

ENVIRONMENTAL MANAGEMENT PLAN

New community campsite and craft shop,
Otjiu-West Conservancy, Opuwo Rural
Constituency, Kunene Region

November 2023



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1. INTRODUCTION

This project proposes a campsite and craft shop at Otjiu-West to improve community livelihoods by creating a beautifully designed and practical facility to attract tourists.

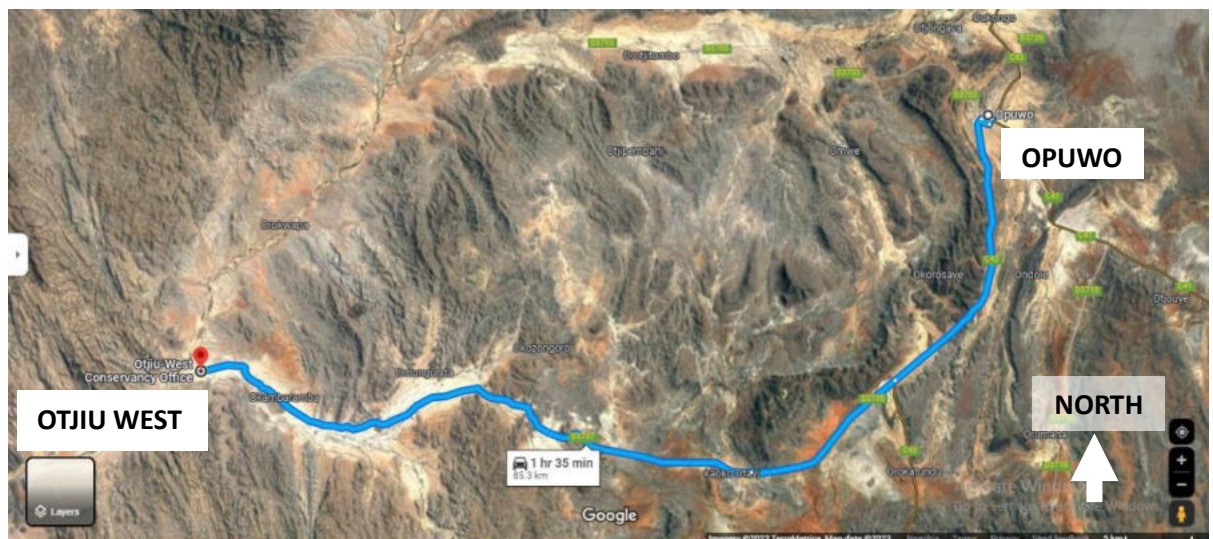
2. BACKGROUND:

Otjiu-West has very limited opportunities for employment, most youth have no formal education, and unemployment is thus high. The management committee responsible for overseeing the conservancy and community forest operations have identified a few development initiatives to help tackle the effects of high unemployment, such as a marketing facility for arts & crafts and a community camp site for tourist use, to provide short- and long-term employment and generate income for other future development initiatives.

Tourists pass by Otjiu-West on their way to either Opuwo or further northwest of the Kunene Region, making the crafts shop and community campsite viable, especially with some further arts and crafts skills development.

3. STAKEHOLDERS:

- Primary: Otjikaako Traditional Authority, Otjiu West Conservancy & Management Committee, IRDNC (implementing agency), SSC (funders)
- Secondary: NACSO, Opuwo Rural Constituency, Kunene Regional Council, Opuwo Town Council, MURD, MAWLR, MEFT.
- Tertiary: NTB, NCE, EHRA.



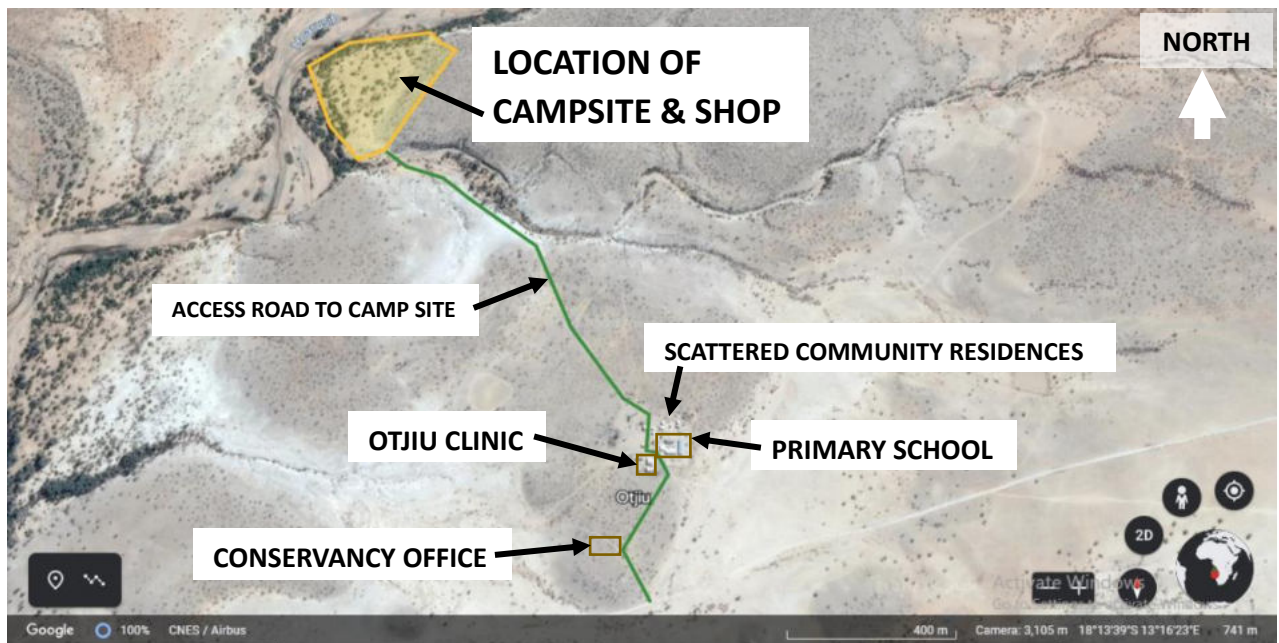
Otjiu-West in relation to Opuwo:

4. SITE DESCRIPTION:

Location and surroundings

Otjiu West village with its primary school, Clinic, Conservancy Office, and various dwellings lies approximately 85km west of Opuwo Town. The proposed site for the craft shop and

camping is northeast of Otjiu-West village, bordered by the Hoarusib River along the north and west, and the Otjiu River on the south. To the east is a series of hills.



Campsite and Craft Shop location

Site Access

From Otjiu West, the site is accessed by an existing vehicle track through the village, leading northwest to a gap in the hills where the Otjiu River flows through to meet the Hoarusib. The last access is through the riverbed and soil erosion dongas.

5. ENVIRONMENT

Climate, Topography, Vegetation, Wildlife

The arid desert climate is currently experiencing severe drought and faces decreasing regional annual rainfall. Daytime temperatures are generally high, with high UV exposure, cold nights and mornings with cooler to cold days during winter. Rain may appear between January to April, even May, but consists mainly of sporadic thunderstorms with limited rainfall. Very rarely, extreme torrential rain is preceded by turbulent winds.

The region is characterized by extensive plains between rugged mountains. The site itself is a sandy, quite flat slope down westwards to a high riverbed embankment, with lower down a further embankment subject to occasional flooding. The site soil consists of a thin sand layer with scattered limestone rocks underlain by more rocky soil and limestone embankments, making excavation difficult. The area is severely overgrazed with degraded soils.

Vegetation consists of sparse mopane scrub in the open central area and thickets of mainly acacia, salvadora persica, reeds and occasional tamarisk, euclea pseudebenis and makalani palm on the edge of the river.

In terms of wildlife, there are no signs off any protected species permanently resident on site, although elephant move along the riverbed as elsewhere in this area. Downstream is a dense grove of Makalani palm trees, currently home to Blue Velvet monkeys. It is likely that

seasonally and depending on rainfall, there is movement of game and corresponding predator movement, but the extent of this could not be verified.



***Entrance to site with soil erosion along Otjiu River.
Limestone outcropping top left & makalani palm centre.***

Zoning

From observation, the site can be divided into two ecological zones –

- The open central area which, though ostensibly a greenfield site, has been extensively overgrazed. It contains low biodiversity, the vegetation being mainly mopane scrub and soil highly degraded. There is a high risk of soil erosion. This area can be defined as not ecologically sensitive, but in need of some rehabilitation and regeneration.
- The riverine thickets, with a high diversity of plants and resultant wildlife, which can be defined as ecologically sensitive.

Existing infrastructure

Except for a now defunct borehole, which has been closed, there is no infrastructure on site, nor any provision for services such as water supply, power, etc.

Usage, history and culture

The site is currently being used by the Conservancy for community and annual meetings. Before the construction of the Conservancy Office and its water tanks and a borehole, the community used the river as a water source during rainy spells.

The community members (of OvaHerero and OvaHimba extraction) claim to have been settled in the area for well over 100 years, keeping to their nomadic culture and moving around water sources. Traditional dance rituals are regularly performed.

6. DESIGN PHASE

6.1 DESIGN LAYOUT

The proposed development is extremely small and is expected to have minimal impact. It includes:

Craft Shop

1. The structure will consist of concrete footings with a steel frame wrapped in diamond-mesh fencing, with makalani palm leaves harvested from the nearby grove.
2. It will contain a concrete and brickwork combined display, seat and worktop structure.
3. To one side, the structure will be divided into storage compartments divided by fencing with gates for individual storage.
4. The craft shop will be located near the entrance to the campsite, near some trees, but far away enough from the river to avoid flooding and from the thicket to avoid risk of fire.
5. As with all thatch-type structures, the structure is flammable. Protection in the form of fire-buckets with sand will be provided.

Campsite

1. 6 group campsites for 5 people and 2 vehicles each are envisaged.
2. These will be informally laid out under existing trees in the thicket and above the embankment, to avoid flooding.
3. The campsites will each be equipped with a steel braai – structure with a stone circle for fires, placed away from the trees to reduce fire-risk.
4. Campsite areas will be designated by means of loose-pack stone perimeters to prevent vehicular access.
5. Tracks to each campsite will also be delineated in such a way, to prevent vehicles driving all over the place.

6.2 SANITATION FACILITIES

Showers

1. A small, roofless structure with two showers and a combined sink/ wash hand basin will be built.
2. The structure will be a local stone masonry curved wall to screen the donkey and reduce fire-risk, and the cubicles enclosed with screen walls made from timber poles, horizontal strainer wires, shade netting on the inside and latte (thin poles) on the outside.
3. The stainless-steel wash-up sink/ basin will be installed against the stone wall in a concrete slab counter supported on smaller stone nib walls.
4. The structure will be surrounded by at least 1,5 m wide stone pitching to prevent elephant access.

Toilets

1. Due to budget constraints, and expected low initial usage, there will be a single uni-sex toilet only.
2. Dry sanitation was recommended as:
 - the ground is extremely rocky and difficult to excavate for purposes of a septic tank and French drain,
 - The rocky nature of the soil will prevent good absorption by a French drain,
 - the site is closer than 100 m to a riverbed so that a French drain is prohibited in any case, and
 - the site not accessible for a bowser to empty a septic tank or clear out built-up solids.

3. The sanitation system will be that of a sealed double ventilated pitlatrine with two chambers rotated for full composting. Only one chamber will be open at any one time. The first will be closed when full, with the second one opened while the first is composting. When the second chamber is full, the first fully composted chamber can be emptied, while the second is then closed. The process then continues rotating to ensure full composting. For this reason, both seats are located within one cubicle, to ensure that the rotation management is done properly.
4. The chamber structures will be built from concrete surface bed for the floor, the cubicle floor, brickwork walls on concrete footings, concrete slabs for the pit cover and toilet seats.
5. The chambers will be waterproofed inside to prevent seepage into the ground.
6. The top of the chambers are raised above ground for ease of access, and also to avoid elephants accidentally stepping on the slab and falling in.
7. The cubicle will consist of a makalani-leaf clad steel framed cubicle.
8. It is assumed that elephants will not be attracted by the smell of urine, so no need for stone pitching is envisaged here.

6.3 SERVICES

1. A small solar power system for lights and recharging mobile phones will be installed on top of the shower's stone wall.
2. A new borehole is to be drilled nearby and a solar pump and high tank for gravity feed to be installed. The tank is to be located a little way up on the eastern hillside to achieve enough pressure. Water will be supplied to the shower structure only.
3. Water heating will be by means of a wood-fired donkey to be managed by the community members running the campsite. This is to limit the amount of fire-wood required.
4. Cooking will be done by campers using their own means and with wood-fire. Guests will be required to buy fire-wood at the conservancy office reception upon arrival and not allowed to harvest wood in and around the campsite.
5. Grey water from the showers will be discharged into a simple mulch pit grey-water treatment system.
6. There will be no black water treatment required, as no waterborne sanitation will be installed.
7. Waste management will consist of a large refuse bin fixed to the shower structure to prevent theft, and bags to be supplied to guests when registering. Waste removal will be done by the community and disposed of in the village disposal site. The viability of waste separation for recycling is low at present, until a proper system for the area is in place which can send on recyclables to a recycling centre.

6.4 MATERIALS

To reduce the amount of embodied energy in the structures, some of the construction materials will be locally sourced:

1. Loose stone will be randomly collected in the immediate vicinity of the campsite, but over a dispersed area so as not to strip soil of cover in any one area.
2. Makalani palm leaves will be harvested from the grove of trees down-river. This will clear some of the dead vegetation around the palm trees and reduce the fire-risk to the grove.

3. Other materials will be commercially sourced, even treated timber poles, as the local poles are subject to insect infestation and do not last long, and there is a high risk of over-harvesting of timber in the area already.

6.5 CONSTRUCTION PROCESS

1. No site clearance will be required since there is ample clear space for all structures. No trees will thus be removed.
2. The tender conditions stipulate that builders may not harvest fire-wood in the vicinity and must bring their own, use alternatives like gas, or buy firewood from the conservancy.
3. The contractor is required to employ a minimum number of community members on the construction.
4. The tender conditions also stipulate that the contractor must ensure that his workers do not engage in any illegal or immoral practices such as selling of drugs or prostitution.
5. Good waste management practice is also specified in the tender

7. OPERATIONAL PLAN

7.1 OPERATIONAL MANAGEMENT

1. Tourists will receive a short environmental “pep-talk” upon arrival, including the need to be water conservation and firewood conservation conscious, as well as other environmental issues.
2. Campsite visitors should be provided with information about the local ecosystem and conservation initiatives, informed of and encouraged to practice responsible behaviour, (respecting wildlife, adhering to designated trails, and avoiding littering or disturbing natural features).
3. Environmental awareness can be further enhanced by activities such as birdwatching, and guided nature walks.
4. Campsite management must develop and enforce fire safety protocols to prevent wildfires, including educating visitors about fire safety measures, including designated fire pits, safe campfire practices, and fire extinguishing with sand. The management should also ensure campsite staff is trained in fire prevention and response.

7.2 WASTE & POLLUTION MANAGEMENT

The design together with the community will implement clearly marked and proper waste management practices to prevent pollution and maintain cleanliness.

1. Waste reduction strategy: guests will be asked on arrival to take all their waste, except organic, compostable waste, with them upon departure. Compostable waste will be buried.
2. It is not envisaged that waste separation be provided, as there is no viable option for recycling waste in the vicinity. Signage will inform visitors of this.

3. Signage on the facilities will encourage and educate visitors on responsible waste disposal and the importance of reducing single-use items
4. Clearly marked ablution facilities provided will ensure that there is no open-air defecation, and as the waste is composted, it becomes a resource instead of waste.
5. Grey water will be disposed of in mulch pits leading to vegetation.
6. Regular clean-up exercises with staff and community to maintain the cleanliness of the campsite.

7.3 WATER CONSERVATION

Promote water conservation by implementing measures:

1. Showers and taps will be water-saving fixtures.
2. Signage will encourage shorter showers and promote responsible water use.
3. Water availability & consumption will be monitored on a regular basis.

7.4 ENERGY EFFICIENCY

The design allows for consideration of energy-efficient practices such solar power for lighting or charging stations, given the lack of electricity infrastructure on site:

1. Power requirements for cooking will be by means of fire-wood sold by the community to the visitors and they will be encouraged to have small fires to minimize deforestation.
2. Solar power will be provided for lights at the ablutions and shop, and cell-phone charging only. Energy-efficient light fixtures will be installed.

7.5 INDIGENOUS VEGETATION AND LANDSCAPING

Preserving and protecting the indigenous vegetation and landscape surrounding the campsite by not removing or damaging plants unnecessarily:

1. Clear signage discouraging visitors from removing or damaging plants.
2. Clearly marked pathways and driveways to prevent random tracks.

7.6 ENVIRONMENTAL EDUCATION AND AWARENESS

The community will promote environmental education and awareness among campsite visitors:

1. Educational materials and signage will be developed highlighting the importance of environmental conservation, providing information about the sensitivity of the local ecosystem, wildlife, and conservation initiatives.
2. Signage reminders encouraging visitors to practice responsible behaviours and promoting a "Leave No Trace" ethic.
3. Signage encouraging visitors to practice respecting wildlife, adhering to designated trails, and avoiding littering or disturbing natural features

7.7 BIODIVERSITY CONSERVATION

1. Develop initiatives to engage visitors in biodiversity conservation, such as birdwatching, guided nature walks, or educational talks

7.8 EMERGENCY AND FIRE SAFETY PREPAREDNESS

The proposed development is extremely small and is expected to have minimal impact. It includes:

1. Provide information on the nearest medical facilities and emergency contacts of appropriate staff.
2. Develop and communicate emergency procedures for environmental incidents.
3. Train staff and enforce visitors on proper responses to environmental emergencies.
4. Develop, train and enforce fire safety protocols staff and visitors to prevent wildfires.
5. Educate visitors about fire safety measures, including designated fire pits, safe campfire practices, use of fire buckets filled with sand and fire extinguisher availability.
6. Ensuring campsite staff is trained in fire prevention and response – including use of fire buckets filled with sand

7.9 MONITORING AND REVIEW

For the effectiveness of the EMP:

1. Regularly monitor the effectiveness of the EMP.
2. Collect periodic feedback from visitors and staff on environmental practices via in-person interviews.
3. Periodically review and update the EMP based on monitoring results and changing applicable conditions.

7.10 REGULATORY COMPLIANCE

1. Ensure compliance with key local environmental regulations, legal frameworks and guidelines.
2. Obtain and retain necessary permits and approvals for campsite operations