

What roles do they play and what have they achieved?

Lots! Soil Conservation Boards (i) promote awareness of land conservation issues within the local, state and national community. Feral animal control is the 'number one' issue. (ii) They develop and support programs for carrying out measures for land conservation and rehabilitation in which members of the community can participate. National Heritage Trust projects and funding are being pursued vigorously. (iii) They implement and enforce the Act, including the making of Soil Conservation Orders. So far there has been successful negotiation with those who had not adopted the sustainable land management message. (iv) They investigate and report on matters related to the administration of the Act, at the request of the Minister. (v) They give advice and assistance on land conservation and rehabilitation to other persons and bodies; and (vi) they prepare a district plan including a three-year plan. A district plan is a document in which the collective knowledge of the local people, and others, about sustainable land management relevant to that district is collected, sorted and published. All the rangeland Soil Conservation Boards have produced a district plan which involved a mountain of work and thought — a really great achievement.

Apart from the district plans, other achievements include: field days on all facets of land management; help with numerous

problems between neighbours, miners and government departments; trials of feral animal control and land rehabilitation methods, in conjunction with PIRSA and DEHAA. Northern Flinders, North-east and Gawler Ranges combined to run a successful Goat Control project that received funding from Landcare. This project was primarily to raise awareness and obtain some equipment to help pastoralists. These boards are still busy with goat control, and goat numbers are the lowest they have been for many years. Marla-Oodnadatta has been active in donkey, camel and brumby control programs in combination with the National Parks and Wildlife Service. Most rangeland Boards have negotiated successful outcomes that address land management problems with particular landholders within their districts. Marree has produced a booklet, explaining the features of their district and its difficult nature, entitled *More Than Meets the Eye*. Marree and Marla-Oodnadatta have recently conducted workshops in best practice station track repair and maintenance.

The Soil Conservation Boards' major achievements, however, are to provide focus groups for their communities about sustainable land management, and to speak with authority on land management issues on behalf of, and to, the communities of which they are part.

Namibia's program to combat desertification: a dynamic approach to people and rangelands

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Introduction

Namibia is the driest country in sub-Saharan Africa (country-wide average rainfall <250 mm per year, range 0–700 mm). It has a small but fast growing human population (1.6 million people, average density 1.7 people/km², growth rate 3.1%), highly skewed distribution of land and wealth (0.3% of the population owns 44% of the land area, and 5% earns about 70% of the income), an open access rangeland system in communal areas covering 41% of the land, and a population highly dependent on the exploitation of natural resources. Namibia has experienced significant environmental degradation of its rangeland and is increasingly vulnerable to escalating degradation in the future. Evidence of degradation and declining productivity in Namibia's arid and semi-arid rangelands includes deforestation, bush encroachment, loss of biological diversity, soil erosion and declining groundwater levels. These symptoms result from inappropriate stock management practices (which in turn have underlying causes), clearing of land for cultivation, cutting of trees for fuel and building materials, and unsustainable groundwater abstraction and use (Brown 1992; Seely & Jacobson 1994; Barnard 1998). The cost of desertification to Namibia is estimated to be at least US\$60 million per year in lost production (Quan *et al.* 1994).

Past efforts to combat desertification have concentrated mainly on scientific and technological solutions, often from the perspective of the natural resources being impacted upon. These approaches have been largely unsuccessful, and the rate and extent of desertification continue to increase. More recently, scientists and decision-makers have come to realise that little can be achieved without the involvement of local natural

resource managers and users — the farmers, pastoralists and harvesters of natural resources. While some proponents see community action as the sole input, replacing science and technology, Namibia's approach has been to view desertification as an ecological symptom of policy failures in mainly the socio-economic fields. As such, an understanding of the socio-economic, institutional, political and ecological sectors is essential, together with components of indigenous knowledge and community-based action (Seely 1998).

Namibia's program to combat desertification

In 1992 Namibia's Green Plan formally recognized desertification as a national threat. The government made a commitment to attempt to stop and reverse the impacts of desertification through wise management of its natural resources. It further recognized that desertification was largely man-made, but exacerbated by planning, policy and management failures in years of below average rainfall, and that poverty, population growth and desertification are closely linked. Namibia's National Development Plan prioritizes the issue of desertification for national action and investment.

In 1994, phase I of Namibia's (national) program to combat desertification (NAPCOD) was launched. This six-month planning phase concentrated on information collection and dissemination, consultation and consensus building. Emphasis was placed on participatory rural and ecological appraisals with 13 different communities representing a spectrum of cultures, climatic and ecological conditions and natural resource use types. This phase culminated in a national workshop at which national and selected regional and international participants

Table 1. Methods used by Namibia's (national) program to combat desertification to disseminate information to target groups

Methods of information dissemination	Resource users/managers	Decision makers	General public
Media releases (press, radio & TV with training workshop & kit)	*	**	***
Proceedings, reports, research outputs	*	**	
Video productions (also shown on TV)	*	**	**
Newsletters	**	**	*
Radio programs and discussions	***	**	**
Drama performances	***	**	
Parliamentary updates		***	

*** = main target group, ** = important target group, * = incidental target group

reviewed the available information and designed the key elements and strategies of phase II of the national program, with this overall goal:

to combat the processes of desertification by promoting the sustainable and equitable use of natural resources suited to Namibia's variable environment for the benefit of all Namibians, both present and future.

Phase II was implemented in early 1995 and a number of components, which are considered to be innovative and successful, are elaborated below.

Institutional arrangements

The national program is guided by the program objectives and an annual work plan is developed to help achieve specific outputs. This approach was adopted within the context of a 'rolling planning' framework directed by a multi-agency and multi-disciplinary Steering Committee consisting of representatives of four government ministries, both national farmers' unions, and four non-government organizations. The program, housed within the Environment ministry, has a three party executive body for day-to-day management, including also the Agriculture ministry and a non-government organization, the Desert Research Foundation of Namibia. The high degree of flexibility and responsiveness afforded by this management approach has been essential to the program in its early stage (Seely 1998).

Information dissemination

Many of the concepts and terms used, such as sustainable natural resource use, desertification and loss of biodiversity, have little meaning to non-technical people in the environment field. A concerted effort was made to reach, as the primary targets, resource users and managers, and decision-makers (both politicians and senior technical staff in government and non-government organizations), and, secondly, the general public (Table 1).

Three components of this campaign deserve highlighting. (i) A workshop for media practitioners was held, in which the terminology, concepts, issues and local examples of desertification and rangeland management were presented and explained, and a media kit was provided. The result has been unqualified support from the Namibian media for the program and excellent (and generally accurate) coverage of desertification activities and issues. (ii) A drama group was commissioned to develop a series of short plays, to provide feedback to the 13 participating communities on the national desertification workshop and the elements of phase II of the program. These plays were performed in rural villages, whereafter the workshop proceedings document was handed out and explained, and general community debate and discussion followed. This resulted in good feedback and a high level of understanding by a wide range of community members. (iii) A

Table 2. Priority recommendations for policy reform in Namibia to promote sustainable natural resource management (prioritized on these criteria: extent of impact of reform; likelihood of realizing reform; window of opportunity)

Resource or issue	Principal recommendations
Land	(1) Cohesive strategy needed for land and rangeland, including resettlement (2) Support and promote secure tenure for land and <i>all</i> renewable natural resources, including communal tenure (3) Allow for mobility and flexibility
Water	(1) Pricing policy — to include not only infrastructure cost recovery but also cost of water as a scarce commodity, including environmental costs (2) Introduce planning of all water use (as a scarce resource), including consideration of opportunity costs for, e.g. irrigation (3) Impact of water developments on other resources (e.g. rangelands) must be assessed by Environmental Impact Assessment at policy, program and project levels
Agriculture	(1) Give communities secure tenure over rangelands and grazing (2) Abandon national food self-sufficiency goal in favour of household food security (3) Remove livestock subsidies and re-evaluate drought subsidies in context of sustainable drought management strategy or plan
Woodlands	(1) Give communities secure tenure of woodlands and woodland products (2) Identify priority areas for biodiversity protection (3) Develop viable and attractive alternatives to wood fuel and timber building materials
Wildlife/tourism	(1) Support and promote the conservancy approach on communal and commercial farmlands to natural resource management (see Brown & Jones 1999, these Proceedings) (2) Promote community-based tourism enterprises within conservancies (3) Identify priority areas for biodiversity protection and devise appropriate and innovative ways of expanding the protected area network to cover these
Poverty	(1) Anti-poverty measures should be environmentally neutral, therefore avoid subsidies to use of natural resources intended as poverty alleviation. Instead, increase access to, or tenure of, nature resource assets so that the poor can earn more through sustainable management.
Economic policy	(1) Change the composition of growth towards environmentally-friendly sectors through: investment incentives for services (especially community-based ecotourism); growth in rural areas and value adding activities; environmental protection levies; liberalize trade in wildlife products (2) Integration of natural resource accounts into economic planning

one page, clear and illustrated Environmental Update is prepared each second week for members of parliament and the national assembly. Each Update addresses a particular theme, highlights information that decision-makers should know and suggests possible actions. Each parliamentarian is issued with a special file for the updates and, while it is difficult to assess the impact, it is apparent that they are eagerly read and filed.

Economic assessment of the costs of desertification

Well-functioning arid and semi-arid rangelands provide a number of ecosystem services and functions which support people's subsistence and commercial activities and livelihoods, e.g. firewood, fencing materials, livestock products and millet production. Once the ecosystem is degraded, these services and functions are undermined. The subsequent loss in economic value can be regarded as the cost of degradation, or the cost of desertification. Case studies were carried out in four areas of Namibia, two in communal and two in commercial farming areas. An aggregate figure for the total costs of desertification in the northern communal areas of Namibia is over N\$110 million per year in lost production. In the commercial farming areas the primary economic costs were reduced livestock production due to bush encroachment, estimated to result in annual losses of about N\$100 million over 40–50 years, or more at today's prices (Quan *et al.* 1994; Richardson 1998). The economic valuation of environmental degradation has resulted in a fundamental change in the way decision-makers view environmental issues such as desertification. They are no longer viewed as peripheral 'green' issues, but as being fundamental to development and livelihood.

Policy factors and desertification

A wide range of policy factors affect how natural resources are used and managed. Many policies have not considered sustainable use and have unwittingly promoted land degradation. A detailed review of human impact on Namibia's rangeland, linked to 'frame conditions' of legislation, policy and accepted practice was undertaken (Dewdney 1996), with emphasis on possible policy reform that could reverse or halt losses in land productivity and promote sustainable practices (Table 2). A number of these recommendations have been implemented, while others are in early stages of development, e.g. land reform in communal areas. Of particular importance is the fact that policy analyses shift the emphasis away from ecological symptoms of desertification, and onto underlying root causes.

Community empowerment and multi-agency cooperation

A focus of the national program has been community-based rural development, sustainable natural resource management and economic diversification. Work during this pilot phase has focused on a few selected communities and on multi-agency collaboration and cooperation. Specifically, programs with similar philosophical approaches to community-based natural resource management in the agriculture, water, wildlife and tourism sectors, have come together at national and regional levels, to support community development objectives. A significant component of this initiative has been the support provided to communities to clearly identify and express their development needs and ideas (through support to community meetings, and training in project proposal design and writing)

and the coordinated multi-agency evaluation, negotiations and support to the community's prioritized activities. The short time and the relatively small amount of outside funding that it took for the #Khoadi //Hoas conservancy (= place of the elephant; 362 000 ha, 1200 registered members) to constitute itself, compared to the other three gazetted conservancies in Namibia, is at least in part due to the coordinated, multi-disciplinary approach taken by this program to community development.

Conclusion

The next phase of Namibia's (national) program to combat desertification needs to expand the community empowerment work, not by starting new initiatives with new communities but rather by working with already established conservancies, to introduce the diversified and integrated natural resource management approaches to already constituted and working community organisations. The program needs to measure the effectiveness of the different methods of information dissemination to different target groups, and to focus its applied research on specific information needs, such as quantifying types of impacts of desertification at national and local levels. Finally, the policy issues related to desertification remain a priority area, with emphasis on the development of appropriate incentives as well as the need to review all new policies and programs for their potential impact on the environment.

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