



Project Title	LANDSCAPE MANAGEMENT STRATEGIES AND INVESTMENT PLANS FOR KUNENE NORTH, KUNENE SOUTH AND DÂURES, LOWER EASTERN AND SOUTHERN LANDSCAPE, OTJIMBINGWE AND OVITOTO VILLAGES
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EXECUTIVE SUMMARY

Purpose of this report

This report is the Ecosystem-based Adaptation (EbA) Project's Landscape Management Strategies and Investment Plan for four focal landscapes (Kunene North, Kunene South and Dâures, Lower Eastern and Southern Landscape) and the two identified villages of Otjimbingwe and Ovitoto. Commissioned by the Environmental Investment Fund of Namibia (EIF), the objective of the report/plan is to develop landscape management strategies and investment plans to support component 1 of the EBA Project "*Development and Implementation of climate change resilient ecosystem management and product practices that reduce the vulnerability of communities*". The plan will guide investment interventions at the four landscapes and two villages through a ring-fenced grant facility targeting the ecosystem-based adaptation activities (Ecosystem-based Adaptation, Climate-resilient infrastructure and Natural Resource Enterprises).

Methodological approach

Review of existing studies and strategies

In developing the EBA Cluster 1 Plan, several reports were reviewed including, but not be limited to focal target landscapes such as documents generated thus far under the SAP006.

Focal Landscape Consultations

Community consultations in the four targeted landscapes through a participatory rural appraisal was undertaken to inform the investment plan.

Table 1: Community consultation (Landscape-level)

Deliverables	When
1. Inception meeting with EIF/MEFT	Detailed concept and work plan. This includes an agreed stakeholder list for consultations.
2. Kunene North Landscape (Meeting in Opuwo)	8 th – 25 th September 2021 - Community meetings with key local CBOs, government officials responsible for extension services related to Integrated Landscape Management, Agriculture, Tourism, Natural Resource Management. This process served to identify ILM management strategies and investment initiatives per landscape based on a prioritisation process.
3. Kunene South and Dâures Landscape (Meeting in Uis)	
4. Kunene South and Dâures Landscape (Meeting in Otjimbingwe)	
5. Lower Eastern Landscape (Meeting in Okakarara)	
6. Southern Landscape (Meeting in Keetmashoop)	
7. Lower Eastern Landscape (Meeting in Ovitoto)	
8. Validation Workshop	

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List of Acronyms

ACCT	Aus Community Conservation Trust
CBO	Community-Based Organisation
CBO	Community-Based Organisation
CENORED	Central North Regional Electricity
EbA	Ecosystem-Based Adaptation
EIF	Environmental Investment Fund of Namibia
GCF	Green Climate Fund
IRDNC	Integrated Rural Development and Nature Conservation (IRDNC)
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
NACSO	Namibia Association of CBNRM Support Organisations
NAP	National Adaptation Plan
NDC	Namibia Development Corporation
NNFU	Namibia National Farmers Union
NSA	Namibia Statistics Agency
RWA	Rural Women Assembly
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WAD	Women Action for Development
WWF - Namibia	World Wildlife Fund

1. BACKGROUND

The Environmental Investment Fund of Namibia (EIF), in 2015, obtained accreditation from the Green Climate Fund (GCF). The GCF is a unique global fund, established within the rubric of the United Nations Framework Convention on Climate Change (UNFCCC), as a response to climate change for investing in low-emission and climate-resilient development. The status of accreditation makes EIF eligible for accessing climate change funding from the GCF.

In February 2019, the 22nd GCF Board meeting approved the first Ecosystem-based Adaptation (EbA) project proposal entitled “Building resilience of communities living in landscapes threatened under climate change through an ecosystem-based adaptation approach in Namibia”. The EbA concept involving the conservation, sustainable management and restoration of ecosystems are cost-effective solutions that can help people adapt to the impacts of climate change.

The EbA project’s overall objective is to increase the climate change resilience in productive landscapes in Namibia through the implementation of ecosystem-based adaptation actions that strengthen social and ecological systems to sustain livelihoods at local levels and facilitate value chains of natural resources. The project is being implemented in eight landscapes that are managed by registered Community-Based Organisations (CBOs), gazetted Communal Conservancies, Community Forests, Water Point Committees, Farmers Associations amongst others.

The project implementation is guided by the three (3) components below in eight landscapes:
Component 1: Development and Implementation of climate change resilient ecosystem management and product practices that reduce the vulnerability of communities

This component aims to provide technical assistance and training:

- Creating institutional landscape governance systems and/or strengthening them through participatory knowledge sharing at the local level.
- Enhancing institutional capacity for ecosystem landscape management and climate change resilience at sub-national & local levels.

Component 2: Increase the resilience of productive landscapes to support ecosystem goods and services that improve livelihoods for local communities in Namibia

This component aims to establish and implement a ring-fenced grant facility targeting the ecosystem-based adaptation activities by providing grant funding through two (2) investment

windows following the eligibility criteria and procedure described in the funding proposal (Addendum VII – Funding proposal package for SAPOO6) and GCF Investment and Results Management Frameworks:

- Ecosystem-based Adaptation of 8 landscapes
- Climate-resilient infrastructure
- Natural Resource Enterprises

Component 3: Documentation, dissemination and uptake of lessons learned

Establishing an integrated information system to effectively manage results in informed decision-making at all levels. The integrated information system will enable the;

- Developing knowledge products, e.g. Photo-stories & Presentations.
- Conducting annual policy advocacy activities & local forums.
- Developing a national EbA strategy in consultation with the NDC & NAP teams under the guidance of the NDA.
- Producing a policy-based assessment report.

2. THE NEED FOR INVESTMENTS IN ECOSYSTEM-BASED ADAPTATION

Namibia's climate is characterized by hot and dry conditions and sparse and erratic rainfall. Within Africa, the climate is second in aridity only to the Sahara Desert and 92 per cent of the land area is defined as hyper-arid, arid or semi-arid. Rainfall patterns are characterized by their high temporal and spatial variability. It is the second least densely populated country in the world after Mongolia. The country is covered by biomes ranging from sub-humid woodlands in the northeast to the true desert on the west coast with large arid and semi-arid climatic regions including savanna and karoo vegetation. To add to this, Namibia has an important marine environment – the northern Benguela. Only 2% of the country is arable, 46% is viable for perennial natural pasture, 22% is forest, and the rest is arid.

The rural areas in northern Namibia are communal with limited land tenure while in the south and central Namibia there is privately owned land, where livestock ranching and tourism take place. Livestock is of primary importance in the agricultural sector, both in the communally-owned areas north of the veterinary cordon fence/The Red Line and the privately-owned land in the rest of the country. The majority (57% in 2011; 67% in 2001) of Namibia's population is considered rural. Agriculture thus plays an important role, employing people in the formal economy on both communal and freehold land, as well as supporting subsistence farming, which provides the main source of income for 40% of Namibia's rural population.

Water is an extremely scarce resource in Namibia, and even in the absence of climate change, the country faces water scarcity. With climate change, it is expected that higher temperatures and changes in total amounts of rainfall will lead to reduced water quantity and quality in future. Expected changes in rainfall and runoff in Namibia suggest that groundwater recharge may suffer a reduction of 30-70% across the country (MET, 2011). Surface water flows are predicted to decline by up to 15% in the Orange River system to the south, 10% in western ephemeral rivers (Barnes et al., 2012) and about 20% in the Okavango River, which flows along the Angolan border in the North, by 2080 (Andersson et al., 2006). This situation will be further worsened by increased demand from population growth and increasing water demand for irrigation and urban centres in response to heat stress (Schneider et al., 2015). This is significant as Namibia's main water use is for irrigation (45%), livestock (26%), municipalities (24%) and industry (5%) (Frenken, 2005). In the north, reduced river flows could impact the output of the Ruacana hydropower plant, which supplies most of Namibia's domestically-produced energy and about half of the country's electricity supply (MET, 2011).

The global climate is changing rapidly, and as nations and the international and bilateral organisations and processes that support them plan how best to adapt to climate change, they need evidence on where to focus adaptation efforts and direct financial resources accordingly. The main approach to climate change adaptation to date has tended to involve investment in engineered interventions, such as irrigation infrastructure and the adoption of integrated landscape management. There is a growing realisation, that ecosystem-based adaptation (EbA) may sometimes provide the optimal adaptation solution, particularly for developing countries such as Namibia where people are more dependent on natural resources for their lives and livelihoods. This calls for innovative approaches to ensure that ecosystem-based adaptation is invigorated. While EbA integrates the use of biodiversity and ecosystem services into an overall strategy to help communities adapt to the adverse impacts of climate change, strategies on sustainable management, conservation and restoration of ecosystems to provide services to assist rural communities are crucial to assist communities to adapt to both current climate variability and climate change.

3. STRUCTURE OF THE REPORT

The report proceeds as follows:

Section 2 describes the socio-economic of each landscape (four landscapes) and two identified villages of Otjimbingwe and Ovitoto to contextualise the current dynamics of each landscape

Section 3 presents the outcomes of the consultation per landscape and priorities for investment based on the prioritisation exercise.

Section 4 depicts an evaluation approach assessing the contribution of the proposed intervention to EbA guiding principles.

for 51% of the population which is largely rural. The inhabitants of the landscape area include Dhemba, Himba, Herero (majority inhabitants) Damara, and Ovambo people. The Himba, Dhemba and the San are classified as vulnerable minorities and reside only in this landscape

4.1.3. Soils and topography

The Landscape is divided into the interior highlands and the pro-Namib plains. It has six agro-ecological zones namely the Mountainous areas, Plateaus, Riverine, Lacustrine and Karst areas, Coastal desert and the Etosha region. Soils in the landscape area are generally characterised by low organic matter content and a deficit of Phosphorus. Their depth varies from shallow to deep and can predominantly be described as sandy to loamy sand. To the west, soils are marginal and consist of a thin layer of soil, sewn with stones and are of no arable value. The most northern parts of Kunene are largely mountainous, without easy road access.

4.1.4. Rainfall

Rainfall in this landscape area is usually low and extremely variable which means that years of abundant rain are often followed by extremely dry conditions. The annual average rainfall ranges from 0mm along the coast to 340mm on the east.

4.1.5. Vegetation

The vegetation of this landscape is predominantly Mopane savanna (*colophospermum mopane*), mixed woodlands with several species of *Acacia*, *Commiphora* and *Terminalia*. Additionally, grass species such as Bushman grass and *Stipagrostis spp* can be found in this landscape area.

4.1.6. Wildlife

The black rhino, eland, giraffe, blue wildebeest, roan, red hartebeest, sable and black-faced impala and zebra are some of the major animals seen in the area. This landscape forms part of the home range of the world's only free-roaming population of the black rhino.

4.1.7. Socio-economic profile

The majority of the population within the region live in rural areas. The literacy rate in rural areas of Kunene is very low. About 50.8 % of households in Kunene relied on wood as the main source of energy for cooking and only 4 percent of households in rural areas used electricity from the main grid for cooking (NSA 2011).

4.1.8. Land tenure

The landscape is wholly communal, under the administration of traditional Authorities.

4.1.9. Sources of livelihoods

The main source of livelihood in the Kunene region is livestock farming, with cattle, sheep and goats. Farming is thus a difficult enterprise and livestock densities are low in most areas as a result of the low productivity of farmland. The landscape also falls outside the veterinary cordon fence that controls livestock movements as a foot and mouth disease control measure. This Livestock farming is in any event getting increasingly precarious due to recurrent protracted droughts. Farmers suffered massive livestock losses during protracted drought experienced since 2012 with 2016 has been particularly devastating. Water is another major limiting factor as the landscape relies exclusively on dwindling underground water sources accessed through deep boreholes –except the Epupa constituency where the Kunene River is a source of water. Many NGOs, CBOs, farmers’ associations and government agencies collaborate in implementing various programmes around wildlife, tourism and water sectors. There are also conservancy-related tourism enterprises as an additional source of livelihood.

4.1.10. Wildlife and tourism

Rugged terrain, picturesque sceneries, low human populations and the culture of the Himba people makes this landscape a major tourism attraction. It is a niche product for adventurous four-wheel drive tourists. A handful One major recent development to have contributed to the growth of the tourism industry and to have opened up new attractions for visitors is the establishment of conservancies on communal land in the area.

4.1.11. Climate change vulnerabilities

Declining rainfall, recurrent protracted droughts and fast degrading lands declining underground water sources, and extreme temperatures, high run-offs, high levels of evaporation are already being experienced. Livestock farming the main source of livelihood has been dealt a devastating blow during the 2011 - 2016 drought and is highly unlikely to recover. This has increased the vulnerability of the communities drastically – especially from a food security perspective. Sustainable alternative livelihood opportunities could be identified e.g. in tourism and nature-based sectors

4.1.12. Infrastructure

The landscape is rural, remote and very rugged. A bitumen road serves the regional capital of Opuwo and good standard gravel roads are connecting Opuwo with smaller service points of Sesfontein and Epupa. Otherwise, the rest is only accessible by 4-wheel driven vehicles. Rural electrification services are very limited especially to the west due to low populations and remoteness. Opuwo, Sesfontein and Epupa have registered aerodromes while privately-

owned registered aerodromes - mostly linked to lodges - service the tourism sector. Rural water supply is being implemented by MAWF in partnership with community-level waterpoint management committees but relies exclusively on underground water.

4.2. Profile of the Kunene South and Dâures Landscape

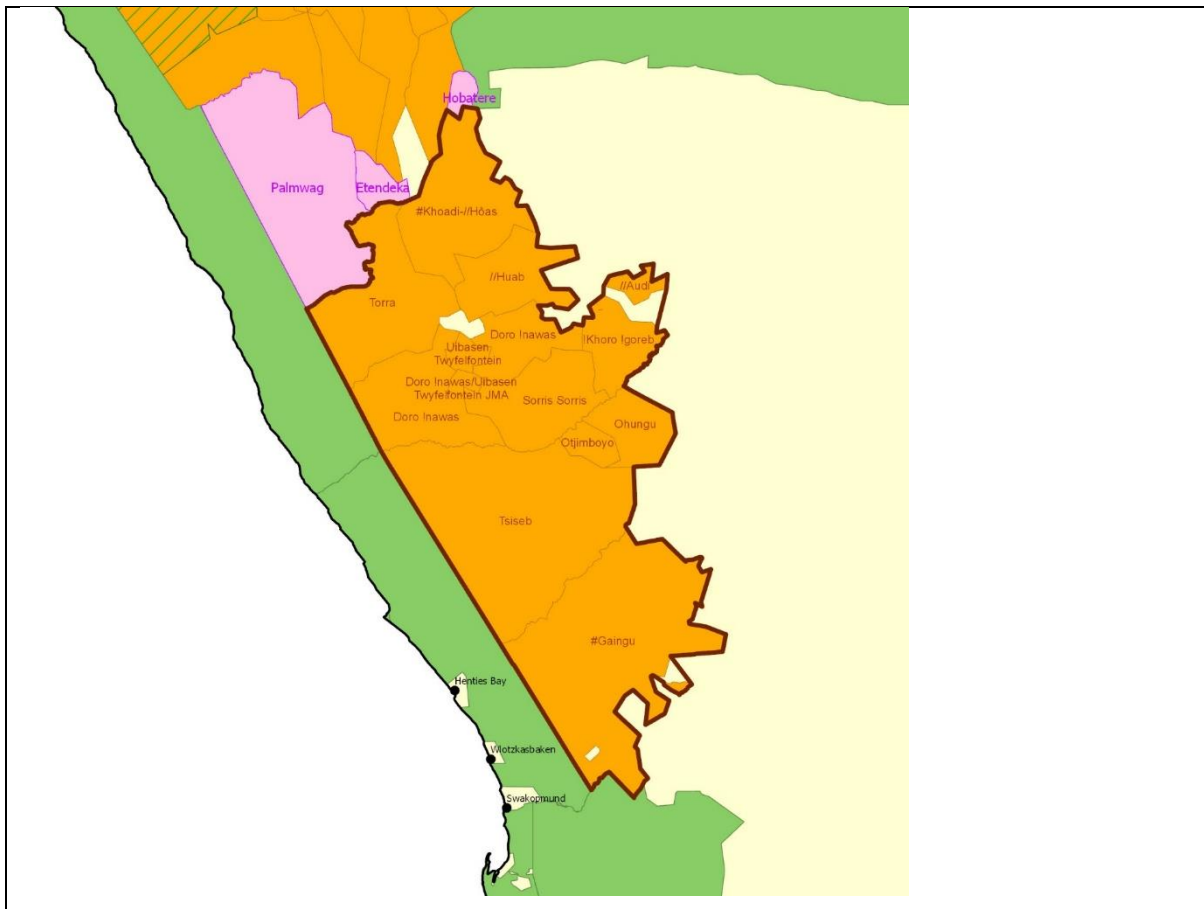


Figure 2: Map of the Kunene North Landscape

4.2.1. Location and Size

This landscape covers southern parts of the Kunene Region (entire Khorixas constituency, communal areas of Kamanjab constituency and portions of Sesfontein constituency outside of the veterinary cordon fence). It also encompasses the entire Dâures constituency in Erongo Region which represents the northern communal areas of this region. The Ugab River marks the boundary between Kunene and Erongo Regions. The landscape shares borders with 3 national parks i.e. Skeleton Coast NP (west), Dorob NP (west and south) and Etosha NP to the northeast.

The total size of the landscape is 34,920km² and hosts 12 conservancies in the landscape and no community forests. The conservancies are ! Khoro !Goreb, #Khoadi-//Hôas, //Audi, //Huab, Doro !Nawas, Sorris Sorris, Torra, Uibasen Twyfelfontein, #Gaingu, Ohungu, Otjimboyo and Tsiseb.

4.2.2. Population

The estimated total population in the proposed landscape is estimated around 30,224 people with 51% of the whole population being in the bracket of 15-59 years. There are about 2 911 households, with an average size of 3.8 persons per household NSA, 2011 & NACSO, 2016). The landscape is mostly inhabited by Damara and Herero speaking people.

4.2.3. Landscape, soils and topography

Topography is extremely rough and rugged comprising of a mixture of mountain ranges, hills, sparse savannah plains and wooded river valleys dissected 2 major ephemeral rivers of Huab and Ugab with gorges that seldom carry water. The southern expanses are comparatively flatter Brandberg (Namibia's highest peak), sections of the Erongo Mountain range (Namibia's longest) and Spitzkoppe Mountain standing out. The entire landscape is rich archaeological and paleontological resources which include rock painting sites, rock engravings sites, and petrified forest sites.

4.2.4. Rainfall

The landscape falls within an extremely low rainfall hyper-arid to arid climatic zones with a gradient increasing from less than 100mm to the southwest to over 250mm per annum to the northeast. The landscape is often subject to protracted dry spells with devastating impacts on livestock and wildlife.

4.2.5. Vegetation

Largely semi-desert and sparse savannah. Northern parts are mostly mopane (*Colophospermum mopane*) dominated woodlands interspersed with Terminalia (*Terminalia prunioides*) and various Acacia (*Acacia erubescens*) species. The area is also home to thick-stemmed trees of the Commiphora species while the succulent Euphorbias species (*Damara*, *Verosa* and *Mauritania*) and the unusual looking Bottle trees. The Ana tree (*Faidherbia albida*) and the Camelthorn tree (*Acacia erioloba*) tend to grow in ephemeral riverbeds with their pods serving as extremely important nutritional sources for both livestock and wildlife. The Brandberg massif is also known for high levels of species diversity as well as endemism.

4.2.6. Wildlife

Kudu, gemsbok, springbok, leopard, elephant (the so-called desert elephant), cheetah, ostrich, steenbok, duiker, black rhino, Hartmann's mountain zebra, black-backed jackal, klipspringer is some of the major wildlife found in the two landscapes. A high incidence of

human-wildlife conflict is being experienced mostly predation of livestock and elephant damage to water installations and causing occasional loss of human lives.

4.2.7. Socio-Economics Profile and Sources of livelihoods

Livestock farming (cattle, goats and sheep) is the only and major agricultural activity because the landscape is unsuitable for crop farming due to its aridity and poor soils. Even livestock farming is getting increasingly precarious due to recurrent protracted droughts. Farmers suffered massive livestock losses during protracted drought experienced since 2012 with 2016 has been particularly devastating. Small-scale mining for semi-precious stones, sale of handy crafts and employment at tourism facilities and heritage sites also contribute to livelihoods. Water is a major limiting factor as the landscape relies exclusively on dwindling underground water sources accessed through deep boreholes. Many NGOs, CBOs, farmers' associations and government agencies collaborate in implementing various programmes around wildlife, tourism, heritage and water sectors.

4.2.8. Land tenure

The land is exclusively communal and is being managed by various traditional authorities.

4.2.9. Wildlife and tourism

The landscape is one of Namibia's tourism drawcards due to scenic landscapes, low human populations, internationally-acclaimed attractions such as Twyfelfontein World Heritage Site (a rock art site); Brandberg White Lady (rock art as well as adventure); Burnt Mountain and Organ Pipes (geological formations); the Spitzkoppe National Monument Area; and the Petrified Forest paleontological site. As a result, quiet, several private and public sector tourism establishments exist some providing limited but decent job opportunities.

4.2.10. Climate change vulnerabilities

The landscape, except in its northeast, is already highly fragile and susceptible to climate change. Declining rainfall, recurrent protracted droughts and fast degrading lands declining underground water sources, and extreme temperatures, high run-offs, high levels of evaporation are already being experienced. Livestock farming, hitherto the main source of livelihoods, has been dealt a devastating blow during the 2016 drought and is highly unlikely to recover triggering fears of depopulation in some parts while more sustainable alternative opportunities could be identified e.g. in tourism and nature-based sectors.

4.2.11. Infrastructure

The landscape is rural, remote and very rugged. As a result, most of it is inaccessible by normal 2-wheel driven cars. However, major well-maintain gravel roads traverse the landscape making the area (especially the attractions) accessible to tourists and linking the service hubs of Kamanjab, Khorixas and Uis with the rest of the country. Rural electrification services are very limited especially to the west due to low populations and remoteness. Many privately-owned registered aerodromes mostly linked to lodges service the tourism sector. Rural water supply is being implemented by MAWF in partnership with community-level waterpoint management committees but relies exclusively on underground water.

4.3. Profile of the Lower Eastern Landscape

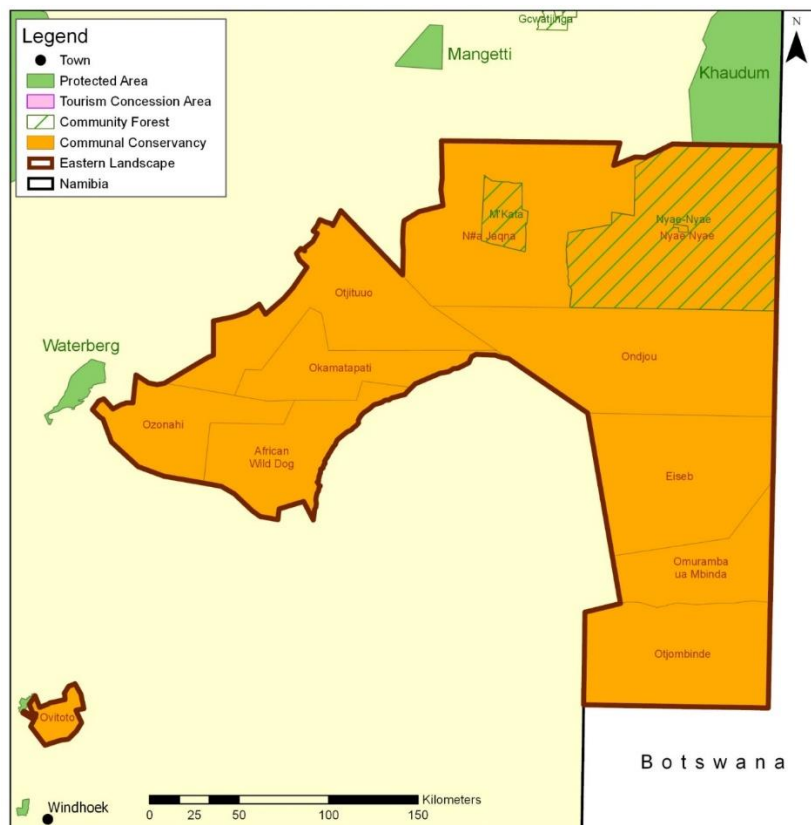


Figure 3: Map of the Lower East Landscape

4.3.1. Location & Size

The size of the landscape is estimated at 59,504km². It straddles 2 regions of Otjozondjupa and Omaheke. It covers 2 rural constituencies of Okakarara and Tsumkwe in Otjozondjupa and Otjombinde constituency in the Omaheke Region. The landscape borders 3 proclaimed national parks of Khaudum (north), Waterberg (west) and Mangetti (northwest); surrounded by freehold cattle farms to the west and borders to Botswana to the east. It covers 11 conservancies (Otjombinde, Omuramba Ua Mbinda, Eiseb, African Wild Dog, N#a-Jaqna, Nyae Nyae, Okamatapati, Ondjou, Otjituuo, Ovitoto, Ozonahi) and 2 Community Forests of Naye-Naye and M'kata

4.3.2. Population

The total population is estimated to be 39,498 people – on average 51% female and 49% male. The age group of 15-59 on average accounts for 49-51% of the population. This is largely a rural landscape with only settlements of Okakarara, Tsumkwe and Otjombinde as key service hubs. The landscape is home to the Herero, Damara,!Kung San, Ju-/hoasi San, Kalahari San and Batswana peoples.

4.3.3. Soils and topography

Omaheke region is mainly dominated by the Kalahari sand soils and flat plains and Otjozodjupa is characterised by the Central plateau, fringe plains around the Omatako plains, mountain ranges and massive bright red sandstone cliffs.

4.3.4. Rainfall

Mean annual precipitation in the Omaheke region increases from south to north, ranging from 250 mm to 450 mm per annum whereas in Otjozodjupa it ranges from 300–600 mm, increasing from the southwest to the north-east. Groundwater is generally available throughout the landscape, and the quality of water is also generally good. The higher-yielding aquifer is in the Eiseb area of the Omaheke Region.

4.3.5. Vegetation

Vegetation in the landscape ranges from open savanna lush vegetation whereas in Omaheke, under a steep west to east rainfall gradient. More broad-leaf deciduous trees occur in the northern parts while more thorny species grow in the south. The western parts are covered in thorny species growing on more rocky, shallow soils. Common species include thorny microphyllous *Acacia*, *Terminalia sericea* and *Combretum spp.*

4.3.6. Wildlife

The landscape hosts diverse wildlife resources such as the Springbok, Steenbok, warthog, waterbuck, Kudu, Hartebeest, eland and Oryx and Omaheke has Lions, Leopards, African Wild Dog, Cheetah, Baboons, Kudu, Blue Wildebeest, Oryx, Eland, Zebra, Hartebeest, Warthog, Impala (common), Hartebeest (red cape), Blesbok, Gemsbok, Giraffe, Leopard, Cheetah, Zebra (Burchells), Zable, Roan, White Rhino. Otjozondjupa accounts for most of the wildlife while Omaheke is mainly rich in bird species such as Ostriches, Secretary birds and other bird species both endemic to Namibia and migratory to Namibia The ephemeral Nyae-Naye Pans serves as an important transit point for migratory birds moving between Namibia's Walfish Bay Lagoon, Etosha Pans and Botswana's Magkadikgadi Pans.

4.3.7. Land tenure

The land tenure is exclusively communal land administered by various traditional authorities.

4.3.8. Sources of livelihoods

Cattle farming is the major source of livelihood especially in Okakarara and Otjombinde constituencies. Livestock farming is not as strong in the Tsumkwe area which is predominantly and traditionally occupied by the San communities where tourism-based livelihoods are stronger. There are well-established farmers associations and community-based waterpoint associations that collaborate with government ministries and NGOs in the landscape.

4.3.9. Wildlife and tourism

Wildlife populations occur in higher densities in the Tsumkwe constituency than the other 2 cattle-farming constituencies. As a result, tourism investments and developments are higher in the Tsumkwe area. Comparative compatibility with the lifestyle of the San community, San culture as a tourism attraction, remote and isolated location, fairly abundant wildlife numbers give Tsumkwe area an edge. There are several tourism accommodation facilities and conservation hunting enterprises operate in partnership with 2 conservancies. San communities also earn some income from the sale of crafts. Such developments and investments are virtually non-existent in the other 2 constituencies forming part of the landscape.

4.3.10. Climate change vulnerabilities

Besides the temperature changes, rainfall changes are expected to increase seasonally. The distribution of rainfall may become more erratic and an overall later start and earlier cessation of the rainy season is projected. There has been an indication that potentially greater rainfall totals will occur in the east, in line with projected increases of summer rainfall across much of the country, with high intensities over a shorter period. These areas are the most degraded in the country as a result of bush encroachment. This problem is largely and directly due to a lack of fires in areas used for livestock farming; farmers prevent fires and there is little grass to burn anyway because of heavy grazing (Mendelsohn, 2006).

4.3.11. Infrastructure

This is a rural landscape with fairly underdeveloped infrastructure. Well-maintained gravel roads are linking the main centres with the regional hubs of Okakarara-Otjiwarongo, Tsumkwe-Grootfontein, Otjombinde-Gobabis. Okakarara, Tsumkwe, Gam and Otjombinde are all served by registered aerodromes. Rural water supply is managed by MAWLR and implemented in partnership with community-based waterpoint committees. Water supply remains a challenge because of the very deep underground water table. Rural electrification

is managed by MME and CENORED (a regional distributor) but is a major challenge more in the Tsumkwe constituency because of remoteness and sparse population.

4.4. Profile of the Southern Landscape

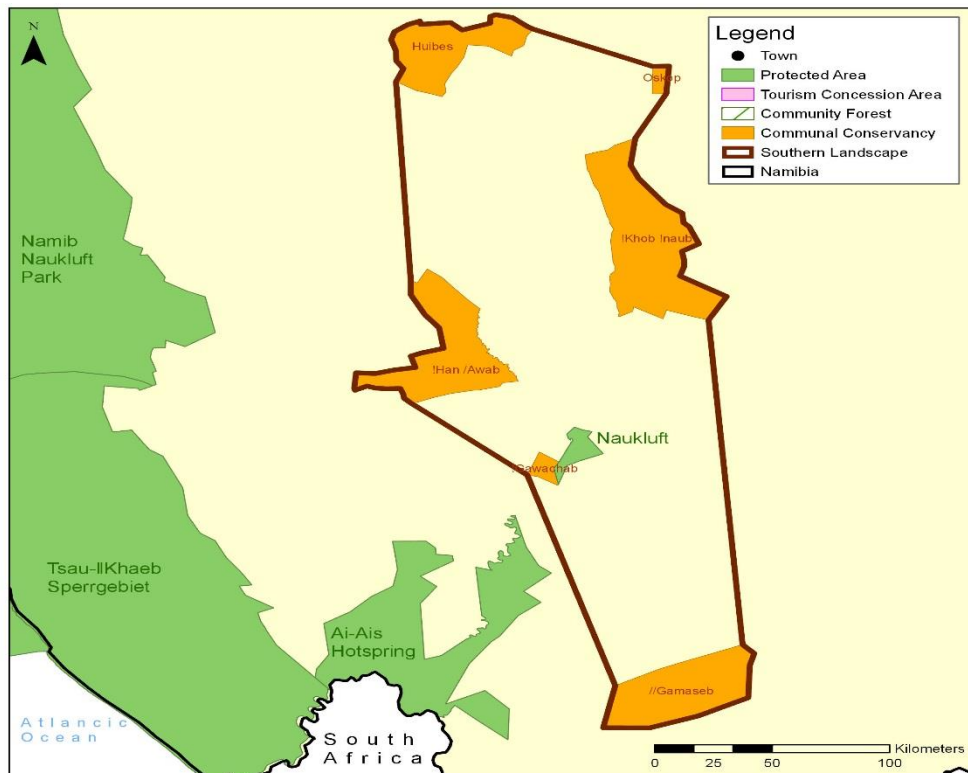


Figure 4: Map of the Southern Landscape

4.4.1. Location & size

The Southern Landscape straddles the //Karas and Hardap Regions in the southern reaches of Namibia. It covers //Gamaseb, !Khub !Naub, !Han /Awab, //Huibes and Oskop. Conservancies are situated in Warmbad, Bethanie, Berseba (all //Karas) and Gibeon (Hardap) communal areas. The landscape is 36,344 km² in size. While they do not share immediate boundaries with the landscape, world-renowned protected areas occur in Hardap and //Karas Regions i.e. Ais Ais Hotspring Game Park which houses the world-famous Fish River Canyon, Sperrgebiet/Tsau//khaeb NP that protects succulent vegetation biome, and the Namib Naukluft Park which accommodates Namibia’s second World Heritage Site of Namib Sand Sea and Sossusvlei with the country’s highest dunes.

4.4.2. Population

An estimated population of 31, 914 people reside in the landscape with estimated 5,502 households (average household size 4). Over a half living in urban areas (54%) compared to only 46 percent in rural areas where population density is the lowest in the country at 0.7 persons per square kilometre due to arid to desert conditions characterised by dry/arid climate uninhabitable by human beings. Males make up slightly more than half of the population (50.9%), compared to 49.1 percent for females. People of the age group of 15-59 make up a whopping 60% of the population. The landscape is occupied by predominantly Nama-speaking communities while Afrikaans is widely spoken.

4.4.3. Landscape and soils

Much of Hardap and //Karas is fairly flat but there is a stunning scenic beauty, especially along the escarpment, the coast, in the Namib, the Karas Mountains, the Kalk Plateau and the famous Fish River canyon and the Orange River. The soils are coarse sands derived from the rocks of the Namaqualand belt of metamorphisation and granitisation. These soils are poor and characterised by low carrying capacity largely rendering crop farming impossible.

4.4.4. Rainfall

The area is in a transitional zone between the winter (northeast) and summer rainfall regions with the southern extreme receiving more winter rainfall than summer rains. It experiences extremely low rainfall (less than 100mm in the north to less than 50mm near the Orange River in the southwest) and varies considerably from year to year. The little rain that does fall is highly variable and unreliable. Maximum temperatures are exceptionally high (34-40°C) and are mostly experienced during summer with a general temperature decline as one moves westwards towards the Atlantic coast. This gives the landscape the best solar regime in the country with immense potential for investment into solar energy facilities. There are few frost days per year with an increasing occurrence towards the west (1-5 days per year).

4.4.5. Vegetation

As a result of low rainfall, vegetation is generally sparse, with few trees and a thin covering of grass. Plant cover varies with rainfall, and so the northern areas of Hardap have more trees and grass than the western, coastal areas. Vegetation is dominated by short shrublands (including mega succulents such as including *Aloe dichotoma*, *A. ramosissima*, *A. pillansii* and *Pachypodium namaquanum*) with the Succulent Shrubland getting more prevalent as one

moves south-west. Winter rains and the generally arid conditions help contribute to the formation of the Succulent Shrubland, also known as the Succulent Karoo. This vegetation type is unique to southern Africa and has special value because of its high species endemism. The biome is also recognised as one of the biological 'hotspots' of the world and therefore has a global biodiversity significance. Grass production is highly dependent on rainfall resulting in both livestock and wildlife suffering when rains fail.

4.4.6. Wildlife

Larger species include oryx, springbok, the greater kudu and Hartmann's mountain zebra while smaller antelopes such as klipspringer, steenbok and duiker are also found. After good rains, when there is sufficient grass, gemsbok and springbok are found in large herds of several hundred animals. Carnivores include side-striped jackals, brown hyena, mongoose, bat-eared fox and cats. The Orange River (which fall in //Karas Region but does not form part of the landscape) is rich in birdlife.

4.4.7. Socio-economics & sources of livelihoods

Farming with mutton sheep predominates, while, goats and a limited number of cattle are also fairly abundant in the communal farmlands. Farmers also earn some income from the pelt of the karakul sheep exported to Belgium. However, the demands and prices for this product fluctuate due to pressure from animal rights lobbies. The low carrying capacities of the vegetation also mean that farms have to be extremely large to carry enough livestock to make farming economically viable. Farming is generally a difficult enterprise in this landscape and livestock densities are low throughout both regions as a result of the low vegetation cover and low productivity of farmland. Communal area farmers belong to highly organised and active farmers' associations all of which are affiliated with national farmers' unions.

4.4.8. Land tenure

The land is entirely communal and is being administered by various traditional authorities.

4.4.9. Wildlife and tourism

Wildlife numbers are extremely low in communal areas because the populations concentrate on freehold land (where game farming and hunting enterprises are strongly established) and in protected areas. The world-class tourist attraction in the regions notwithstanding, tourism development has lagged quite substantially (compared to more northern communal area regions such as Kunene, Erongo, Kavango and the Zambezi). There is indeed much potential for tourism development in the communal areas of the Hardap and //Karas regions.

4.4.10. Climate change vulnerabilities

Temperatures are already extremely high in this landscape and are predicted to further increase because of climate change. These extreme temperatures combine with diminishing and erratic rainfall to threaten the species-rich Succulent Karoo biome. Furthermore, the low carrying capacities of the vegetation also forces many small stock farmers to keep large herds to make farming economically viable. As a result, communal areas are severely overstocked with sheep, and this has led to degradation of pastures and bush encroachment and desertification.

4.4.11. Infrastructure

The landscape is traversed by several well-maintained gravel roads that are mostly in good condition due to low rainfall. A tarred major highway and a railway line both linking Namibia with South Africa as well as the road and railway line that links the historic harbour town of Lüderitz with the rest of the country also go through the landscape. Telecommunication infrastructure is also well-developed and accessible throughout the landscape largely because of the presence of big mines in some remote parts of the //Karas region (outside the landscape). The rural electrification network is well distributed tapping into quite a several high-voltage lines connecting the mines to the national grid. Like in most communal areas, MAWF oversees the rural water supply system in close collaboration with community-based waterpoint associations.

Although not strictly in the landscape, Lüderitz hosts a regional airport served by Air Namibia 4 times a week, while the urban centres of Mariental, Maltahöhe, Keetmanshoop and Karasburg as well as Namibia-South Africa border points of Noorderdorp and Violsdrif all have registered aerodromes

5. SECTION C: INVESTMENT PRIORITIES PER LANDSCAPES

Consultative meetings were undertaken from the 8th – 25th September 2021 in six areas (Opuwo, Uis, Otjimbingwe, Okakarara, Ovitoto and Keetmanshoop) as per Table 2 below. A total number of 135 individuals were consulted representing farmers unions, conservancies, community forest, traditional authorities, regional councils, non-governmental organisations, extension services staff and community representatives.

Table 2: Stakeholder consultations and dates

Landscape Stakeholder Consultations	Dates
1. Kunene North Landscape (Meeting in Opuwo)	8 September 2021
2. Kunene South and Dâures Landscape (Meeting in Uis)	10 September 2021
3. Kunene South and Dâures Landscape (Meeting in Otjimbingwe)	13 September 2021
4. Lower Eastern Landscape (Meeting in Okakarara)	15 September 2021
5. Southern Landscape (Meeting in Keetmanshoop)	20 September 2021
6. Lower Eastern Landscape and Ovitoto (Meeting in Ovitoto)	25 September 2021

During all consultations, stakeholders were requested to prepare the following:

1. Identify developmental challenges in line with project objectives;
2. Prioritise developmental challenges for the landscapes;
3. Developmental challenges turned into project investment;
4. Identify activities for each investment initiative;
5. List CBOs, NGOs that have a footprint in the landscapes.

The consultative processes yielded the following investment priorities for the four landscapes:

5.1. Kunene North Landscape

The existing CBOs in the landscape are the:

- Namibia Nature Foundation
- Integrated Rural Development and Nature Conservation (IRDNC)
- Save the Rhino Trust
- Constituency Development Committee
- Farmer's Association

Table 3: Prioritised investments for the Kunene North Landscape

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY
<p>Food security and Agricultural Production</p> <ul style="list-style-type: none"> • Fodder production for a livestock project • Vegetable production at household level (training and provisioning of materials) • Poultry farming to produce meat and eggs using traditional chicken varieties (marathon chicken) 	<p>Water Infrastructure Development</p> <ul style="list-style-type: none"> • Retro-fitting of boreholes – replacement of diesel-powered boreholes with a solar-powered system to ensure that there is a reliable water supply for humans and water points to have water readily available for livestock and wild animals. 	<p>Capacity Building</p> <ul style="list-style-type: none"> • Arts & Craft Centres - Set up trading centres so that women can sell their handicrafts and gemstones to tourists

5.2. Kunene South Landscape, Daures and Otjimbingwe

The existing CBOs in the landscape are the:

- Namibia Nature Foundation
- WWF
- Save the Rhino Trust
- Spitzkoppe Development Trust
- Constituency Development Committee
- Otjimbingwe Farmer's Association
- Otjimbingwe Youth Forum
- Otjimbingwe Anti-Stock Theft
- Garden Club

Table 4: Prioritised investments for the Kunene South Landscape

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development <ul style="list-style-type: none"> • Rehabilitation of 40 boreholes to replace the diesel-powered pumps with solar pumps in 8 Conservancies 	Food security and Agricultural Production <ul style="list-style-type: none"> • Hydroponic gardens for women and youth; • Date plantations (1 or 2 hectares) along the Omaruru river through the removal of of the invasive <i>Prosopis</i> spp and replacing it with date palm plants 	Small & Medium Enterprises and alternative farming with poultry and pigs <ul style="list-style-type: none"> • Poultry farming to produce meat and eggs using traditional chicken varieties (marathon chickens) 	<ul style="list-style-type: none"> • Arts & Craft Centres - Set up trading centres so that women can sell their handicrafts and gemstones to tourists

Table 5: Prioritised investments for the Otjimbingwe

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development <ul style="list-style-type: none"> • Refitting of existing boreholes with solar panels and pumps (20 boreholes) 	Food security (Agriculture) <ul style="list-style-type: none"> • Backyard gardens and alternative farming methods- Hydroponics, Aquaculture, Poultry & Pig Farming 	Bush Encroachment <ul style="list-style-type: none"> • Bush harvesting for fodder/charcoal/electricity production 	Infrastructure Development <ul style="list-style-type: none"> • Construction of a bridge Small & Medium Enterprises – Refuse Management <ul style="list-style-type: none"> • Collection & Sorting Facility

5.3. Lower Eastern Landscape and Ovitoto

The existing CBOs in the landscape are the:

- Namibia Nature Foundation
- Ozonahi Conservancy and Community Forest
- Constituency Development Committee
- Farmer’s Association
- Namibia Nature Foundation (NNF)
- Namibia National Farmers Union (NNFU)
- Ovitoto Conservancy
- Constituency Development Committee
- Farmer’s Association

Table 6: *Prioritised investments for the Lower Eastern Landscape*

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY
<p><i>Water Infrastructure Development</i></p> <ul style="list-style-type: none"> • <i>Earth Dams – upgrading and rehabilitation of 10 earth dams to enhance water provision for animals and the establishment of community vegetable gardens</i> • <i>Retrofitting existing boreholes with Solar PV systems – 40 boreholes for rehabilitation</i> 	<p><i>Food security and Agricultural Production</i></p> <ul style="list-style-type: none"> • <i>Hydroponic Fodder production as a supplement to the meagre pasture resources</i> • <i>Community food production system – community gardening;</i> • <i>Integration of fish farming with livestock production and farming of crops, including vegetable farming;</i> • <i>Bush to feed initiatives;</i> • <i>Fire control mobile units</i> 	<p><i>Energy</i></p> <ul style="list-style-type: none"> • <i>Solar home systems for rural electrification</i> • <i>Crops, Fish and Poultry Production - integration of fish farming with livestock production and farming of crops, including vegetable farming</i> •

Table 7: Prioritised investments for the Lower Eastern Landscape - Ovitoto

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
<p>Water Infrastructure Development</p> <ul style="list-style-type: none"> • Upgrading/Rehabilitating Earth Dams • Rehabilitating and retrofitting existing boreholes with Solar PV Systems at least six boreholes • Fire control mobile units 	<p>Agriculture</p> <ul style="list-style-type: none"> • Fodder production for livestock • Backyard gardening for rural women – provision of training and farming equipment 	<p>Renewable Energy</p> <ul style="list-style-type: none"> • Solar system for rural electrification 	<p>Rangeland Management</p> <ul style="list-style-type: none"> • Grazing management • Veld fire management • Charcoal production as a youth employment scheme • Orchard project

5.4. The Southern Landscape

The existing CBOs in the landscape:

- Aus Community Conservation Trust (ACCT)
- Rural Women Assembly (RWA)
- Women Action for Development (WAD)
- Southern Namibia Farmers Union
- Namibia Development Trust

Table 8: Prioritised investments for the Southern Landscape

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
<p>Agroforestry production:</p> <ol style="list-style-type: none"> 1. Crop production – Agribusiness products (high-value crops) to create youth and women employment 2. Rabbit Farming 3. Subsistence and Commercial Fish Farming through aquaculture 4. Bee Farming (Training and supply of equipment for honey production) 5. Poultry Farming (Chicken Farm at the household level for women-led households) <p>Fodder Production - hydroponic fodder production structures as a mechanism to reduce the vulnerability of communities to drought for livestock</p>	<p>Manufacturing:</p> <ol style="list-style-type: none"> 1. Small Scale Tannery (Training of women and youth and provision of equipment for the production of leather related products such as shoes, handbags etc) 2. Hand Crafting & Needlework (Traditional products) <p>Water provisioning:</p> <ol style="list-style-type: none"> 3. Rehabilitation and retrofitting of existing boreholes for rural communities (Agroforestry and rangeland management) 	<p>Energy production</p> <ol style="list-style-type: none"> 1. Green Energy (Small-scale, distributed solar home systems provide an effective and affordable way to bring light to people without electricity) 	<p>Livestock Farming</p> <ol style="list-style-type: none"> 1. Livestock Production: Restocking of small stock on communal area farms

6. ADAPTATION OPTION INCLUDING ALIGNMENT OF IMPACT AREA, ECOSYSTEM SERVICES AND ESTMATED COSTS

6.1. Kunene North Landscape

Impact Area	Adaptation Technology	Description	EbA/Soft/Hard	Ecosystem Service Addressed	Benefits
Agriculture: Sustainable Farming Systems	Mixed Farming	Fodder production for a livestock – surplus fodder for livestock during droughts	EbA	Fiber	Increased fodder for livestock
		Vegetable production at household level – aimed to increase productivity and to complement land and labour demands throughout the year in varying conditions	EbA	Food	Increased food security
		Poultry farming to produce meat and eggs using traditional chicken varieties	EbA	Food	Increased food security
Water Resources	Boreholes	Retro-fitting of existing boreholes – replacement of diesel-powered boreholes with solar-powered systems to increase access to ground water through installation and improvement of boreholes to ensure a source of potable water throughout the year especially during droughts	Hard	Freshwater	Increased water security High quality water supply

Table 9: Adaptation options including aligned to impact area and ecosystem services for Kunene North Landscape

6.2. Kunene South Landscape, Daures and Otjimbingwe

Table 10: Adaptation options including aligned to impact area and ecosystem services for Kunene South Landscape, Daures and Otjimbingwe

Impact Area	Adaptation Technology	Description	EbA/Soft/Hard	Ecosystem Service Addressed	Benefits
Water Resources	Boreholes	Rehabilitation of existing boreholes to replace the diesel-powered pumps with solar pumps in eight (8) Conservancies and Otjimbingwe village	Hard	Freshwater	Increased water security High quality water supply
	Rainwater harvesting	Upgrading/Rehabilitating Earth Dams (4 earth dams)	Hard	Freshwater	Increased water security
Agriculture: Sustainable Farming Systems	Mixed farming	Hydroponic gardens for women and youth - Vegetable production at household level – aimed to increase productivity and to complement land and labour demands across the year in varying conditions	EbA	Food	Increased food security
	Debushing	Bush harvesting for fodder/charcoal/electricity production - Bush encroachment threatens natural habitats for animals and plants of the savannah ecosystem. Local bushes, such as black thorn (<i>Senegalia mellifera</i>), are spreading massively at the expense of grass vegetation in the savannah.	EBA	Invasion resistance	Improved rangeland Potential source of fuel

6.3. Lower Eastern Landscape and Ovitoto

Table 11: Adaptation options including aligned to impact area and ecosystem services for Lower Eastern Landscape and Ovitoto

Impact Area	Adaptation TechnologyAD	Description	EbA/Soft/Hard	Ecosystem Service Addressed	Benefits
Water Resources	Boreholes	Rehabilitation of boreholes to replace the diesel-powered pumps with solar pumps (10 boreholes) in the eastern landscape	Hard	Freshwater	Increased water security High quality water supply
	Rainwater harvesting	Earth Dams – upgrading and rehabilitation of 10 earth dams to enhance water provision for animals and community vegetable gardens in the eastern landscape	Hard	Freshwater	Increased water security
Agriculture: Sustainable Farming Systems	Mixed farming	Backyard garden for women led household in Ovitoto – aimed to increase productivity and to complement land and labour demands across the year in varying conditions	EbA	Food	Increased food security
	Mixed farming	Fodder production for livestock – bush to feed initiative using bush invasive species (bush encroachment)	EbA	Fiber	Increased fodder for livestock
	Debushing	Bush harvesting for fodder/charcoal/electricity production - Bush encroachment threatens natural habitats for animals and plants of the savannah ecosystem. Local bushes, such as black thorn (<i>Senegalia mellifera</i>), are spreading massively at the expense of grass vegetation in the savannah.	EBA	Invasion resistance	Improved rangeland Potential source of fuel

6.4. The Southern Landscape

Table 12: Adaptation options including aligned to impact area and ecosystem services for the Southern Landscape

Impact Area	Adaptation Technology	Description	EbA/Soft/Hard	Ecosystem Service Addressed	Benefits
Agriculture: Sustainable Farming Systems	Mixed farming	Crop production – Agribusiness products (high-value crops) to create youth and women employment	EbA	Food	Increased food security
	Mixed farming	Rabbit Farming	EbA	Food	Increased food security
Aquaculture : Sustainable Farming Systems	Mixed farming	Subsistence and Commercial Fish Farming through aquaculture	EbA	Food	Increased food security
Agrobiodiversity Conservation	Mixed farming	Bee Farming – production of honey as well as improve pollination of plants	EbA	Food	Increased food security
Agriculture: Sustainable Farming	Mixed farming	Poultry Farming (Chicken Farm at the household level for women-led households)	EbA	Food	Increased food security
	Mixed farming	Fodder Production - hydroponic fodder production for livestock especially for drought seasons	EbA	Fiber	Increased fodder for livestock
	Mixed farming	Small Scale Tannery (Training of women and youth and provision of equipment for the production of leather related products such as shoes, handbags etc)	Hard		
	Mixed farming	Hand Crafting & Needlework (Traditional products)	Hard		
	Boreholes	Rehabilitation and retrofitting of existing boreholes for rural communities (Agroforestry and rangeland management (6 boreholes)	Hard	Freshwater	Increased water security High quality water supply

APPENDIX 1: SCREENING OF THE CONTRIBUTION OF PROPOSED INTERVENTION TO EbA GUIDING PRINCIPLES

6.5. Kunene North Landscape

Table 13: Screening of the contribution of the identified intervention to the EbA guiding principles in the Kunene North Landscape

Interventions (Proposed Projects as ranked based on its importance)	EBA Principles						
	EbA interventions support resilient and functional ecosystems that ensure and enhance ecosystem services.	EbA interventions support people in adapting to climate change and climate variability.	EbA interventions are participatory, inclusive and transparent.	EbA interventions are knowledge and evidence-based as informed by the best available science and robust indigenous and local knowledge. (Learning)	EbA interventions are contextualised within broader national and regional policy and landscape processes and are designed to be scalable and replicable.	EbA interventions strive to be integrative and to promote transdisciplinarity and multi-sectoral throughout the project lifecycle.	EbA strives to achieve co-benefits and synergistic outcomes (job creation, income generation, climate change mitigation).
1. <i>Fodder production for a livestock project</i>	No	Yes	Yes	Yes	No	Yes	Yes
2. <i>Vegetable production at household level (training and provisioning of materials)</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. <i>Poultry farming to produce meat and eggs using traditional chicken varieties</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4. <i>Retro-fitting of boreholes – replacement of diesel-powered borehole with solar-powered system</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes

6.6. Kunene South Landscape, Daures and Otjimbingwe

Table 14: Screening of the contribution of the identified intervention to the EbA guiding principles in the Kunene South landscape, Dâures and Otjimbingwe

Interventions (Proposed Projects as ranked based on its importance)	EBA Principles						
	EbA interventions support resilient and functional ecosystems that ensure and enhance ecosystem services.	EbA interventions support people in adapting to climate change and climate variability.	EbA interventions are participatory, inclusive and transparent.	EbA interventions are knowledge and evidence-based as informed by the best available science and robust indigenous and local knowledge. (Learning)	EbA interventions are contextualised within broader national and regional policy and landscape processes and are designed to be scalable and replicable.	EbA interventions strive to be integrative and to promote transdisciplinarity and multi-sectoral throughout the project lifecycle.	EbA strives to achieve co-benefits and synergistic outcomes (job creation, income generation, climate change mitigation).
1. <i>Rehabilitation of boreholes to replace the diesel-powered pumps with solar pumps in 8 Conservancies and Otjimbingwe</i>	Yes	Yes	Yes	No	No	No	Yes
2. <i>Hydroponic gardens for women and youth;</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. <i>Bush harvesting for fodder/charcoal/electricity production</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4. <i>Upgrading/Rehabilitating Earth Dams</i>	Yes	Yes	Yes	No	No	No	Yes

6.7. Lower Eastern Landscape and Ovitoto

Table 15: Screening of the contribution of the identified intervention to the EbA guiding principles in the Lower Eastern Landscape and Ovitoto

Interventions (Proposed Projects as ranked based on its importance)	EBA Principles						
	EbA interventions support resilient and functional ecosystems that ensure and enhance ecosystem services.	EbA interventions support people in adapting to climate change and climate variability.	EbA interventions are participatory, inclusive and transparent.	EbA interventions are knowledge and evidence-based as informed by the best available science and robust indigenous and local knowledge. (Learning)	EbA interventions are contextualised within broader national and regional policy and landscape processes and are designed to be scalable and replicable.	EbA interventions strive to be integrative and to promote transdisciplinarity and multi-sectoral throughout the project lifecycle.	EbA strives to achieve co-benefits and synergistic outcomes (job creation, income generation, climate change mitigation).
1. <i>Earth Dams – upgrading and rehabilitation of 10 earth dams to enhance water provision for animals and community vegetable gardens</i>	Yes	Yes	Yes	No	No	No	Yes
2. <i>Retrofitting boreholes with Solar PV systems – 40 boreholes for rehabilitation</i>	Yes	Yes	Yes	No	No	No	Yes
3. <i>Fodder production and mobile fire control units</i>	Yes	Yes	Yes	Yes	No	Yes	Yes
4. <i>Community food production system – community gardening;</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. <i>Solar system for rural electrification</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes

6.8. The Southern Landscape

Table 16: Screening of the contribution of the identified intervention to the EbA guiding principles in the Southern Landscape

Interventions (Proposed Projects as ranked based on its importance)	EBA Principles						
	EbA interventions support resilient and functional ecosystems that ensure and enhance ecosystem services.	EbA interventions support people in adapting to climate change and climate variability.	EbA interventions are participatory, inclusive and transparent.	EbA interventions are knowledge and evidence-based as informed by the best available science and robust indigenous and local knowledge. (Learning)	EbA interventions are contextualised within broader national and regional policy and landscape processes and are designed to be scalable and replicable.	EbA interventions strive to be integrative and to promote transdisciplinarity and multi-sectoral throughout the project lifecycle.	EbA strives to achieve co-benefits and synergistic outcomes (job creation, income generation, climate change mitigation).
1. Crop production – Agribusiness products (high-value crops) to create youth and women employment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Rabbit Farming	No	Yes	Yes	Yes	Yes	Yes	Yes
3. Subsistence and Commercial Fish Farming through aquaculture	No	Yes	Yes	Yes	No	Yes	Yes
4. Bee Farming (Training and supply of equipment for honey production)	Yes	Yes	Yes	No	Yes	Yes	Yes
5. Poultry Farming (Chicken Farm at the household level for women-led households)	No	Yes	Yes	Yes	Yes	Yes	Yes
6. Fodder Production - hydroponic fodder production	No	Yes	Yes	Yes	No	Yes	Yes

7. <i>Small Scale Tannery (Training of women and youth and provision of equipment for the production of leather related products such as shoes, handbags etc)</i>	No	No	Yes	No	No	No	Yes
8. <i>Hand Crafting & Needlework (Traditional products)</i>	No	No	Yes	No	No	No	Yes
9. <i>Rehabilitation and retrofitting of boreholes for rural communities (Agroforestry and rangeland management)</i>	Yes	Yes	Yes	No	No	No	Yes
10. <i>Green Energy (Small-scale, distributed solar home systems provide an effective and affordable way to bring light to people without electricity)</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes

APPENDIX 2: INVESTMENT PRIORITIES PER LANDSCAPE

The Southern Landscape

The Southern Landscape consultative meeting took place on the 20th of September 2021 in Keetmashoop, Karas Region. The identified initiatives in table 1 as investment priorities for the Southern Landscape.

The existing CBOs in the landscape:

- Aus Community Conservation Trust (ACCT)
- Rural Women Assembly (RWA)
- Women Action for Development (WAD)
- Southern Namibia Farmers Union
- Namibia Development Trust

Table 1: Groups - Southern Landscape – Keetmanshoop

Group 1			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Food Security	Employment Creation	Energy	Agriculture
<p>Seed Supply: Seed supply for vegetable gardening was identified by group 1 as a priority for the interested constituencies. The proposed initiative is to enable the community to be able to use the water from the existing boreholes to enhance food supply. The goal of the project is to creating employment for the local communities in rural areas, particularly women and youth who are the most vulnerable and food insecure.</p>	<p>Small Scale Tannery The community wants to set up a tannery to process hides and skins for shoe production and other products.</p>	<p>Green Energy Small-scale, distributed solar home systems provide an effective and affordable way to bring light & energy to people without electricity. That concept of Solar streets light can be further explored. This has huge advantages and can bring many opportunities to the villages and settlement of the southern landscape..</p>	<p>Livestock Production: Restocking Many of the communities' lost part of their livestock due to drought and other climate change triggers. Sheep and goat farming are a viable social and economic enterprise, which will enable those who do not have any livestock to produce their own meat for consumption as well as for sale to raise money for basic needs.</p>

<p>Rabbit Farming Rabbits have the potential to be one of the most profitable small livestock to raise. The community wants to tap into this viable option in these troubled and tough times. Rabbit meat farming is also a guaranteed quick return on investment. There is a huge potential for employment creation and poverty reduction in the region.</p>	<p>Hand Crafting & Needlework Handmade Crafts and Needle work products can provide subsistence in hard times; women could sell their needlework and craft products for income.</p>		<p>Horticulture Through this proposal the community aims at establishing vegetable production of a variety of crops such as date palms, grapes, citrus fruits, watermelons, cabbage, carrots, tomatoes and onions. A lot of income can be derived from fruits and vegetables thereby creating employment and reducing the high prevailing poverty levels in the landscape.</p>
<p>Subsistence and commercial Fish Farming Fish-farming projects could help to address the acute unemployment problem in the two southern regions. The community wants to tap into the potential for aquaculture and reservoir fisheries. They are looking at establishing a fingerlings pond as well. The dams and reservoirs of the south provide a great investment opportunity and are virtually unexploited</p>			
<p>Bee Farming Beekeeping is advantageous for rural livelihoods as production costs are low and also one does not necessarily need to own land for this practice. The Southern Landscape community wishes to explore this investment opportunity and wants training in skills and knowledge about this at the same time.</p>			
<p>Poultry Farming: Opportunities exist for the southern landscape communities to grow its poultry sector and to move closer to self-sufficiency. The communities want to become self-sufficient by embarking</p>			

on poultry farming and exploit the market for eggs locally and elsewhere.			
Group 2			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Food Security	Water Infrastructure Development	Sustainable Land Management	
Crop Production: including medical crops: The community proposes to develop a food and agriculture-related businesses that create jobs, re-circulate financial capital in the community, or in other ways, contribute to the community's economic development.	Boreholes: The rehabilitation and retrofitting of existing boreholes. The aim is to increase water supply in the Landscape for Livestock and irrigation purposes	Land Management: The community wants to engage in promoting the implementation of sound rangeland management strategies which include reforestation, diversification and rotational grazing. This idea came from that challenge of Rangeland degradation negatively influencing the livelihoods of a large portion of the landscape's communities and resulting in a downward trend in the ability of produce food. It furthermore has a negative impact on the profitability of livestock farming in particular and the whole economy in general. It further contributes towards increasing levels of poverty in the region. In order to achieve this the community suggested the following. <ul style="list-style-type: none"> • restore and maintain the water cycle • restore and maintain rangeland biodiversity • to adjust animals timely to available fodder sources • to make timely provision for disaster drought situations 	
Fodder Production: The community from the drought hit southern regions of Hardap and //Kharas require greenhouse hydroponic fodder production structures. Each hydroponic system would produce fodder every seven days and sustain 80 large stock. The identified beneficiaries in the Landscape would collect the fodder every month from the centers where the prospective project would run from.			
Bee Farming Beekeeping is advantageous for rural livelihoods as production costs are low. One does not necessarily need to own land for this practice. The Southern Landscape community wishes to explore this investment opportunity and wants training in skills and knowledge about this at the same time.			

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PRIORITISED INVESTMENTS FOR THE SOUTHERN LANDSCAPE

After the group presentations, the floor was open for deliberations to prioritise the investment plan for the southern Landscape (Keetmanshoop Consultative Workshop) and the list according to importance is as follows (Table 2):

Table 2: Landscape Investment prioritization list

Interventions	Activities
1. Food security	<ul style="list-style-type: none"> • Seed Supply • Rabbit Farming • Subsistence and commercial fish farming • Bee Farming • Poultry Farming
2. Water Infrastructure Development	<ul style="list-style-type: none"> • Upgrading/Rehabilitating Earth Dams • Rehabilitating and retrofitting existing boreholes with Solar pumps
3. Agriculture	<ul style="list-style-type: none"> • Crop Production (including medicinal plants) • Livestock production (restocking)
4. Renewable Energy	<ul style="list-style-type: none"> • Solar Home Systems

Table 3: Groups Work - Lower Eastern Landscape – Okakarara

Group 1			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development	Water Infrastructure Development	Energy	Agriculture
<p>Earth Dams: The community wishes to evaluate the technicalities and cost of upgrading/rehabilitating 10 earth dams in the Lower Eastern Landscape with the aim of providing increased supply of water for the purpose of cultivating vegetables, and for providing drinking water for cattle.</p>	<p>Boreholes: Need to refit 40 existing boreholes and replace the diesel-powered pumps with solar pumps. Many of the boreholes are not functional hence the need for rehabilitation. The Community will be selective in the process, targeting the areas that are hard hit by the water challenges first and then targeting the rest as the project progresses.</p>	<p>Solar home systems for rural electrification: Small-scale, distributed solar home systems provide an effective and affordable way to bring light to people without electricity. The Namibian Rural Electrification program did not cover all the areas thus the community proposes solar systems to areas too remote a location to be reached by the National Grid.</p>	<p>Hydroponic Fodder production: The community proposes hydroponic production which is an innovative solution during drought times. Farmers have been unable to grow crops to feed themselves and their valuable animals. To meet this increasing demand for fodder, one of the alternatives is hydroponic fodder to supplement the meagre pasture resources. Hydroponic fodder production requires only seed and water as production inputs with modest labour inputs. This also allows for an opportunity to create employment and water will be sourced from the planned rehabilitated earth dam and boreholes.</p>
			<p>Bush to Feed Initiatives: The production of bush-based fodder has the potential to save their herds during recent periods of drought the community agrees and are strongly advocating for this initiative.</p>
Group 2			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development	Wildlife Conservation	Agriculture & Food Security	Eco Tourism
<p>Retrofitting existing boreholes with Solar PV systems: The community intends retrofitting and rehabilitation of existing boreholes. There were also suggestions to look at ways of</p>	<p>fencing for conservation The community wants an area fenced off for Wildlife Conservation purposes. This, they propose has the potential to reduce poaching and human-wildlife conflict. It has the potential for eco-tourism (Trophy hunting</p>	<p>Crops, Fish and Poultry Production: The community is proposing the integration of fish farming with livestock production and farming of</p>	<p>Campsite, Cultural Centre, Arts and Craft: The community wants to establish a campsite which will be used by local and international tourists. This area will host an information & environmental centre which</p>

desalinating the water and looking at water harvesting which will allow them to look into the potential for fish farming.	and Safari Tours) which will in turn create employment and improve people living standards sustainably.	agricultural crops, including vegetable farming. Fish pond silt is an excellent fertilizer for land crops and can be used by farmers. In areas without adequate irrigation, pond water may also be used for irrigating crops. Integrated farming can further allow for the potential for raising pigs and poultry, crop and vegetable farming as well as farming of fish	will have a cultural part and another part for crafts and arts, where local handcrafts products are sold. Training of local to run this venture will also need to be considered.
Group 3			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Agriculture	Water Infrastructure Development	Food Security	
De-Bushing: Bush Encroachment: Bush control offers the potential to increase agricultural productivity, economic growth, employment and energy supply. The community wants to tap into these opportunities through woodblock production, fodder production and bush to feed investments opportunities. They also want to be properly trained in all areas that can derive value from this investment plan. Investment opportunities include biomass as feed for cattle or game, or as fertiliser for crop production, the construction industry and building materials, such as chipboards or wood panel.	Boreholes and Earth dams: The community aim is to excavate or rehabilitate earth dams .The boreholes can be rehabilitated and fitted with solar powered systems . The aim is to increase water supply in the Landscape for Livestock and irrigation purposes.	Community Food Production system: The community proposes to develop a food and agriculture-related businesses that create jobs, re-circulate financial capital in the community, or in other ways, contribute to the community's economic development..	

PRIORITISED INVESTMENTS FOR THE LOWER EASTERN LANDSCAPE

After the group presentations, the floor was open for deliberations to prioritise the investment plan for Lower Eastern Landscape (Okakarara Consultative Workshop) and the list according to importance is as follows:

1. **Water Infrastructure Development**
2. **Food security (Agriculture)**
3. **Tourism and Wildlife Conservation**
4. **Renewable Energy**
5. **Fire Control**

Group 1- Kunene South

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY
<p>Water Infrastructure Development</p> <p>There are 8 conservancy areas that have been impacted by erratic rainfall for the past 10 years making it a very dry vast landscape that needs 40 boreholes to feed the water reservoirs i.e. 8 conservancies X 5 boreholes = 40.</p>	<p>Food Security</p> <p>If you install the solar pumps and do not address the food issue, the people will steal the solar panels to feed themselves, thus there is need to focus on utilisation of the water from the boreholes to encourage backyard gardening; hydroponic (technique of growing plants without soil but uses mineral nutrients solutions to grow plants like cucumber, onions, peas etc) farming in containers using the latest technology.</p>	<p>Livestock Restocking</p> <p>Wrong farming systems lead to poverty, using goats that are browsers in an area where sheep that are grazers are more suitable and vice versa, there is need to consider adaptability. We will need to enhance the restocking efforts that are currently being done under the IREMA project under the EIF project to be able to impact a broader target of households so that the restocking can be effective. -There is local supply of animals that are already adapted to this environment of the Kunene & Otjozondjupa regions at the local auctions that are held every Friday.</p>
<p>-Need to refit these 40 boreholes to replace the diesel powered pumps with solar pumps to mitigate the human-wildlife conflict with farmers who cannot afford the diesel and lubricants to run these engines and in doing so the 40 water points will be rehabilitated and jobs created during this activity. There has been job losses due to Covid19.</p>	<p>-Poultry farming to produce meat and eggs using traditional chicken varieties (marathon chickens). -Pig rearing for meat and breeding for sale to other farmers. The pigs can be fed from the gardening and poultry waste products to sustain them and create a zero waste ecosystem.</p>	<p>-For the elephants in the Kunene region, there is need to install water points in the field far from human settlements so that they do not roam to people's homes in search of water and in the process destroy crops, infrastructure or cause loss of human life all of which damage the livelihoods of these communities.</p>

Group 2- Dâures

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FORTH PRIORITY
Water Infrastructure Development -Equipping the existing boreholes with solar powered pumps and storage tanks (Retrofitting) i.e. replacing the diesel powered boreholes with solar. Identify 25 farms (5 farms per area in the Dâures Constituency for the pilot phase)	Horticulture -Date production along the banks of the Omaruru river that has been invaded by the alien invasive <i>Prosopis sp. (P.glandulosa, P. juliflora and P. chilensis, as well as hybrids from cross-pollinatin)</i> trees and by removing this alien plant and replacing it with date palm plants instead. -The date plantations (1 or 2 hectares) along the Omaruru river will be under irrigation to ensure the prolific growth of the date plants and in turn curb migration of the people residing alongside the river.	Small & Medium Enterprises -Diversification due to drought since you cannot farm with cows and goats but rather do so with pigs and poultry. This activity provides an opportunity for capacity building by teaching the community new skills and improving their livelihoods.	Conservation (Eco-Tourism) -In order to promote sightseeing routes in target landscapes there is need to set up wildlife drinking holes away/closer to campsite inorder for tourist to visit these sites .
-Water purification at Spitzkoppe where it is salty and treat it for potable use and bottle it for sale.	-Vegetable production by revamping existing gardens for food security and create jobs for the locals in the process. This activity will supplement the government's drought relief program by enabling the community to grow short season varieties of cash crops, tomatoes, carrots, peppers in greenhouses and if done in gardens practice crop rotation to keep the land fertile.	-Traditional furniture production for items such as tables & stools, table coasters, using the wood from the <i>Prosopis</i> that has been removed along the banks of the Omaruru river. There is need for equipment to upscale from traditional carving methods to more technologically advanced environmentally friendly methods. -Some of this wood can be used for charcoal production or sold as dry firewood at the local service stations for resale to local customers and tourists. The marketing is being done to attract more people to this furniture and recently 50X50kg bags have been sold at the local Engen Service Station.	b) Arts & Craft Centres -Set up trading centres so that women can sell their handicrafts and gemstones to tourists and visitors to their respective areas within a walking distance from their settlements so that they do not travel long distances to get to these trading places.
	-Fodder production by growing lucern along suitable land parcels to be identified along the Omaruru river. -The harvested alien invader <i>Prosopis</i> biomass can be crushed and processed into fodder by adding nutritional supplements and preservatives to turn it into a fodder feed for the livestock during the drought season.	- Currently, in Okambahe there is a project running for removal of <i>Prosopis</i> along the Omaruru & Ugab River, and this biomass is being grinded & crushed into fodder but there is lack of machinery & there is need to upscale to ensure more job creation and sustainability.	c) Heritage & Tourism Establishments - Refurbishment of existing places such as museums. -Identifying and protecting rock painting sites. -Establishing community campsites and tourism information centres using precast and prefabricated materials as encouraged by the EIF.

PRIORITISED INVESTMENTS FOR THE KUNENE SOUTH AND DÂURES LANDSCAPE

After the group presentations, the floor was open for deliberations to prioritise the investment plan for the Kunene south and Dâures landscape and the list according to importance is as follows:

1. **Water infrastructure development- refitting of existing boreholes & rehabilitation of water points (earth dams)**
2. **Food security (Agriculture)**
3. **Small & Medium Enterprises and alternative farming with poultry and pigs**

Groups - Lower Eastern Landscape – Okakarara

Group 1			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development Earth Dams: The community wishes to evaluate the technicalities and cost of upgrading/rehabilitating 10 earth dams in the Lower Eastern Landscape with the aim of providing increased supply of water for the purpose of cultivating vegetables, and for providing drinking water for cattle.	Water Infrastructure Development Boreholes: Need to refit boreholes at a and to replace the diesel-powered pumps with solar pumps. Many of the boreholes are not functional hence the need for rehabilitation. The Community will be selective in the process, targeting the areas that are hard hit by the water challenges first and then targeting the rest as the project progresses.	Energy Solar home systems for rural electrification: Small-scale, distributed solar home systems provide an effective and affordable way to bring light to people without electricity. The Namibian Rural Electrification program did not cover all the areas thus the community proposes solar systems to areas too remote a location to be reached by the National Grid..	Agriculture Hydroponic Fodder production: The community proposes hydroponic production which is an innovative solution during drought times. Farmers have been unable to grow crops to feed themselves and their valuable animals. To meet this increasing demand for fodder, one of the alternatives is hydroponic fodder to supplement the meagre pasture resources. Hydroponic fodder production requires only seed and water as production inputs with modest labour inputs. This also allows for an opportunity to create employment and water will be sourced from the planned rehabilitated earth dam and boreholes.
			Bush to Feed Initiatives: The production of bush-based fodder has the potential to save their herds during recent periods of drought the community agrees and are strongly advocating for this initiative.
Group 2			

FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Water Infrastructure Development	Awareness on Wildlife Conservation	Agriculture & Food Security	Eco Tourism
<p>Retrofitting boreholes with Solar PV systems:</p> <p>The community proposes for retrofitting and rehabilitation of existing boreholes. There were also suggestions to look at ways of desalinating the water and looking at water harvesting which will allow them to look into the potential for fish farming.</p>	<p>Strengthen conservation concepts</p> <p>The community wants conservation concepts to be supported in target landscapes. This, they propose has the potential to reduce poaching and human-wildlife conflict. It has the potential for eco-tourism (Trophy hunting and Safari Tours) which will in turn create employment and improve people living standards sustainably.</p>	<p>Crops, Fish and Poultry Production:</p> <p>The community is proposing the integration of fish farming with livestock production and farming of agricultural crops, including vegetable farming. Fish pond silt is an excellent fertilizer for land crops and can be used by farmers. In areas without adequate irrigation, pond water may also be used for irrigating crops. Integrated farming can further allow for the potential for raising pigs and poultry, crop and vegetable farming as well as farming of fish</p>	<p>Campsite, Cultural Centre, Arts and Craft:</p> <p>The community wants to establish a campsite which will be used by local and international tourist. This area will host an environmental centre which will have a cultural part and another part for crafts and arts, where local handcrafts products are sold. Training of local to run this venture will also need to be considered.</p>
Group 3			
FIRST PRIORITY	SECOND PRIORITY	THIRD PRIORITY	FOURTH PRIORITY
Agriculture	Water Infrastructure Development	Food Security	Rangeland Management
<p>De-Bushing: Bush Encroachment:</p> <p>Bush control offers the potential to increase agricultural productivity, economic growth, employment and energy supply. The community wants to tap into these opportunities through woodblock production, fodder production and bush to feed investments opportunities. They also want to be properly trained in all areas that can derive value from this investment plan. Investment opportunities include biomass as feed for cattle or game, or as fertiliser for crop production, the construction industry and building materials, such as chipboards or wood panel</p>	<p>Boreholes and Earth dams:</p> <p>The community proposes for the excavation/rehabilitation of earth dams and retrofitting of boreholes. The aim is to increase water supply in the Landscape for Livestock and irrigation purposes.</p>	<p>Community Food Production system:</p> <p>The community proposes to develop a food and agriculture-related businesses that create jobs, re-circulate financial capital in the community, or in other ways, contribute to the community's economic development.</p>	<p>Fire Control</p> <p>The community proposes to be supported with mobile fire control units .Training should be provided on fire control measures in target landscapes .</p>

PRIORITISED INVESTMENTS FOR THE LOWER EASTERN LANDSCAPE

After the group presentations, the floor was open for deliberations to prioritise the investment plan for Lower Eastern Landscape (Okakarara Consultative Workshop) and the list according to importance is as follows (Table 4):

Table 4: Landscape Investment prioritization list

Interventions	Activities
1. Water Infrastructure Development	<ul style="list-style-type: none"> • Upgrading/Rehabilitating Earth Dams • Rehabilitating and retrofitting existing boreholes with Solar PV Systems
2. Food security and Agricultural Production	<ul style="list-style-type: none"> • Community food production system • Integration of fish farming with livestock production and farming of agricultural crops, including vegetable farming • Hydroponic fodder production • Bush to feed initiatives • De Bushing: Bush Encroachment
3. Tourism and Wildlife Conservation	<ul style="list-style-type: none"> • Eco-tourism- Campsite, Cultural & Information Centre, Arts and Craft • Fencing for Conservation
4. Renewable Energy	<ul style="list-style-type: none"> • Solar home systems for rural electrification