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Overview of Community Based Natural Resource Management in Mozambique & Literature Review

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1 CBNRM in Mozambique - Current status within the Olifants catchment

[Key practices, challenges & achievements]

Community Based Natural resource Management (CBNRM) is an approach or concept that devolves authority from the state to rural communities where these resources are found. It is an approach that promotes and empowers the local rural communities to own, manage and benefit from the sustainable use of the natural resources [(<http://www.sacfnetwork.org/index.php/cbnrm>), Barnes, G and Child, B (2014) Adaptive Cross-Scalar Governance of Natural Resources, Earthscan, London., Breen, C (2013) eds: An Introduction of community based natural resource management in Southern Africa, Author house, University of Florida].

The CBNRM approach emerged in the early 1980s after realization of the state failures to effectively manage the natural resources, leading to illegal and unsustainable utilization of natural resources especially wildlife. An attempt to reduce costs on the state funding, and to create economic incentives for the rural communities encouraged the advance of CBNRM in Southern Africa. The CAMPFIRE programme in Zimbabwe is seen as an early attempt to pioneer the development of CBNRM (<http://www.sacfnetwork.org/index.php/cbnrm>). CBNRM programmes provide rural communities with some form of resource ownership, and therefore create opportunities for the local communities to access various forms of benefit.

1.1 Key steps in CBNRM include:

- Community mobilisation (learning about CBNRM, assessing favourable conditions for setting up CBNRM, analysing what institutional structures to put in place etc.),
- Conduct situational analysis, livelihoods survey, governance survey to collect baseline data to assist in planning processes.
- Formation of community organisation to spearhead the development process (this includes developing constitutions, training etc.)
- Natural Resource use planning: Conduct resource inventory, develop land use and development plans, benefit distribution plans, etc.
- Develop procedures for joint venture business models, and implement
- Monitor progress, governance, review and plan

[Adapted from a practical guide to developing CBNRM in Botswana.

<http://www.cbnrm.bw/publications/CBNRM%20Support%20Programme%20paper%208.pdf>].

1.2 The basics of CBNRM

As provided above and illustrated below (*Figure 1*), CBNRM comprises four challenges:

- Turning wildlife or natural resources into benefits;
- Devolving these benefits and associated rights from the state to the community;
- Building the communities' capacity for participatory governance (because representational governance usually results in elite capture); and
- Building the communities' capacity to plan, protect, monitor and manage its resources.

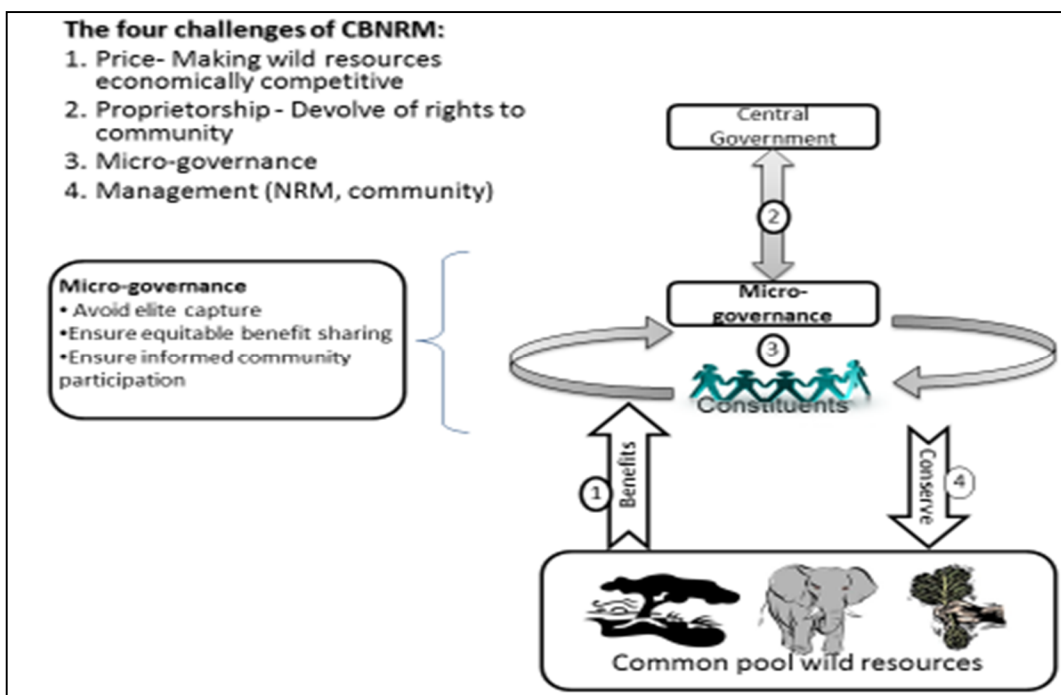


Figure 1: The four challenges of CBNRM

The College sees itself as a major service provider in the capacity building of CBNRM in the Limpopo Basin. For this reason the SAWC CBNRM implementation support model is described (see figure 2).

1.3 The SAWC CBNRM implementation model

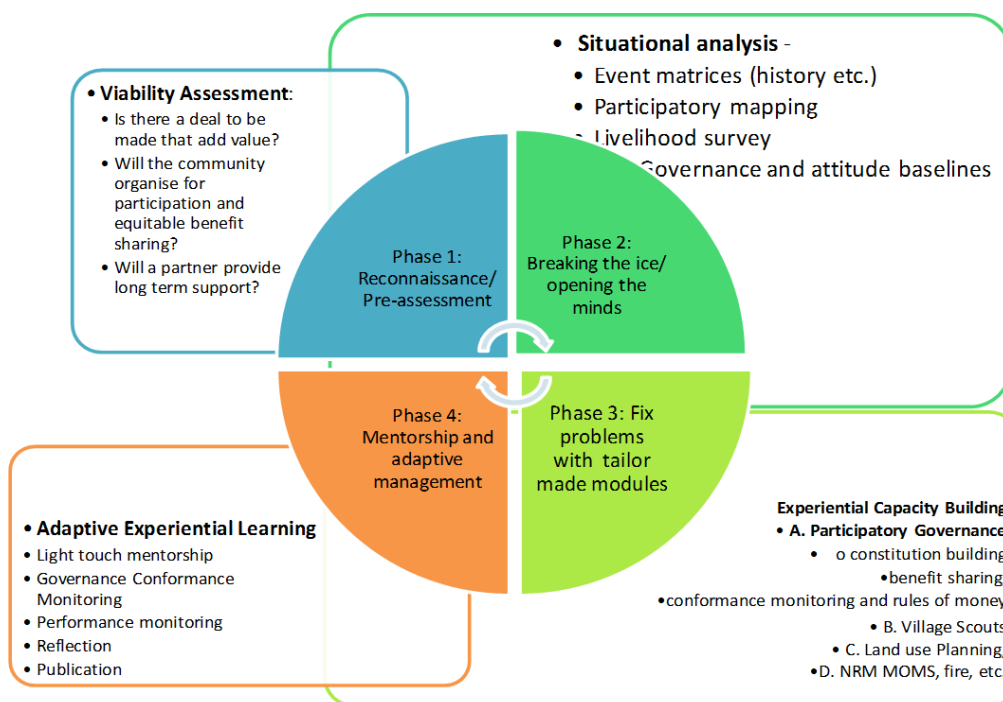


Figure 2: Example of tailor made training package



Step 1: Viability assessment

High level expertise is required for a brief field visit to assess the viability of a potential CBNRM partnership. Programmes are unlikely to work unless genuine opportunities for creating sustainable self-financing and other values are available (e.g. hunting quotas, tourism opportunities, and revenue sharing arrangements).

They will also fail if the community is unwilling to adopt participatory governance at a face-to-face scale (not governance by elites) that ensures:

- Increasingly informed participation in decision-making and
- Equitable benefit sharing in which all members are equal shareholders, while also avoiding the scourge of elite capture.

The outcome of this process is usually a plan agreed to with stakeholders to address the wildlife economy, governance arrangements, and long-term support.

Step 2: Situation analysis

The situation analysis usually comprises of three components:

i. Participatory rural appraisal to map a community's

- History,
- Use of natural resources,
- Land uses, and
- Development objectives;

ii. A livelihoods survey, increasingly using tablet computers and databases, to provide a baseline understanding of:

- The community status
- Education,
- Health,
- Nutrition
- Economy
- Agriculture,
 - Natural resources,
 - Grants,
 - Remittances, and
 - Jobs, etc.

iii. A governance and attitudes survey.

These background assessments are relatively expensive, but if resources are available, the additional understanding that they provide of the community is worthwhile, and they also provide a baseline to which progress can be compared.

Step 3: Experiential capacity building

■ Participatory Governance

The critical step in CBNRM is to build the capacity of communities for informed and participatory governance. By far the easiest way is to introduce a system of participatory governance through a revenue sharing process.



In year-1 we introduce the “rules of the money”:

- All members are equal shareholders, and are therefore entitled to participate fully in deciding what to do with the money, including cash dividends, projects, wildlife management and administration (no more than 5-10%).
- Decisions about money are made by all people sitting together face-to-face, and the budget is activity based, i.e. member cash dividends, projects, NRM, administrative overheads.
- Expenditure must be checked against the agreed budget no less than quarterly by the whole community.
- The community is the boss. The community makes decisions and instructs the committee or employees what to do. The role of the committee is simply to bring the community together to make decisions.

In the next two years, these rules are incorporated into constitution building and an individual bill of rights, while the capacity of committee members and the community is built to manage finances, projects, etc.

■ Commercial development

Commercial development involves establishing and managing trophy hunting or tourism business and joint ventures, protected area revenue sharing, and so on. This will usually require facilitation by high level expertise to work with the community to develop a series of deals and investment with the private sector, state, and NGOs. Good training tools are available for managing all aspects of trophy hunting.

■ Village scouts

It is usually important to employ and train village scouts to create employment opportunities, and to protect and monitor the resources. This may be particularly important around Kruger, if reducing rhino poaching is a goal, noting that these village scouts must be primarily accountable for village security and resource management, and that the impetus to protect rhinos must emerge rather than be imposed. Additional funding may be required for Village Scouts, and great care must be taken not to impose a system that swallows future community benefits in management costs.

This will require:

- The establishment of systems for managing Village Scouts that connect into village governance, and
- Specific field skills.

■ Village land use planning

Within a few years, it is important to facilitate a village through a land use planning process that sets community objectives in the form of wildlife, fire, grazing, water, etc. targets, and incorporates these into simple maps and spatial planning (land-use zones and rules). Note that these plans often provide the performance metrics for Village Scouts.

■ Natural Resource Management

Starting immediately, but building over time, the community should be facilitated through a natural resource management process. This will be highly specific, but should address issues like firewood, fire management, water issues, resource monitoring using MOMS (Management Orientated Monitoring System) and so on.



STEP 4: ADAPTIVE EXPERIENTIAL LEARNING

Finally, long term support is necessary (*see step 4*). Effective CBNRM requires long term light touch facilitation, probably in perpetuity but for at least ten to twenty years.

In SAWC's experience, this begins through experiential learning by involving private, NGO or protected area partners in the processes described above.

There are several key activities:

- Ideally, a **mid-level community facilitator** should be provide to support the community to manage its finances (participatory budgeting and accountability, double entry book keeping), hold annual and quarterly general meetings, monitor governance conformance, develop knowledge of rights and the value of wildlife, plan and implement projects, training specific officers in their roles, and develop village scout management systems and NRM capacity, etc. Talented rural people with a Grade 12 education can often be trained to play this role, and each community facilitator can generally service five villages.
- A **more senior level manager** with the above listed capacities will be required to supervise and train community facilitators. This manager can supervise 5-8 community facilitators in a geographical region.
- An external partner must be in place with the capacity and authority to monitor **conformance to governance principles** to protect ordinary community members, marginalized groups and women against the threat of elite capture.
- A small amount of **high level expertise** is necessary to:
 - Keep an eye on commercial performance.
 - Check in on the community on an annual basis to identify threats and opportunities.

1.4 Community based Natural Resource Management with emphasis on Maputo & Gaza provinces of Mozambique

The last review of CBNRM in Mozambique was the 2011 Mozambique CBNRM country profile through the Capitalizing Knowledge, Connecting Communities Program (CK2C) funded by USAID. This report highlighted the success (few) and failures (many) of CBNRM programs in Mozambique. They provided case studies which are reproduced below. Many of the CBNRM problems have been identified, mainly poor governance, and although it is still work in progress Namibia is starting to show CBNRM success stories.

- **Case 1. "Community charcoal for Maputo.**
A pilot activity that ran from 1998-2008, supported by GTZ, to improve charcoal production in Combumune, Mabalane District, in the interior of Gaza Province, one of Maputo City's important charcoal sources. Grupo de Trabalho Ambiental (GTA), a local NGO, implemented the project as part of a regional pilot activity. The project sought to promote sustainable resource use through the implementation of a quota set under a forest management plan combined with income generating alternatives. Individual burner households were to pay a fee to the community. The receipts were to be used to buy a collective license and to invest in community goods such as schools and water wells. A 2008 evaluation found that the community did not respect the quotas. Individual members sought to maximize their income, and exploitation intensified to unprecedented levels, surpassing the allowable



volume set in the management plan (Kasperek, 2008). Due to charcoal production, average household income in Combumune is 30% above the average in the province.” DAI 2011

■ **Case 2. The ChipanjeChetu.**

“A project involving a 6,500 km² hunting concession in Sanga district (Niassa Prov.). A relatively small community of about 1,200 people owns the concession and receives 20% of the hunting fees. Lipelixhi Wilderness, a subsidiary of the Portuguese Visabeira group, operates the concession. Total community revenues between 2006 and 2010 exceeded US\$127,000 (with US\$76,700 outstanding). However, the impact of these funds is hardly visible. Community scouts complain that they are not paid. Over eight local initiatives that were to be funded by the concession revenues came to a standstill. In Maumbica, the community committee financed the building of a carpentry that is still operating, but with only 1 of the original group of 12 employees. All activities have stopped because the money has disappeared. “The treasurer of the community committee was a crook” laments Chief Caribarise. “He took all the money and built a big house in the city. We complained with the local government but they do nothing. Perhaps they also took a cut. What can we do if even the government doesn’t protect us?” DAI 2011

■ **Case 3. A Joint venture.**

“Micaia is a Mozambican NGO that seeks to combine conservation with community development. One of its projects is Ndzou Camp in the Moribane Forest Reserve (Chimanimani TFCA). This camp is a joint venture with Mpunga, a community of about 322 households dispersed over 4 hamlets. The community association KubatanaMoribane owns 60% of the lodge’s shares, thanks to a loan by the TFCA project. The total investment is US\$340,000. Setting up the camp was initially a challenge. One of the main obstacles was winning the trust of the community. When Micaia arrived, people were wary of unfulfilled promises. José Manuel is one of the three community members on the Board of Directors. He explains that the community, through its representatives on the Board and the financial supervision commission, has full insight into the operation of the enterprise. Community members know much is spent and earned. The community also participates with Micaia in day-to-day management decision-making. The Board meets at least once a month.” DAI 2011

Apart from the SAWC/WWF CBNRM program with Sabie Game Park (SGP) we are not aware of any other active long term wildlife CBNRM programs within the Mozambique side of the GLTFCA (or in the lower Olifants Basin). Although there are many community projects in Mozambique & South Africa they are more outreach-orientated rather than driven by the principles of CBNRM. In fact “The critical assessment by Draper, Spierenburg & Wels [2004] of the [CBNRM] experience in Limpopo National Park raises an important question as to whether, despite the rhetoric, TFCAs represent a milestone on the road **away** from CBNRM” (as reported in the DAI 2011 report).

As the SAWC/SGP partnership in 2014 was successful in unlocking the 20% income from Government for the sustainable wildlife and natural resource utilization in the Sabie Game Park. This has provided an opportunity to build a strong partnership with the local community, private sector and government of Mozambique.

The SGP project will support the expansion of the wildlife economy and provide better landuse options (for instance, were feasible, conservation agriculture) so as to create incomes at household level and create more jobs. Its intension is to build the capacity of the communities to better manage their wildlife resources. The main objective of the project is to increase participation in an expanded wildlife driven economy. By doing this it hopes to contribute to a multi-dimensional poverty reduction.

With an enhanced participation in the wildlife economy it is hoped the attitudes towards wildlife and its’ sustainability in the Mangalana community will improve.

Some of the processes The SAWC CBNRM Unit hope to support are provided below:



- **Step by Step Development Process:**
 - **Strengthening of Community Institutions (Village Committees)**
 - Draw a long term capacity building programme for the local community structures to be able to manage a participatory sustainable resource management.
 - SAWCCBNRM Unit to collaborate with SGP and government of Mozambique in leadership skills management.
 - Financial management training, long term skills development
 - Participatory budget planning, implementation and monitoring
 - Participatory benefit sharing mechanism, following CBNRM principles.
 - **Community Anti-poaching Programme:**
 - **An important role of communities in CBNRM is policing the resource. Many CBNRM projects, therefore, train and employ community scouts.**
 - In order to counter poaching activities (especially Rhino) the SAWC CBNRM Unit with SGP collaboration and the State Police Conservation Unit will embark on the establishment of a Community anti-poaching programme.
 - Use at least 40% of the Rhino fund to support this activity
 - Provide training support to community Rangers and Community Resource Monitors;
 - Design data collection system, reporting system, and implement performance and incentive based system;
 - Engage with the local State Police Unit to support community Rangers work and specific tailor made training will be offered.
 - **Environment Awareness Programme:**
 - Develop a long term environment awareness programme
 - Train communities and community leaders in awareness programmes
 - Conduct village by village environmental awareness programme
 - SAWC CBNRM Unit assist in establishing Environmental Monitors programme in Mangalana community
 - Use at least 20% of the Rhino Fund to support this programme
 - **Community Development and Local Livelihoods:**
 - Use the 40% of the Rhino fund plus the 20% trophy hunting fund to support local community infrastructure development, individual household food security;
 - SAWC CBNRM Unit to support community development planning and training, including participatory project planning, budgeting and monitoring;
 - **Community Investment and Eco-tourism development:**
 - Support community investment and eco-tourism development, agro-forestry, etc.
 - Through SGP and SAWC CBNRM Unit engage in a study to identify alternative land use options that would include community investment in eco-tourism and agriculture;
 - Develop a local entrepreneurship and individual skills training for sustainable use of natural resources.
 - **SAWC CBNRM Unit Long Term Plan:**
 - Develop a long term capacity building programme to strengthen the service delivery, skills development and employment opportunities through sustainable wildlife and natural resources utilization and management;
 - Recruit a locally talented and motivated Community Liaison officer to support the CBNRM development process



- Engage and foster collaboration with government and other stakeholders;
- Develop a detailed continuous monthly activity support plan;
- Develop a 12 month Action Support Plan (ASP).

When the SAWC CBNRM unit first went into the Mangalanaarea, the communities had a negative attitude towards legal & sustainable wildlife utilization. A second survey will soon be undertaken to see, even at this early stage, if some changes in attitude have occurred.

This initiative has also resulted in an interest in re-starting the wildlife users groupLicoTourism in the area from SGP to the base of the Limpopo Park. This wildlife user group consists of the following members: Sabie Game Park (Sandy MacDonald), Ferreira (Jono Ferreira), Inkomati Conservancy (Peter Scott), Singita (MandlaMathonsi), Twin Cities (Ellery Worth), and Massintonto Eco-Tourism (Carlos Nogueira).The success of this group will depend on the commitment from its members.

It is hoped the SGP project will stimulate the development of further CBNRM projects. This type of project should occur not only in Mozambique but also on the South African and Zimbabwean sides of the GLTFCA [Makuleke in South Africa has now also re-engaged with a CBNRM program].

2 Key drivers: Policy, institutional & governance aspects

2.1 Major hurdles to overcome in Mozambique

There are major difficulties within the government which are linked to the understanding & enforcement of laws (education). Accountability and corruption are still a factor in the country and hence influences the uptake of policies and laws. Governance problems both associated with accountability, corruption, elite capture and lack of education or knowledge are also prevalent.

Mozambique is busy working on agreements with neighbouring countries, crossed by international rivers, so that the negative impacts (sedimentation, accretion, salt intrusion) of their water usage on Mozambique are reduced.

Examples of conservation initiatives and policies

- Involved in Trans-frontier conservation areas
- Increase the number of people with formal education on biodiversity and resource management
- Reforestation projects in the ministry of environmental affairs
- Publication of activities such as census of wildlife, national forest inventory reports and conservation areas
- Presence of various projects for community management of natural resources
- Creation of the Ethnobotany Research Center in Namaacha (2009).
- Lots of policies e.g. Traditional Medicine Policy (2004)
- Environmental Law (Law No 20/97) which provides for among others the participation of local communities in the formulation of policies and laws related to natural resource management & management of protected areas.



2.2 What are the key practices?

Summary of the Mozambique Strategy and Action Plan for Biological Diversity in Mozambique (2010)

The Strategy and Action Plan for Biological Diversity in Mozambique (NBSAP 2010) was to be implemented within a timeframe of 10 years and is therefore relevant. The drawing up of the Strategy was coordinated and guided by the Ministry for the Coordination of Environmental Affairs, executed by a team of consultants, and included the involvement of various central and provincial governmental bodies, civil society, non-governmental organizations, national and international development agencies, and various individuals interested in the conservation and sustainable use of biodiversity in Mozambique. The objective of the Strategy and Action Plan for the Conservation of Biodiversity is to outline directives and to define priority actions to be implemented by the various sectors of the economy in order to ensure sustainable development.

- **The 2010 Biodiversity Targets For The 2010 NBSAP**
 - Promote conservation of ecosystems & habitats
 - Promote the conservation of genetic diversity
 - Promote sustainable use and consumption
 - Reduce pressures from habitat loss
 - Control threats from invasive alien species
 - Address challenges from climate change and pollution
 - Maintain capacity of ecosystems to provide services
 - Ensure fair & equitable benefit sharing from genetic resources
 - Ensure provision of adequate resources

- **What did Mozambique achieve during this period?**
 - It increased the percentage of protected areas from 11% to 16% by creating new national parks and reserves, including marine and coastal.
 - Genetic biodiversity was registered in ex-situ conservation systems (botanic gardens, arboretum, seed banks, germoplasm, and in-vitro collection).
 - There was some implementation of projects for restoration of areas with degraded biodiversity and capacity building funded by GEF and others:
 - Project of biodiversity management in coastal and marine areas in Northern Provinces of the country.
 - Restoration of Limpopo & Gorongosa National Parks.
 - Integration of issues related to environment including biodiversity in different sectors in provincial and district plans.
 - Inclusion of environment and biodiversity issues in school curricula (primary and secondary levels).
 - Launched the programme One Student, One Tree to promote green revolution in Africa.
 - Prepared diverse legislation for biodiversity preservation (Law and Regulation on forest and wildlife).
 - Declared 20% of concessionaries revenue should be given to communities who own the resources.
 - Traditional medicine police, ABS ACT and GMOs.



The strategy and action plan for biological diversity in Mozambique (2015-2035)

The College was able to obtain the draft Mozambique NBSAP (2015-2035). The chapter on “Legal and Institutional Framework within the environmental context in Mozambique” is provided as appendix 1. The whole document is not provided as it was given to the SAWC in confidence. It must be remembered that Mozambique have just changed ministries names and ToR and this is still under discussion and hence the document is not completely updated. Once it has been updated and received it will be passed on to the RESILIM O project. It is hoped this document will be in final form before the end of 2015.

3 Key linkages/learnings with regards to South African side - west of KNP [Linking to the broader wildlife economy, PA network, and associated drivers]

It has been identified on the South African side, west of KNP, a key component of the wildlife economy, and PA management, is to increase the sectors wildlife economy through more economically beneficial wildlife use both by the private and communal sectors. Particular focus has been put on communities neighbouring protected areas.

The following assessment is based on recent trips by SAWC staff and associates to community areas west of KNP. It has emphasis on CBNRM as this is seen as a key method of linking, diversifying and improving the wildlife economy.

3.1 Conflict resolution

South African communities have been subject to considerable dislocation through Apartheid. The land claims process often creates further confusion about community identity. There are also often many development “partners” working at cross purposes in some communities, while governance systems have been set up in ways that are over-centralized, and entrench elite interests, which is further confused by the dichotomy between modern and traditional leaderships, and between legal and traditional practices. Consequently, starting South African communities on the road to effective resource management often requires a significant investment and transaction cost in resolving these conflicts.

3.2 System management

To avoid being mired in excessive meso-level planning and meetings, the system should be based on ground level performance metrics for livelihoods, governance and attitudes, and natural resources.

Three complementary organizational systems are needed:

- **Grassroots wildlife/CBNRM producer association.**
This must be a democratically elected association that is non-(party) political and represents the needs and interests of grassroots (CBNRM) communities. Its role is to advocate for the interests of communities and, over time, to develop the technical capacity to support its own communities. The Forum currently supported by LEDET may provide a starting point.



- **CBNRM Support Providers Forum.**
SANParks, LEDET, Mpumalanga Parks and others should form a CBNRM Support Providers Association to support mutual learning and the coordination of inputs and support to communities. Between them, these organizations will need to provide the community facilitators and managers described above. A good example of such a forum is Namibia's CBNRM Support Organization (NACSO). This forum could be developed through the GEF Protected Area Forum.
- **Capacity building and facilitation.**
SAWC is positioning itself to provide training of CBNRM facilitators and managers, and experiential learning through mentoring of more senior level staff in CBNRM implementation and also the provision (with Stellenbosch) of a tailor-made Master's/professional courses. Long term partnerships are required among the various stakeholders (e.g. SANParks, LEDET, SAWC, Wits Rural, K2C, AWARD and so on).

3.3 LEDET & community forums

LEDET organizes a quarterly community forum to discuss issues related to the potential for community involvement in the wildlife economy. SAWC were privileged to attend and brief this forum, which offers a sound platform for further progress. We particularly thank MikatekoNkuna, Eric Ramatsea and ShoniMphaphuli for assisting with this organization.

3.4 Challenges at site level

The key challenges at site level are:

- The knowledge and capacity to develop the **commercial** aspects of a significant number of sites;
- **Capital investment** for restocking, fencing and tourism development at these sites;
- **Community governance** to ensure equitable benefit sharing, informed participation, and sound natural resource management;
- Overlapping and unclear **roles and responsibilities** (which created confusion and lack of impetus), including the need for a big Vision and governance principles to unify action;
- **Capacity building** process in economics and governance aimed at communities and community facilitators in several agencies.

4 Recommendations for future focus for period April 2015 - November 2015 & potentially for sub-grants.

Apart from addressing the broad problems associated with the above hurdles there is a need for further community based natural resource management projects in both South Africa & Mozambique, as outlined above. Addressing problems at the community level will also help to highlight accountability and governance problems at higher levels which can then be addressed.



4.1 Suggestion for an overall strategy to support CBNRM in Greater Kruger ecosystem

There is considerable potential to involve communities in the wildlife economy in the greater Kruger ecosystem. There is overwhelming support for these initiatives, including a powerful demand for inclusion in the wildlife economy by local communities. In addition to the strong support from potential wildlife producer communities, there is strong support from government agencies (especially SanParks and LEDET) and the private sector.

To operationalize CBNRM in the Greater Kruger Ecosystem we need a concrete action plan to develop the community-based wildlife economy, with a clear Vision and Principles.

The key steps to develop a CBNRM approach for community involvement in the wildlife economy in the greater Kruger Ecosystem include:

- Establish and capacitate a CBNRM Producer's Association to lead CBNRM politically, and to hold members accountable for good governance. This could be done through already existing forums such as the GEF Protected Area Forum.
- Build capacity of SANParks, LEDET, DEA to support CBNRM technically:
 - Define roles and goals seeking cooperation rather than confusion
 - Develop economic skills and vision, and develop new revenue/benefit streams - access to parks, restocking, rhino dividends and/or farming, park revenue sharing, jobs...
 - Develop governance skills and visions
 - Help communities access financing, wildlife, agreements
 - Establish conformance (governance) and performance (wildlife, livelihoods, economics) monitoring, enforcement, reporting and reflection/learning systems.
 - Facilitate stakeholder forums and build cooperative cross-cultural wildlife economy landscapes.
- Initiate pilot sites within the Olifants Basin (adaptive learning). Developing a CBNRM site will generally involve:
 - Brief economic assessment and plan
 - Source investments - restocking, fencing, lodges, etc.
 - Establishing enterprises
 - Establishing effective community governance. Face to face governance is essential to avoid elite capture and ensure information flows, informed participatory decision making and equitable benefit sharing
 - Environmental monitoring and protection (jobs, systems, land use plan)
 - Village profiles and development strategies
- Build capacity to build capacity
 - Training systems and materials at all levels (e.g. SAWC economics and governance unit)
 - Research/monitoring of economics and governance (through Wits Rural, SAWC and University of Pretoria's Hans Hoehseisen Research Station)



4.2 Inter-country exchange

At the broad level there is also a language barrier between Mozambique and its neighbours, which also makes communication and linking of strategies difficult. For areas bordering countries in the Maputo and Gaza provinces more effort needs to be made with implementing agencies to incorporate strategies allowing for inter-country exchange of information.

5 Appendices

5.1 Appendix 1: Legal and institutional framework within the environmental context in Mozambique

INTERNATIONAL LEGAL FRAMEWORK

Mozambique is a signatory to several international conventions related to biodiversity, which reflects the importance that the Government of Mozambique (GoM) gives the national biodiversity, and also the country's responsibilities to the international community to ensure the conservation of biodiversity.

Table 1 shows the international conventions ratified by Mozambique to date. This strategy and its action plan fall within the Convention's requirements on Biological Diversity (CBD), and is one of the commitments made by Mozambique under the various national, regional and international initiatives for the protection of biological resources and fair and equitable use and sharing of benefits. In 2010, during the COP10 held in Aichi, Japan, CBD Parties adopted the Global Strategic Plan for Biodiversity (2011-2020), which includes the Aichi Targets for biodiversity for the period 2011-2020. The main objective of the Global Strategic Plan for Biodiversity (2011-2020) is to promote the effective implementation of the CBD, through a flexible strategic approach that guide the definition of a series of actions on biodiversity at national level. The plan, in turn, provides the model for the establishment of national targets for biodiversity, which will allow a more coherent implementation of the CBD. This document also is the fundamental basis for the integration of biodiversity into all sectors at the national level, and the involvement of all stakeholders in decision-making and action. One of the COP10 decisions recommends that all member countries must necessarily revise their national strategies on biological diversity, with a view to postulate the overall strategic plan. Thus, it is urgent to review the 2003-2010 strategy according with the postulate in the Global Strategic Plan 2011-2020.



TABLE 1. CONVENTIONS RATIFIED BY MOZAMBIQUE FOR BIODIVERSITY CONSERVATION.

Convention	Year of Ratification	Biodiversity Related Topics
African Convention on the Conservation of Nature and Natural Resources	1981 (Resolution 18/81)	Recognizes the vital importance of natural resources, e.g. flora, fauna, water and soil, to the well-being of African populations.
Convention on International Trade in Endangered Species (CITES)	1981 (Resolution 20/81)	Recognizes that various species, animals and plants represent an irreplaceable part of natural ecosystems.
Bamako Convention on the Protection of the Ozone Layer	1993 (Resolution 8/93)	Recognizes the effects of changes in ozone layer on ecosystems and organisms.
Framework Convention on Climate Change (UNFCCC)	1994 (Resolution 1/94)	Recognizes the elevated natural greenhouse effect, caused by human activities, and evaluates the extent they affect adversely the natural ecosystems and humankind; also recognizes the role of terrestrial and marine ecosystems as carbon sinks.
Convention on Biological Diversity (CBD)	1994 (Resolution 2/94)	
Convention on the Protection, Management and Development of Marine and Coastal Resources of the East Africa Region	1996 (Resolution 17/96)	Recognizes the special characteristics of marine ecosystems (hydrographic and ecological), and the threats they face from pollution and poor integration in the development process.
Bamako Convention on the Prohibition of Hazardous Waste Import, and controls Transboundary movements of such wastes in Africa	1996 (Resolution 19/96)	Recognizes the increasing complexity of production and toxic waste and the effects on human health and biodiversity.
Convention to Combat Drought and Desertification (UNCCD)	1996 (Resolution 20/96)	Recognizes that desertification is caused by complex interactions among physical, biological, political, socio-economic and cultural factors.
Cartagena Protocol on Biosafety	2001 (Resolution n.º 11/2001)	Establishes mechanisms to protect biodiversity and human health risks of Genetically Modified Organisms (GMOs)
Convention on the Protection of Wetlands (RAMSAR)	2003 (Resolution 45/03)	Recognizes the ecological importance of wetlands as regulators of hydrological regimes and habitats of specific flora and fauna species (including migratory).
Stockholm Convention on Persistent Organic Pollutants	2004 (Resolution 56/04)	Recognizes the toxic effects of pollutants on biological tissues and transported across borders.
Bonn Convention on Migratory Species (CMS) -	2009	Recognizes the importance of conservation of special habitats of migratory species.
Nagoya Protocol	2014	Supplementary agreement to the CBD for regulating access to genetic resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS).
Model of sustainability from the International Financial Corporation (IFC) - environmental and social performance standards (PS 6)		Provides guidelines for identifying risks and impacts from development activities, ensuring the conservation aspects of biodiversity.



The diversity of ratified Conventions by Mozambique related to biodiversity reveals the variety of synergies that this strategy and action plan should take into consideration. It is worth noting that for some of ratified Conventions, there are separate instruments (e.g. National Climate Change Strategy (NCCS) and National Strategy and Action Plan to Combat Drought and Desertification) whose relevance is recognized in this document. Therefore where appropriate, actions and indicators are harmonized with those instruments.

NATIONAL LEGAL FRAMEWORK

The national legal framework is characterized by a variety of instruments governing all activities related to biodiversity, including among others, the Law on the Environment, the Land Law, the Law of Fisheries, the Law of Forestry and Wildlife, the Tourism Law and the Law of Conservation, as well as a series of regulations associated with these laws (e.g. Regulation of Environmental Impact Assessment, Regulation of Forestry and Wildlife and the General Regulation of Fisheries and Maritime Activities). While some of these instruments need to be updated, consolidated and strengthened its implementation, is to consider its value for the implementation of activities under this strategy and action plan. Below, we present briefly the essential elements for biodiversity conservation, presented in some of these tools:

1 Policies and Environmental Strategies

Several key policies and strategies have been recently adopted or are being prepared and / or reviewed. The most relevant for this strategy and action plan are NCCS, Strategy and Action Plan Combat Drought and Desertification, the Strategic Environmental Assessment for Coastal Zone Management, the Action Plan for Green Economy (GEAP), and the Strategic Plan for the Tourism Sector (SPTS), among others. Except for NCCS, the GEAP and the SPTS, other documents are still being prepared, but contain essential elements for biodiversity. Other policies relevant for this strategy are: Biofuels Policy and Strategy (Resolution No. 22/2009 of 4 October), Policy on New and Renewable Energy (Resolution No. 62/2009 of 14 October) and Conservation Policy and Strategy for its Implementation (Resolution No. 63/2009 of 02 November).

2 Environmental Law (Law 20/1997)

The Environment Law is the main instrument for all environmental activities in Mozambique. Of particular relevance to biodiversity include:

- Article 4, which discusses the general principles of environmental management, which should be based on rational use and management, enhancement of local knowledge, awareness, integrated vision of the environment, participation wide, equal access, accountability and national and international cooperation;
- the numbers 1 and 2 of Article 12 on Biodiversity Protection, which refer, respectively, to "be prohibited all activities against the conservation, reproduction, quality and quantity of biological resources, especially those threatened with extinction" and " The Government shall ensure that
 - appropriate maintenance and regeneration of species action is taken;
 - rehabilitation of degraded habitats and creation of new habitats, mainly by controlling the activity or use of substances that may harm the wildlife species and their habitats; and
 - Special protection of plant species threatened with extinction or of the botanical specimen that require special protection due to their genetic potential, size, age, rarity, scientific and cultural value".



3 Land Law (Law 19/97)

The Land Law establishes the principles of constitution, exercise, modification, transfer and termination of land use rights, recognizing that land in Mozambique is state owned. Of particular importance for biodiversity conservation, are the articles 7 e 8 establishing respectively, Areas of Total Protection and Partial Protection Areas, both for nature protection and therefore biodiversity. Article 24 recognizes the role of local communities in natural resource management, conflict resolution, among others.

4 Law of Forestry and Wildlife (Law 10/99)

The Forestry and Wildlife Law promotes the sustainable use and protection initiatives, conservation of forest and wildlife resources. All articles of this Act are, directly or indirectly, related to the conservation of biological diversity in Mozambique.

5 Conservation Law (Law 16/2014)

The new Law of Conservation is of fundamental importance for biodiversity conservation, since it introduces new elements, including:

- A comprehensive categorization of protected areas, in which 10 categories are grouped into protected areas (3 categories), and sustainable use areas (7 categories). This categorization allows a more robust and flexible response to the conservation of biodiversity, and the involvement of local communities in their management.
- Assign the management plans of protected areas as important as the plans of territorial management (Article 43.2). The law considers the penalty for certain crimes against wildlife, through significant fines.
- Introduces innovations in resource mobilization, which include fees for access and use of natural resources, compensation for conservation efforts and ecological services from conservation areas (Artigo49).
- States that the right to use and benefit from carbon sequestration initiatives in conservation areas and their buffer zones, lies in the management of these areas authorities, and should be marketed in collaboration with public and private entities (Article 11.3).

This law represents the first legal tool in Mozambique that refers to "no net loss of biodiversity" to indicate that public and private entities engaged in natural resources in conservation areas or their buffer zones should compensate for the negative impacts (Article 11.2).

6 Fisheries Law (Law 3/90)

The Fisheries Act regulates the fishing activity in the country, but however, does not specifically addresses the issues related to biodiversity conservation. Article 8 of this Law refers to the development plans, but without referring to the importance of the conservation of fishery resources in the development of these plans. Regulation of the Law (Decree 43/2003) includes some guiding elements for the conservation of biodiversity, and in particular Article 8 refers to the importance of direct and indirect management measures, Article 9 which limits the fishing effort, and Article 10 which limits the volume of catches.



7 Mining Law (Law 20/2014) and its regulations (Decree 26/2004)

The new Mining Law does not provide a strong focus on environmental protection, whilst stating that mining activities should consider, among others, the conservation of biodiversity (Article 68b). Chapter IX (Articles 68-73) refers to environmental issues inherent in mining, but not explicitly in relation to biodiversity. In its Article 32, paragraph c, states that it is the responsibility of MICOA coordinate the qualification and quantification of the environmental damage caused by mining activities. Reinforces the need of the Environmental Management Plan (EMP), and refers to the automatic cancellation of mining license if the EMP is not submitted (Article 11), placing the responsibility for environmental damage in the operator (Article 20). In terms of pollution, refers, for example, contamination of waters derived from mining operations to be corrected by returning it to its original state (Article 15).

8 Evaluation of the Environmental Impact Assessment Regulation (Decree 45/2004)

The Regulation on the Assessment of the Environmental and Social Impact Assessment (ESIA) is the instrument that regulates the environmental licensing in Mozambique; however, some sectors such as mining (Decree 26/2004) and the oil (Decree 56/2010) have sector's own details. The regulation requires that all large-scale projects as well as all activities carried out in protected areas (Category A projects, contained in Annex I) are subject to a detailed Environmental and Social Impact Study (ESIA). It also requires that all projects, regardless of their category (A, B or C) be accompanied by an EMP. Once approved this plan, the proponent must incorporate it in their activities. Thus, the biodiversity point of view, the EMP must necessarily incorporate specific measures for the prevention, mitigation or compensation for the loss or reduction of biodiversity. However, there are some aspects that should be improved in the ESIA process, including the methodologies for measurement and analysis of impacts, especially the residual, cumulative and indirect, which are not fully aligned with Articles 4:12 of the Environment Act and lack the requirement of an independent review of the Environmental Impact Assessment Reports (REIAs). Since the Decree 45/2004 is currently under review, these and other aspects should be taken into account.

9 Regulation of the Coastal and Marine Pollution (Decree 45/2006)

This decree demands full compensation for all forms of pollution caused by ships and platforms.

10 Regulation on Access and Sharing of Benefits from Genetic Resources and Associated Traditional Knowledge (Decree 19/2007)

It establishes rules for access the components of genetic resources and their protection, as well as the traditional knowledge associated with it and relevant to the conservation of biological diversity, sustainable use, including fair and equitable sharing of benefits derived from their use and exploitation.

Other legal instruments of relevance to the implementation of this strategy and action plan are presented in Table 2.



TABLE 2. ADDITIONAL NATIONAL LEGISLATION RELEVANT FOR BIODIVERSITY CONSERVATION IN MOZAMBIQUE.

Category	Description
Decree n° 25/2008, of 1 of July	Regulation for Invasive Alien Species Control.
Decree n° 23/2008, of 1 of July	Regulation on Territorial Planning
Resolution n° 10/2009, of 4 of Outubro	Strategy on Energy
Resolution n° 58/2009 of 29 of December	Strategy for Conflict Human/Wildlife Management.
Ministry Diploma n° 181/2010, of 3 of November	Directive on the expropriation in the process of territorial planning.
Decree n° 56/2010, of 22 of November	Environmental Regulation of Petroleum Operations.
Decree n° 25/2011, of 15 of June	Regulation on Environmental Audit Process.
Decree n° 58/2011, of 11 of November	Biofuels regulation and their blends with fossil fuels.
Resolution n° 67/2011 of 21 of December	Designates the Lake Niassa as Wetlands of International Importance.
Resolution n° 8/2012 of 13 of April	Grant to the Foundation for the Conservation of Biodiversity - Biofund, the Statute of Public Utility.
Decree n° 16/2013, of 26 of April	Regulation on International Trade of Endangered Species of Fauna and Flora.
Law 21/2014	Petroleum Law

INSTITUTIONAL FRAMEWORK

The Mozambican institutional framework is very rich and diverse, composed of government institutions (represented from the national to local level), nongovernmental organizations (NGOs), national and international civil society organizations, private sector, local communities and their organizations, research and higher education institutions. In recent years there has been an investment in the training of these institutions, especially government and local, on various matters related to biodiversity. There has also been a greater openness to collaboration and institutional coordination, although still exist some shortcomings, which should be resolved in the implementation of this strategy and action plan. The collaboration between the private sector and the government and local communities is still not significant (and often null) and should therefore be strengthened to achieve the objectives of this strategy.

International NGOs (e.g. IUCN, WWF, WCS, etc.) represent an important ally in mobilizing resources for the implementation of this strategy. In 2011 was created the Foundation for the Conservation of Biodiversity (Biofund), a Mozambican, private institution whose mission is to support the conservation and sustainable management of natural resources and aquatic and terrestrial biodiversity, including the consolidation of the national system of areas conservation. In turn, national and civil society organizations and NGOs represent strong partners for the implementation and training, especially at the local level. Research institutions, in turn, represent the pillar in the production and dissemination of knowledge on biodiversity, while higher education institutions are relevant for higher education and training of human resources.

Local communities and their organizations, as holders of local knowledge and directly dependent on the goods and services provided by biodiversity, should be seen as the key player in the conservation of biological diversity. To this end, there should be an investment in training, allocation of benefits and responsibility of this group in order to allow their full involvement.



The Ministry of Land, Environment and Rural Development (MITADER) is the key institution in implementing this strategy since coordinates all environmental activity, and is the national representative of all environmental conventions ratified by Mozambique. MITADER through its national and provincial departments, and district offices, via the District Services on Planning and Infrastructures (SDPI), should ensure and monitor the full implementation of postulated herein. In 2000, former MICOA created the National Biodiversity Unit (NBU), which consists of a diverse group of professionals (government institutions, international NGOs, academic and research institutions), whose mission is to support the MICOA in decision-making on biodiversity. Thus, the NBU is an important ally in the implementation process of the strategy and its action plan.

MITADER is also the institution responsible for the management and conservation of protected areas. In 2011 the National Administration of Conservation Areas was created (ANAC), a public body under the jurisdiction of MITUR, which is to be endowed with legal personality, administrative and financial autonomy and equity. The aim of the ANAC creation is for greater dynamism in the management of conservation areas in Mozambique, by promoting biodiversity conservation initiatives, promoting the sustainable use of protected areas, and establishing partnerships for their development.

Other sectors relevant to this strategy are the fisheries represented by the Ministry of sea, inland water and fisheries, agriculture, livestock and forests represented by the Ministry of Agriculture and Food Security (MASA), Mining and energy represented by the Ministry of Mineral Resources and Energy (MIREME), education represented by the Ministry of Education and Human Development (??) and, science and technology and higher education represented by the Ministry of Science and Technology, higher and technical education (??). All ministries have environmental units to be responsible for integrating the postulate in this strategy at the sectorial level. It is important to note that the governmental institutions still need of strengthening its technical and financial capacity to perform the basic tasks referred to in this document. Thus, it is important to continue to invest in technical training, culture of work and innovation. The Ministry of Economy and Finances (???) plays a crucial role, as they must ensure a harmonized integration of biodiversity issues in all sectors allowing proper planning of activities defined in this document.

Environment and climate change policy brief (2013) outline

In this brief key environmental challenges in Mozambique were climate change and natural disaster risks: Mozambique is prone to natural disasters, especially droughts, floods and storms. The floods during 2000 were especially severe with grave impacts on human lives and livelihoods, as well as on the economy. The country is vulnerable to climate change (CC), which is expected to increase the frequency and intensity of the extreme weather events.

The sectors/areas most vulnerable to CC are identified as

- Agriculture,
- Energy,
- Transport infrastructure, notably roads, and
- Coastal areas.



- **Deforestation:**

Deforestation is a significant problem in the country, deriving mainly from fuel wood collection, shifting agriculture, forest fires, timber exports, and lack of plans for land use. Wood consumption for fuel is estimated to account for 250 times that consumed by logging operations. Although current commercial logging is less than 25% of the legally permitted logging capacity, many believe that it is under-reported and not sustainable. Environmental impacts of deforestation are far reaching and include, among others, land degradation, exacerbated flooding, coastal erosion (mostly from loss of mangroves) and sedimentation.
- **Degradation of marine and coastal resources:**

Major challenges include coastal erosion, loss of mangroves, and declines in the marine resources including fish. Key threats to sustainability of fisheries in Mozambique are reported to include fishing by unlicensed operators, encroachment by industrial fishing vessels into inshore fishing grounds reserved for semi-industrial and artisanal fishers, deficiencies in recording and reporting of catches, difficulties in controlling the artisanal fisheries that are distributed along the entire coastal line and in the fresh waters lakes and rivers, and a shortage of human resources and infrastructure for implementation of fisheries laws and regulations.
- **Inadequate management of water resources, water pollution and sanitation:**

Mozambique has abundant surface water resources, although unevenly distributed in time and space. Over half of the water resources emanates from abroad, which makes regional cooperation important. Despite the water abundance, Mozambique faces a number of challenges to provide adequate water for domestic, agricultural and industrial use. Pollution can be a problem in certain localities, primarily from agriculture (sedimentation, and pesticide and fertilizer runoffs), industrial activities (discharge of untreated waste containing heavy metals, hydrocarbons, etc.) and sewage and domestic waste (most of which is discharged without treatment directly to the rivers and sea). Artisanal mining is reported to cause extensive erosion and silting in some areas.
- **Loss of biodiversity and ecosystem services:**

Mozambique has a large diversity of wildlife, although large mammal populations were severely depressed during the civil war. A number of areas are identified to have outstanding ecosystem, biological, or scenic values and should be treated with care when considering impacts of development. Ecosystem services are degraded in some areas, where Gaza, Manica, Nampula, Sofala and Tete stand out, and human well-being is threatened.
- **Air pollution (indoor and outdoor air pollution):**

Indoor air pollution, mainly from wood fuels, is a significant health problem, especially for women and children. In certain areas outdoor air pollution is a problem adjacent to mining industry (dust, SO₂, lead, arsenic and other smelter gas substances).
- **Land degradation:**

Land degradation, including loss of agricultural soil through soil erosion and desertification, is a major problem. Poor land use practices are the main reasons for land degradation and fire is the main tool for land clearing for cultivation, hunting, logging and acquisition of other non-timber forest products. Forest fire is a serious issue; approximately 40% of the country is affected by fire each year. The north, western and central parts are most affected, with approximately 74% of these areas burnt annually.



- **Chemical load:**

Releases of chemicals and heavy metals derived from industrial and artisanal mining activities and agriculture, mainly commercial. Agricultural chemicals and fertilizers are reported to be widely used in the intensive farms in Incomati, Umbeluzi and Maputo River valleys, particularly in the sugarcane plantations in the Umbeluzi River valley in Swaziland. Rivers are the main pathway through which agrochemicals enter the coastal and marine environments, and water samples collected in Monapo, Pungué, Maputo, and Incomati rivers have tested positive for various pesticide residues, including DDT, lindane, and hexachlorobenzene (EU CEP, 2006; World Bank, 2010; UNEP 2005, and EMDAT Disaster Database).

5.2 Appendix 2: Summary of the status of environmental reports in Mozambique

There appears to be two periods of types of information produced:

- **Pre Independence:** Most descriptive biodiversity studies e.g. papers by Instituto de Investigaçãode Mozambique including Revista de Entomologia de Mozambique. Many of these publications are still available in Maputo.
- **Post-Independence:** More social studies, updating of policies, action plans and strategies.

The table below provides an indication of the number of articles researched in various subjects. It suggests, although sample size is small, that Climate Change & Social Studies are now topics of most interest. There are fewer articles or papers concerned with biodiversity and conservation in the more general sense (some articles from Hatton, Telford & Krugmann 2003).

TABLE 1. A SAMPLE OF CONSERVATION RELATED ARTICLES/PAPERS INDICATING THE TOPICS COVERED.

Subject	No. Of Articles
General environment	20
Climate change	20
Community/Social	18
Agriculture	16
Forestry	4
Livestock	4
Monitoring/Governance	3
Energy	2
Water	2
Fisheries	1
Disaster management	1
Protected areas	1
Total	92



Below are some freshwater issues and impacts:

- Mangroves depleting at a rate of 15.2 % in Maputo province. The growth of population associated with developing tourism contributes (Chemane et al. 1997)
- Faecal coliform, faecal streptococci in most freshwater systems (still to obtain reference)
- Agricultural activity takes place along or close to the main river basins, the rivers are the main pathways through which agrochemicals enter the coastal and marine environments (Hatton 1996).



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The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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About USAID: RESILIM-O

USAID: RESILIM-O focuses on the Olifants River Basin and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems that support livelihoods and resilient economic development in the catchment. The 5-year programme, involving the South African and Mozambican portions of the Olifants catchment, is being implemented by the Association for Water and Rural Development (AWARD) and is funded by USAID Southern Africa.

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