



Recommendations which evolved during the Namibian Rangeland Forum 2009 and with associates of the BIOTA project regarding the Namibian Rangeland Management Policy and Strategy

1.1 Executive summary of main recommendations

1. Rangeland management and governance as ecosystem management should be polycentric and strongly integrated. Of special importance is the integration in the water, land, wildlife, forest, and drought policies.
2. In order to encourage sustainable farm management, it is recommended to:
 - foster structures for the communication and exchange amongst farmers;
 - develop the capacity of different stakeholders in various ways;
 - encourage innovations and the implementation of innovative practices;
 - improve methods and implementation of rangeland monitoring;
 - provide a framework for a polycentric and cooperative rangeland governance;
 - design and implement economic and non-economic incentives and disincentives.
3. Special attention should be paid to Namibia's natural, cultural and wealth diversity. In addition, adopted approaches are needed for different land use and tenure systems.
4. Rangeland restoration (e.g. de-bushing) should, where possible, be based on individual incentives and benefits (e.g. derived from bush-encroaching species).
5. Rangelands should be seen from an ecosystem point of view and practices should be encouraged which manage rangelands on larger scales.
6. The establishment of a *scientific advisory council*, which assists in the implementation of the NRMPS, in particular the definition of monitoring schemes and the evaluation of implementation success, is needed.
7. The development of a specific action plan for the implementation of the strategy would facilitate the implementation process and the identification of responsibilities and required personnel for the different institutional levels.

1.2 Governance

1.2.1 Polycentric rangeland governance

The strategy to implement the policy should make use of the resources of all involved parties (farmers, government, traditional authorities, farmers' unions, NGOs, conservancy, community forest and water committees, etc.) to provide institutional services (deciding on management rules, monitoring rules, enforcing rules) and more technical rangeland management services. The relationship in decision making and action between the different players should be clarified in order to increase complementarity and synergy, rather than competition. The implementation strategy should be flexible to accommodate the cultural, natural and wealth heterogeneity of Namibia.

1.2.2 How to reduce pressure on rangelands

There should be awareness that demographic developments increase the pressure on rangelands at least in some parts of the country. For these areas integrated approaches are needed to mitigate the often negative impact on the land. Another focus is to raise public awareness about the fact that farming, especially on relatively small land units, is a challenging task and that owning or leasing land will by far not guarantee that people can make a living out of it. This awareness should be grounded on sound economic calculations and trainings e.g. prior to land redistribution.

1.2.3 Integrated rangeland management approaches

In order to use synergies and to avoid conflicting incentives a more integrated resource management approach is required. This should not be an abstract statement but the NRMPS should identify specific areas of integration.

The rangeland policy is and should be closely linked to e.g. the following policies:

- 1) Water policy: Access to water and access to land can not be disconnected in the Namibian natural environment. Integrated management is therefore essential. It has to be considered that bush encroachment, resulting at least partly from poor rangeland management, is the severest threat for Namibian groundwater resources. In addition, the structures established in the frame of the Rural Water Supply Reform can play a very supportive role in improved rangeland management. Another issue is the development of water infrastructure in unused and under-used areas. Access to such water points should be granted only providing the existence of well working management structures and proper training in order to avoid the spread of the problem of poor rangeland management to almost untouched ecosystems. In an integrated way it should always be considered to establish conservancies or community forests around new water points.
In order to improve the knowledge about land-use management and groundwater water resources, the monitoring of groundwater levels should be expanded and resulting data made publicly available.
- 2) Land policy: Fences can be a management instrument on communal land as well. It should be ensured that fences do not expropriate the poorer part of the community if wealthier farmers privatise land. The Rangeland policy can support the land policy in developing guidelines to determine under which conditions fences should be considered as management options also on communal land.
In addition, special attention should be paid to land reform beneficiaries: a) Many of them are used to a different farming system und need to adapt to a more commercial

farming situation. b) Many land reform beneficiaries are very open to new ideas and most willing to experiment with improved management practices.

Very important is the support prior to land redistribution:

- a. intensive training
- b. ecological restoration of the land
- c. infrastructure maintenance

Selection criteria for land reform beneficiaries should more strongly focus on competencies.

In particular in the context of Affirmative Action loan scheme farmers, awareness should be raised that high indebtedness reduces management flexibility.

- 3) Conservancy policy: Which role does wildlife play in rangeland management? Which land tenure and use form will create which kinds of incentives to manage wildlife? Which role can conservancy committees play in rangeland management?
- 4) Forest Policy: Basically all Namibian forests are used as rangelands. Which impacts does bush encroachment have on forest and pasture resources? Specify the role of community forest committees in rangeland management!
- 5) Drought Management Policy: There is the risk that long term incentives for sustainable rangeland management are undermined by short term drought relief policies having in particular the objective to mitigate immediate effects of droughts on livelihoods. One has to be aware of greater vulnerability of the poor rangeland managers to climate variability, and especially drought, due to a limited flexibility. As a consequence it is difficult for them to take precautionary measures against future effects of droughts. There has to be a strategy on how to ensure the satisfaction of their most basic needs in times of natural disasters. Nonetheless, for the majority of commercial, communal and resettlement farmers, the main focus should be on promoting a well planned strategy to prepare for drought events. Drought relief support should ensure that it does not reward poor rangeland managers compared to those who plan and manage with precaution.

1.2.4 Cooperative management

Being aware that southern African ecosystems have been used traditionally on much larger scales (see section scale of rangeland management) and that economies of scale are crucial for profitable farming, special attention should be paid to cooperative farming related to all forms of land use and tenure forms. This might relate to joint management practices, infrastructure use and maintenance, exchange of knowledge, service provision (e.g. marketing), etc.

More specifically, there is a need to ensure that each rangeland management unit has sufficient land to attain sufficient income for: (i) maintenance of farm infrastructure; (ii) living costs for the family; and (iii) drought mitigation. Due to variability of landscape and climate, current farming units are often too small to allow sufficient spatial adaptability to localised rainfall and seasonal differences over large areas. Therefore cooperation is needed between large groups of neighbouring farmers to jointly manage their rangeland at a large scale, while still owning their livestock privately.

The individualistic attitudes on commercial, communal and resettlement land has to be overcome in order to establish management approaches which are better adapted to the natural environment of Namibia. Until now, the assignment of plots of land, fixed in location, space and time by private property was seen as the main tool to improve rangeland management. The use of spatial diversity of rangeland is, however, a key element for efficient and appropriate rangeland management. Pre-European transhumant systems and natural wild life systems have been using this diversity, thanks to their mobility. Also today, the diversity at

farm scale is important in farmers' management systems, and at the regional scale. In southern Namibia farmers cooperate for instance by exchanging animals as part of their management of drought events. The policy should provide a framework for innovative institutions for the usage of space diversity and land use such as cooperation among private farmer in a modern transhumant perspective.

1.2.5 Incentives for sustainable range management:

While sustainable rangeland management is a major objective of the NDP3, direct incentives for farmers to fight against degradation and to foster good rangeland management do not yet exist. It is recommended to introduce clear incentives for land managers to properly manage the ecosystems under their control. At the same time land managers who are not managing rangelands properly should be confronted with disincentives. The introduction of incentives and disincentives requires the identification of benchmarks and scientific criteria for the evaluation of "good management" and the establishment of monitoring tools for (self-) control of management success. Considering the importance of this aspect the rangeland management strategy should make reference to a specific interdisciplinary working group to be established.

It is important to be aware that management practices have to be adapted to new circumstances such as climatic changes, land use changes, demographic changes, newly developed knowledge as well as new market opportunities or constraints. Increasing the adaptive capacity of rangeland managers is therefore of major importance in particular in times of expected climatic changes. Different incentives and disincentives should cater for supporting adaptive management competencies.

The policy should be open to discuss a wide range of implementation instruments (subsidies, fines and charges, performance dependent tax reductions, bonds, permits, compensations, direct control etc.). The most appropriate instruments to achieve the policy objectives should be identified for each specific land use and tenure system.

1.2.6 Competency certificate as an example of how to regulate sustainable rangeland management

The use of a competency certificate could be considered as a tool to regulate rangeland management. It would be valid for a specific time before re-testing. All established and aspirant farmers should be tested on: (i) their knowledge of relevant policies; (ii) their management skills; and (iii) if already farming, the state of their resources. The latter is important to ensure that competency is outcomes based and avoids legal instruments that prescribe and prohibit. Different classes of certificate could be issued, such as: (i) an unconditional certificate valid for 10 years for competent, full-time farmers; (ii) a conditional certificate valid for 5 years for competent, part-time farmers and partially competent, full-time farmers / aspiring farmers; and (iii) non-compliant certificate, requiring applicants to undergo mentorship and training before re-applying. For communal areas, certificates could be issued to a cooperative management group, rather than to the individual farmers that make up the group. As a form of peer review, such certificates should be issued by local accredited bodies, which report and link to Government. Management plans drafted by applicants should be assessed by the certifying body as part of the competency testing.

There remains the challenge to design a fair evaluation instruments because of insufficient knowledge about the interactions of farm management and ecological effect. A standardized and fully accepted set of criteria for the competence of the farmers has to be identified.

1.2.7 Communal Range Management

Despite the fact that the Communal Land Reform Act gives residents of a settlement the right to use the pastures of the settlement and that provisions in the Communal Land Reform Act and the Traditional Authorities Act require traditional authorities and land boards to promote sustainable resource use, many communal farmers feel powerless in their attempts to improve rangeland management. This is partly the result of low knowledge of alternative improved management practices. Even more important is, however, the fact that too often no clear decision making structures exist. In particular traditional authorities are in most communities very effective in regulating the access to and exclusion from village territories regarding non-residents. Institutions regulating the resource use amongst residents are, however, often very weak. Many lessons can be learnt from the Rural Water Supply Reform, where the users of a water point are given officially recognised authority over managing the water resources of the settlement. They are further encouraged to establish a management committee. Similar structures are still missing regarding pasture management unless projects make use of water, conservancy or forest committees and traditional authorities to improve pasture management. No matter who owns a piece of land in legal terms, individuals and groups using it should have and feel the full authority to manage that land. In order to make best use of existing structures and to increase the acceptance of the managing body, the rangeland users should have the right to decide under which authority (committee, traditional authority, etc.) they want their rangelands to be managed. Community based rangeland management should not be limited to isolated projects but designed as a plan to be effective for the whole Namibian communal areas.

One possible technical approach successfully applied in South African communal areas to improve communal rangelands is controlled resting. The long-term objective is to establish controlled resting on preferably 50% of the area of a communal settlement every year, while the other 50% is grazed with higher intensity. This method promotes plant growth and long term improvement of the grazing capacity of the rangeland, while providing a high plane of nutrition for fast animal growth. In order to demonstrate the effect of the approach, enclosures can be constructed on communal rangelands which will be grazed down in winter, and subsequently be used to demonstrate the effect of yearlong resting on vigour and productivity of natural rangelands. Experience shows that after such demonstrations many communal farmers plan ways on how to rest some of their areas. This can be done e.g. by temporarily closing water points, fire(where applicable), herding, or fencing. The implementation of any innovative range management practice has to be done in a participatory manner with full community involvement.

There should be awareness that wealth is very unequally distributed also amongst communal farmers and that this serves as a challenge for communal rangeland management.

1.2.8 Biodiversity and its global values

To the section on biodiversity in the draft NRMPS should be added that some of the benefits of biodiversity maintenance are held by the global community rather than by local land managers who are sometimes expected to compromise their livelihoods on behalf of global interests. National, regional and local measures to sustain rangelands should therefore go hand in hand with international instruments/support/incentives to maintain biodiversity as well as measures for direct Access and Benefit Sharing for local users.

1.3 Monitoring and benchmarks

Both the application of incentives and disincentives, including competency certificates, requires research on how to measure land degradation and ecosystem restoration as well as

how to find reliable benchmarks. Monitoring activities should cover a variety of spatial and temporal scales. Large-area monitoring initiatives should be closely linked and coordinated by the Ministry of Agriculture, Water and Forestry. In order to generate validated and meaningful monitoring methodologies, on-site information on farm-level of related problems should be closely linked to remote sensing application. Technically, Remote sensing techniques provide a variety of methods to measure the current state of vegetation and land change processes (e.g. degradation and transformation of land-cover and land-use). Remote sensing products are spatially explicit information and can be used as indicators for land degradation and state of the ecosystem.

Farm-specific benchmarks are important to distinguish between the impact of management and the impact of rainfall patterns. Benchmarks and indicators should be related to rangeland condition outcomes such as degradation status of the soils, vegetation or biodiversity, while recording of management inputs and production levels are required for interpretation. The establishment of an assessment catalogue of best practices should be considered and participatory research encouraged on how to optimize monitoring methods as well as which incentives are most appropriate to implement them.

Currently, much of the monitoring focuses on biomass production, insufficiently taking into account ecosystem dynamics. Indicators must include water, soil, landscape structure, and biodiversity.

User-friendly and science-based environmental monitoring tools need to be established, mainstreamed and maybe made compulsory for any farmer (as a prerequisite e.g. for drought release payments or any acknowledgement for good farming practice). In light of global changes, regular and particularly long-term monitoring should be implemented to allow for management refinements and adaptations. Monitoring should also be accompanied by science-based long-term experiments (e.g. grazing experiments on existing research farms complemented with experimental sites on private and communal rangelands). There should be a close link and data exchange between farmers and expert bodies. Rangeland managers should be trained in the identification of degrading indicators and processes on their land. For instance, farmers could be asked to fence benchmark sites and measure the grass production in sample plots before applying grazing. These data could help the government as well to determine where climatic drought, as opposed to management induced drought, had occurred.

Monitoring is also needed to scientifically establish the medium and long-term effects of herbicides on the ecological functioning of rangelands and rangeland soils, and not only on meat quality as is currently occurring.

1.4 Rangeland Management

1.4.1 The scale of rangeland management

Stronger attention has to be paid to the scales of processes. One needs to look at rangelands from the ecosystem point of view considering species dynamics and the important soil and water components. A high diversity of ecosystems (agro-ecological zones) exists, where different ecological dynamics occur.

In reaction to these facts, large herbivores and pastoralists used to migrate seasonally, often along rainfall and landscape gradients. They also used to move opportunistically over long distances in response to localised rainfall and fires. These seasonal migrations and irregular

movements allowed the animals to optimise their nutrition through more and longer availability of green leaves, while subsequently providing sufficient rest for recovery of the repeatedly grazed grasses. The subdivision of land by fencing has greatly restricted the scale at which systems can now operate, thus reducing the carrying capacity and productivity of rangelands, while often leading to land degradation. The NRMPS should consider the re-introduction of management patterns which make use for instance of indigenous knowledge regarding transhumance pastoral migrations between wet and dry season grazing areas. In situations where land subdivision is irreversible, alternatives should be considered such as cooperation between neighbouring farmers to jointly manage their herds over larger areas (e.g. the agistment practice applied by some commercial farmers in Australia; see paragraph cooperative management). The impact of managing rangelands on larger scales should be compared it with different currently used management practices.

In contrast to the large scale of rangeland dynamics, the size of farms and the ownership structure makes it difficult to farm viably in ecological and economic ways (e.g. 40% of the former Rehoboth *Gebiet* is used by farms smaller than 2,000 ha). Small farms and multiple-owner farms often suffer from incoherent and inconsistent pasture and stock management. Stronger attention should be therefore paid to farm planning and consolidation. New cooperation approaches, or forms of informal consolidation should be stimulated.

1.4.2 Rangeland restoration

The policy focuses rightly on the avoidance of rangeland degradation. In addition, it should be considered to provide clear guidelines for rangeland restoration measures. The guidelines should include active and passive restoration instruments.

1.4.3 Bush encroachment

One important focus should be on individual incentives for farmers to de-bush. Proper analysis is needed on how to make profitable use of bush-encroaching species. This research should focus on both, a) how the standing bush can be most profitably used; b) how the removed bush can be most profitably used.

Examples of encroacher-bush related products/benefits:

- bush blocks,
- charcoal / biochar,
- furniture,
- compost,
- fertilizer,
- preservative,
- binding agent,
- medicines,
- biodiversity (e.g. bird diversity),
- mopane worms,
- potable water sales,
- biogas,
- grass seed bank,
- etc.

Cost-benefit analyses are needed. Supporting the national and international marketing of products based on bush-encroacher species is required.

Research should assess the potential role of game to fight bush encroachment? A long-term monitoring of bush development on different types of game farms compared to different types of cattle farms is needed to answer this relevant question.

1.4.4 Climate change

Climate change deserves its own strategy and needs to address opportunities as well as increased risks of major adverse events. The integration of drought management and major flood strategies should suffice initially in developing locally-tailored adaptation strategies.

1.5 Implementation

1.5.1 Capacity Development

It is very crucial to increase the awareness of long-term individual and societal costs of rangeland degradation. Training is further needed on how to best identify signs of degradation and avoid degradation such as bush encroachment and how to fight its symptoms. Capacity development should honour local knowledge and should build local capacity through a creative dialogue of different sources of knowledge. The philosophical and psychological underpinnings of traditional farming systems and knowledge can help connect the current and future expectations of the rangeland management to cultural aspects and livelihoods of land managers. Special attention should be paid to ethical land-human relationships.

As an integral part of grazing management strategies, training should provide examples of the successes that have been achieved in similar rangelands in South Africa, until such demonstration sites have been established in Namibia, by providing a full-season rest every alternative year, thereby optimising both grass vigour and animal production.

Tertiary institutions should be supported to build stronger rangeland programmes that cross agricultural, ecological, economic and sociological/cultural disciplines to develop motivated professionals and self-sufficiency in agricultural development within the community and ecosystem context. This should ultimately extend to senior academic levels.

Agricultural extension services have to play a crucial role in the improvement of Namibian Rangeland Management. They are an important link between research, policy and rangeland managers. Respective efforts of different stakeholders need to be better coordinated. The capacity of the extension services of the Ministry of Agriculture, Water and Forestry should be strengthened.

1.5.2 Implementation strategy

It should be the steering committee's responsibility to initiate steps to implement the policy at farm level. It should further monitor the implementation and feed back progress to policy makers and the public. The steering committee is a link between the Ministry of Agriculture Water and Forestry and the rangeland managers. In case problems become evident in the course of implementation at farm level, the steering committee will provide recommendations to the Ministry (MAWF). The strategy should clarify the composition of the steering committee.

Specialized working groups should support the steering committee. It is recommended to structure working groups according to the main objectives (e.g. improvement of livelihoods, increase resilience of rangelands) as stated in the policy. Another option is to establish multi-disciplinary and –sectoral working groups according to agro-ecological zones or catchments.

The working groups should represent the integrated approach of the policy and make use of cross-tenure and cross-cultural collaboration for improved efficiency and reciprocal learning.

A graphical visualization of the different bodies, the type of action and the information flows should be highlighted to clarify the organizational structures intended for the public and all participants.

The development of a more specific action plan for the implementation strategy would facilitate the implementation process and the identification of responsibilities and required personnel for the different institutional levels. This action plan should consist of (i) a priority list of milestone/ tasks for the different objectives and (ii) a task-specific time schedule (e.g. the documentation of best practices from successful farmers should be achieved by year 20XX).

The priority list of tasks should clearly indicate the relevance of the different objectives of the NRMPS. This list should be complemented by as specific as possible action plans, i.e. (i) which tasks should be addressed first, second, third, etc., (ii) how will this be achieved, and (iii) who will coordinate this action. For example, the documentation of best practices from successful farmers and the development of standardized science based monitoring methods should be collected/achieved in an early implementation stage.

The coordination of actions based on a priority list and time schedule will create valuable synergies throughout the implementation process between MAWF, the National NRMPS steering committee, the four working groups and local users of Namibian rangelands.

1.6 Scientific support and research needs

Besides the knowledge of practitioners, stakeholders and (non-academic) experts, the implementation of the NRMPS should be based on sound scientific principles. We suggest establishing a *scientific advisory council*, which assists in the implementation of the NRMPS at all stages from development of goals, definition of monitoring schemes to the assessment of implementation success. The scientific council needs to develop and communicate standards for 1) the data collection at all levels, 2) processing of data and the 3) analyses of data to assess the current situation, the success of implemented measures and strategies as well as to identify possible improvements. The creation of an interdisciplinary rangeland research and education body should be considered. For regional and sectoral integration it could be linked to newly established Regional Science Service Centres.

The scientific support should include:

- Data collection: Data should be collected according to a standardized protocol. A standardization of (long term / permanent) data collection ensures comparability of datasets of various individuals, constant data quality, and efficiency of data collection (avoidance of redundancy) and is the fundamental basis to enable scientific contributions to the NRMPS. Only standardized data can contribute to further gain of knowledge and adequate assessments and the transferability of research results.
- Processing and communication of data: data should be processed and entered in up to date IT databases. These databases ensure advanced query of data, correlation of data, easy updating of information and data sharing while assuring protection of privacy in case of sensitive data.
- It is crucial for the long term perspective of the NRMPS that its outcomes/impacts can be assessed and improvements can be identified and tested. This should be done on the

basis of standardized evaluation techniques on long-term monitoring and experimental sites, using the data collected in standard sampling designs (see 1.1). In addition, some more specific issues have to be addressed in separate research projects that will be assisted by the scientific research council to ensure that they are in-line with the NRMPS standards.

All research, application and implementation needs to be in a constant feedback process and all implemented measures need to be based on general scientific (but applicable) standards.

More explicit (separate) research is needed in the following fields in order to support the sustainable management of rangelands:

- traditional farming systems (transhumant);
- rangelands as ecosystems: the role of water and soil in the degradation patterns;
- adequate scales for farming systems;
- economic incentives for good management considering the diversity of farming and tenure systems;
- monitoring indicators and benchmarks for rangeland conditions and management;
- economic value of encroaching bush to finance disencroachment.

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