

## 2.2 CULTURAL ENVIRONMENT

Thornton states that “*to the cartographer the river seem to divide the land, and to the politician this is certainly so. But to the locals, the !Gariiep [LOR] is a cultural epicenter around which people have always congregated. The river is not only a lifeblood in the desert, but a place which the Nama of both South African and Namibia revere as a thread tying them together, despite its political role as a boundary designed to separate people and nations.*”

The LOR, a permanent source of water within an arid landscape, has been populated continuously during prehistoric times and within the last 2000 years by Khoekhoen herders and San hunter gatherers. The river also provided a conduit by which a number of early European travelers ventured into the interior.

Northern Namaqualand and southern Namibia were occupied by the Great Namaqua who kept goats, sheep and cattle. The Namnykoa (a highly riverine group) and Einiqua occupied the area close to and east of the Augrabies Falls. Interspersed with these groups were smaller San communities and other ‘Hottentot’ groups who resided in an uneasy relationship with their more powerful neighbours.

By the 1770s trekboers had penetrated the interior, and so began a vicious frontier war with the indigenous groups. By the early 19<sup>th</sup> century, various missionary groups began to exert their influence along the LOR and the descendants of the Khoekhoen were limited to mission land in various parts of Namaqualand and the marginal lands of the Richtersveld where their language, Nama, is still spoken today.

Prior to the construction of the Vioolsdrift high-level bridge in 1956, most vehicular traffic to and from Namibia was routed via the main road through Nakop, or by way of several river crossings, or drifts, which had been in use since the late 1700s. Among the most important crossing points were those at Goodhouse and Raaman’s Drift, linking Namaqualand and the newly established mission settlement at Warmbad and the Namibian interior. These early colonial farming, trading and mission settlements and river crossings are of varying historical importance.

The archaeology of the area is to all intents and purposes, unexplored and unknown; more; however, is known about the history thanks to work of early travelers and more recent research. Information from SAHRA, and other sources, indicates that there are sites of cultural significance at:

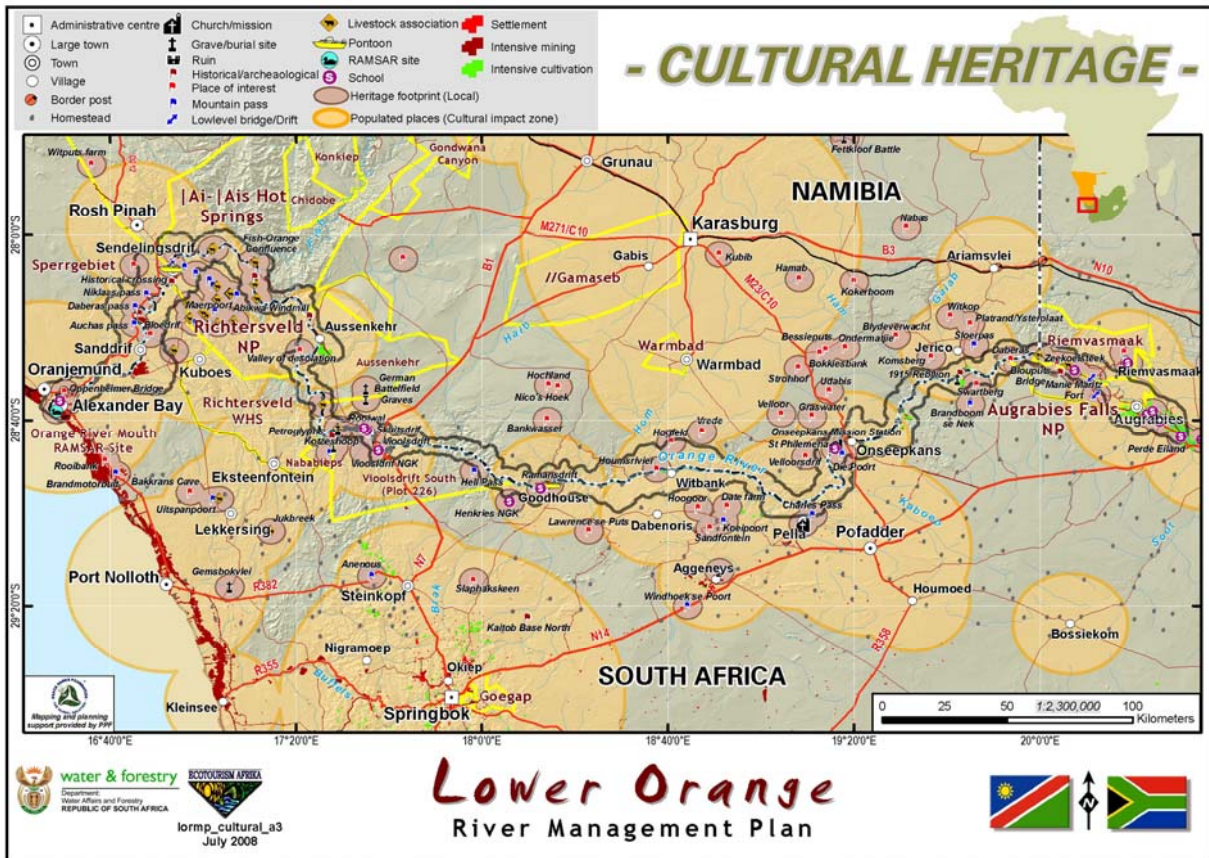
- *Skuitdrift*, historic river crossings; German military outpost built in 1901, ruins and graves;
- *Warmbad*, both in South Africa and Namibia – mineral springs;
- *Pella*, a Catholic mission church built in 1878, date plantations;
- *Onseepkans*, a declared national monument, mission and church as well historic bridge;
- *Goodhouse*, graves and church, historic buildings;
- *Daberas*, ruins;
- *Riemvasmaak*, archaeological sites;
- *Richtersveld*, unique herder sites; and,
- *Hohenfels*, *Grootpens Island*, *Sendelingsdrift*, Historical Police outposts.

Additionally, it is predicted that:

- On the *river banks and silt deposits*, buried pottery and fish bone sites of ancestors of the Nama and burial cairns of the Nama are to be found. Older San and Holocene sites have been documented on the silt flats and in any small rock shelters or overhangs close to the river. Historic buildings (early farms and missions), graveyards, possible places of conflict (Anglo-Boer war and Korana uprising) are also to be found;
- On *flat rocky outcrops*, especially dolerite, rock engravings may be found of the San ancestors of the Nama; and,
- Old *river terraces and ridges*, as well as tributaries and steep sided valleys, may hold general scatters of archaeological material, especially Early and Middle Stone age.

Some of these sites have been severely impacted by vineyard cultivation (PWC, 2005g).

The main cultural landscapes along the river are that of the Bondelswarts is situated between Warmbad and Pella, with subsidiary villages at Witbank, Goodhouse and Onseepkans, the Riemvasmaak Community, and the Richtersveld Community. Karasburg and Springbok are the main centres, with Port Nolloth, Alexander Bay, Rosh Pinah, Steinkopf and Pofadder serving as rural centres (refer Map 27).



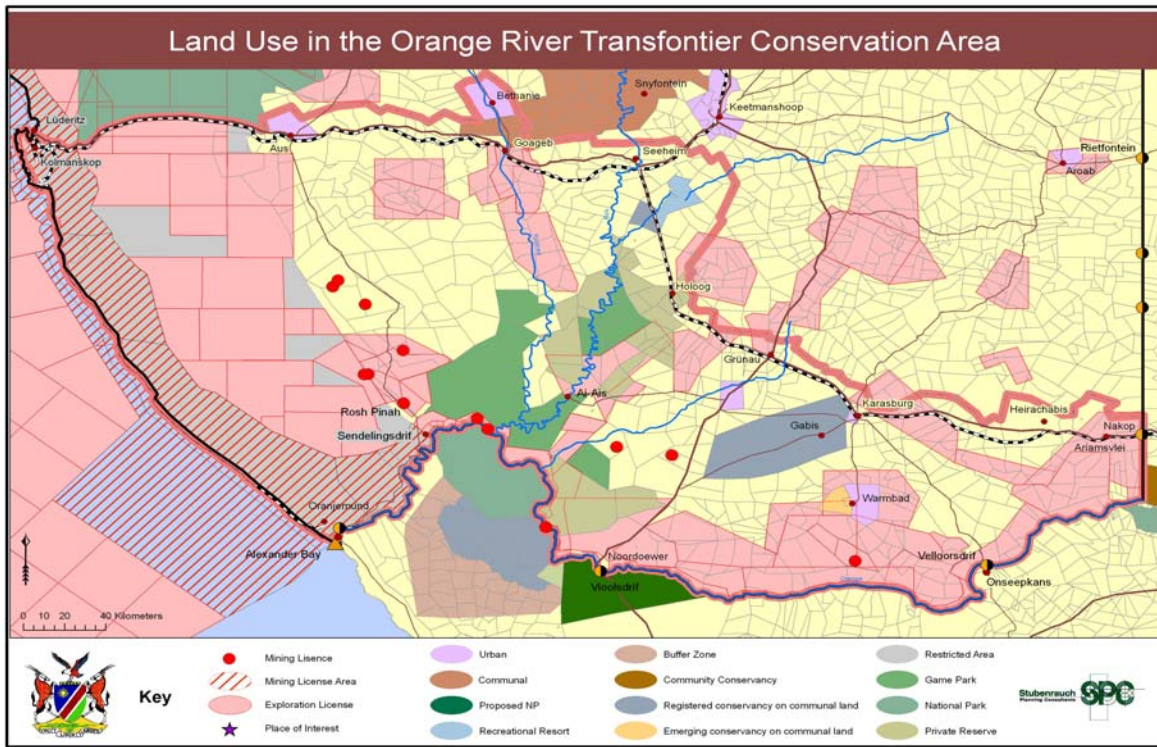
Map 27: Cultural Landscape

## 2.3 BUSINESS ENVIRONMENT

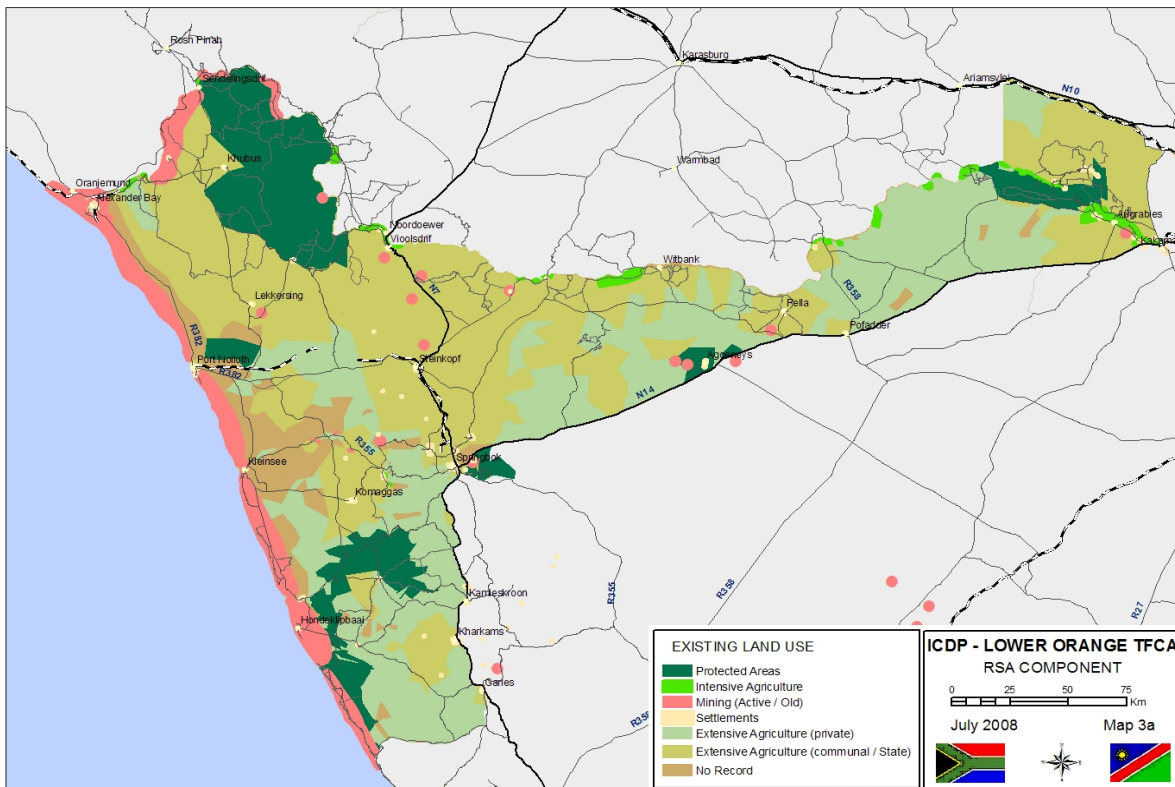
### 2.3.1 Current Land Use Patterns

The largest primary contributions to the economy are made by mining and agriculture. Mining activities consist mainly of extraction of alluvial diamonds and a variety of minerals (zinc, etc.). Extensive irrigation occurs at locations along the LOR, where the tendency has increasingly been towards growing high value orchard crops. Sheep and other livestock farming are found where the climate is favourable. Important irrigation development along the river include the Blouputs Farms close to AFNP; the Vioolsdrift/Noordoewer Joint Irrigation Scheme, which is managed by the Joint Irrigation Authority; Aussenkehr in Namibia, and the Namaqualand and Pella irrigation areas in South Africa. (Refer Maps 28 and 29.)

Demographic projections show a steady decline in the population in the region over the next 25 years. Economic activity is likely to remain dependant on mining and irrigation for the foreseeable future, with modest contributions from ecotourism. There is considerable seasonal migration of labour. Outside the small towns along the river there are negligible infrastructure or community services. Any significant developments will make a meaningful contribution to the regional economy and this is a priority, specifically for the Namibian Government (PWC, 2005a).



Map 28: Current Land Use – Namibia



Map 29: Current Land Use – South Africa

### *2.3.1.1 Mining*

Besides the Aussenkehr Nature Park (ANP), the entire Namibian shoreline along the LOR, from Ariamsvlei to Oranjemund, is impacted by mining, either as Exploration Licence Area, or as active mining area, as within the Sperrgebiet. Even within the ANP certain areas are actively mined.

Even though the entire river course has prospecting licences allocated, and mineral deposits are known, the area is not extensively mined. Kimberlite deposits have been identified in the Ariamsvlei area, as well as within the Ai-Ais Hot Springs Game Park. Zinc deposits exist at Scorpion and Rosh Pinah mines, as well as several other locations that are currently not actively mined. Extensive uranium exploration is taking place throughout the area, specifically within the Sandfontein area and environs. Approximately thirteen mining licences exist within the Namibian component, with only three directly adjacent to the river, two occurring within the Ai-Ais Hot Springs Game Park, and one within ANP. These mines do affect the quantity and quality of the water, since water is abstracted from the river and effluent does enter the river course, either as return flows or as seepage.

Within South Africa the extent of active or old mining areas along the river is limited to the Richtersveld area, where extensive mining is taking place at Sendelingsdrift, Oena, and Aussenkehr, as well as prospecting at between De Hoop and the Fish Confluence, and Richtersberg. Between Sendelingsdrift and the ORM, extensive mining is taking place with huge impacts on the river, aesthetically and environmentally.

Mining impacts do also occur throughout the TFCA target area, such as Black Mountain, Aggenys, Okiep etc, and though removed from the river, requisite mining infrastructure such as the pump station at Pella still negatively influence the environmental quality and experience of visitors and locals alike.

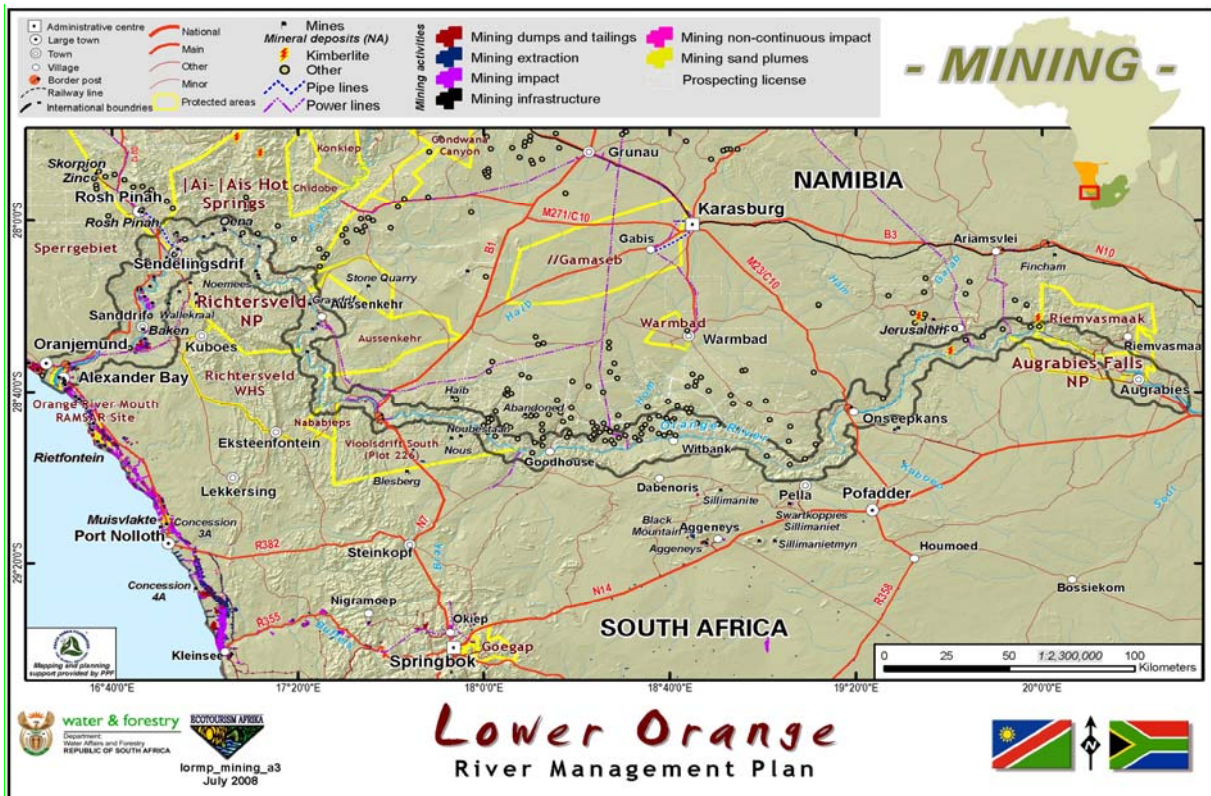
When mining is deemed to be the most viable and sustainable land use option it should be allowed, yet these mining activities must comply with all norms and standards pertaining to international best practice, as well as guidelines regarding prospecting and mining in sensitive environments. Host communities should benefit directly from these mining activities, and not merely serve as a source of labour.

Most of these mines would not be able to operate without access to the water of the Orange River, yet this access should be authorised, and compliance enforced. Currently, numerous examples of non-compliance with the norms and standards for impacts in terms of Section 21(c) and (i) water use authorisations in terms of the National Water Act, 1998 (Act No. 36 of 1998) [NWA] in South Africa exist, and these are directly affecting the quality of the water, and the functioning of the aquatic ecosystem. (Refer Map 30.)

### *2.3.1.2 Agriculture*

Intensive agricultural development along the LOR is limited to the accessible alluvial deposits, and can be found at Augrabies, upstream of the AFNP; Blouputs and between Daberas and Onseepkans Mission; Coboop; Pella; Witbank; Goodhouse; Henkries; Vioolsdrift/Noordoewer, Aussenkehr; and, Brandkaros.

Extensive agriculture is spread throughout the region with the main focus being on stockfarming. The eastern portion of the South African side is dominated by private commercial farming, while the area from Onseepkans to the ORM is characterised by communal farming. Even though the RNP is a proclaimed protected area, abutting the Richtersveld WHS, extensive livestock farming does take place within these conservation areas. Stockfarming within the state protected areas of Namibia is being phased out, as is the presence of some intensive agricultural development close to the Fish River confluence with the Orange River. Within the rest of the area, some stockfarming does take place, albeit limited, due to the harsh arid conditions. Many of the private farms in Namibia are converting to game farming, utilising hunting and tourism as viable land use options, a trend that should spread to the rest of the area.



Map 30: Mining Impacts

### 2.3.1.3 River-based Operations (Tourism)

Currently, the whitewater rafting, canoeing and kayaking industry utilises the LOR extensively for commercial and private river operations. These stretch along the entire length of the river and are currently largely uncontrolled. Due to this the formalised industry, both in Namibia and South Africa, have, through the APA, requested control measures to assist in unlocking the ecotourism potential of the river in a sustainable and equitable manner.

The current use patterns (refer Maps 31-33) show that there is utilisation in terms of put-in and take-out points, river camps and campsites, and supporting infrastructure, within the following areas:

- AFNP;
- Riemvasmaak/Blouputs area;
- Byna Bo;
- Raap-en-Skraap;
- Warmbad;
- Onseepkans;
- Oranjevalle Gorge;
- Pella;
- Witbank;
- Goodhouse;
- Henkries;
- Violsdrift;
- Noordoewer;
- NNR;
- Richtersveld WHS;
- RNP;
- Aussenkehr; and,
- Ai-Ais Hot Springs Game Park.

The levels of utilisation vary from occasional use to crowded peak periods, as can be seen between Noordoewer/Vioolsdrift and Aussenkehr, during the Easter and the Freedom Day/Workers Day long weekends, and other holiday periods. During these periods thousands of users congregate on this section, creating environmental and experiential challenges for commercial operators who do not have any control over the usage patterns or numbers. This affects the viability of commercial operations significantly.

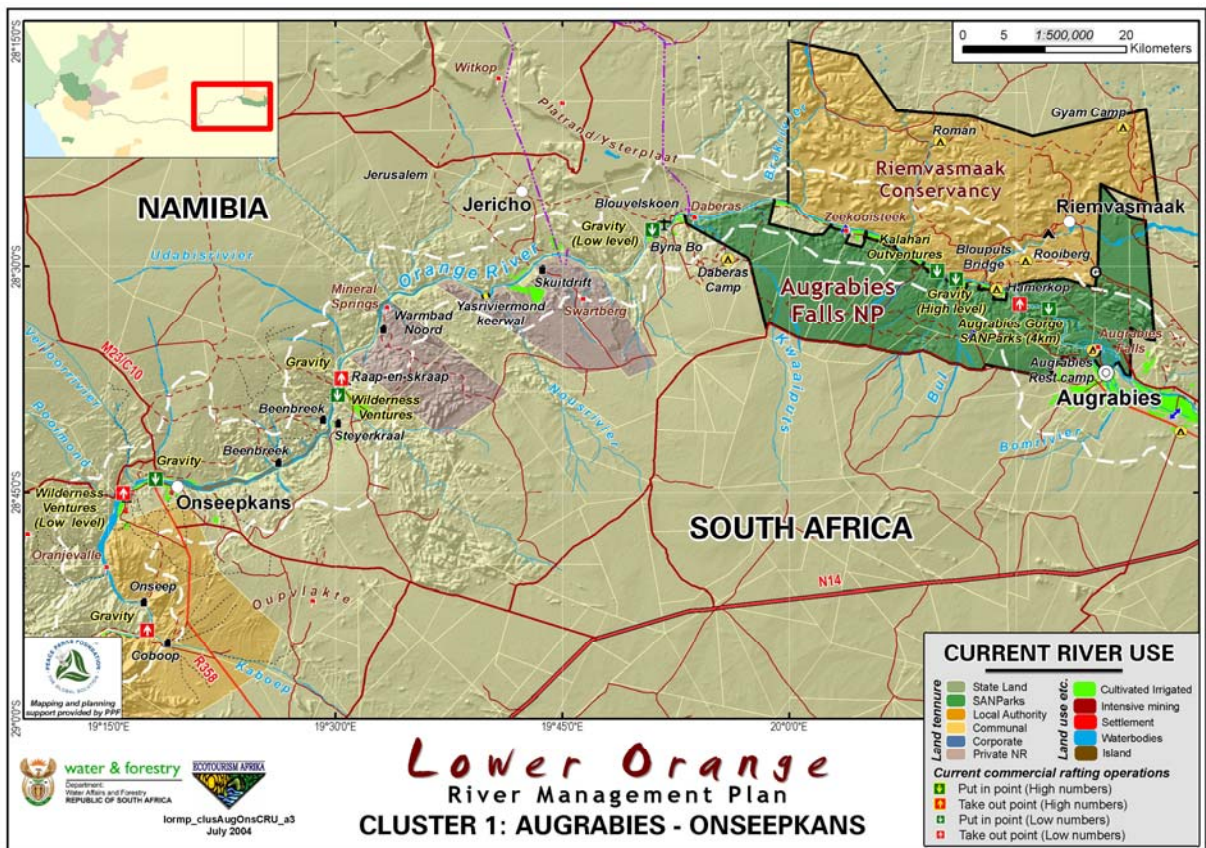
Other portions of the river provide similar, if not better experiences, yet do not seem to be popular due to the difficulty associated with access, logistics and distance from the market.

Some of the areas such as the Noordoewer/Vioolsdrift area provide tourism infrastructure for the river based operations, including camps, campsites, parking, logistical support, guides and shuttles, while other areas provide no supporting infrastructure, besides access along tracks and farm roads.

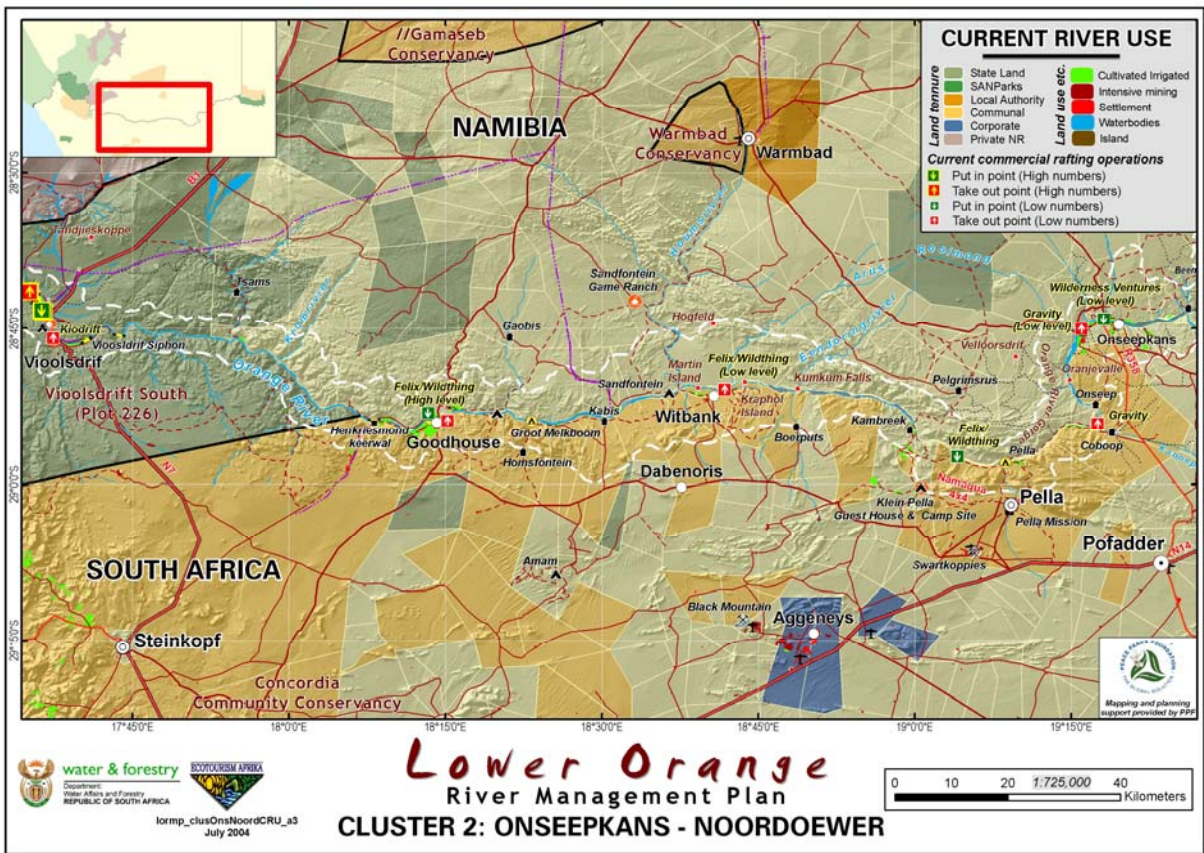
Benefits for the host communities emanating from the river based operations are difficult to ascertain due to the uncontrolled nature of the river use. This is not conducive to the formation of good institutional relationships and needs to be addressed.

With the current usage along the Noordoewer/Vioolsdrift to Aussenkehr stretch, mainly being possible from the Namibian side of the river, due to the presence of good roads and associated infrastructure, the South African operators have experienced problems with border control authorities regarding access, entrance and exiting procedures, as have the Namibian operators bringing in provisions from the South African side. These challenges have been addressed within this document, and are discussed in the relevant portion of Section 3, discussing the Plan.

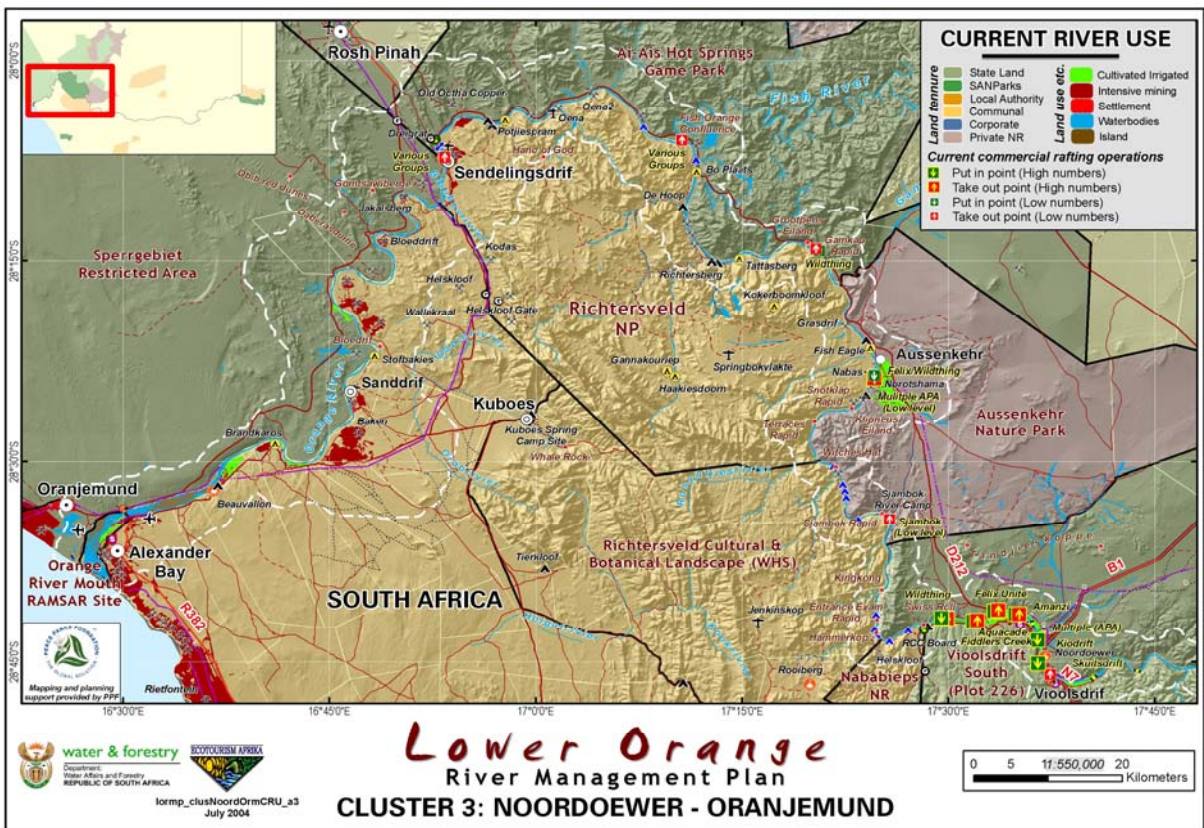
River usage below Sendelingsdrift is extremely limited, mostly linked to a bit of boating from the various camps along the river. This portion of the river is not ideal for rafting, canoeing or kayaking due to the gradual gradient, low water conditions and dominant wind direction.



Map 31: Current River Use - Augrabies to Onseepkans



Map 32: Current River Use – Onseepkans to Noordoewer



Map 33: Current River Use – Noordoewer to Oranjemund

### 2.3.2 Detractors to Ecotourism

Ecotourism requires relatively undisturbed and pristine environments, both natural and cultural, to optimise guest experiences. Various land use practices detract from this value, and while providing insight into current resource utilisation patterns, these practices often complicated high quality experiences. Below the main detractors within the LOR area are discussed, specifically focussing on the impact of these activities on ecotourism, and possible mitigation measures discussed.

#### 2.3.2.1 Mining

As a land use, mining has a tremendous visual impact on pristine landscapes, and within the LOR area, an area with localised complex landscape, yet lacking any vegetation with sufficient height and density to hide mining activities. Additionally, the process of mining creates audio impacts in an environment which often lacks external sounds, bar wind and water along the river, and even then this effect is minimal.

Even when mining activities are low key, the scars remain visible for decades, as can be seen from tracks over sensitive habitats, prospecting pits, claims etc. Major impacts such as those present at Sendelingsdrift, Baken, and close to the Mouth, from both active and dormant mines, have completely and irreversibly transformed the landscape. Being within such a remote environment, the contrast between an isolated desert landscape and these mines, and their visible impacts and noise, affect guest experiences more than in urban and industrialised settings.

Often the infrastructure required for mining activities are far removed from the actual mine, causing psychological separation. This is evident at Pella, where the pump station and related infrastructure impact on the river and the surrounding tributaries, while the mine is located approximately 70km away.

When impacts such as those visible at Oena Mine, involving dredging and coffer dams within the river bed, these activities directly impact on the quality of the experience that ecotourists receive. Critical to sustainability is ensuring that all these impacts are regulated, utilising guidelines such as the South African Department of Water Affairs and Forestry's (DWAF) procedure for Section 21(c) and (i) water use authorisations in terms of the NWA.

#### 2.3.2.2 Agriculture

Broadly, agricultural activities can be divided into two main categories, the first being irrigation, and the second livestock farming. At a finer scale both can be divided into communal and commercial.

Both have an impact on the environment, and consequently on the quality of guest experiences. Culturally linked to the development of the region, both forms of agriculture trace a history of human use, yet modern trends have resulted in large impacts, visually, environmentally and socially, in an area where agriculture is not expected. These developments along the river terraces have traditionally been very localised yet with improvement in flow certainty these have developed into large, heavily impacted and transformed landscapes, such as evidenced at Aussenkehr.

Additionally, agriculture has a two fold impact on the integrity of the riparian habitat, firstly irrigation causes disturbance which is often infested by alien invasive species, which in turn are spread by livestock, severely changing the structure and composition of the riparian vegetation.

Livestock tend to concentrate along the river courses, utilising the vegetation through grazing and browsing, and although this system has existed for millennia, the patterns are changing by concentrating livestock in areas in seemingly unsustainable herd sizes, rather than following traditional pastoral practices.

#### 2.3.2.3 General Infrastructure

Roads, power lines, pipes, pumps, weirs, canals and bridges all contribute to unlocking the economic potential of the area. The impact of this infrastructure on the environmental character is however often forgotten, since similar to the impact of mining and agriculture, guests do not expect to find good roads,

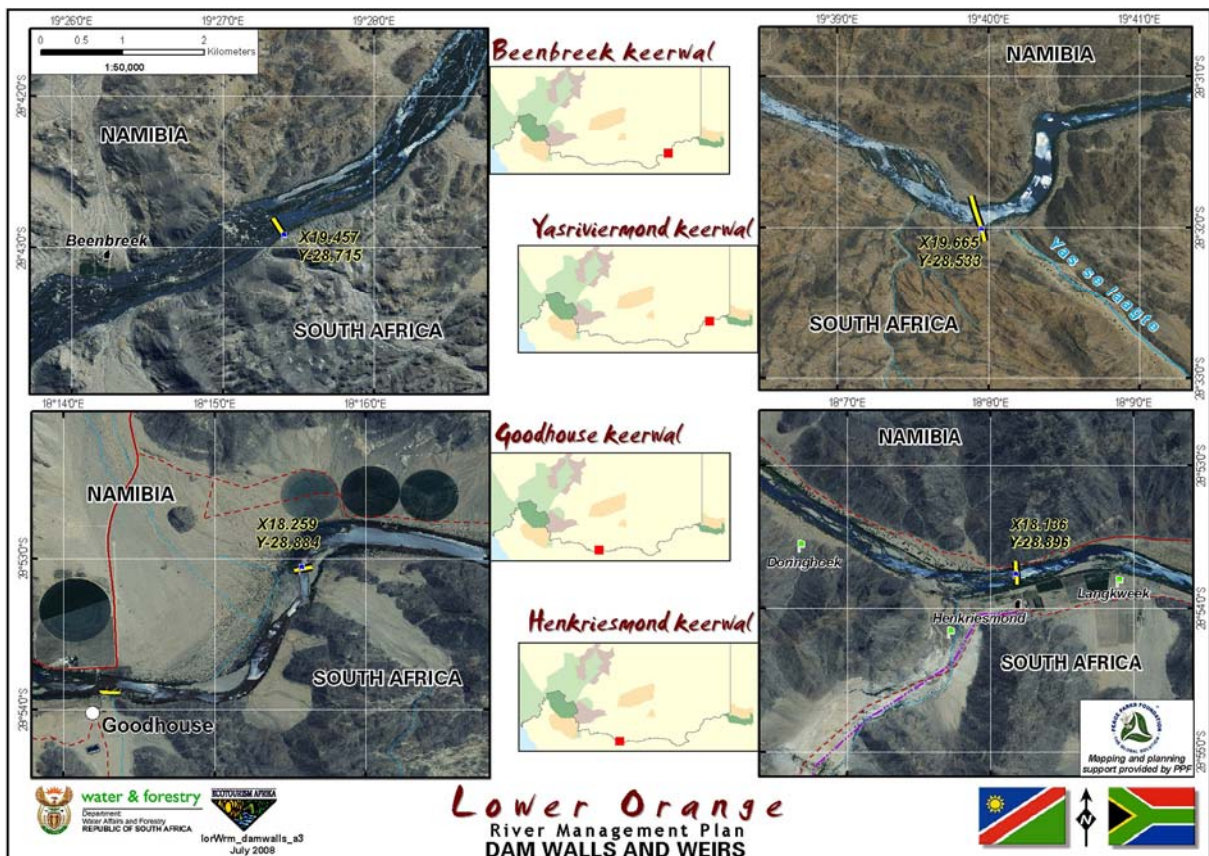
telecommunications, etc, when visiting remote and isolated environments. Conflict between visitors and local residents occurs regarding what is required when visiting an area, as opposed to living in the area. This conflict needs to be managed.

Along the river, and within the river course, several structures impede the flow of the river, or change the characteristics of the beds and banks of the river, including amongst other pumps, pump stations, weirs and siphons, such as those at Beenbreek, Yasrivier, Pelladrift, Goodhouse, Henkriesmond, Vioolsdrift and Noordewer. Additional infrastructure along the river includes the pont and NamWater pumpstation at Sendelingsdrift, as well as the bridges at Blouputs, Onseepkans, Noordewer, and Oranjemund. (Refer Maps 34-36.)

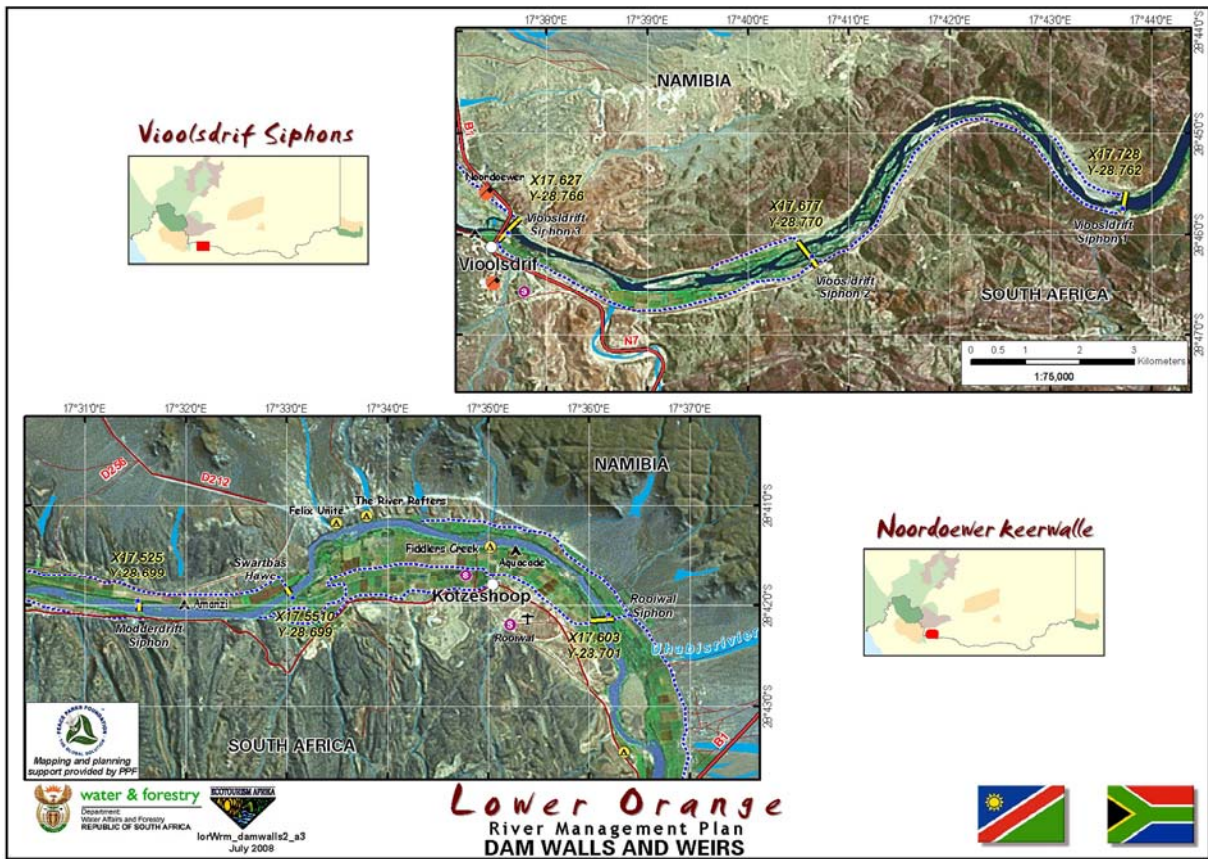
Existing tourism usage patterns, such as the profusion of 4x4 trails and routes within the RNP, Richtersveld WHS, NNR, the Namaqua 4x4 route between Pofadder and the Richtersveld, the 4x4 route within the ANP, the 4x4 route through Riemvasmaak; informal camping, picnicking, and fishing within the Ai-Ais Hot Springs Game Park, all have infrastructure, either permanent or temporary, that influence the river experiences.

Within the Richtersveld this infrastructure can include the camps, ablutions and related infrastructure at Tattasberg; Richtersberg, De Hoop, Pootjiespram and Sendelingsdrift, while along the rest of the river, several of the private and communal areas have camps, campsites and infrastructure along the river.

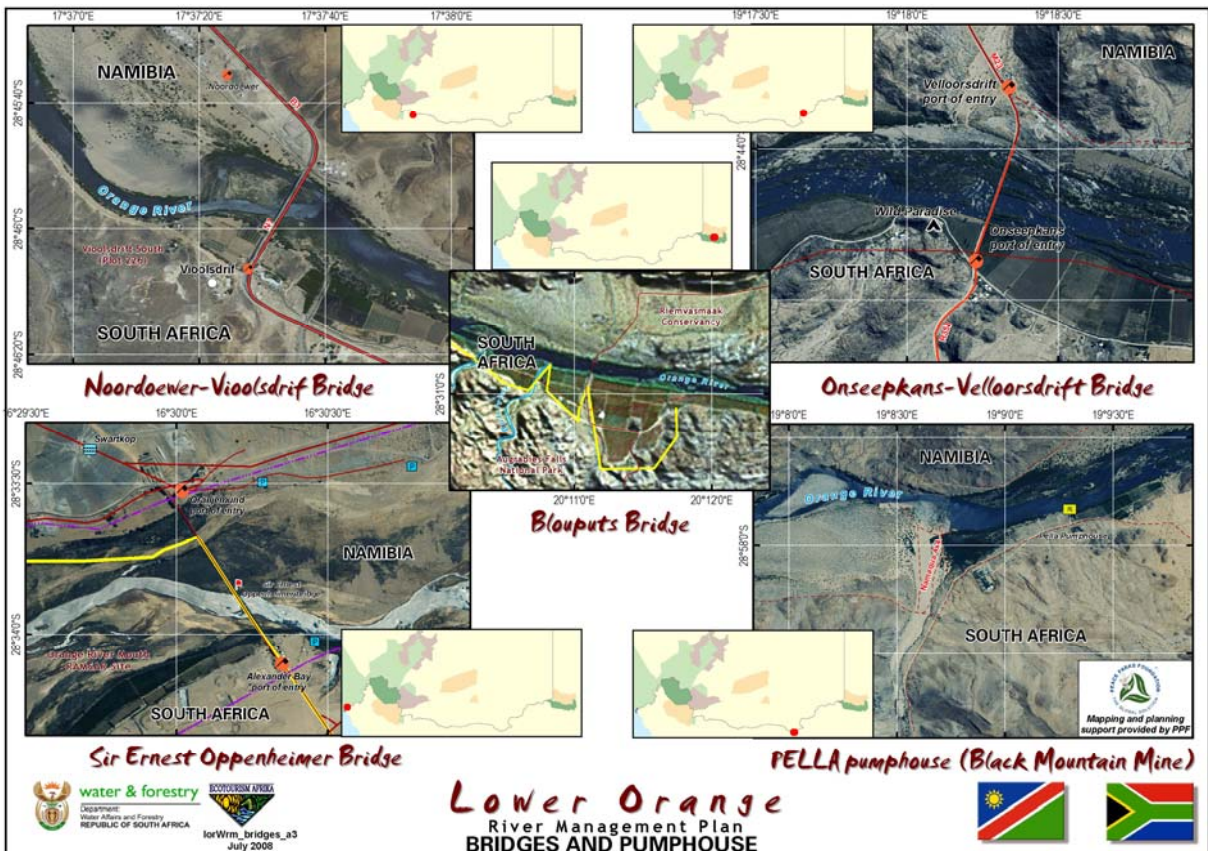
If incorrectly placed, developed and utilised, this tourism infrastructure can detract rather than contribute to the experience of guests visiting or using the river. The boat storage facility within the Augrabies Gorge, used to store the canoes that are utilised as part of the 3-in-1 adventure package is an example of inappropriate development, detracting from the environmental character of the area.



Map 34: Dam Walls and Weirs (Beenbreek, Yasriviermond, Goodhouse, Henkriesmond)



Map 35: Dam Walls and Weirs (Vioolsdrift, Nooroewer)



Map 36: Bridges and Pump Stations

#### *2.3.2.4 Fishing*

Under the guise of subsistence or recreational fishing, illegal commercial fishing activities using gillnetting, longlines etc are taking place, impacting not only on the quality of guest experiences but also on the biodiversity of the river, as well as the abundance of fish. Aussenkehr represents the area where most of these illegal fishing activity is taking place, and since this occurs within, or has a direct impact on a wide variety of protected areas such as NNR, the Richtersveld WHS, the RNP, Ai-Ais Hot Springs Game Park and the ANP, these illegal activities should be curtailed and the impact monitored.

Negative comments can be expected from local residents stating that these measures will negative impact on their food security and livelihood, as well as recreational and subsistence use of the river. However, it is believed that if local fishermen use conventional techniques rather than gillnets, and even mosquito nets, the sustainability of fishing can be guaranteed. An additional mitigation measure would be to implement an aquaculture programme at Aussenkehr, utilising both off-channel raceways and ponds, as well as cages for fish breeding programmes, as a way of providing alternative protein sources for both local and commercial consumption, negating the need for gillnetting.

This will improve the quality of fishing in the river, without reducing access to the river for subsistence use. The occurrence of high numbers of yellowfish in the storage dams adjacent to the river, provides an indication that fish grow well in these irrigation ponds. By forming a partnership which aims at restocking the river with endemic yellowfish, and providing good local species for aquaculture, it is believed that not only can commercial viability be achieved, but ecological and biodiversity objectives met as well.

### 2.3.3 Contributors to Ecotourism

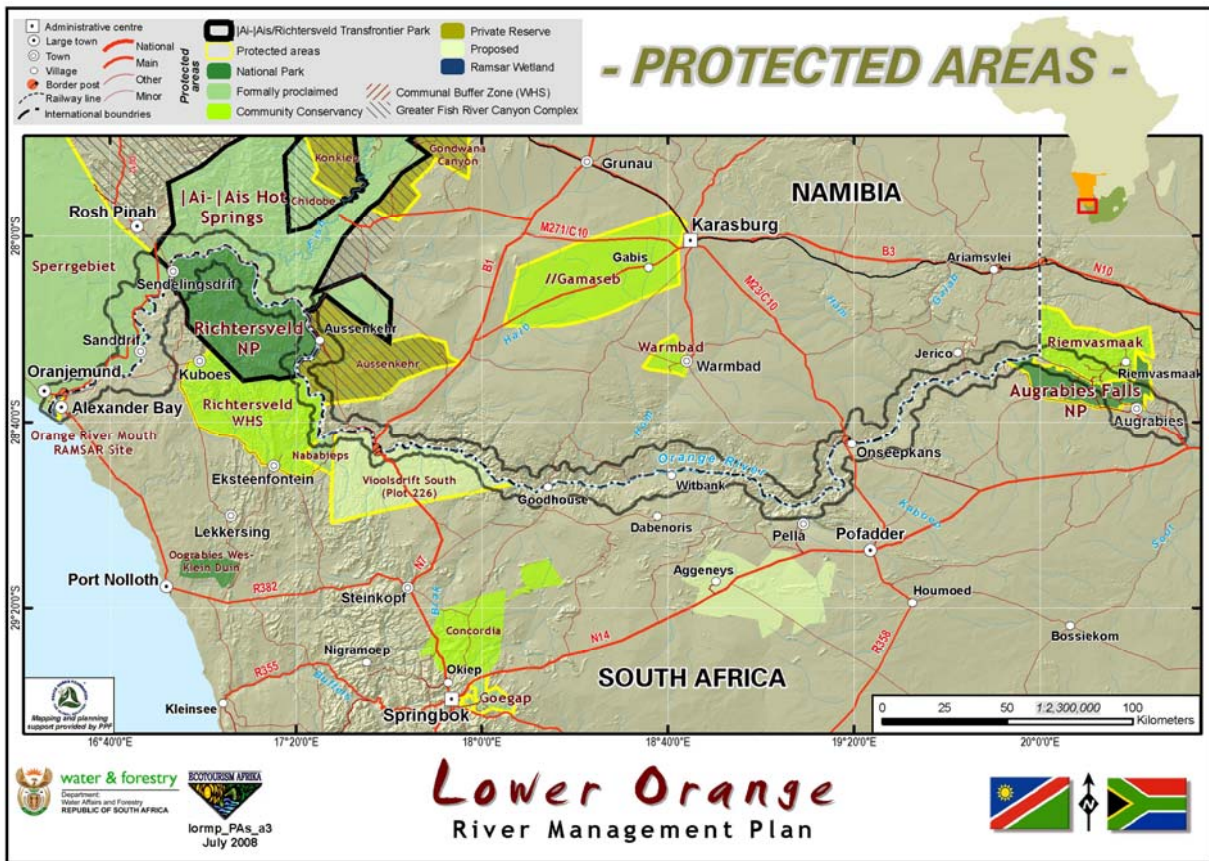
Due to the threats posed by mining and agricultural development to the successful unlocking of the ecotourism potential of the LOR, two aspects contribute significantly to enhancing the ecotourism value of this area. These are the protected areas - public, private and communal, as well as some of the existing tourism infrastructure in the area.

#### *2.3.3.1 Protected Areas*

Despite the beauty of the area, linked to regional biodiversity value, the LOR area is largely under protected, yet numerous areas of international, national, provincial and local significance do occur in the area. Within the broader TFCA target area, five protected areas of national significance occur, with the Richtersveld WHS representing a site of world significance, while several private sector conservation initiatives, such as the GFRCC, and community conservancies have recognised the value of conservation as a viable and sustainable land use option. (Refer Map 37.)

The various levels of protection afforded to the resources provide a measure of commitment which ecotourism operators can use as support for their interpretative experiences, since the proclamation of these protected areas is a tangible statement of their significance, albeit international, national, regional, or local. Products within these areas not only have the status of operating within protected environments, but also contribute to garnering support for these fragile environments, and provide benefits for the communities which host these resources, further contributing to their protection

The possibility exists that several additional protected areas could be established either as country specific, or as TFCAs. These include the state land between Henkries and Vioolsdrift on both sides of the river, the area between Onseepkans and Henkries as communal land worthy of protection, possibly linked to the conservation initiatives in Namibia, and the area between AFNP and Onseepkans, both sides of the river. These contiguous areas could form the basis of the proposed TFCA for the LOR area.



Map 37: Protected Areas

### 2.3.3.2 Tourism Infrastructure

As discussed in the previous subsection discussing the detractors to successfully unlocking the ecotourism potential of the area, specifically the section on the negative role that general infrastructure, and specifically incompatible tourism infrastructure, could have on the river based operations, the converse is also true.

Well designed, developed and utilized tourism infrastructure in the form of lodges, camps, and campsites, as well as appropriately placed roads, contribute significantly to unlocking the ecotourism potential of the river. This includes access roads, signage, storage facilities, maintenance facilities, accommodation and staff housing.

Within this management plan for the LOR existing tourism facilities within the shared resource area have been analysed to ascertain how these facilities can contribute to the river based products without negatively impacting on markets, current products and usage patterns. This includes the proposal that a product utilizing luxury safari camps be developed within the ARTP, and the proposal for a river camp at Henkries close to the date plantation, due to the ease of access and logistics, and the use of wilderness style camps when access is restricted or impossible.

When the tourism and general infrastructure is better within a specific country, it is proposed that the river based products be based within that country, and where access is equal, that the products be offered from both sides. This will negate the need for additional infrastructure to support the river based tourism products, thereby reducing the environmental impact within this sensitive and brittle environment. In the eastern side of the study area the infrastructure is largely South African based, while in the west it is mainly Namibian, except for the coastal plain, which is once again South African based.

## 2.4 TENURE ENVIRONMENT

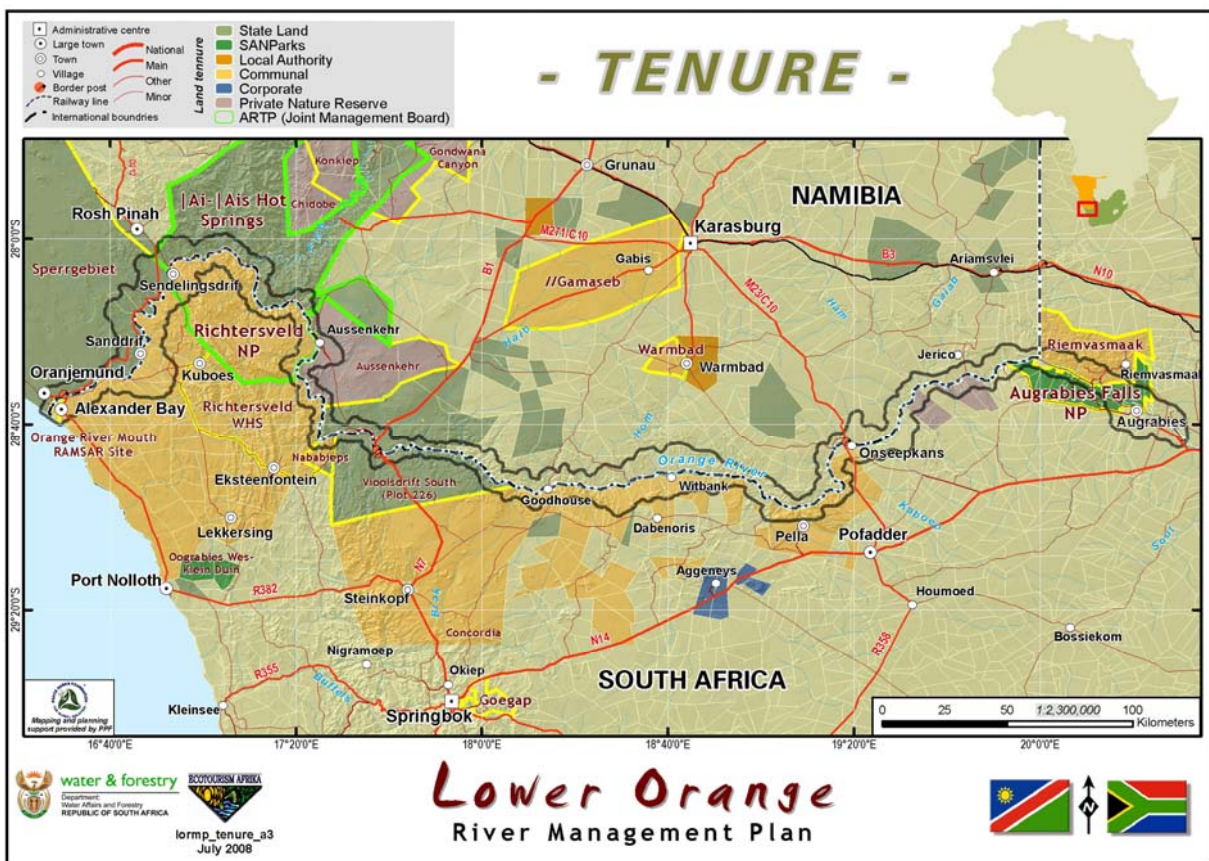
### 2.4.1 Land Ownership and Use

Land ownership within South Africa is changing as a result of the efforts of government to redress past imbalances as a result of gender and racial discrimination. These initiatives are providing communities along the LOR with formal recognition as landowners, a status that has been denied to them for decades.

Within Namibia, similar land restitution and reform programmes are taking place, focusing on both individuals and communities. The community conservancies throughout Namibia are a key example of where communities, as legal entities, receive access to land for a specific land use practice. Under specific requests from the Minister of Environment and Tourism, options to provide access for communities to the river and the possible creation of a conservancy are being investigated.

Unlike South Africa, Namibia's land ownership is equally divided between the State and private sector. Communal ownership dominates the LOR from Onseepkans to the ORM, with the exception of a small portion of state land between Henkries and the Richtersveld WHS, reflected by state land in Namibia, creating the possibility of establishing an effective transboundary management area between these two contiguous units of land. ANP represents the only portion of privately managed conservation land along the river, west of the main B1 route.

Within the Augrabies – Onseepkans Cluster private land dominates on either side of the river, yet the Riemvasmaak Community does own a large portion of land on the northern side of the river, directly contiguous with the AFNP. (Refer Map 38.)



Map 38: Land Ownership and Use

## 2.5 GOVERNANCE ENVIRONMENT

Within the governance environment aspects pertaining to the administration of the region will be discussed, as well as the legal framework, existing institutional arrangements, and the planning framework.

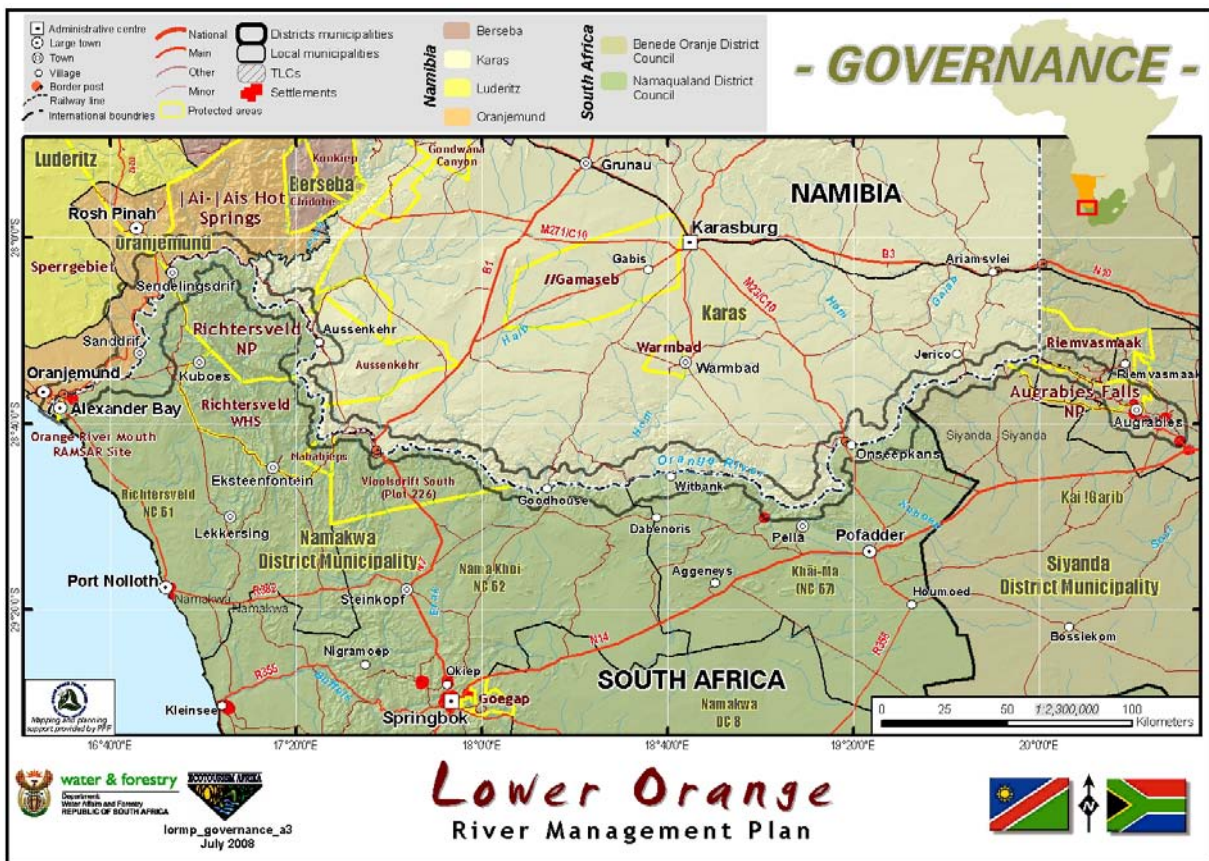
### 2.5.1 Administration

#### 2.5.1.1 Cadastral Information

Split across two sovereign countries, the LOR area is characterised by the Orange River which serves as the international boundary, separating the Karas Region in Namibia from the Northern Cape Province in South Africa. Within southern Namibia the Region is divided into four administrative units (refer Map 39), namely Berseba; Oranjemund; Luderitz; and, Karas.

Within South Africa the Northern Cape Province is divided into four local municipalities, falling under two district municipalities, namely:

- Namakwa District Municipality:
  - Richtersveld NC61;
  - Nama Khoi NC62;
  - Khai Ma NC67; and,
- Siyanda District Municipality:
  - Kai !Garieb.



Map 39: Cadastral Information

### 2.5.1.2 Demographics

The area is sparsely populated, with dispersed settlements almost entirely concentrated along the banks of the LOR in formal settlements such as Riemvasmaak; Onseepkans; Goodhouse, Witbank; Vioolsdrift, Noordoewer and Sanddrift, with a large informal settlement at Aussenkehr. Other settlements, further from the river include villages such as Steinkopf, Eksteenfontein, Khuboes, and Warmbad. Less than one sixth of the population from Vioolsdrift and Steinkopf through to Pella are found in rural areas.

This area is one of the least populated parts of either country, with the Northern Cape in South Africa, despite being the largest province, only hosting 3% of the country's total population, and local rural densities only being approximately 0.2 people per km<sup>2</sup>. Similar densities exist within Namibia's portion of the study area.

Agricultural activities are also concentrated along the banks of the LOR (except for livestock farming) due to the availability of water, and the warm climatic conditions (PWC, 2005g).

## 2.5.2 Legal Framework

### 2.5.2.1 Transfrontier Conservation

Guided by the principles underlying the SADC Protocols on transfrontier conservation and wildlife management, several Transfrontier Parks and TFCAs have been established, including, *inter alia*, the following to which Namibia or South Africa are signatories:

- ARTP;
- Kgalagadi Transfrontier Park;
- Limpopo Shashe Transfrontier Park;
- Great Limpopo Transfrontier Park;
- Kavango Zambezi Transfrontier Conservation Area;
- Iona Skeleton Coast Transfrontier Park;
- Maluti Drakensberg Transfrontier Park; and,
- Lubombo Transfrontier Conservation Area.

Within the ambit of the ARTP, Namibia and South Africa are investigating the possibility of establishing a TFCA, with the focus in both countries falling within the LOR eco-region, encompassing large portions of the Nama and Succulent Karoo Bio-regions, and most of the Nama cultural landscape along the Orange River.

The South African Department of Environmental Affairs and Tourism (DEAT) is the lead agent regarding transfrontier conservation planning and implementation, while the Ministry of Environment and Tourism (MET) in Namibia takes the lead on behalf on the country's government.

Besides the transfrontier conservation initiatives that these two countries are involved in, an additional transboundary management mandate that needs to be addressed is the Ramsar Convention guiding the management of the crossborder wetland at the ORM, a Ramsar site that both countries are signatory to. As a wetland of international significance this wetland requires joint management to ensure that the environmental stresses currently experienced by the site can be mitigated, possibly leading to improvements in the functioning of this wetland.

Numerous opportunities exist to create new or expand the existing transfrontier conservation initiatives to include the Ramsar site, the ARTP, Sperrgebiet, Richterveld WHS, GFRCC, Nababeep and Plot 226 with the Namibian state land, Bushmanland Bio-region with the Sandfontein farm, Oranjevalle, and the Augrabies cluster including the Riemvasmaak area.

### 2.5.2.2 Water Resource Management

The Orange River is an international watercourse with an obligation for it to be managed and used in terms of the relevant rules of international law, based on the principles as contained in the SADC Protocol on Shared Watercourses, aimed at adopting a holistic approach, with respect to the use, protection and regulation of the shared watercourse.

The SADC Revised Protocol on Shared Watercourses:

- Seeks to foster closer cooperation for the judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda on regional integration and poverty alleviation;
- Obliges the watercourse states to utilise a shared watercourse in an equitable and reasonable manner
- Makes specific provisions and arranges for planned measures, environmental protection and preservation, and the prevention and mitigation of harmful conditions;
- Provides guidelines for the establishment of joint management mechanisms;
- Allows watercourse states to enter into agreements on the characteristics and use of a particular watercourse or part thereof; and,
- Recognises the sovereignty of respective countries (PWC, 2005d).

Critical for regulating the use and protection of the LOR would be agreement between the two countries regarding a planned measure to ensure that the use of the river is equitable and reasonable, and leads to environmental protection and preservation, as well as the mitigation of harmful conditions. Regarding joint management structures, it is recommended that the TFCA institutional arrangements that already exist be used in an effort to avoid duplication.

This LORMP can form the basis for closer cooperation between the two sovereign states and lead to the judicious, sustainable and co-ordinated management protection and utilisation of the LOR as a shared watercourse, significantly advancing the SADC agenda on regional integration and poverty alleviation, in an area that has been integrally linked, culturally and ecologically for millennia, yet divided for the past few decades along colonial and political boundaries.

Namibian legislation pertaining to water resource management includes, *inter alia*:

- Water Act, 1956
- Water Resource Management Act, 2004
- Pollution Control Act

No clear guidelines exist regarding measures for controlling the tourism and recreational use of the river, thus it is recommended that the principles contained in the Namibian Policy on Concessions within Protected Areas be used as a guide, possibly linked to the TFCA proposed for the LOR area as a possible transfrontier conservation initiative.

South African legislation pertaining to water resource management includes, *inter alia*:

- NWA; and,
- Small Vessel Safety Regulations.

Similar to Namibia, no specific guidelines exist for controlling the tourism and recreational use of the river and thus it is critical to link the river use with the transfrontier conservation initiatives, specifically the expansion of the ARTP responsibilities to include the potential TFCA stretching from AFNP to the ORM.

Not only will an expanded TFCA significantly contribute to increased protection for the biodiversity of the region, but it will enable effective management of the river as a shared watercourse and the conservation of the cultural heritage of the region, as well as unlocking the economic potential of the region in an equitable and sustainable manner, and providing viable alternative livelihood options for the regions people, despite the constraints posed by the limited amount of water within this harsh environment.

### 2.5.2.3 Border Demarcation

Despite an international moratorium on moving boundaries, it was decided that clarity must be attained regarding the disputed border between Namibia and South Africa. This initiative culminated with a resurveyed boundary at 1:10 000 scale, consisting of 77 Orthophoto Maps covering the entire border from the Orange River Mouth to the 20<sup>th</sup> Parallel, the entire southern border of Namibia with South Africa (refer Figure 15).

On 18 December 1995 the Chief Surveyor General of the Republic of South Africa and the Surveyor General of the Republic of Namibia certified that the demarcation of the Orange River Boundary “...have been carried out in accordance with Article 1(3) of the Agreement between the Government of the Republic of Namibia and the Government of the Republic of South Africa regarding the Delimitation and demarcation of the Boundary of the Orange River”.

Through this clarity it was envisaged that border control and immigration issues would be sorted out, as well as aspects pertaining to mining and prospecting, water rights and farming. Since the methodology used determined the middle point of the river course as the border and not the Thalweg, problems are experienced when the river is low, yet the principle of the southern side being South African and the northern side Namibian prevails in controlling the border.

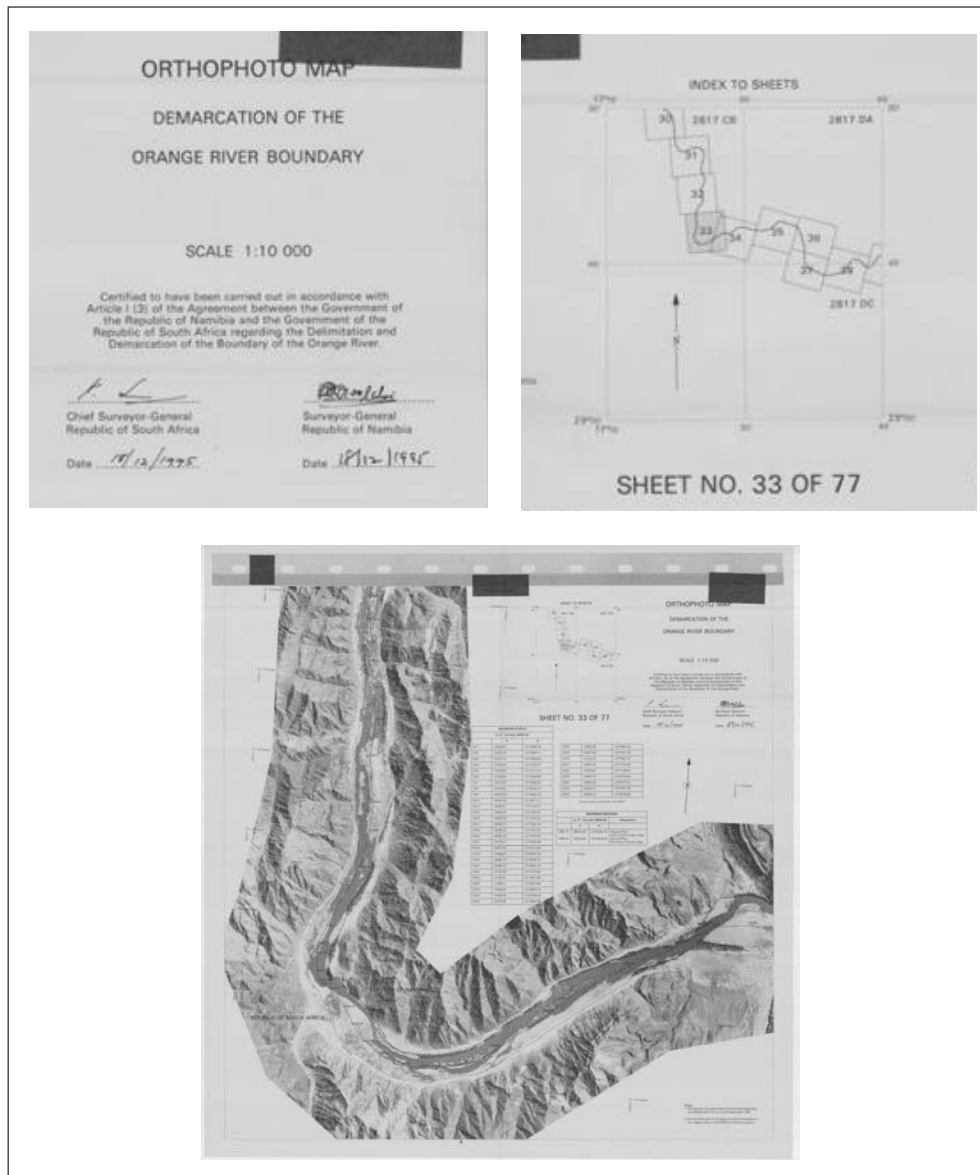


Figure 15: Surveyed Border, 1995

### 2.5.3 Institutional Arrangements

Present responsibilities in Namibia and South Africa for environmental management of the river are divided between a number of organisations that include the Departments of Environmental Affairs, Water Affairs, Agriculture and Minerals and Energy. Authority and responsibility of these departments have been compounded due to the perceived unclear border situation (PWC, 2005d). Due to differing mandates and guidelines two main institutional arrangements govern the management of these transboundary issues, the first pertains to conservation management, while the second addresses water resource management.

#### 2.5.3.1 Transfrontier Conservation

The ARTP is playing a leading role in the development of transboundary conservation initiatives, with the JMB accepting its responsibility as the institutional structure through which many of the SADC guidelines must be clarified for local conditions. Many of the institutions represented on the ARTP JMB are involved in other transboundary initiatives including water resource management, regional growth and development, wetland management and cultural conservation.

As such the ARTP JMB is becoming a co-ordinating mechanism through which transfrontier aspects beyond the Transfrontier Park are being discussed. If correctly structured this institutional structure could become the mechanism through which the management of the Ramsar site can be co-ordinated, various new transfrontier areas planned and conserved, and the Nama, Baster and other cultural heritage issues be conserved, as well as the objectives of the Twinning Agreement between the Karas Regional Council and the Northern Cape Government be achieved.

According to DTEC, 2008, the management structure of the ORM Transfrontier Ramsar Site (ORMTRS) will consist of two committees:

- a DTEC Management Committee addressing the South African component including a Management Advisory Sub-committee responsible for the ORMNR; and,
- a MET Management Committee in Namibia.

To oversee the cultural heritage conservation of the region, as well as ensure equitable and sustainable participation of the affected communities, the existing traditional leadership structures, both within Namibia and South Africa, can be tasked with this responsibility, that they are already undertaking, on behalf of the ARTP JMB.

#### 2.5.3.2 Water Resource Management

The PWC between Namibia and South Africa was established in the 1980s to attend to mutual interests concerning water matters, and operates at the advisory, policy-making and supervisory level, but does not have capacity or authority to regulate or manage water resource systems. As an institutional structure between the two countries the PWC thus oversees all operational issues on the LOR of a bi-lateral nature. The PWC is obliged to report to the Orange-Senqu River Commission (ORASECOM), a co-ordinating structure between Lesotho, Botswana, South Africa and Namibia, but operates separately from it.

Additional bi-lateral structures that exist to co-ordinate joint water management issues include:

- Joint Irrigation Authority (Vioolsdrift/Noordoewer); and,
- Lower Orange Remediation Forum (PWC, 2005d).

### 2.5.4 Planning Framework

The LOR planning process is integrally linked to various other planning initiatives, including, *inter alia*:

- The compilation of an ICDP for the Namibian Component of the proposed TFCA in the LOR area;
- The compilation of an ICDP for the South African component of the proposed TFCA in the LOR area;

- The planning of the proposed Orange River Mouth Nature Reserve (ORMNR) and transfrontier Ramsar site; and,
- Development and adoption of a Strategic Action Plan for balancing water uses in the Orange Senqu River Transboundary Basin – an ORASECOM initiative.

Through the ARTP JMB the country specific components regarding the feasibility of establishing a TFCA within the LOR area is being ascertained. These two ICDPs will be aligned with the LORMP.

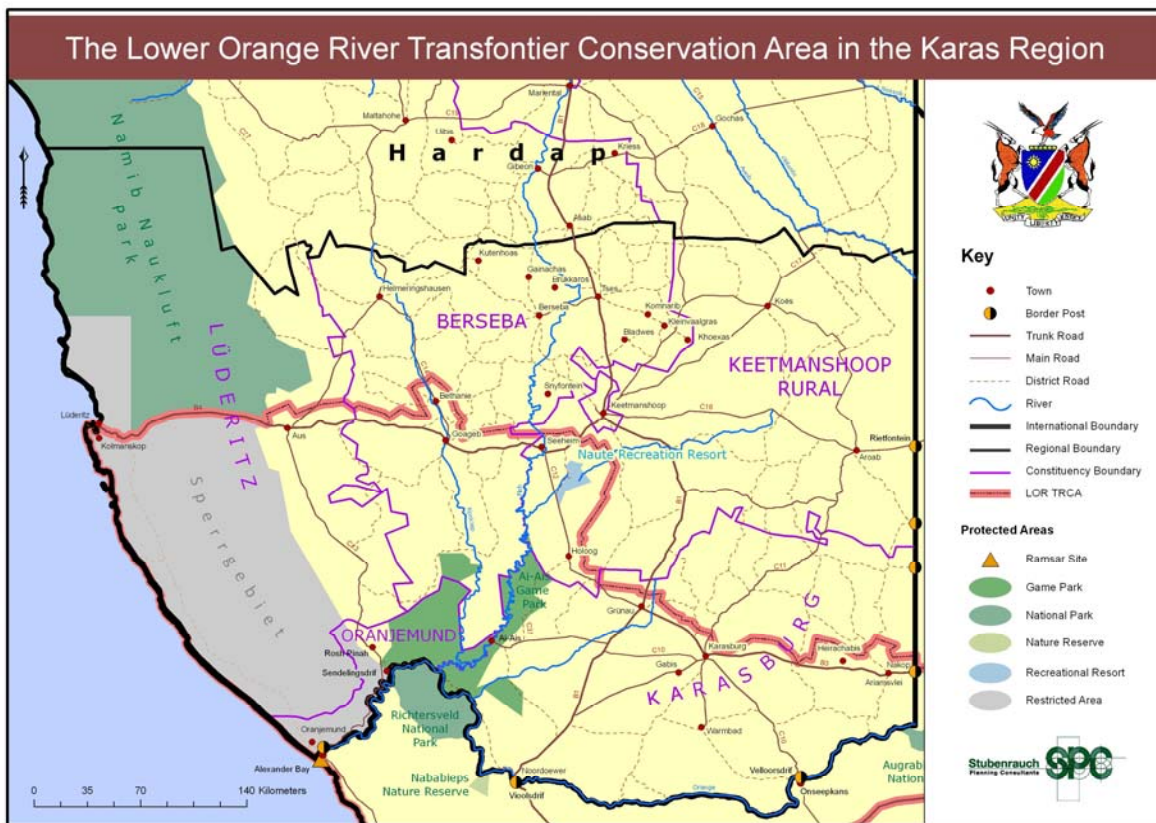
The Namibian study area stretches from Luderitz to Ariamsvlei, and includes the Naute Dam recreational area, the Sperrgebiet, Namibian component of the ARTP, GFRCC, Aus, Warmbad and Gamaseb Community Conservancies, various private conservation initiatives and other land (refer Map 40).

The South African ICDP incorporates three national parks, namely Namaqua, Richtersveld, and AFNP, the Richtersveld WHS, several provincial protected areas, communal and private land (refer Map 41).

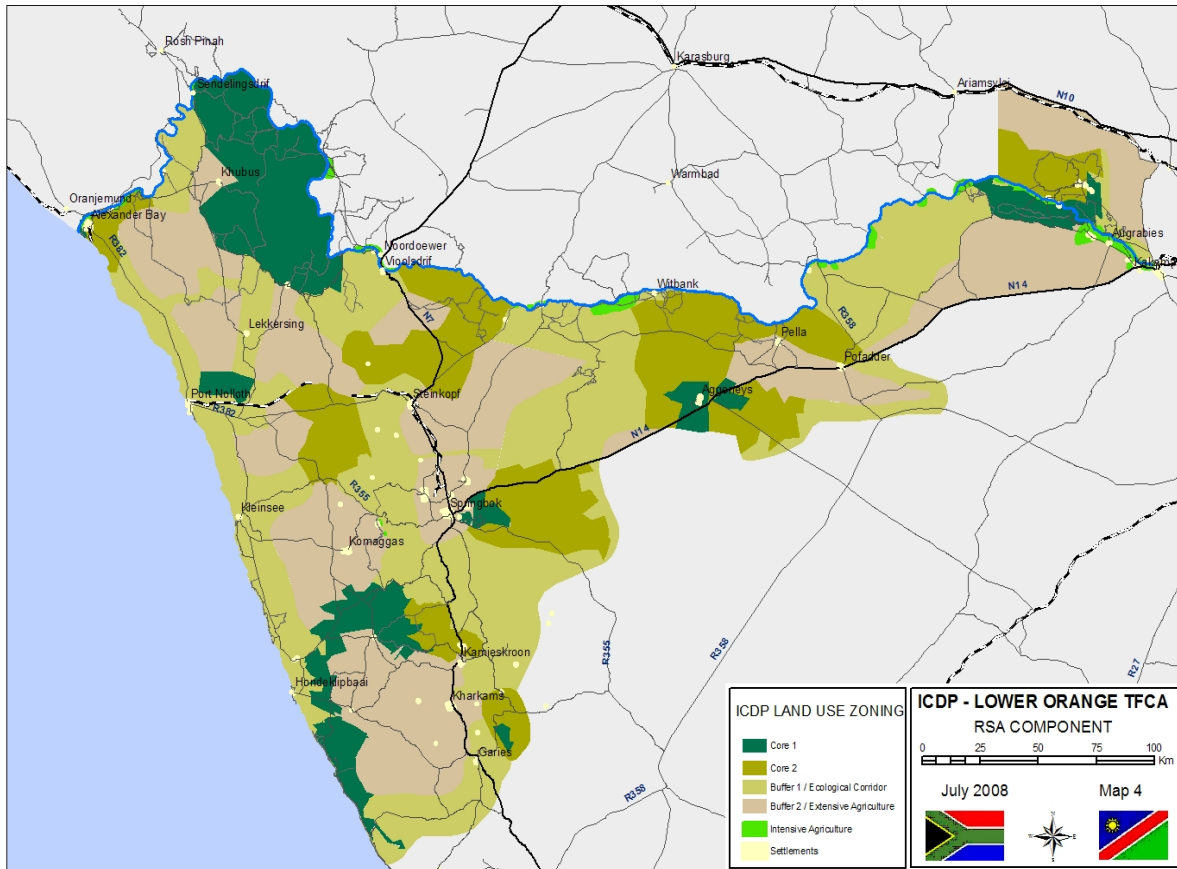
Both ICDPs aim to provide insight into the most viable land use options for this area by investigating possible linkages between protected areas, identifying areas requiring conservation, proposing ecological linkages and areas suited to extensive and intensive agriculture.

Joint planning initiatives regarding the ORMNR and the Ramsar site entail the establishment of a transboundary structure to address the water management issues, as well as country specific details in terms of the respective legislation in each country.

Regarding the activities of ORASECOM and the PWC numerous planning and co-ordination initiatives are taking place specifically aimed at discussing the water balance ensuring equitable distribution of water between the affected countries, as well as management interventions aimed at ensuring that the quality of the water meets agreed standards.



Map 40: Scope of Namibian ICDP



Map 41: Proposed RSA ICDP Land Use Zoning

