



APP-000802

**Social Environmental Management Plan For Harvesting And Management
Of Prosopis For Pilot Areas In The Orange-Fish River Basin: /Ai -/Ais
National //Kharas Regions, Namibia**



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ACRONYMS

| | |
|-----------------|---|
| DEA | Department of Environmental Affairs |
| EA | Environmental Assessment |
| EAP | Environmental Assessment Practitioner |
| ECC | Environmental Clearance Certificate |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act (No. 7 of 2007) |
| EMP | Environmental Management Plan |
| IWRMP | Integrated Water Resource Management |
| MAWLR | Ministry of Agriculture Water and Land Reform |
| MEFT | Ministry of Environment Forestry and Tourism |
| NAPs | National Action Plans |
| ORASECOM | Orange- Senqu River Commission |
| PPE | Personal Protective Equipment |
| RDC | Red-Dune Consulting CC |
| SADC | Southern Africa Development Community |
| SAP | Strategic Action Programme |
| TDA | Transboundary Diagnostic Analysis |
| UNDP | United Nation Development Programme |
| SEMP | Social Environmental Management Plan |

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Executive Summary



1. Overview

This Socio Environmental Management Plan (SEMP) is developed following an Environmental Impact Assessment (EIA) study that was done for the proposed harvesting and management of Prosopis for the pilot area of Ai-/Ais national park in the Orange-Fish River Basin, //Kharas region, Namibia. It should be read together with the Park Management Plan to ensure adherence park rules.

2. Purpose of the SEMP

This Social Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programme, mitigation measures, and management control strategies to minimize potential environmental impacts that maybe caused by the project. It further stipulates the roles and responsibility of persons involved in the project.

3. Compliance to the EMP

This SEMP is a legally binding document under the provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007) (EMA). ORASECOM secretariat and its contractors must adhere to the framework of this document during project implementation.

4. Roles and Responsibility

4.1. Proponent

The proponent, ORASECOM secretariat (until hand over of the project to the Ministry of Environment Forestry and Tourism (MEFT)), shall take overall responsibility for implementation of the SEMP. It remains the responsibility of the proponent to appoint key personnel such as Site Manager and ensure that all employees and contractors are conversant with the SEMP.

4.2. Site Manager

The Site Manager (SM) represents the proponent on site. He/she shall be responsible for daily activities in ensuring environmental protection. All communication with regard to the implementation of SEMP must be channelled through the SM.

4.3. Employees

It shall be responsibility of employees to adhere to the provision of SEMP at all times when on site.

4.4. Environmental Compliance Officer (ECO)

Compliance to EMP is enforced by the environmental inspector as provided for by the Environmental Management Act (No. 7 of 2007) (EMA).

5. Disciplinary Action

This SEMP is a legally binding document, non-compliance to the SEMP is punishable in accordance to the provision of EMA.

6. The SEMP table

The SEMP is divided into sections addressing issues of Socio-Economic, Bio-Physical Environment, and Pollution and Waste Generation Heritage Resources . This is a living document that is subject to amendment when the needs arise to ensure environmental protection. Thus, aspects that may not necessarily be covered during its development could be added on.

6.1.Part I: Socio-Economic Consideration

| Socio-Economic | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|------------------------|---|--|--|----------------|
| Staff induction | To ensure that all staff / employees are familiar with the requirements of the SEMP | <ol style="list-style-type: none"> 1. All employees must go through an induction course for the provision of the SEMP. 2. Ensure that a copy of the SEMP is kept on site and accessible 3. Staff operating specialised equipment and heavy vehicle must be properly trained and informed of the potential risks associated with their tasks | Induction Minutes and Attendance Register, Signed by each and every staff member, Physical verification of the SEMP on site. | Site Manager |

| Socio-Economic | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|--|---|---|---|----------------|
| | | 4. There must be an annual induction course for all the workers. | | |
| Employment / Socio-Economic advancement | Promote benefits to the local community | <ol style="list-style-type: none"> 1. Ensure that all general work is reserved for local people unless in circumstances where specialized skills are required. 2. Fair compensation and labour practice as per Namibian Labour Laws must be followed 3. Ensure skill transfer to the locals 4. Use local supplier for good and service where possible | Employee structure and proportion of local employment and training record | Site Manager |
| HIV and AIDS, Alcohol and Drug abuse | Prevent alcohol and drug use at work place. Provide awareness of dangers on HIV/AIDS | <ol style="list-style-type: none"> 1. Ban the employees against the use of alcohol and drug at construction site 2. Provide awareness on the dangers and health impacts of alcohol and drug use 3. All employees must be screen with the breathalyser to avoid intoxicated personnel on site | Monitor presence of alcohol at the construction site Breathalyser report | Site Manager |

| Socio-Economic | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|---|---|--|---|-----------------------|
| | | <ul style="list-style-type: none"> 4. Adopt a disciplinary system to discipline staff for non-compliance 5. Provide Condoms to employees | | |
| Working hours | Adhere to the Labour Act No. 11 of 2007 | <ul style="list-style-type: none"> 1. Operate within the prescribed working days and hours as per the Namibian Labour laws and regulations | Verification of working hours against the labour Act | Site Manager |
| Employees and Public Health and Safety | To ensure public safety from the movement of trucks in the area | <ul style="list-style-type: none"> 1. Maintain low vehicle speed (30-40km/h) on site and at surrounding areas 2. All heavy vehicles must have a rotating flushing light installed for visibility 3. All drivers must be in possession of appropriated driver's licenses 4. Ensure construction / operation starts from 6am-5pm only and no night operation / movement of heavy vehicles is allowed 5. Adequate safety signs must be put at designated places. | <ul style="list-style-type: none"> Number of fatalities reported / reckless driving reported Physical verification of speed humps at designated areas Visible flushing lights on construction vehicles Reports of working outside recommended working hours | Site Manager |

| Socio-Economic | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|----------------|------------|--|---|----------------|
| | | <p>6. Provide safe wears such as, overalls, safety boots, safety eyeglasses, Hand gloves and hard hat etc to employees</p> <p>7. Ensure adequate, hygienic (clean) and user-friendly ablution facilities for all staff</p> <p>8. Segregate Male and female toilets</p> <p>9. Inspect ablution facilities regularly</p> <p>10. Employees must be properly trained in using machine to avoid fatalities</p> <p>11. Train staff/employees on personnel safety and how to handle equipment and machinery</p> <p>12. Provide sufficient fire extinguishers and train staff on how to use them and the applications thereof</p> <p>13. Provide first aid kit with adequate anti-snake venoms and insect bites.</p> | <p>Physical verification of safe ware for employees</p> <p>Physical verification of ablution facilities</p> <p>Training report for employees to operate specialized equipment</p> | |

| Socio-Economic | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|----------------------------|---|---|------------------------------------|-----------------------|
| | | 14. Develop a user manual for handling snakes 15. Provide training on the use of hand tools and semi-mechanised tools 16. Apply caution when clearing Prosopis in the water to prevent drowning | | |
| HIV / AIDS | Provide HIV / AIDS awareness to employees | 17. Provide HIV / AIDS awareness at induction 18. Avail Condoms at friendly areas on site | Availability of condoms at on site | Site Manager |
| Tourist disturbance | To maintain good image of the National park | 1. Do not stop tourist / visitors in the park 2. Do not beg tourist for money/food etc in the park 3. Do not block roads during operation | Reports / complaints by tourist | Site Manager |

6.2.Part II: Bio-Physical Environment

| Bio-Physical Environment | Objective | Proposed Mitigation Measure | Monitoring Indicator | Responsibility |
|--|--|--|---|-----------------------|
| <p>Destruction of habitat for wildlife</p> <p>(The /Ai-/Ais pilot area does not have domestic animals. Impact on grazing is negligible)</p> | <p>To protect habitat for the biodiversity</p> | <ol style="list-style-type: none"> 1. Do not kill wild animal during clearing unless it possesses eminent danger to people (i.e. Snakes) 2. Wild animal will relocate for Prosopis Bushes 3. Relocate bird nests to indigenous tree 4. Develop a user manual on relocation bird nests 5. Apply Zero tolerance to poaching 6. No snare or weapon are allowed on site 7. Do not take any natural resource in the park | <p>Reports on poaching, relocation on biodiversity reports</p> <p>Physical Observation</p> <p>Biodiversity User manual guidelines</p> <p>Report on carrying of weapons / snares</p> | <p>Site Manager</p> |

| Bio-Physical Environment | Objective | Proposed Mitigation Measure | Monitoring Indicator | Responsibility |
|---------------------------------|--|--|---|-----------------------|
| Visual Impact | To prevent eye shore and destruction by the operation of the project | <ol style="list-style-type: none"> 1. Always ensure good housekeeping 2. Storage of material on site must be in a coordinated manner adhering to good housekeeping and park management plan | Physical verification, good house keep of material on site | Site Manager |
| Flora | To protect local plants diversity | <ol style="list-style-type: none"> 1. Clear all Prosopis plants in the pilot area 2. Cut all plants stems above ground, do not disturb soils in sandy areas 3. Prosopis in the water should be cut above the water mark. This will ensure that the herbicides to be applied is absorbed by the plant stem to its root thereby killing the plant 4. Do not cut down any other vegetation that is NOT Proposis | Physical verification of cleared Proposis Re-growth management strategy | Site Manager |

| Bio-Physical Environment | Objective | Proposed Mitigation Measure | Monitoring Indicator | Responsibility |
|---|--|--|---|-----------------------|
| | | <ol style="list-style-type: none"> 5. Develop a revegetation strategy and its guidelines in consultation with MEFT, Forestry department 6. Develop a re-growth management strategy for Proposis | | |
| <p>Land degradation</p> <p>The uncontrolled movement of heavy machinery at the project site as well as on access loads may cause land degradation.</p> | <p>To prevent soil disturbance / erosion</p> | <ol style="list-style-type: none"> 1. Movement of vehicles / trucks must be well coordinated to ensure minimal soil disturbance 2. Tracks / footprints of vehicle must be rehabilitated immediately after clearing and loading of woods 3. Wood processing site must be well prepared with minimal footprint and in accordance with the park management plant | <p>Physical observation</p> <p>Complaints of dust pollution / smoke</p> <p>Physical observation of the boundary wall</p> <p>PPE</p> | <p>Site Manager</p> |

| Bio-Physical Environment | Objective | Proposed Mitigation Measure | Monitoring Indicator | Responsibility |
|--|--|--|---|-----------------------|
| <p>Water pollution</p> <p>Heavy vehicle and machinery may pollute water sources from leakages of oils, hydraulic fluids, lubricants, and greases.</p> | <p>To prevent surface and ground water pollution</p> | <ol style="list-style-type: none"> 1. Fuelling of heavy vehicle on site must be well coordinated at designated places 2. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluids leakages 3. All vehicle and machinery must be well service to avoid leakages 4. Provide and train on oil spill emergency response 5. Servicing of vehicles and machinery must take place at designated sites 6. Soils contaminated with grease, oils and hydrocarbons must be collected and disposed of at approved site; 4. Provide and train employees on oil spill emergency response | <p>Physical observation of banded fuelling areas</p> <p>Physical observation of drip trays, oil marks etc</p> | <p>Site Manager</p> |

| Bio-Physical Environment | Objective | Proposed Mitigation Measure | Monitoring Indicator | Responsibility |
|--|-------------------------------------|--|---|-----------------------|
| <p>Secondary industry processing site (Nuisance and Aesthetic value)</p> <p>Designated are for processing of wood</p> | <p>To ensure good house keeping</p> | <ol style="list-style-type: none"> 1. Identify wood processing site in consultation with MEFT, Department of Parks for approval 2. Develop a processing strategy / guideline 3. Seek appropriate approval for project activities from MEFT to be executed in the park | <p>Complaint of litter / eye shore activities etc</p> <p>Processing strategy document</p> <p>Approval from MEFT</p> | <p>Site Manager</p> |

6.3.Part III: Pollution Control And Waste Management

| Pollution Control And Waste Management | Objective | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|---|---|--|--|-----------------------|
| Vehicle emissions | Reduce greenhouse gas (GHG) emissions from broken equipment vehicles / machinery | <ol style="list-style-type: none"> 1. All vehicles and equipment must be kept in good working condition and serviced frequently to prevent leakage and emission of poisonous smoke etc. 2. Switch off engines when vehicle is not in use | Vehicle servicing records Reports of smoke emissions from machinery | Site Manager |
| Oil Leakages | Manage fuels, oils and lubricants leakages from Vehicles and Machinery to prevent pollution | <ol style="list-style-type: none"> 1. Ensure all vehicle are well service and leak inspection are done 2. Provide drip trays to stationary vehicle 3. Servicing of vehicle must be done at an approve site 4. Re-fuelling, oil replacement must be done on concrete bund | Physical verification and routine monitoring | Site Manager |

| Pollution Control And Waste Management | Objective | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|---|---|--|--|-----------------------|
| | | <ol style="list-style-type: none"> 5. Storage of fuel, oil and lubricants must be kept on bunded structure 6. Bund and concrete slabs should be installed at each point where oils and lubricant are likely leak. 7. If an oil leak occur, collect the contaminated soil, store in appropriate container and dispose of at appropriate waste disposal site. | | |
| General waste | To manage solid waste To prevent littering, pollution, contamination of water and general environmental health hazards | <ol style="list-style-type: none"> 1. There must be sufficient skip containers for domestic waste collection. 2. There must be sufficient ablution facility at the site for designated for males and female. | Scattered waste, Littering and any other unsightly waste at the site (eyesore) | Site Manager |

| Pollution Control And Waste Management | Objective | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|---|--------------------------------------|---|------------------------------------|-----------------------|
| | | <ol style="list-style-type: none"> 3. No onsite burying / dumping or burning of waste material shall be permitted. 4. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site 5. Ensure appropriate waste collection and removal from the site and dispose at appropriate waste disposal site. 6. Do not allow single use plastic in the park 7. Abide by the Park Management Plan | | |
| Air Pollution | To prevent air pollution in the park | <ol style="list-style-type: none"> 1. Prevent dust pollution by maintaining low speed (40km/h) of all vehicles | Complaint of dust / smoke nuisance | Site Manager |

| Pollution Control And Waste Management | Objective | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|---|-------------------------------------|---|---|-----------------------|
| | | 2. Charcoal processing must be approved by MEFT | | |
| Chemical Pollution (Use of Herbicides) | To prevent soil and water pollution | 1. Use only approved herbicides that are environmentally friendly | Approved certificate / documents of herbicides to be used | Site Manager |
| Noise Pollution | To prevent noise nuisance | <ol style="list-style-type: none"> 1. Maintain low speed (40km/h) to prevent noise pollution 2. All vehicles must be well serviced to prevent excessive noise 3. Do not hoot unnecessary 4. Do not rev the vehicle engines 5. Do not play loud music / radio in the park | Noise complaints / reports by park visitors / wardens | Site Manager |

6.4.Part V Heritage Resources

| Heritage Resources | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|--------------------------|--|---|---|----------------|
| Heritage and Archaeology | To ensure protection of artefacts, heritage and archaeological materials | <ol style="list-style-type: none"> 1. Employee must be trained on the possible find of heritage and archaeological material in the area; 2. Implement a chance find and steps to be taken for heritage and archaeological material finding (Heritage (rock painting and drawings), human remains or artefacts) are unearthed by; <ol style="list-style-type: none"> i. Stopping the activity immediately ii. Informing the operational manager or supervisor iii. Cordoned of the area with a | Training records and attendance registers | Site Manager |

| Heritage Resources | Objectives | Proposed Mitigation Measures | Monitoring Indicator | Responsibility |
|--------------------|------------|---|----------------------|----------------|
| | | <p style="text-align: center;">danger tape and manager to take appropriated pictures.</p> <p>19. Manager/supervisor must report the finding to the following competent authorities, National Heritage Council of Namibia (061 244 375) National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).</p> | | |

7. Decommissioning Phase and Rehabilitation

7.1. Clearing and harvesting

- During clearing, track / footprints of vehicle should be rehabilitated and levelled
- All plant branches must be taken to the fodder processing site.

7.2. Secondary Industry processing units

The EIA recommends the feasibility study of secondary industries that will be undertaken to add value to the harvested woods. The potential secondary industry includes Charcoal, Wood Chips, and Animal Fodder. Setting up processing areas and machinery for these secondary industries requires different machinery and site preparations. The feasibility study will be able to highlight the processes to be undertaken during operation and decommissioning.

8. Conclusions

The proposed clearing and harvesting is within the scope of the Namibian laws and efforts to preserve biodiversity and promotion of sustainable ecological processes. The project does not pose major threat to the environment. In the end, the project in line with solving the challenge of Prosopis invasion, to restore land productivity, enhance ground water and smooth river flows. Furthermore, the labour intensity required to undertake the project provide opportunity for employment to ordinary Namibians.

9. Recommendations

9.1. Issuance of Environmental Clearance Certificate

It is recommended to the approving Authority for the project to be issued with the Environmental clearance certificate. Furthermore, the approving authority, being a major stakeholder in this project is advised to develop SEMP of infested water basin or drainage systems. This will create an opportunity

for land owners and community near the drainage systems to harvest Prosopis without bureaucratic barrier.

9.2. Project Operation / Implementation

As mentioned above, the EMP is a risk strategy designed to ensure social and environmental sustainability. Its nature is that of a policy guiding document, henceforth it is limited to activities level implementation of the project. It is therefore critical that the project develop manuals, pamphlets, brochures, and guidelines to ensure awareness and adequate implementation. During impact identification and risk assessment, the following manuals / guidelines are recommended.

9.2.1. Develop a Clearing and Harvesting Manual / Guideline

Learning from WfW project in South Africa, this manual will set out guideline on harvesting and clearing using different control methods. Each control methods should be logically explained to be understood by the layman. Furthermore, this manual should incorporate health and safety measure and a training plan.

9.2.2. Undertake Feasibility Study For Secondary Industries

The harvested / cleared wood has various potential for value addition. A feasibility study to determine the most effective secondary industry is required to ensure the project bears return on investment.

9.2.3. Develop a ground water monitoring system

This study is limited to obtain an ECC for project implementation. Monitoring of ground water to assess the response of clearing Prosopis will not be achieved within three years of remainder of the project. ORASECOM could assist in setting up ground water monitoring which is to be handed over to MAWLF for continuous monitoring. The available data of ground water level from MAWLF and NAMWATER may be used as baseline before project implementation.

9.2.4. Develop Prosopis Management Plan For Water Basins

This project is supporting the Namibia Government through MEFT to eradicate Prosopis which is found over large areas of central and southern Namibia as well as on west drainage systems. Furthermore, the trees have also invaded areas outside the drainage systems. Thus, for sustainable implementation of eradication Prosopis, there is a need to develop a Management Plan for each basin and to adopt similar approach of the WfW program in South Africa.

9.2.5. Create partnership with higher energy consumer

One of the challenges experienced in previous project was access to market of wood product. It is important for ORASECOM to create partnership in the form of Memorandum of Understand / Agreement with cement industries and NAMPOWER to be the consumer of the harvested trees.

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