

People, Rangeland Change, & Sustain- ability

No. 5

PANRUSA Briefing Notes

PANRUSA, Poverty Policy and Natural Resource Use in Southern Africa. A DFID funded research project at the University of Sheffield UK.

Key points

- Impacts of changes in rangeland use cannot be considered solely in ecological terms
- Understanding people's responses to changes is essential if the full impact of land policies on rural livelihoods and their sustainability is to be achieved.
- Dryland communities are resourceful and responsive to environmental change



Research areas:

1. **Arid southwest:**
 - a) Mier, South Africa
 - b) SW Kgalagadi, Botswana
2. **Semiarid northwest:**
 - a) Ghanzi Dist, Botswana
 - b) Omaheke, Namibia
3. **Dry sub-humid southeast:**
 - a) NW Province South Africa,
 - b) Barolong, Botswana

This briefing considers the environmental outcomes of policy and land use changes on the sustainable use of southern African rangelands, and people's responses to these changes. Changes in both the balance between grasses and shrubs, and species diversity, are occurring. This has direct implications for the well-being of those whose livelihoods are dependent on rangelands. The use of, and value attached to, different plants is dependant on social factors, indigenous knowledge and adaptability, such that scientific views of the impacts of change do not necessarily capture the reality of impacts of livelihoods.

Environmental impacts of rangeland use

Increased use of southern African rangelands, resulting from the sinking of boreholes and encouraged by the policies outlined in *PANRUSA Briefing Note 4*, brings about social and environmental changes.

Many studies attest to the general environmental impacts of borehole-centred livestock rearing in southern Africa. These are: the development of bare, soil erosion-prone, areas (sacrifice zones) immediately adjacent to boreholes; a reduction in grass cover and grass species diversity in other areas, including increased dominance of less palatable annual or hardy perennial species; and frequently the development of bush-thicket as grasses are replaced by shrubs and bushes. The exact situation at any borehole depends on a range of factors including whether it is in an arid or wetter area, the spacing between boreholes, number of livestock, borehole age, and land management strategies employed. It is debated whether such changes are permanent, but droughts, wet spells and fires variously impact on range recovery or further deterioration.

Rangeland change in the study areas

Arid southwest

Grazing pressure around boreholes has resulted in sand dune reactivation in both South Africa and Botswana, on both leased farms and communal lands. Even low livestock numbers, which include cattle, goats and karakul sheep,

impact on grasses, resulting in the increased dominance of less palatable sour grass. The small shrub *Rhigozum trichotomum* has also gained a foothold in some heavily grazed areas close to boreholes, at the expense of grasses.

Semiarid northwest

Range condition in both Namibia & Botswana varied according to borehole age and intensity of use. Older boreholes displayed significant bush encroachment and reduced biodiversity with sour grass and *Acacia mellifera* dominating at the expense of nutritious perennial grasses. In Botswana and Namibia established farmers and communities noted that the sinking of new boreholes increased the pressures between adjacent farms and villages resulting in greater grazing impacts and competition for resources.

How do people respond?

PANRUSA has identified a diverse range of community and farmer responses to rangeland ecological changes and land use pressures.

Arid southwest

In some cases land users are replacing livestock rearing with more environmentally - sensitive game ranching, supplementing livelihoods further with tourism activities. A scheme in the Mier is clearing *Rhigozum* thickets, using the dead branches to stabilise dune crests prior to planting perennial grass seedlings. Results are promising. Farmers in Kgalagadi see some benefits to this species however, as it flowers early in the wet season and provides important feed for small stock.

Semiarid northwest

Livestock owners are well aware of the patchiness of the grazing resource on their land, and attempt to manage livestock movements to facilitate recovery of poorer areas. Some lessees of government ranches at Ncojane, near Ghanzi, have even dropped fences during droughts, allowing livestock to graze more widely, or moved them to cattleposts, thereby relieving pressure on heavily degraded lands.

Communities in Omaheke are fencing 'their' communal lands to reduce external pressures. Perennial grasses are returning, but excluded people and livestock will increase pressures on remaining open land. In one part of Omaheke severely bush encroached areas were valued as a browse resource during droughts, contributing to livestock survival and reducing pressures on grasslands and allowing their post-drought recovery.

Livestock in kraal near borehole in Namibia Note the lack of grass and large number of bushes in the immediate area.



Outcomes

- **Vegetation change is a reality of increased use of dryland rangelands**
- **Biodiversity is decreasing under these impacts, with fewer palatable grasses and more shrubby species in many instances**
- **These changes are often viewed as negative & permanent by 'experts': a facet of desertification**
- **A range of positive responses to these changes have developed, and in some cases 'ecologically negative' changes can bring livelihood benefits**
- **Science & policy makers need to recognise the great importance of indigenous knowledge and adaptability for dryland survival**

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