

# Forest and Environmental Management Plan (FEMP)



## PURPOSE of the FEMP

The purpose of this FEMP is to facilitate sustainable management, conservation and utilisation of forest resources while promoting socio-economic development and environmental protection. This FEMP will enable the Directorate of Forestry (DoF), landowners and forest resource users to have a clear vision of what needs to be in place, which wood harvesting activities are planned, and when the activities will take place. It will further assist DoF in providing permits based on well-planned and documented management processes.

## OBJECTIVES of the FEMP

1. To guide the restoration of farm during bush thinning operations
2. To give guidance towards compliance to permit conditions
3. To sustainable use bush resources
4. To facilitate compliance to FSC Namibia's Standard

### The following legislative instruments, policies and guidelines are inter alia applicable and considered in compiling this plan:

- Environmental Management Act (Act 7 of 2007)
- Forest Act (Act 12 of 2001) and Regulations (2015)
- Soil Conservation Act (Act 76 of 1969) & the Soil Conservation Amendment Act (Act 38 of 1971)
- Labour Act (Act 11 of 2007)
- Import and Export Control Act (Act 30 of 1994)
- National Forest Policy (1992)
- Namibia Agriculture Policy (2015)
- National Guidelines on Fires and Fire Management (2001)
- National Drought Policy and Strategy (1997)
- National Rangeland Management Policy and Strategy (NRMPS, 2012)
- National Strategy on the Sustainable Management of Bush Resources (2022-2027)

### The following documents to be attached to the FEMP (Depending on land ownership and tenure agreements):

- ☒ Proof of ownership (Title Deed) for harvesting on own property
- ☒ Lease Agreement if the producer is not the owner of the land
- ☐ Written permission from the Traditional Authority for harvesting on ungazetted communal land
- ☐ Written permission from the chairperson if the land is part of a Gazetted Conservancy or Community Forest
- ☐ Consent and Allotment letters from the Ministry responsible for lands and resettlement
- ☒ Complete Farm / Land Map with farm name, owner (+ tenant), camps, camp numbers & -sizes @ hectares, water points, farm- and official roads, location of homestead and charcoal village (if possible, GPS coordinates), current- (if any) and planned harvesting & exclusions (latter being all excluded areas like environmental sensitive habitats, fields, irrigation areas, cattle corridors, areas not planned to be harvested).

**Date of Submission of FEMP**

1/10/25

**Prepared and Submitted by**

Don Muroa and Hugo Haussmann

## 1. GENERAL INFORMATION

Name and Contact Details of  
Farmer / Land Legal Custodian  
/ Manager

Henner Wilckens  
P.O. Box 492  
Otjiwarongo  
okaturua@afol.com.na

Farm Name / Land Legal Name

RMU Okozongutu West No. 100 and Ongangasemba No. 99

## 2. FARM/AREA DISRIPTION

Legal Status of the Land  
(Select all that apply)

Private Farm ☒ Resettlement Farm ☐  
Gazetted Conservancy ☐ Gazetted Community Forest ☐  
Gazetted Small-scale Farm ☐ Land with Leasehold ☐  
Land with Customary Land Rights ☐  
Open Ungazetted Land ☐  
Fenced-off Ungazetted Land ☐  
Other (Specify)

Farm Number / Area Name

Omatako District

Region and Constituency

Otjizondjupa Region

Current Land Use  
(Select all that apply)

Livestock Farming ☒ Crop Production ☐ Homestead ☐  
Irrigation Scheme ☐ Wildlife Conservation ☒  
Hunting Tourism ☒ Eco-tourism ☐ Mining ☐  
Other (Specify)

Name and Contact Details of  
Immediate Neighbouring Farmers  
/ Land Custodians / Managers

*Please attach proof that you informed the  
neighbours about your intended bush control/  
harvesting operations)*

Andrew Campbel - Okozongutu Suid - 0818324774  
Axel Ishitile - Etjo Suid - 0811662213  
Charles Wittman - Vastrap - 0811270275  
Johan Nagel - Omaha - 0811405155  
Ulrich Huber - Smaalstreep - 0811242646

List the various infrastructure on the farm or land, such as number of dwellings, camps, water points, waterlines, powerlines, etc. Information must be included on the farm map as well.

2 Homestead  
30 Water points  
43 Camps  
2 Staff housing

Description of the General Ecology of the Farm / Land (e.g. topography, soil type, flora, fauna)

Area is part of the Tree-and-shrub Savanna, dominated by *S. mellifera*, *V. reficiens*, *D. cinerea*, *S. erubescens*, *Z. mucronata*, and *B. albitrunca*. The area is hilly, dominant by Chromic Cambisols soils. Annual rainfall is about 300mm, temperatures ranging between 4°C–6°C in winter to 34°C–36°C in summer.

Is the land considered bush thickened / bush encroached?

Yes ☒ No ☒

List the problematic plant species

*S. mellifera*, *D. cinerea*, *V. reficiens*, *S. erubescens*, *Z. mucronata*, *B. albitrunca*, *Comiphora*- and *Grewia* spp.

List the plant species you intend to harvest or control

*S. mellifera*, *D. cinerea*, *V. reficiens*, *S. erubescens*

What is the purpose of the biomass harvesting operations? (Select all that apply)

Land clearing for crops ☐ Animal feed ☐  
Land clearing for infrastructure development ☐  
Clearing undesirable plants ☐ Rangeland management ☒  
Timber harvesting ☐ Woodchips ☐  
Charcoal production ☒ Biochar production ☐  
Other (Specify)

Will the biomass harvesting operations reduce the plant cover or density by more than 80%?

Yes ☐ No ☒

If Yes (Specify)

Was the biomass in the area to be harvested determined?

Yes ☒ No ☐ *If yes, please attach documentation*

Date when biomass was assessed 11/13/24

Was the Biomass Quantification Tool (BQT) used?

Yes ☒ No ☐

If no, what other methods were used:

Describe the bush control/harvesting methods, tools and equipment to be used

1. Manual cutting of bush and stacking in heaps, 2. collecting the stacks to a central burning site, 3. producing charcoal and packaging, 4. Marketing to buyers.

**IMPORTANT:**

1. Tree Equivalent to kept must not be below 450TE/ha or 550 plant stems/ha. This must include various species of all sizes.
2. Species richness should remain similar after bush control.
3. Namibia FSC Standard and risk assessment will apply

Name of camp(s) / area(s) to be harvested

| NAME OF CAMP OR AREA | GPS COORDINATES (DECIMAL DEGREES) | SIZE (HECTARES) | YEAR TO BE HARVESTED | TOTAL BIOMASS (TONNES) | SUSTAINABLE BIOMASS OR ALLOWABLE CUT |
|----------------------|-----------------------------------|-----------------|----------------------|------------------------|--------------------------------------|
| Camp OG14            | -21.15207, 16.52338               | 240             | 2025-2027            | 7832                   | 7255                                 |
| Camp OG15            | -21.159211, 16.563223             | 218             | 2025-2027            | 3266                   | 2872                                 |
| Camp OG18            | -21.166050, 16.523295             | 216             | 2025-2027            | 5453                   | 4833                                 |
| Camp OZ16            | -21.168446, 16.59084              | 200             | 2025-2027            | 4572                   | 3991                                 |
| Camp OZ17            | -21.17779, 16.59758               | 188             | 2025-2027            | 3773                   | 3374                                 |
| Camp OZ30            | -21.21015, 16.60130               | 268             | 2025-2027            | 11657                  | 7687                                 |
|                      |                                   |                 |                      |                        |                                      |
|                      |                                   |                 |                      |                        |                                      |
|                      |                                   |                 |                      |                        |                                      |
|                      |                                   |                 |                      |                        |                                      |

Training to be provided  
to workers  
(Select all that apply)

First Aid to at least the site supervisor ☒

Fire prevention and firefighting ☒

Sustainable harvesting of biomass ☒

Other (Specify)

At minimum, the following  
laws, policies and guidelines  
will be adhered to  
(Select all that apply)

Forest Act (Act 12 of 2001) and Regulations (2015) ☒

Labour Act (Act 11 of 2007) ☒

Environmental Management Act (Act 7 of 2007) ☒

Import and Export Control Act (Act 30 of 1994) ☐

All Permit Conditions ☒

Industry Best Practices and Standards ☒

### 3. FARM/LAND MAP

#### Farm map requirements

Please attach farm / land map

#### GPS coordinates

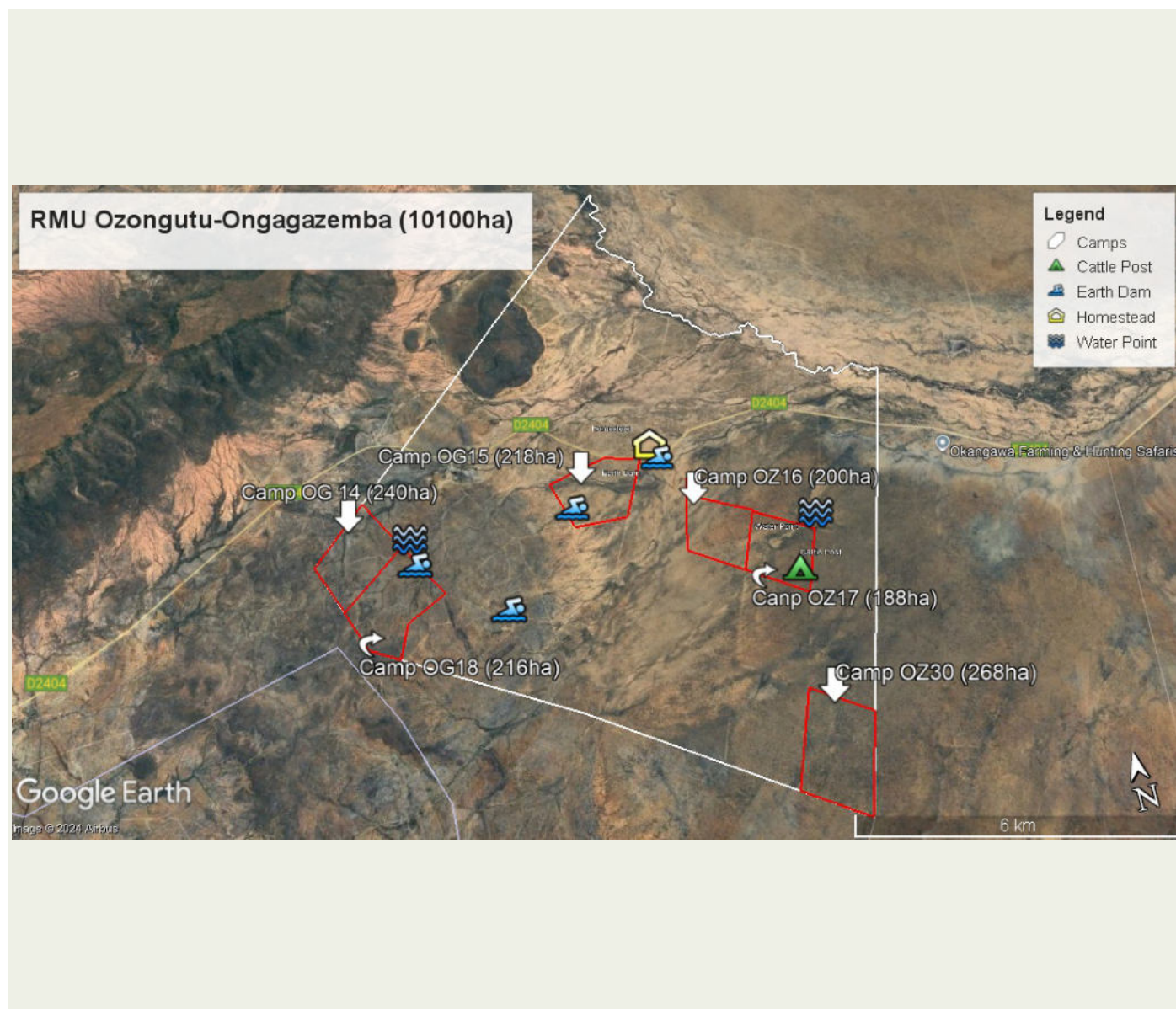
(Decimal Degrees)

-21.150083°S, 16.579651°E

#### The following information must be available on the map:

- Current (if any) and planned harvesting & exclusions areas (latter being all excluded areas like environmental sensitive habitats, fields, irrigation areas, cattle corridors, areas not planned to be harvested)
- Each camp must be indicated
- Camps must be numbered for reference purposes
- Size of each camp (ha)
- Available biomass per camp vs what is allowed to be harvested
- Houses, dwellings, staff quarters
- All roads
- Fire breaks
- Biomass production areas
- Water points
- Rivers and mountains
- Etc.

#### Attach the map below:



## 4. IMPACT MANAGEMENT AND MITIGATION

Land owner, legal custodian and/or manager operating and/or responsible for Small and Medium size, low impact bush harvesting/control projects and operations commits to adhere to the following conditions and standards as described below:

### 4.1. HEALTH AND SAFETY

| IMPACT DESCRIPTION                                                          | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RESPONSIBILITY                                                                                                                                                                                                                                       | INDICATORS                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HIV/AIDS infection due to risky sexual behaviour                            | <input checked="" type="checkbox"/> Provide awareness information to workers<br><input checked="" type="checkbox"/> Do not allow visitors to the project area<br><input type="checkbox"/> Provide free condoms<br><input type="checkbox"/> Provide recreation facilities (games/TV etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. VERY IMPORTANT – the proponent must provide the names and contact numbers of the persons responsible. | <ul style="list-style-type: none"> <li>Evidence of a training event,</li> <li>written instructions regarding visitors,</li> <li>facilities visible.</li> </ul>                                                                                                |
| Bites / stings from snakes, scorpions and insects                           | <input checked="" type="checkbox"/> Staff may not to catch or kill snakes or scorpions – back away.<br><input checked="" type="checkbox"/> Staff must wear protective glasses, gloves, closed shoes, hard hat and overalls while working.<br><input checked="" type="checkbox"/> A first aid kit, which includes an aspivenom pump, must be accessible for all staff.<br><input checked="" type="checkbox"/> Accommodation / eating areas kept clean at all times, garbage placed in closed containers to avoid attracting vermin, insects.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.                                                               | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.                                                                                                       | <ul style="list-style-type: none"> <li>Evidence of a first aid training event,</li> <li>written instructions regarding non-handling of wildlife,</li> <li>First aid kits accessible</li> <li>facilities clean</li> <li>protective gear being worn.</li> </ul> |
| Harm to face, eyes, skin and other parts of the body from thorns, dust, etc | <input checked="" type="checkbox"/> Staff must wear protective glasses, gloves, closed shoes, hard hat and overalls while working.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.                                                                                                       | <ul style="list-style-type: none"> <li>Protective gear being worn.</li> </ul>                                                                                                                                                                                 |
| Loss of life/ injury from traffic accidents                                 | <input checked="" type="checkbox"/> Vehicles roadworthy and properly maintained<br><input type="checkbox"/> Drivers comply with all Roads Ordinances, including avoiding overloading, speeding, safety belts, yellow line driving.<br><input type="checkbox"/> Vehicles travel with lights on whether using tar or gravel roads.<br><input checked="" type="checkbox"/> No driving at night.<br><input type="checkbox"/> No conveying of hitch-hikers or non-project staff<br><input checked="" type="checkbox"/> Instruction in road safety must be given and repeated periodically amongst all drivers.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP.                                                                                                       | <ul style="list-style-type: none"> <li>Vehicles roadworthy</li> <li>Zero traffic fines or accidents</li> <li>Evidence of drivers receiving instruction/ training in road safety.</li> <li>All drivers licensed</li> </ul>                                     |

| IMPACT DESCRIPTION                           | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of life/injury from machinery accidents | <input checked="" type="checkbox"/> Machines properly maintained<br><input checked="" type="checkbox"/> Operators know and comply with machine instruction manuals.<br><input checked="" type="checkbox"/> Instruction in machine operating safety must be given periodically to operators.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>• Machines well maintained</li> <li>• Zero machine-related accidents</li> <li>• Evidence of operators receiving instruction/ training in operating safety.</li> </ul>                                                                                                                                                                                                                                         |
| Loss of life/ injury from fire accidents     | <input checked="" type="checkbox"/> Fire-fighting equipment (rubber beaters and/or backpack spray) must be accessible at key points during controlled burning.<br><input checked="" type="checkbox"/> Deploy beaters/backpack spray immediately when a fire starts.<br><input checked="" type="checkbox"/> A fire cart must be available at each work station with water supply and pumps to deal with fire.<br><input checked="" type="checkbox"/> Regular training for site staff on fire prevention and control, especially in the dry season.<br><input checked="" type="checkbox"/> If a fire starts, notify the farm owner/ manager immediately.<br><input checked="" type="checkbox"/> Open fires only permitted in a designated facility at the site camp. Campfire must be extinguished when staff go to bed, or leave the camp.<br><input checked="" type="checkbox"/> No cigarette butts, matches or any other burning object may be thrown into the veld.<br><input checked="" type="checkbox"/> An area of at least 3 metres must be cleared of grass around active charcoal kilns.<br><input checked="" type="checkbox"/> Combustible refuse must be burnt in a drum. An area of 3 metres must be cleared of grass around such a drum. The drum may not be left unattended until the fire is extinguished and a lid has been placed on the drum.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>• No fire incidents</li> <li>• Evidence of a fire-fighting training event,</li> <li>• Written instructions regarding fire prevention,</li> <li>• Fire-fighting equipment available at base camp, on vehicles and at charcoal kilns.</li> <li>• Suitable drum available for combustible refuse, and located in cleared area.</li> <li>• Suitable cleared area designated for campfire at base camp.</li> </ul> |

## 4.2. DISTURBANCE OF WILDLIFE AND LIVESTOCK

| IMPACT DESCRIPTION                           | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                                                                                                    |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of wildlife and livestock from poaching | <input checked="" type="checkbox"/> Killing of wildlife and setting of snares is prohibited. Anyone caught involved in such activities will be fired immediately.<br><input checked="" type="checkbox"/> Possession of a firearm or snare is prohibited. Such items will be confiscated if detected, and the offender issued a warning.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>• No snares present in the camp or veld</li> <li>• No firearms on site</li> <li>• No incidences of poaching</li> </ul> |

| IMPACT DESCRIPTION                                                      | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                              | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                                                                                                   |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Escape of wildlife and livestock due to fences damages/ gates left open | <input checked="" type="checkbox"/> Fences may not be damaged and gates may not be left open.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking these rules, and it must be clear that the rules are understood.                                                                                                                     | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>No wildlife or livestock escape from the property due to fences damages/ gates left open by project staff.</li> </ul> |
| Loss of wildlife/ livestock because of fires                            | See section on fires in "Health and Safety"                                                                                                                                                                                                                                                                                                                                                        | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>See section on fires in "Health and Safety"</li> </ul>                                                                |
| Disturbance of sensitive animal species                                 | <input checked="" type="checkbox"/> Permanent nests of large raptors such as eagles or vultures, must be avoided by at least 100m.<br><input checked="" type="checkbox"/> Some reptiles such as tortoises and pythons move very slowly when cold. Site staff, drivers, and the machine guide in particular, shall look out for any slow moving animals and avoid causing any harm to such animals. |                                                                                                                                                |                                                                                                                                                              |

#### 4.3. DAMAGE TO PLANTS AND RANGELANDS

| IMPACT DESCRIPTION             | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                   |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Loss of protected tree species | <input checked="" type="checkbox"/> Avoid cutting protected trees, whether large or small ones. Many of the protected species are frequently found amongst dense encroacher bush, so they are at risk of being destroyed by bush management practices e.g. harvesting machines, arboricides, and even hand labour, if not adequately supervised.<br><input checked="" type="checkbox"/> Protected trees must be marked (e.g. with hazard tape) and all staff must know that marked trees are out of bounds.<br><input checked="" type="checkbox"/> All staff must be informed in writing about the consequences of breaking this rule, and it must be clear that the rule is understood. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>No protected trees are cut</li> </ul> |

| IMPACT DESCRIPTION                          | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                                                                                                                            |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ecological imbalance due to over-harvesting | <input checked="" type="checkbox"/> In order to maintain soil fertility and provide habitat and browse for wildlife and birds, the following measures shall be carried out within each and every target area:<br><input checked="" type="checkbox"/> Leave bush clumps (or 'islands') totaling at least 10% of the target area.<br><input type="checkbox"/> If any slopes with gradients of 5 – 12.5% are included in the target area, then the islands must be increased to 20% on those slopes<br><input checked="" type="checkbox"/> Within areas that are cut, all large trees (over 4m tall), including dead trees, shall be retained. The only exception is if the vegetation consists entirely of encroachers that are all over 4m. In that case, leave 300 – 500 per hectare in any case.<br><input type="checkbox"/> The TE – rainfall formula includes all sizes and species, including Protected species. The result a year after cutting should be grasslands with many large trees providing shade in a park-like landscape, with some islands of bush as mentioned above.<br><input checked="" type="checkbox"/> In addition to small bush islands, also leave at least one large area exceeding 1 ha as a representative sample of the original habitat.<br><input checked="" type="checkbox"/> All 'islands' envisaged above should include browser species of bush, Protected species of trees, and even encroacher species as they also have benefits for soil fertility.<br><input checked="" type="checkbox"/> Seek to create an environment with a matrix of grass, large trees and bush. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>Correct level of harvesting, adequate numbers of trees, and islands, remain. Area has a "park-land" appearance after bush thinning.</li> </ul> |

#### 4.4. SOIL EROSION

| IMPACT DESCRIPTION                            | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RESPONSIBILITY                                                                                                                                 | INDICATORS                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of topsoil as a result of bush thinning. | <input type="checkbox"/> No bush cutting permitted on slopes steeper than 12.5% gradient (i.e. 1 in 8).<br><input type="checkbox"/> Bush cutting is also not recommended on slopes of 5 – 12.5% (i.e. between 1 in 20 and 1 in 8).<br><input type="checkbox"/> On all slopes of 5 – 12.5%, machinery should move approximately along the contours (not up and down slopes).<br><input type="checkbox"/> If such slopes are significantly bush encroached it is recommended that they be set aside as part of the 50% of bush encroached areas per farm that will not be cut even in the medium to long term.<br><input checked="" type="checkbox"/> Sandy and silty soils are prone to erosion and loss of soil fertility following bush cutting. Where <i>Terminalia sericea</i> is dominant it is an indicator of deep sand. All sites where this species is dominant should be harvested at the TE – rainfall formula for woodland i.e. TE per hectare = 3 x rainfall. | The person/company that has the permit from DoF is responsible for implementing. S/he must ensure that all sub-contractors implement the FEMP. | <ul style="list-style-type: none"> <li>No bush thinning in steep areas</li> <li>Bush cutting by machines must be done along the contour.</li> </ul> |

| IMPACT DESCRIPTION                                                     | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | RESPONSIBILITY | INDICATORS                                                                                                                                                                      |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Erosion or destabilisation of river banks as a result of bush thinning | <input type="checkbox"/> No bush cutting permitted within 100 metres of a watercourse (see Forest Act). This includes small watercourses and 'blind valleys' found in karst areas, and also springs.<br><input checked="" type="checkbox"/> Two exceptions only are permissible<br><input checked="" type="checkbox"/> where bush has encroached into ephemeral (seasonal) pans – it is acceptable to clear the bush within the floor of the pan but not around the outside margins.<br><input checked="" type="checkbox"/> Prosopis and black wattle may be removed from within a watercourse and from the riverbank. | As above       | <ul style="list-style-type: none"> <li>Apart for the exceptions of black wattle and Prosopis, no tree cutting in riverbeds, riverbanks or within 100 metres thereof.</li> </ul> |

#### 4.5. POLLUTION OF GROUNDWATER

| IMPACT DESCRIPTION                                                                                                                                  | GENERIC MITIGATION MEASURE<br>(SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | RESPONSIBILITY                                                                                                                                                                                                                                                                                                                  | INDICATORS                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Pollution of soil and water from waste products (e.g. tars, ash, brine) generated in bush-to-energy plants or factories for wood products           | <input checked="" type="checkbox"/> Where appropriate, the waste should be re-used. E.g. i) ash should be redistributed in the harvested areas, so that nutrients are returned to the soil. ii) Some of the tars produced in a wood gasifier, might be re-useable as fuel in the plant.<br><input checked="" type="checkbox"/> Where re-use is not feasible, appropriate disposal must be considered e.g. in a site equipped for hazardous waste disposal, with measures to prevent seepage into soil and groundwater.<br><input type="checkbox"/> Brine and contaminated water should be collected and stored in sealed evaporation ponds. The residue should be regularly scraped up and disposed of in an appropriate site. | <p>The person/company that has the Environmental Clearance is responsible for implementing.</p> <p>Composition of effluents should be specified by the proponent, and measures for safe disposal put in place.</p> <p>Water quality inspectors from MAWLR and/or MoHSS need to exercise control over disposal of effluents.</p> | <ul style="list-style-type: none"> <li>Sporadic sampling of local soil and water, to test for contaminants.</li> </ul> |
| Small-scale, local pollution patches caused by spillages and servicing of machinery used in bush harvesting operations. (e.g. fuels, oils, greases) | <input checked="" type="checkbox"/> Regular maintenance and servicing of vehicles and machinery, to prevent breakdowns and the need for on-site repairs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The person/company that has the Environmental Clearance is responsible for implementing.                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Sporadic sampling of local soil and water, to test for contaminants.</li> </ul> |

## 4.6. POLLUTION OF AIR

| IMPACT DESCRIPTION                                                                               | GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)                                                                                                                                                                                                | RESPONSIBILITY                                         | INDICATORS                                                                                   |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Smoke given off from charcoal kilns can, under certain conditions, accumulate to harmful levels. | <input checked="" type="checkbox"/> Training and supervision of charcoal producers can improve the efficiency of the process, so less smoke is produced.<br><input type="checkbox"/> Retort kilns, operated efficiently, produce almost no smoke. | Charcoal producer                                      | <ul style="list-style-type: none"> <li>Complaints from neighbours / local people.</li> </ul> |
| Wood utilisation factories may generate air pollution e.g. smoke, soot.                          | <input type="checkbox"/> Air emission control measures e.g. scrubbers installed in chimneys.                                                                                                                                                      | Proponent is responsible for minimising air emissions. | <ul style="list-style-type: none"> <li>Complaints from neighbours / local people.</li> </ul> |

## 4.7. PREVENTION OF REGROWTH THROUGH AFTERCARE

| IMPACT DESCRIPTION                                                                                                                                    | GENERIC MITIGATION MEASURE (SELECT ALL THAT APPLY)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RESPONSIBILITY                   | INDICATORS                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| The original encroacher species, or more aggressive colonizers, will quickly establish themselves in the thinned-out areas.                           | Preventing bush regrowth following harvesting can be achieved through: <ul style="list-style-type: none"> <li><input type="checkbox"/> Hand application of arboricides,</li> <li><input type="checkbox"/> mechanical removal of problematic single plants</li> <li><input checked="" type="checkbox"/> stem burning,</li> <li><input checked="" type="checkbox"/> judicious use of fire, and</li> <li><input checked="" type="checkbox"/> intensive browsing by goats or antelope, especially when regrown plants are still small.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Farmer/land owner/land custodian | <ul style="list-style-type: none"> <li>Thinned areas remain at the required tree density, or within defined limits of acceptable change.</li> </ul> |
| Aftercare burning and/or stem burning generates air pollution e.g. smoke, soot, and fires may "get away", threatening other rangeland and neighbours. | <ul style="list-style-type: none"> <li><input type="checkbox"/> No burning when the day temperature exceeds 25oC or wind exceeds 20kph or in combination thereof during the months of April to July.</li> <li><input checked="" type="checkbox"/> Notify neighbours a day or two before the controlled burning.</li> <li><input checked="" type="checkbox"/> Remove livestock from the area prior to burning.</li> <li><input checked="" type="checkbox"/> Ensure there are escape routes for larger forms of wildlife so that they do not succumb to the fire.</li> <li><input checked="" type="checkbox"/> Avoid burning in areas where there are active nests of endangered bird species (e.g. vultures, eagles) – wait until chicks have fledged.</li> <li><input checked="" type="checkbox"/> Fire-fighting equipment (fire-cart, rubber beaters and/or backpack spray) must be accessible and in working condition.</li> <li><input checked="" type="checkbox"/> Prepare firebreaks that are at least 3 metres wide, around the area on 3 sides, prior to the controlled burn, or define an area bordered by roads which are wide enough to prevent a fire "jumping".</li> <li><input checked="" type="checkbox"/> Monitor the area after the burn is over, in case a smouldering coal or dung is blown into an unburnt area.</li> </ul> | Farmer/land owner/land custodian | <ul style="list-style-type: none"> <li>Fire is fit for purpose and it is contained as planned.</li> </ul>                                           |
| Illness to workers through exposure to chemicals                                                                                                      | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Staff must wear the necessary protective gear while working with chemicals.</li> <li><input checked="" type="checkbox"/> Staff must know and comply with instruction manuals for the particular chemical.</li> <li><input checked="" type="checkbox"/> Instruction in chemical application must be given periodically to staff.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Farmer/land owner/land custodian | <ul style="list-style-type: none"> <li>No injury to workers.</li> </ul>                                                                             |

## APPENDIX 1: REPORTING TEMPLATE

An annual report is required, as well as a 3-year report. The 3-year report must include updated farm / land map to clearly indicate harvesting activities and reference to rangeland restoration as well as possible increase in biodiversity (fauna and flora).

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*The following section is a structure that can be used to compile the report.*

### **Introduction**

Provide a summary of past and current activities, and level progress towards complying to the FEMP.

### **Farm / land map**

Include the map and indicate the areas that were harvested. Provide detail on total tonnage of biomass removed and how much e.g. charcoal was produced. Provide percentages on the map to indicate how much was harvested in a specific camp / area.

### **Harvesting and production feedback**

Include photos of the areas that were harvested.

Provide feedback on your aftercare that was and will be implemented.

Give the total of the permits that were issued, e.g. 3 harvesting permits with a total of 300 tonne of wood biomass, etc include all marketing and transport permit summaries.

Provide info on inspections that were conducted by relevant competent authorities such Forestry Officials and other law enforcement officials.

### **Future harvesting**

Provide info for the camps / areas that will be harvested in the next year. Include the total size (ha) as well as biomass (obtained from bush quantification tools or similar info that was verified by Forestry officials).

### **Fauna and Flora**

This might be more applicable to the 3-year report, as it is sometimes difficult to measure the impact after the first year. If possible, include the increase of rangeland, animal wildlife and any other positive impact on the rangeland.

You should also include anything that had a negative impact on the rangeland, e.g. veld fires, drought conditions, erosion, etc.

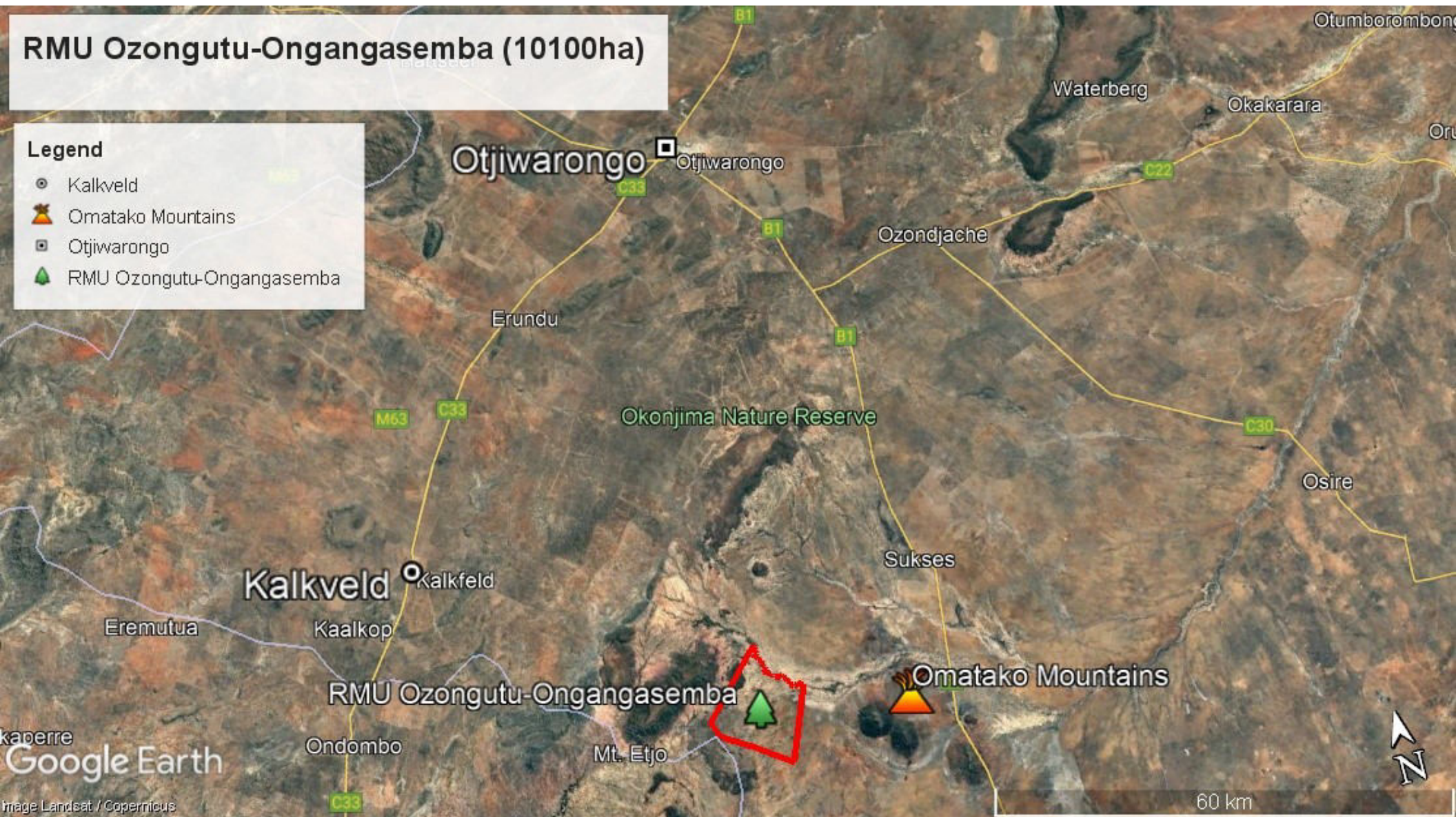
### **Summary**

Provide information on a summary level of high-level actions that are planned for the next year. If possible add planned training activities, awareness campaigns for workers.

## RMU Ozongutu-Ongangasemba (10100ha)

### Legend

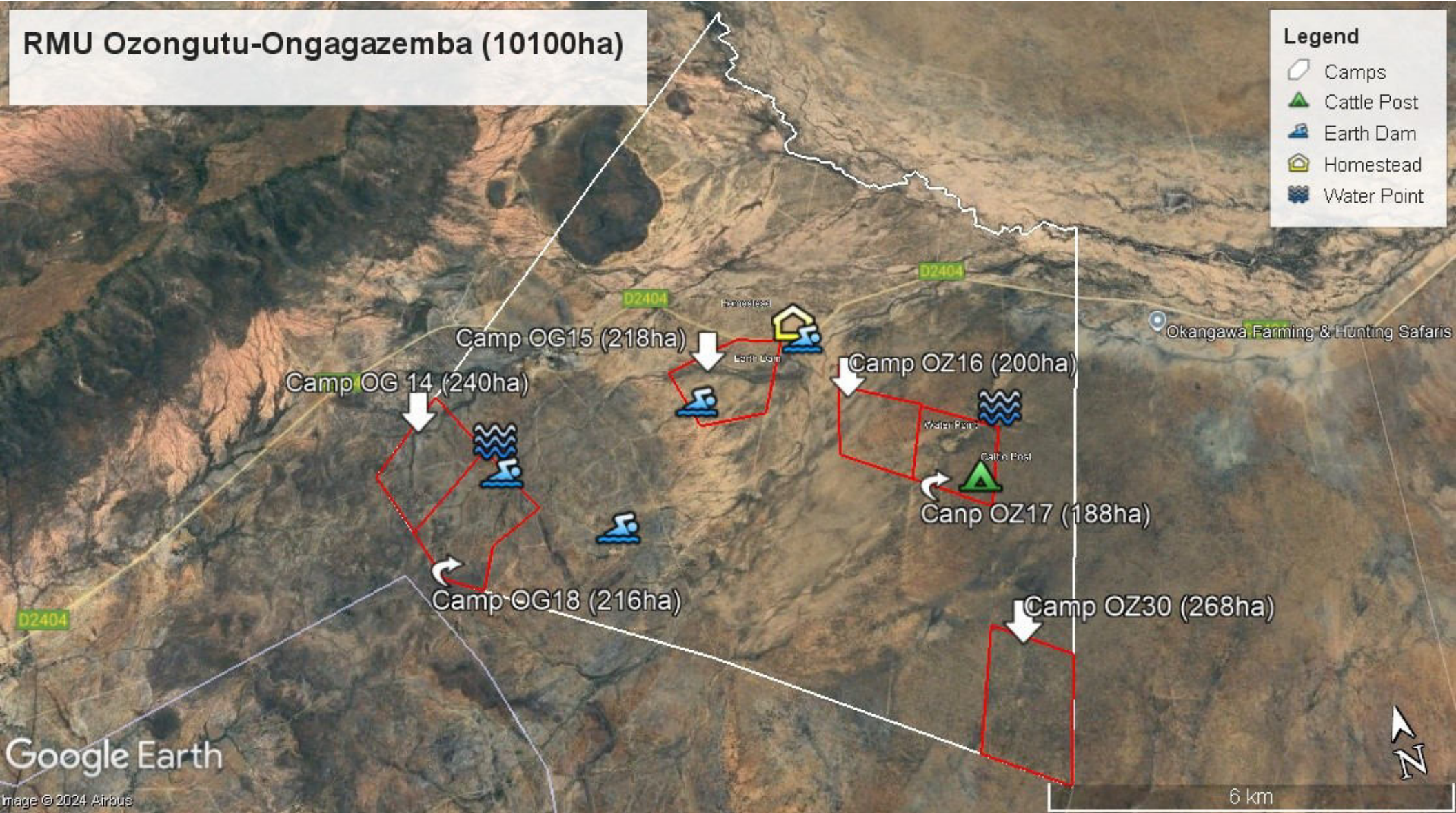
- Kalkveld
- 🔥 Omatako Mountains
- ▣ Otjiwarongo
- 🌲 RMU Ozongutu-Ongangasemba



RMU Ozongutu-Ongagazemba (10100ha)

**Legend**

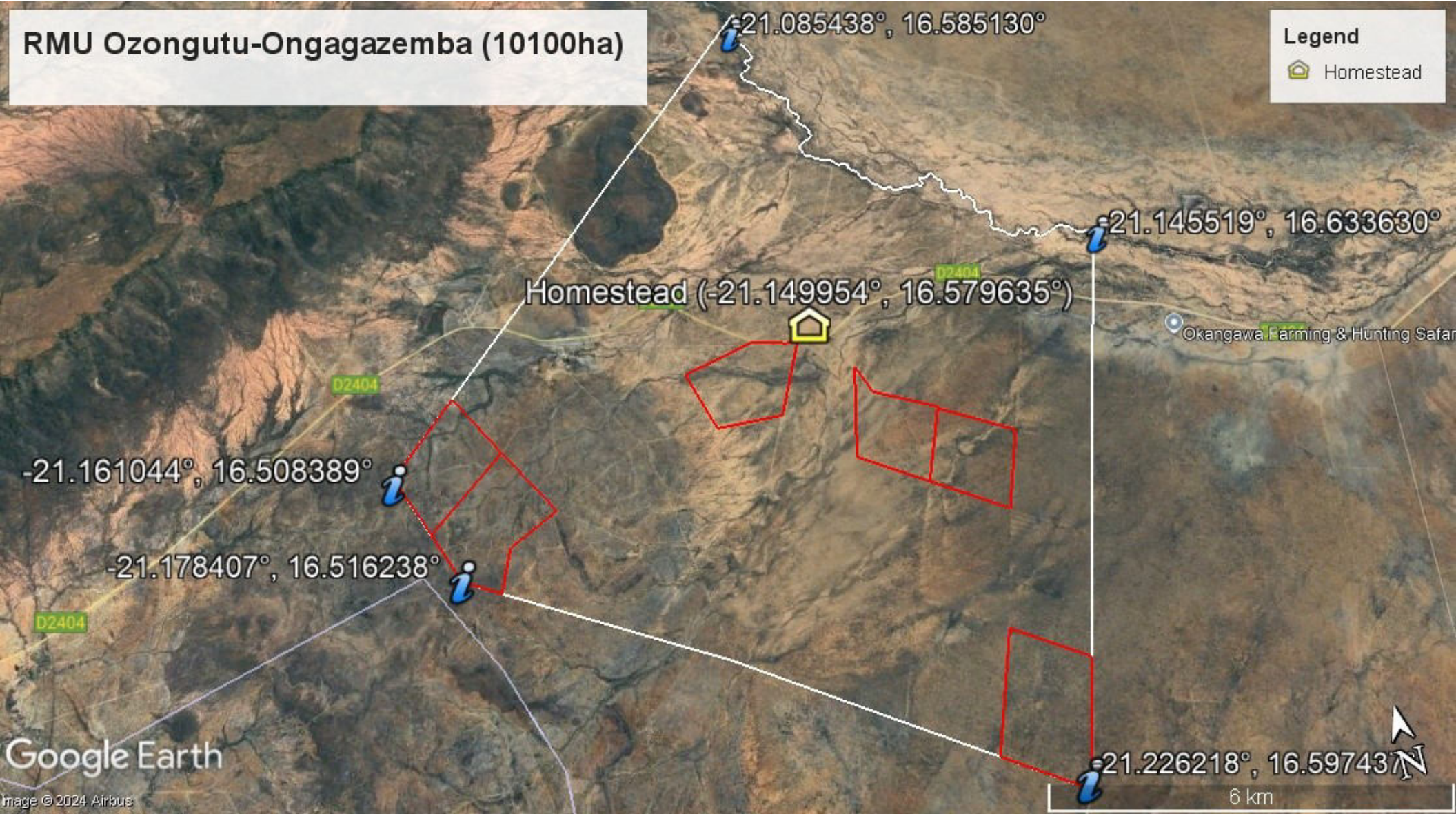
- Camps
- Cattle Post
- Earth Dam
- Homestead
- Water Point



RMU Ozongutu-Ongagazemba (10100ha)

Legend

 Homestead



## **Appendix 1: Pictures of bush thickening**



**Figure 1: Extent of bush thickening**



**Figure 2: Bare soils due to bush thickening**