



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

Comprehensive Framework and Authorisation Application Guideline for Integrated Water Resource Management for the Mining Industry

Mining for Sustainable Development:
Extracting more benefit for Africa,
Midrand, 16 – 18 Nov 2005



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

OVERVIEW OF TALK

- Introduction
- Overview of IWRM: Mining project
- Comprehensive Framework
- Authorisation Application guideline
- Conclusion



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

INTRODUCTION

- Policy and legislative changes since 1994
- Mining sector: major industrial player, contributes to pollution
- Specific effort: complexity of mining life cycle, multitude of minerals, variety of environmental challenges, legacy of pollution problems of abandoned mines
- Main regulator DME; DWAF regulates water usage
- Stakeholder consultation
- Identification and prioritisation of actions to ensure sustainable use of water resource during mining activities in an integrated manner



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

OVERVIEW OF PROJECT

Framework for IWRM for the Mining Industry

- 10 main topics identified (Table next slide)
- Prioritised documents developed
- Stakeholder consultation
- Documents:
 - Stakeholder survey
 - Literature survey
 - **Comprehensive IWRM Framework for Mining**
 - National Strategic Framework
 - Guideline to determine Cumulative Impacts
 - **Authorisation Application Guideline**
 - Communication Framework



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

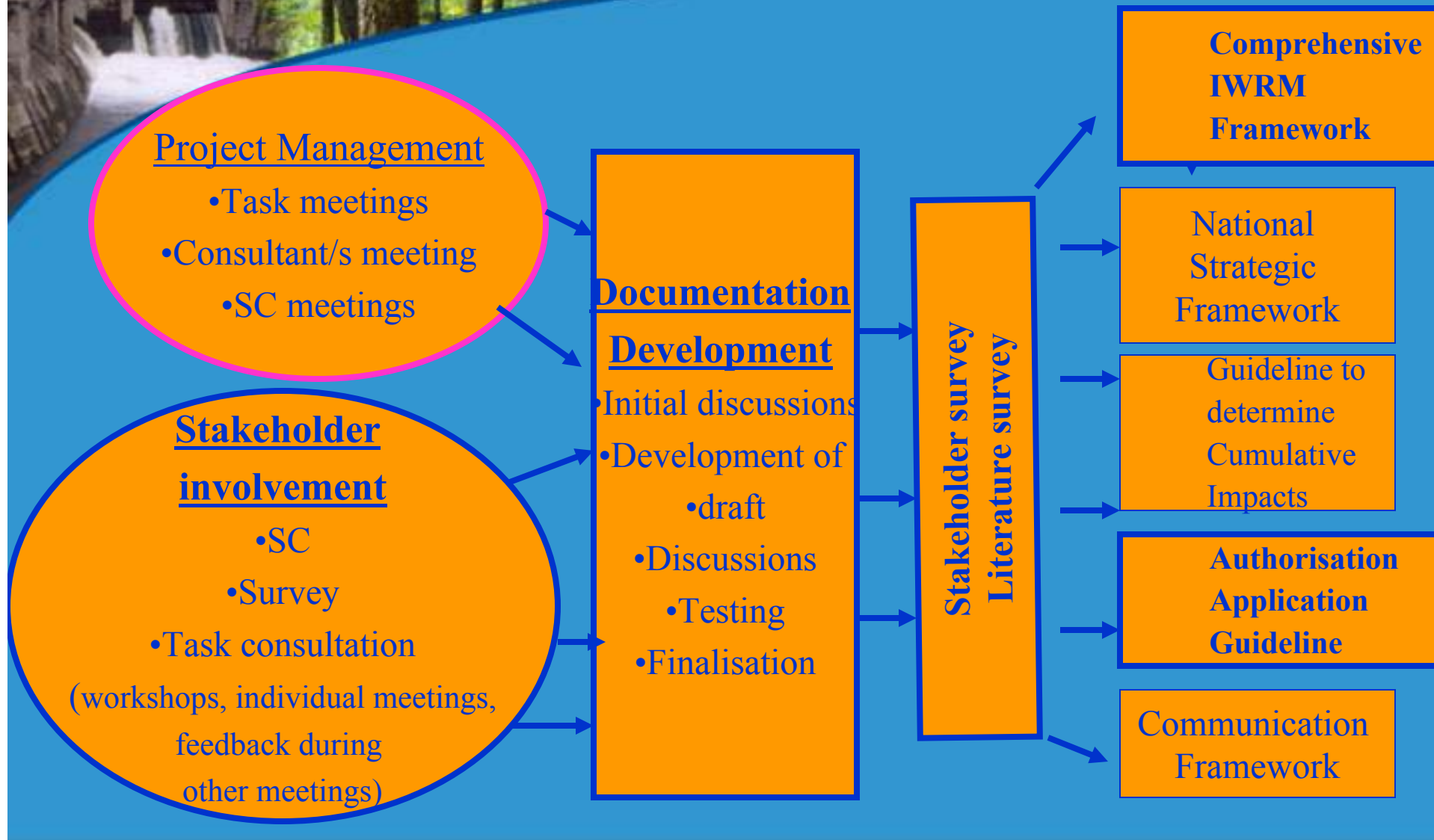
"Some for all"

TABLE: Work packages

Topic	Description
1.	Comprehensive integrated water resource management framework: mining sector
2.	Policy, legislation, strategic, regulatory guidelines, conditions and standards: Review, harmonisation and consolidation
3.	Institutional arrangement establishment, strengthening and support.
4.	Integrated water resource management
5.	Governmental and mining sector co-operation and research
6.	Information management systems
7.	Communication (including awareness raising), training (including capacity building and empowerment) and stakeholder participation.
8.	Financial provisions
9.	Technical support services
10.	Implementation, monitoring and review



DEVELOPMENT PROCESS





water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

STAKEHOLDERS

- DWAF – national and regional offices
- Government departments: DME, DEAT
- Mining sector: CoM, mining houses, associations, individual mines
- Research organisation: WRC
- Local authorities
- Farmers



STAKEHOLDER SURVEY

- **Water was viewed by all respondents as “one of the most precious resources in the country”**
- **Three main priority areas were identified by all stakeholders:**
 - **Water quality** (receiving and discharging), as well as water use and licensing (mining sector)
 - **Alignment of National legislation** regarding water use associated with mining
 - **Future water requirements** and the need for **long term sustainability**
- **Key issues on pollution** that emerged were –
 - **Degradation or lowering of water quality** and thereby **compromising its further use**
 - The **increased cost associated** with returning water to an acceptable quality
 - Pollution of the resource by **raw sewage** resulting is a health risk and add to treatment costs
 - **Pollution is increasing the risk of water shortages**
- **Communication around water related inequities** is required
- Respondents responded **positively to the “Polluter Pays Principle”** and industry is prepared to foot the bill where they have erred. But, the **policing of the charge system should be fair, equitable and transparent.**



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

STAKEHOLDER SURVEY (cont)

- Respondents indicated a keen interest to become **members of WUAs**
- Larger mining groups wish to hold **high-level discussions with DWAF regarding sustainable use of the water resource.**
- The main difficulties with **water use authorization process** are that there is a **lack of clarity and simplicity in the authorisation process**; there are **delays** in the issuing of authorisations; the process is **not consistently applied**; there is a **general lack of resources and technical capacity within DWAF**; technical guideline documents are **not practical**; the authorisation process is **expensive**; and there is a **lack of uniformity in the regulating roles between the different Regions**
- DWAF needs to **improve the enforcement process.**
- **Capacity building is required at all levels**
- There is **not enough feedback from DWAF** (no compliance assessments or audits, no feedback on reports submitted) on mining activities
- The **dual process (DWAF, DME)** is seen as **duplication of effort with different Departments requesting similar information.** There is a need for **functional memoranda of understanding, a need for a functional approach to integration of strategies and administrative management, and less “empire building”.**



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

COMPREHENSIVE FRAMEWORK THEMES

- Enabling environment
- Institutional and Process aspects
- Communication
- Research



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

ENABLING ENVIRONMENT

(LEGISLATION, POLICY, REGULATIONS, STRATEGIES, GUIDELINES, COMPLIANCE AND ENFORCEMENT):

- 1: Review current interpretation and implementation** of selected sections of **legislation** to ensure adequately **cross-referencing and harmonisation** specifically and **aligned with IWRM principle**.
- 2: Investigate options for creating incentives and/or opportunities for making possible the equitable use of water in the mining sector**, and for using water for socio-economic upliftment of previously disadvantaged communities associated with mining development. Investigate merits of interacting with **Social and Labour plan**, mentioned in the Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002).
- 3: Investigate the feasibility of developing more capacity, technical expertise, tools and mechanisms at operational level.**
- 4: Identify links with other planning institutions/initiatives** associated with mining development, and identify/follow up on issues related to water.



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke
"Some for all"

ENABLING ENVIRONMENT

(LEGISLATION, POLICY, REGULATIONS, STRATEGIES, GUIDELINES, COMPLIANCE AND ENFORCEMENT) (cont):

- 5: Investigate options for **funding government implementation of corrective/rehabilitation activities at abandoned mines**, e.g. through annual fee payment by all mines (except perhaps small scale miners) similar to water resource management charge levied by DWAF.
- 6: Relate **IWRM policy to practical level for application in all phases of mining cycle**.
- 7: Identify all **regulations and standards that require compliance assessment, and establish appropriate reporting and feedback system**
 - Identify all aspects of water related legislation and standards that require enforcement, review current directives/prosecution/ appeal system, in particular the possible abuse of recurring fine payment without genuine attempts at corrective action
 - Investigate options for enforcement through appropriate forum/institution, e.g. mobile courts, use of satellite imagery, establishment of an independent inspectorate for regular mine visits



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

INSTITUTIONAL AND PROCESS ASPECTS

8 To ensure (in the spirit of co-operative governance and efficiency) effective information sharing, co-operation and collaboration in areas of common concern, and efficient joint administration of mining issues:

- Identify all areas/processes of joint involvement between DWAF and DME on mining issues
- Identify all existing working groups/arrangements between DWAF and DME, identify relevant staff, identify/establish objectives, and major achievements of the group
 - Prioritise committee(s) of relevance to water issues in mining, identify issues that are not yet covered, and follow up on future activities
 - Investigate merits/need of establishing new committees where appropriate, and mechanisms for mutual updating of relevant developments in each department (e.g. DME not using aide memoir anymore, now drafting new guideline for EMPR, etc)
 - Investigate feasibility of “one stop shop” approach



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF: RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

INSTITUTIONAL AND PROCESS ASPECTS (cont)

9: To improve processing of mining applications, and eliminate confusion, delays and duplication

- Review and possibly revise/update current Memorandum of Understanding between DME and DWAF
- Investigate merits of preparing a new Memorandum of Understanding between DWAF and DME regarding Regional Closure Strategies
- Investigate collective effort between DWAF and DME to prepare the same set of information to be sent to all applicants, providing simple explanations of what each department requires and evaluates, what the process sequence entails, and how delays can be avoided.

10: To streamline the water use authorisation process

Review current authorisation process with a view to improve efficiency and avoid duplication. Outcomes should include:

- Easy to use, practical documents
- Emphasis on content, not format
- Provision for receiving regular updates



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

INSTITUTIONAL AND PROCESS ASPECTS (cont)

Awethu
Sonke

"Some for all"

- 11:** To ensure the efficient management of all mine related issues in DWAF, investigate requirements for optimum number of technical and administrative staff, and corresponding training/skills requirements. In addition:
- Identify and rank most frequently encountered problems e.g. high staff turnover, lack of supervision, poor records, document trail problems, inconsistent application of standards within & between regional offices
 - Compile an audit of all mining applications and related issues/queries (by type and frequency), and relate to existing staff and expertise
 - Identify gaps/overlaps and prioritise human resources, training and financial requirements
 - Address identified requirements, and establish performance criteria/ indicators for each type of issue to be addressed
 - Monitor performance and implement corrective action where and when appropriate



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

INSTITUTIONAL AND PROCESS ASPECTS (cont)

- 12: ○ Clarify roles and responsibilities of Provincial and Local government with regard to water issues in the mining sector
- Establish what links exist with Provincial and Local Government, and identify appropriate link(s) for mine water issues, and ensure mine water issues are tabled for regular review and updates
 - Clarify roles and responsibilities of Water User Associations and Catchment Management Agencies



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

COMMUNICATION

13: In an effort to “close the gap” between the mining sector and DWAF, **eliminate confusion about requirements, and to provide an effective forum for information exchange and raising issues**, the following steps are recommended:

- Investigate the establishment of **appropriate communication media**
- Investigate feasibility of a **dedicated, regularly updated website** for information sharing, with easy to understand, short explanations on full spectrum of important topics, list of general authorisations, section on “frequently asked questions”, email addresses that are serviced regularly, section for complaints, etc
- Compile **Toolbox for IWRM in Mining on CD**, containing all relevant application forms, guidelines, aide memoirs etc, and list of all references in literature review, easily indexed.



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

CF:

RECOMMENDED ACTIONS

Awethu
Sonke

"Some for all"

RESEARCH, TRAINING AND EMPOWERMENT

14: To ensure that all future research concerning water and mining is aligned with IWRM principles:

- **Identify, investigate and expand on the nature and extent of IWRM in all phases of mining development** in order to identify future research directions for IWRM in mining
- **Identify gaps in current policy and legislation and current research avenues** to facilitate and enhance implementation of IWRM in mining



water & forestry

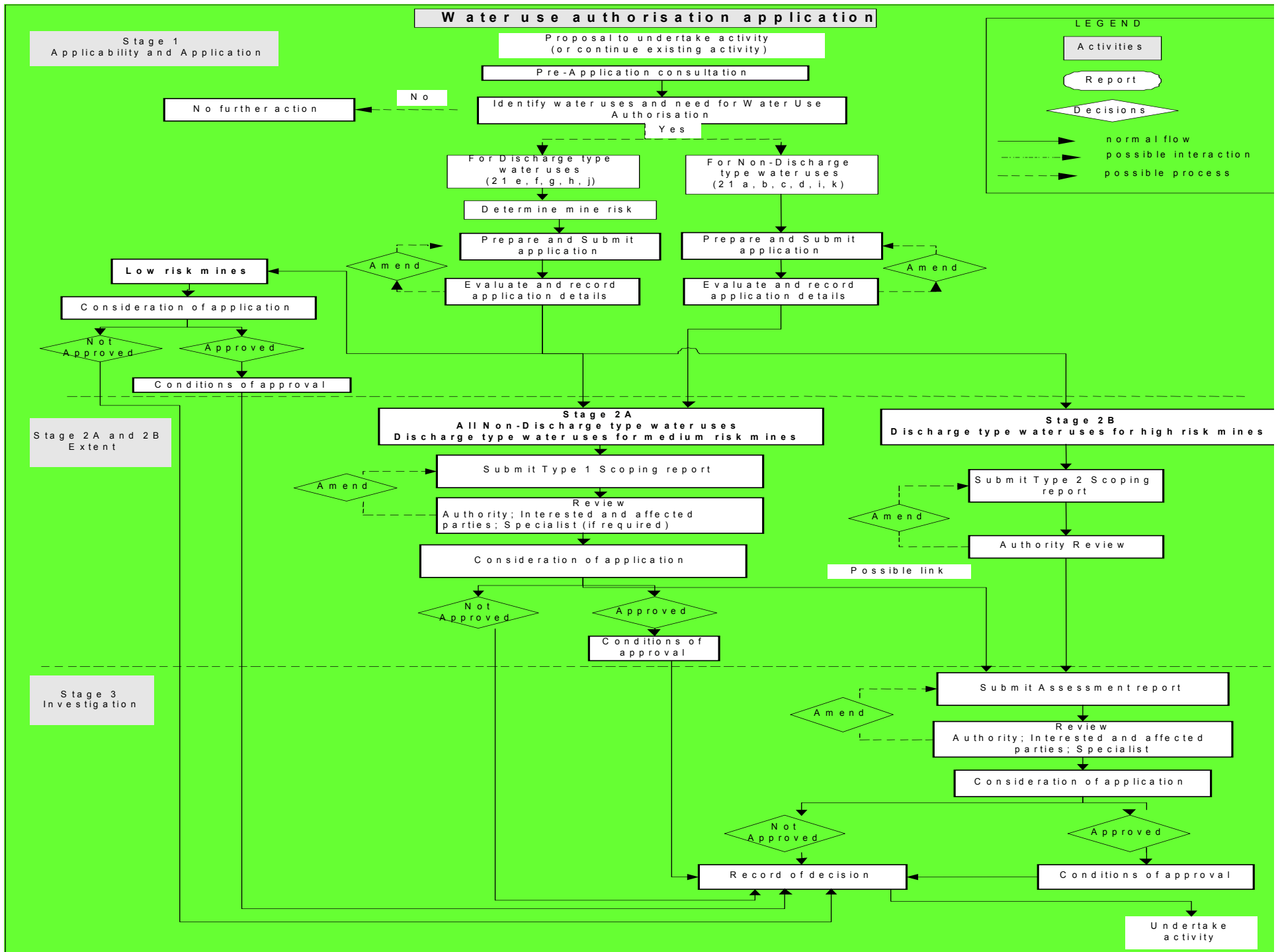
Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Awethu
Sonke

"Some for all"

AUTHORISATION APPLICATION GUIDELINE

Road map for the Water Use Authorisation
process





Process to determine the Mine Risk

Mine Hazard Class

Determine mineral mined/processed and saleable by-products

Determine primary mine hazard class (based on mineral mined/processed)

Amend primary mine hazard class if required (based on saleable by-products)

Sensitivity of the water resource

Determine current water resource Management Class for the catchment/quaternary

Determine future water resource Management Class

Determine management measures to be employed in the catchment

Determine sensitivity of water resource

Ecological Importance and Sensitivity (EIS)

Present Ecological State (PES)

Basic human needs

User requirements

Determine mine risk



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Management measures in the short-term

Awethu
Sonke

"Some for all"

Ecological Importance and Sensitivity (EIS)

VH

H

M

L

Present
Ecological
State
(PES)

A

Pristine

A
Maintain

A
Maintain

A
Maintain

A
Maintain

B

Natural

A
Improve

A/B
Improve

B
Maintain

B
Maintain

C

Good

B
Improve

B/C
Improve

C
Maintain

C
Maintain

D

Fair

C
Improve

C/D
Improve

D
Maintain

D
Maintain

E/F

Poor

D
Improve

D/E/F
Improve

E/F
Maintain

E/F
Maintain



Management measures in the longer-term

			Future desired Management Class			
			I Special Protecte d	II Protected	III Good Quality	IV Acceptab le Quality
Present Ecological State (PES)	A	Pristine	Maintain	Maintain	N/A	N/A
	B	Natural	Maintain	Maintain	Sustaina- ble use	Sustaina- ble use
	C	Good	Improve	Improve	Maintain	Sustaina- ble use
	D	Fair	Improve	Improve	Improve	Maintain
	E/F	Poor	Improve	Improve	Improve	Improve



Sensitivity of the water resource in the mine vicinity

Strategy No.	Strategy for the water resource	Sensitivity of the water resource
1	Employ management measure with a view to improve the resource class	High
2	Employ management measures with a view to maintain the resource class as is	Medium
3	Employ management practices with a view to allow controlled degrade of the water resource	Low



water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA

Mine risk

Awethu
Sonke

"Some for all"

		Water resource sensitivity		
		High	Medium	Low
Mine hazard class	A	H	H	M
	B	H	M	L
	C	M	L	L



Structure of the guideline document

Documents for use by the applicant

Structure of guideline document

Documents for use by DWAF

Introduction and Background

- Goals
- Legislative requirements and regulations
- Purpose and limitations of the guideline
- Principles and approaches
- Structure of the document
- Road Map for water use authorisation

Appendix A

- Preparing documentation:
- General details
 - Analysis

Stage 1 – Determine Applicability, and Application

Appendix B
Guideline document for evaluation of application

Appendix C

- Preparing documentation:
- General details
 - Information requirements
 - What information is required
 - Level of detail
 - Analysis
 - Impact assessment
 - Description of alternatives/options considered

Stage 2 – Determine Extent of Investigations

Appendix D
Guideline document for evaluation of application

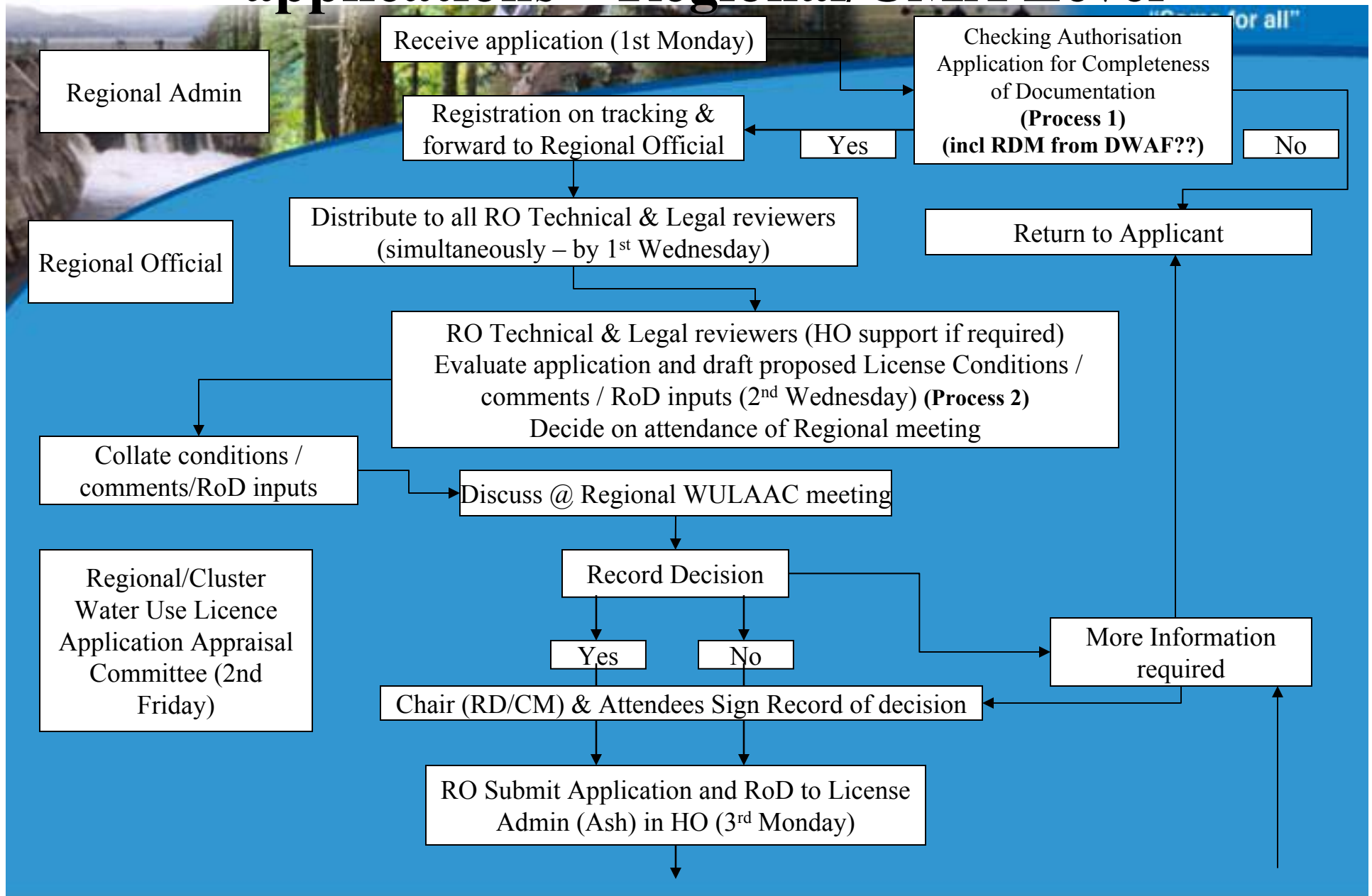
Appendix E

- Preparing documentation:
- General details
 - Information requirements
 - What information is required
 - Level of detail
 - Analysis
 - Risk assessment
 - Impact assessment
 - Description of mitigation methods
 - Cost-benefit analysis

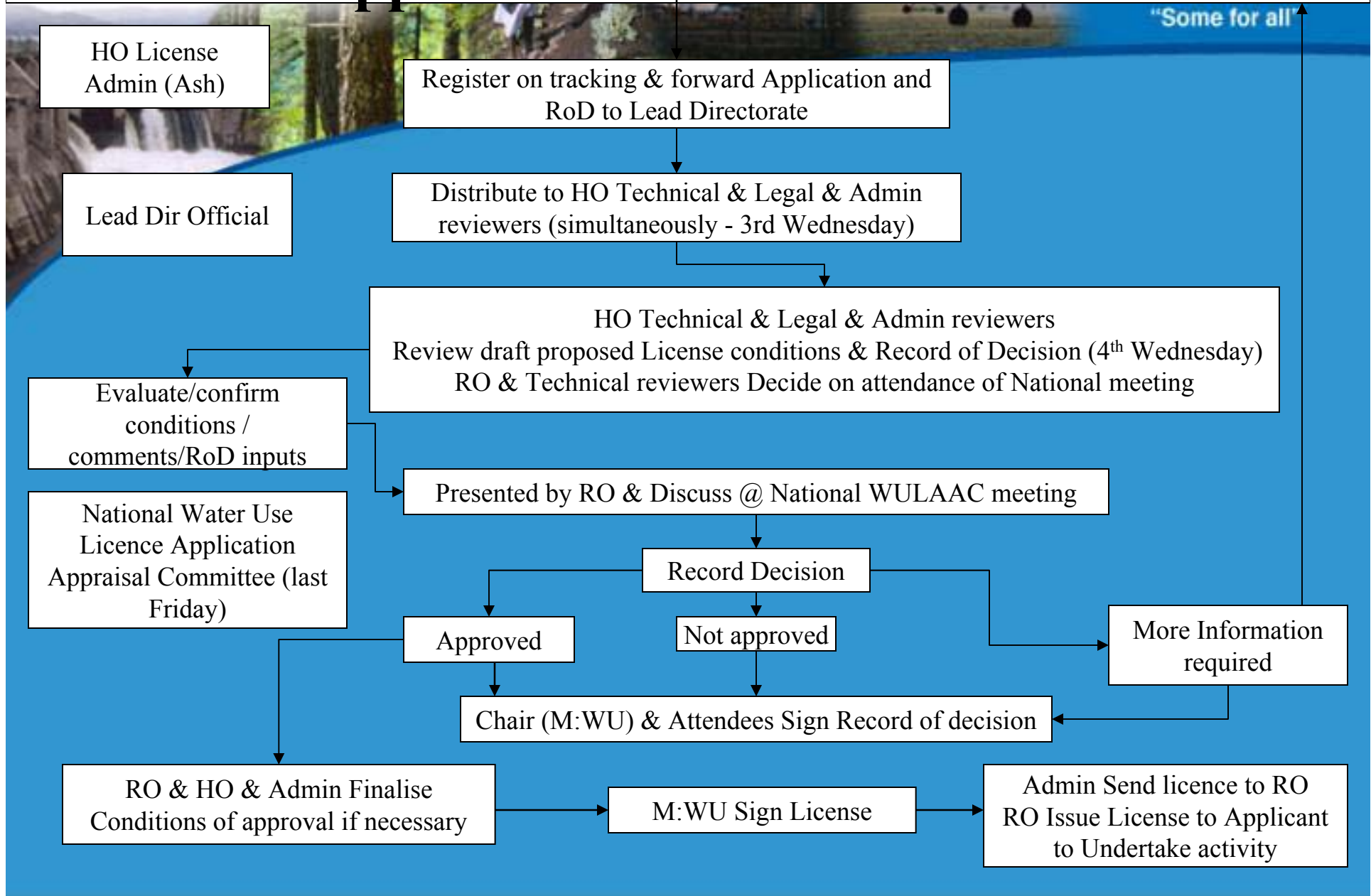
Stage 3 – Conduct Investigations

Appendix F
Guideline document for evaluation of application

Internal Process for water use authorisation applications – Regional/CMA Level



Internal Process for water use authorisation applications – National level





water & forestry

Department
Water Affairs & Forestry
REPUBLIC OF SOUTH AFRICA



Awethu
Sonke

"Some for all"

CONCLUSIONS

