The Summer Desertification Projects
Fact Sheet 4

Desert Research Foundation of Namibia **2007**

SDP 2: An Investigation into the Biophysical Aspects and Socio-economics of Desertification in North-western Namibia

This project aimed to assess changes in productivity of arid rangelands. While north-western Namibia appears devastated by desertification at certain times when viewed from a northern, first world perspective, participants in the project wanted to determine whether this apparent degradation was as a result of rainfall variability and aridity rather than long-term overuse. The educational aim of the project was to enhance participants' understanding of the effects of variability of arid environments and the relationship of this to potential livelihoods.

Desertification was defined at the Earth Summit in Rio de Janeiro in 1992 as:
Land degradation in arid, semi-arid and dry sub-humid areas resulting from varioius factors, including climatic variations and human activities.
This definition implies that all of Namibia is susceptible to desertification.

The seven students involved in this study produced independent papers in different fields. These werecollectively published in a DRFN Occasional Paper.

1. Soil Characteristics under Different Grazing Regimes

This study established that while no clearly defined biological and physical indicators existed by which degradation can be measured or defined across all systems, there was some evidence that a correlation existed between grazing intensity and soil quality.

2. Botanical Composition and Productivity under Different Grazing Pressures

Soil degradation is partially dependent on the type and quantity of vegetation cover, which is influenced both by land use management and climate - especially drought. This study examined species composition and productivity in sites of different grazing intensity. In sites of higher grazing pressure it was found that species richness was lower but not necessarily biomass, compared to other sites. It also appeared that plants on sandy soils had a higher resilience than those on silty loam soils.

3.The Effect of Rangeland Management on Soil Productivity

Using plant germination and growth rates as a measure of productivity, the results of this study exhibited a trend of lowered germination and early plant growth on degraded or intensively used lands. It was felt that this could indicate a gradual decline in soil productivity and possible degradation with increasing use.

4. Selected Soil Flora and Fauna as Indicators of Biotic Integrity

Nematodes, seed banks and termite activity were assessed as potential biological indicators for estimating rangeland degradation. The study indicated the applicability of selected soil micro-organisms as indicators, as they showed a correlation with rangeland degradation and grazing pressure.

SDP 3 was conducted in partnership with Namibia's Programme to Combat Desertification (Napcod) CCD

5. Rangeland Degradation and Management Options

The study explored the usefulness of the newly developed ecological model of Integrated Systems for Plant Dynamics (ISPD) in the development of sustainable rangeland management. The conclusion was that ISPD,as it can work successfully under very limited financial resources and baseline information, had potential for providing simple yet reliable results on land management practices.

6. Current Land Use and Local Perspectives

Livestock farming is the predominant activity in this region and the research suggested that farmers should use adaptable activities that could minimise some of the problems such as overstocking, overgrazing and deforestation leading to degradation. However, the cultural importance of livestock needed to be taken into consideration when suggesting alternative income generation.

7. The Economics of Alternative Resource Uses

This study evaluated how the inhabitants of the region used their resources and studied alternative uses. The data gathered allowed an economic assessment of alternative uses such as tourism ventures, arts and crafts, gardening, and poultry and game farming. The results showed that economically viable resource uses were not fully exploited in the area and people should be encouraged to understand the long-term economic value of diversifying land use options.

An additional study looked at the impact of government policies on land in the study area and stressed the need for addressing the lack of land tenure and multi-sectoral planning in the light of regional resources.

In a concluding chapter, the project made recommendations for Napcod. These included:

- Facilitate a workshop on regional governmental functions i.e. extension, farmers associations and liaison with the community
- Develop a simple brochure describing the function of the different players in the area e.g. government, NGOs and extension workers
- Facilitate the development of a basic environmental information resource centre for the area
- Facilitate improved data gathering by government officials and by other institutions for rural communities.

The question of whether long-term degradation or desertification is taking place in the areas studied was not resolved. On a per capita basis, natural resources are becoming less available. Migration of much of the working-age population to towns is evidence of this inability of available resources to provide for the needs of the resident population. Similarly the number of dry boreholes and the lack of woody vegetation around homesteads suggests an overall decrease in productivity although not necessarily in grazing.

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