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Policy Brief

Recommendations from the Boteti area in Botswana

Land users and public institutions switching to BIOGAS

Remediating and mitigating land degradation in the Boteti area of Botswana: Challenges and opportunities

This policy brief highlights the findings of the DESIRE research project, conducted in Boteti, Botswana. The Boteti area is a recognised desertification hot spot in Botswana, with extreme wind erosion. The findings are the outcome of a collaboration between scientists, land users and land managers in the study area. The study reveals a high level of awareness about the causes of desertification and its effects on the environment and livelihoods. Land users identified a number of ways to tackle desertification, but gave greatest weight to game ranching and biogas production., which are both linked to livelihood and environmental protection.

Boteti - evidence of overgrazing around a pan

Due to poverty, however, these options cannot be adopted without substantial external assistance. However, there is significant interest among land users, there is a conservation trust and a land management plan awaiting implementation that could incorporate these options, and they are consistent with provisions in the National Action Plan to Combat Desertification (NAP). This brief argues that the promotion of biogas production and game ranching could help effectively implement the NAP, and address the challenges faced by Boteti land users.

The DESIRE approach

The DESIRE project employed a participatory, bottom-up approach involving collaboration between researchers from the University of Botswana and various local stakeholder groups. The voices of stakeholders (particularly the Boteti land users themselves) were given special significance as is emphasized by the United Nations Convention to Combat Drought and Desertification (UNCCD) in its Article 3a (Box 1) and underlined by Botswana's NAP. Through this approach, scientists and stakeholders workshopped and conducted joint fieldwork to identify land degradation issues, their causes and indicators and possible remediation and mitigation strategies. The sections that follow present the key outcomes of this approach.

DESIRE stakeholder workshop facilitation

BOX 1: Article 3 of UNCCD on stakeholder involvement

"The parties (to UNCCD) should ensure that decisions on the design and implementation of programmes to combat desertification and /or mitigate the effects of drought are taken with the participation of populations and local communities and that an enabling environment is created at higher levels to facilitate action at national and local levels"

Desertification and degradation in Boteti

The Boteti area is a recognised desertification hot spot in Botswana. Boteti communal land users have seen their territory reduced and confined, first by national game parks to the west and northeast, second by veterinary cordon fences and more recently by private cattle ranches to the south.

During participatory workshops, Boteti land users displayed keen awareness of the problem of land degradation in their area, including its manifestations and impacts on local livelihoods. They also identified a wide array of biophysical and socio-economic drivers of desertification (35 in all), many of them related. The land users also displayed impressive knowledge of the linkages between certain policy interventions and land degradation.

Cattle tracks

The neighbouring National Parks do not face desertification. Since both parks and communal lands are under the same climatic regime and have more or less the same physical background, the principal drivers of rangeland degradation in Boteti can therefore be narrowed down to non-physical factors, i.e. land tenure and management regimes, although many land users think the principal driver is climate desiccation. Overstocking resulting in overgrazing of the poor herbaceous cover is a result partly of low rainfall and droughts, but also of loss of communal land to game sanctuaries to the west and northeast and leasehold ranches to the south. Although one of the key reasons for promoting private ranches was to avert the "tragedy of the commons", unfenced ranches (Plate 1a) are as severely degraded as traditional cattleposts (Plate 1b).

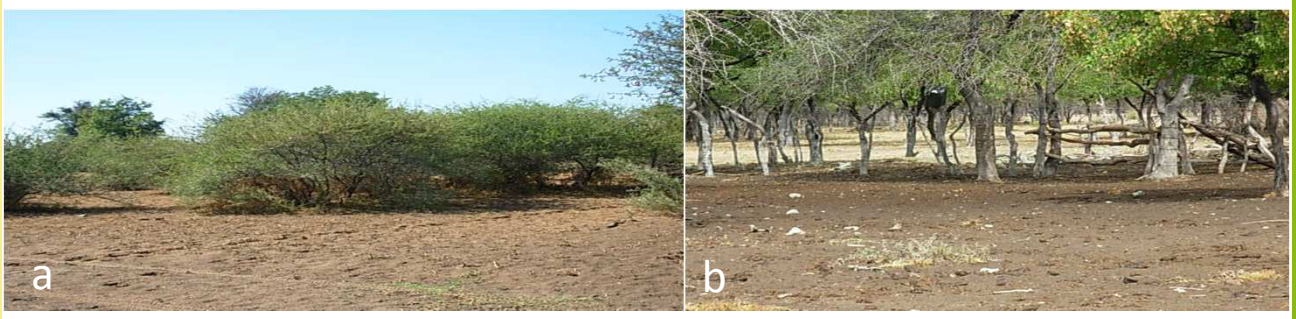

Plate 1: Overgrazed (a) private ranch and (b) traditional cattle post. Photos: Chanda, May 2009

There is high dependency on fuel wood for energy among households and public institutions (particularly schools) in Boteti (cf. Figure 1). The combined and mounting pressure has caused depletion of fuel wood in more accessible places and probably accounts for the reported deforestation, although land users claimed that they collected only dead wood. 'Conflict of interest and emphasis' among government departments make effective land management difficult, and indirectly encourage land users to overexploit land resources (this cause of desertification features prominently in the Millennium Ecosystem Assessment of 2005 as well as one of the major causes of desertification worldwide).

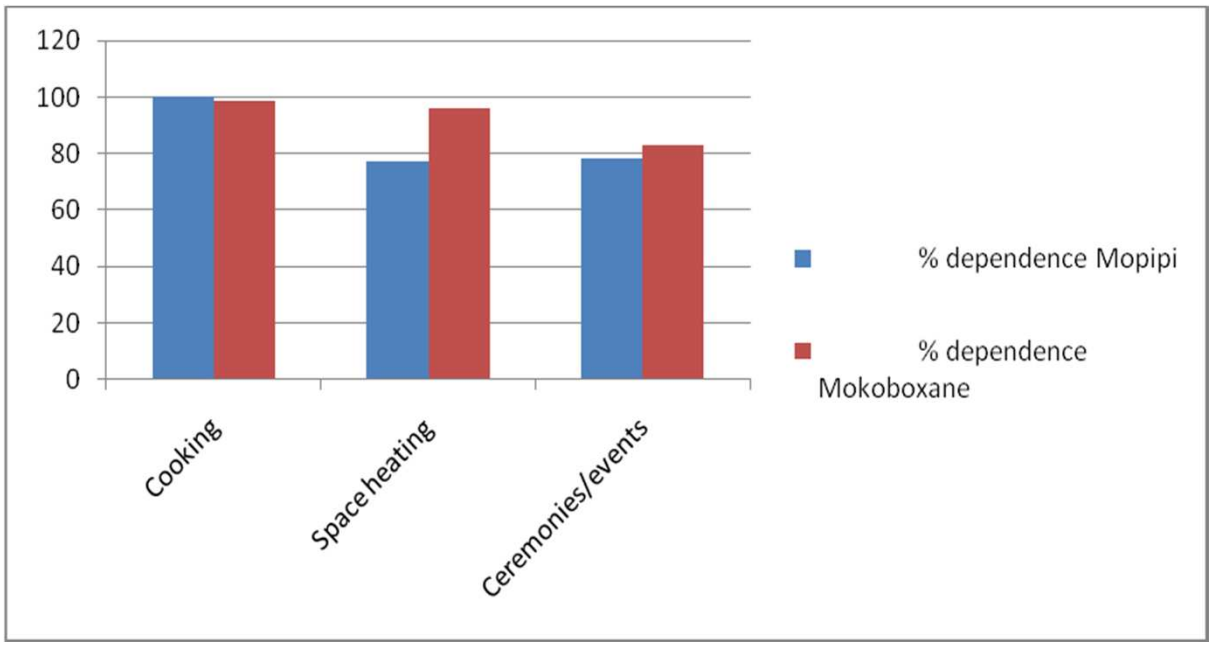

Figure 1: Level of dependency on fuel wood energy in Mopipi & Mokoboxane villages, Boteti. Source: DESIRE field work (2007).

Remediation and mitigation options

Boteti land users came up with a number of possible options to remediate or mitigate the problem of land degradation in the area. Ultimately, they prioritized two options for documentation by DESIRE scientists and possible piloting and adoption by the land users themselves: game ranching, as an alternative income source to cattle ranging, and biogas production. Biogas production and use as an alternative to firewood would pre-empt deforestation. Native game/wildlife is better adapted to the semi-arid conditions of Boteti, and different wildlife species exploit different niches of the environment. Overgrazing is therefore less likely. Linked to high value, low volume eco-tourism, community-based game ranching would also be a poverty alleviation strategy.

Biogas production plant. (Green tank is not part of plant).

Challenges for adoption of options

The biggest challenge among land users for the adoption of options to remediate/mitigate land degradation is affordability. Only biogas production and use was perceived to be less costly for adoption. Land users consequently selected this technology for piloting.

The second challenge faced in the implementation of the biogas production option is the very limited expertise for the professional installation of biogas plants. All attempts to get professional assistance to set up the plant failed, until the DESIRE team decided to do it using verbal advice and manuals. This suggests that even maintenance and repairs of biogas plants might prove problematic.

The third challenge is the apparent lack of confidence among land users in their power to actualize sustainable land management without external assistance. Land users, CBOs and NGOs feel powerless to influence environmental sustainability. Much of the power and influence is allocated to government and the private sector.

Game ranching received the highest overall evaluation score from the land users but was deemed to be not only costly to implement but also currently nonviable on account of sparse wildlife populations and limited communal rangeland area to set aside for the purpose. Artificial repopulation of the area with a viable wildlife population would add to the already high cost of game-proof fencing. However, experiences with Community Based Natural Resources Management in Botswana and Zimbabwe shows that this strategy can be the most viable alternative to livestock rearing, particularly under a changing climate.

Conclusions

Opportunities for remediating and mitigating desertification in the Boteti area lie primarily among the land users and in the implementation of policy and institutional instruments that already exist:

1.The DESIRE project has established that there is not only high awareness of desertification and its environmental (especially livelihood) implications but also a high motivation and interest among stakeholders in more sustainable use and management of the environment.

2. The landusers of Mopipi and Mokoboxane (DESIRE collaborators) already have a community conservation trust (Mokopi Conservation Trust - MCT) and a Land Use and Community Rangeland Resources Management Plan, which was an important reference point and context for the DESIRE project. However, the MCT has not been able to implement the Management Plan since it was developed and endorsed by its members in 2006, for lack of financial and other resources. Game ranching was already in the Management Plan, as well as rehabilitation of the rangeland through tree planting, an option complementary to the deforestation mitigation outcomes of the switch to biogas energy.

3. Botswana is signatory to the UN Convention to Combat Desertification and the Government adopted a National Action Plan to combat desertification and drought (NAP) in 2006. NAP has sound assumptions and provisions, which include:

- Building capacity of communities to combat desertification (3.3, p.32)
- Facilitating the establishment of alternative livelihood projects particularly for people living in marginal and degraded areas (4, p.32)
- Assisting "stakeholders with limited capacity to enable those stakeholders to carry out their roles. This particularly refers to community-based organizations". (p.28)
- Establishing a National Desertification Fund (NDF) which would provide financial resources for the implementation of the desertification remediation and mitigation activities
- Approaching the combat of desertification in Botswana from multi-stakeholder, bottom-up participatory and integrated perspective.

Dry river bed

Recommendations

Through the NAP framework and provisions, it is recommended that Boteti land users through their MCT:

- Be assisted to implement the land use and community rangeland Resources Management Plan;
- Be empowered to implement the projects for which they are still highly motivated, namely: community-based game ranching and biogas production and use. With respect to these strategies, it is further recommended as follows:

1. Game ranching:

- Facilitate the allocation to MCT of at least 5,000-10,000 hectares of CT/10 (Wildlife Management Area) along the southern boundary of the Makgadigadi Pan National Park. CT/10 has long been earmarked for degazettement for communal use.
- Provide start-up capital. A minimum of Pula 2-3 million is required for perimeter fencing (at least 1.2 metres high) and restocking.
- Help restock the ranch from the neighbouring game parks with Springbok (*Antidorcas marsupialis,* picture on the right) which is a mixed feeder and practically water independent. Springbok is the most common antelope in Boteti and can co-exist with livestock.
- Employ or train a ranch manager or facilitate a joint venture partnership to implement the ranch project.


Source: Wikipedia

2. Biogas production:

- Provide funding to enable adoption of biogas production and use by households to conserve woodland vegetation and open up opportunities for enterprising families, such as through the production of confectionary items (e.g. bread and scones).
- Facilitate adoption of biogas production and use by heavy firewood consumer public institutions such as schools.
- Train village-based biogas plant technicians to provide expertise for professional installation and maintenance of biogas plants.

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