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**A PRELIMINARY ASSESSMENT OF DESERTIFICATION AWARENESS AMONGST
MID-LEVEL, DECISION MAKERS IN NAMIBIA**

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INTRODUCTION

At independence, the new government of Namibia inherited a country with a well developed infrastructure and a level of economic output that placed it among the middle income developing countries of Africa (van Rooy 1994). However, in spite of the country's promising situation, there are a number of deep-rooted and complex problems which must be considered in any national development policies and projects. One of the most pressing environmental issues in Namibia today is desertification (Seely and Jacobson 1994). Desertification is understood as a combination of several processes of land degradation occurring in arid, semi-arid and sub-humid environments, whereby the productive capacity of the land and its ability to support populations is severely impaired or destroyed. Although various factors including climatic variations and drought may aggravate desertification processes, the impact of human land use is considered to be the primary cause. In Namibia, eighty five per cent of the non-desert areas are used for agriculture (Schneider 1990) and hence are potentially susceptible to desertification.

The National Programme to Combat Desertification in Namibia (NAPCOD) was initiated to identify and to address the issues of desertification on a variety of different levels, using a number of alternative approaches (Wolters 1994). Factors ranging from the impact of national policy and socio-economic conditions to the physical effects of land degradation, are among priority areas which need to be addressed. As one of the first steps to address these issues, the programme initiated attempts to raise awareness throughout Namibia. A variety of approaches were used including visits and local workshops for networking with rural communities, nation-wide newspaper articles and radio programmes and a National workshop. The objectives of these activities and the overall programme are to promote the sustainable and equitable use of natural resources within Namibia's variable environment for the benefit of all Namibians both present and future.

As part of the awareness campaign, a first attempt was made to identify existing sources of information on desertification within the country. The overall purpose of this paper is to a) provide a picture of the extent of awareness of desertification amongst mid-level decision makers in Namibia; (b) identify the popular sources of communication within this group; (c) provide a basis for future assessment of awareness about desertification issues; and d) serve as a

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9. Veld Fires	48	85.7%
10. Dunes	35	62.5%
11. Bush encroached	34	60.7%
12. Politics	27	48%

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preliminary model for use in designing future awareness campaigns.

METHODOLOGY

To make a preliminary assessment of the extent of awareness about desertification amongst a variety of people in Namibia, we used a simple questionnaire. This questionnaire included as components (a) background information about the respondent, (b) questions regarding basic knowledge about desertification, and (c) questions regarding means through which knowledge of desertification was acquired. A sample questionnaire is included in Appendix A.

During the course of the awareness campaign questionnaires were administered to a total of 56 respondents, in a variety of mid-level decision making positions. These respondents included government personnel in head offices in the capital and in the regions, staff members of NGOs, and rural farmers and community leaders.

No attempt was made to obtain a random sample of interviewees for this preliminary study. In view of the limited data set, no statistical analyses were carried out and only trends, as suggested by the data, are illustrated. Table 1 provides an overview of the respondents involved.

Table 1a: Positions of interviewees

Position represented	Frequency
Government employees	28
National or local NGO staff	13
Farmers/ community members	15

Table 1b: Age distribution of interviewees

Age	Frequency
20 - 29 years	8
30 - 39 years	24
40 - 54 years	11
55 years and over	13

Table 1c: Gender distribution of interviewees

Gender	Frequency
Male	44
Female	12

Windhoek.

Annex

Table A1: General overview of regions in Namibia.

<u>Region</u>	<u>AREA SURFACE</u>	<u>POPULATION</u>	<u>POP. DENSITY</u>
KARAS	161,324.5 KM ²	61,162	0.37 P/KM ²
HARDAP	109,888.070 KM ²	66,495	0.60 P/KM ²
OMAHEKE	84,731.922 KM ²	52,735	0.62 P/KM ²
OSHIKOTO	26,607.162 KM ²	128,745	4.83 P/KM ²
OSHANA	5,290.493	134,884	25.39 P/KM ²
OHANGWENA	10,582.016 KM ²	179,634	16.97 P/KM ²
OTJOZONDJUPA	105, 327.781	102,536	0.97 P/KM ²
KUNENE	144,254.641 KM ²	64,017	0.44 P/KM ²
OMUSATI	13,637.554 KM ²	189,919	13.92 P/KM ²

RESULTS

The results of the study indicated a surprising awareness about desertification in Namibia as well as a surprising uniformity in awareness of the processes of desertification. When asked if certain factors were associated with desertification, the frequency of positive responses ranged from an overall low of 53 % with respect to political factors to a high of 95 % with respect to deforestation and mismanagement of agricultural land.

Some differences in the frequency of identification of a particular process were noted between regions where questionnaires were administered. These slight differences tended to correlate with the relative importance of these processes in a particular region. Area 1 included the capital and the dissected topography of western Namibia where soil erosion is common. Area 2 included the arid southern parts of Namibia where woody vegetation is limited to dry water courses. Area 3 included the most populated areas in the north where the only forests in Namibia grow. Area 4 included the dry rugged northwestern region. Area 5 included the eastern, vegetated Kalahari sands. The following table provides an indication of the perceived importance of the various processes associated with desertification in an area.

Table 2: Perceived importance of various desertification processes within five regional areas in Namibia.

Process	Area 1	Area 2	Area 3	Area 4	Area 5
Soil erosion	95 %	86 %	92 %	91 %	100 %
Decreased rain	74 %	86 %	100 %	91 %	86 %
Population	84 %	71 %	92 %	82 %	86 %
Political factors	58 %	57 %	42 %	64 %	43 %
Socio-economics	84 %	100 %	100 %	64 %	100 %
Poor planning	89 %	100 %	92 %	82 %	100 %
Sand dunes	53 %	71 %	58 %	73 %	100 %
Bush encroachment	68 %	57 %	42 %	64 %	86 %
Deforestation	95 %	86 %	92 %	100 %	100 %
Mismanagement	89 %	100 %	100 %	91 %	100 %
Cultural issues	95 %	71 %	83 %	100 %	86 %
Soil cultivation	84 %	43 %	67 %	64 %	57 %
Veld fires	79 %	43 %	100 %	91 %	86 %

Area 1 was composed of the regions: Erongo and Khomas (n = 19); Area 2 was composed of the regions: Hardap and Karas (n = 7); Area 3 was composed of the regions: Okavango, Omusati and Oshana (n = 12); Area 4 was composed of the region: Kunene (n = 11); Area 5 was composed of the regions: Otjozondjupa and Omaheke (n = 7).

Examination of awareness of the causes of desertification differed somewhat among people with different employment. People working with NGOs appeared to have a slightly greater awareness of the various processes than did people with government or in the private sector.

positive responses for poverty and cultural issues indicate 89% (n=50), soil erosion and poor planning 92% (n=51), deforestation and mismanagement 96% (n=54). These ranked the highest of all. Political factors 47% (n=27) ranked the lowest of all responses. The responses can be categorized as follows:

- A. 90%+ = numbers 1,2 and 3 are direct human induced causes, number 4 is partly human as well as naturally-induced, and number 5 natural.
- B. 80-90% = numbers 6,7 and 8 are human-induced, and 9 mainly human-induced (e.g., slash and burn).
- C. 60-86% = are natural occurrence, therefore scored the lowest.

Analyzing these responses, we can conclude that the perception of the majority of the respondents is that desertification is human-induced, rather than natural. Having said this, we can also conclude that the majority of the respondents are fairly aware of the problems embedded in desertification.

Table 2: Causes and effects of desertification

<u>Description</u>	<u>Number</u>	<u>Percentage</u>
1. Deforestation	54	96.4%
2. Mismanagement	54	96.4%
3. Poor planning	53	92.9%
4. Soil erosion	52	92.9%
5. Drought	51	91%
6. Cultural issues	50	89%
7. Poverty	50	89%
8. Population	48	85.7%

Table 3: Perceived importance of various desertification processes among three groups with differing employment.

Process	Government	NGO	Private
Soil erosion	96 %	93 %	77 %
Decreased rain	86 %	87 %	85 %
Population	86 %	87 %	85 %
Political factors	39 %	60 %	46 %
Socio-economics	89 %	100 %	69 %
Poor planning	93 %	100 %	77 %
Sand dunes	50 %	80 %	69 %
Bush encroachment	46 %	87 %	54 %
Deforestation	96 %	100 %	85 %
Mismanagement	93 %	100 %	92 %
Cultural issues	89 %	93 %	77 %
Soil cultivation	64 %	87 %	54 %
Veld fires	82 %	87 %	77 %

Sample size: for Government employees, n = 28; for NGO staff n = 13; and for private farmers and other community members n = 15.

* The identified sources of information about desertification showed a slight tendency to vary with age of the interviewee. For all but the oldest age group, books, pamphlets and other printed matter, excluding newspapers, were the most frequently identified sources of information. The oldest age group identified personal observation, followed by radio, as their most common source of information. These results could reflect the degree of literacy amongst the several groups of mid-level decision makers in Namibia.

Table 4: Sources of information concerning desertification as identified by four age classes interviewed. Each individual was asked to indicate all sources of awareness experienced.

Source of information	20-29 yr	30-39 yr	40-54 yr	55+ yrs
Television	25 %	50 %	36 %	8 %
Radio	38 %	50 %	36 %	38 %
Newspapers	38 %	46 %	36 %	23 %
Books/ pamphlets	88 %	58 %	73 %	31 %
Outreach visit	38 %	21 %	27 %	18 %
Friend	50 %	29 %	27 %	23 %
School	62 %	33 %	45 %	15 %
Other (e.g. personal observations)	75 %	54 %	45 %	77 %

Sample size: for 20 - 29 years old, n = 8; 30 - 39 years, n = 24; 40 - 54 years, n = 11; 55+ years n = 13.

The sources of awareness concerning desertification were also fairly similar among persons with differing levels of education. For the two most highly educated groups, written

was determined to contain questions needed to collect relevant data.

The interviewers consisted of two staff members of DERUN who were supported by the Social Science Analyst of the Social Sciences Division of the University of Namibia and the Executive Director of DERUN.

Sample size

The process of selection for respondents was mainly determined by the desire to target individuals who were involved in making key decisions or possess influencing powers over others about the utilization of natural resources in Namibia. Taking this into account, an initial distinction was made between staff members of NGOs; community representatives; government personnel; private consultants; rural farmers; school principals and teachers; and staff members of international organizations. The ten regions, namely the Karas; Hardap; Omaheke; Oshana; Otjozondjupa; Kunene; Omusati; Erongo; Okavango; and Khomas were identified as heavily affected by the processes of desertification and thus included in the samples.

The entire population in the regions in which the survey was conducted comprises 1,011,119 people (Friedrich Ebert Stiftung, 1994). Please see table A1, the generic overview of the thirteen regions of Namibia in the Annex of this paper. Samples were taken disproportionately to the number of people living in the regions, consequently the questionnaires were administered to a total of 56 respondents.

Interviewers were searching for key decision-makers,

materials including books and pamphlets were the most frequently encountered sources. For the two least highly educated groups, personal experiences, such as observation, (other sources) ranked highest as a source of awareness concerning desertification.

Table 5: Sources of information concerning desertification as identified by four groups with differing levels of formal education. Each individual was asked to indicate all sources of awareness experienced.

Source of information	MSc/PhD	Dip/BSc	Grade 12	None
Television	70 %	43 %	20 %	0
Radio	70 %	52 %	27 %	40 %
Newspapers	80 %	38 %	27 %	20 %
Books/ pamphlets	90 %	76 %	47 %	20 %
Outreach visit	20 %	28 %	27 %	20 %
Friend	40 %	28 %	33 %	40 %
School	50 %	57 %	20 %	0
Other (e.g. personal observations)	60 %	67 %	67 %	100 %

Sample size: for persons with an MSc or PhD degree n = 10; for persons with a diploma, BSc/BA, or any education beyond high school n = 21; for persons who left high school at Grades 8 - 12 n = 15; for persons with no formal education n = 5; education level was not recorded for 5 interviewees.

* There were also similarities in sources of awareness concerning desertification among persons with different positions of employment. For government employees, books and pamphlets ranked first. For NGO staff, television and 'other' sources ranked equally high. For the private farmers and community members, other sources (representing mainly personal experience) were most important.

Table 6: Sources of information concerning desertification as identified by three groups with differing types of employment. Each individual was asked to indicate all sources of awareness experienced.

Source of information	Government't	NGO	Private
Television	36 %	54 %	13 %
Radio	43 %	46 %	40 %
Newspapers	43 %	38 %	27 %
Books/ pamphlets	78 %	46 %	33 %
Outreach visit	18 %	23 %	33 %
Friend	28 %	31 %	33 %
School	50 %	23 %	13 %
Other (e.g. personal observations)	57 %	54 %	73 %

Sample size: for Government employees, n = 28; for NGO staff n = 13; and for private farmers and other community members n = 15.

conducting an interview with each person individually. If a person encountered was determined to be a key decision-maker, he or she was interviewed. Table 1 below provides an overview of the regions and the total number of persons interviewed. The majority of interviews were conducted in rural towns and villages 42% (n=8), 21% (n=4) at administrative centers, 21% (n=4) in urban centers, and 16% at isolated and farming regions. The total number of the settlements were 19.

Table 1: Distribution of respondents by region

<u>Region</u>	<u>Town/city</u>	<u>Description</u>	<u>Total</u>	<u>Percentage</u>
Karas	Keetmanshoop	Urban Ctr.		
	Berseba	Rural town	5	8.9%
Hardap	Mariental	Admin. Ctr.	1	1.8%
Omaheke	Gobabis	Admin. Ctr.		
	Skakels	Isolated Farm	2	3.6%
Oshana	Oshakati	Urban Ctr.	6	10.7%
Otjozondjupa	Tsumkw	Farming region		
	Okakarara	Rural town		
	Okamatapati	Rural town	5	8.9%
Kunene	Khorixas	Admin. Ctr.		
	Opuwo	Rural town		
	Onjuva	Rural village		
	Sesfontein	Rural village		
	Warmquell	Rural village	11	19.6%
Omusati	Tsandi	Rural town	2	3.6%
Erongo	Swakopmund	Urban Ctr.	1	1.8%
Okavango	Rundu	Admin. Ctr.	4	7.1%
Khomas	Windhoek	Large Urb. Ctr.		
	<u>Sonneleiten</u>	<u>Isolated farm</u>	<u>19</u>	<u>33.9%</u>
TOTAL	19		56	100

Data Processing

The fieldwork which started in September was completed in October 1994; final questionnaires were returned to Windhoek on October 19th, 1994. Data entry commenced October 11th, 1994 and completed by October 21st, 1994. The database named ework:\desert.rec was created by using an Epi-Info statistical computer package which was acquired through the Social Sciences Division (SSD) of the University of Namibia. The

DISCUSSION

This very preliminary assessment of mid-level decision makers in Namibia, indicated a surprisingly high degree of awareness about desertification. Similar observations have been made in the Sudano-Sahelian region more than a decade ago (Berry 1984). While awareness of desertification and its processes alone does not appear to lead to its reduction, it is a necessary first step and is receiving considerable and ever increasing attention (e.g. Mabbitt 1987).

A similarity in the knowledge about the processes and factors associated with desertification as well as in the sources of that information was also indicated by this preliminary survey. Although we examined the data in different ways, there is undoubtedly a high degree of correlation and overlap between the different categories which were used. For example, the traditional leaders and farmers grouped under 'private' with respect to employment all had less formal education and were, on average, older than many of the other interviewees.

While this preliminary assessment indicated a high degree of awareness, solutions for combatting desertification identified by the interviewees mainly entailed education, legislation, community involvement and afforestation. A number of people indicated that alternative land and natural resource management strategies were lacking and implied that, as a consequence, degradation would continue until alternatives were available.

* In conclusion, the results of this preliminary survey suggest that, in Namibia at least, mid-level decision makers are aware of the existence of desertification and the processes involved in land degradation. It is clear from the informally gathered suggestions for combatting desertification, however, that there is a dearth of knowledge as to how to proceed.

Disseminating information and creating awareness about alternative management strategies is an essential component in developing the necessary policies for preventing degradation (Ogg 1992). The information which has been gathered in both the more formal and less formal parts of this preliminary survey about awareness levels, and the means of acquiring awareness can thus contribute to the design of further steps to combat desertification through information exchange and awareness raising.

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database contained 56 cases, each consisting of eleven variables. For the purpose of this assignment, the file was modified and coded, and named desert.pgm for which ten variables were used.

Limitations of the survey and data

An attempt was made to select an equal number of respondents by each region with regard to expected differences and environmental conditions to make the sampling structure as representative as possible. However, due to unforeseen circumstances and the limited level of resources available, this goal could not be reached. Hence, it is not possible with any certainty to say that the results do represent or provide a statistically reliable measure on the knowledge of desertification and popular sources of communication amongst all the key decision-makers.

It must be mentioned, however that the openness with which the respondents answered the questions was largely due to the interviewers speaking the local languages and understanding the customs, as well as the extensive preparation phase. Each respondent was ensured that his or her responses would be kept confidential. As a result, no respondent refused to answer any of the questions involved in the questionnaire. Answers on personal particulars such as name, age and academic background are however wary, but in fact, the respondents felt comfortable to respond without any noticeable hesitation.

Discussion and Findings

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Desertification as a concept and environmental problem has received extensive attention during the latter half of the 20th century (Seely and Jacobson, 1991, p.23). In response to this global phenomena, the national budget on topics related to the processes of desertification for phase one of the fiscal year 1994 has been N\$ 700,000.00. For phase two, expected to commence as early as 1995 the total budget is in the range of N\$ 7 Million (Brown, DEA, 1994). Although some of these funds may be applying to desertification research, others may be contributing to other objectives to include triggering national momentum amongst key decision-makers (e.g., politicians), raising awareness and creating job opportunities. In addition, the NAPCOD, headed by its Steering Committee and administered by NGOs staff members and government personnel, is researching a variety of options to design and execute a policy which in some ways would increase our understanding of the way human activity affects natural resources. However, it must be said that this budget is small in comparison to the expected impact or costs embedded in the causes and effects of desertification.

Research on the actual impacts of desertification processes is important because it may identify weaknesses amongst key decision-makers at different localities and highlight areas for policy action. In Namibia today, the naturally low and variable rainfalls is thought to be a greater problem, which affects more people, than it did in the past (Seely and Jacobson, 1991, p.25). Understanding the extent of awareness on desertification amongst a variety of key decision-makers in natural resource sectors, and whether