

Abstract

MULTIPLE USE OF THE KUISEB RIVER COURSE WITHIN THE NAMIB NAUKLUFT PARK

EXECUTIVE SUMMARY OF PRELIMINARY PROPOSAL

- 1) The Kuiseb River within the Namib Naukluft Park serves as a linear oasis supporting a variety of uses.
- 2) As pressures on this limited environment increase, conflicts between the various user groups have arisen.
- 3) Interested users of vegetation and water resources include: farmers and domestic animals, conservationists and associated game, tourists, educators, researchers, uranium and other miners, and inhabitants of two coastal towns.
- 4) Part I of the enclosed document outlines the current uses of the Kuiseb River and its associated riparian vegetation and lists four alternatives for the future of the area.
- 5) Part II outlines a possible integrated programme for sustained multiple use of the riparian vegetation of the Kuiseb River and available water within the desert environment. This programme focuses on enhancing the tourist and education potential of the area through co-operative interactions between farmers, conservators, educators and researchers.

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MULTIPLE USE OF THE KUISEB RIVER COURSE
WITHIN THE NAMIB-NAUKLUFT PARK

PART 1

CURRENT USE AND SHORT TERM RECOMMENDATIONS

ABSTRACT

The Kuiseb River is an ephemeral watercourse, with headwaters in the highlands west of Windhoek, that traverses the Namib Naukluft Park on its course westward to the Atlantic Ocean. Water is removed from the Kuiseb as surface water in the headwater area and from natural underground storage reservoirs in its lower reaches. Constituting a sensitive linear oasis within the desert environment, the riparian vegetation bordering the usually dry watercourse is used by a variety of game in its upper, wilderness reaches within the Park. Here it is also traversed by the main Windhoek - Walvis Bay road, routed via the Gamsberg Pass and a public campsite is located at the Kuiseb Bridge. Along its lower reaches, within the Park, domestic stock of subsistence farmers uses the riparian vegetation. The Namib Research Institute at Gobabeb, a public campsite at Homeb, water abstraction installations and a school at Ituseb are also situated along the lower river within the Park. Do these multiple uses currently produce the optimal sustainable yield of this valuable area?

INTRODUCTION

The Kuiseb River is the first ephemeral water course north of the Orange River to flow across the Namib Desert. Along much of its lower course it serves as a barrier to the northward advance of the Main Namib Sand Sea. As an ecologically important linear oasis along its course through the Namib, it supports a variety of game in its upper, wilderness reaches, and a multiplicity of uses in its lower, accessible course. As a result of increased demand for surface and subsurface water from the Kuiseb, in its headwaters region and in the desert, there has been continuing concern that the Kuiseb might forfeit its roles both as a barrier to northward movement of the sand and as an ecologically important linear oasis. Consequently, the Kuiseb River is one of the best studied desert rivers of Namibia, the result of a co-operative effort in the 1970's to address the problem of over-use that resulted in the publication in 1985 of 'The Kuiseb environment: the development of a monitoring baseline' edited by B J Huntley.

The Kuiseb River is one of a class of habitats described as linear oases that have been designated areas deserving 'Special Conservation Attention during planning' by the various organizations and departments that drew up 'Guidelines for the Development of the Central Namib.' Nevertheless, because of its location in the more populated central Namib, near a major uranium mine and two large coastal towns of Namibia, greater use is made of the desert reaches of the Kuiseb than of most other desert rivers in Namibia.

DISCRIPTION AND CURRENT USEAGE

The following sections, listed in geographical order from east to west (upstream to downstream), briefly cover major aspects of development and current use of the Kuiseb River course within the Namib Naukluft Park.

I. Upper Kuiseb, Namib Naukluft Park

1. The district road

The district road, the bridge across the Kuiseb River and the gauging weir all are established parts of the local infrastructure. They have little negative impact upon the environment although their presence could enhance the possibility of unauthorized access to wilderness areas of the Namib Naukluft Park.

2. Kuiseb Bridge Campsite

The Kuiseb Bridge Campsite provides a welcome respite to travellers along this main road. Many people are unaware of this campsite before embarking on their travels and hence do not obtain the necessary permit prior to use. As with the road, the presence of the campsite could enhance the possibility of unauthorized access to the Kuiseb River.

3. Kuiseb Wilderness Area

Although not officially designated, the course of the Kuiseb River between the Kuiseb River Bridge and Homeb Campsite is a de facto Wilderness Area. Surface water remains available to game longer in the rocky canyon area than on the sandy alluvium further down stream. The only human activities within this area are occasional visits by staff of Nature Conservation and studies by staff and visitors of the Desert Ecological Research Unit of Namibia at Gobabeb.

II. Lower Kuiseb, Namib Naukluft Park

1. Homeb Campsite

This is a popular campsite located approximately 130 km by road SE of Walvis Bay. Immediately upstream from the campsite lies the Kuiseb Canyon Wilderness Area. Downstream from Homeb Campsite, vehicles can gain access to the Kuiseb at most places. The Homeb Campsite allows access by 4 x 4 vehicles to the sandy riverbed, frequently used for unauthorized travel by tourists. Researchers drive in the riverbed past the campsite to reach study sites in the Wilderness Area upstream from Homeb.

The campsite, located on the north (right) bank of the river near a village site of the Topnaar farmers, allows access on foot to the riverine vegetation and the linear dunes extending south of the river course. Birds, reptiles, invertebrates and the riparian woodland constitute the major biotic attractions. Conspicuous deposits of ancient river sediments also attract many visitors. Homeb Campsite is frequently used by educational groups as well as ordinary tourists.

2. Subsistence farmers

Villages of the Topnaar farmers are established at a number of locations along the lower Kuiseb River within the Namib Naukluft Park. Reinforced by a Charter from Queen Victoria, they have pursued subsistence small stock farming in this area for hundreds of years. Currently, Homeb is the furthest inland (upriver) village. Before the advent of donkey carts, villages were situated further upriver; difficulty of access by carts and 2-wheel drive vehicles have limited occupation to Homeb and below. Recent introduction of 4-wheel drive vehicles into the community provides access to the Kuiseb above Homeb although no villages have been established in this area.

Stock farms include goats - that are kraaled at village sites each night - and cattle, donkeys and, within the last year, horses - that range free along the Kuiseb woodland. Thus, impact upon the available browse is greatest in close proximity to the villages, although animals range throughout the riparian woodland and more than 25 km upriver from Homeb. Goats are taken onto the Namib plains to graze after exceptionally good rains. Since provision in 1980 of wind pumps for water, village sites, with few exceptions, have remained static. Approximately nine other village sites lie within the Namib Naukluft Park down stream of Homeb.

In addition to small stock farming, some members of the community engage in the harvest of nara melons (an endemic Namib cucurbit) for export of the seeds. This constitutes one of the few plant cash crops exported from Namibia to the RSA.

None of the activities of the farming community within the Namib Naukluft Park are regulated in any way by the Directorate of Nature Conservation (e.g. see below) with exception of the prevention of killing of game species.

3. Namib Research Institute, Gobabeb

Since 1959, personnel of the Desert Ecological Research Unit of Namibia (DERU) at Gobabeb have studied aspects of the geomorphology, climatology, archaeology and ecology of the Namib Desert. Results have contributed to the world scientific literature, to tourism, to education and to conservation biology. Gobabeb is known to most scientists dealing with arid environments throughout the world.

More than 50% of the educational and research field activities of DERU students and scientists take place within 10 km of Gobabeb. Travelling in the Kuiseb riverbed, or on established tracks on the plains or interdunes/dunes, visitors and staff make observations of the fauna and flora. Collections of biological or geological materials are all made at distances greater than 10 km from Gobabeb. All activities of the educational groups and scientists are covered by permits issued by the Directorate of Nature Conservation: presence at Gobabeb and elsewhere in the Namib, projects, visitors to resident staff at Gobabeb (limit of 12 personal visitors per year), collection of material including invertebrates, seeds etc for educational and scientific study at Gobabeb, and exportation of biological material to other countries for purposes of further study. Domestic animals are not allowed.

Work of scientists at Gobabeb has contributed extensively to understanding of the dynamics of the Kuiseb River system - information that can be extrapolated to other desert river systems constituting linear oases with headwaters outside desert regions.

4. Water abstraction installations

Water abstraction installations on the lower Kuiseb River within the Namib Naukluft Park provide water for the town of Swakopmund and Rossing Uranium mine. Extensive substrate destruction took place during the erection of these installations and continues during maintenance activities.

5. Military activities

Although no longer taking place, military practise activities in and near the lower Kuiseb River within the Namib Naukluft Park have had a large negative impact on the substrate and the aesthetic appeal of the area. Partly because of these activities, and the substrate destruction that took place during the erection of the water installations, the campsite at Swartbank Mountain was deproclaimed.

6. Kuiseb Road

A road, running parallel to the Kuiseb River from Rooibank to Zebra Pan, is now maintained only from Gobabeb eastward to Zebra Pan. The western portion of this road was deproclaimed in 1976, partly because of the above two mentioned activities. Moreover, it was not a constructed, but only a scraped road, which apparently contributed to difficulty of maintenance.

7. Swartbank Mountain Campsite

This campsite was deproclaimed at the same time as the road. Activities of Water Affairs personnel and the military influenced the decision.

8. Ituseb School

This school, established by the Nama Administration, provides primary schooling for children of the farmers of the Kuiseb River, Rooibank and other children from Walvis Bay.

CONSIDERATIONS FOR FUTURE DEVELOPMENT AND USE

I. Upper Kuiseb, Namib Naukluft Park

Little development has taken place on the Upper Kuiseb River within the Namib Naukluft Park. Few alterations are suggested.

1. The district road

No alterations in the road or bridge are suggested.

2. Kuiseb Bridge Campsite

Fencing prevents access from the campsite to the Kuiseb River wilderness area. It is recommended that this fencing be maintained and, perhaps, strengthened.

Because the position of the Kuiseb Bridge Campsite provides a welcome respite to travellers along this main road, many of whom are unaware of this campsite before embarking on their travels, it is recommended that it be opened for use without permit requirements. A sign requesting the cooperation of visitors in maintaining the integrity of the site, should be sufficient. Regular attention by Nature Conservation authorities should continue.

This campsite provides the first experience of the Namib Desert to many tourists and other travellers. It is recommended that information concerning the environment, the importance of the Kuiseb to the Namib, and about the Namib Naukluft Park in general be made available at this site in the form of information boards, brochures or other media. A self-guided nature trail (on foot) could be developed in this locality.

3. Kuiseb Wilderness Area

It is recommended that this area be maintained a wilderness and research area. Guided hiking trails to this area from points on the north bank and hiking through the canyon itself could be developed on a very selective basis, for example, only when water is abundantly available (e.g. up to 4 months following floods) and not when dry conditions stress animals; no fire wood be gathered and only portable parafin (or gas) stoves for cooking should be allowed.

II. Lower Kuiseb, Namib Naukluft Park

Extensive development has taken place along the north bank of the Kuiseb River within the Namib Naukluft Park. With the exception of the presence of the Topnaar farmers and a track along the Kuiseb River, all developments have taken place within the last 30 years. During the latter part of this period, activities of the Topnaars expanded, whereas a portion of the road has been deproclaimed and is no longer maintained. Establishment of an integrated approach to the development of the area, taking into consideration the various interests represented to resolve conflict, must therefore be considered.

A. Four major alternatives exist for the Lower Kuiseb within the Namib Naukluft Park.

a. Continuation of the present situation:

The present situation involving mixed approaches, control and use of the area could continue for the immediate future and any conflicts be resolved on an ad hoc basis as and when they arise.

b. Deproclamation and excision:

The Lower Kuiseb (from Homeb westwards) could be deproclaimed and excised from the Namib Naukluft Park.

c. Dedication of area to conservation interests:

Farmers and their villages could be removed from the Namib Naukluft Park, the integrity of the area as a Park be established, and this important linear oasis be used only for conservation and tourism.

d. Integrated development:

An integrated development programme taking into consideration the interests of the various groups concerned could be designed for the Lower Kuiseb within the Namib Naukluft Park.

B. The fourth alternative and the formulation of an integrated development plan is strongly recommended. A proposal for such a plan constitutes Part II of this document.

a. On the assumption that the first alternative, no change, will be adopted in the immediate future, the following short-term suggestions are made.

1. Homeb Campsite

The campsite should continue to be maintained by Nature Conservation personnel for tourist use. Mr S Kootjie, Headman of the Topnaars, whose own farm has been erected several hundred metres from the camp site, has mentioned the possibility of establishing a swimming pool in the vicinity for tourists. Some action needs to be taken to limit unauthorized incursions by tourists to the Wilderness Area as the established signs are insufficient and ignored. The horses resident at Homeb are, according to the resident farmers, giving problems to the farmers by straying far upstream to water points that remain for a few months following floods. These two major negative impacts on the Wilderness Area must be contained.

2. Subsistence farmers

Farming should continue in the Kuiseb in the traditional and evolving fashion. Agricultural extension work could improve the farming conditions.

3. Namib Research Institute, Gobabeb

It is recommended that work of this Institute and its associated organizations continue to take place along the Upper and Lower Kuiseb River.

4. Water abstraction installations

The amount of water being abstracted from the lower Kuiseb must not increase to unsustainable levels. Increased water take off from the headwater areas of the Kuiseb should be monitored and possibly, as the need develops, limited.

5. Military activities

These are no longer taking place in this area and it is recommended that they never be resumed within the Namib Naukluft Park.

6. Kuiseb Road

It is recommended that this road be scrapped on a regular basis for use as a secondary road along the Kuiseb River. It is not recommended that it be constructed as a major thoroughfare.

7. Swartbank Mountain Campsite

It is recommended that this scenic campsite be reestablished for use by tourists. Additional campsites with a wilderness character could be established by Nature Conservation for tourist use at other, uninhabited, localities along the lower Kuiseb.

8. Ituseb School

It is recommended that this school remain available to the children of the Kuiseb River.

b. If alternative b, deproclamation and excision of the Lower Kuiseb River from the Namib Naukluft Park should be favoured, the following points and questions might be taken into consideration:

- An area extending some defined distance, e.g. possibly 2 km north and south of the midline of the Kuiseb River course, be excluded from the Namib Naukluft Park
- The Topnaar farmers, and all other Namibian farmers, occupy the area and farm communally or purchase or lease the land for farming development
- Some means of separating the tourists and domestic stock of the Lower Kuiseb River from wild game of the Kuiseb Wilderness Area be established in the vicinity of Homeb
- The Namib Research Institute at Gobabeb, water installations and schools, would fall outside of the Namib Naukluft Park
- Campsites would fall away or could be maintained (and new ones established) by the inhabitants of the Lower Kuiseb on a private or communal basis
- Access to the area should be considered
- A sensitive linear oasis would be gained for expansion of farming activities and lost to conservation and some types of tourism
- Would the privileged (Charter from Queen Victoria) and delicate position of the Topnaars be lost if other farmers with greater available capital occupied the Kuiseb?

CONCLUSIONS

In the absence of any major changes, it is suggested that the Kuiseb River course within the Namib Naukluft continue to be exploited in a pattern of multiple use. Slight modifications of existing usage are recommended.

MULTIPLE USE OF THE KUISEB RIVER COURSE
WITHIN THE NAMIB-NAUKLUFT PARK

PART 2

SUGGESTIONS FOR AN INTEGRATED DEVELOPMENT PLAN
FOR THE LOWER KUISEB RIVER

ABSTRACT

The Lower Kuiseb River within the Namib Naukluft Park and the Lower Kuiseb River within what is now the Walvis Bay Enclave should be considered, for purposes of planning and development, as an integrated unit. The Cape Provincial Authorities of the RSA are in the process of proclaiming a portion of the Kuiseb River Delta as a multiple use Nature Reserve. Other parts of the Kuiseb currently are used for: farming, tourism, conservation, education, research, water abstraction, security training grounds and residential use. Each of these activities has evolved essentially independently of the others and are sometimes in conflict. An integrated development plan, taking into consideration all interests currently involved and others that might arise, is recommended.

SUGGESTIONS TOWARD WORKING OUT AN INTEGRATED DEVELOPMENT PLAN FOR THE
LOWER KUISEB RIVER: HOMEB TO THE SEA

(Aspects of these plans have been discussed with S Kooitjie, Topnaar Headman, A Bees, and A Nareb as well as colleagues involved with education and conservation in Namibia.)

1. Suggested steps:

- a. Contact all interested groups and individuals and inform them of the idea to develop an integrated programme
- b. Convene meetings, large and small, to discuss background, potential plans and possible scenarios for development
- c. Begin carrying out the more easily accomplished and realistic aspects of the programme
- d. Continue discussions through every step of the programme and on an ongoing basis thereafter

2. Identified, interested organizations and people:

- a. Topnaars for village sites, stock farming, harvesting of nara
- b. Nature Conservation for wildlife supported by the linear oasis
- c. Namib Research Institute at Gobabeb for carrying out long term ecological research and educational activities

- d. Local tourists for education, holiday outings, recreation
- e. Overseas tourists for desert experience
- f. Education department and local inhabitants for schooling and hostels at Ituseb
- g. Water Affairs Department for abstraction of water
- h. Security forces for training grounds
- i. Prospectors and miners for potential mining sites
- j. Others

3. A suggested programme - east to west:

Preservation of Wilderness Area in the Upper Kuiseb valley-

a. Fence or other means of separating wilderness area and farming/camping areas: Some means must be established to eliminate the existing friction between the wild game of the Wilderness Area and the disturbance caused by intrusions of tourists and domestic animals into the Wilderness Area and, at the same time, assist the Topnaars living at Homeb to control movements of their horses. Research staff have been asked to chase horses downstream, when they are encountered, and research staff also report tourist activity in the area. More effective means must be sought to solve this recurring problem.

Campsites-

b. Homeb campsite: Homeb campsite should be considered a campsite available to all, but not particularly directed at those expecting a wilderness experience. The currently provided infrastructure includes cement tables and pit toilets. Potential additions could include a swimming pool (Mr Kooitjie suggested he would like to provide this); donkey cart rides; information boards and/or brochures explaining aspects of the Namib, particularly the Kuiseb environment; self-guided, or guided, nature walks. In this way the Topnaar people living at the Homeb campsite, and those at Oswater 3 km to the west, could be involved in the development and maintenance of the campsite, the activities offered and the income derived.

c. Wilderness campsite: An area near the site of Old Natab could be established as a wilderness campsite. Pit toilets should be constructed, but the development otherwise limited. Information boards/brochures and self-guided nature walks could be provided in the area. The influence of farming should not be a major factor at wilderness sites.

d. Village campsite: Somewhere between the Aussinanis River confluence with the Kuiseb and the occupied village of Klein Klipneus, a campsite could be developed along the lines of an old Topnaar village. Dome huts covered with Acacia bark and other features of a village could be built for use and examination by tourists. Donkey cart rides, guided walks to the nara fields at

Dibereb, information in the form of boards or brochures, self-guided or guided nature walks could be offered. Villagers from nearby the site could be involved in development and maintenance of the site as well as the activities offered and income derived.

e. Wilderness campsite: The deproclaimed campsite on the northwestern side of Swartbank Mountain should be re-established as a wilderness campsite. Pit toilets should be the only amenity provided. Information boards and brochures and self-guided nature walks could be provided. This site could be recommended to those tourists wishing a wilderness experience in the Namib. Minimal maintenance would be required.

f. Scheppmannsdorf campsite: A campsite near the old mission of Scheppmannsdorf should be established once security training no longer takes place in this vicinity. Unexploded ammunition might preclude such development.

g. Nara harvest campsite: A campsite somewhat to the east of Rooibank within the low dunes of the 'Upper Kuiseb Delta' could be established. Pit toilets and tables would suffice. Donkey cart tours of the nara fields, with guided trips accompanying the nara harvest, could be the highlight of this site. Self-guided and guided nature walks could be established, and information boards and brochures organized. The local Topnaars involved in the nara harvest, and those living nearby throughout the year, could contribute toward establishment and maintenance of the site and its ongoing activities.

h. Other campsites: Other campsites could be established along the Lower Kuiseb as and when the need and interest arises.

Farming-

i. Goat farming: Extension work could improve farming practice, associated income and the standard of living of local farmers. Implementation of practices leading to improvement of both stock and environment should be planned. Subsistence farming practices of the Lower Kuiseb should be studied as there is no data base concerned with these practices available for Namibia.

j. Vegetable farming: The Rössing Foundation has offered to assist the Topnaars of the Lower Kuiseb River in the vicinity of Ituseb and Rooibank to establish vegetable farming. This should be an activity easily integrated into the other proposed uses of the area, again contributing to an improved standard of living.

k. Craft production: The establishment of various small craft industries, e.g. perhaps knitting, sewing, weaving with a local character, should be considered in conjunction with the vegetable farming. Particularly marketing activities could be coordinated.

Education-

l. Gobabeb: Educational activities at Gobabeb emphasizing training of teachers, educational experiences for high school and university students, provision of basic materials for use in schools at all levels, interpretation of information to improve quality of tourism in the Namib, interpretation of Namib ecology in terms of conservation biology, and provision of information concerning arid environments for all Namibians should be expanded. Long term ecological research and the establishment of an arid lands data base for Namibia should continue and information exchanges with other arid and semi-arid African countries should be enhanced.

m. Visitors centre: A visitors centre including a building interpreting aspects of Namib and arid ecology for tourists, students, children and people at all education levels should be established in the vicinity of Gobabeb/Soutrivier. This could include a shaded picnic, but not a camping, site, self-guided and guided nature walks on foot, a large, outdoor relief map of the Namib (or Namibia), and other educational materials. It should be built using appropriate local technology and manpower and the structure itself could be part of the educational display. Its activities should be coordinated with those of the various campsites and local crafts (see k above) could be marketed, also packets of nara seeds for eating and planting, perhaps seeds from other desert plants for horticultural use, and books, cards and other Namib-related information. Both development and running of the centre (and, e.g., associated desert garden for seed production) could provide employment for local persons.

n. Ituseb school: This school, established by the Nama administration, should continue to provide a service to the children of the Kuiseb valley during regular school months. During holiday periods, however, it could be used to accommodate children from the remainder of Namibia for instruction in environmental education. Because of the extreme and relatively simple nature of the ecological interactions occurring in deserts, and because the Namib has been so well studied, great potential exists for teaching the characteristics of arid environments. The basic principles learned in the Namib can be extrapolated to the other arid and semi-arid parts of Namibia.

Infrastructure-

o. Kuiseb road: The Kuiseb road should be scraped on a regular basis although not developed to a higher standard (to avoid the destruction caused by borrow pits, road building etc). Major access to the area could continue to be routed via the Vogelfederberg-Kuiseb Road (an information display on road building techniques in the Namib could be established at the visitors centre).

p. Water abstraction installations: It is recommended that personnel servicing these installations develop a network of tracks to be regularly used and that random travel across the surface of the desert be discontinued, particularly in the area east of Ituseb. In this way, the substrate, with its associated biota, will be allowed to recover during the next few centuries. Information concerning water abstraction from desert rivers, particularly the Kuiseb, could be made available to the public somewhere in the

vicinity (and a display on this topic could be established at the information centre).

q. Security training: It is recommended that security and army training facilities be removed from the lower Kuiseb, opening up the entire area to tourism and other uses.

r. Other: Other developments in keeping with current use of the Lower Kuiseb valley (for Topnaar farming, conservation, education, research and mining) may evolve with time.

CONCLUSIONS

An integrated programme for sustained yield management of the Lower Kuiseb is possible with co-operation and compromise on the part of all interested people.