



AN ASSESSMENT OF COMMUNITY UNDERSTANDING OF THE
HUMAN ANIMAL CONSERVANCY SELF-INSURANCE SCHEME
AND THE IMPACT OF HUMAN-WILDLIFE CONFLICTS: A CASE
STUDY FROM THE KWANDU CONSERVANCY, NORTH-EAST
NAMIBIA.

By

Marthin Kaukaha Kasaona

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Preface

The research described in this mini-dissertation was carried out at the Centre for Environment, Agriculture and Development, University of KwaZulu-Natal, Pietermaritzburg, under the supervision of Dr. Mark Dent

This mini-dissertation represents the original work of the author and has not otherwise been submitted in any form for any degree or diploma at any university. Where use has been made of the work of others it is duly acknowledged in the text.

Signed: (Marthin Kaukaha Kasaona- candidate)

Signed: (Dr. Mark Dent - Supervisor)

Acknowledgement

There were countless people who advised me, helped and supported me with my mini-dissertation while in Kwandu Conservancy and a full list would probably be a mini-dissertation in itself. However, I would like to thank the following for all their assistance and support. Mr. Bennety Busihu, for invaluable help, patience, dedication and good humour in locating communities for interviews and translating, Ms. Carol Murphy and Dr Rachel Demont for providing 'helpful' tips on survey design and questionnaires. Dr Mark Dent for his useful comments and supervision through e-mails exchange. I am also indebted to the following individuals for their assistance with my mini-dissertation: Dr. Karen Westwood, for making constructive comments on this mini-dissertation. Dr Margie Jacobsohn is thanked for her input towards the mini-dissertation.

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To my family, your traditional guidance has helped me to excel in whatever I aim for. I am very thankful for that.

Dedication

*This mini-dissertation is dedicated to my uncle, **Salmon Karutjaiva** who was the pioneer of wildlife protection in the former Kaokoland (Namibia) as a community game guard.*



Executive summary

The research problem of this mini-dissertation involves the conflicts between human and wildlife populations and the trialing of ‘compensation’ payouts that are emerging as a critical test within the conservancy. Crop raiders such as elephants, buffaloes, hippopotamus, bush pigs and small rodents, diminish farmers’ resource bases and cash crops, while carnivores are responsible for livestock losses. The aim of the research is to assess the level of community understanding of the compensation scheme and the impact of human wildlife interaction within the conservancy.

This mini-dissertation investigated the level of community understanding about the Human Animal Conservancy Self-Insurance Scheme (HAC SIS), and the impact of human-wildlife conflicts within the Kwandu Conservancy. Some of the research data were obtained from the conservancy game guards’ event book system, and the actual field research data were collected from the 1st August to 20th August 2006. The researcher conducted a total of 35 interviews, whereby 32 involved face-to-face interviews with single individuals, and 3 separate focus group discussions that consisted of four, five and two conservancy members. The interviews averaged 30 minutes in length. Each interview was preceded by a careful explanation of the purposes of the work, stressing that the intent was to evaluate their understanding and perceptions on HAC SIS, the impact of human-wildlife conflicts and to explore better management strategies. The researcher has taken into account that the communities might exaggerate the wildlife problem based on his previous experience with the adjacent conservancy, in the hopes of gaining more compensation – they also use the researcher as a way to vent their frustration at the problem. On the assumption that there may be an element of exaggeration verification of these was obtained from the Event Book System (a manual book used by the Community Game Guards for recording both crops and livestock incidents on daily basis).

This mini-dissertation reveals that 74.3 % (n = 26) of respondents are aware of the existence of the HAC SIS program and its role, while 17.1 % of respondents had no idea about the scheme’s presence and its involvement to minimize the impact felt by communities when they lose livestock to predators. The percentage of respondents who claimed that they had heard of the scheme’s existence but had no knowledge of its role was

8.6 %. In addition, most respondents (n = 15) claimed that the conservancy committee did not explain to them why their claim forms were rejected. In contrast, some respondents (n = 6) did receive feedback on rejected claim forms.

HACISIS was not formed to compensate livestock losses based on market value, nor was it intended as a 'compensation' scheme. Its aim was to test a conservancy-run process – local verification of claims and monitoring by conservancy committee and traditional authority. In addition, the authorization of payments for a type of 'self-insurance' is drawn from conservancy income to partially offset the losses of conservancy members versus the overall gains that wildlife brings to the conservancy (direct conservancy income and local jobs through tourism, trophy hunting, own use game harvesting).

Conservancy committees and the support NGO, IRDNC, agreed on the amount to be refunded for animal losses before the scheme was started, initially using donor funding in the trial phases. The amount was deliberately kept low as it was acknowledged from the start that conservancies themselves would take over the repayments from their own income. Once the conservancy was used to its own income to finance the scheme, conservancy members could vote to increase amounts paid for predator losses. The crucial aspect, according to IRDNC, was that the process itself be tested and that the scheme be run by the conservancy, with Ministry of Environment and Tourism and IRDNC merely monitoring and providing assistance as needed.

Compensation is based on this pre-determined amount that is less than the livestock value. However, the research reveals that respondents (n = 19) were dissatisfied with the amount paid (N\$ 800-00 per ox killed), because they claim that the amount paid to relieve the immediate impact from wildlife is too little to sustain the affected member. In contrast, some respondents (n = 8) were satisfied with the amount paid as compensation. Despite criticisms about the amount paid for livestock losses, none of the respondents (n = 22) who were familiar with the scheme wanted it to be abolished. The respondents emphasized the need for the conservancy committee to review the amount paid as compensation, especially for cattle. They suggested an increase from the current N\$ 800-00 to N\$ 1000-00 per ox loss.

The research reveals that community livestock management practices have not changed to deliberately benefit from the compensation. In fact community management strategies have improved because of the condition set by the review committee dealing with the compensation scheme. Wildlife incidents have increased because animals are habituated to techniques used by communities to deter them and this has contributed to high livestock incidents.

For human-wildlife conflicts, the research acknowledges that the conflict exists. Between 2003-2005, the Kwandu Conservancy reported 1508 incidents of damage to crops by wildlife. Species that were responsible included elephants with 30.2 % damage, bushpigs (29.8 %), hippopotamus (12.7%), antelopes (12.7 %), porcupine (7.5 %), and baboons/monkeys (7.2 %). Most of the crops destroyed by crop raiders, as suggested by the respondents, were maize (30 %), sorghum (26 %), millet (17 %), groundnuts (14 %), pumpkins (8 %) and beans (5%). During the same period of crop losses, the conservancy reported 98 livestock incidents. Animals responsible for livestock incidents were crocodile with 32 incidents (32.7 %), then hyena (23 incidents, 23.5 %), leopard (22 incidents, 22.4 %) and lion (21 incidents, 21.4%).

The role of community game guards was found to be extensive. From a total 35 responses, 74.3 % (n = 26) of members stated that community game guards effectively record incidents, chased problem-causing animals from the community crop fields by shouting or shooting in the air, and assessed or verified killed livestock for compensation purposes. In addition, community game guards conduct crop assessment for record-keeping purposes. The scheme for crop compensation is to be introduced in 2007. Currently there is no proper formula to use in assessing the value of crops and the method to use to compensate the affected members. Other methods used by communities to deter wildlife include sleeping in the field to guard crops, cracking a whip, construction of human statues, hanging tins on the fence, chilli coils, watchtowers and digging trenches.

Respondents had different views on the best management practices for problem-causing animals. The response was generally based on the degree of threat that the animal posed. Most (43.8 %, n = 14) preferred the monitoring of problem-causing animals that are sighted in an area as a best practice, while 40.6 % (n = 13) of respondents preferred the

animal to be captured and relocated to parks. Only 25.6 % (n = 5) of respondents preferred that the animal be destroyed.

The management practices preferred by respondents when an animal kills a person are different from when an animal is simply sighted in the area. If an animal kills a person, only 12.5 % (n = 4) of respondents preferred that the animal be captured and relocated to parks, while 87.5 % (n = 28) of respondents preferred the problem-causing animal to be destroyed. None of the respondents suggested monitoring as the best management option for this degree of threat.

In conclusion, the research revealed that Human Animal Conservancy Self Insurance Scheme does not treat the cause of the problem but the symptom. This approach does not decrease the level of the problem given that the cause of the problem is not addressed. Therefore, the researcher stressed the need to fully explore and implement the recent piloted lion, crocodile fencing, and elephant proof fencing and elephants chilli coil to address and reduce the problem within Kwandu Conservancy. In addition, the research revealed that the scheme has very lengthy delays before compensation is paid and the review panel does not arrange meetings on the stipulated dates. This causes a back-log in the number of claims that need to be reviewed and approved.

On Human Wildlife Conflict the research findings recommend the need to strengthen and improve existing problem-causing animal management strategies that are in place. Innovative strategies include reducing the number of stray livestock at night and developing static fences. Communities should be advised, as is being done by IRDNC, to herd their livestock during the day and to build strong kraals. This is the most effective and cheapest way to prevent livestock from being taken by predators at night. Furthermore the research revealed that the combination and rotation of the methods yield high success rather than deploying a single method over a long period, for the prevention of crop losses methods include guarding the crop field, cracking a whip, shooting in the air, watchtowers, human statues and beating drums.

Acronyms

| | |
|---------|--|
| CBNRM | Community Based Natural Resource Management |
| CGG | Community Game Guard |
| HACS | Human Animal Compensation Scheme |
| HAC SIS | Human Animal Conservancy Self-Insurance Scheme |
| HDI | Human Development Index |
| HWC | Human Wildlife Conflict |
| IRDNC | Integrated Rural Development and Nature Conservation |
| LIFE | Living in a Finite Environment |
| LMCCP | Lake Mburo Community Conservation Project |
| LMNP | Lake Mburo National Park |
| MET | Ministry of Environment and Tourism |
| NACSO | Namibia Association of CBNRM Support Organization |
| NGO | Non-Governmental Organization |
| NNF | Namibia Nature Foundation |
| Sh | Kenya Shillings |
| TA | Traditional Authority |
| USh | Ugandan Shillings |
| WWF | World Wildlife Fund |

TABLE OF CONTENTS**PAGES**

| | |
|--|-----------|
| Preface..... | i |
| Acknowledgement..... | ii |
| Dedication..... | iii |
| Executive summary..... | iv |
| Acronyms..... | viii |
| 1 CHAPTER ONE: OVERVIEW | 1 |
| 1.1 Introduction | 1 |
| 1.2 Problem statement | 3 |
| 1.3 Aim | 3 |
| 1.4 Research questions | 4 |
| 1.5 Study area | 4 |
| 1.5.1 Introduction | 4 |
| 1.5.2 Caprivi region..... | 5 |
| 2 CHAPTER TWO: LITERATURE REVIEW | 6 |
| 2.1 Introduction | 6 |
| 2.2 Literature review..... | 6 |
| 2.2.1 Case Study on Lake Mbuo National Park | 9 |
| 2.2.2 Case Study on Madikwe Game Reserve | 11 |
| 2.2.3 Case Study on community-based approach and communal conservancies.. | 12 |
| 2.3 Summary of lessons learnt from the literature review..... | 13 |
| 2.4 The Kwandu Conservancy compensation approach..... | 14 |
| 3 CHAPTER THREE: METHODOLOGY | 15 |
| 3.1 Introduction | 15 |
| 3.2 Qualitative method | 16 |
| 3.3 Quantitative method | 18 |
| 3.4 Focus group discussion approach..... | 18 |
| 3.5 Event book data analysis | 19 |
| 4 CHAPTER FOUR: RESEARCH FINDINGS..... | 20 |
| 4.2 The Human Animal Conservancy Self-Insurance Scheme | 20 |
| 4.3 Human wildlife interactions/conflicts | 22 |
| 4.3.1 Crop damages from the event book system and research survey..... | 22 |
| 4.3.2 Livestock incidents from the event book system and research survey..... | 23 |
| 4.4 Preventative mechanisms deployed by communities to reduce crop and livestock losses..... | 24 |
| 4.5 The Kwandu Conservancy’s respondents level of tolerance towards problem causing animals..... | 25 |
| 5 CHAPTER FIVE: DISCUSSION OF RESULTS | 26 |
| 5.1 Introduction | 26 |
| 5.2 Community perception on compensation scheme..... | 27 |
| 5.3 Human Animal Conservancy Self-Insurance Scheme impact on community’s livestock..... | 31 |
| 5.3.1 Management strategies | 31 |
| 5.3.2 Stages of compensation scheme from reporting incidents to compensation payouts | 32 |
| Figure 1: Stages of compensation Scheme..... | 34 |
| 5.4 Human wildlife conflicts | 35 |
| 5.5 Crop and livestock losses | 36 |

| | | |
|-------|--|-----------|
| 5.6 | The influence of location on conflict level..... | 37 |
| 5.7 | Current approaches used by communities as management practices..... | 38 |
| 5.7.1 | Beating drums and shouting..... | 38 |
| 5.7.2 | Noisemakers, cracking a whip and watchtowers..... | 39 |
| 5.7.3 | Lighting fires around crop field and shooting in the air by the community game guards..... | 39 |
| 5.7.4 | Hanging tins on fences and erecting human statues..... | 40 |
| 5.7.5 | Trophy hunting by professionals hunters and the shooting of problem animals | 40 |
| 5.7.6 | Use of chilli coils and grease mixed with hot pepper oil..... | 41 |
| 5.8 | New management approaches to reduce damage..... | 41 |
| 5.8.1 | Lion and crocodile fences..... | 41 |
| 5.8.2 | Synchronising calving of livestock..... | 42 |
| 5.9 | Limitation of the study..... | 43 |
| 6 | CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS..... | 45 |
| 6.1 | The human Animal Conservancy Self-Insurance Scheme..... | 45 |
| 6.2 | Human wildlife issues..... | 47 |
| | References..... | 51 |
| | Appendix One: Research questionnaires..... | 56 |
| | Appendix Two. Problem animal report form..... | 59 |
| | Appendix Three: Human –Animal Conservancy Self Insurance Compensation Scheme..... | 60 |

1 CHAPTER ONE: OVERVIEW

1.1 Introduction

The conservation of wildlife in north-eastern Namibia generates significant income for the country's tourism industry and for many communities of the Caprivi region. The continued survival of predators and elephants in the region depends on both the positive perception and awareness of wildlife by local residents (Marker *et al.*, 2003a). Through policy and legislative changes, the Namibian Government, with support from non-governmental organisations (NGOs), has provided a framework that allows an integrated approach to community conservation and rural development.

The government, together with various NGOs such as Integrated Rural Development and Nature Conservation (IRDNC), Namibia Nature Foundation (NNF), Namibia Community Based Tourism Association (NACOBTA), World Wide Fund for Nature/ World Wildlife Fund (WWF) and Living in a Finite Environment (LIFE), among others, initiated communal conservancies as a way to protect wildlife outside national parks with communities within conservancies directly benefiting from their wildlife through consumptive and non-consumptive use. Generally communal conservancies consist of a group of communal area farmers who agree to protect wildlife for future generations, while they use these resources sustainably.

Communities manage their livestock and gardens individually but co-manage wildlife resources. A conservancy will usually be zoned by its members for different land uses. This overall approach provides an excellent opportunity for simultaneous conservation of biodiversity whilst increasing benefits to local communities (Bergin, 2001; Halstead 2003).

Conservation of wildlife outside Namibia's parks and reserves is based on a community ownership and benefit approach. This represents a radical change to previous conservation approaches that "locked" wildlife away from the local communities; the current concept of conservation strikes a balance between intrinsic (value of species to survive) and instrumental incentives (the benefit of species to the communities or the ecosystem as a whole) (Jones, 2001; Hulme and Murphree, 2001). This type of community conservation approach is officially known as Community Based Natural Resource Management

(CBNRM), which has resulted in the development of 55 communal conservancies within Namibia including Anabeb, Sesfontein, Purros, Salambala, Mayuni, and Kwandu Conservancies, among others.

The Kwandu Conservancy was officially registered in 1999. Spectacular, tropical scenery and a wide range of wildlife, including populations of the “big four”, characterize the area. The “big four” species commonly found in the area include elephant, lions, leopards, buffaloes and hippopotamus. To date, information available on the impact of community conservation on wildlife populations in the area is still quite new. In addition, apart from IRDNC’s internal survey, no external analyses on understanding by communities of the Human-Animal Conservancy Self Insurance Scheme’s (HAC SIS) have been conducted to determine whether conservancy compensation payouts are well regarded. HAC SIS is referred to as a process where a conservancy seeks to balance the losses of individual member’s livestock, against collective benefits received from the conservancy formation – direct income to the conservancy and increased number of jobs. HAC SIS has two aspects, a) conditional stock ‘compensation’ for registered conservancy members only, and b) a funeral benefit of N\$ 5 000 in the event of the death of a conservancy member.

Data collected on compensation has not been analysed to determine the appropriate fund that the conservancy needs per year for compensation purposes. The compensation process is long overdue, owing to limited funds and the complexity involved in verifying and administering the community’s claims. The reality is that compensation alone will not solve human-wildlife confrontation issues; a multifaceted approach needs to be explored to reduce problems experienced by Kwandu conservancy members. The problems can probably only ever be mitigated and better managed and will almost certainly never be ‘solved’. General trends suggest an increase in wildlife since the inception of the Kwandu Conservancy, based on game counts and wildlife incidents that are recorded by the community game guards. Livestock incidents are also recorded and have increased, but this cannot solely be interpreted as an increase in wildlife populations. Rather, the increase in wildlife incidents could also be attributed to a lack of commitment from the local community to take responsibility for their livestock and field crops (Blanco, 2003). It may also reflect the need for better incident reporting and monitoring by the community game guards (CGG’s). This study focuses on interactions between humans and wildlife and assesses the effectiveness of chilli and other traditional methods to deter crop-raiders and

predators. In addition, the overall understanding of communities towards the compensation scheme is assessed through questionnaires.

1.2 Problem statement

Kwandu Conservancy ecosystem is diverse and productive, supporting a significant number and wide range of wildlife. However, in the midst of these pristine ecosystems, human conflict with wildlife is on the increase. The Conservancy is located in the Caprivi region and is one where both crop and livestock farming are practised. As a result, conservancy members experience heavy losses of livestock and crop damage due to wildlife. To date there has been no in-depth analysis on community understanding of the Human-Animal Conservancy Self Insurance Scheme (HAC SIS). The situation is further complicated by the fact that the same animals that cause the damage also have the potential to bring in money through photographic tourists and trophy hunters. On the other hand, IRDNC does not see this merely as a complication. The NGO sees this dilemma as holding the potential for major solutions to the problem – e.g. the very animals that cause the biggest problems are the most valuable to the conservancy in terms of eco-tourism and trophy hunting. So the problem has its own in-built mitigation – and *“we just need to test a process whereby the conservancy itself runs the self-insurance scheme well”* (Jacobsohn, pers.comm. 2006). In addition, large animals including elephants, hippopotamus, buffaloes, and carnivores such as lions, are often a potential threat to human lives. This study attempts to gain insight into human-wildlife interactions in the Kwandu Conservancy. The extent of community understanding of HAC SIS and the use of chilli as an elephant deterrent is also assessed as part of the research.

1.3 Aim

- To assess the extent and impact of human-wildlife interactions within the Kwandu Conservancy
- To assess the level of community understanding of the HAC SIS program within the same region.

1.4 Research questions

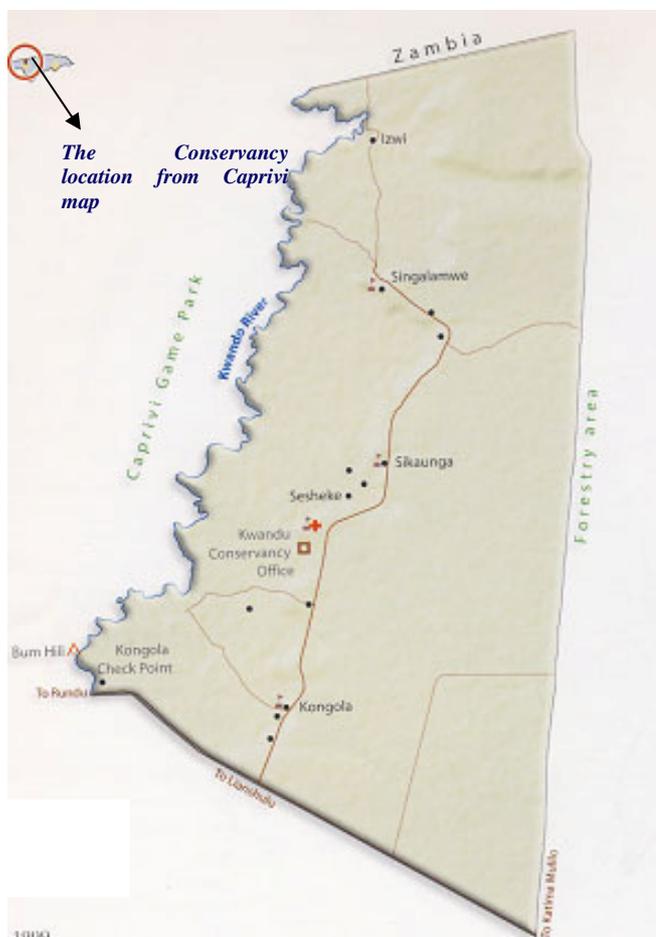
Three major questions reflect the overall focus of this study:

- To what extent do the Kwandu members understand the Human Animal Conservancy Self Insurance Compensation Scheme?
- What are the impacts of human-wildlife interactions within the Kwandu Conservancy?
- What are the numbers and trends of wildlife incidents within the Kwandu Conservancy?

1.5 Study area

1.5.1 Introduction

The study was carried out within the Kwandu Conservancy in the Caprivi region of Namibia. The annual average rainfall within the conservancy is 600 mm. Aside from abundant wildlife, swamps and grassland on the floodplains dominate the region. The total area is approximately 190 km² with an estimated human population of about 4,300 (NACSO, 2004).



Source: NACSO, 2004

1.5.2 Caprivi region

The Caprivi region is one of 13 regions in Namibia. It consists of a fingerlike projection in the north-east of the country and is bounded on the north by Angola and Zambia, while Zimbabwe lies to the east and Botswana to the south of the 'strip'. The region is approximately 450 km from west to east and from north to south it varies from 23 km to 100 km (Purvis, 2002). The entire region is very flat, sloping from the highest areas in the west to the lowest point on Impalila Island, with a gradient of approximately 200 metres (Purvis, 2002). The region has six constituencies, covering a total area of about 14,000 km² and inhabited by about 80,000 people based on the 2001 census report. The average population density of 5.7 people/km² (Mosimane, 1998) is a clear indication that the region has significant uninhabited space. The highest population of over 14,000 people is in the eastern Caprivi around Katima Mulilo, the region's capital and the administrative center. Based on the Human Development Index (HDI) the Caprivi region is rated as the most impoverished region in Namibia (UNDP, 1996; Weidlich, 2006).

Three main rivers traverse the region; the Zambezi river to the north-east of the region, the Kavango river in the far west, and the Kwandu-Linyanti system in the central area. These divide the western Caprivi from eastern Caprivi. The average daily temperature in the Caprivi region ranges from 10°C in winter to 39°C in the summer (Rodwell *et al.*, 1995; Mosimane, 1998). The region belongs to a tropical climate zone and on average receives the highest rainfall in Namibia during rainfall seasons (December to March). The abundance of water in the region sustains a variety of species.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section highlights key literature related to the research to be conducted in order to develop insight and understanding of community conservation. The focus of the literature is human-wildlife interactions and compensation schemes implemented through Community Based Natural Resource Management (CBNRM). Community conservation and human-wildlife interactions remain two of the greatest challenges facing conservation in Namibia (the Kwandu Conservancy) and the African continent itself. To gain an overview of the issues related to these challenges, pertinent case studies from other African countries are reviewed and related to findings from elsewhere around the globe.

2.2 Literature review

Human-wildlife conflict is a major conservation issue in southern Africa. As the human population increases, people encroach into natural habitats that coincide with the conservation efforts of Community Based Natural Resources Management (CBNRM) system. According to Bergin (2001) the CBNRM system works to restore wildlife to areas where it may have been absent for generations while at the same time, it generate direct benefits from wildlife for local people. It also links rights or benefits to responsibility i.e. the community takes responsibility for managing their wildlife in return for conditional rights over its use (Jacobsohn, pers.comm. 2006). The pressing need to conserve problem-causing animals through community-based participation promotes human-wildlife coexistence.

Human-wildlife conflict occurs between people and wildlife when free roaming animals within communal land raid crops and kill livestock. Elephants and lions, as well as hippopotamus and crocodile, have also taken human lives. This is particularly so in southern Africa, where large mammals such as buffaloes, elephants, hippopotamus, lions and leopards are a potential threat to the community and their properties. The majority of researchers in Africa and around the world have come to realize that the cost borne by communities living with wildlife exceed the benefits that communities receive at the household level (Jones, 1997, Mulonga *et al.*, 2003) and this is what the CBNRM or

Namibian communal conservancy approach to conservation aims to change. Communities that co-exist with wildlife or live adjacent to state protected parks or reserves also experience problems. These problems have resulted in conservation practitioners investigating ways to reduce human-wildlife conflicts and negative impacts borne by communities living with wildlife.

The most widely exercised and promoted methods to reduce crop damage in southern Africa are the 'traditional' methods that include: drumming, fire flames, cracking whips, and hanging empty tins on the fences so that when animals enter the field the sound of the tin frightens them away (Nelson *et al.*, 2003). For predator prevention, locals use herding dogs, cattle herders, strong kraals (Orford, 2002; Mulonga *et al.*, 2003), and in some cases they synchronize the calving of their livestock to reduce mortality (Orford, 2002). Although the above-mentioned techniques have some success, problem-causing animals unfortunately become habituated to the single use of techniques over long period of time and as such, conflicts remains unresolved (O'Connell, 1995; Nelson *et al.*, 2003). This has resulted in communities being hostile to wildlife and human-wildlife conflicts continue unabated (Mulonga *et al.*, 2003).

Human-wildlife conflict is on the increase because of the increase in human settlement expanding into former wildlife pristine areas putting people and wildlife into contact, 2) increase in wildlife numbers likely to cause increase in problems 3) the CCG's through their Event Book system are doing better recording of the problems so people are more aware of the challenges of co-existing with wildlife. In addition, conservancies have better-organized remote rural people who are entrusted with ownership of wildlife so they are more able to make their voices and problems heard at regional or national level (Schiffer, 2004), previously decision on wildlife in rural areas where made by higher authorities without consultation with local community at ground level (O'Connell, 1995; Schiffer, 2004). The later approach was based on the perception that compensation benefits would increase the tolerance of communities toward wildlife conservation (IRDNC, 2004), and promotes more positive attitudes of communities in support of the CBNRM (Jones, 1999). The former approach was based on exclusive conservation of wildlife merely for future existence. When compensation was introduced, the schemes spread economic burden and moderate the financial risks to communities co-existing with wildlife with the

ultimate intention to reduce negative consequences of human-wildlife interactions (IRDNC, 2004).

Bulte and Rondeau (2003) argue that compensating farmers for damage caused by wildlife reduces the retaliation of farmers so that they are less likely to kill the animals. However, it could also discourage communities to take ownership of their livestock and crop fields. Communities would not devote their time and energy to protect their livestock or crop fields if the amount of money paid for compensation is equivalent to the damage caused by wildlife (Bulte and Rondeau, 2003), therefore this would exacerbate the damage caused by wildlife. Another problem is that human-wildlife conflict may lead to loss of human life. Next of kin or relatives are compensated, but how does one put a price on human life? If the victim was a breadwinner, the cost of hardship awaiting the victim's children and trauma experienced by the relatives is not considered in the compensation payout (Bulte and Rondeau, 2003; Mulonga *et al.*, 2003). Therefore, a compensation amount for loss of human life or an injury may have no effect on reducing negative attitudes towards wildlife and in fact, may increase it (O'Connell, 1995).

Research conducted by Blanco (2003) states that in some regions of Spain, compensation payouts are made regardless of whether the community protects their livestock or not. This resulted in several farmers not bothering to apply precautionary measures to protect their livestock against predators. In addition, those who were practicing better livestock management techniques began to criticize the scheme. In some cases, livestock management techniques were abandoned, as the farmers were not compensated for the time and cost they had invested (Blanco, 2003). Such compensation schemes are a short term solution to human-wildlife conflict while the problems it creates last considerably longer.

Nyhus *et al.* (2003) identified that problems arising from the compensation scheme are similar to that of an agricultural subsidy. They stress that compensation increases the net return from agricultural production and thus provides an incentive for communities to convert natural habitat to agriculture. These findings were supported by Bulte and Rondeau (2003), who state that liberal trade on open access land, especially in communal areas, has negative effects on wildlife. They claim that the compensation is similar to agricultural subsidies and encourages people to enter into agricultural practices. If there

were no compensation schemes, they would not have otherwise entered. This results in habitat destruction and fragmentation when practiced on a large scale.

Other case studies have extensive information relating to community conservation approaches and their impact on local community co-existence or on communities living adjacent to wildlife protected areas. To streamline the literature review, several case studies were selected and enriched with research findings conducted elsewhere for this dissertation. The author draws specific examples from case studies conducted in East Africa (Uganda) and Southern Africa (South Africa and Namibia) to demonstrate the impact of human-wildlife interactions.

The first case study is from East Africa: Lake Mburo National Park, Uganda (Emerton, 1999); and there are two case studies from Southern Africa: The Madikwe Game Reserve, South Africa (Magome *et al.*, 2000) and from Namibia: The Evolution of a community-based approach to wildlife in Namibia and Namibia communal conservancies: A review of progress and challenges. The two Namibian case studies were combined during the literature review because of significant overlap. The former is written by Jones (2001), while the latter is by NACSO (2004).

2.2.1 Case Study on Lake Mburo National Park

Paraphrased from: (Emerton, 1999)

In this study, the author focuses on the events that constitute threats of wildlife to communities. This synthesis was enriched with findings from Kitengela (Kenya) where people have been in conflict with lions, resulting in a lion “massacre”.

Lake Mburo National Park used to be a community livestock and crop farming area, but due to rinderpest and tsetse fly disease outbreaks, the potential of the area for livestock grazing lessened. In contrast, these problems increased wildlife, which attracted hunters. In an effort to halt a drastic decline of wildlife populations, the area was declared a Controlled Hunting Zone in the 1930s. “Due to its potential for tourism, the Lake Mburo Community Conservation Project (LMCCP) was established, and in 1991 the project contributed 20% of gate fees to community development projects”. During the initial process individual entrepreneurial projects that included bee keeping, crafts and tree nurseries, were funded.

Initially money derived from LMNP was channeled to the government while the burden of living with wildlife was borne by the local community adjacent to the park. With an increase in wildlife populations, the Lake Mbuo Community Conservation Project was constantly involved in resolving human-wildlife interactions and conflicts arising from crop raiding by wild animals. Conflict was resolved through paying compensation to affected communities. The most commonly reported problem around Lake Mbuo was the time spent by communities to protect their property. The majority of the people's livelihood was based on mixed agriculture, with the majority of crops produced for cash as well as for home consumption. Loss of these crops to wildlife was one of the major costs in the area adjacent to the conservation area. Elephants, porcupines, and birds destroyed the community's crops. The problem culminated in the closure and total abandonment of farmland and fishing areas by communities living adjacent to the park. In addition, human deaths from attacks by baboons, lions and elephants were reported, resulting in human-wildlife conflicts.

Similar incidents were reported by Nyamwaro *et al.*, (2006) where lions in the Kitengela area killed 100 livestock, comprising of cows, goats, sheep, and donkeys. As a result of intense human-wildlife conflict, communities retaliated by killing 10 lions and mutilating their carcasses. The authors stressed that this was not only a tragedy to the communities who lost their livestock, but also for the tourism industry as the park is regarded as one of the main tourist attractions. It is thought that the Kitengela incident could have been controlled if the Kenyan compensation scheme still existed. Communities were once paid Sh 15,000 for each cow or donkey killed and Sh 2, 500 for a sheep or goat. The scheme paid Sh 417, 500 out by March 2002 but the number of lion incidents dropped to zero during the time the compensation scheme was in operation. Unfortunately, the scheme was unsustainable and ceased after one year due to a lack of funds and considerable abuse and bogus claims. The scheme was drained even further due to improper control and management. Since then, there has been a backlog of Sh 247,500 of unpaid claims.

The mini scenario presented from Kenya is similar to Lake Mbuo in that the destruction of crops by crop raiders resulted in increased poverty. This was due to crop loss and property damage and the community started to depend on selling labour to earn a livelihood. Apart from selling labour to earn a living, men were involved in guarding at night while women

and children guarded during the day. In cases where children were involved in guarding, it led to a loss of opportunity for their education and there was a lack of access to educational materials. In 1994 and 1996, USh 91 million was spent on community development projects as part of easing community burden inflicted by wildlife. However, not all the residents benefited due to lack of proper channels for distribution, particularly to marginalized communities. This problem was resolved through channeling funds derived from wildlife to community development, creating a means of more equitable distribution among the beneficiaries. The fact remains, despite community tolerance towards wildlife conservation, the scheme did not eliminate the actual conflict between human and wildlife from happening. Although there is an emphasis within the reserve on community based management of resources, it is unclear whether there has been a real handing over of ownership and responsibility of natural resources to the local communities.

2.2.2 Case Study on Madikwe Game Reserve

Paraphrased from: (Magome et al., 2000)

In this study, the author focuses on events that led to the formation of the Madikwe Game Reserve as a means of community development and economic empowerment. The ultimate aim of the reserve is to deliver its promise of poverty alleviation. The Madikwe Game Reserve was based on three assumptions: that wildlife tourism was the best use of land, that tourism would increase the conservation value of the land, and that villages surrounding the reserve would gain financial benefits.

After recognition that the community was weak in managing natural resources, the parks board raised money to ensure effective participation through capacity building. However, this led to allegations of a top-down approach rather than an integrated approach that also included bottom-up. Decisions were driven and initiated by parks officials and the community had to “rubber stamp” them for formalities. In addition, the community based participation approach was criticized for not incorporating the community’s needs at the onset. The cost of reserve management per annum was estimated at US\$ 1million and an unspecified amount was needed for community development.

2.2.3 Case Study on community-based approach and communal conservancies

Paraphrased from: (Jones, 2001 and NACSO, 2004)

In this case study, the author focuses on the estimated cost borne by communities living with wildlife. The case study is enriched with information from various authors.

CBNRM in Namibia emerged when the Nature Conservation Ordinance Amendment Act was passed in 1996. According to Jones (1997), CBNRM deals with projects that are aimed at securing ownership of natural resources by rural communities in order for them to benefit from sustainable resource management, whilst strengthening the community level of resource management. The Nature Conservation Act of 1996 devolves the same rights over wildlife to communal conservancies that commercial farmers have enjoyed since the 1970s. This approach was heralded as a radical change in Africa (Hulme and Murphree, 2001) and the policy was a turning point for CBNRM in communal areas (Jones, 2001).

A decline in wildlife populations in Namibia was brought to a halt on communal land because of the community based conservation approach (Jones, 2001; NACSO, 2004). In addition, amended legislation reversed the disparity of former discriminatory conservation laws and gave communities the same legal rights to manage and benefit from wildlife and tourism that freehold landowners had enjoyed for two decades (Seslar *et al.*, 2000). The new legislation allows the sustainable harvesting of wildlife and in the process tries to reduce tension between wildlife and the local community. People have started to realise the benefits of wildlife conservation within the Kwandu Conservancy. However, if conflict resolution between people and problem causing wildlife is inadequate, local support for wildlife conservation within the communal area could decline. This would be detrimental to wildlife conservation initiatives given that conservancies cover approximately 5 % of Namibia's landmass. Conservancies in Namibia are defined as an area of communal land upon which neighboring people have pooled their resources for the purpose of conservation and the utilization of wildlife on their combined properties in a sustainable manner (MET, 1995; Blackie and Tarr, 1999; NACSO, 2004). Many of these registered and emerging conservancies have significant wildlife on their land for scenic, hunting and photographic tourism value. Economic analysis (Barnes and de Jager, 1995; Barnes *et al.*, 2001) shows that the conservancy program may bring potential financial benefits to communities if wildlife populations keep increasing at the current rate.

However, the cost borne by the communities that co-exist with wildlife is greater than the benefit that each household receives from their respective conservancies. The monetary damage caused by crop-raiding elephants in 1995 was estimated at N\$21,560 for the Kwandu River region alone (O'Connell, 1995). In addition Sutton *et al.*, (2002) estimated the value of damage to crops caused by domestic stock, elephants and other wild herbivores in six villages of the eastern Caprivi region to be N\$216,097; and to domestic animals to be N\$82,410. Given that this figure does not cover the entire Caprivi region, it is likely to be a significant underestimation of the actual cost of damage caused. For comparative purposes, data obtained from the Ministry of Environment and Tourism (MET) by Mulonga *et al.*, (2003), shows that the combined damage to crops and livestock in 2001 nationally was N\$300,000 (N\$240,000 for livestock and N\$60,000 for crops) from human-wildlife conflicts. However, the authors emphasised that the community rarely reports incidents to MET due to the vast distance that needs to be traveled in order to do so. Therefore, the number of incidents reported to MET would be less than the actual number occurring. Between 1996 and 2001, 384 incidents of damage to crops by wildlife were reported to the MET, with an estimated 764 hectares damaged from these incidents (Mulonga *et al.*, 2003). Most incidents occurred in the second quarter of the year during harvest time and throughout the growing season. During the same period the authors reported 246 stock deaths from predator incidents, resulting in the loss of 694 livestock equivalents. Livestock Unit Equivalent calculations are used because it is difficult to obtain accurate historical price information for different stock types.

2.3 Summary of lessons learnt from the literature review

This literature review shows that it is important to allow communities greater control and involvement in the management of conservation and natural resources, with little influence but greater facilitation from the government or NGO's involved. In addition, it is important to recognize that conservation benefit schemes do not entirely alleviate poverty and they only sustain the livelihood of communities to a small extent. The overall tentative conclusion based on the literature review and case studies is that human-wildlife conflicts are a growing concern. These conflicts are not restricted to particular geographical regions, but are common to all areas where wildlife and human populations coexist and share limited resources. Human-wildlife conflicts are also multifaceted and the traditional methods of controlling them are often ineffective given that problem-causing animals have

become habituated to the techniques. Compensation schemes are often financially unsustainable and also difficult to manage. Another problem is the inability of compensation schemes to decrease levels of human-wildlife conflict because the cause of the problem is not a focal point. There is also limited funding generated to cover all claims, coupled with slow administration which involves stringent financial controls. In addition, where compensation is actually implemented, the schemes do not account for ‘unquantifiable opportunity’ such as the time and cost of managing livestock in the first place. This contributes to a lack of responsibility on the part of livestock owners.

2.4 The Kwandu Conservancy compensation approach

The HACSYS scheme takes the above issues in the following ways and focuses on conservancies that have developed a problem-animal management plan. Conservancies may only qualify to enter the scheme if such a plan is in place and members may only claim for stock losses if they have fulfilled the management plan rules. In this way, responsibility and accountability are able to be linked to benefit. HACSYS also requires that the conservancy runs its own scheme rather than outsiders or government. This facilitates responsibility and accountability as it is the conservancy’s own money that is used. A member might not be upset if a neighbor ‘cheats the scheme’ when an NGO is paying. However, they would presumably strongly object to conservancy money being wasted by false claims.

3 CHAPTER THREE: METHODOLOGY

3.1 Introduction

A detailed interview questionnaire (Appendix one) was prepared by the researcher and presented at a focus group discussion that included the Kwandu Conservancy community game guards, the conservancy manager, and the IRDNC HACSYS implementing officer. Questions were developed to permit a broad range of responses and to stimulate discussion and understanding of communities on a wide range of issues.

The research questionnaire targeted the following groups:

- Conservancy members who were 18 years or older and had been living in the conservancy for more than 10 years and had received/claimed compensation for livestock losses, and/or those who had filed for compensation claims but had their claims rejected (18 paid and 14 rejected claims members were interviewed). Conservancy members who were actively involved in growing or selling and had previously used chilli as an elephant deterrent were also included in the survey.
- Conservancy community game guards, the conservancy manager and HACSYS implementing officer (three group discussions).
- Representatives from Integrated Rural Development and Nature Conservation who provide technical and logistics support to the staff and committee who manage the Kwandu Conservancy (informal interviews conducted with three members).

All data from the questionnaires were entered into an MS EXCEL sheet for analysis. There was no restriction on the number of answers that respondents could give and they were asked to mention or state in order of priority the nature of impacts. For analysis, only the first four items or issues on the questionnaire were used. However, when the range of values varied, e.g. the reasonable amount that respondents expected to be compensated for if they lost their cattle, the average of all written values was used. A percentage was also calculated based on the number of responses, but not number of respondents.

3.2 Qualitative method

To what extent do the Kwandu members understand the Human Animal Conservancy Self Insurance Compensation Scheme?

Most of the questionnaire's answers were based on the respondents' perceptions, preferences and understanding of HACSYS and human-wildlife conflicts. Therefore, qualitative data from respondents were categorized and analysed according to various themes and common statements (Orford, 2002). Some respondents claimed to have no idea about the question asked and as such were reported as having no idea. In other cases, respondents did not use certain methods that were asked about (e.g. use of chilli) and the reasons given were incorporated into other respondent's answers for analysis.

Research was based on face-to-face interviews with individual members and on small focus groups with conservancy members to fill information gaps. An interpreter who had knowledge of the conservancy and the norms of their traditions was used during the interviews. The sample size of 35 participants was deemed sufficient due to similarities in the responses obtain during the interviews. Logistics and time restraints of field work restricted the researcher to this sample size- valid case study to give general idea of community perceptions on wildlife and their understanding on HACSYS but small sample. The research had no criteria and both male- and female-headed houses were randomly interviewed. The overall duration of the interview period was approximately 15 days and this was attributed to the vast distance between the villages that the researcher had to cover to reach the participants. It was deemed necessary to interview people from different villages within the conservancy to get a broader perspective on conservancy issues. The interviewees criteria was that they should have been compensated for livestock losses, or had filled in a compensation claim form but were rejected and/or that they used, grew and sold chilli and used it as part of their method to prevent crop losses to elephants (all members who fell within this category were interviewed except six members who were out of the eastern Caprivi section). For current and previous members of the conservancy committee, the selection criterion was that six people would be interviewed.

The questionnaire had three main sections. The first dealt with human-wildlife conflicts and the respondents were asked to mention problem-causing animals and the damage they cause, methods used to prevent the problem recurring, attitudes and tolerances of the

respondents towards problem-causing animals based on the degree of threat (*i.e.* if the problem-causing animal is simply sighted in the area, destroys crops or kills livestock, approaches a person or kills a person) and the management strategy that they prefer. Monitoring, capture and relocation or death of the problem-causing animal were the options presented to the respondents as possible management strategies.

The second part of the questionnaire covered the use of chilli and other methods as a deterrent to elephants. The effectiveness of the method, the community's knowledge about the use of chilli, and the health risks when using it were also explored. The third part of the questionnaire was about the HACSYS program and asked about the level of community involvement and understanding of the compensation scheme, its influence on the community's willingness to support problem-causing animals, and the general perception of the conditions of payment, procedures and amount of compensation. All interview participants had previous experience with human-wildlife confrontations before and after the formation of the Kwandu Conservancy.

To avoid bias data collected from the community interviews the researcher used the Event Book System to verify the degree of the problem caused by the animal that the community claims to be a problem-causing. The Event Book System was introduced by IRDNC as a way of recording all the possible incidents happening in each conservancy by the Community Game Guards in their respective conservancies, this book contains data about each individual problem-causing animal and the overall number of incidents that occurs in each conservancy in a particular year (see subsection 3.5). Most questions were open-ended in order to reveal reasons for specific answers, but some were also closed. The questionnaire was pre-tested on community game guards with significant understanding and knowledge of the area. Their input helped shape the final revised questionnaire used during the research survey. Supplementary qualitative data were obtained through focus group discussions and informal interviews with some IRDNC staff that operate at ground level to reduce human-wildlife conflicts through better management strategies such as the use of chilli, and lion and crocodile fencing. However, the emphasis is on conservancies themselves taking responsibility for developing and implementing such solutions.

3.3 Quantitative method

What are the impacts of human-wildlife interactions within the Kwandu Conservancy?

Information on the compensation scheme and the amount paid for compensation was calculated from the amount paid to the affected community. This data was sourced from the game guards' event books and HACSYS. In addition, based on the compensation scheme results, the types of animals responsible for incidents and the frequency of livestock and crop raiding was identified and compared with the results from the interviews. A wildlife incident trend was determined from the raw data compiled by the Kwandu community game guards in the event book (see subsection 3.5). Much of the data was accessed from the Kwandu Conservancy office's archives. The interview results were also used to determine whether the information compiled was a true reflection of real events. When similarity existed among the respondents' answers, the answers were grouped together and the percentage to indicate the best management strategy based on different degrees of threats determined. Focus group discussions and informal conversations with officials operating on the scheme within the north-eastern Caprivi region conservancies were included where possible.

3.4 Focus group discussion approach

During this research, three focus group discussions that consisted of four, five and two conservancy members, were conducted. The focus group discussions were made up of small numbers of people so as to make it easier for them to actively participate and to allow creative discussion and a flexible interchange of ideas. Each group was given brochures outlining the various stages of HACSYS compensation program, from reporting incidents to compensation payouts. Participants were then asked to identify any problems that they had experienced with each stage, and possible solutions to the problems. During the exercise, each group was requested to nominate a group leader who reported the group's findings to other groups. After focus group discussions, groups combined their findings into one document. The document was then used during the mini-dissertation to assist with the interpretation of research findings. The focus group discussions covered similar topics that were discussed during individual face to face interviews. Topics ranged

from the HAC SIS program, to the impact of human-wildlife interactions, to management strategies used by local communities and the effectiveness of these strategies. Although the researcher was involved in focus group discussions, this was simply to ask questions for clarification or to direct discussion towards appropriate themes for the research. Discussions were conducted under the supervision of both the researcher and a HAC SIS implementing officer who acted as a translator.

3.5 Event book data analysis

What are the numbers and trends of wildlife incidents within the Kwandu Conservancy?

Event Book system's data include both crop and livestock damages/losses. The event book from the Kwandu Conservancy was examined to determine the contribution of individual species incidents to the overall number of incidents recorded over a 3-years period. The event book system is an important and reliable document as it helps community game guards to focus on their responsibilities. In turn, this improves their accountability towards wildlife and conservation. The data recorded in the event book by game guards provided a comparison to answers from respondent's who tended to exaggerate at times. The event book system also contains all wildlife incidents recorded, including incidents that did not meet requirements for compensation. Consequently, the overall number of incidents per year was taken from the event book.

The data extracted from the event book system were from *01 January 2003 to 30 December 2005*. The data focuses on:

- Human-wildlife interactions
- Crop damage
- Livestock damage
- Crop-raiders and predators responsible for the above damages
- Human Animal Conservancy Self Insurance Compensation Scheme

The researcher is familiar with the event book system used by the community game guards for wildlife monitoring and incident reporting. Therefore, the raw data from the event book system was used to form baseline information on current and past observations and to benchmark it against the interviewee's responses.

4 CHAPTER FOUR: RESEARH FINDINGS

4.1 Introduction

In presenting the research findings, chapter four is organized into the following sections: The human Animal Conservancy Self-Insurance Scheme, Human wildlife interaction, with their *italics* questions of the research project. This section further presents the approach deployed by the Kwandu communities to reduce crop and livestock losses from crop raiders and predators and their level of tolerance towards problem causing animals.

4.2 The Human Animal Conservancy Self-Insurance Scheme

To what extent do the Kwandu members understand the Human Animal Conservancy Self Insurance Compensation Scheme?

This section presents the results based on the questionnaire designed to test community understanding of the role of HAC SIS and its existence.

Most respondents (n = 26) were aware of the existence and the role of HAC SIS, but some respondents (n = 6) said they had no idea about HAC SIS and its involvement in minimising the immediate impact felt by a community when they lose livestock to predators. Only three of the respondents claimed that they had heard of HAC SIS existence but had no knowledge of its role within the Kwandu Conservancy, despite the fact that IRDNC had distributed the pamphlets to each household (Appendix five)

The process of reviewing claims for compensation is a lengthy process before the claims are either approved or rejected. When respondents were asked whether they received feedback on rejected claim forms (n = 15) it was generally felt that the conservancy committee did not explain to them why the claim forms were rejected. However, some respondents (n = 6) had received feedback on their rejected claim forms. During focus group discussions, the community game guards highlighted this problem and associated it with verification of the scene. The game guards have to travel long distances to reach the scene of the incident and to identify the spoor of the responsible predator. If the guards are delayed the spoor disappear quickly and the claim will not be accepted by the review panel because the cause of death is uncertain.

Despite the fact that HACSYS is not aimed at compensating losses from wildlife based on market value, respondents (n = 19) claimed that the amount paid to relieve the immediate impact from wildlife was far too little to relieve the affected member from suffering. Although some respondents (n = 8) were satisfied with the amount paid out as compensation.

The community were also asked whether the compensation scheme should be abolished. However, based on the number of the respondents who knew the scheme (n = 22) none of them wanted the scheme to be abolished despite their dissatisfaction. Rather, they emphasised that the HACSYS management committee, together with conservancy members, need to review the amount paid as compensation. In particular they suggested that payments for cattle be increased from the current N\$ 800-00 to N\$ 1000-00 per cattle loss.

During focus group discussions and individual face-to-face interviews, the issue of “compensation” encouraging communities not to take responsibility for their livestock as they will be compensated for any losses they incur” was discussed. Participants suggested that the amount paid for livestock loss is not equivalent to the market value of the animal. Therefore, this encourages the community to take responsibility over their livestock. They have livestock herders, and management strategies have never changed because of compensation. It was thought that livestock incidents have only increased due to wildlife animals habituating to preventative mechanisms. In addition, if community livestock is killed and the condition of proper kraaling, herding and other methods are not met, the review panel will automatically reject the claim. Participants also emphasised that livestock within the Kwandu Conservancy are used for multiple tasks such as ploughing, transporting water and goods, milking and for meat. If they allowed predators to kill livestock for a mere N\$ 800-00 this would be “self suicidal” and the claim may be rejected in any case if correct conditions are not met.

4.3 Human wildlife interactions/conflicts

What are the impacts of human wildlife interactions, numbers and trends of wildlife incidents within Kwandu Conservancy?

4.3.1 Crop damages from the event book system and research survey

Between 2003-2005, the Kwandu Conservancy reported 1508 incidents of damage to crops by wildlife. Elephants were responsible for approximately 30.2 % of damage inflicted to fields during the three year period. On average, each time an incident involving elephants was reported, the damage covered just over two hectares of field. Although elephants are responsible for the bulk of crop damage, other species responsible included bush pigs (29.8 %), hippopotamus (12.7%), antelopes (12.7 %), porcupine (7.5%), and baboons/monkeys (7.2 %). During the research survey 30 % of the respondents reported damage to their maize crop and none of the respondents agreed when asked whether domestic animals are also responsible for crop losses even though this may have been the case.

When the interview participants were asked to mention the crops that were mostly destroyed by crop raiders, a high percentage (30%) mentioned that maize was the main crop. Other crops destroyed included sorghum (26 %), millet (17 %), ground nuts (14 %), pumpkins (8 %), and beans (5 %). In addition, the community were asked to mention the wildlife responsible for their crop losses. It was claimed that elephants are a “destroyer” of the crop fields and when they enter the field they consume everything. Although this is merely a reflection of dissatisfaction by respondents . The data from the conservancy event book system attribute the high incident of crops to elephants. Based on the answers given, 40 % of responses mentioned elephants as the major species responsible for crop losses, followed by bush pigs (33 %), hippopotamus (16 %), monkeys/baboons (6 %), duiker (3 %) and lechwe (2 %).

The community reported species such as bush pigs as groundnut preferring species (14%), although they acknowledged that they eat other crops also. Other species were not associated with one specific crop but were regarded as eating anything they come across in the field.

4.3.2 Livestock incidents from the event book system and research survey

Between 2003-2005 the Kwandu Conservancy reported 98 predator incidents by wildlife to livestock. Out of the 98 incidents reported, crocodiles were responsible for 32 (32.7 %) of the incidents reported, while hyenas caused 23 (23.5 %) of incidents. Other wildlife included leopards which caused 22 (22.4 %) incidents, while lions were responsible for 21 (21.4 %) of incidents. The conservancy game guard records show that leopard incidents have increased linearly between 2003 and 2005. However, other species such as hyenas, lions and crocodiles showed no particular pattern. Anecdotal evidence for a linear increase in leopards within the Kwandu Conservancy suggests that it is because the population is growing as well as improved record keeping by the community.

From the event book system, crocodiles, hyenas and lions are a persistent problem in the Kwandu Conservancy. Hyenas and lions have been responsible for taking livestock out of kraals during the night, while crocodiles pose a serious threat to local community livestock that reside in the vicinity of the Kwando River and Bwabwata National Park.

When the community were asked about the role of Community Game Guards (CGGs) and the Ministry of Environment and Tourism (MET) in resolving human-wildlife conflicts, many respondents (62.9 %, n =22) stated that the MET has no role. Another 17.1% (n =6) of respondents had no idea about the role of MET since the inception of the conservancy. Finally, 20 % (n=7) of respondents associated the MET role to that of community game guards except that the MET makes the final decision on whether the animals reported will be eradicated. In addition, they suggested that MET give permission to the conservancy to offer problem-causing animals to professional trophy hunters, that they record complaints from the community, help remove problem-causing animals from the fields, and help educate the community on how best to protect their property from wildlife.

The role of community game guards was found to be extensive. Out of the total of 35 respondents 74.3 % (n =26) stated that community game guards record incidents when reported to them, chase problem-causing animals from the community fields by helping the community with drumming, shouting or shooting in the air to scare crop raiding species, assess or verify the livestock killed for compensation, and keep records of crop damage.

The other 25.7 % (n =9) of the respondents stated that community game guards are not doing anything to minimise human-wildlife issues.

4.4 Preventative mechanisms deployed by communities to reduce crop and livestock losses

Various answers were given when communities were asked about the methods they use to prevent crop losses from crop raiders, however, they were also quick to point out that the methods are not effective when they are not applied in combination, as they assume that wildlife have become habituated to the single application of each techniques. As respondents were asked to mention the various methods they use without limitation, the percentage was calculated from the total responses given rather than from the total respondents (interview participants). The results show that most members preferred drumming (26 %), followed by the new technique of chilli coils/bombs (16.2 %), and cracking a whip to imitate a gunshot (13.8 %). Other methods included lighting a fire around the field (11.3 %), guarding or patrolling the field (7.5 %), using watchtowers at designated points (6.3 %), hanging tins on fences around the field to make noise when the animals attempt to enter the field (6.3 %), digging trenches to prevent hippopotamus, bush pigs, and sometimes elephants to enter the fields (3.8 %), shouting or making noise (2.5%), and forming human statues to deceive the animals (2.5 %). Interestingly, 3.8 % of the community do not use any methods to prevent wildlife damage.

In contrast to crop losses, communities do not use many preventative mechanisms to avoid livestock losses. Herding livestock during the day is the preventative approach used most by communities (52.2 %). This approach not only deters predators but also prevents livestock from entering neighbours crop fields. In addition, most of the responses indicated that an effective kraal be used for livestock at night (21.7 %). Lighting a fire around the kraal at night helps the chase of predators (17.4 %), while a passive approach was the reporting of incidents to the community game guards (6.5 %), and shouting or making a noise to alert wildlife of their presence (2.2%).

4.5 The Kwandu Conservancy's respondents level of tolerance towards problem causing animals

To test the tolerance of Kwandu Conservancy members towards problem-causing animals, the research used three degrees of threat and then asked their preferred management strategy. When respondents were asked about the best management strategy to deal with a problem-causing animal simply sighted in the area, 43.8 % (n=14) of participants indicated that they would want the animal to be monitored, while 40.6 % (n =13) preferred that the problem-causing animal be captured and relocated. Only 15.6 % (n =5) of respondents indicated that they would want the problem-causing animal to be destroyed.

The preferred management strategy for problem-causing animals that kill livestock or destroys crop fields was the destruction of the animal (56.2 %, n = 18). For monitoring, or the capture and relocation of animals, 21.9 % (n = 7) of respondents were equally in favour of each.

Tolerance of the community for problem-causing animals such as elephants, lion, and leopard, if they approach a person without attacking, was high. The majority of respondents (53 %, n = 17) preferring that the problem-causing animal be monitored. Respondents who preferred the animal to be captured and relocated made up 31 % (n =10), while only 16 % (n = 5) preferred the animal to be destroyed. On the other hand, for a problem-causing animal that killed a person, no respondent preferred the problem-causing animal to be monitored and only 12.5 % (n = 4) preferred the animal to be captured and relocated to parks where it could be "locked away" from their settlements. Most respondents preferred the animal that killed a person to be destroyed (87.5 %, n = 28).

5 CHAPTER FIVE: DISCUSSION OF RESULTS

5.1 Introduction

A Kwandu Conservancy member faces many problem-causing animals on almost a daily basis. It was against this background that the Kwandu Conservancy together with IRDNC investigated a problem-animal self-insurance scheme for within the Kwandu Conservancy. This compensation was used initially to assess the feasibility of a conservancy funded compensation scheme with the aim of transferring conservancy income to the individual farmers negatively affected by problem-causing animals. In this dissertation, the researcher refers to compensation as *a payment made by the conservancy - the money is drawn from the HACSYS budget and given to members who incurred losses from wildlife after the community game guards have done a thorough verification and determined the species responsible and cause of death.*

The noble idea of introducing a compensation scheme for damages that communities incur by living with wildlife is not a new plan. Compensation for community losses through wildlife have been in discussion for many years. However, due to limited funds and difficulties in fund administration, its implementation was delayed (Jones, 1999). It is hoped that the Kwandu Conservancy has overcome these challenges. The IRDNC has drawn its expertise from CBNRM and introduced the Human Animal Conservancy Self-Insurance Scheme (HACSYS), formerly known as the Human Animal Conservancy Compensation Scheme (HACCS). This scheme is now in operation, although it is still regarded as a pilot exercise in some conservancies, including the Kwandu Conservancy. The scheme recognizes the complexity of human-wildlife conflict and it has its own limitations. Therefore, the scheme does not attempt to compensate the amount equivalent to losses incurred from wildlife, neither does it reduce human-wildlife conflict, but encourages conservancies to introduce preventative measures that do reduce and mitigate problems. The overall plan is to balance individual losses of conservancy members with compensation payments versus collective conservancy benefits generated from wildlife conservation.

In discussing the results, chapter five is organized into the following sections: Community perceptions and understanding on the compensation scheme, human Animal Conservancy

Self-Insurance Scheme's impact on the community livestock, human wildlife conflicts, crop and livestock losses, the influence of location on conflict level, current approaches used by the communities as management practices, new management approaches to reduce damage and the limitation of the study.

5.2 Community perception on the compensation scheme

Human Animal Conservancy Self-insurance Scheme compensates for losses caused by animals that have a high potential tourism value, and generates benefits for conservancies, which are also regarded by communities as causing the most damage (Busihu, pers.comm. 2006). The problem-causing animals that the conservancy compensates for are elephants, lions, leopards, buffaloes, hippopotamus, crocodiles and hyenas. However, a technical report done by IRDNC (2004) in the north-west reveals that in reality significant damage can be done by less conspicuous, but more ubiquitous species including bush pigs, rats, birds and insects.

It has been well documented that human-animal conflicts are particularly acute, as the farming community has no final decision on the translocation or killing of animals that are not declared a problem (Jones, 1999; Orford, 2002). This makes the community defenceless and it is difficult to prevent crops and livestock being plundered by animals (Orford, 2002), as it is unable to be acted upon because the conservation ordinance prohibits animal like lions to be killed, unless they are declared as problem causing animal (Mulonga *et al.*, 2003). While buffaloes and elephants are responsible for crop losses, these animals are feared more than others and often receive the greatest amount of blame. In isolated incidents, they pose an apparent threat to human life, but sometimes they get blamed due to their frequent appearance in the area. Although officials that are responsible for overseeing the implementation of the compensation scheme emphasise that compensation is not a solution to human-wildlife problems, they suggest that it is still a good plan to help communities who lose their livestock or crops, to survive. From interviews, 70.4 % (n = 19) of respondents were not satisfied with the scheme and claimed that it does not pay a sufficient amount to help relieve the cost deficit inflicted by wildlife. However, this is done in order to make farmers more responsible for their farming practices (Busihu, pers.comm. 2006) given that the value of their loss is likely to be higher

then the compensation payout. Communities awaiting their claims criticize the system on a similar scale to those who were told that their claims were rejected. Further, the research show that delays in payouts and provision of feedback on rejected claims tends to increase the emotional losses suffered. This defeats the noble idea of HACSYS to ease negative impacts inflicted by wildlife on the community and delays the community “buy-in” to support problem-causing animals.

To avoid the emotional losses suffered by communities awaiting the status of their claims, the conservancy should apply the elements of a successful compensation scheme as suggested by Nyhus *et al.*, (2003):

- ***Quick and accurate damage verification:*** In the case of the Kwandu Conservancy, it would be a good idea to increase the number of community game guards to reduce the vast distances that the CGG have to travel to arrive at the scene. This will allow a faster assessment of evidence associated with the problem-causing animal, including the investigation of spoor before it disappears. However, additional CGG’s means additional expenses from the conservancy if they employ more CGG’s.
- ***Fair payment:*** Compensation payments within the Kwandu Conservancy should be assessed in a fair and transparent manner at all times. Interview participants indicated that payments are not sufficient to relieve the burden borne by the community co-habitating with wildlife. However, those who are aware about the HACSYS acknowledged that no person received more money than others regardless of your position in the community.
- ***Sufficient and sustainable funds:*** The conservancy fund for compensation is sustainable if manage efficiently, because trophy hunting will continue as long as there is wildlife. However, the inefficiency of the conservancy to manage the fund properly resulted in the backlog of unpaid claims worth N\$ 8800-00. The failure of most compensation schemes is attributed to lack of sustainable funds and proper management (Bulte and Rondeau, 2003). These factors often result in inadequate payments, or rejection of valid compensation claims merely because of limited funds available.

It is important that the conservancy committee realizes there will always be members who will be unhappy about the amount of money paid as compensation. However, currently the dissatisfaction of members may be justified due to the small fraction of payment made for their livestock losses. Nyhus *et al.*, (2003) stated that compensation for wildlife damage is often controversial because it is often difficult for the claimants and the responsible committee to agree on how much is sufficient and fair.

Shrinking habitat areas for wildlife poses another problem for the conservancies. As a result of habitat loss, wild animals lose their homes and stray into open areas where they are constantly in conflict with local rural communities. Similar findings were reported by Kasaona, (2002) who conducted a study within the Salambala Conservancy and shows that decrease in wildlife habitats leads to inadequate food availability. Under these circumstances, wildlife ventures out of fragmented habitats in search of food and inadvertently prey on domestic livestock (Orford, 2002). The most logical solution to this problem is the zonation of conservancies to provide wildlife corridors and the provision of self-insurance schemes such as the HACSYS, which are managed by the conservancies themselves with the contribution from IRDNC. However, the trial of the scheme has produced mixed results as the delay in payments has angered communities and the situation was further worsened by the time the conservancy took to generate sufficient money to compensate. Currently there are eleven claims, each worth N\$ 800-00 (total amount to be paid N\$ 8800-00), that have been approved but not yet paid. If these trends continue, the conservancy will have a backlog of unpaid but approved claims. As one (Focus Group Discussion, 2006) summarised, *“review panel procedures are very lengthy and most of the time it does not materialize quickly to serve the purpose of reducing the immediate negative impact inflicted by the problem-causing animal on the affected member. After all, the amount of money paid is not even a fraction of the market value of the livestock killed”*.

From the above, the pilot compensation practice has not generated a sense of peaceful co-existence amongst humans and wildlife. However, the situation is getting better than it was in Caprivi in 1989/90 when people were so hostile to wildlife that they threatened to burn down MET houses; a man was shot under the wrong impression that he was MET official (Jacobsohn, pers.comm. 2006). Jacobsohn further stressed that IRDNC points out that they have seen a major improvement in community attitudes to living with wildlife

compared to the start of the CBNRM program in 1990. This is contrary to the questions on tolerance level where 56.2 % of respondents indicated that they would prefer the problem-causing animal to be destroyed when it kills livestock or destroys crop fields. The monitoring of problem wildlife was supported by only 21.9 %, with the same percentage for capture and relocation of the animal. In the case of capture and relocation to a Bwabwata National Park, a difficult problem is posed as this is impractical as Caprivi parks are unfenced anyway and in any case this defeats the purpose of community based natural resource management that was introduced to the conservancy. Wildlife that is responsible for livestock and crop damage are also species that in most instances has the potential as a tourism attraction and would ultimately benefit conservancy members. The capture and relocation of wildlife also poses huge logistical problems as manpower, preparations and the cost involved is too high. (Kasaona, 2002) suggested that the management of problem-causing animals through killing has yet to yield successful results for the affected member of the conservancy. The correct identification of culprits is difficult, and the probability that the problem will reoccur is high.

Based on (n = 8) respondents replies compensation certainly provides some relief to those who lose their livestock, despite the problems that occur. Respondents (n = 27) emphasised a definite need to have the scheme remain in conservancy, but some suggested that the amount paid for cattle be increased from N\$ 800-00 to N\$1000-00 per ox. Interestingly not all the respondents were unhappy, only 70.4 % of respondents demanded the increase. The remaining 29.6 % respondents who were happy with the current amount paid were mainly people who worked in the conservancy, teachers, and those who have next of kin working in the conservancy. Those who were unhappy included unemployed conservancy members and elderly people without jobs of any kind, who are most unhappy with the payment size.

5.3 Human Animal Conservancy Self-Insurance Scheme impact on communities livestock

5.3.1 Management strategies

Given that HACSYS payment is not equivalent to the market value of livestock, the community were asked whether this discourages them from taking proper livestock management strategies because they will be compensated for losses in any case. None of the respondents agreed, with the discussion saying that livestock are used for multiple purposes such as ploughing, milking, transporting goods and during ceremonies. These livestock uses were thought to outweigh the cost of sacrificing the livestock for N\$ 800-00. It is also not worth N\$ 800-00 for an ox or bull. In addition, respondents stressed that management strategies have never changed due to the compensation program. Rather, an increase in wildlife and their fast habituation to current management strategies are the reasons why communities are experiencing high livestock losses.

Respondents who were familiar with HACSYS procedures for compensation stated that certain conditions have to be met before claiming for livestock. These conditions include effective kraaling of livestock at night (Orford, 2002), herding livestock during the day, and ensuring that livestock do not wander or stray into parks or out of the herder sight. Payments will not be made if these conditions are not fulfilled. These findings are contrary to the findings of Nyhus *et al.*, (2003) who state that compensation makes communities less risk-averse. The authors further state that communities are less likely to adopt new or improved management strategies to reduce livestock losses. However, this is not applicable to the HACSYS programme as there are strict conditions and verifications set by the conservancy committee.

The general feeling among CBNRM practitioners is that the major benefit associated with HACSYS implementation is that the program increases community tolerance toward wildlife. In a past study, it has also been suggested that it promotes a positive attitude and support from communities living with wildlife (Kasaona, 2002). However, these positive impacts could not be revealed during this research. This was partially because respondents (n = 19 v n=8) were not satisfied with the amount paid out for livestock losses. Nyhus *et al.*, (2003) state that the problem associated with compensation is that once the program is

in place, failure to meet community expectations may incur the anger of the local community and could worsen committee/member relations. Currently, the assessment of local communities' attitudes towards the HACSYS idea of compensating people for livestock losses has produced mixed results. The scheme's influence on communities to change their perception towards problem-causing animals (to protect them) and to relieve immediate negative impacts, has generally been ineffective. This has mainly been among respondents whose claims were rejected or those with approved claims that had not yet been paid. The respondents who were compensated stated that a fraction of compensation was better than nothing but still hoped that the current amount paid would be increased to N\$ 1000-00 per ox and paid immediately after quick verification of the livestock loss. In support (Jones, 1997; IRDNC, 2004), stressed that a slow shift in economic burden away from communities living with wildlife will not "buy" constructive participation from communities co-existing with problem-causing animals.

5.3.2 Stages of compensation scheme from reporting incidents to compensation payouts

It is inevitable that the claimant has to try and prove to the CGG that their livestock loss was caused by wildlife. Details written in the report include dates, place of incident, cause, and location of the livestock herder during the incident. This is in accordance with the compensation procedures that the claimant must follow to receive compensation. Often these procedures are not followed because the conservancy committee member(s) who have to be present to verify the scene are not available and the community game guards often omit procedures and results required from the claimant.

During the two community game guard focus group discussions held, problems that are experienced from the first to last stages of HACSYS were identified. Possible solutions were generated for each stage:

Problem Animal

Stage 1: Verbal report to community game guard or conservancy committee

Problem: Late report of incidents to the CGG by conservancy members because they look for their animals for 3-4 days before reporting.

Solution: The community should report the lost animal sooner to the CGG



Community Game Guard

Stage 2: CGG investigates the incident where the problem occurred. If no death then fill out the Problem-Animal Report, if not, then fill in the event book.

Problem: CGG's rarely see the evidence because the community reports the incident too late or arrive late at the scene because of the vast distance they have to travel.

Solution: The community should report the incident immediately to the CGG to avoid the disappearance of spoor. The conservancy should also employ additional CGG (only if money is available to pay the additional employee).



Conservancy Committee

Stage 3: On receipt of a Problem-Animal Report, a member of the conservancy committee goes to verify the incident with the CGG

On return the conservancy committee should discuss with other committee members what actions to take.

If the claim is considered valid then the HACSYS claim form can be filled out by the conservancy member who verified the incident

Problem: In most instances the conservancy committee representatives are not available to verify the claims.

Solution: Work in pairs, or select someone to replace the representative if need be.

If the absence of a conservancy committee representative becomes chronic, this should be communicated to other committee members and as a warning to that member.

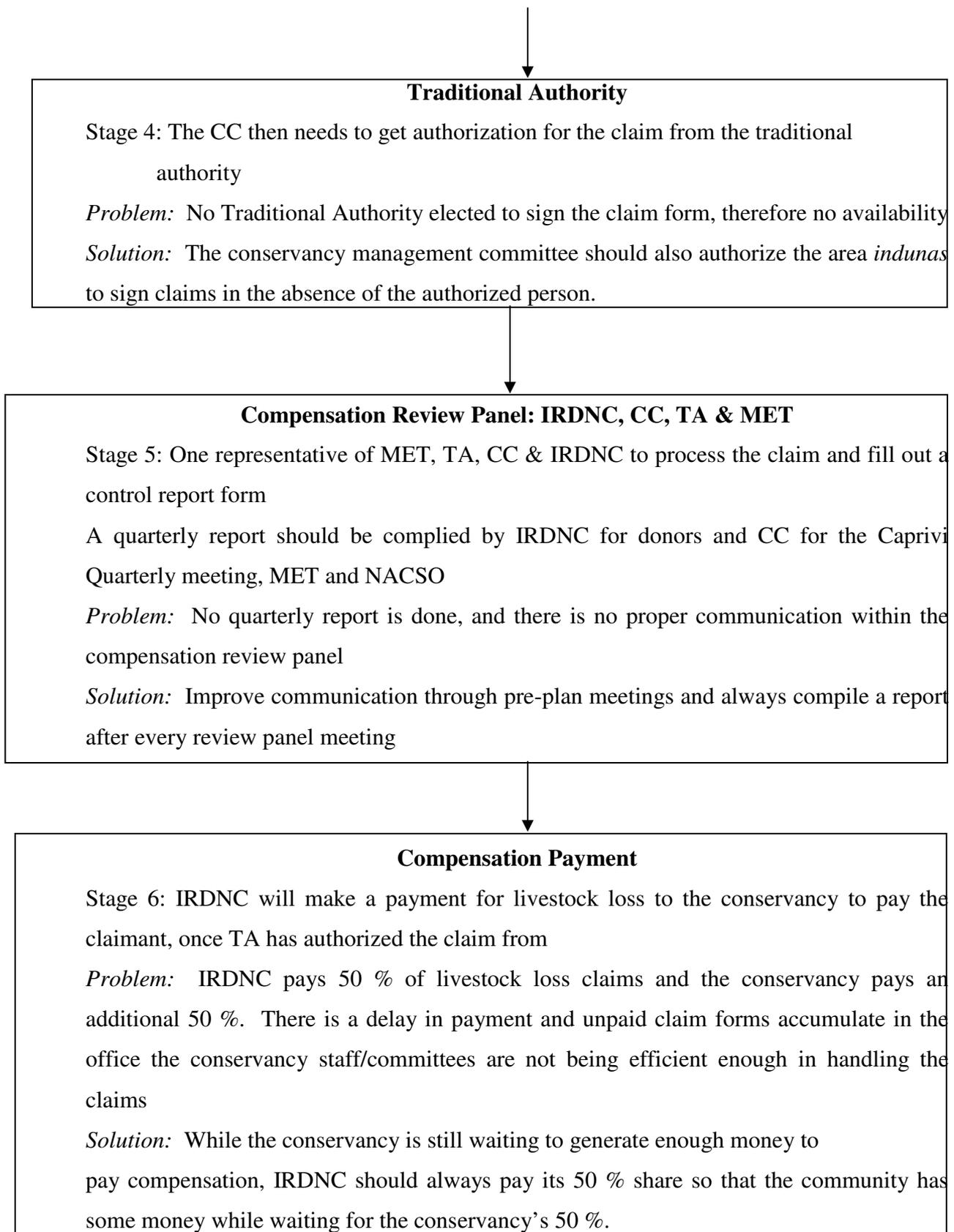


Figure 1: Stages of compensation Scheme

According to the Focus Group Discussion (2006) the delay in assessing damages caused by problem-causing animals is a result of the inadequate number of CGG's and improperly trained officials, which could impede accurate verification of damages. During this

research, respondents whose claims were approved but not yet paid were as equally critical of the scheme as respondents who filed for compensation but had their claim forms rejected. There was uncertainty from claims in 2004 as some were forfeited (gap period) because the person who was dealing with claims resigned from his job. An interesting finding is that there was little difference in tolerance of communities to problem causing animals between individuals who had received compensation to those with rejected or approved claims. A slight difference was that respondents who had been compensated were less critical of the scheme and of problem-causing animals. These respondents supported the monitoring of problem-causing animals when sighted in the area. In contrast, those with rejected claims and approved claims suggested that the best management strategy is to capture and relocate, or destroy the problem-causing animals.

During focus group discussions and face-to-face interviews, respondents were asked about common problems that impede the successful operation of the HACSYS program to meet their demands. Most of the factors were determined from community game guards and individual respondents who had extensive knowledge of the scheme's operation. Although CGG's are aware that the scheme is not there to solve human-wildlife conflicts but to reduce the burden of wildlife problems inflicted on affected communities, they felt the scheme has not yet been effective in its approach, but this could be attributed to human inefficiency.

5.4 Human wildlife conflicts

Human-wildlife confrontation is, and will always remain, a challenge in the Kwandu Conservancy because people and wildlife live together. In addition, the conservancy and neighboring parks are unfenced, and free roaming game within or from Bwabwata National Park are attracted to "easy" prey (livestock) and various types of crops farmed by the communities. Incidents are significantly higher among communities who live near rivers and adjacent to the park (Bwabwata National Park) (Focus Group Discussion, 2006). The Focus Group Discussion further stressed that, wildlife within the unfenced state protected park roam freely into the conservancy and wildlife within the conservancy has increased due to the protection of wildlife by both Conservancy Game Guards and the Ministry of Environment and Tourism. This contributes to increased crop or livestock damage by wildlife. During focus group discussions, it was evident that local people have

become more tolerant or have improved their general acceptance of problem-causing animals, as indicated by the preference for monitoring 43.8 % (n = 14). However, human-wildlife conflicts may affect individual households negatively through their crop losses or livestock damage to wildlife (Focus Group Discussion, 2006). This argument was supported by Mulonga *et al.*, (2003) who estimated the percentage of crops lost to wildlife in two conservancies, represented 18 % and 22% in the Mayuni and Kwandu Conservancies, respectively. This represents an average annual household income for the region. In addition, Halstead (2002) stated that if tangible benefits are not seen by communities, the increase in wildlife numbers and associated problems could reverse the community's perception towards natural resource management and conservation.

5.5 Crop and livestock losses

During this research, elephants had the highest crop incidents (40 %). When the research survey was cross-checked with the data collected by community game guards in their event book, elephants were still responsible for the highest number of crop raiding incidents. It is difficult to quantify the loss value of crops by raiders as the community does not necessarily associate the animal with the value of the damage but sometime base their blame on the frequency of that particular animal to invade their field.

All respondents reported that they had experienced both livestock and crop damage from problem-causing animals. Kasaona (2002) defined a problem-causing animal as an animal that is not managed and that causes loss of life, damage to property or leads to negative feelings towards wildlife. In the Kwandu Conservancy, apart from the elephant other crop raiders such as the bush pigs had 33 %, followed by hippopotamus (16 %), monkey/baboons (6 %), duiker (3 %) and lechwe (2 %). These claims were not verified and they may have been exaggerated as communities had difficulty in remembering crop raiders that had destroyed their fields. However, the incidents record from the community game guard event books showed a similar trend of incidents with elephants being the major crop raiders (30.2 %, 445 out of 1508 incidents), followed by bush pigs (29.8 %, 449 of 1508 incidents). Other species such as hippopotamus and antelopes each had 12.7 %, followed by porcupine (7.5 %) and monkeys/baboons (7.2 %).

The percentage of respondents who used chilli as an elephant deterrent in their fields accounted for 16.2 % only. Among them, only one respondent reported planting chilli to use it as a deterrent as well as for commercial purposes. Those who did not grow chilli said that it was recently introduced to them and that they are interested in planting some provided that they receive training.

Despite the high level of problems experienced by the Kwandu Conservancy, 70.3 % of the respondents replied that in general it is important to have conservancies for the sake of nature conservation. This answer was based on the best management strategy that the community would prefer if a problem-causing animal is either sighted in the area, kills livestock, destroys crop fields, approaches a person, or kills a person. It was also based on whether it is better to monitor, capture and relocate, or destroy the animal. Although the emphasis was on the conservation of predators and crop raiders as part of conservancy objectives, most of these positive responses were followed by the request for quicker, more efficient and increased payments for cattle compensation.

On a positive note, the research revealed that Kwandu Conservancy members are not negligent or ignorant of the importance of conserving natural resources for future use and existence. Instead, they agreed with the concept of sustainable utilisation of resources because monitoring of predators sighted in the area and animals approaching a person indicated the tolerance of the community towards wildlife conservation.

5.6 The influence of location on conflict level

Human-wildlife conflict within the Kwandu Conservancy will never be completely eliminated because of the proximity of communities to the Bwabwata National Park. Some sections of the conservancy coincide with sharp transitions in land use patterns between wildlife habitats and the communities, while some areas within the conservancy are known as elephant's corridors (*pers obs.*). Therefore, due to the proximity of the conservancy to the park, communities are encroaching into wildlife habitat and this exacerbates the conflicts. During face-to-face surveys, respondents claimed that wildlife have increased due to community game guards who are protecting wildlife including predators and crop raiders and this has resulted in predators encroaching on human land use. This claim is

contrary to the findings of (Jones, 1997) who stated that due to human population increase, rural residents have started to encroach into pristine wildlife areas and it is this that has increased human-wildlife conflict. This finding is similar to this study in that most of the problems occur where wildlife and humans compete for the same resources. Crocodiles attack livestock at water points, while people are killed by crocodiles when fishing (one incident happened within Bwabwata National Park where a person was killed in 2005). A significant number of respondents who reside in the proximity of a river mentioned crocodile (32.7 %) as a problem-causing animal, while those further away from the river mentioned lion and hyena as the most common. It is important to note that although lions were mentioned throughout the survey, those residing along rivers were more worried about crocodile than lions or hyenas. According to Busihu, (pers.comm. 2006) the obvious reason for human-crocodile conflict arises from the sharing of water. In places where communities have shifted away from rivers the number of the crocodile incidents has declined. This is the case in conservancies such as the Mayuni Conservancy where the shift of communities away from the river has allowed for exclusive hunting and tourist zones.

5.7 Current approaches used by communities as management practices

Human-wildlife conflict has been a chronic problem within the Kwandu Conservancy, as communities have to coexist with many problem-causing animals. Below are detailed preventative and control methods deployed by the communities of the Kwandu Conservancy in their attempt to protect their crop fields and livestock from problem-causing animals. Most of the preventative methods used by the communities are non-lethal. However, it is only a matter of time before those who are in possession of firearms may be tempted to use them to kill if proper management strategies to deal effectively with problem-causing animals are not found.

5.7.1 Beating drums and shouting

Although most respondents acknowledged that beating drums is unsuccessful in deterring crop raiders, 26 % of participants still use this method. They use it in combination with shouting to scare animals from the field. However, some felt that this method has become

risky, as animals have become habituated to the method. For example, elephants tend to charge people who are beating drums and shouting (n = 3).

5.7.2 Noisemakers, cracking a whip and watchtowers

Most people acknowledged that the use of noisemakers helps to deter wildlife. This is especially so if there are many people who surround the crop field. People normally shout in the direction that the crop raiders are approaching from, whilst many crack whips (13.8 %) to imitate a gunshot and then chase the animals off their field. This method was preferred because it is less expensive for communities who exclusively grow crops for subsistence use. Another method is for people to sleep in a watchtower and alert others by making a noise or cracking a whip (Nelson *et al.*, 2003). Respondents emphasized that the effectiveness of noisemakers is high, but time consuming (2.5 %) and that animals have become habituated to the technique. However, well-organized watchtowers stationed at different points around the field could yield successful results.

5.7.3 Lighting fires around crop field and shooting in the air by the community game guards

Some respondents (11.3 %) acknowledged that they use the method of lighting fires to deter both predators and crop raiders. Research done by Nelson *et al.*, (2003) reveal that most wildlife avoids fire and do not enter a crop field if burning is happening at their entrance point. It is therefore surprising that more people do not use this method. However, it was felt that the collection of material for burning is not only a time consuming process, but also risky given that dangerous snakes inhabit branches. In addition, it is very difficult to obtain sufficient branches or firewood for burning around the field as there are none in the vicinity and the fire would need to burn all night to be effective. Conservationists also see this practice as contributing toward habitat fragmentation and destruction.

The firing of shots into the air over crop raiding elephants and chasing them from the field has been used with limited success. Unfortunately, elephants have become habituated to the sound of the gun and no longer respond (Focus group Discussion, 2006).

5.7.4 Hanging tins on fences and erecting human statues

Some respondents (6.3 %) had fenced their fields and attach tins to alert the owner of intruding animals. When the intruding animal touches the tins on the fence, the tins make a noise. This method was mostly used to scare bush pigs from entering the field. The community acknowledged that the problem associated with the tin method is that bush pigs have habituated to the noise. It can also be ineffective in that the noise sometimes scares the pigs further into the field rather than making them leave. It is then difficult to get them out.

The approach of using human statues to mimic human presence in the field was not widely used with only 2.5 % (n = 2) of respondents mentioning it. Once again, this method is no longer successful because wildlife has become accustomed to it.

5.7.5 Trophy hunting by professionals hunters and the shooting of problem animals

To determine the fate of a problem-causing animal, the community reports the incident to the community game guards who in turn report to the conservancy committee. Thereafter, the conservancy committee reports to the Ministry of Environment and Tourism (MET) in Katima Mulilo. The MET then determines if the problem-causing animal can be destroyed. This method is accepted by MET as a way of reducing human-wildlife conflicts in various conservancies including the Kwandu Conservancy. Animals normally controlled through shooting are mainly elephants, lions, leopards, hyenas, crocodile, hippopotamus and buffalos. Interestingly, although bush pigs are responsible for a high number of crop incidents, the community claim that this species is never controlled by MET or the conservancy and that the bush pigs therefore continue to inflict damage on crop fields. Another approach that communities identify as common is the allocation, by the conservancy, of problem-causing animals to professional trophy hunters. This approach does not only eradicate the problem-causing animal, but also brings in much-needed cash and meat to the community. This is especially so if elephants, hippopotamus or buffalos are involved.

5.7.6 Use of chilli coils and grease mixed with hot pepper oil

The respondents who use chilli (16.2 %) to deter elephants from destroying crop fields were familiar with the process of making chilli coils (bombs). The community mixes elephant dung collected from the field with dried chilli they obtain from the conservancy and then dry it in the sun. The resulting chilli coil, or bomb, is burnt to release smoke and when inhaled by an elephant causes irritation thus making it run away. Most respondents (14%) thought this method to be highly effective. However, 2.2 % of respondents claimed that the elephants simply bypassed the chilli coils and destroyed their fields. It is thought that in these cases, the chilli coils failed because they were used incorrectly. Chilli coils would be burnt around the field in the evening but the respondents would go back to their homestead and only come back to inspect their crop field for damage the next morning. Therefore, if the chilli coils had burnt out before the arrival of the elephants, there was no actual deterrent present. Another reason could be that the wind was not blowing towards the approaching elephants so that they would not inhale the chilli smoke. This suggests that there is a need for the community to use a combination of chilli with their traditional methods to avoid elephants getting the idea of avoiding the wind direction and destroying crops if there is no wind blowing.

None of the respondents mentioned that they actively used grease mixed (elephant proof fence) [plate 2] with hot pepper oil to prevent elephants from intruding into the community field. It is worth noting that the community are familiar with the procedure, however they showed little interest in it. They claimed that grease is not available to them and they need gloves to mix it. Although, gloves are also required to make chilli bombs in order to prevent skin irritation. Eye irritation can also be a problem when making either chilli bombs or grease/hot pepper oil mixtures.

5.8 New management approaches to reduce damage

5.8.1 Lion and crocodile fences

Many respondents suggested animals to be merely monitored if sighted in the area, if it does not cause any damage. Through newly tested lion-proof fences (Plate 4), communities would reduce the problem of livestock being taken out of kraals at night by

predators. In addition to this idea, better management practices coupled with traditional livestock management techniques such as herding and shouting should not be ignored. Interview participants were not convinced that the change to modern society sweeping across eastern Caprivi contributed to the high number of human-wildlife conflicts. This was originally thought given that in the modern world young boys go to school from an early age, leaving unattended crop fields and livestock wandering in predator territories (O'Connell, 1995).

Most of the livestock deaths in the Kwandu Conservancy were caused by crocodiles (32.2 %) from 2003 to 2005, as determined from the CGG's event book. Therefore, it is important that the conservancy management committee establishes crocodile fences (Plate 1) as has been done in the Kasika Conservancy. Fences should be erected where high crocodile incidents occur. The community should also be advised to use the fenced areas as drinking points for livestock. Those opting not to use the fenced area/drinking points should not be eligible for compensation claims. It is important to have a section on the compensation form to indicate the period of the day when the incident occurred. If the incident happened at night at the river, it could mean that the owner did not use proper livestock management techniques and might not qualify for compensation. In the case of predators such as lions, if livestock is taken out of a kraal that is not lion-proof (lion fencing – to be implemented by HACSIS [Plate 4]), then the community should not be allowed to claim. However, it is important to allow a transition period for the community to look for materials and build the new lion-fenced kraal. This transition period could be one-year.

5.8.2 Synchronising calving of livestock

Predators are often more likely to kill livestock at specific times of the year – e.g. a lioness may kill more cattle when it coincides with her breeding season as cubs may require meat. Therefore, it is important that effective livestock management strategies are deployed during that period. Marker *et al.*, (1999) states that predators like ambushing their prey so as to save energy. Therefore, it is important for Kwandu Conservancy communities to ascertain the pasture and range areas that may have a record of high predation (predator hot spots). This can be determined from CGG's event book system. The area may have dense cover that conceals predators, or the land may be near a water point.

Another possible solution is the use of Anatolian Shepherd livestock-guarding dogs. The dogs have previously been used on Namibian farms as a conservation initiative linked to significant declines in livestock and increased numbers of predators (Marker *et al.*, 2005). A similar initiative could be replicated in the Kwandu Conservancy, although it would require a significant investment of skills to train the dogs and raise them. Time and money to implement such a project would also be required, as well as commitment and dedication from people receiving the dogs. Guarding animals are not a fix-all solution (Marker *et al.*, 2005), as dogs require considerable attention and training, as well as veterinary care and a specific diet (Schumann, 2003). They are also unlikely to prevent all attacks (Linnell *et al.*, 2001, Orford, 2002), especially those caused by the largest predators.

Synchronised birthing is also an effective method for minimizing losses of livestock to predators. The penning or kraaling of livestock during birthing can reduce losses significantly (Marker *et al.*, 2003a, Marker *et al.*, 2003c). This technique is possible given that most livestock are herded during the day and it can easily be determined if any livestock are soon to give birth (Orford, 2002, Marker *et al.*, 2003b). However, this intensive husbandry may require additional labour which may be difficult for households headed by females or old pensioners.

5.9 Limitation of the study

The researcher experienced some logistics and cultural problems, some of the members could not be located due to the vast distances involved and some were outside the region and could not be interviewed. It was also difficult to collect information on sensitive topics and there were cultural and lifestyle issues to consider. For example, a respondent who had lost a child due to an elephant could not openly talk about it as they said it was like “opening an old wound”.

A number of inconsistencies arose as a result of asking similar questions but in a slightly different manner. Some questions were also misinterpreted or mistranslated during the survey. For example, when respondents were asked about problem-causing animals responsible for their crop/livestock losses, they generalized, e.g. mentioned animals responsible for their neighbor’s crop/livestock losses rather than their own. Misunderstandings and clarity of information were often resolved through follow-up

questions. When answers from respondents demonstrated that they did not comprehend the intended meaning of the question, data were excluded from the analysis. Data were also excluded for questions where individuals felt uncomfortable in answering or the question was irrelevant. Respondents often appeared hesitant when asked about the best management strategy for controlling problem-causing animals, especially when their preference was “destroy”. The folklore and superstition played some role in shaping attitudes towards answering these questions. For example, some respondents believed that if a person mentions destroying animals such as elephant, lion, leopard and crocodile, that the animal will haunt him/her at some point. Others had a fear that the Ministry of Environment and Tourism (MET) would hear that they wanted to kill animals and they would be jailed by MET. It should be noted however, that all participants were informed that their information would be confidential, prior to the commencement of the questionnaire. None of the respondents suggested killing the animal in retaliation. However, this is likely to be due to circumstantial constraints rather than innate tolerance.

Although the researcher acknowledges the inconsistencies that may have arisen, they were not significant enough to invalidate the mini-dissertation findings. In addition, a survey of this nature leads to an understanding of real life situations and provides insight into the types of intervention that may be appropriate in an attempt to integrate conservation and human activities (Orford, 2002).

6 CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 The Human Animal Conservancy Self-Insurance Scheme

The primary aim of this research was to assess the level of community understanding of the HACSYS program. The research revealed that 74.3 % of Kwandu Conservancy members are familiar with HACSYS operations and its existence. In contrast, 17.1 % of respondents claimed that they had no idea about the scheme or its role, and 8.6 % claimed that they had heard of the scheme but had no knowledge about its role. Those who knew about the existence and operation of the scheme stressed that the process of reviewing claims for compensation is a lengthy process.

The Kwandu Conservancy's compensation scheme has limitations similar to other compensation schemes researched by (Bulte and Rondeau, 2003; Blanco, 2003). Within the Kwandu Conservancy, two major limitations have been identified:

- Compensation payments for livestock killed by problem-causing animals are set at a fixed amount. The amount is not equivalent to the market value of livestock killed and does not ease wildlife burden. This size of compensation could do little to encourage the community to support problem-causing animal within their conservancy. Problem-causing animals such as elephants, lions, leopards, hippopotamus and crocodiles, (Focus Group Discussion, 2006) are perceived in a negative manner.
- There is an absence of sufficient funds to cover all claims. Currently, eleven claims are approved but not yet paid. The focus group felt that although this is hopefully a one-off, if it starts recurring it would be difficult for the conservancy to sustain compensation payments.

A community-based approach to wildlife management strives to alter behavior and practices to ways that conform with the attainment of predetermined conservation and community development goals. There is a high emphasis on the compensation review team to focus on the formalities of claim forms rather than the content. For example,

disqualifying a person if the incident was not reported within one day. One becomes pessimistic about whether the scheme will work by relieving community burden from wildlife damage given that the claim process is so difficult for a community.

Although the issues of procedures and transparency are equally as important as compensation payouts, a better process of scrutinizing claims is highly recommended. This could be made possible if one individual person is based at the Kwandu Conservancy office and goes through all claim forms with community game guards that investigated the scene. This would reduce the unnecessary rejection of claim forms based on minor technicalities. In addition, this will prevent the claim form being sent back and forth before being either rejected or considered (Focus Group Discussion, 2006). This approach is necessary because lack of compensation or a delay in pay-out causes animosity against the protection of problem-causing animals in the Kwandu Conservancy. Explanations as to why claims are rejected are also required. Conservancy committee needs to meet to determine best way of managing scheme, ways to expedite claims and processes.

Before a second pilot phase compensation starts for crop damage, livestock compensation needs a thorough review and the issues highlighted in this mini-dissertation require attention. It is beyond the scope of this report to outline detailed plans for crop compensation. However, below are some suggestions and recommendations that the conservancy committees should consider when implementing the crop compensation scheme:

- Compensation needs to have an acceptable well thought-out formula (method).
- Damage caused to crops by wild animals such as hippopotamus, bush pigs, and elephants is very complex. On-the-spot inspections and assessments of damage by community game guards are required to avoid numerous complaints and bogus claims. The community game guards to be entrusted with such a responsibility need to undergo extensive training on the assessment of crop damage and should be consistent with their assessments.
- Compensation procedures should be reviewed. Alternatively, people entrusted with the responsibility of reviewing claims should undergo training. Compensation must

be paid immediately and without hindrance, as the main purpose of the scheme is to relieve the immediate burden suffered by the community as a result of wildlife damage.

- A very important field technique that would greatly assist in reducing human-elephant conflict is to grow chillies around crop fields as currently being done by some respondents. This approach will not only increase the amount of chilli available, it may also be used in chilli coils. Excessive chilli supplies could be sold to supplement local community income.

6.2 Human wildlife issues

Part of this research also focussed on human-wildlife interactions. In the Kwandu Conservancy, conflict between wildlife and the community is intense because the livestock and crops that are destroyed are highly important for the community's livelihood. In addition, wildlife such as crop raiders (elephants and hippopotamus) not only damage crops, but are a potential threat to the lives of people within the community. Overall, human-wildlife conflicts cause economic and social costs to the community as well as to undermine their welfare and safety. The Caprivi region is the poorest region in Namibia (Weidlich, 2006) and the loss of food through crop raiders could deepen poverty in both the Kwandu Conservancy and the Caprivi region as a whole. In addition, livestock predation contributes to loss of potential stock for reproduction and the community's vulnerability to poverty is therefore increased even further.

The conservancy is not fenced and wildlife moves freely between the conservancy and the bordering Bwabwata National Park. From the event book system on wildlife incidents, the Kwandu Conservancy reported 1508 incidents of damage to crops by wildlife between 2003 and 2005. Of these, 30.2% of incidents were caused by elephants on crop fields. Only 98 incidents of predation on livestock were reported by the community game guards.

Human-wildlife conflict is multifaceted and the traditional methods of controlling it are often ineffective because problem-causing animals are habituated to the techniques (Sutton, 2001). However, the community can reduce the damage caused to crop fields by using feasible practical measures such as consolidating the crop field of each village into

two big crop fields. It is also important to relocate human settlement and agricultural activities away from wildlife corridors (Nelson *et al.*, 2003). The community should also be encouraged to change its cropping regime, e.g. growing crops such as chillies which will do better because they are not eaten by elephants.

The concept of community based natural resource management is that it binds the community to wildlife so that they can coexist in harmony. Therefore, the community should not encroach or expand into remaining wildlife habitats. A good idea is for the conservancy to demarcate exclusive zones for wildlife conservation purposes.

Compensation schemes do not solve human-wildlife conflict but are aimed at easing the burden borne by communities affected (Focus Group Discussion, 2006). Nyhus, *et al.*, (2003), argue that compensation schemes are often financially unsustainable if not properly implemented and it is difficult to manage and verify claims lodged by communities. In support of this, eleven claims (worth N\$ 8 800) were approved but not yet paid because there was no sufficient money available. Currently, there are new claim forms that are waiting to be approved but dates have been postponed in the hope that existing approved claims will be paid. However, the conservancy has not yet accumulated sufficient money to pay out the compensation claims.

During focus group discussions some members viewed HACSIS as a clever public relations ploy that is aimed at protecting wildlife, while communities carry on bearing the cost of living with wildlife.

Although wildlife and tourism can provide diversified opportunities (income, option values, skills), in uncertain environments the extent of those opportunities seems not to outweigh the damage incurred from crop and livestock losses (Focus Group Discussion, 2006). Therefore, adopting wildlife and tourism as a pillar of community conservation and neglecting the importance of livestock and crop farming would be a “suicidal mistake”. As one of the Focus Group Discussion, (2006) participants put it, *“designating a prime grazing area as a wildlife exclusive tourism zone area or wildlife corridor could be interpreted by some of our residents as a denial to better grazing or fertile soil for cultivation”*. In contrast, the same participant acknowledged during the group debate that human settlement patterns allow little mobility for wildlife to move without interfering

with community activities since wildlife habitats are shrinking with every growing season when communities clear existing fields or abandon old ones because of nutrient depletion in the soil.

This research also reveals that human-wildlife conflict management strategies used by the Kwandu Conservancy are ineffective. Some strategies are wrongly applied, as was the case with chilli, the incorrect application of chilli coils by some respondents is a problem that needs addressing in the Kwandu Conservancy. Chilli coils would be lit in the early evening and the residents would then go home and leave the field until the next morning. These are incorrect application of chilli coils therefore, education and follow-up training on the use of chillies is highly recommended within the Kwandu Conservancy. Some of these methods such burning has secondary conservation impacts in the long run. The burning of fire at the edge of field entrances means the collection of many tree branches to keep the flames burning. This practice clears habitat for small micro-organisms and expands habitat fragmentation. Communities have preventative measures in place but lack techniques to improve their existing methods to manage livestock and crops. The repeated use of single traditional method to prevent losses has also failed given that wildlife have become habituated to the techniques, therefore multiple or combination have been suggested as producing better result. Ineffective methods when used without combined with other methods include shouting and the beating of drums because this practice has been used for centuries and crop-raiders have habituated.

From discussions, it seems that Kwandu Conservancy members are willing to protect and co-exist with problem-causing animals if the benefits of wildlife outweigh the costs of living with the animals, and if wildlife destruction could be significantly reduced. Therefore, the researcher suggests that the effective conservation of problem-causing animals should be combined with the effective management of risks that are imposed on the lives of Kwandu Conservancy members.

The HACSYS program has not adequately reduced the impact of wildlife felt by the communities to change their perception towards problem causing wildlife protection. Its implementation requires urgent improvement if negative perceptions towards problem-causing animals are to be diverted or minimized. Furthermore, compensation is not a core solution to human-wildlife conflict. Compensation needs to be incorporated into a more

comprehensive approach that includes traditional methods of controlling livestock and crop damages, proactive measures, and testing of new preventative methods introduced by IRDNC such as chilli bombs (Plate 3) and crocodile and lion fences (Plate 1 and 4 respectively). Importantly, these methods will need to be rotated to avoid problem-causing animals to become habituated, while new methods are explored. Unless human-wildlife conflict is significantly reduced within the Kwandu Conservancy, the area could degrade to “*survival of the fittest*”. Both human and wildlife populations are increasing rapidly whilst the habitat for wildlife is shrinking because of human encroachment.

Finally human-wildlife conflicts certainly exist and it is detrimental to the livelihood of communities who lose their livestock, crops, or in a worst-case scenario, their relatives. Therefore, future research should entail the question of the extent of power and responsibility that should be entrusted to local communities to halt negative impacts as well as to maximize positive impacts. If power and authority are entrusted to the local community to manage wildlife and make final decisions, will it be sustainable? How will the Kwandu Conservancy fare amidst human-wildlife conflicts? Will the conservancy members show tolerance to problem-causing animals given that the benefits generated are not yet enough at the household level to offset the damage caused? These are important and interesting questions for academics in the eastern Caprivi and the whole of Africa.

References

- Barnes, J. I., Cannon, J. and Morrison, K. 2001. Economic returns to selected land uses in Ngamiland, Botswana. Unpublished paper, Conservation International.
- Barnes, J. I. and de Jager, J.L.V. 1995. Economic and financial incentives for wildlife use on private land in Namibia and the implication for policy. *DEA Research Discussion Paper 8*. Windhoek.
- Bergin, P. 2001. Accommodating new narratives in a conservation bureaucracy: TANAPA & Community conservation. In: Hulme, D and Murphree, M. 2001. African wildlife and livelihoods: *The Promise & Performance of Community Conservation*. Oxford: James Currey.
- Blackie, R. and Tarr. P. 1999. Government policies o sustainable development in Namibia. *DEA Research Discussion Paper 28*. Windhoek.
- Blanco, J.C. 2003. Wolf damage compensation schemes in Spain. *Carnivore damage Prevention News*, 6, 7-9.
- Bulte, E.H. and Rondeau, D. 2003. Compensation for wildlife damage: Habitat conversion, species preservation and local welfare. REPA Working Paper 2003-01, Revised April 7, 2004.
- Busihu, B. L. 2006. Personal Communication. Community understanding on HACISIS and the impact of human wildlife interactions. HACISIS, Implementing officer. IRDNC-Katima Mulilo.
- Emerton, L. 1999. Balancing the opportunity cost of wildlife conservation for communities around Lake Mburo National Park, Uganda. In Roe, D and Jack, M. 2001. Stories from Eden: Case studies of Community based wildlife management. Evaluating Eden series. Discussion Paper No. 5. London: IIED.

- Focus Group Discussion. 2006. Community understanding on HACSYS and the impact of human wildlife interactions: Community Game Guards discussion Kwandu Conservancy
- Halstead, L. 2003. Making Community-Based Tourism Work: An assessment of factors contributing to successful community-based tourism development in Caprivi, Namibia. M.Env.Dev.thesis. Pietermaritzburg: University of Natal.
- Hulme, D and Murphree, M. 2001. Community conservation as policy: Promise and performance. In: Hulme, D and Murphree, M. 2001. African wildlife and livelihoods. *The Promise & Performance of Community Conservation*. Oxford: James Currey.
- IRDNC, 2004. Community Based Natural Resource Management in Kunene Phase 2. WWF Technical Progress Report. Namibia, IRDNC, Katima Mulilo.
- Jacobsohn, M. 2006. Personal Communication. Community understanding on HACSYS and the impact of human wildlife interactions Co-director for IRDNC, Namibia
- Jones, B.T.B. 1997. Parks and resident peoples: Linking Namibian protected areas with local communities. *DEA Research Discussion Paper 24*. Windhoek.
- Jones, B.T. 1999. Rights, Revenues and Resources: The problems and potential of Conservancies as community wildlife management institutions in Namibia. In: Roe, D and Jack, M. 2001. Stories from Eden: Case studies of community-based wildlife management. Evaluating Eden Series. Discussion Paper No 2. London: IIED
- Jones, B. 2001. The evolution of a community-based approach to wildlife management at Kunene, Namibia. In: Hulme, D and Murphree, M. 2001. African wildlife and livelihoods. *The Promise & Performance of Community Conservation*. Oxford: James Currey.

- Kasaona, M.K. 2002. A questionnaires survey to determine the effect of problem animals in Salambala Conservation. Unpublished report. Windhoek: Polytechnic of Namibia.
- Linnell, J.D.C., Swenson, J.E., & Andersen, R. 2001. Predators and people: conservation of large carnivores is possible at high human densities if management policy is favourable. *Animal Conservation*, 4, 345-349.
- Magome, H., Grossman, D., Fakir, S. and Stowell, Y. 2000. Partnership in conservation: The State, Private sector and the Community at Madikwe Game Reserve. In: Roe, D and Jack, M. 2001. Stories from Eden: Case studies of community-based wildlife management. Evaluating Eden Series. Discussion Paper No 9.London: IIED.
- Marker, L., Kraus, D., Barnett, D and Hurlbut, S. 1999. Cheetah survival on Namibian farmlands. Windhoek: Solitaire Press.
- Marker, L., Dickman, A., Schumann, M., 2005. Using Livestock Guarding Dogs as a Conflict Resolution Strategy on Namibian Farms. *Carnivore Damage Prevention News*, 8: 28-32.
- Marker, L.L., Dickman, A.J., Mills, M.G.L., Macdonald, D.W., 2003a. Aspects of the management of cheetahs, *Acinonyx jubatus*, trapped on Namibian farmlands. *Biological Conservation*, 114: 401-412.
- Marker, L.L., Muntifering, J.R., Dickman, A.J., Mills, M.G.L., Macdonald, D.W., 2003b. Quantifying prey preferences of free-ranging Namibian cheetahs. *South African Journal of Wildlife Research*, 33: 43-53.
- Marker, L.L., Mills, M.G.L., Macdonald, D.W., 2003c. Factors Influencing Perceptions and Tolerance Toward Cheetahs (*Acinonyx jubatus*) on Namibian Farmlands. *Conservation Biology*, 17: 1-9.

- MET, 1995. Namibia's environmental assessment policy for sustainable development and environmental conservation. Ministry of Environment and Tourism. Windhoek.
- Mosimane, A.W. 1998. Local knowledge of Natural resources in rural Namibia a case study of Salambala Conservancy in Eastern Caprivi. M.Env.Dev. thesis. Pietermaritzburg: University of Natal.
- Mulonga, N., Suich, H. and Murphy, C. 2003. *The conflict continues: Human Wildlife Conflict and livelihoods in Caprivi*. Draft Research Discussion Paper. Directorate of Environmental Affairs. Windhoek.
- NACSO, 2004. Namibia's communal conservancies: a review of progress and challenges. NACSO, Windhoek. Cape Town: Creda Press.
- Nelson, A., Bidwell, P. and Sillero-Zubiri, L. 2003. A review of human elephant conflict management strategies. People and wildlife initiative. Wildlife Conservation Research Unit. Oxford University.
- Nyhus, P.J., Fisher, H., Madden, F. and Osofsky, S. 2003. Taking the bite out of wildlife damage: The challenges of wildlife compensation schemes. *Conservation in Practice*, 4, 37-40.
- O'Connell, K. 1995. East/West Caprivi natural resource monitoring project: elephant/human conflicts. Final Technical Report. Ministry of Environment and Tourism. Windhoek.
- Orford, P.J. 2002. Farmer-related threats to Cheetah (*Acinonyx jubatus*) survival in Namibia. M.Env.Dev.thesis. Pietermaritzburg: University of Natal.
- Purvis, J. 2002. Fish and livelihoods: Fisheries on the eastern floodplains, Caprivi. *DEA Research Discussion Paper 52*. Windhoek

- Rodwell, T.C., Tagg, J. and Grobler, M. 1995. Wildlife Resource in the Caprivi, Namibia: The result of an aerial census in 1994 and comparison with past surveys. *DEA Research Discussion Paper 9*. Windhoek.
- Schiffer, E. 2004. How does community based natural resource management in Namibia change the distribution of power and influence? Preliminary findings. *DEA Research Discussion Paper 67*. Windhoek.
- Schumann, M. (Ed.), 2003. Guide to Integrated Livestock and Predator Management: CCF RISE Namibia Communal Conservancy Shepherd Training Course Proceedings. Windhoek: Cheetah Conservation Fund.
- Seslar S, D., Collinson, R. and Long, S.A. 2000. Evaluation of community based natural resource management Kunene, Namibia. Windhoek: Integrated Rural Development & Nature Conservation & Worldwide Fund for nature –United Kingdom.
- Sutton, W.R., Larson, D.M. and Jarvis, L.S. 2002. A new approach to contingent valuation for assessing the costs of living with wildlife in developing countries. In world Congress of Environmental and Resource Economics, June 28 Monterey, CA.
- Sutton, W.R. 2001. The economics of elephant damage in Namibia. PHD dissertation. Davis, University of California.
- UNDP, 1996. Namibia Human Development Report 1996. Windhoek: United Nations Development Programme.
- Weidlich, B. 2006. Caprivi the poorest region in Namibia. *The Namibian Newspaper*, 21. (134): 9

Appendix One: Research questionnaires

Name of the Village:.....**Date:**.....

Gender...M.../...F...

Kwandu Conservancy:

Human wildlife Conflict questionnaires:

1. *Name (maximum 3 animals responsible for livestock and crop losses)* animals that cause the most losses to your livestock, crops etc? List them in order of animal that contribute to high loss to low loss contributing animals

Animals responsible for crop losses

.....
.....

Animals responsible for livestock losses

.....
.....

2. What kinds of losses do these problem animals cause?
3. What measures do you apply to prevent them from destroying property (preventative mechanism)?
4. How well do these prevention methods works? What else might help?
5. Choose the most appropriate management strategy

If the problem-causing animal is sighted in the area

Monitor, capture & relocate, destroy the problem-causing animal

If the problem-causing animal kills livestock or destroy crop

Monitor, capture & relocate, destroy the problem-causing animal

If the problem-causing animal approaches a person

Monitor, capture & relocate, destroy the problem-causing animal

If the problem-causing animal kills a person

Monitor, capture & relocate, destroy the problem-causing animal

6. What actions do game guards take to help with problem animals?
7. Is the Ministry of Environment & Tourism involved in Human wildlife Conflict's control? If Yes how, if No explain why you think so.

Questions on Chilli use and other traditional methods

1. Do you use chilli to deter elephants from raiding your crop field? If **YES** how often and If **NO** why?
2. Where do you get chilli?
3. How do you use chili? (*Do you apply it when the elephants are in the field, when you hear your neighbor drumming or when you see them outside the field?*)
4. When is the use of chilli more effective? Day or Night, Why?
5. Are there other methods that you use in combination with chilli or is chilli method is effective enough? (Name methods if any).
6. After the use of chilli how many days pass before the elephants enter your field again?
7. Did you receive training on the use of chilli? If yes from whom?
8. Does the use of chilli reduce the crop loss from elephants if **YES / NO** explains in detail?
9. Is there any problem/ health risk that you experience when using chilli? *If so, how can you prevent it*
10. Do you grow chilli to use? Why or Why not? If it isn't provided will you grow your own?
11. What do you suggest should be done to improve the effectiveness of chilli to deter the elephants more effectively?

Compensation scheme:

1. Are you aware of Human Animal Conservancy Self Insurance Scheme?
2. What does HAC SIS in your conservancy do?
3. Are you familiar with the procedures requires to claim compensation? Can you explain them to me?
4. If your claim form is rejected does the investigating committee explain to you why?
5. Has your loss of livestock to predator's increased/decreased since the proclamation of the conservancy? Explain.
6. Is compensation done in fair and transparent manner? Explain, but don't mention names of people involved!
7. What do you suggest is the best way to compensate people?
8. Is compensation adequate? Should HAC SIS be changed? How? If yes does it really solve the community problem or merely protect the wild animal/s involved?

Your opinion on compensation:

Do you think compensation encourage people not to take responsibility of their property because they will be compensated for any loss they incur? If yes what do you think should be done to discourage this practice?

Which of the following statements do you support?

- a. Compensation payout helps people.
 - b. Compensation discourages people to take ownership because they will claim the loss they incur from the conservancy.
 - c. Compensation is worthy nothing and should be abolished (any substitute for it?
9. Do you have any comments or something you would like me to know on compensation or Human wildlife conflict?

Most of the answers from this questionnaire will be crosschecked with the raw data recorded in the “event” book and HACSYS.

Thank you very much for your time and readiness to participate in the questionnaires survey.

Appendix Two. Problem animal report form

Kwandu Conservancy

Problem Animal Report Form

HAC SIS

Conservancy _____

Name of Complainant _____

Community Ranger _____

Village of Complainant _____

Date of report _____

Place of incident _____

Date of incident _____

Grid ref of incident _____

Place of incident _____

Nature of Problem (tick where appropriate)

Numbers killed, injured, or damaged:

Human life killed or injured

Livestock killed or maimed

Damage to property, e.g. grain bins, water pump

Wildlife responsible
(Tick)

No. Wildlife involved

Other relative details

Lion _____

Leopard _____

Cheetah _____

Hyena _____

Buffalo _____

Crocodile _____

Hippo _____

Elephant _____

Rhino _____

Signed by Community
Ranger _____

Verified by Conservancy
Committee _____

Date: _____

Date: _____

Appendix Three: Human –Animal Conservancy Self Insurance Compensation Scheme

For Kwandu and Mayuni conservancies



A pilot project sponsored by Integrated Rural Development and Nature Conservation (IRDNC), in partnership with Conservancy Committees, Traditional Authorities and the Ministry of Environment and Tourism

Background

The introduction of conservancies has been welcomed by communal area residents and has received international recognition. However, as wildlife numbers have grown in communal areas, so too has conflict increased between them and local people.

The people suffering losses have called on Government to compensate them for their losses but this has not been possible as limited funds are available and it would be very difficult for Government to verify and administer claims.

Compensation alone will not solve the problem animal issue. A variety of approaches are needed to help reduce problems experienced by farmers. Government has amended the Conservation Ordinance to allow communities to economically benefit from wildlife and tourism. It has also established the Game Products Trust Fund and is working on a Problem Animal Policy. There are also opportunities for conservancies to take the lead by developing *strategies* to help prevent further losses. These will help farmers **collectively**, but do not address the problems experienced by **individual** farmers.

The situation is further complicated by the fact that the same animals that cause damage have the potential to bring in money for conservancies through tourism and trophy hunting.

However, conservancies as local, legal, accountable structures, hold the potential to contribute towards a solution to this problem. Losses suffered by individual farmers are huge and the issue of compensation or some form of reparation needs to be explored. But such schemes introduced elsewhere in Africa to compensate farmers have struggled to verify claims.

Here conservancies, working with their traditional authorities, can play the major role. We believe that people living alongside those who suffer the most damages can accurately assess problems and make sound recommendations for payouts.

We have therefore entered into partnership with five conservancies to test a scheme that will compensate individual farmers **under certain conditions**. The funding for this 12

month test has come from donors. As conservancies begin to get income from activities, they will take over full financial costs of the scheme.

Kwandu and Mayuni in Caprivi Region and **Ehi-Rovipuka and Puros** in Kunene Region will test the scheme. **Torra Conservancy** will also participate **but will use its own income** derived from its trophy hunting and tourism enterprises.

The two conservancies in Caprivi were chosen as they have been officially gazetted. They also have the best natural resource management systems and had the highest number of problem animal incidents.

What is HACCS?

The Human-Animal Conservancy Compensation Scheme (HACCS) is a **process** whereby conservancy committees and their traditional authorities seek to **balance** the losses of individual conservancy members against benefits from wildlife received by the conservancy. Farmers will be paid fixed rates for losses from **certain** wildlife species that have collective value to conservancies.

The project currently has two components:

Conditional stock compensation for registered conservancy members only.

A funeral benefit of N\$5 000 in the event of the death of a conservancy member (or his/her minor child) due to any of the **listed** wildlife species.

It's up to the five pilot conservancies to make this scheme work as it will pioneer efforts for other conservancies to follow.

A challenge for the future will be to come up with a scheme to compensate farmers for crop losses. We are also exploring the possibility of introducing a life insurance scheme with a commercial insurance company.

HACCS is NOT....

...a solution to problem animals. Various methods, including traditional methods of chasing animals away are still important. The scheme is just one branch of a tree that addresses human-animal conflicts.

...able to cover all losses, although conservancy members can receive **some** compensation for losses caused by large predators.

... a scheme that will compensate for losses from wild animals that normally occur in all farming areas. For example, payouts will not be made to farmers whose livestock are killed by jackals or snakes.

What are the conditions of the HACCS Project?

- The conservancy committee will work with its Traditional Authority to **assess claims and make payouts**. MET and IRDNC will monitor the process.
- The scheme started in April 2003 and will be assessed at quarterly planning meetings during the year.
- Payouts will only be made under certain conditions. These conditions were jointly negotiated by the conservancies, MET and NGOs.

| | |
|--|--------------------------------|
| The Conservancy Committee will pay compensation to registered members only , in the event of such member's: | |
| | <i>Being killed by:</i> |
| Cattle | Lion |
| Goats | Leopard |
| Sheep | Cheetah |
| Horses or | Hyena |
| Pigs | |

What are the rules of the HACCS Project?

1. **Only members on conservancy membership lists** given to IRDNC by the conservancy committee when the Memorandum of Understanding (MOU) is signed will be beneficiaries of the scheme. **Membership lists can be updated once a quarter.**

2. The conservancy committee must ensure that all conservancy members *are informed of the conditions* for claiming compensation for stock losses. This brochure is one of the steps in that process.
3. Losses have to be verified to have been caused by one of the listed species and the following conditions must have been adhered to by the stock-owner:
 - No stock killed within a national park, game reserve or conservancy exclusive wildlife or core conservation area may be claimed. This applies to current or future land-use plans as developed by the conservancy.
 - Stock deaths must be reported to the conservancy committee *within three days* of the killing, and no payment will be made unless it is possible for the conservancy ranger/game guard to verify the cause of death, eg. spoor of predator.
 - No claims can be made for *any stock not put into a secure enclosure* at night.
 - Conservancy staff and traditional authorities will inspect stock enclosures of all members and advise where strengthening is required.
 - If conservancy, NGO or MET staff **warn members about predators in the area** and a member makes no attempt to bring his/her stock to safety, claims will not be accepted.
 - During the pilot year the conservancy will develop and implement a problem animal management strategy aimed at reducing losses.
 - The conservancy committee will keep accurate records of all problem animal and payouts
 - Pay-outs for animals over the age of six months are:

Cattle (cow, ox or bull) N\$800

| | |
|--------|--------|
| Horse | N\$500 |
| Donkey | N\$200 |
| Pig | N\$250 |
| Goat | N\$150 |
| Sheep | N\$120 |

If the conservancy committee and traditional authority do not strictly adhere to the rules, IRDNC may exclude that conservancy from further compensation claims and payouts.

Where can I find out more about HACCS?

For further information, contact your conservancy office. Or you can contact IRDNC:

Windhoek

P O Box 24050

Tel: (061) 228506

Fax: 228530

e-mail: irdnc@iafrica.com.na

Caprivi Region

Private Bag 1050

Ngweze

Tel: (066) 252518

Fax: 252108

e-mail: irdncc@iway.na

Kunene Region

P O Box 24050

Tel: (067) 697055

Fax: 697054

e-mail: irdncwe@mweb.com.na

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