Elephant/human conflict around the Luangwa National Parks, Zambia

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Consultancy for WWF/SARPO
## Table of Contents

Basic objectives ............................................................................................................................ 3  
Methods and approach, outputs .................................................................................................... 3  
1) Introduction ............................................................................................................................ 4  
2) Human-elephant conflict ....................................................................................................... 4  
   2.1) Crop damage .................................................................................................................. 4  
   2.2) PAC methods currently used ....................................................................................... 6  
   2.3) Seasonal movements of elephants ............................................................................... 7  
   2.4) Wider issues .................................................................................................................. 7  
3) Schedule of community training .......................................................................................... 7  
   3.1) Passive PAC methods ................................................................................................. 8  
   3.2) Active PAC methods ................................................................................................. 8  
4) The SEKA/Malambo Drama group ....................................................................................... 9  
5) Proposal ................................................................................................................................ 10  
   A) Goals and Objectives ..................................................................................................... 10  
   B) Activities, Timeframe and Inputs Needed .................................................................. 10  
   Phase 1 Identification and Training in Methods ............................................................. 10  
   Phase 2 Implementation ................................................................................................. 11  
   Phase 3 Assessment and Re-design .................................................................................... 12  
6) Trip report ............................................................................................................................. 13  
7) People contacted during visit ............................................................................................. 14
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>CLA</td>
<td>Community Liaison Assistant</td>
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<tr>
<td>GMA</td>
<td>Game Management Area</td>
</tr>
<tr>
<td>HEC</td>
<td>Human/elephant conflict</td>
</tr>
<tr>
<td>MZEP</td>
<td>Mid Zambezi Elephant Project</td>
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<tr>
<td>NORAD</td>
<td>Norwegian Overseas R</td>
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<tr>
<td>PAC</td>
<td>Problem Animal Control</td>
</tr>
<tr>
<td>PRA</td>
<td>Participatory Rural Appraisal</td>
</tr>
<tr>
<td>SARPO</td>
<td>Southern African Regional Programme Office</td>
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<td>Sand Count Foundation</td>
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<td>South Luangwa Area Management Unit</td>
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<td>Village Action Groups</td>
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<td>World Wide Fund for Nature</td>
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<td>ZWA</td>
<td>Zambia Wildlife Authority</td>
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Terms of Reference
WWF/SARPO April 2002

Basic objectives

1) An assessment of the significance and nature (crop damage and human mortality) of elephant-human conflicts in the Lupande GMA to provide a basis for WWF/SLAMU planning and prioritising.

2) An exposure to MZEP methods for reducing elephant conflict and assessment of feasibility for commercial chilli production as a livelihood option for residents of the GMA.

Methods and approach, outputs

1) An initial review of reports and literature on elephant conflict in Lupande GMA and briefing from WWF/SCF staff involved in current assistance (Bond & Jones).

2) A field visit to Lupande GMA/Mfuwe to discuss current conflict situation with staff of SLAMU (management and community sections and other relevant people and community representatives (VAG chairmen etc, ADAPT Teams). A field assessment of identified high conflict zones.

3) Practical exposure to key groups (CLAs, VAG representatives, SLAMU management) of MZEP methods of elephant conflict reduction (buffer zones, string fences, chilli use etc). Assessment of feasibility and interest in commercial chilli production.

4) Main Output - Report on assessment and identified ‘next steps’ based on results of 1-3 above.
1) Introduction

As part of WWF/SARPO efforts to assist in land use planning in the Lupande GMA, HEC has been identified as a major constraint on development and conservation in the GMAs. MZEP was requested to undertake a visit to assess the occurrence and intensity wildlife conflict, with specific reference to elephants and demonstrate farmer-based mitigation techniques. A series of PRAs conducted by WWF in pilot villages suggest that human-elephant conflict is a major concern among communal farmers. SLAMU have collected crop damage reports (Appendix X) across the GMA in the past 2 years, but no analysis has been undertaken.

This report outlines information collected under the ToR, and includes a ‘ready to submit’ proposal for continued WWF or other donor support.

2) Human-elephant conflict

To gain an insight into the patterns of conflict within the GMA, interviews were conducted with key informants within SLAMU, with community leaders, and with rural farmers in Kakumbe and Malama. Crop damage reports for 2001 and 2002 were accessed from SLAMU, and these were analysed. The following key findings were noted:

2.1) Crop damage

Through analysis of the SLAMU crop damage reports, discussions with stakeholders and site visits, the following information was gathered:

- The main reports for crop loss to all species occurs in the wet season when most agriculture is undertaken.
The worst affected chiefdoms are: Kakumbe, Mhkanya, Jumbe, and Malama.

These figures are based upon number of reports received, so may not reflect the magnitude of the problems experienced. For example, the relatively high number of reports from Kakumbe may reflect its close proximity to the SLAMU offices.

Incidents of crop damage by elephants occur between February and September, with a distinct peak of activity in March, and a larger peak between May and July, when the majority of crop-raiding takes place.
• In Lupande GMA, elephants are the greatest crop-raiders, followed by hippo, baboons, bushpigs and bushbuck. In addition, most farmers reported losses to kudu, monkeys, porcupine other small mammals. Elephants are perceived to be a year-round problem, whereas hippos are only a problem during the wet season.

![Proportion of crop damage incidents problem species](image)

• During the wet season elephants eat most field crops, including maize, rice, groundnuts and beans.

• In the dry season elephants are attracted to mangoes bananas and other fruit trees, and grain bins within the villages.

• The three main villages affected by human-elephant conflict are: Cropping, Nsefu and Malama.

2.2) **PAC methods currently used**

In most communities farmers relied on beating tins and drums to scare elephants from their fields. No other traditional PAC methods were recorded, despite widespread probing on the issue.

In the Malama chiefdom, SLAMU has implemented three electric fencing schemes (paid with VAG monies) during 1997 and 1998. While effective for a short period, none of these fences are currently working, due to poor planning, maintenance, theft, and lack of funding for repairs.

SLAMUs game scouts respond to repeated reports of conflict with disturbance shooting, and the killing of habitual crop-raiders. However, most communities complained that the response times were very slow, particularly when permission to kill an animal had to be sought. SLAMU faces problems with vehicles and logistics, particularly in the wet season, when some roads are impassable.
Many communities suffer intense crop-raiding from large herds of elephants. In Malama herds as large as 15 individuals raided crops every night, and were habituated to both the traditional PAC methods being used, disturbance shooting by SLAMU game scouts. The killing of two elephants during PAC caused no reduction in elephants raiding crops in Malama.

2.3) Seasonal movements of elephants

During the wet season elephants are resident within the GMA. At the height of the rains the Luangwa River is in flood that restricts movements between SLNP and the GMA. During the dry season, some informants noted that crop raiders could move 25km from SLNP into the GMA and return the same night. Elephants are able to move great distances within the GMA, and some move as far as Katete in the east.

In the dry season there are elephants resident within the GMA, but many also cross the Luangwa river between SLNP and the GMA. Elephant activity is restricted to areas close to the river, and large concentrations have been observed, particularly in the Kafunta, Nsefu and Malama areas. The high levels of crop damage in the wet season reflect the high human settlement along the Luangwa river zone.

2.4) Wider issues

- The conflict between elephants and people in the GMAs is the source of some considerable political tension between ZAWA, SLAMU and the communities.
- Illegal hunting of elephant and all other wildlife is the major threat to these populations.
- Farmers in this area suffer the normal range of constraints on agricultural production such as poor seed quality, access to chemicals, poor soil conservation, large distance to markets and post-harvest storage.

3) Schedule of community training

PAC demonstrations were carried out in two communities within the GMA. The first community was Kanyanta village in Mfuwe VAG. The second was in Malama village in (X) VAG. Both villages had been identified as having intense problems with elephants.

In both communities the aim of the PAC demonstration was to first highlight and discuss the nature of the elephant problem, and to second introduce the community-based system for protecting crops. The demonstrations followed a similar plan:

1) The current problems with PAC were highlighted. This included a discussion of villager-based methods that are currently used, and the habituation of elephants to these. ZAWA action, and the related logistical and political problems, was also discussed. The need for communities to take responsibility for their own crop protection was introduced.
2) MZEP’s system of crop protection was briefly explained to the community. Passive and active PAC concepts were described. The need for community participation was emphasised: the problem is shared by every individual, and therefore every individual must be involved in the solution.
3.1) Passive PAC methods

3) The community were then asked to identify one specific problem area of the village where elephants were currently causing a problem. We explained that the most effective way to convey the PAC system was to construct a demonstration plot with the community members.

4) A buffer zone approx. 5m wide was cut at the edge of the field identified as being vulnerable to elephants. All vegetation was cleared away using slashers and axes. It was explained that elephants use stealth when entering the fields, and defining a clear area at the edge of the fields made it difficult for the elephants to enter the fields undetected.

5) A string fence was tied between cut poles and existing trees in the centre of the buffer zone. The fence was 2m high, and had 3 strings at knee height, waist height and head height. Squares of mutton cloth were tied between the strings. Once the construction was complete the effect of the fence upon the elephants was discussed. This was just a structure that defined the edge of the fields, and upon which deterrents could be placed.

6) Cowbells were tied to the fence at 20m intervals, as a warning system to alert farmers to approaching elephants. This would alert the farmers, giving a sense of security, and also prevent the elephants from entering the fields undetected.

7) Engine grease was mixed with high-grade capsicum oil, and this was smeared upon each of the strings of the fence, and on the mutton cloth. Elephants, with a highly sensitive olfactory system, are irritated by the smell. On reaching the fence they typically test it with the tip of their trunks, and are repulsed by the contact with the capsicum. The grease is merely a medium for applying the oil.

3.2) Active PAC methods

8) Fires were built at 20m intervals along the fence line, and dry chillies were burnt. Everyone walked through the smoke to experience the strength of the smell. With their sensitive sense of smell, elephants are irritated by the burning chilli. The concept of mixing dry chillies with elephant dung to make bricks was discussed. This method allows the chillies to burn slowly, producing smoke for up to 4 hours.

9) A firecracker was lit and thrown so that it exploded in the air above a group of imaginary elephants, to demonstrate the effect of a loud explosion from directly above. Elephants usually habituate to disturbance shooting in areas where they are a persistent problem, but this method enables farmers to apply the deterrent close to the elephants to maximum effect, while maintaining a safe distance.

10) A discussion of the holistic approach to PAC ensued. It was emphasised that any one of the methods in isolation would not deter elephants, but when used in combination, the system became effective. The concept of raising the costs of crop-raiding was introduced, that each method made it more difficult for the elephants to reach the field, and that the result was that elephants usually gave up. The PAC effort could be increased throughout the year in response to increasing pressure from the elephants. For example, the community could begin with the basic fence with cowbells, and as the elephants became habituated to it, grease could be applied. If the elephants continued to be a problem then dung bricks and bangers could be used.

11) The overall strength of the system lies in the fact that farmers could make many of the components themselves, and could afford to buy the manufactured equipment. The simplicity of the system allows farmers to repair, and to adapt, the different methods.
12) At the end of the demonstration farmers gave their opinions on the system, and discussed potential problems that may arise.

4) The SEKA/Malambo Drama group

This drama group has considerable experience communicating a range of issues to rural, semi-literate people in the Mfuwe area. They have worked with the Cape Town based Theatre for Africa and have preformed in a number of southern African countries. MZEP demonstrated the methods to the actors by working with them to encircle their camp, where elephants and hippos had been present the night before. During the fence construction actors took on various roles of sceptical farmers or angry villagers.

MZEP believes that this form of drama may be the most effective way to communicate the information to farmers. However, the process is still at an early stage and the script is still under development. The issues surrounding PAC are highly political and much tension exists between farmers and wildlife authorities. Explaining all aspects of the new PAC methods presents a challenge and using the play to be an effective vehicle for these issues will need considerable revisions. (Draft script Appendix III).
5) Proposal

Human-elephant conflict mitigation in the Luangwa Valley, Zambia

This proposal was developed with stakeholders in the Luangwa Valley who identified the conflict between wildlife and people as a major constraint on their lives. Community meetings, PRA workshops and informal discussions were conducted to identify the main problems facing them in regard to human-elephant conflict and identify priorities and practical actions to resolve these problems.

This project is designed to be funded in stages so progress can be monitored efficiently. MZEP will be the primary implementer of the training, demonstration and monitoring component of and budget maintenance would be undertaken through WWF/SARPO with the goal to keep overheads low and use existing project infrastructure.

A) Goals and Objectives

The basic goal of the proposal is:

“ To reduce the elephant – human conflicts in the Lupande GMA through a package of methods, a collaborative approach and the generation of tangible benefits to affected rural communities”

It was noted that this goal should include the relevant neighbouring GMAs once this was feasible.

The immediate objectives/outputs were identified as:

- The reduction of human-elephant conflicts within Lupande.
- The identification of a package of methods to reduce such conflicts that was effective and feasible to apply in the context of Lupande, the development of a basic monitoring system and the provision of training in such methods.
- The implementation and field testing of such methods in the targeted areas.
- The development of practical collaboration between agencies involved in human elephant conflicts.
- The development of income generation opportunities for rural communities impacted by elephants (e.g. commercialisation of Chilli pepper (see manual attached).

B) Activities, Timeframe and Inputs Needed

Phase 1 Identification and Training in Methods

Aim/Activities:
Training in methods of reducing elephant conflict based on an incremental approach or a bundle of methods. This to include, 1) basic open-space clearings between forest and field, noise and olfactory deterrents (e.g. bangers, burning of chilli with elephant dung, etc.) simple string barriers (with cow bells, chilli soaked cloth or string soaked with piri-piri) to the pros and
cons of electric fencing. Basic training in chilli production techniques. Introduce and identify monitoring system for assessing conflict levels and impact.

ZWA and SLAMU staff to work together with Malambo Drama group to continue development of play.

Who:
A total of 14 staff trained in these techniques (trainers of implementers). Comprising 5 staff from the Community Unit 3 WWF staff; 6 staff from ZWA and SLAMU (including scouts from 3 to 4 districts). Malambo members. Training to be provided by MZEP/WWF

When:
(ASAP) Training Course scheduled for 7 days

Where:
SLAMU Offices, Mfuwe.

Inputs Needed:
- Basic toolbox of equipment to demonstrate the techniques (string, bells, bangers, chilli concentrate, seeds etc). Estimated cost – ($150)
- Pens, notebooks, workshop paper etc for the trainees. Estimated cost – ($250)
- Transport. ($1,500)
- Accommodation and food. 14 participants for 10 nights @ $15/night = ($2,100)
- Malambo Drama Group- Estimated costs-$5 per day (x7) + Transport and food $5 per day (x7) + script development ($1000) + $50 per performance (x6) ($1790)
- Training Consultancy – MZEP/WWF. Estimated costs – Transport ($1,000) + Consultant Fee ($2,000)

Phase 2 Implementation

Aim/Activities
For the trained staff to implement and field test the techniques identified during the Phase 1 Training Course in the targeted areas (see “Where” below). The development and testing of options for the commercialisation of chilli and the economic viability of this income generation option for rural communities.

Who
SLAMU, community game guards and Malambo

When
June 2002 to May 2003

Where
To be decided

Inputs Needed
- Provision of ‘kits’ for implementation by staff (kits to include basic equipment sufficient for field testing – e.g. string, concentrated chilli, seeds, grease, slashers, etc). 14 kits (2 per chiefdom). Estimated costs – 14 kits @ $150 each = ($2,100)
Transport, maintenance and fuel = ($2,000); Field Operating costs (field equipment, basic food costs) = $2,000. Total = ($6,500).

**Budget**
Final figures decided once phase 1 is complete

**Phase 3 Assessment and Re-design**

**Aim/Activities**
To assess the progress of the programme, identify the strengths and weaknesses and re-design for the next phase.

**Who**
Assessment carried out by an independent consultant

**When**
May 2003

**Where**
To be identified

**Inputs Needed**
Meeting and evaluation costs. Estimated local costs as USD 1,000

**Budget**
USD 1,000

**Action Priorities**

1. Due to the limited timeframe available WWF needs to assess whether the existing funding within get is sufficient to operationalise this programme.
2. If funds are insufficient WWF may wish to seek funds for this component from other partners or sources.
6) Trip report

- Thursday 16/05/02: travel from Harare to Siyavonga, Zambia.
- Friday 17/05/02: Travel from Siyavonga to Lusaka, meet with WWF programme co-ordinator, Monica Chundama, and outline plans for South Luangwa. Collect Rodgers Lobilo, WWF South Luangwa project officer, discuss background to the consultancy, and travel to Wildlife camp, Mfuwe.
- Saturday 18/05/02: Full description of elephant conflict situation in Lupande GMA with Rodgers. Meet Miranda Guhrs, co-ordinator of the SEKA theatre group. Discuss options for a play to communicate PAC methods to communities within the GMAs. Meet Edwin Matokwani, ZAWA eastern region manager, at the SLAMU offices in Mfuwe. Discuss background to elephant problems within the GMAs with Anderson Phiri, Chairman of Kakumbe ADC, at Cool Runnings.
- Sunday 19/05/02: drive to Nyamaluma camp, and meet with Dale Lewis, coordinator of the ADMADE programme. Discussion on elephant problems, PAC methods, electric fencing, agriculture and cash crops, and marketing for natural products. Brief visit to failed electric fences in Chimbwa village. Visit to Kafunta lodge to introduce the concept of chillies as a cash crop, and to inspect the vegetable garden.
- 20/05/02: SLAMU. Official meeting with E Matokwani to explain PAC methods in full. Edwin highlighted the major problem with elephants was in Malama village, and requested assistance from us. Talks with Charles Ngoma, SLAMU ranger, and access to maps and crop damage reports collected by SLAMU. Discussions with Rodgers and Anderson to locate highest conflict areas, and to plan for PAC demonstrations. PM: community meeting and PAC demonstration at Kanyanta village, Mfuwe VAG.
- 21/05/01: SLAMU-meeting to plan for Malama trip, taking place on the 22nd. Work with SEKA to explain PAC concepts and demonstrate methods, in preparation for the development of the play.
- 22/05/02: Check on demonstration plot in Kanyanta village. Drive to Nyamaluma, collecting William Banda (SLAMU ADMADE officer). Drive to Malama village, to meet chief Malama and explain concepts of PAC. Discuss problems of elephants experienced in Malama. Community demonstration of PAC methods. Brief visit to electric fencing schemes in Chirikadzi and Mutowa villages.
- 23/05/02: Meeting with Mr Grover of NORAD, and Edwin at SLAMU offices, to discuss land planning. SAKA: discussion of budget to develop and disseminate play. Description of play content, and 2 improvisations. SLAMU: discussions with Rodgers about development of the PAC programme. Explanation of PAC monitoring. Other issues: expansion of PAC to other sites; training of key local partners in PAC techniques; play development, and manual production.
- 24/05/02: Give chilli seeds and growing instructions to Kapani lodge for seedbed preparation. SLAMU: discuss elephant movements and seasonal patterns with ranger and scouts. Visit local craft workshop, and A. Carr’s workshop, discuss potential for natural products and agricultural schemes.
- 25/05/02: Drive from Mfuwe to Siyavonga.
- 26/05/02: Drive from Siyavonga to Harare.
7) **People contacted during visit**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Anderson Phiri</td>
<td>Chairman Kakumbe ADC.</td>
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<tr>
<td>Rodgers Lobili</td>
<td>WWF Mfuwe officer.</td>
</tr>
<tr>
<td>Edwin Matokwani</td>
<td>ZAWA eastern region manager.</td>
</tr>
<tr>
<td>Charles Ngoma</td>
<td>Ranger, SLAMU.</td>
</tr>
<tr>
<td>William Banda</td>
<td>ZAWA officer seconded to ADMADE.</td>
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<tr>
<td>Dale Lewis</td>
<td>ADMADE Coordinator.</td>
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<td>Chief Malama</td>
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<td>Francis Sakala</td>
<td>Community Liaison officer, SLAMU.</td>
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<tr>
<td>Lot Chitaura</td>
<td>Executive secretary, Kakumbe ADC.</td>
</tr>
<tr>
<td>Adrian Carr</td>
<td>Local business man</td>
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<tr>
<td>Miranda Carr</td>
<td>SEKA coordinator</td>
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Appendix I: Map of project area

Map from M. Jones
Appendix III:

PAC Forms

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SOUTH LUANGWA AREA MANAGEMENT UNIT,
RESEARCH AND MONITORING
CROP DAMAGE DATA SHEET

IDENTIFICATION DATA
NAME OF COMPLAINANT
VILLAGE / AGRICULTURE CAMP
CHIEF
DATE
RECORDED

BACKGROUND DATA
1. SEX OF COMPLAINT
2. AGE OF COMPLAINT
3. HOUSEHOLD SIZE
4. OCCUPATION OF COMPLAINT
5. MARITAL STATUS

CROP DAMAGE DATA
1. NUMBER OF FIELDS CULTIVATED
2. CROPS GROWN IN / AND SIZE OF EACH FIELD
   GARDEN / PLOT 1
   GARDEN / PLOT 2
   GARDEN / PLOT 3
   GARDEN / PLOT 4
3. AREA OF GARDEN (S) DAMAGED / (ESTIMATING BY PACING)
   GARDEN / PLOT 1
   GARDEN / PLOT 2
   GARDEN / PLOT 3
GARDEN / PLOT 4

4. QUALITY / AND STAGE OF CROP BEFORE DAMAGE:

<table>
<thead>
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<th>QUALITY</th>
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<tr>
<td>GARDEN / PLOT 1</td>
<td></td>
</tr>
<tr>
<td>GARDEN / PLOT 2</td>
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<tr>
<td>GARDEN / PLOT 3</td>
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<tr>
<td>GARDEN / PLOT 4</td>
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5. ANIMAL SPECIES CAUSING DAMAGE (RANK SPECIES ACCORDING TO EXTENT OF DAMAGE)

<table>
<thead>
<tr>
<th>ANIMAL SPECIES</th>
<th>NO. OF ANIMALS</th>
<th>CROPS</th>
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<tbody>
<tr>
<td>1.</td>
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6. TIME ANIMALS CAUSE DAMAGE

A) EARLY MORNING  
B) LATE MORNING  
C) NOON  
D) AFTERNOON

E) EVENING  
F) NIGHT  
G) OTHER(S) SPECIFY

7. ANY ANIMAL(S) KILLED BY COMPLAINT

<table>
<thead>
<tr>
<th>ANIMAL SPECIES</th>
<th>NUMBER</th>
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ZAMBIA WILDLIFE AUTHORITY (ZAWASLANU)

PROBLEM ANIMAL CONTROL FORM

Name of the complainant:_________________________________________________________

Village/VAG:_________________________________________________________________

Chief:________________________________________________________________________

Area/Sector:___________________________________________________________________

Name of hunter deployed:________________________________________________________

Date of deployment:_____________________________________________________________

<table>
<thead>
<tr>
<th>Animal species</th>
<th>Date</th>
<th>Place</th>
<th>Sex</th>
<th>Age</th>
<th>Measurements/Weight etc</th>
<th>Comments</th>
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Reasons for shooting the animal:_______________________________________________________________________

______________________________________________________________________________________________

(For VAG chairman only)

I did/did not see the hunter in my area and he did/did not perform his duties as instructed. (Delete what is not applicable)

Comments: (On the distribution of meat):_______________________________________________________________________

______________________________________________________________________________________________

______________________________________________________________________________________________

______________________________________________________________________________________________

______________________________________________________________________________________________

Signature:_________________________________________ Date:______________________________
Appendix IV:
Draft Script
Developed by SEKA and MZEP

This play is will be preformed in an open piece of ground in villages where elephants are raiding crops. It will include 6-7 actors, two woman four men who are part of the SEKA drama group.

Scene 1
The play opens with a song about planting. People are working in the fields, planting their crops. Hard labour and sweat. A little girl (a puppet) is walking around the edge of the circular performance space throwing down mealie seed. Her parents are centre stage hoeing. Their life depends on this crop and this tension comes through.
(Maybe some cutting of trees and arguing about boundaries)

Scene 2

Scene 3
The excitement dies down as night falls and the small nocturnal animals start to come out. Bats and crickets. Night-time noises.
Three young bull elephants disturb this peace as they enter the stage. They are teenagers and full of themselves. Too cool to be true. Much testosterone and teenage showing off. They sniff the air, see that the coast is clear and come in and raid the crops. They play around, using the hair from the mealies as wigs, the cobs as cigarettes. Much fun and laughter from the elephants which wakes the farmers who chase them off using drums, shouting and clanging pots.
There is much discussion amongst the elephants as to whether the leather on the drum the farmers used is an ear from a dead friend of theirs. They dare each other to go and take a closer look. Lots of accusations of 'you're too scared' and other such teenage nonsense. Eventually they sneak over to the house where the drum has been left outside to have a look. They argue as to whether it is Fred's ear, and the noise they are making wakes the farmers again who shout and the eles run off laughing.
(I think the two above scenes could be combined or as part of the same ‘event’)
Soon they come across another garden that has an electric fence (formed by people holding sparklers or something similar to give the eles shocks as they touch the fence). Lots of testosterone I dare you I dare you, you're too scared. They all have a go at touching the fence to prove that they're cool. Eventually they shove elephant 3 (whose the scardey cat of the group) up against the fence. He gets shocked and the others think that this is a huge laugh. He pushes the fence over and they have a great time gobbling up the pumpkins and knocking down the mealies. The sun starts to rise. Dawn noises. They head off across the river back into the park.

Scene 4
Meanwhile, back at the village the farmers have had ENOUGH. They wake up in the morning to find their crops destroyed yet again and they are furious. There is a big meeting in the village which becomes very heated. People are MAD. Meanwhile someone
They go to the chief to ask for help. He tells them that he has heard of this new idea which he
thinks may work. Some people are keen, some dead against it. The outcome of the meeting is that it can't do any harm, they have a problem and most people are willing to give it a go. The chief says he'll see what he can do. (I think it would be better to have the farmers come up with the ideas- not from the outside)

Scene 5
Meanwhile, back in the park......
Tourists in a car, watching animals. They see three young bull eles and start to get very excited and animated. The three bulls have great fun tormenting and chasing the tourists. Lots of mock charges and farts etc.
After the fun has died down....
Ele 1 - hey I hear there are these guys putting up a new fence to try and stop us raiding gardens
Much hilarity.
Ele 2 - lets go check it out.

Scene 6
They arrive at the garden to see the fence erected. Real fence around the performance space, near the audience. The elephants are cocky and self confident. They see the white cloth and stop.
Elephant 1 - hey, what's this?
Elephant 2 - it looks like a white cloth or something.
Elephant 3 - what do you think it does?
Elephant 2 - I'm not sure. Maybe it's some new kind of magic.
Ele 1 - what magic like the electric fence? You know that that's not magic. Its electricity. Ever heard of electricity? Nothing magic about it. You're not still scared of THAT are you?
Elephant 3 - No I am NOT.
Ele 2 - are too.
Ele 1 - come on, its probably just a trick. Lets try it. Whose gonna try it first?
Ele 3 - No. Not because I'm scared just because......
Ele 1 - Oh you are too. See I told you!

After much bravado, they walk up to the fence and touch it. The bells ring, which they weren't expecting, and they get a big surprise and run off. The bell wakes up the farmers who chase them off. They run away, but not far. Much fluffing of feathers and regaining lost dignity. The farmers go back to sleep and the eles have another go at the fence. Just as they are about to break the fence the farmers wake up again and chase them off. The farmers smear on chilli grease and go back to the huts. They watch the next series of events through a gap in the walls of their house. A string of events of the elephants trying to get through the chilli fence and not having a very nice time of it. Having a reputation to keep and their pride at stake the elephants try to get through the fence again. The farmers burn some chilli dung, (maybe getting audience members involved - depending on the audience). This chases them away for a while and for good measure they let off some loud bangs. The elephants head off at a rate of knots leaving a trail of dust behind them.

Scene 7
The family head off to the grinding mill. Visual scene of grinding mill and people waiting in line to grind their maize.
Appendix V:

Mr Lobili discussing HEC with local leaders

Discussing PAC equipment with farmers

Clearing buffer zones around fields

Erecting the string fence in Malama

Burning chilli at the edge of a field

Getting farmers to inhale chilli smoke
Applying chilli grease to string fence

Derelict electric fence in Mutowa

Nyamaluma training camp

Tusks from an elephant killed on PAC in Malama the previous night

Grove of *Tamarind indicus* near Nyamaluma
SEKA actors developing PAC play

A crop raiding elephant chased by farmers

Baboons raiding crops

Making elephant dung paper at A. Carr’s factory

Making reed mats at a village co-op

Making textiles for export