CLASSIFICATION OF SIGNIFICANT WATER RESOURCES IN THE OLIFANTS/DOORN WATER MANAGEMENT AREA

Project Steering Committee Meeting 1
17 May 2011

Dana Grobler and Toni Belcher

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Description of the Classification System

- The Water Resource Classification System was established in response to the National Water Act of 1998
- Chapter 3 states that the Minister must develop a classification system
- The classification system was developed in 2007 with guidelines on the procedure to be followed and was gazetted as a regulation
- Three classification projects have been initiated for the Vaal, Olifants (Mpumalanga) and Olifants Doorn WMAs
- The Olifants Doorn WMA is not as heavily utilised as the two other study areas.

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OLIFANTS DOORN WMA PROJECT TEAM

Project Leader	Mr. Dana Grobler
Surface water ecology:	Ms. T Belcher
Hydrology:	Ms. L Dobinson
Water Quality:	Mr. N Rossouw
Groundwater:	Mr. J. Conrad
Economic:	Prof. T Kleynhans
Social:	Mr. T Barbour
GIS:	Ms. M Carstens
Stakeholder Involvement:	Ms. D Februarie

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Background to the WRCS cont…

- Guidelines and procedures - maintaining a balance between protection and use
- Procedures applied in the 'Classification Process'
- Outcome is a decision on the desired characteristics for each of the water resources within a catchment
- The Classification Process recommends a 'Class'
- The Class defines objectives for every significant water resource – watercourse, surface water, estuary or aquifer
- Three classes - minimally used, moderately used & heavily used
- Class describes the desired condition of the resource and the extent to which it can be utilized

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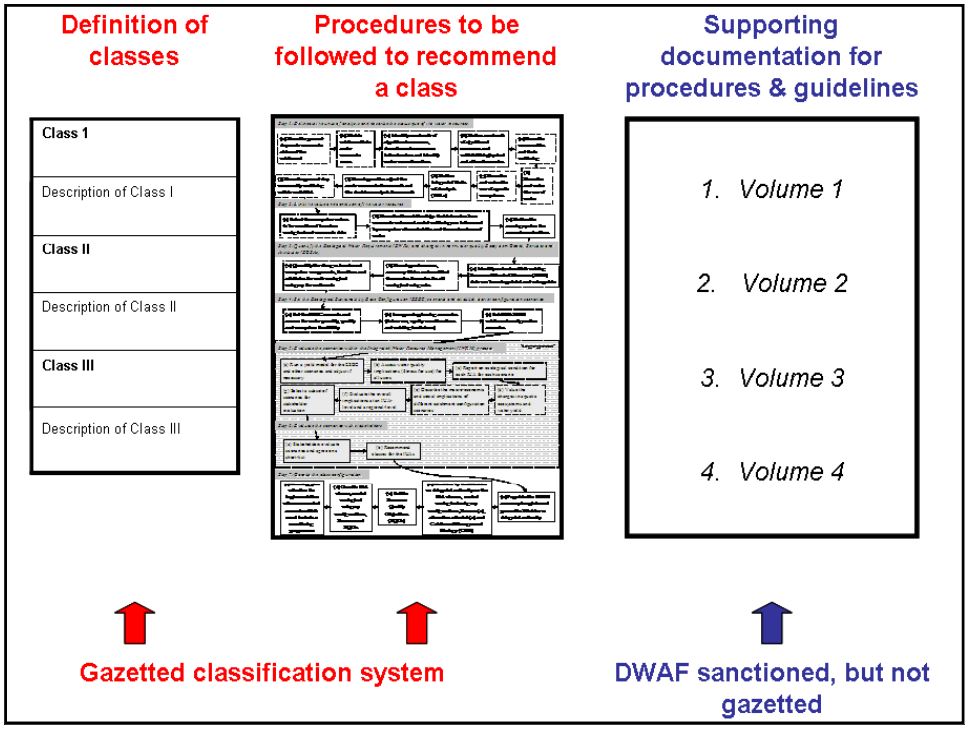

Relevant provisions of the NWA

- Chapter 3 provides for the measures to ensure '*… the comprehensive protection of water resources*' – protection for use
- Section 12 of Chapter 3 makes provision for the WRCS
- Section 13 makes provision for the Classification Process - the outcome of which will be
  - the setting of the Class (not preliminary),
  - Reserve (not preliminary), and
  - Resource Quality Objectives (RQOs)
- All water resource management decisions will need to give effect to the above outcomes

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Relevant provisions of the NWA …cont

- The Class sets the boundaries for the volume, distribution and quality of the Reserve, and therefore informs the determination of allocable portion of a water resource for off-stream use (compulsory licensing)
- The Class affects both ecosystem health and the amount of economic activity that relies on water supply
- Class is also inherently political – past imbalances require redress

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Olifants Doorn WMA

Available studies and projects

- Olifants/Doring River Comprehensive Reserve study in 2006 ;
- Sandveld Groundwater Reserve determination studies in 2000;
- River Health surveys & State of River Report for the Olifants/Doring WMA, 2006;
- Pilot testing the development of the WRCS for the Olifants Doring Catchment in 2006 to 2007;
- Freshwater biodiversity conservation plan for the Olifants-Doorn WMA in 2006;
- Jan Dissels River Compulsory Licensing process in 2008;
- Implementation of IWRM in the Olifants/Doring Catchment, DANIDA initiative;
- Establishment of WUAs, e.g. LORWUA;
- Establishment of the Catchment Management Reference Group in 2003 & proposal for the establishment of the Olifants-Doorn CMA in 2005;
- The Olifants/Doorn WMA: Olifants/Doorn ISP in 2005;
- Proclamation of Greater Cederberg Biodiversity Corridor as part of C.A.P.E.;
- C.A.P.E. Fine-scale planning of portions of the Olifants-Doorn WMA in 2008;
- Raising of the Clanwilliam Dam, including technical and hydrology studies.

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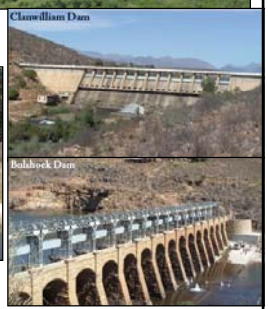
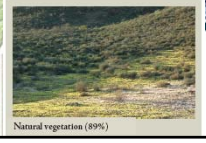
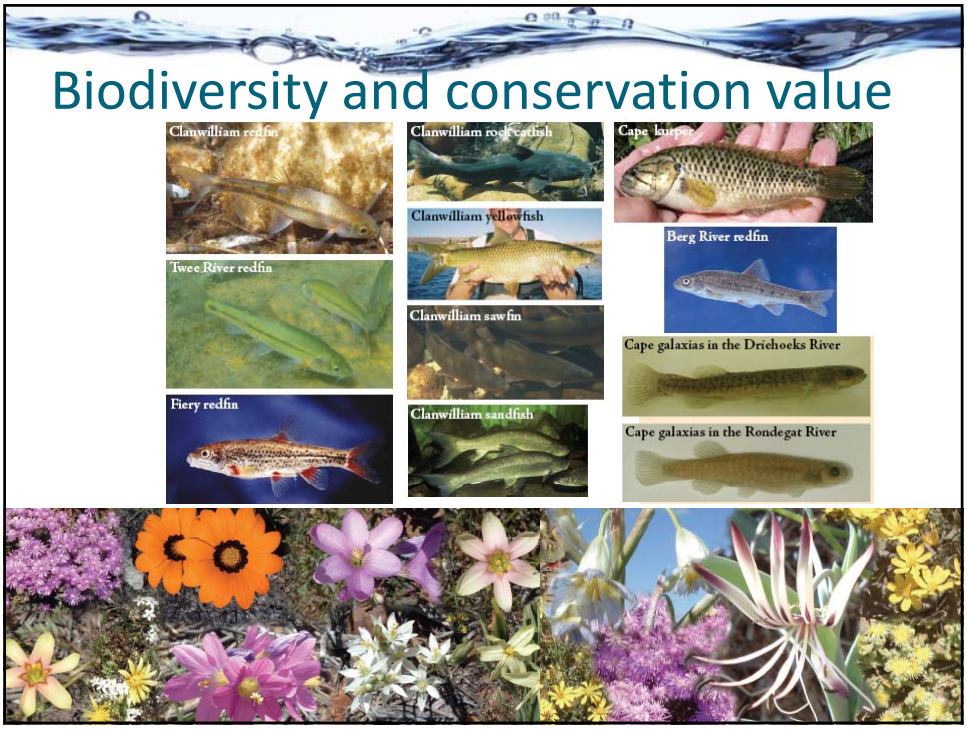
Socio-economics





Biodiversity and conservation value



The Classification process

- The classification process in essence is about:
  - Democratizing Water Resource Management
  - Consultation not consensus seeking
  - Scenario creation with implications provided
  - Consultation of scenarios
  - Recommendations given to the Minister
  - Final class configuration gazetted

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Technical process

- Begin with the end in mind
  - Information for the Minister to make a decision on the Class of a water resource
  - Part of the broader IWRM environment
- Catchment-based and therefore systems-based
- WRCS an integral component of the larger IWRM environment (i.e. Larger Process) –
  classification does not occur in isolation

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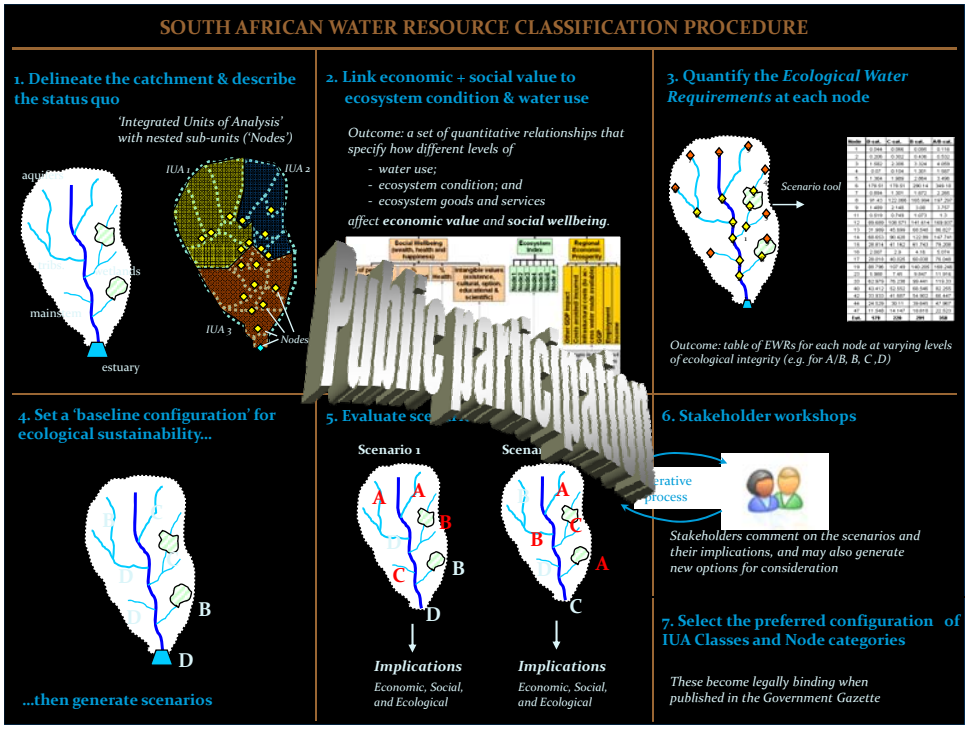
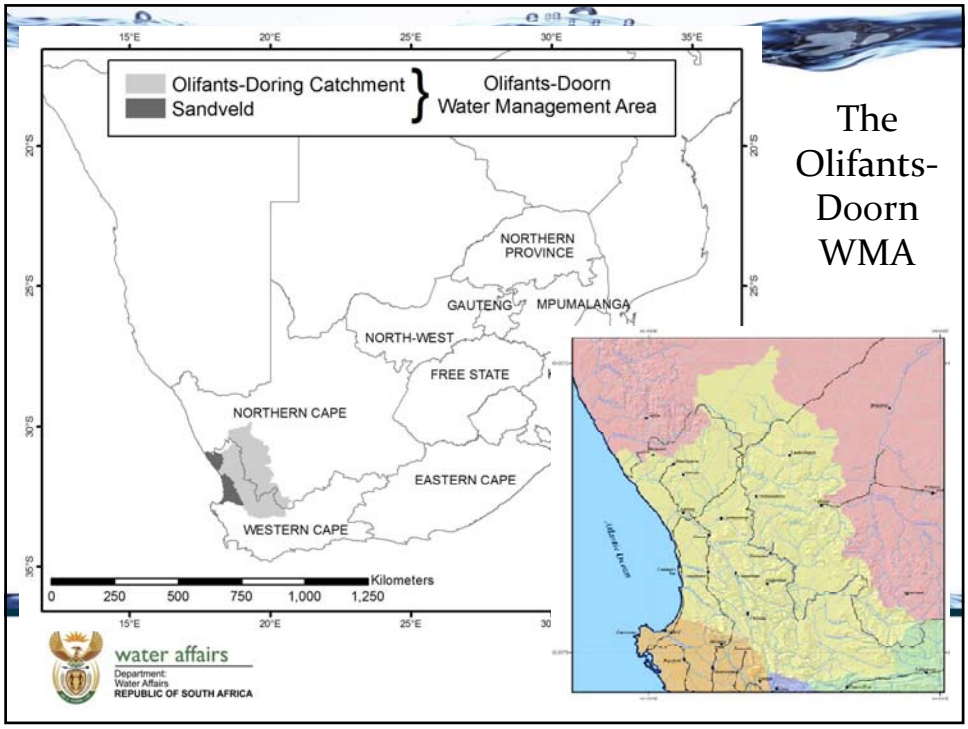
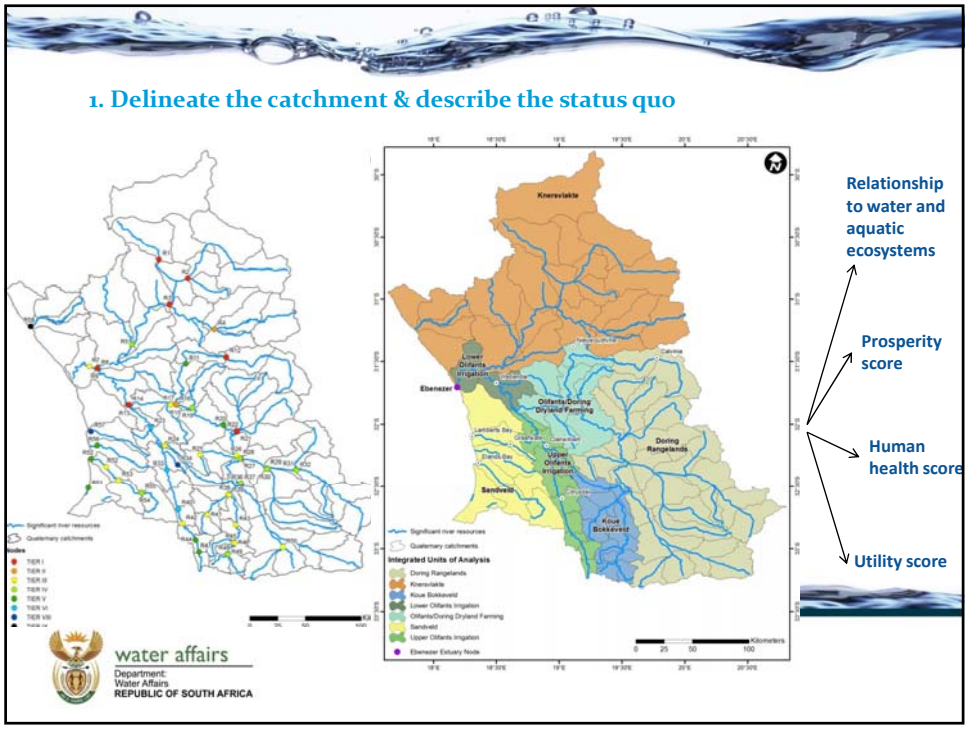




The Olifants-Doorn WMA



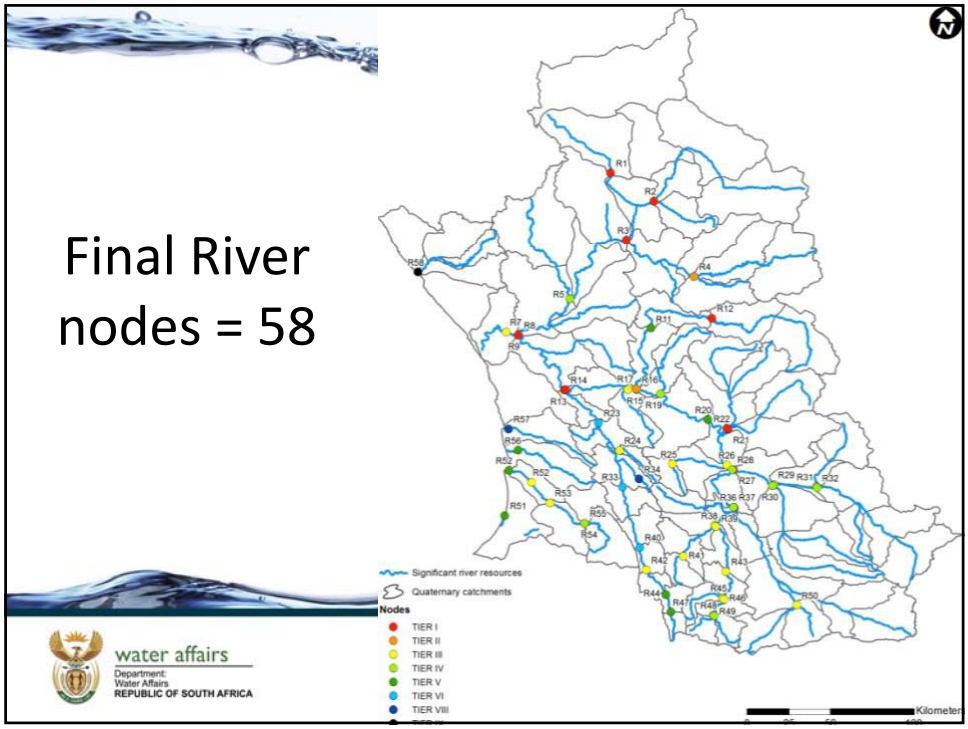
Relationship to water and aquatic ecosystems

Prosperity score

Human health score

Utility score

Final River nodes = 58



1. Delineate the catchment & describe the status quo

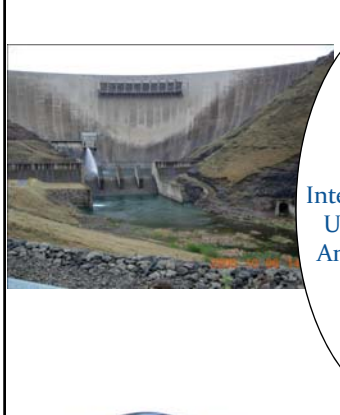
Value and use of water (economic sectors)

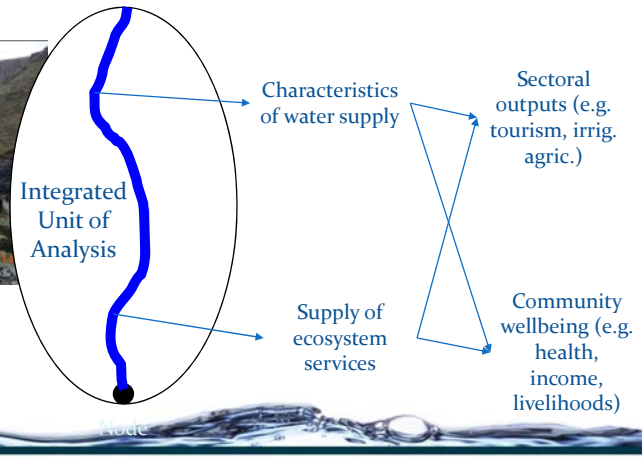
Descriptor	Doring Range-lands	Kners-vlakte	Koue Bokke-veld	Lower Olifants Irrigation	Olifants Doring Dryland Farming	Upper Olifants Irrigation	TOTAL
Estimated average turnover per ha:							
High value crops	60 000	40 385	60 000	40 385	43 810	60 000	
Medium value crops	30 000	30 000	30 000	30 000	30 000	30 000	
Low value crops	12 500	12 500	12 500	12 500	12 500	12 500	
Total turnover (R millions)	109	22	611	427	110	690	1 969
Management jobs	3 482	689	19 523	13 650	3 517	22 035	62 896
Labor	113 534	22 472	636 625	445 114	114 676	718 531	2 050 952

Value and use of aquatic ecosystems

Fishery	Fishers	Total value (millions)	Value from Olifants estuary (millions)
West Coast gill and seine	321 gill + 84 seine (+ crew)	R18.1	R1.07
West Coast commercial boat	9 000	R286.87	R0.18
West Coast recreational shore and boat	210	R341.71	R2.28
Total nursery value of Olifants estuary fish			**R3.45**

2. Link economic + social value to ecosystem condition & water use





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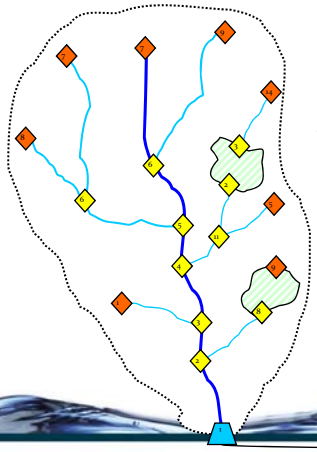
3. Quantify the *Ecological Water Requirements* at each node



Scenario tool

Node	D-cat.	C-cat.	B-cat.	A/B-cat.
1	0.044	0.066	0.095	0.116
2	0.206	0.302	0.436	0.532
3	1.582	2.308	3.324	4.059
4	0.07	0.104	1.301	1.587
5	1.364	1.989	2.864	3.496
6	178.51	178.51	290.14	349.18
7	0.894	1.301	1.872	2.285
8	91.43	122.066	165.994	197.297
9	1.489	2.148	3.08	3.757
11	0.519	0.749	1.073	1.3
12	89.689	108.571	141.614	169.937
13	31.989	45.699	68.548	86.827
14	68.653	90.428	122.99	147.741
15	28.814	41.162	61.743	78.208
16	2.007	2.9	4.16	5.074
17	28.018	40.025	60.038	76.048
19	88.796	107.49	140.205	168.246
23	5.988	7.45	9.847	11.916
33	62.979	76.238	99.441	119.33
40	43.412	52.552	68.546	82.255
42	33.933	41.687	54.902	66.447
44	24.529	30.11	39.645	47.967
47	11.548	14.147	18.618	22.523
Est.	**179**	**220**	**291**	**350**

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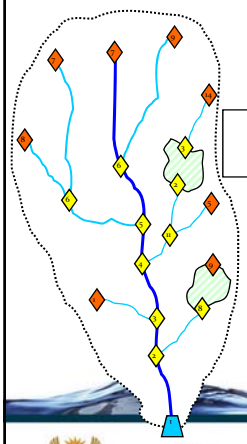

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+

Quantitative relationships describing how different levels of:

- water yield
- ecosystem condition
- ecosystem services

affect economic value and social wellbeing

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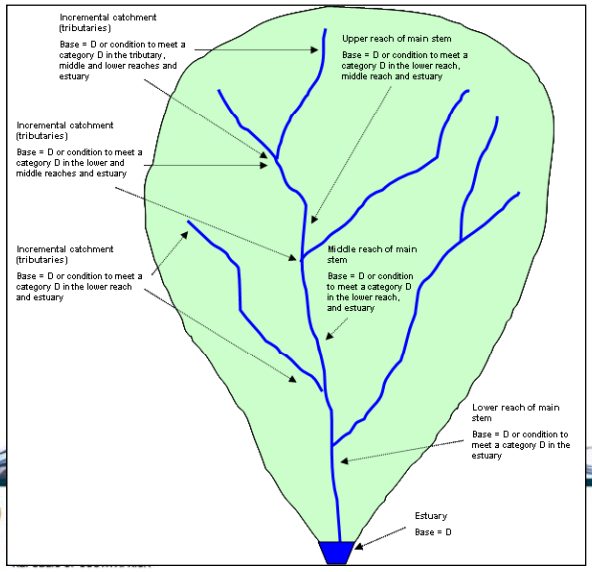
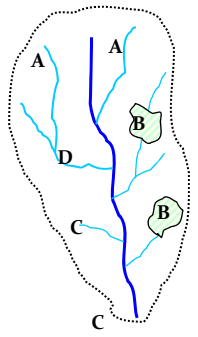
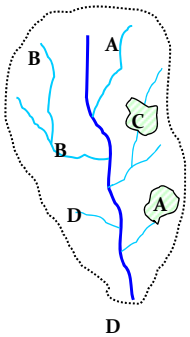
4. Set a 'baseline configuration' for ecological sustainability...



Iterate process until hydrologically feasible, ecologically feasible and meets 'fitness for use' water quality requirements

5. Evaluate scenario implications





Implications

- Water quality implications (fitness for use) for all users
- Ecosystem health
- Social wellbeing
- Regional economic prosperity
- Overall scenario implications

IUA-level and catchment-level

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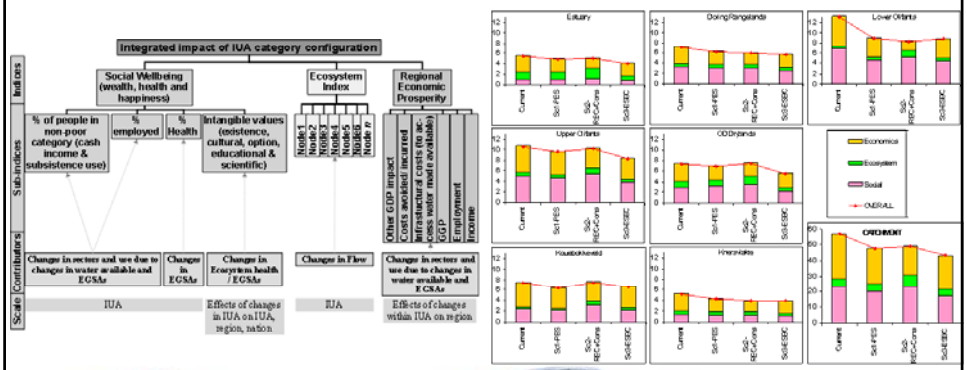
5. Evaluate scenario implications



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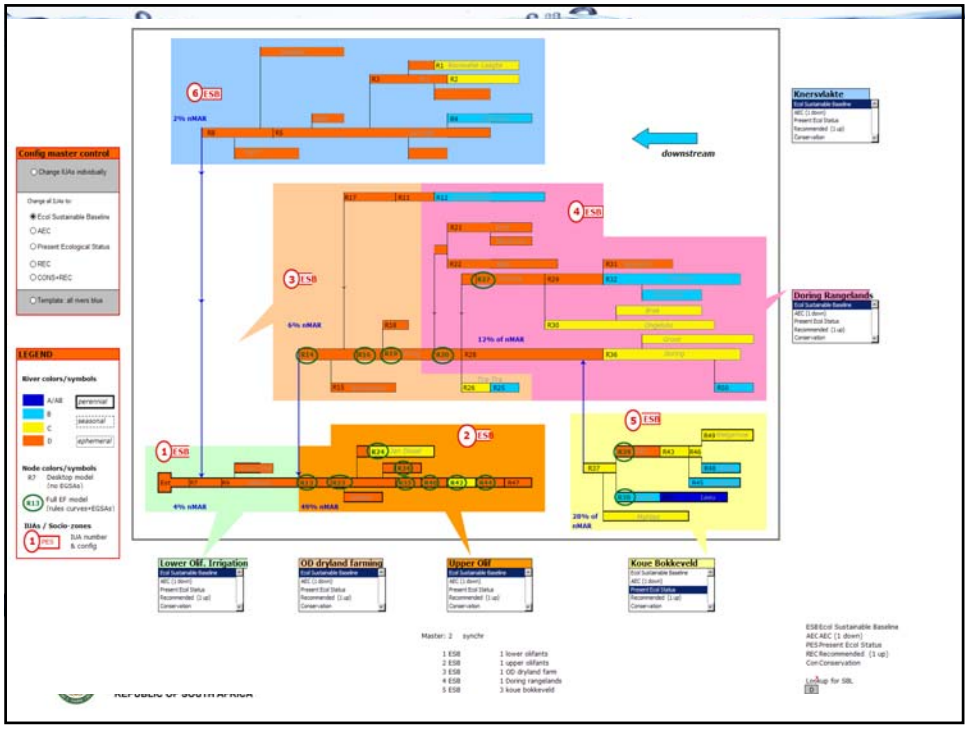
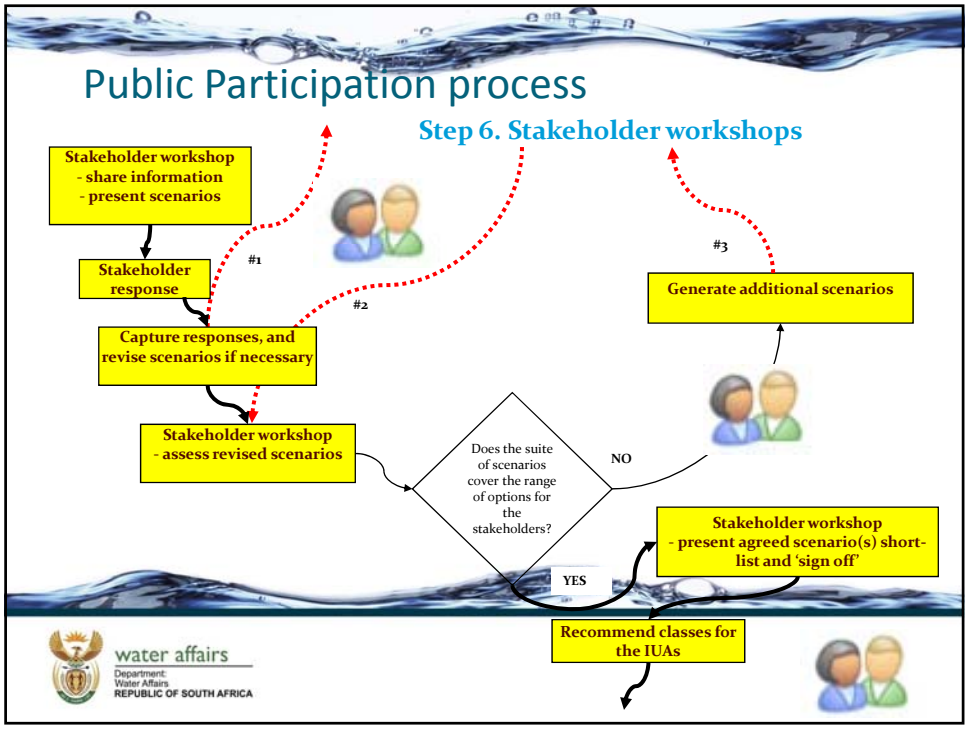

Config master control
LEGEND
downstream
Knersvlakte
Doring Rangelands
Lower Olf. Irrigation
OD dryland farming
Upper Olf
Koue Bokkeveld


Public Participation process
Step 6. Stakeholder workshops
Stakeholder workshop
- share information
- present scenarios
Stakeholder response
#1
#2
Capture responses, and revise scenarios if necessary
Stakeholder workshop
- assess revised scenarios
Does the suite of scenarios cover the range of options for the stakeholders?
NO
#3
Generate additional scenarios
YES
Stakeholder workshop
- present agreed scenario(s) short-list and 'sign off'
Recommend classes for the IUAs
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7. Select the preferred scenario of IUA classes and node categories and allocation schedules, catchment management strategy

Scenario 1	x
Scenario 2	x
Scenario 3	✓
Scenario 4	x

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Public Participation process

- National newspaper advertisements
- Local newspaper advertisements
- Project Management Committee
- Project Steering Committee
- 1st Public Participation Meeting (14 June 2011)
- 2nd Public Participation Meeting (30 August 2011)

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Inception Phase of Study

- A Inception Report was written
- Gap was addressed between the Olifants Doring Catchment pilot study and this study for the Olifants Doorn WMA
- Sandveld is a significantly different area from the Olifants Doring catchment and will for a separate Integrate Unit of Analysis
- F60 catchment will be included in the Knersvlakte IUA
- Significant water resources need to include rivers, groundwater, wetlands and estuaries

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Evaluation of Scenarios

Step 7 of process entails the selection the preferred scenario of IUA classes and node categories

Scenario 1	X
Scenario 2	X
Scenario 3	✓
Scenario 4	X

These scenarios will be discussed at the two public meetings

The outcome will be a catchment configuration with nested classes within the various catchments

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Challenges

- Sandveld not covered at the same level of detail as Olifants Doring catchment
- Socio-economic information available
- Freshwater biodiversity
- Wetland information not at same level as other resources
- The status of other studies and institutional arrangements
  - Stakeholder consultation processes
  - Status of CMA establishment and any other issues in WMA
  - Status of Jan Dissels compulsory licencing project

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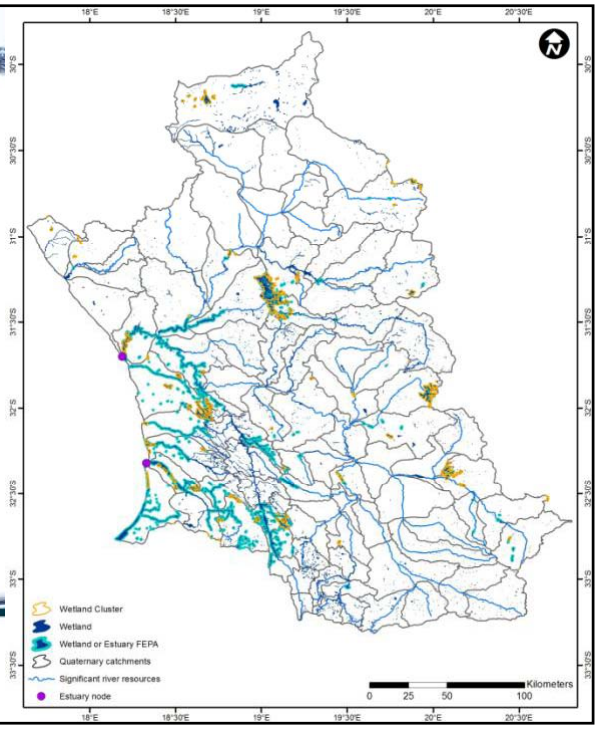
Wetland and Estuary nodes



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Next steps

- 2 Public participation meetings
  - 14 June 2011
  - 30 August 2011
- Translation of scenarios to classes
- Gazetting of the class configuration
- Post classification
  - Determination of RQOs
  - Revision of ecological Reserves
  - Integration of the classes into IWRM

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