1.1 Ecosystem services mapping as a framework for integrated resource management

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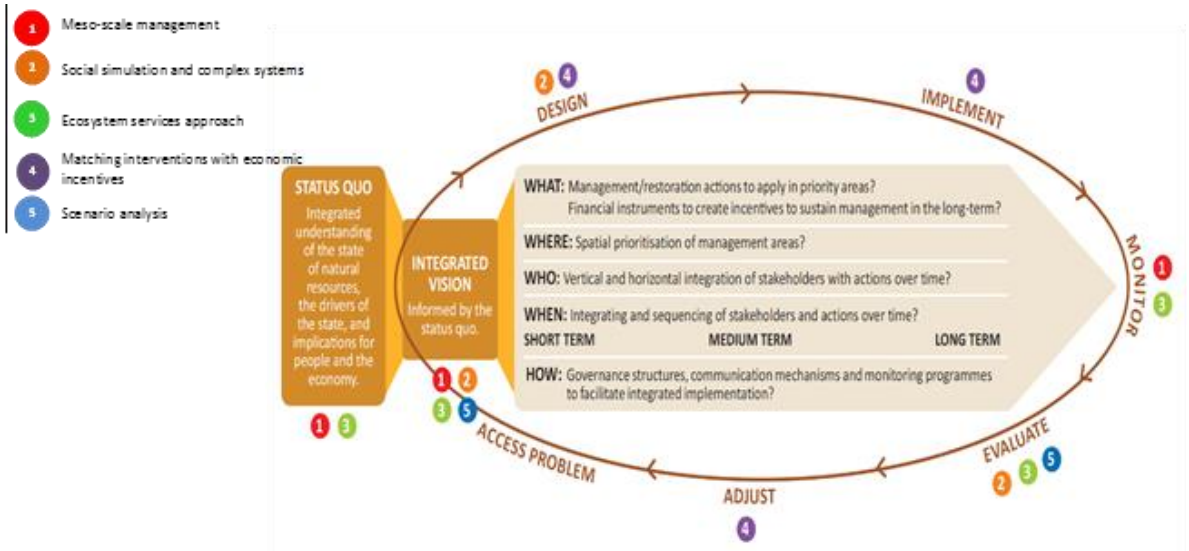
Extended abstract

The policy complexities of managing natural resources, including water, were highlighted in this presentation where it was shown that in the South African context, there are 67 Acts of Parliament comprising 500 pages of legal text, that make reference to some aspect of resource management. It was noted in 2006 by the South African Environmental Outlook (SAEO) that "*comprehensive and generally sound environmental regulatory regime is in place*" and that "*there has been a steady increase in the budget allocation for environmental management at both the national and provincial levels*" (DEAT, 2006). However it was also illustrated that this complexity has not lead to any betterment of the situation, as reported by the National Spatial Biodiversity Assessment (NBSA - Biodiversity GIS, 2007) that 34 percent of terrestrial systems and 82 percent of rivers are threatened!

It was proposed that the above situation is the result of a failure to adopt a holistic approach to planning, not to acknowledge the value of natural resources in development planning, poor coordination, and also the tendency to delegate increased responsibility to the local level but without the necessary capacity and support for implementation.

The results of an EU funded project "Afromaison" (Afromaison, 2014, Cox et al, 2014)) were presented as a possible solution. Afromaison was a project that set out to provide guidance and a model for Integrated Natural Resource Management (INRM), positing that even IWRM was inadequate as it did not attend to all resources. A model that was provided by Afromaison is presented in Figure 1.



• Figure 1 The Afromaison model for integrated resource management

The paper demonstrated the application of this model to the uThukela District Municipality in South Africa. This case study, which has a diverse mix of land cover types featuring resources in pristine condition (the Drakensberg Mountains), commercial farmers practicing state of the

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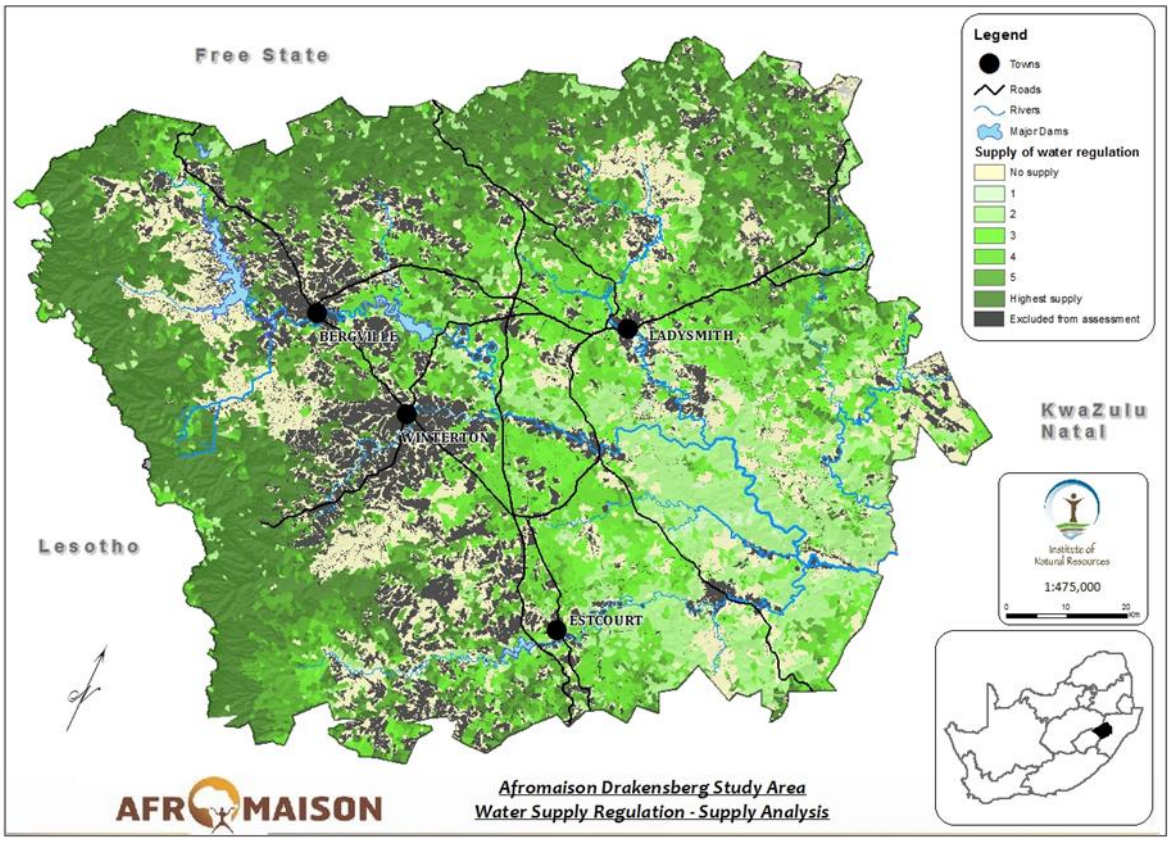
art conservation farming and community areas suffering serious soil erosion and resource degradation.

The essence of the model is reflected in the legend on the left of Figure 1, which notes that the essentials for INRM are the use of Ecosystem Services as a foundation applied at a Meso Scale, with economic incentives and good stakeholder consultation linked to scenario planning being pivotal.

The presentation illustrated the value of using a base layer of Ecosystem Services (ES) as a basis for resource management. This ES layer provides the raw material on which society is placed and the ES layer documents the relationship between society and the resources used by that society. It is thus suggested that making use of ecosystem services as a foundation for governance in an area has many advantages.

By way of illustration the provision of Water Regulating Services for the areas is provided as a GIS coverage. A number of other services were also mapped and assessed.



- Figure 2 Water Regulating Services for the areas is provided as a GIS coverage

The presentation also illustrated how the provision of services is matched by the demand for those services, and from this a map showing the area prioritised for management is produced. This shows in great detail the portions of land that require rehabilitation, or may simply be preserved as they continue to provide these services.

The causes for the deterioration of land were also made explicit. Examples were overgrazing and poor fire management, both of which need then to be subject to interventions to make good and to reverse the deteriorating trend resulting from these activities. One of the major recommendations for dealing with this is to include economic incentives for the improvements to be done. The Afromaison project provided tools for assessment of these economic incentives

which went way beyond the normal Payment for Ecosystem Services type model that are often suggested.

The Afromaison model next recommends that indicators for continued implementation of INRM are put in place, that indicate the status of the resulting ecosystem, whether this is declining in condition or not. All of this is only really feasible if there is strong stakeholder consultation, so the project recommended innovative ways of using role play games to solicit information on land-use, economic and governance issues, but also to gain cooperation and enthusiasm for resource management in all levels of society.

The final step of the uThukela District Municipality case study was that for the first time this type of information, in particular the baseline of ecosystem services, was included in the Integrated Development Plans (IDP) of the Municipality. These plans are required by law and are used by the Municipality for all development planning, thus bringing the ecosystem and INRM in all respects directly into the management sphere. A recommendation was given on how a governance structure could be established to take this forward, with an INRM District Forum at the centre of collating the contributions of all of the responsible government agencies for effective resource governance.

References

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