Best Practices in the World's Oldest Desert

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Chapter 9

BEST PRACTICES IN THE WORLD'S OLDEST DESERT

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1. INTRODUCTION

Promoting best practices for conservation and sustainable use of biodiversity of global significance in the semiarid areas of Namibia is being undertaken by a loose public, private, nongovernmental (NGO) partnership. This is being led by the public sector that manages a number of established national parks and more recently, in partnership with the NGO community, is promoting community based natural resource management through conservancies on commercial and communal farming lands. The private sector is primarily involved in tourism that provides the foreign exchange income motivating the public sector, with its many alternative social responsibilities, to retain their interest in biodiversity. In the arid areas of Namibia, a similar situation prevails with differences of emphasis but not overall pattern.

Namibia is situated on the western coast of southern Africa with landscape elements ranging from hyper arid along the southern Atlantic coast, through arid and semiarid areas extending to dry subhumid in the northeast. From southwest to northeast the rainfall varies from winter to summer dominance. Moreover, the country is situated on the western escarpment of southern Africa. The result of these geographic factors is a varied landscape with a mosaic of high biodiversity caused by different factors with differing patterns throughout the country (Barnard 1998). Of particular note is the winter rainfall southern Namib desert where a combination of climatic and geographic factors serve to create a biodiversity

"hotspot" based on the northward extension of the Nama Karoo floral assemblage (Myers et al. 2000). An adjacent area of high biodiversity is the Central Namib Desert that supports a high diversity of invertebrates, reptiles and lichens, sustained by the supplementary water source represented by frequent fogs (Seely 1992).

The public sector concerned with biodiversity, the Ministry of Environment and Tourism (MET), provides strong leadership in the maintenance and development of protected areas. Ranging from one national park to a range of game parks, reserves and recreational areas, protected areas cover over 11 percent of the land surface of Namibia (Barnard 1998). On the other hand, these protected areas are predominantly located in the more arid areas with no agricultural potential, and not all the biomes of Namibia are represented. The MET is involved in protection, research and tourism activities in these protected areas. Most recently, Namibia has signed an agreement with South Africa to form a cross border peace park joining protected arid areas on both sides of the Orange River.

The private sector became involved in biodiversity protection in the 1970's when new legislation allowed commercial farmers, with freehold tenure, ownership over game resident on their farms. In accordance with stipulated regulations, neighboring farmers could join together to form conservancies and thereby gain the rights to harvest their game. This gave rise to a variety of approaches ranging from game viewing and bird watching to trophy hunting of protected species such as elephant (de Vos 1979).

The nongovernmental sector, working with rural communities living on communally managed land, became a major force for biodiversity protection after independence in Namibia in 1990 (Barnard et al. 1998). With changed legislation in the mid 1990's, communities, supported by NGOs, were allowed to form conservancies that gave them rights over and benefits from the wildlife and tourism activities on conservancy land (Turner 1996). This conservancy movement is gaining momentum and providing the mechanism for de facto control by communities over other resources such as grazing and water. In the absence of a communal land act, and continued inequitable distribution and access to land in Namibia, the conservancy movement appears to be providing communities with a mechanism to protect their biodiversity while contributing to the prevention of further land degradation and proving alternative income generating potential to alleviate poverty (Swanson et al. 1996).

For forty years, the NGO Desert Research Foundation of Namibia (DRFN) (formerly the Desert Ecological Research Unit), in partnership with the MET, has coordinated and undertaken research in the Namib Desert based at Gobabeb. Several years ago, these two institutions embarked on a joint venture and the Gobabeb Training and Research Centre was formed.

Since so much of the protected areas of Namibia falls within the Namib Desert, the results of this research have served as the basis for understanding the biodiversity of arid Namibia (Seely et al. 2000). In turn, this is a source of information for policy and decision makers as well as managers of these areas (Seely et al. 2002). It is also a source of interpretive information for the growing tourism industry for which the desert is the second most important destination after the Etosha National Park.

This case study focuses on the Desert Research Foundation of Namibia (DRFN) in its base at the Gobabeb Training and Research Centre and its research and dissemination of information in support of biodiversity conservation in arid, western Namibia. These institutions, DRFN and Gobabeb Centre, participate as members of the Biodiversity Task Force established by government and play a particular role in long–term research on biodiversity in Namibia. Under the aegis of the task force's Environmental Observatories Network of Namibia (EONN), an Environmental Observatory has been established at Gobabeb that has become a member of the International Long Term Ecological Research Network (ILTER) (Henschel et al. 2000). The remainder of this paper focuses on lessons learned in science, public policy and management, use and management of biodiversity by local populations, sustainable use of natural resources, capacity building and partnerships.

2. SCIENTIFIC LESSONS LEARNED

Originally research focused on finding explanations for the high species richness of tenebrionid beetles in the Namib (Koch 1962), compared with any other desert in the world, when the rest of Namibia and Africa was focused on the charismatic megafauna. This approach continually evolved covering a wide range of basic and applied research (Seely et al. 2000). For example, the importance of fog as the primary water source for the especially rich and diverse invertebrate fauna and lichen flora was recognized (Seely and Hamilton 1976, Seely et al. 1998). This, supported by a wide variety of environmental research has led to current studies on fog harvesting and its application by people (Henschel et al. 1998). The behavior and role of ephemeral rivers or 'linear oases' that cross the desert while supporting a riparian forest with its associated fauna, farming opportunities and recharging underground aquifers upon which coastal development depends, was another major contribution (Jacobson et al. 1995). The formation and dynamics of sand dunes and their role in the biotic system (Lancaster 1989, Seely 1990), changes in the microenvironment caused by a variety of rock weathering agents (Goudie 1972), and the impact of off–road

vehicles on the topography and biodiversity of the desert surface (Seely and Hamilton 1978, Daneel 1992) were other important studies. Studies on vegetation have provided a variety of basic and applied results focusing on ephemeral and perennial grasses near the base of the food chain (Seely 1978, Yeaton 1988, Burke 1997, Hachfeld 2000), the endemic family of Welwitschiaceae (Bornman 1978, Henschel and Seely 2000) and the variety of species upon which the local people depend, for cash and other necessities (van den Eynden 1992, Henschel et al. 2002). These studies in all have yielded over 1400 publications (Henschel and Henschel 2001; see also www.drfn.org/pubs).

3. PUBLIC POLICY AND MANAGEMENT

Lessons learned surrounding biodiversity in arid areas and public policy issues are not unique. Much of the Namib Desert is set aside as "parks," not to protect the biodiversity, but for political reasons, for mining and because it was viewed as useless, particularly for agriculture. Change in public policy has been driven by changing global perceptions of landscape and the value of biodiversity which fuels international tourism. The tourist value of the Namib Desert in particular has been enhanced by research, and dissemination of the results of research, on the unique biodiversity of this hyper arid, coastal area (Seely 1992, Lovegrove 1993). Even today, as vast protected areas that served as a buffer for coastal diamond mining are opened up to alternative use, their status as a biodiversity hotspot influences public policy and plans for future use (Pallett 1995).

At the national level, Namibia has a very active policy setting arm in the Directorate of Environmental Affairs in the MET. Preparing first a "Green Plan" with a chapter on biodiversity, this directorate has taken the lead in having the government ratify the Convention on Biodiversity, as well as the Convention to Combat Desertification, Ramsar and CITES, and integrating them into National Development Plans. The public sector has an increased awareness of biodiversity although a draft Environmental Management Act languishes.

Management lessons for this arid area are indirectly research driven. The Namib Desert was originally considered by most as an open, rugged space to test vehicles and people against the environment. As information on the biodiversity and relative fragility of the landscape became available, and the number of researchers attracted to the area was noticed, management directives increased. This was partly in support of enhancing a tourism attraction and partly to protect the biodiversity. Currently, as in many parts of the world, tourism activities are attracted by the relatively unspoiled open

spaces while increasing tourism is itself impacting on the landscape. Although a variety of management tools have been applied to the development of the Namib Desert, for example, requiring environment impact assessments for infrastructure development (Tarr 1996), economic considerations, not biodiversity, remain paramount.

4. USE AND MANAGEMENT BY LOCAL POPULATIONS

The definition of local populations in the Namib Desert is not entirely clear. The only people in Namibia living within a park, the Topnaars, live along the ephemeral Kuiseb River in the Namib Desert (Botelle and Kowalsi 1995). Elsewhere in Namibia in communal farming lands, community based natural resource management is being developed, but the modalities for developing this approach within a park have yet to be established (Dausab and Jones 1997). Moreover, the Topnaars have very close ties with the port town of Walvis Bay where most of their population lives. Researchers working at Gobabeb on the lower Kuiseb River live close to and amongst the local Topnaar people and both parties have learned many lessons from each other, directly and indirectly. Similarly, urban coastal residents have shared many experiences with the researchers.

Currently, several research projects are being undertaken directly with the Topnaars. These focus on developing their management and markets for indigenous fruit products (Henschel et al. 2002), community based tourism (Kooitjie S. and Dausab R. personal communication) and harvesting fog (Henschel et al. 1998). Growing from the efforts of the Topnaars and researchers, several developmental NGOs are now involved, with particular reference to marketing. The DRFN, collaborating with the Department of Water Affairs, is working with all communities living within or using water from the ephemeral Kuiseb River basin to pilot Basin Management Committees, a key component promoted in the draft Water Act (Amoomo 2000, van Langenhove G. and Botes A. personal communication). The research base established in this basin and the long–term interactions among the wider community enhance this development. From a similar approach, concerns about desertification are being addressed by forming partnerships with rural communities throughout Namibia and establishing sound foundations for sustainable natural resource management (Seely and Jacobson 1994, Seely 1998, Seely and Wöhl 2001).

5. SUSTAINABLE USE OF RESOURCES FOR TOURISM

Most of the unique biodiversity of the Namib desert lends itself to support tourism in the area. Tourism is also based on the landscape that is inextricably linked to the biodiversity. This begs the question of how this diverse resource can be exploited for tourism without destroying it. Management of tourism in Namibia is very diffuse and can be guided by public policy, rules and regulations, but is implemented mainly by the private sector. With a current focus on low volume tourism the balance with environmental protection could be maintained. As the numbers of tourists continue to increase, even though not extending to mass tourism except on a very local and temporal basis near coastal towns, the landscape and its associated biodiversity are in jeopardy. At the same time as basic research yielding new, interesting information concerning the biodiversity of the Namib is decreasing, dissemination of existing information to government and the tourism industry is increasing. This shift in balance between research information, and policy and tourism is of particular concern for the biodiversity of the Namib because future management to be effective must be based on current research.

6. CAPACITY BUILDING AND PARTNERSHIPS

Interest in and concern for biodiversity in this arid area has been influenced by a changing relationship between the public sector, the private sector, and the NGOs because of their constantly shifting interests, capabilities, and resources. Although the public and NGO sectors shared the Gobabeb research facility with the Namib–Naukluft Park since 1970, the beginnings of a partnership only arose when the Joint Venture Agreement was signed and the Gobabeb Centre was formed enhancing partnerships and capacities of all involved. The Topnaar community, the Southern African Development Community Environment and Land Management Sector (SADC–ELMS) and a Namibian tertiary education institution are represented on the board of trustees. Similarly, the public and NGO sectors were guiding tourism development; the private sector tourism industry, including the Topnaar, was based on their support. However, rather than a true partnership to date, each sector has proceeded relatively independently. Interest in the biodiversity and landscape has varied among sectors, but has remained the central point for direct or indirect interaction.

Similarly, capacity building has been addressed differently by the three main sectors concerned with biodiversity in the Namib Desert. Since

independence in 1990, capacity building in the public sector concerned with biodiversity has, at the local level, focused on management and law enforcement. At the national level, the MET is responsible for the UN conventions including the Convention on Biodiversity. The country program has consolidated available information in the form of publications (e.g., Barnard 1998), has established a multidisciplinary task force and in general has contributed to establishing partnerships amongst concerned public and NGO institutions (Barnard and Shikongo 2002). Capacity building within relevant institutions is beginning to emerge from these efforts. In the private sector, the requirement of formal qualifications for tourism operators is a driving force to increase capacity building. In the NGO sector, specific efforts for capacity building with respect to biodiversity have been a long tradition and this focus continues. A variety of hands–on training opportunities with DRFN and a variety of partners takes place at Gobabeb and throughout Namibia, many established on an annual basis (Seely et al. 2000a, 2000b). These range from one week courses in arid zone ecology for university and polytechnic students to ten week courses in environmental problem solving for sustainable development. In a young developing country like Namibia, this latter approach has resulted in many graduates assuming positions in the public and private sector with enhanced capacity and understanding of the relevance of biodiversity.

7. CONCLUSION

The future of biodiversity management in Namibia lies in continuing to strengthen the association between conservation, research, tourism, management, training and dissemination of awareness and information. It involves and reaches a wide variety of people ranging from rural communities to top level politicians. An interactive partnership between public, private and NGO enterprises that serves the interests of them all is the driving force that keeps these diverse aspects going. From initial lessons learned and partnerships formed in the Namib Desert, a best practice was formulated and is being applied in other regions of Namibia. This demonstrates the substantial value that can be gained from science being relayed, related to, applied to, and influenced by the environmental problems of the day.

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