CLASSIFICATION (IN ORDER TO DETERMINE THE MANAGEMENT CLASS) OF SIGNIFICANT WATER RESOURCES (RIVERS, WETLANDS, GROUNDWATER AND LAKES) IN THE OLIFANTS WATER MANAGEMENT AREA (WMA): WMA 4

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PRESENTATION CONTENT

- The Water Resource Classification System (WRCS)
- Study Area
- Process for the classification of water resources in the Olifants WMA
- Technical and Public Participation Process
- Role of the PSC
- Inception Phase: Integrated units of Analysis (IUAs) and significant water resources
- Vision for the Olifants WMA
- Next steps

6.1 THE CLASSIFICATION SYSTEM

- All water resources must be able to sustain their use. Constitutional requirement for sustainable development.
- The National Water Act (Act No. 36 of 1998) introduces measures to protect water resources [Chapter 3]:
  - The WRCS,
  - Reserve, and
  - Resource Quality Objectives
    - Collectively referred to as Resource Directed Measures – Set objectives for the desired condition of water resources.
- Important that RDM are technically sound, scientifically credible, practical and economical.

6.1 THE CLASSIFICATION SYSTEM

- **WRCS is**
  - **a set of procedures for determining different Classes of water resources**
  - **represented by a Management Class (MC).**

- **Takes into account the:**
  - **social, economic, ecological and environmental landscape in a catchment**
  - **in order to assess the costs and benefits associated with utilization versus protection of a water resource.**

6.1 THE CLASSIFICATION SYSTEM

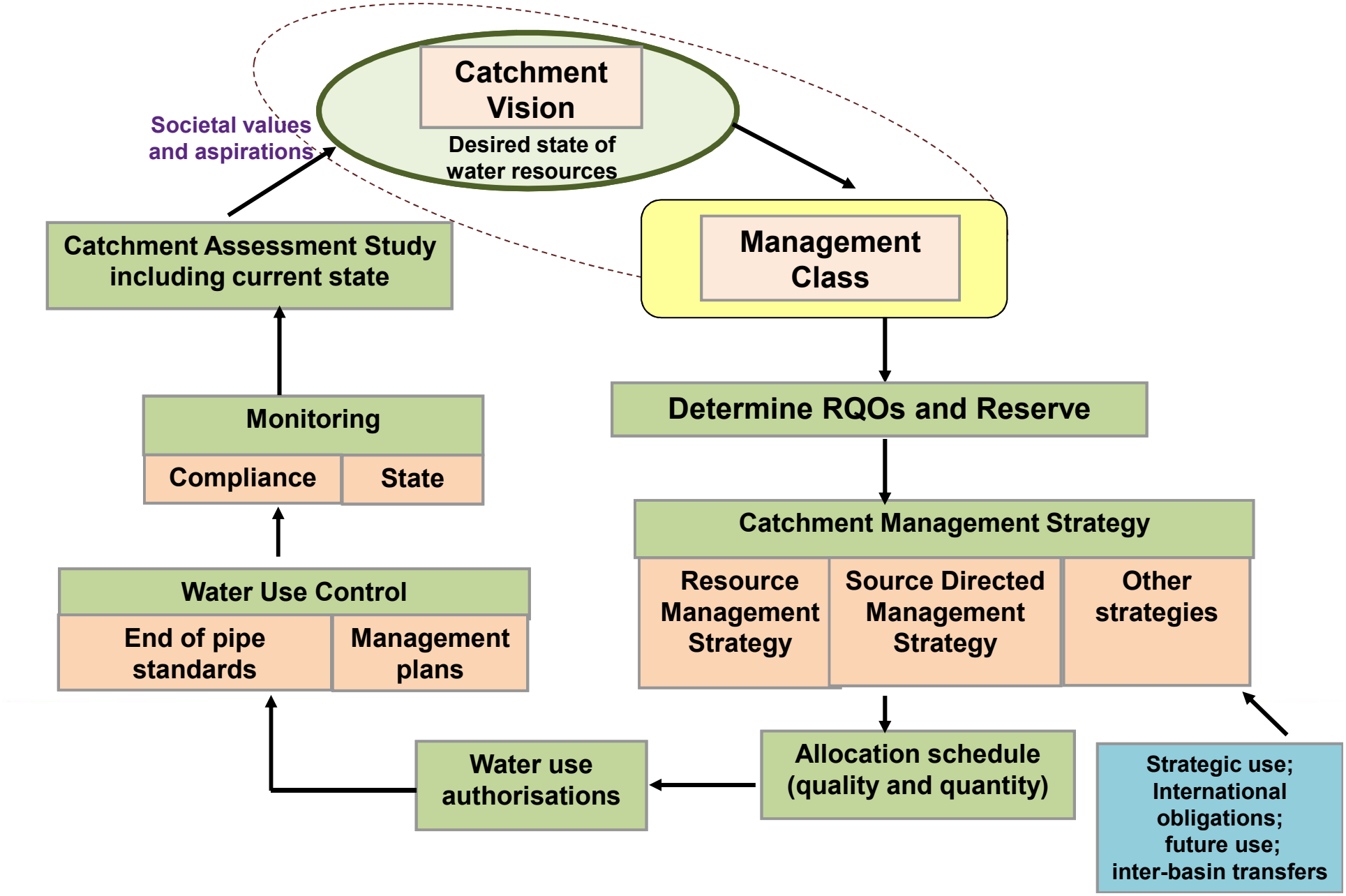
- The MC is representative of:
  - those attributes that the DWA (as the custodian) and society require of different water resources (consultative process).
  - The process requires a wide range of trade offs to be assessed and evaluated at a number of scales.

- Final outcome of the process:
  - a set of desired characteristics for each of the water resources in a given catchment.

6.1 THE CLASSIFICATION SYSTEM

- **The WRCS defines three water resource classes:**
  - **Class I:** water resource is one which is minimally used & the overall ecological condition of that water resource is minimally altered from its pre-development condition.
  - **Class II** water resource is one which is moderately used & the overall ecological condition of that water resource is moderately altered from its predevelopment condition.
  - **Class III** water resource is one which is heavily used and the overall ecological condition of that water resource is significantly altered from its predevelopment condition.
- **The recommended MC requires approval by the Minister or a delegated authority.**

THE BIGGER PICTURE



6.2 THE STUDY AREA

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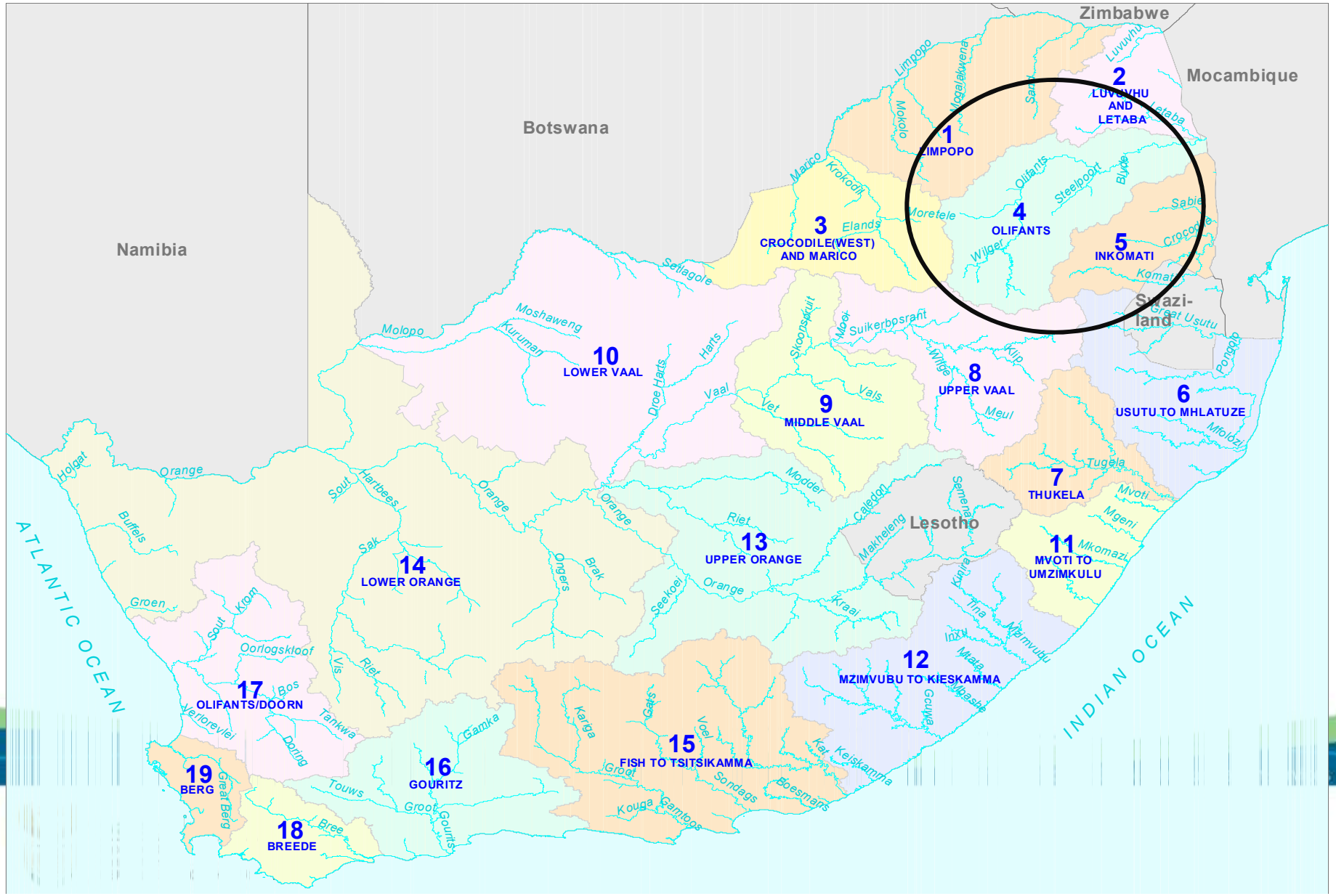
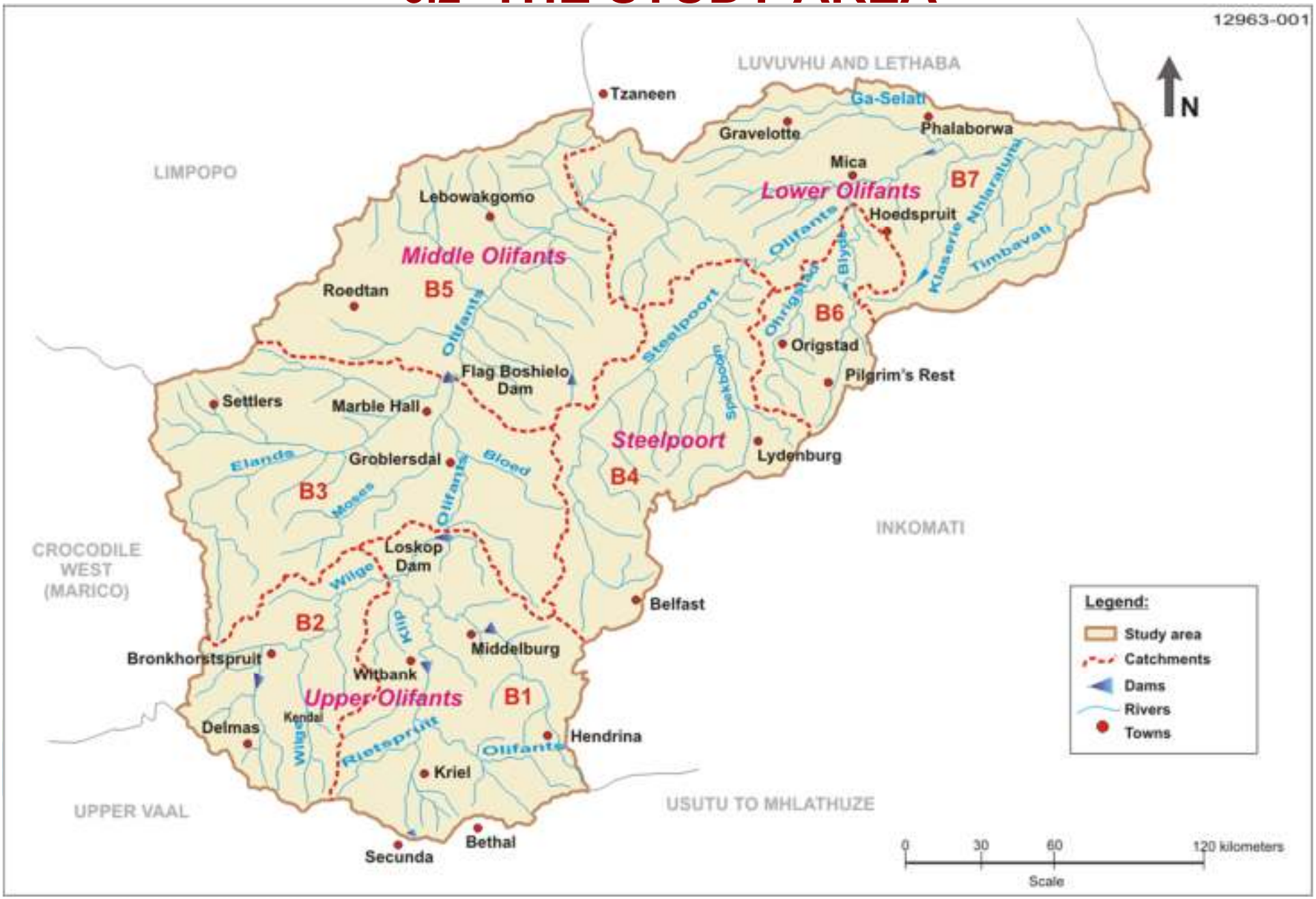
6.2 THE STUDY AREA



6.2 THE STUDY AREA



Olifants River

Wilge River

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Steelpoort River

Blyde River

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Olifants River

Ga-Selati River

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6.2 THE STUDY AREA

- Level of development in the area is influenced by the mineral deposits.
- Main economic activity:
  - concentrated in the mining and industrial centres of Witbank and Middelburg, near Phalaborwa and in the Steelpoort where a variety of minerals are found.
- Some of the largest thermal power stations
- Extensive irrigation occurs in the vicinity of Loskop Dam, along the lower reaches of the Olifants River, near the confluence of the Blyde and Olifants Rivers as well as in the Steelpoort valley and upper Selati catchment.
- Much of the central and north western areas of the WMA are largely undeveloped, with scattered rural settlements.

6.2 THE STUDY AREA

- The Olifants River
  - highly regulated rivers in the country,
  - with several major dams.
- There are a number of ecologically important areas within the Olifants WMA and various conservation areas have been proclaimed.
- Well known conservation area is the Kruger National Park (KNP).
- There are also numerous pans and wetlands located in the Upper Olifants Sub-area. Many of these pans and wetlands are under threat by mining.

6.3 STUDY PROCESS

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6.3 STUDY PROCESS

STUDY OBJECTIVE

- Is to determine the management class of significant water resources in the Olifants WMA
- By co-ordinating and implementing the 7 step National Water Resource Classification System Process.

WRCS 7 STEP PROCESS

Step 1: Delineate the units of analysis and describe the status quo of the water resource or water resources;

Step 2: Link the socio-economic and ecological value and condition of the water resource or water resources;

Step 3: Quantify the ecological water requirements and changes in non-water quality ecosystem goods, services and attributes;

Step 4: Determine an ecologically sustainable base configuration scenario;

Step 5: Evaluate scenarios within the integrated water resource management process;

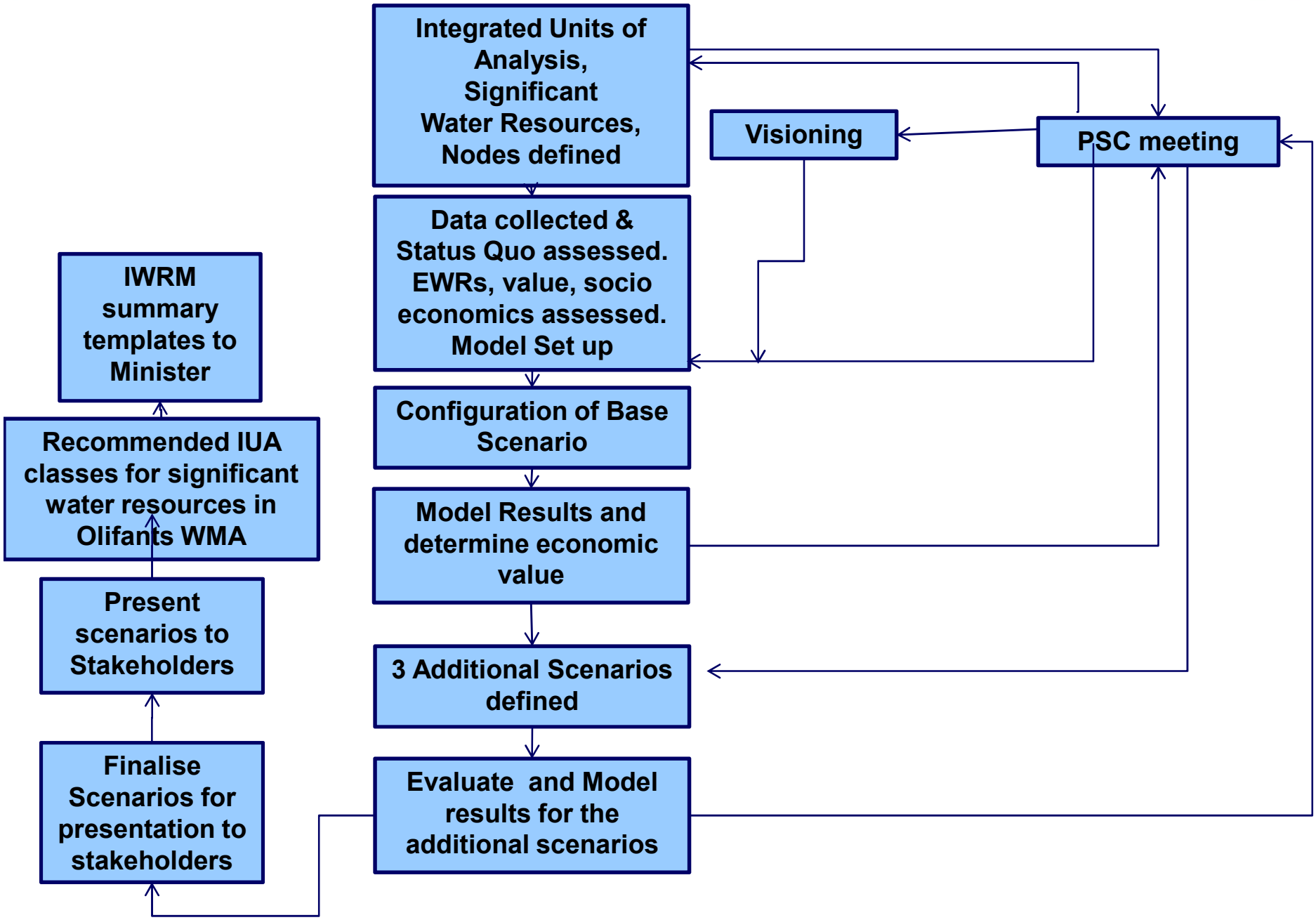
Step 6: Evaluate the scenarios with stakeholders; and

Step 7: Gazette and implement the class configuration

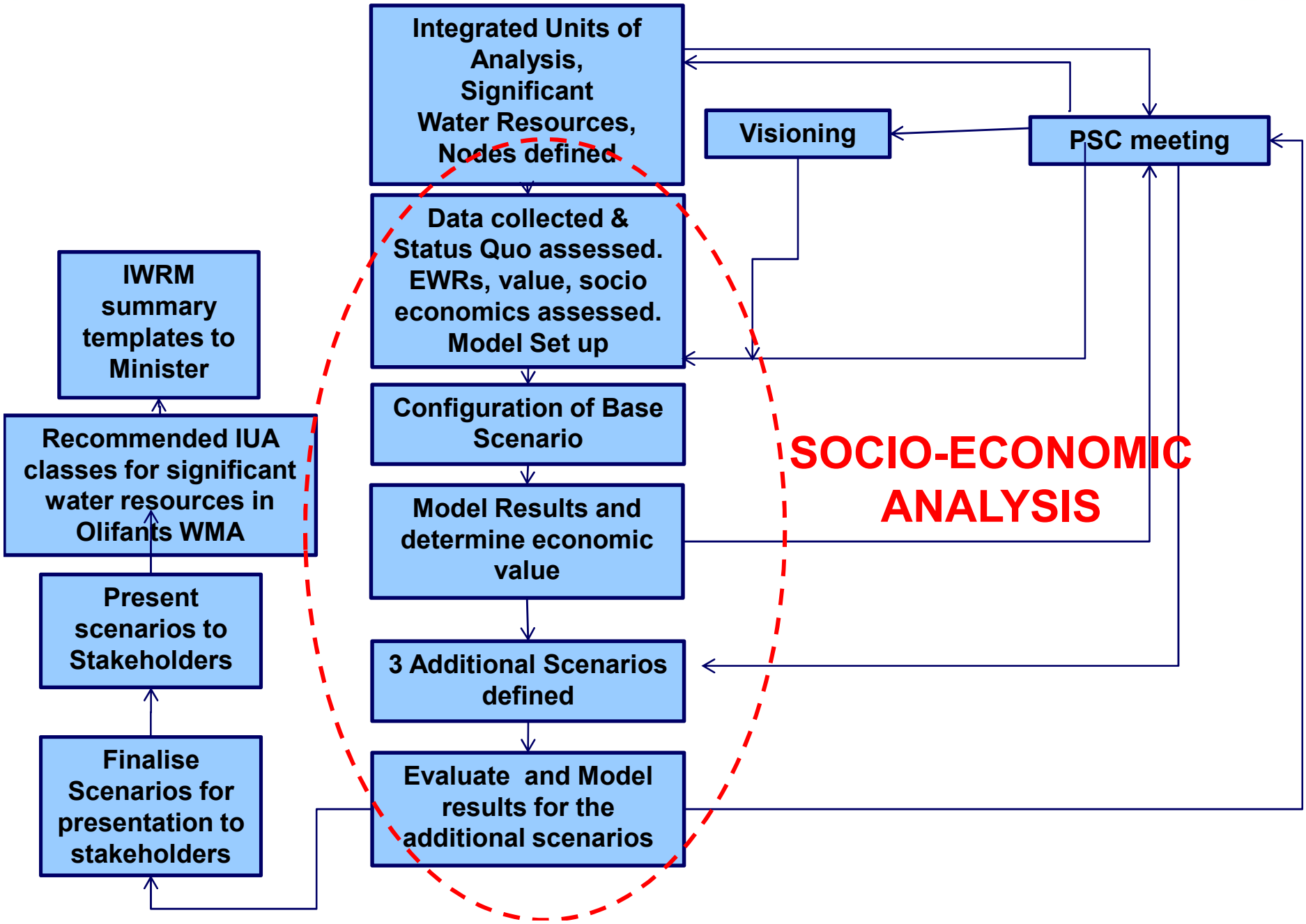
6.3 STUDY PROCESS

- ***Status quo assessment*** **of the WMA (water resource quality, water resource issues, ecological assessment, infrastructure, institutional environment, socio-economics, sectoral water uses & users) etc.**
- **Definition of the *Integrated Units of Analysis* (based on above)**
- **The *application of the WRCS*, *i.e.* establishing the MC by integration of the economic, social and ecological goals through a suitable analytical decision-making system (trade-offs).**
- ***Stakeholder engagement*, co-operative governance and consultation processes to be followed.**
- **Population of the classification *templates*.**

6.4 TECHNICAL PROCESS



6.4 TECHNICAL PROCESS



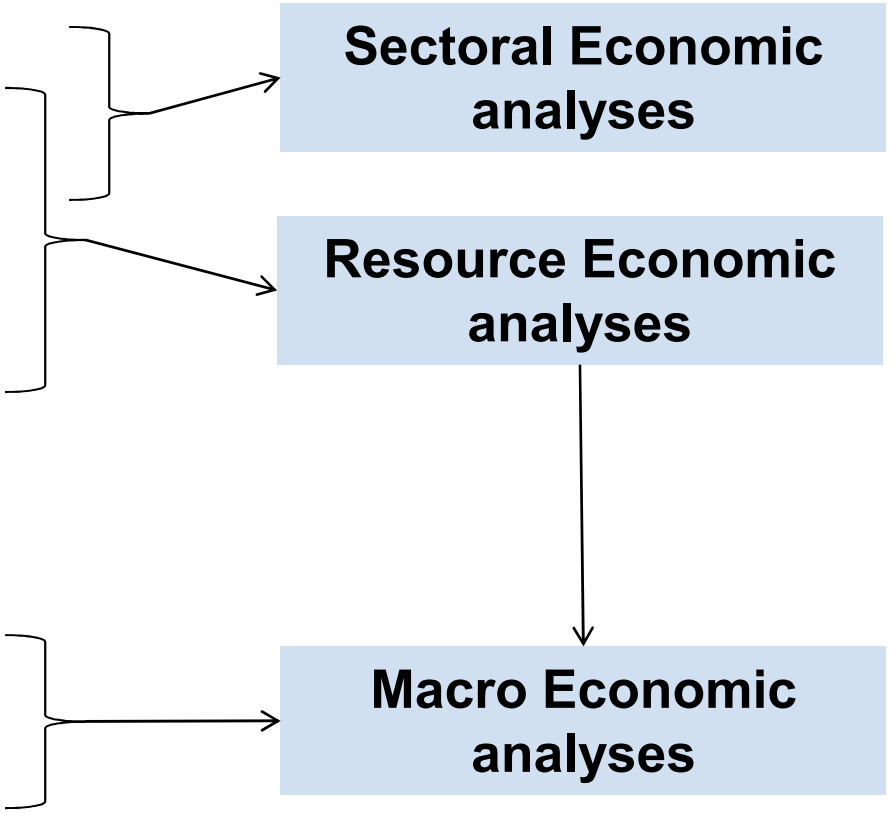
SOCIO-ECONOMIC ANALYSIS: PURPOSE

- **Link:**
  - **The value and condition of the water resource**
  - **To the economy**

- **Evaluate scenarios to:**
  - **assist in the assessment of potential economic, social and ecological tradeoffs to be made.**

SOCIO-ECONOMIC ANALYSIS
follows DWA WRCS Guidelines:

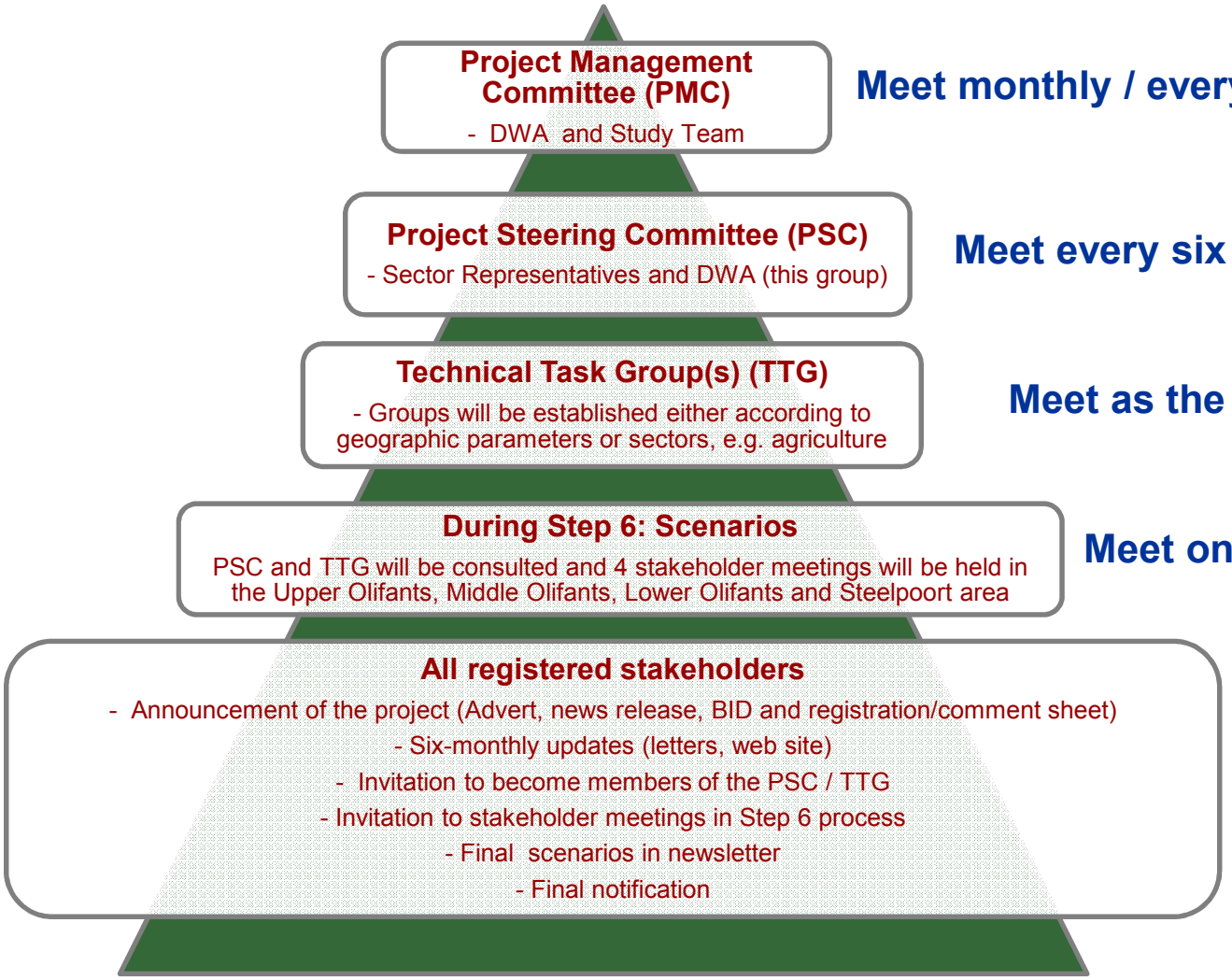
- **Step 2:** Link the value and condition of the water resource:-
- **Step 3:** Quantify the Ecological Water Requirements and changes in non-water quality Ecosystem Goods, Services and Attributes:-
- **Step 4:** Determine an Ecologically Sustainable Base Configuration scenario and establish the starter configuration scenarios:-
- **Step 5:** Evaluate scenarios "economic, social and ecological tradeoffs will be made"

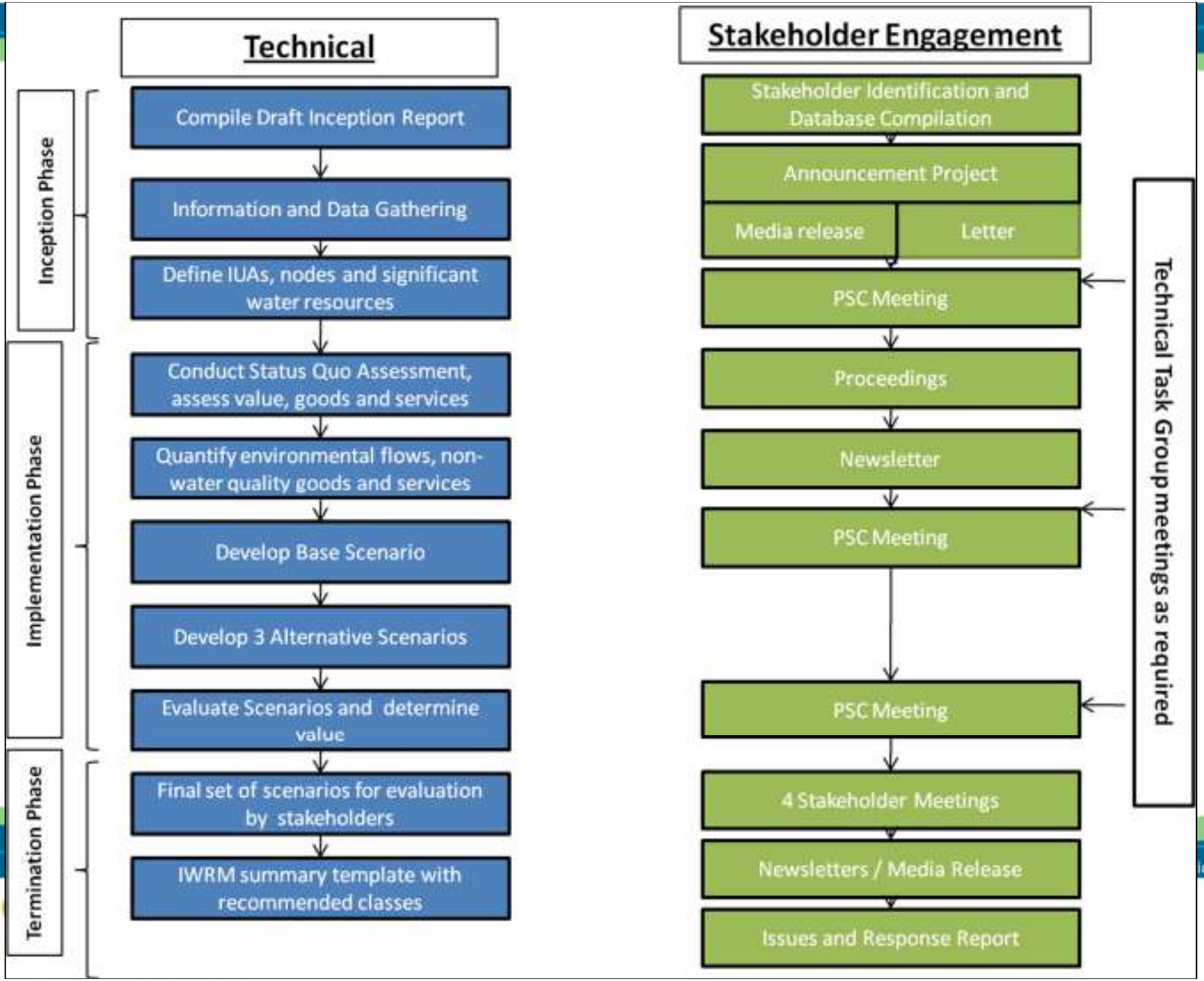


BEST PRACTICES:
Methodologies, models and inputs

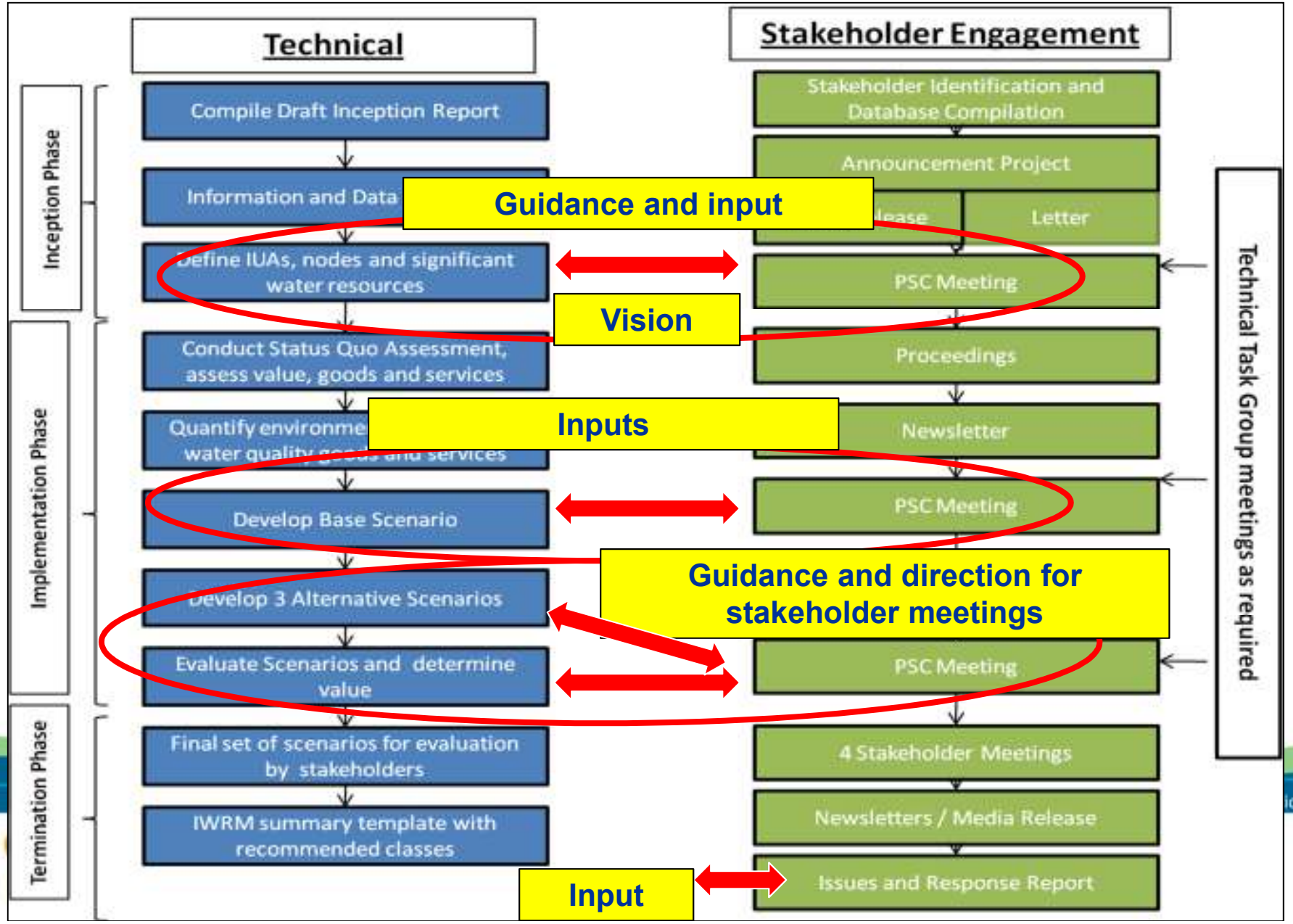
- **Millennium Ecosystem Assessment Framework: ecosystem services (2005)**
- **Sector-specific economic analyses best practise**
- **Resource economic:**
  - DWA study on Ecosystem Services (2010)
  - Stats SA Environmental Economic Accounts for Water (2008)
  - WRC Guidelines for evaluation of ecosystem services (2010)
- **Macro-economic:**
  - DBSA economic models (SAMs) for Limpopo and Mpumalanga (2009)
- **Scenario analyses:**
  - DWA water resources reconciliation study (current)
  - DWA ecological flow requirements studies (current)

6.5 PUBLIC PARTICIPATION PROCESS




Technical
Inception Phase
Implementation Phase
Termination Phase
Compile Draft Inception Report
Information and Data Gathering
Define IUAs, nodes and significant water resources
Conduct Status Quo Assessment, assess value, goods and services
Quantify environmental flows, non-water quality goods and services
Develop Base Scenario
Develop 3 Alternative Scenarios
Evaluate Scenarios and determine value
Final set of scenarios for evaluation by stakeholders
IWRM summary template with recommended classes
Stakeholder Engagement
Stakeholder Identification and Database Compilation
Announcement Project
Media release
Letter
PSC Meeting
Proceedings
Newsletter
PSC Meeting
PSC Meeting
4 Stakeholder Meetings
Newsletters / Media Release
Issues and Response Report
Technical Task Group meetings as required

6.6 ROLE OF THE PSC IN THE PROCESS



6.3 STUDY PROCESS

STUDY DELIVERABLES

DELIVERABLE	DATE
Final Inception Report	28 February 2011
Background Information Document	February 2011
Draft Information Analysis Report	31 March 2011
Base Scenario configured (Step 4 WRCS)	30 November 2011
1st Newsletter	30 November 2011
Final 3 scenarios for presentation to stakeholders	31 May 2012
Stakeholder workshops	June 2012
Final scenarios	July 2012
Class recommendation and IWRM summary	31 August 2012
IWRM template completed – Class configuration	30 September 2012
2nd Newsletter	15 October 2012
Issues and Response Report	15 October 2012

STUDY PROGRESS

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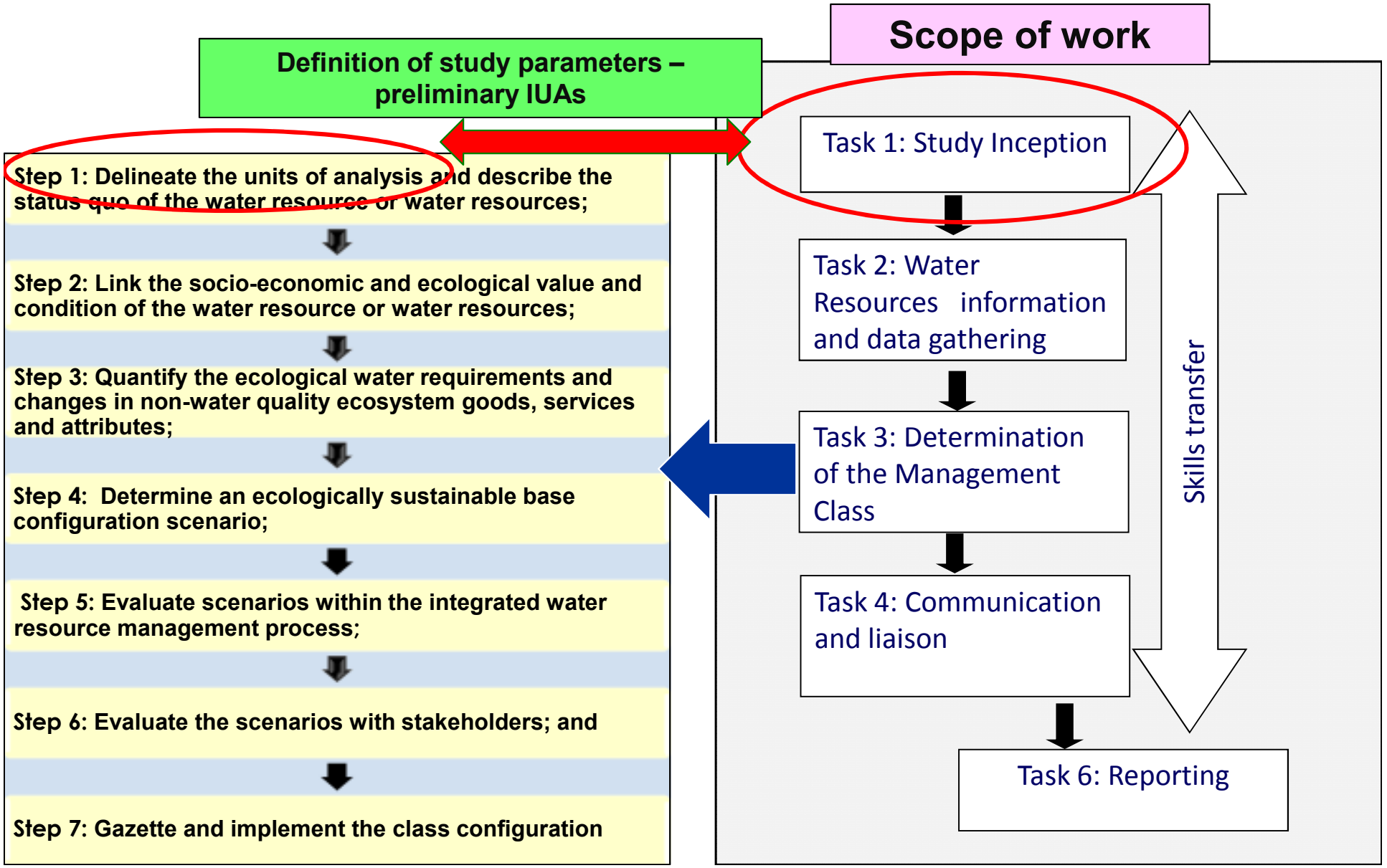
6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS AND SIGNIFICANT WATER RESOURCES



6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

IUAs:

- Broader scale spatial units that are defined as significant water resources;
- Basic unit of assessment for the classification of water resources;
- Incorporates socio-economic zones;
- Includes ecological conditions at a sub-catchment scale.

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

CRITERIA FOR DELINEATION OF IUAs:

- Catchment areas (drainage regions and water resource systems)
- Similar land use characteristics/land based activities
- Ecological Water Requirement sites
- Ecological Importance and sensitivity (EIS) of the water resources
- Similar socio-economic zones (SEZs)
- Present status of water resources (flow and quality)

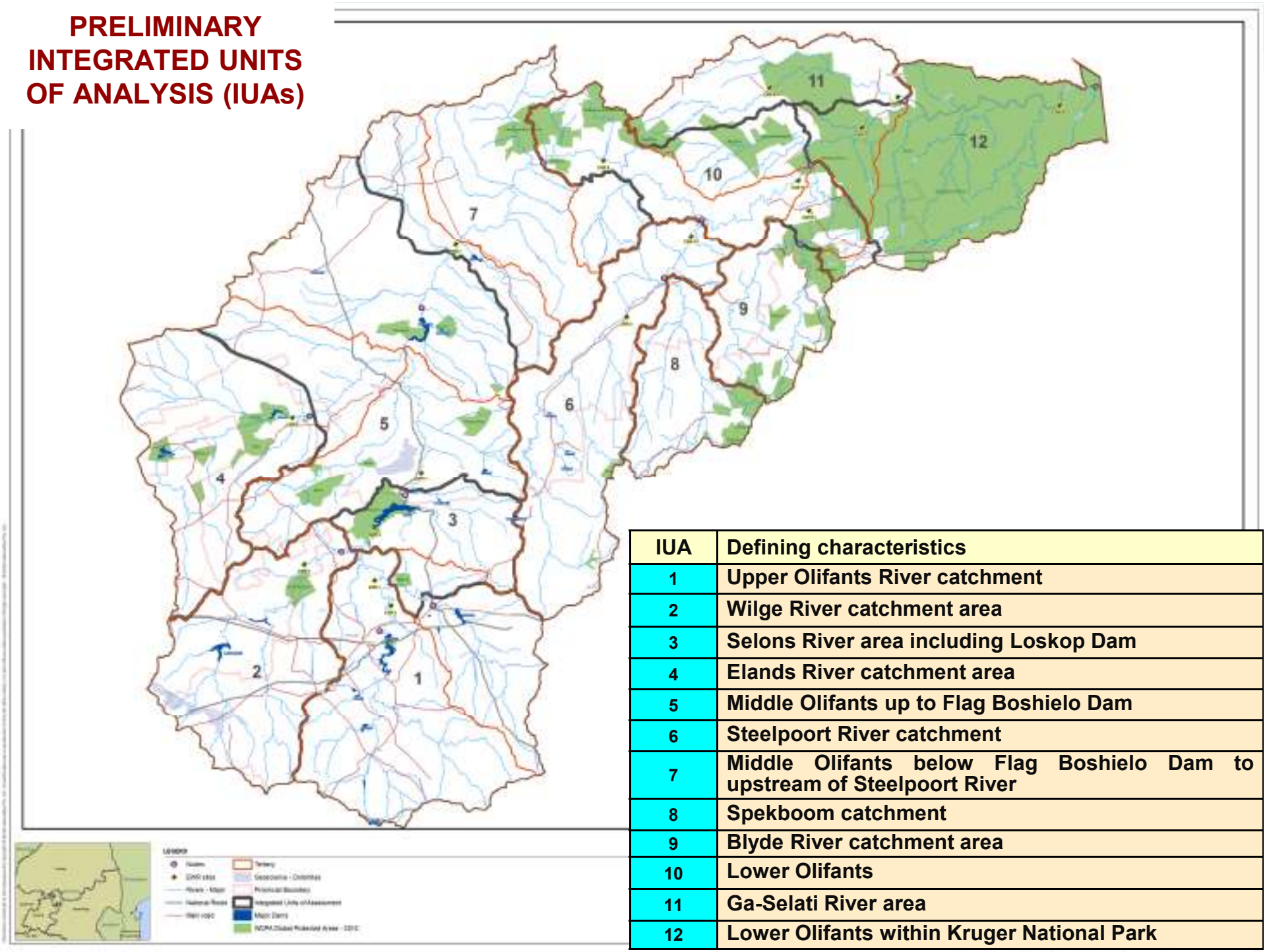
6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

IUAs:

- 12 preliminary IUAs have been defined for the Olifants WMA

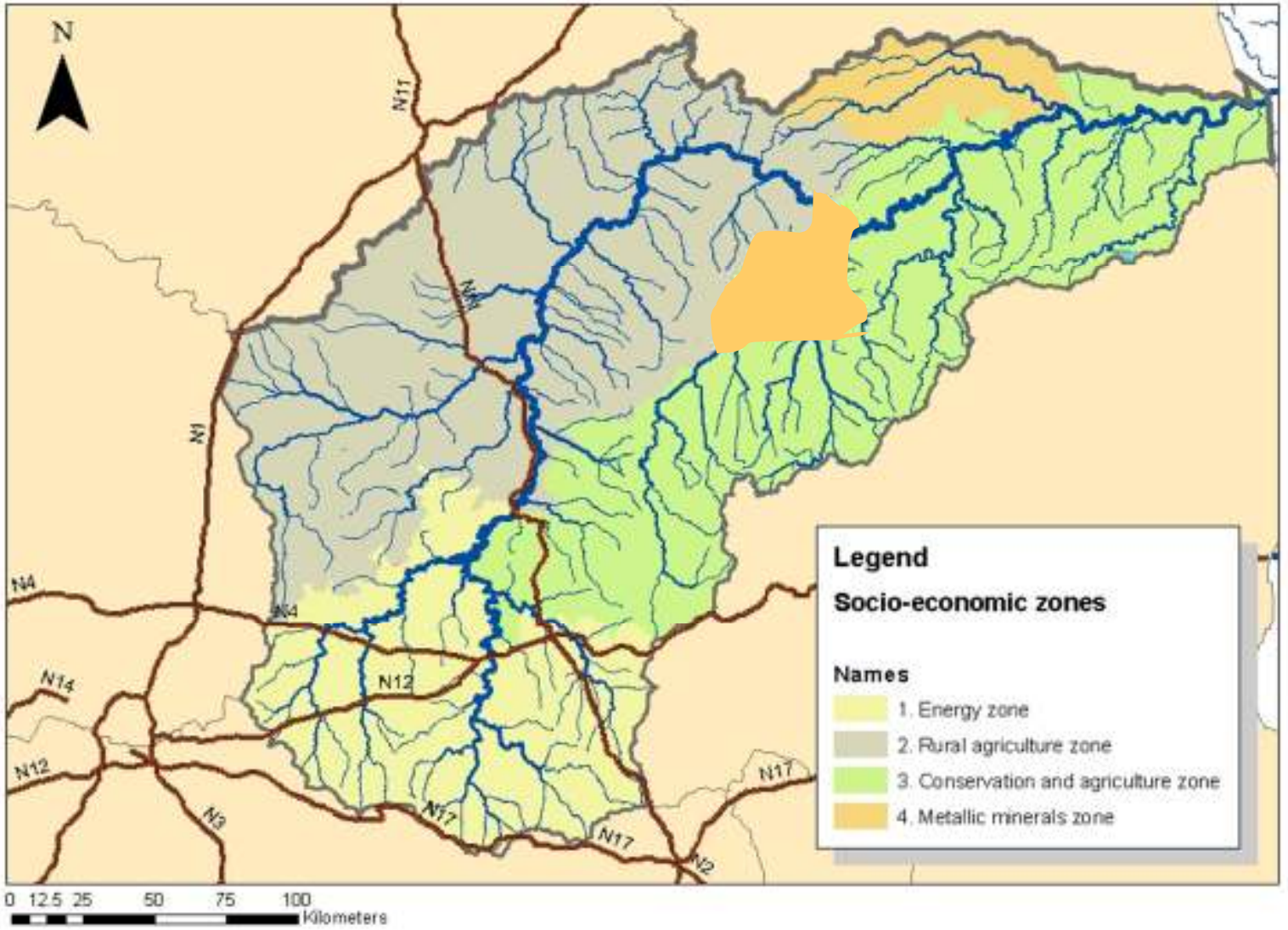
(Map with description of each IUA is included in Document Pack)

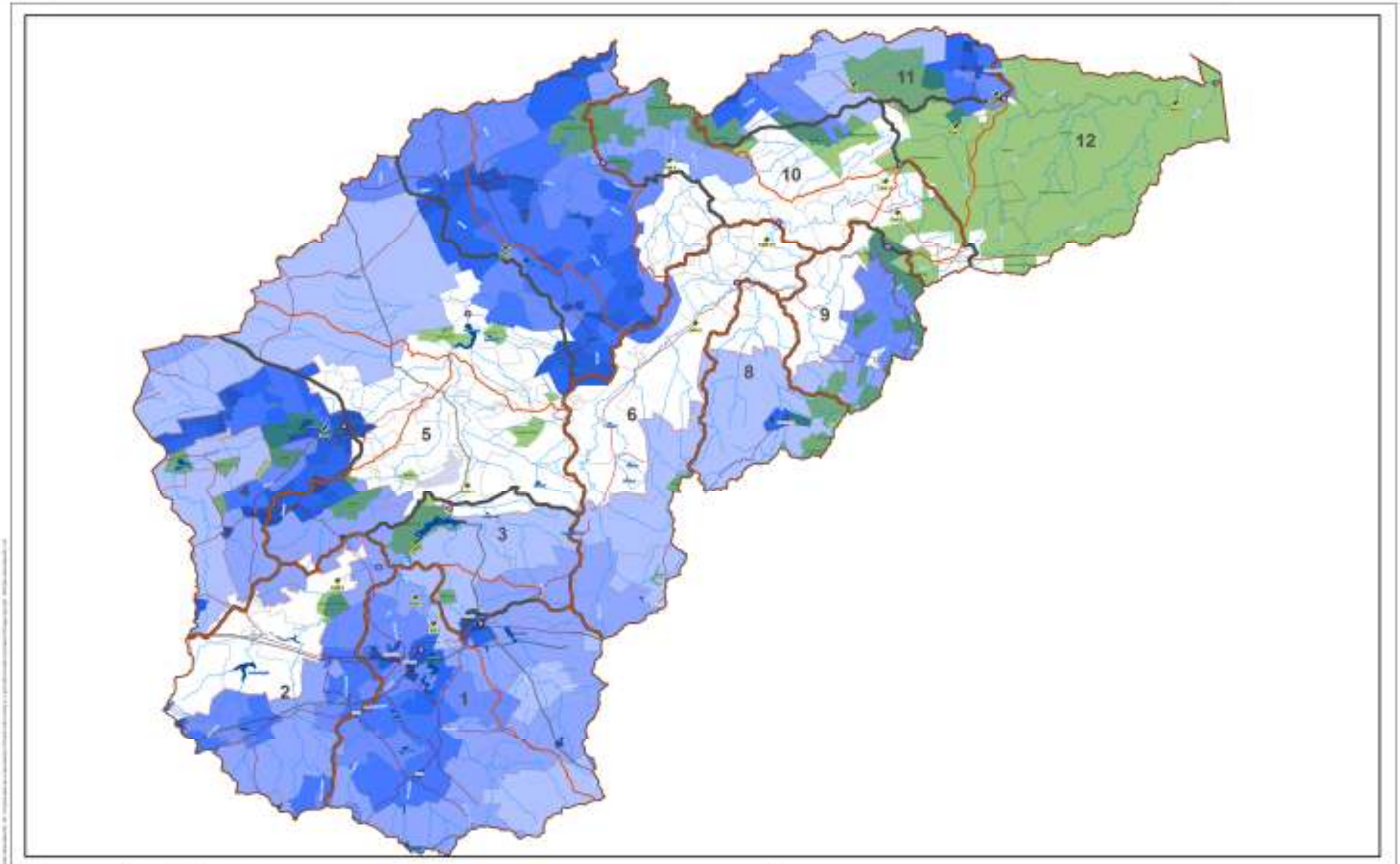
PRELIMINARY INTEGRATED UNITS OF ANALYSIS (IUAs)



IUA	Defining characteristics
1	Upper Olifants River catchment
2	Wilge River catchment area
3	Selons River area including Loskop Dam
4	Elands River catchment area
5	Middle Olifants up to Flag Boshielo Dam
6	Steelpoort River catchment
7	Middle Olifants below Flag Boshielo Dam to upstream of Steelpoort River
8	Spekboom catchment
9	Blyde River catchment area
10	Lower Olifants
11	Ga-Selati River area
12	Lower Olifants within Kruger National Park

IUAs: SOCIO-ECONOMIC ZONES





IUAs: POPULATION DISTRIBUTION

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

- **12 IUAs as proposed:**
  - **will be taken forward for assessing the socio-economic implications of the different catchment configuration scenarios as part of the Classification process (evaluation of the implication for the broader economy and society).**

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

- **IUAs defined as significant water resources;**
- ***Significant water resources*:**
  - **Water resources deemed to be significant from a water resource use perspective;**
  - **Sufficient data exists to enable evaluation of changes in their ecological condition in response to changes in their quality and quantity;**
  - **Deemed to be significant but not limited to aquatic importance, protection of aquatic ecosystems and socio-economic value.**

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

- **Selected water resources:**
  - Olifants River (upper, middle and lower)
  - Witbank Dam catchment - Steenkoolspruit, Rietspruit, Koringspruit, Tweefonteinspruit
  - Middelburg Dam Catchment - Klein Olifants River
  - Klipspruit
  - Spookspruit
  - Wilge River and Bronkhorstspruit
  - Moses River and Elands River
  - Steelpoort River and Spekboom
  - Blyde River
  - Selati River
  - Treur River
  - Mohlabetsi River

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGNIFICANT WATER RESOURCES

- **Selected water resources:**
  - **Wetlands**
    - **All wetlands in the study area will be assessed in terms of their abundance, health, function, importance, sensitivity and present state.**
    - **A priority list of the most important wetlands will be compiled.**
    - **Where a significant contribution is made by wetlands to surface water base flow these will be included as part of the process.**

6.7 INCEPTION: INTEGRATED UNITS OF ANALYSIS (IUAs) AND SIGINFICANT WATER RESOURCES

- **Selected water resources:**
  - **Groundwater**
    - **Priority areas where over-utilisation of groundwater resources has occurred will be identified**
    - **Where there is significant contribution of groundwater to base flows this will be included.**

VISION FOR THE OLIFANTS WMA

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6.9 VISION FOR THE OLIFANTS WMA

Visioning is a process of articulating a collective statement of future desired state…

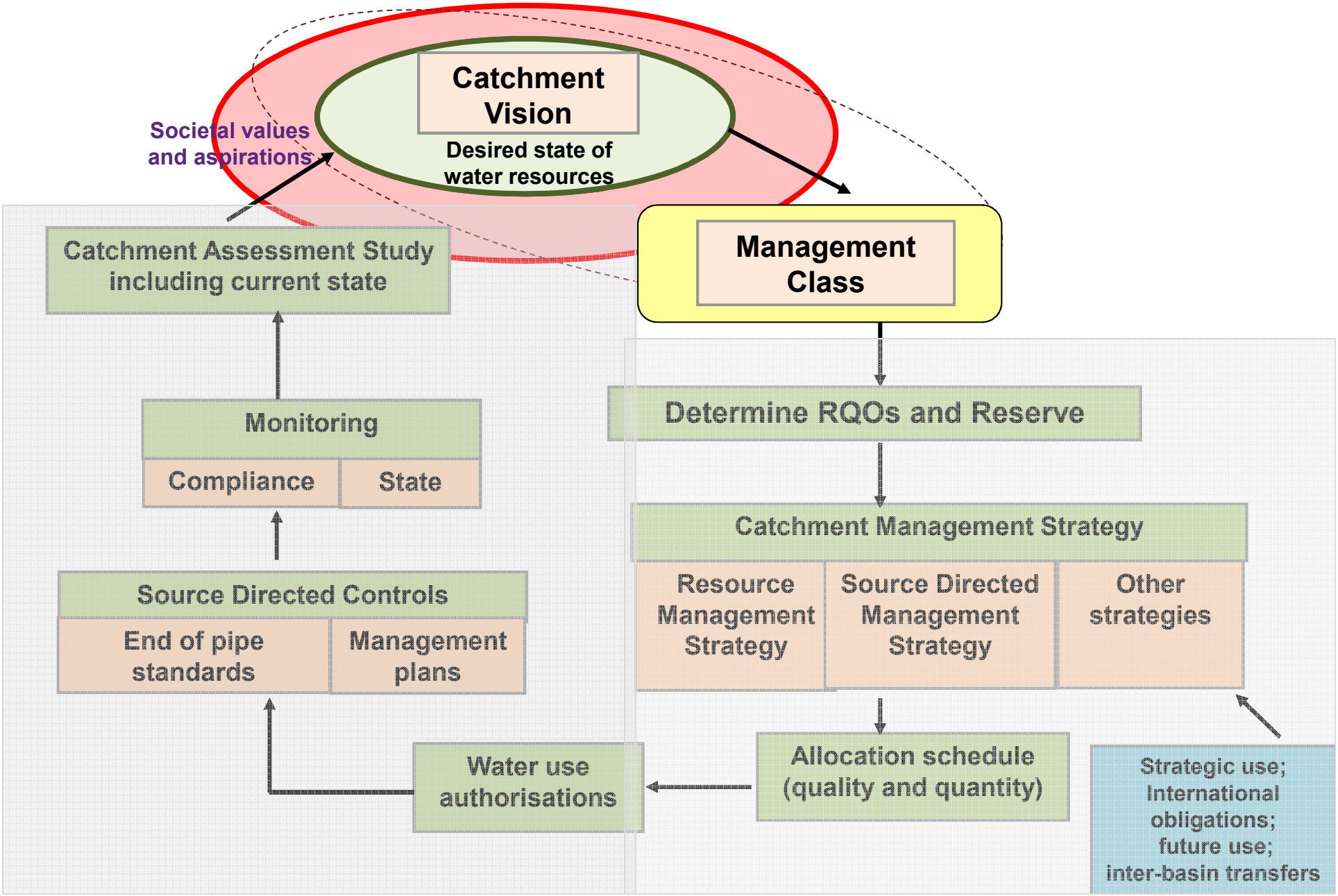
6.9 VISION FOR THE OLIFANTS WMA

➢ INTENT FOR THE PURPOSE OF THIS STUDY:

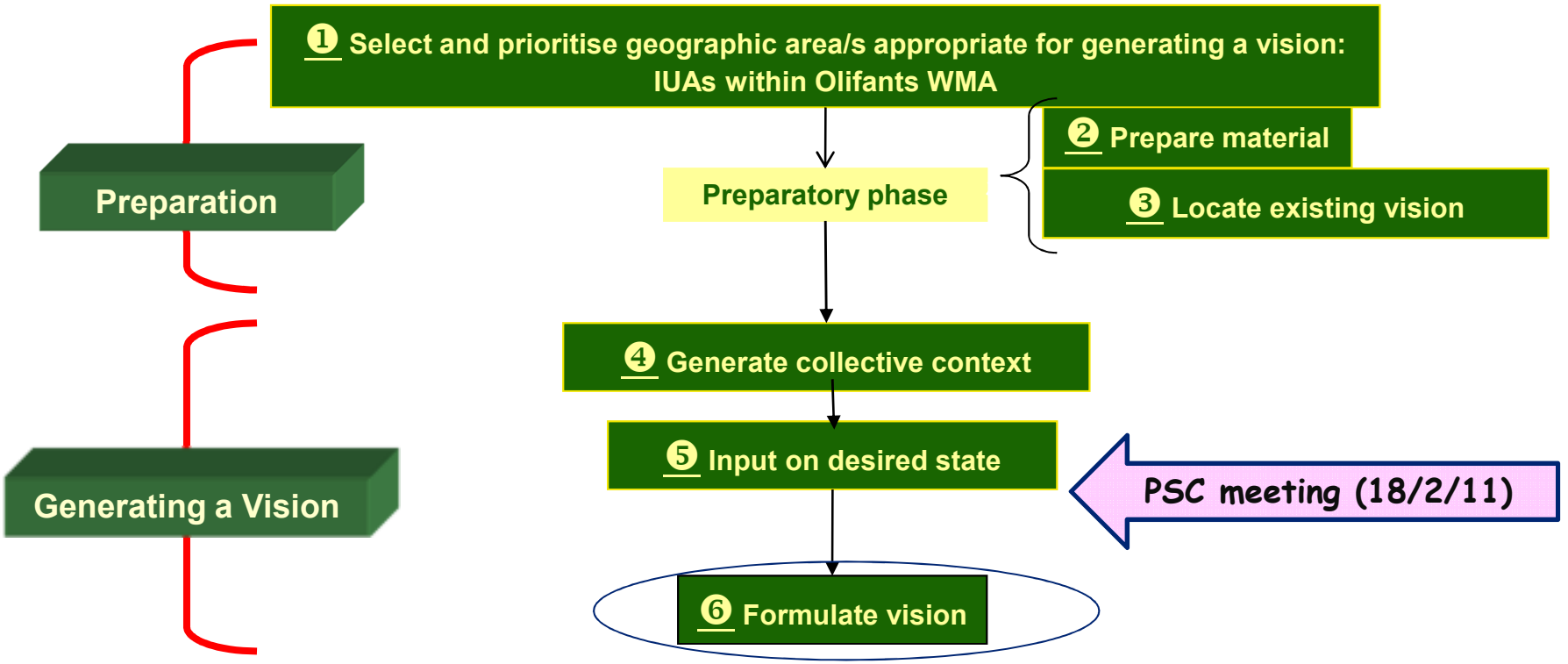
- To generate a sense of cohesion and common purpose amongst people with diverse interests in the water resource;
- To determine what that collective statement of the future desired state of water resources in the catchment are;
- To provide clusters of objectives that will allow the study team formulate and generate scenarios for classification that are aligned to the desired state of water resources.

(Limited, desktop exercise to obtain a sense of what the desires of water users are for the future use of the water resources within the Olifants WMA).

THE VISION


Societal values and aspirations
Catchment Vision
Desired state of water resources
Catchment Assessment Study including current state
Management Class
Monitoring
Compliance
State
Determine RQOs and Reserve
Catchment Management Strategy
Source Directed Controls
End of pipe standards
Management plans
Resource Management Strategy
Source Directed Management Strategy
Other strategies
Water use authorisations
Allocation schedule (quality and quantity)
Strategic use; International obligations; future use; inter-basin transfers

VISION : PROCESS



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6.9 VISION FOR THE OLIFANTS WMA

- Complete questionnaires (Six questions)
- Highlight specific issues per IUA/Desired state for water resources
- Team will distill information to formalise vision
- Vision towards a Management Class

NEXT STEPS

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6.10 NEXT STEPS IN STUDY

- Finalisation of inception phase (February 2011):
  - IUAs
  - Significant water resources
- Water resource information and data gathering (March 2011)
- Determination of management class – undertake Classification Process: Step 1 to 4 (April to November 2011)
- Determine base scenario
- Present at next PSC meeting (November 2011)
- Advertisement, newsletter and distribution of BID

THANK YOU FOR YOUR ATTENTION

DISCUSSION AND QUESTIONS???

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