

Existing Land Use Survey And Mapping In The Topnaar Community Along The Kuiseb River

Salom Shomeya

Abstract:

The Topnaar people live in small settlements on the northern bank of the Kuiseb River in Namibia's Namib-Naukluft Park, in the middle of the Namib desert. This study focused on investigating and mapping the land use activities taking place in Topnaar settlements. The project also looked into the legal land rights frameworks in the Kuiseb Topnaar community. The project was conducted in six settlements along the Kuiseb River. The purpose of this project was to identify the existing land use activities and social services/amenities provided to the Kuiseb Topnaar community. The project mapped the existing land use activities to produce the spatial layout map of every Topnaar settlement in the Kuiseb. Fieldwork and literature review have provided much information on the Topnaar community for this project.

1.INTRODUCTION

The Namib Desert, the world's oldest desert stretches along the Atlantic Ocean from the Kunene River, in the north, to the Orange, in the south. The desert is transected by the Kuiseb River, which rises in the central plateau of Namibia, some 20 km southwest of Windhoek, and flows down to reach the Atlantic Ocean, in the vicinity of Walvis Bay (David, 1969).

The Kuiseb River makes human existence possible in the Namib Desert (Ross 1970). The lower Kuiseb valley is home to approximately 300 Topnaar. The Topnaar, or *≠Aonin*, a Nama tribe, are subsistence farmers (although they also gather *!nara* and sometimes hunt), (Henschel et al, 2004) who live in small settlements on the northern bank of the Kuiseb River (Dentlinger, 1977).

There have been some services in some settlements in the lower Kuiseb like boreholes, wind pumps and water storage facilities (SWA 1981). Today in the Topnaar community there are wooden and scrap-metal houses, boreholes, a school, a clinic, a playground and water infrastructures in every settlement. However, a lack of employment opportunities in the Kuiseb forces young Topnaar to migrate to Walvis Bay for possible employment opportunities (Werner, 2003).

This project aimed to identify and map the main land use activities taking place in the in all 15 Topnaar community settlements along the Kuiseb River. This project also identified the social facilities provided for Topnaars in each Topnaar settlement along the Kuiseb River.

During this project it was discovered that today Topnaars living along the Kuiseb river are provided with some basic social services.

2.STUDY AREA

The land use investigation by fieldwork started at the first upriver Topnaar settlement of Homeb, located approximately 15 km east of the Gobabeb Training and Research Centre, all the way downriver ending with the settlement of Armstraat, located around 24 km before the coastal town of Walvis Bay.

3. PROJECT OBJECTIVES

3.1 To identify the existing social services/amenities in the Topnaar community.

- 3.2 To draw up a current map of Topnaar settlement distribution along the Kuiseb River.
- 3.3 To draw up a detailed land use map one settlement with the most variety of land use activities in the Kuiseb.
- 3.4 To produce current spatial layout of each settlement in the Kuiseb
- 3.5 To identify and compare the variety of land use activities of Topnaar settlements in the Kuiseb, specifically how these activities vary according to a settlement's distance from Walvis Bay or according to a settlement's water supplier.

4. METHODS AND MATERIALS

4.1 METHODS

Two main methods used to acquire information needed for this project are as follow:

Fieldwork: *interviews*, Questionnaires, Observation and GPS.

Literature review of maps, Books and Past studies

4.1.1 To identify the existing social services/amenities in the Topnaar community

Fieldwork

- I visited every Topnaar settlement in the Kuiseb, throughout the observation I recorded all the social facilities that are provided in each settlement.
- A household survey on Topnaar livelihoods was conducted with other members of GIST. My portion of the questionnaire consisted of questions on the presence of various social facilities. 55 households from all Topnaar settlements were interviewed.

Literature reviews

- A review of recent studies on the social and developments in the Kuiseb was conducted in the Gobabeb Training and Research Centre library, which revealed some of services/amenities provided in the Kuiseb for the Topnaar.

4.1.2 To draw up a current map of Topnaar settlement distribution along the Kuiseb River.

Literature Reviews

- Maps and books were used before fieldwork to give information on the location, Total number and names of existing Topnaar settlements along the Kuiseb River

Fieldwork

- I visited every Topnaar settlement from Homeb to Armstraat; while in the settlement I used a GPS to take the geographical coordinates of the settlement.
- Mapsource was used to produce the map on the computer.

4.1.3 To draw up a detailed land use map of one settlement with the most variety of land use in the Kuiseb.

Fieldwork

- After a visit to all settlements in the Kuiseb, it was found that the settlement of Utuseb has the most variety of land uses. Therefore Utuseb was chosen for the detailed land use map.
- The settlement of Klipneus was also mapped in detail for comparison

Drawing up of Utuseb and Klipneus detailed land use maps

- The Mobile Mapper GIS feature on a Thales Promark III differential GPS was used to map different aspects of Utuseb and Klipneus.
- Arcview GIS was used to finalize the map.

Drawing up the contour map of Utuseb.

- The differential GPS was used in Kinematic Survey mode (1 point per second) to generate many data points, which were then transformed into a contour map using Arcview GIS 3D Analyst.

4.1.4 To produce current spatial layout maps of each settlement in the Kuiseb

Fieldwork

- For each settlement in the Kuiseb the geographical coordinates of all the main composition of the settlements e.g. houses/buildings, water-points, toilets, gardens, and kraals, were taken using GPS.
- OziExplorer and MapSource were used to download all waypoints from the GPS into the computer. Arcview GIS was used to draw up final maps.

4.1.5 To identify and compare the variety of land use activities of Topnaar settlements in the Kuiseb, specifically how these activities vary according to a settlement's distance from Walvis Bay or according to a settlement's water supplier

Identifying different land use activities.

Fieldwork

- In the Topnaar community, all the land use activities in every settlement were observed and recorded. Settlements were grouped into two separate groups: Upriver and Downriver settlements (see Figure 1). The grouping is based on the location of the settlement along the river in relation with distance from Walvis Bay, and the settlement's water supply. The Upriver Settlement group consisted of all settlements upriver: Homeb, Osiwater, Natab1, Natab2, Soutrivier, Klipneus and Swartbank. These settlements get their water supply from the Directorate of Rural Water Supply. The Downriver Settlement group consisted of all settlements downriver of Swartbank, with water supply from Namwater.
- Data from the household survey on the presence of churches, gardens, farming, and !Nara fields was also used for this objective.

RESULTS AND DISCUSSION

5.1 RESULTS

The result of this project is here presented in maps, table, graph and texts.

5.1.1 To draw up a current map of Topnaar settlement distribution along the Kuiseb River.

Figure 1 shows the Topnaar settlements distributions along the Kuiseb River. This map includes the Gobabeb Training and Research Centre for reference, as well as because some Topnaar live at Tsabibis, which is housing for Gobabeb workers and is only 1 km from the station. All settlements shown on the map are located on the northern bank of the Kuiseb River. Some of those settlements consists of two to three households and about five to eight residents, like Homeb, Osiwater, !Ubas, Natab1, Steekgras and Ururas2. Others consist of sixteen to twenty households and about 25 residents, like Soutrivier, Dawedraai, Utuseb, and Armstraat.

KUISEB MAP

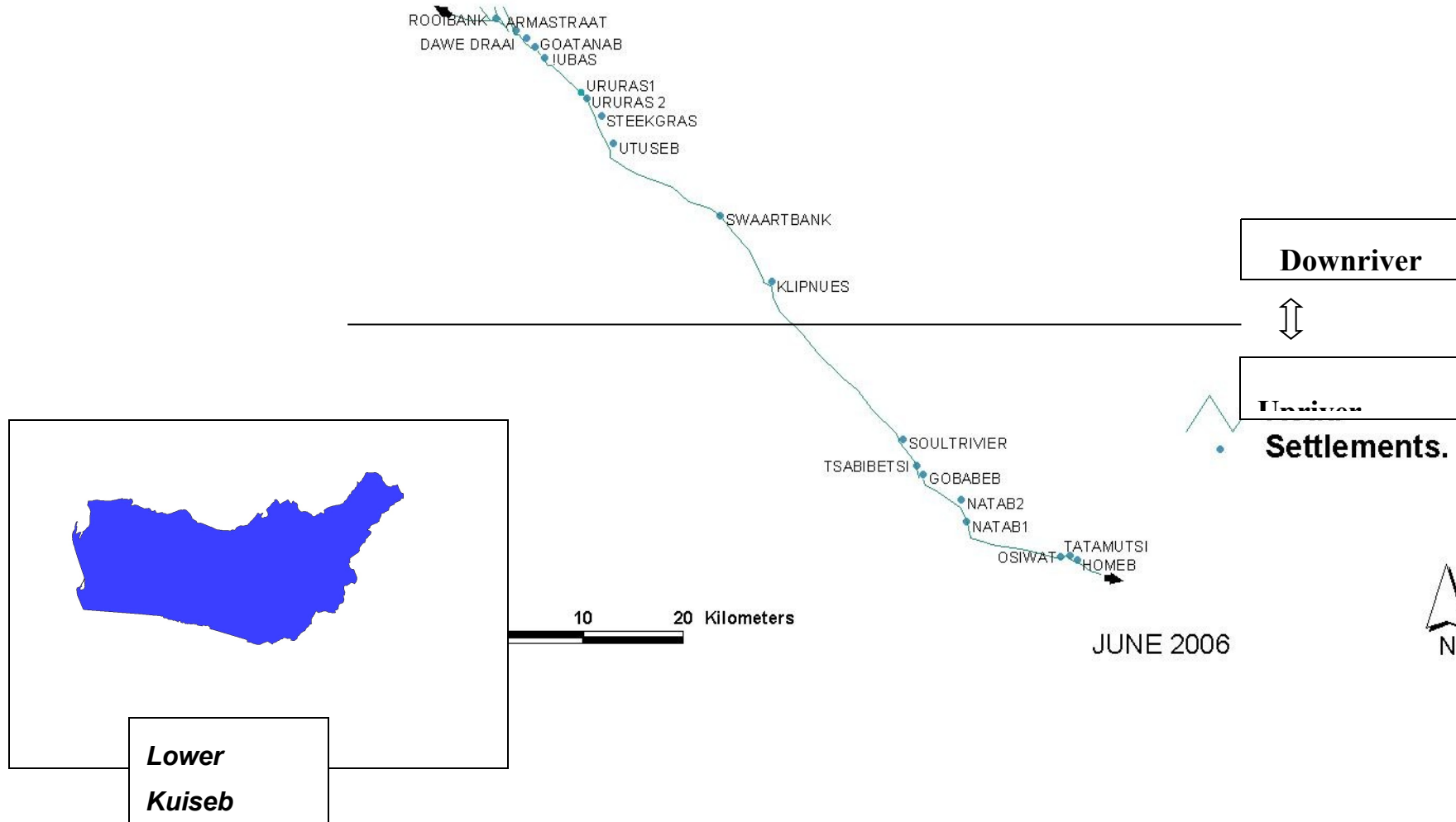


Figure 1: Settlement distribution map showing up- and downriver groupings

5.1.2 To identify and compare the variety of land use activities of Topnaar settlements in the Kuiseb, specifically how these activities vary according to a settlement's location along the Kuiseb River.

Table 2 shows the existing land uses (amenities/Developments/Services) in upriver and downriver settlements in the lower Kuiseb Topnaar Community. As you can see social services like Clinic and school are only found downriver at Utuseb. On the table no specify number of !nara field was recorded although interviewed local people had indicated their presence. There is also unspecified numbers of telephone

Table 2: Existing land use activities in two sets of settlements in the Kuiseb Topnaar community

| Activities/developments/services. | Upriver Settlements | Downriver Settlements |
|-----------------------------------|---------------------|-----------------------|
| | No, | No, |
| Water tanks/reservoirs | 15 | 18 |
| Livestock troughs | 7 | 11 |
| Church Facilities | 1 | 2 |
| Cemetery | 1 | 2 |
| Playground/Sports facilities | 1 | 3 |
| School | 0 | 1 |
| Clinic | 0 | 1 |
| Office | 0 | 1 |
| Telephone | - | - |
| Communal water taps | 6534 | 8 |
| Houses | 50 | 71 |
| Toilets | 12 | 11 |
| Kraals | - | 29 |
| Gardens | 1 | 15 |
| !Nara field | | - |
| Camping site | | 1 |

however; both upriver and downriver settlements residents have access to telephone services, and Gobabeb Centre and Utuseb respectively. Water infrastructures like Communal water taps, water trough, water tanks are almost in every settlement upriver or downriver. There is no big difference in the variety of land uses upriver and downriver. The settlement of Utuseb has almost all the land uses, services, amenities, and developments shown on the table.

Table 3: livestock population up- and down-stream

| Livestock | Upstream | Downstream | Total Percentages |
|-----------|----------|------------|-------------------|
| Goats | 696 | 392 | 62% |
| Cattle | 62 | 13 | 5% |
| Donkeys | 168 | 81 | 17% |
| Sheep | 116 | 1 | 8% |
| Poultry | 65 | 73 | 8% |

Livestock farming is a part of agricultural land use activities, and information on Topnaar agricultural land use is presented in the above table. Table 1 depicts the types of livestock farming practiced in the Kuiseb. Livestock farming is the most important agricultural activity. But it does not mean much land use is agricultural. Goats, donkeys, cattle, sheep, chickens and ducks are the livestock being raised in the lower Kuiseb Topnaar community.

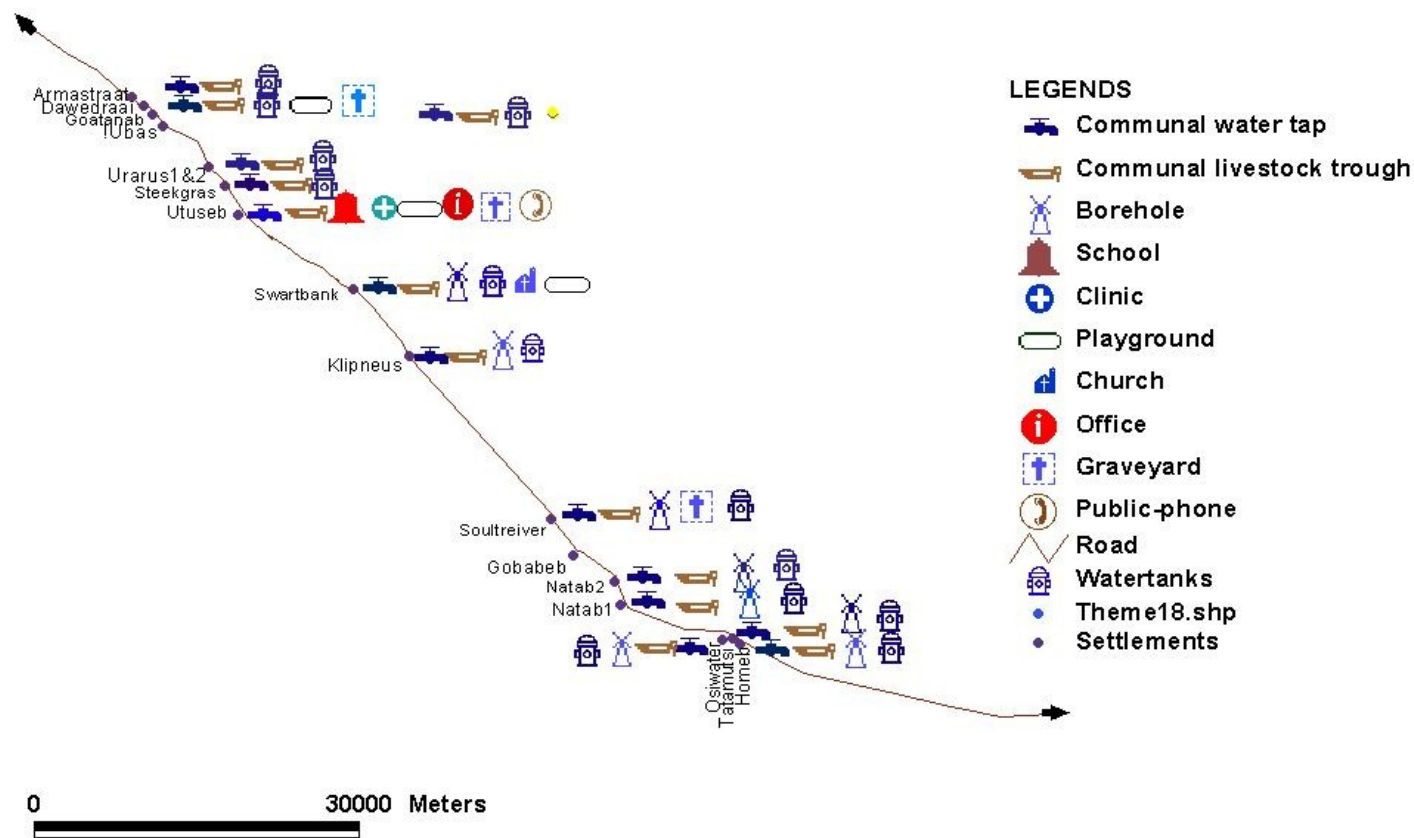
5.1.3 To identify the existing social services/amenities in the Topnaar community.

Figure 2 shows the social services/amenities existing in the Topnaar community, and it also shows the specific settlements where different services are found in the Kuiseb.

The Kuiseb is well supplied with piped running water system/water infrastructures from Homeb to Armstraat. The only two settlements in the Kuiseb without a direct water connection are !Ubas and Tatamutsi. The reason being that those two settlements are small with each having only two households, and they are in close proximity with big settlements where they have easy access to already existing water infrastructure. Although Tatamutsi has its own livestock water-trough. Settlements are supplied with water either by Namwater or Directorate of Rural Water Supply. Six settlements upriver get water from Rural Water Supply by means of boreholes drilled in the river.

As indicated on the map, not all the settlements have the same services available to them. The school, clinic and Traditional office are only found in the settlement of Utuseb. Playgrounds or sports facilities are only found in Utuseb, Dawedraai and Gobabeb. Church facilities are only found in Swartbank, Dawedraai and Armstraat. Furthermore, cemeteries are found at Soutrivier, Utuseb and Dawedraai. Other services such as telephone, electricity and swimming pool are also at Utuseb and places of employment like Gobabeb, Tsabibis, Rooibank and Marble Mine. Some Topnaar living in one settlement may have access to services in those employment centres. Service such as banks, post office and shops are only available in Walvis Bay.

SOCIAL SERVICES/AMENITIES MAP



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Figure 2: Social services & amenities map

5.1.4 To draw up a detailed land use map of one settlement with the most variety of land use in the Kuiseb.

DETAILED LAND USE MAP OF UTUSEB SETTLEMENT

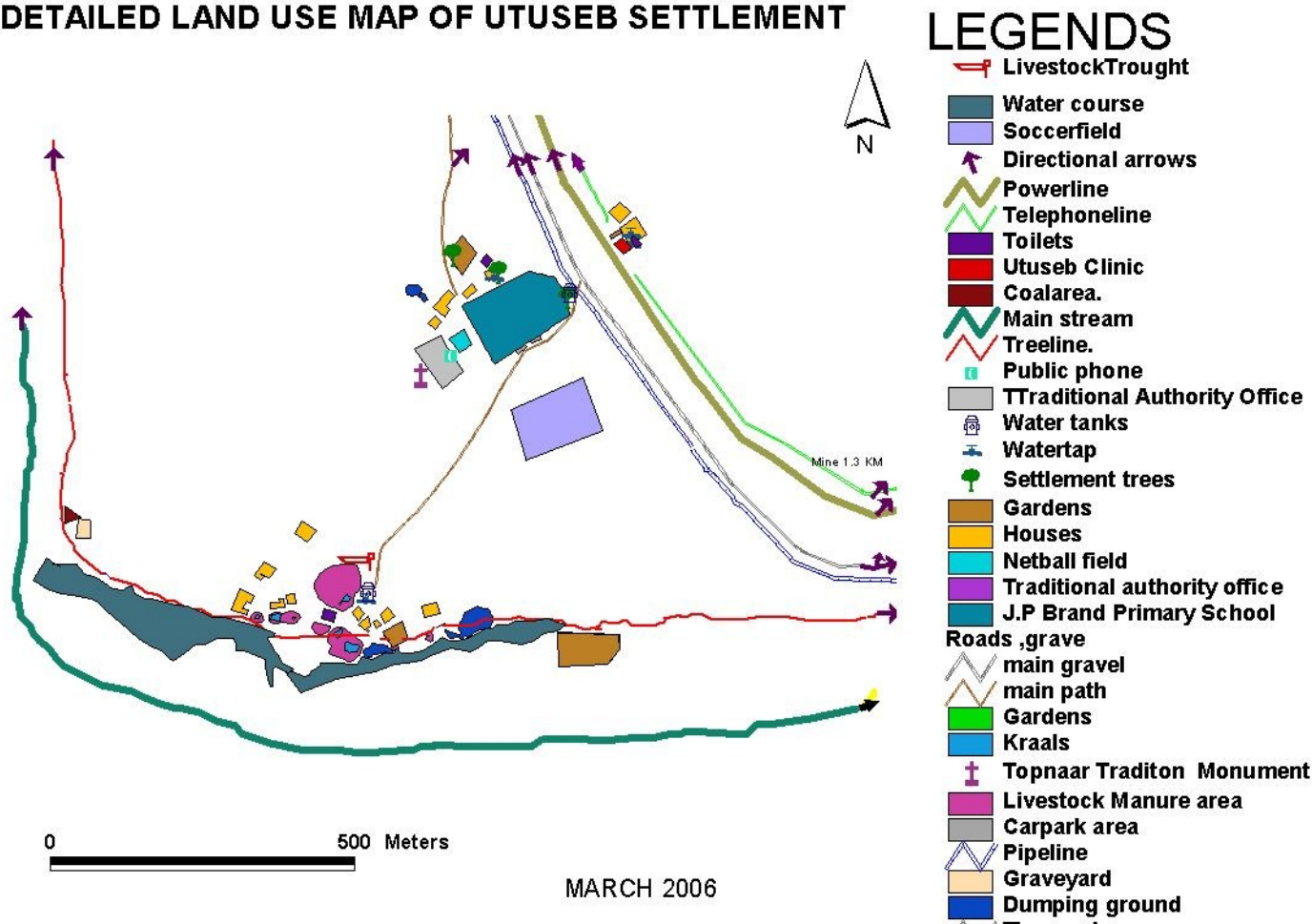


Figure 3: Detailed land use map of Utuseb

The detailed land use map (Figure 3) depicts Utuseb settlement's main land use activities and spatial layout. Utuseb is a notable Topnaar settlement because of its modern infrastructure developments and variety of land use activities in comparison with other Topnaar settlements along the Kuiseb River. As you can see on the Utuseb map, the settlement has got some attractive land use activities like the one and only clinic and school (J.P. Brand primary school) in the whole of the Kuiseb; there is the traditional authority office, power and telephone line, sport facilities and an income-

generating development: the Marble mine nearby the settlement.

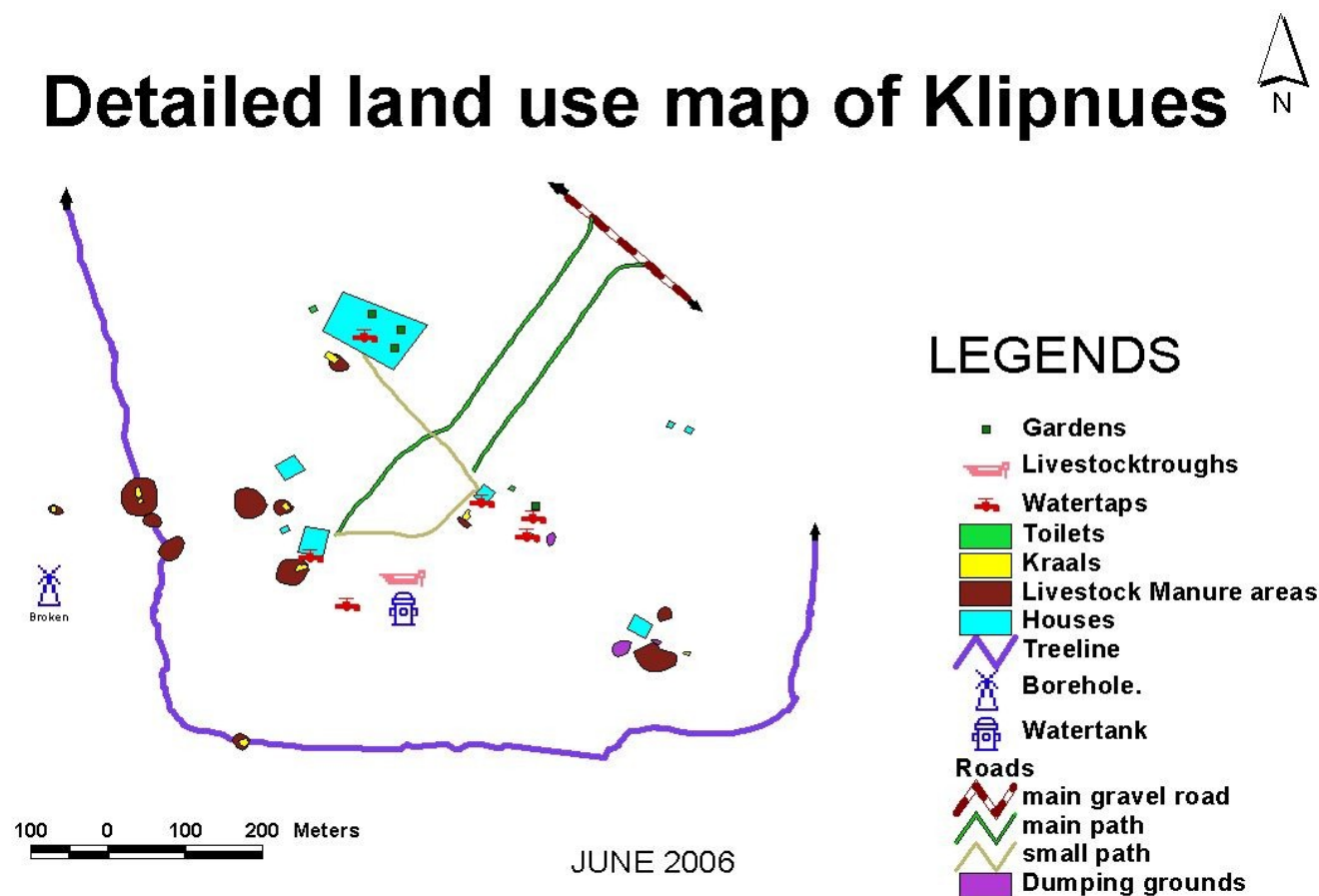


Figure 4: Detailed land use map of Klipneus

In Klipneus (see Figure 4), which is upriver, you can see that land uses are ranging from housing, Kraal, gardens and water infrastructures. This shows a clear difference in variety of land uses between the two settlements.

[where is the contour map?]

5.1.5 To produce current spatial layout of each settlement in the Kuiseb

See appendix: Map 1 to Map 12 are spatial layout and social composition maps of every Topnaar settlement along the Kuiseb.

Each map shows the physical format and social composition of a certain settlement. By looking at all the maps one can see that there are two main forms of settlement development, either scattered or linear format along the river. Some big settlements like Soutrivier and Dawedraai are in a linear format following the river, some like Utuseb and Armstraat are in a scattered format outward from the river. Small settlements also found their format between scattered and linear format along the river. There is no clear pattern of larger villages falling into a more pattern or scattered pattern. The map also shows the main land use activities in the settlement like housing, gardening, cemetery, kraals and water connections.

5.2 Discussion

Comparing the variety of land use activities of the two groups of settlements.

There is no substantial difference in the *variety* of land use activities between Upriver and Downriver settlements. The only difference there is in terms of some social services/modern developments, which downriver settlements have at Utuseb—the school, clinic, electricity and telephones—which Topnaar settlements upriver don't have. All other land use activities (water infrastructure, cemeteries, playgrounds, campsites, kraals, and gardens) are found both upriver and downriver.

However, there is a clear difference in the *amount* of each land use activity between the two settlements. The population per settlement downriver is higher and therefore there are more houses downriver at a total of 71 houses (with 53 houses upriver). There is little difference in the numbers of gardens between the two settlements, 12 gardens upriver and 15 gardens downriver. This is not huge difference because in almost every settlement in the lower Kuiseb there are more than one garden,

old or growing. Gardening conditions are poor for a number of reasons some raised by local gardeners themselves, lack of technical assistances, lack of money for pests chemicals, water, soil and climatic issues.

There are more kraals per person upriver than downriver, because some households upriver have more than three kraals (as at Natab2 and Swartbank). The total number of kraals across the Kuiseb is quite high at 79 kraals simply because livestock farming is the main livelihood activity in the entire Kuiseb community. The challenging concern is that the population upriver is smaller, but there are more of each livestock being raised than in the downriver settlements with its high population.

The two tourist camping sites, one upriver at Homeb and the other downriver near Armstraat are too few in relation to the Kuiseb's natural beauty and size. The two campsites are small and not fully developed to accommodate more tourists. One of them can be turned into or replace by a lodge, which would create new employment opportunities and income generating facilities which could improve life for the Topnaars in the lower Kuiseb. From the table of existing land uses, there is lack of income generating facilities, and business facilities. This means new local employment opportunities are mostly limited to places like Gobabeb training Centre, J.P Brand primary school at Utuseb, Marble Mine near Utuseb and Namwater branch at Rooibank. This imply that lower Kuiseb Topnaar community is primary residential.

There is also a difference in terms of scale. Most of the settlements upriver are small settlements consisting of one to four households and five to eight residents Like Tatamutsi with two households, five residents and Osiwater with one household, four residents. However there are big settlements upriver like Soutrivier and Swartbank. Many big settlements are found down river like Goatanabs, Utuseb, Dawedraai and Armstraat, which consist of eight to sixteen households and over twenty-five residents.

6. Conclusion & Recommendations

The project has produced the maps showing land use activities, spatial layout, social services/amenities, and the distribution of Topnaar settlements along the Kuiseb River.

There is no substantial difference in the variety of land uses in settlements upriver and downriver. However, Downriver settlements are more developed with

modern developments at Utuseb, simply because of its considerable population. This makes Utuseb settlement the centre of attraction, implying that Topnaars downriver have to travel some to services only found at Utuseb like Clinic, School and traditional authority office. If a future development like an income generating facility is to come in the lower Kuiseb it will first have to be located downriver because there is more people living downriver than those living upriver, the investor would like to ensure that the investment is exposed to as many people as possible. Because of its variety of land uses and modern developments Utuseb could one day be proclaimed or turned into an urban area, or be the first settlement in the lower Kuiseb community to be upgraded from the settlement to a village or town. Although most Topnaar upriver are livestock wealthy, Topnaars downriver are also raising some livestock: it is still their main source of income.

There are four main categorized existing land use activities: residential, subsistence agriculture, social services/amenity and tourism. The Topnaars depend much on livestock farming and !Nara harvesting as their main sources of income, other than on income generated on employment salaries, because local employment opportunities are limited.

The Topnaar should make use of the agriculture extension office to get more information on crop gardening. Considerable numbers of Topnaars are trying to crop garden for family consumption, but the majority of them are failing to deliver from the garden. This could be due to poor crop farming practices, lack of technical know how or due to the soil and climatic conditions as well as water issues. The results of GIST agricultural research on crops and a trial garden at Gobabeb should be used to improve crop gardening in the lower Kuiseb Topnaar community.

The Ministry of Environment Tourism should grant the right to private sector and other investors to develop tourism facilities like lodges, hotel, and other guest facilities, as such investments will create employment opportunities for local Topnaars who are living in poverty. The Kuiseb is naturally gifted with extraordinary scenery like dunes, rocks, the canyon, the river, and the desert environment. However, the Kuiseb community is hanging far behind in terms of tourism facilities in the area. The proposed upcoming tourism project to build a lodge in the area could be the best option to attend to this problem. Also the proposed craft market in the area will serve as an income generating facility. Other possible income-generating facilities in this area could be a

livestock auction facility for local farmers to market their animals locally. There are certain policies and regulations which prohibit certain land uses from taking place however: the policy should change to help eradicate poverty in the Kuiseb.

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