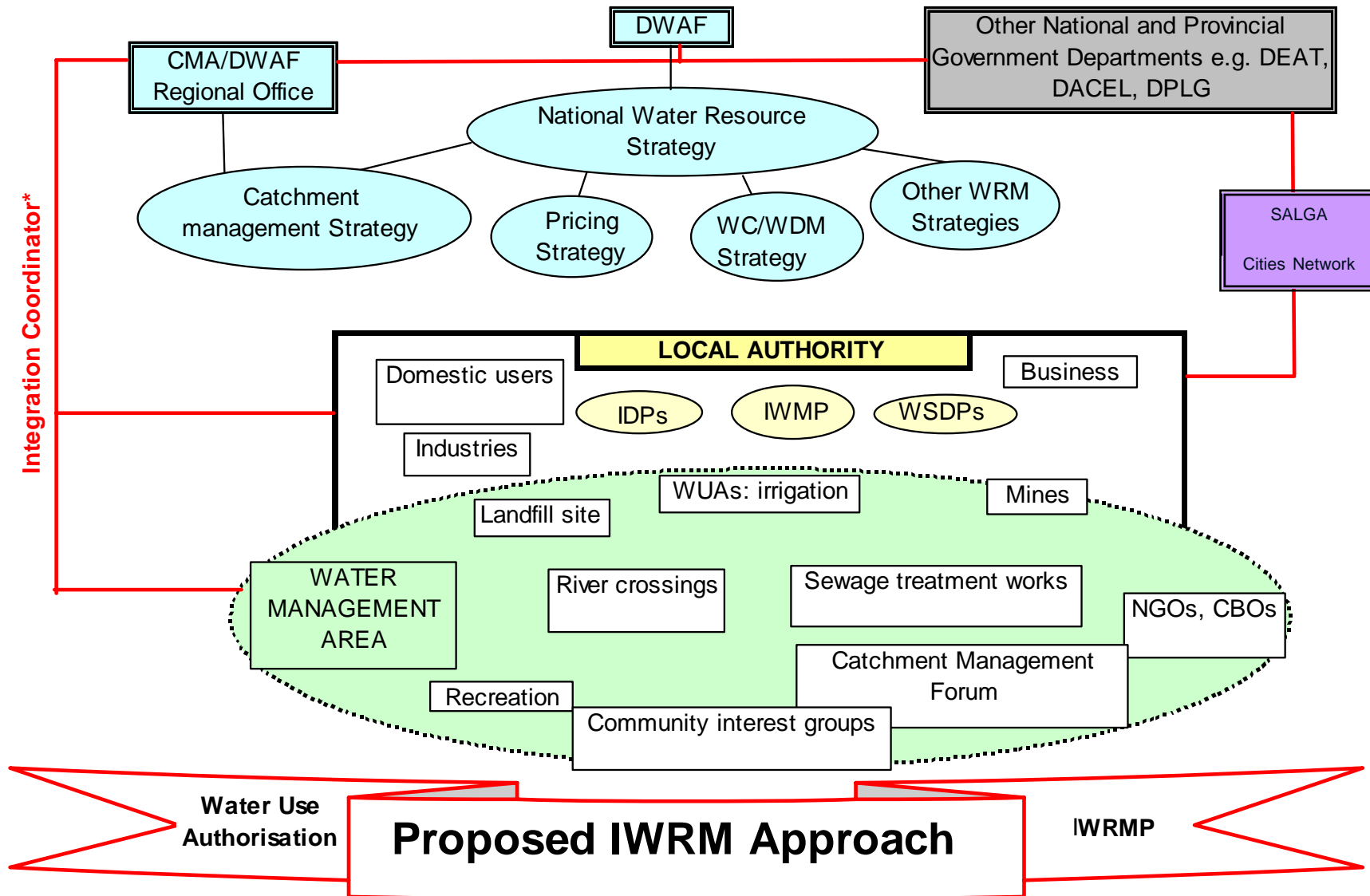


# Phase 2: IWRM framework and Guideline

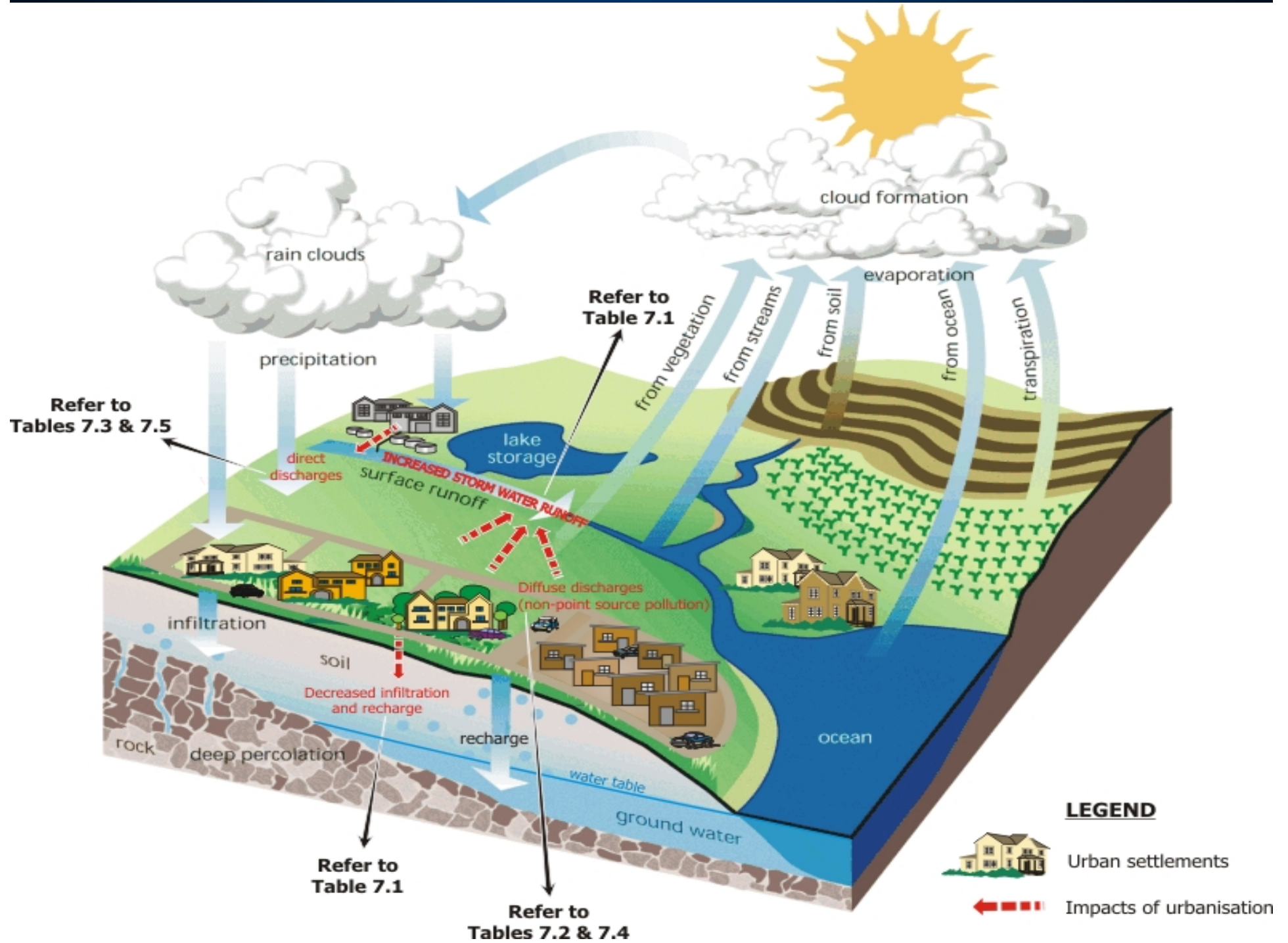


# Phase 2: IWRMP Guideline

Topic	Section reference	Contents
What is IWRM? What is an IWRMP?	Section 2	Definitions and schematic representation of IWRM
What are the legal requirements and responsibilities?	Section 4	Obligations in terms of the Constitution. Obligations in terms of the National Water Act and other national legislation
How does a Local Authority impact on water resources?	Section 5.1	Hydrological cycle Impacts of urbanisation on water quality, quantity and ecological habitat
Is IWRM the solution to managing these impacts?	Section 5.2 Section 5.3	The need for IWRM in Local Authorities Management tools and Section 21 Water uses



\* Possibly a member of the Catchment Management Committee (CMC): appointed by the CMA to advise the CMA and coordinate the activities of different WUA within a specified area/catchment



# Phase 2: IWRMP Guideline

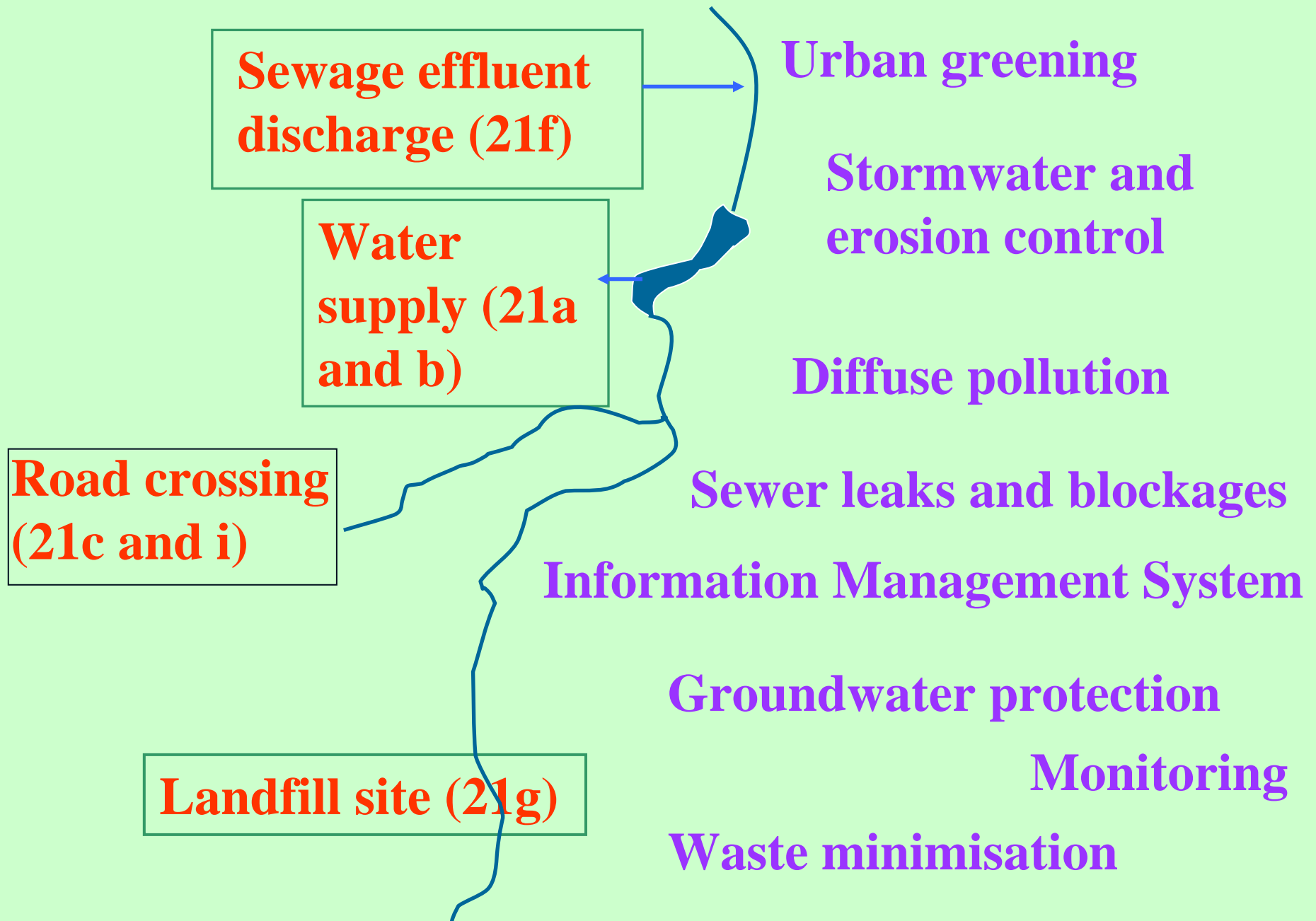
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# Section 21 water uses

11 Section 21 Water Uses have been identified in the NWA.  
These uses are regulated under Chapter 4 of the NWA.

- ❖ A: abstraction
- ❖ B: storing
- ❖ C and I: impeding, altering, diverting
- ❖ D: stream flow reduction activity
- ❖ E: engaging in controlled activity eg irrigation
- ❖ F: discharging
- ❖ G: disposing
- ❖ H: disposing of heated waste
- ❖ J: removing underground water
- ❖ K: recreation

# WUA and IWRM through an IWRMP



# IWRMP Guideline contents cont..

What can be learnt from the approach of others

Section 6.1

Global implementation of IWRM  
Stormwater management

Section 6.2

IWRM in South Africa

What institutional arrangements are required and who is responsible for what?

Section 7.1

Local Authority IWRM  
institutional arrangements

Section 7.2

Responsibilities

IWRMP Guidelines

Section 8

IWRMP contents  
Cross references to WSDP and  
IWMP  
Information required  
Responsibilities

Implement the IWRMP

Section 9

Recommendations

# Institutional arrangements

- ❖ Champions, political support
- ❖ A continuous experiment-review-feedback cycle

# Institutional constraints

- ❖ Uncertainty, self-interest and conflicting values



# IWRMP Guideline contents cont..

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# IWRMP contents

- ❖ Local Authority's IWRM objectives
- ❖ Local Authority details and baseline information
- ❖ Legal framework including Section 21 water uses
- ❖ Surface and groundwater situation assessments
- ❖ Water use and management
- ❖ Waste management
- ❖ Quantitative risk assessment
- ❖ Management systems and strategies
- ❖ Prioritisation of projects
- ❖ Operational management

# Conclusions

The following is required for successful implementation of IWRM:

- ❖ Resources
- ❖ Cooperative governance
- ❖ Coordinator
- ❖ DWAF-Local Authority Forum
- ❖ Fine-tuning during the technology transfer phase



# Way forward

- ❖ The Guideline is to be published in 2006 as a discussion document for comment and will be available on the Water Information Network (WIN-SA)
- ❖ Technology transfer workshops will be held in conjunction with DWAF, SALGA and Cities Network



# Acknowledgements

- ❖ Department of Water Affairs and Forestry
- ❖ Water Research Commission



# Errors and omissions

- ❖ Page 7, Phase 2, third bullet:  
“prevent any pollution from occurring and minimise or rectify any pollution that has occurred in terms of the National Environmental Management Act, Act 107 of 1998 and Part 4 of Chapter 3 and Section 21 of Chapter 4 of the National Water Act, Act 36 of 1998, which also requires monitoring of pollution from land based activities i.e. carrying out water quality monitoring activities.”
- ❖ Page 8 fifth row, last column:  
“The intention of the Guideline is not to reinvent the wheel but rather to learn from the approach of others both locally and internationally.”

# International experience

- ❖ Constraints are similar in most countries. Primary constraint is the limited integration between land use planning and WRM
- ❖ Widely accepted tools are strategies/plans/policies (**voluntary controls**), water use charges/levies/taxes (**financial controls**) and licences/permits (**legislative controls**)
- ❖ Stakeholder participation is widely practised and encouraged



# International experience

Netherlands: A survey carried out among 150 larger companies in 1990s showed that 66% took measures as a result of the levy and 24% due to licence provisions

England:  
public/private/volunteer  
partnerships

IWA: Regardless of technological advances, the big changes will be made in the political arena

Australia and America: formation of Stormwater Associations/utilities

# Rewind to the 1960's in France

- ❖ The French developed a system of water management based on the polluter pays principle
- ❖ Under the Water Act of 1964 pollution and water use charges were established based on the principle of the internalization of water costs at river basin level
- ❖ (Currently all EU members must align legislation with the EU Water Framework Directive designed in 2000)



# Fast forward to the 2000's in Timor-Leste (Asia)

- ❖ WRM is based on the operational needs of water services and sanitation
- ❖ Asian Development Bank is assisting Timor-Leste to achieve IWRM through technical assistance:
  - refurbish infrastructure
  - capacity building
  - develop new legislation incl WUL conditions
  - community consultation



# Africa

- ❖ Coexistence of formal and informal sectors ie need to recognise the contribution of customs, norms, traditions and local initiatives
- ❖ Capacity to implement programs
- ❖ Focus on transboundary rivers and water and sanitation provision: SADC and NEPAD



# Local Authorities

- ❖ Unicitys and several Local Municipalities are implementing IWRM to varying degrees
- ❖ District Municipalities are constrained by
  - low revenue collection,
  - outdated bylaws,
  - unclear institutional responsibility
  - unaccountability



# Local Authority survey

- ❖ 6 local authorities, 1 water board, 1 DWAF
- ❖ Implementation of IWRM ranges from 'not implemented' to 'development of water sector plans'
- ❖ Only one local authority was not aware of Section 21 water uses and its WUAs
- ❖ Stakeholder participation is practised
- ❖ Groundwater management is poor
- ❖ Identified constraints and benefits vary

