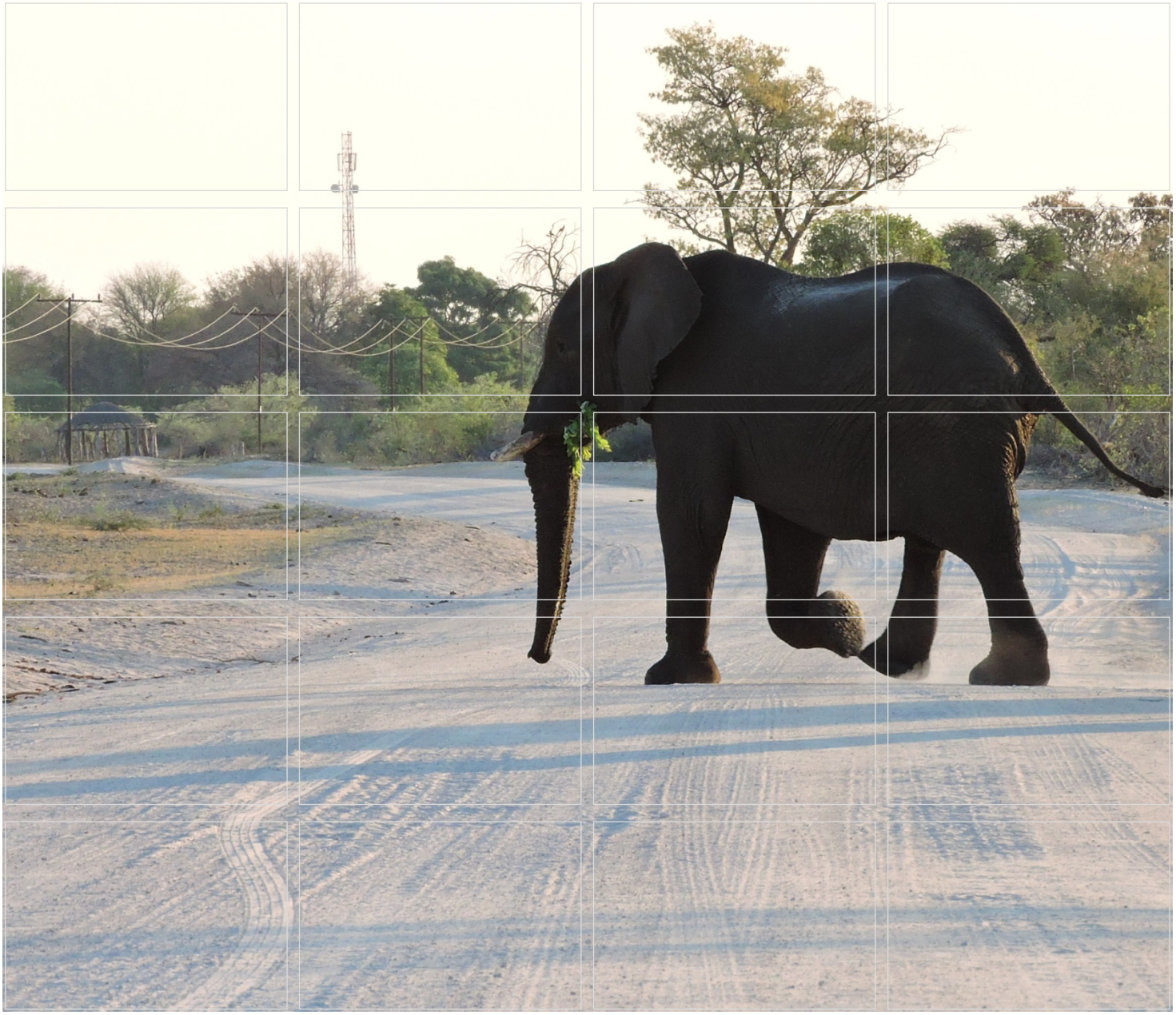


Elephant bull crossing the road in Seronga Village, Okavango District

REPUBLIC OF BOTSWANA
Ministry of Environment Wildlife and Tourism

Department of Wildlife and National Parks

Northern Botswana Human Wildlife Coexistence Project

Project Evaluation Report
27 January 2016

Delivering sustainable solutions in a more competitive world

ERM

CONTENTS

Abbreviations Used in the Document

Acronym	Description
BOCOBONET	Botswana Community Based Organisations Network, an NGO
CARACAL	Centre for the Conservation of African Resources; Animals, Communities and Landuse, an NGO
CBNRM	Community based Natural Resource Management
CBO	Community Based Organisation
CBT	Community Based Trust
CCB	Cheetah Conservation Botswana, an NGO
CEO	Chief Executive Officer
DPS	Deputy Permanent Secretary of the MEWT
DSS	Decision Support System
DWNP	Department of Wildlife and National Parks, a department within the MEWT
GEF	Global Environment Facility
GIS	Geographic Information System
GPS	Geographic Positioning System, a handheld device for recording locations in the field
HWC	Human Wildlife Conflict
HWCS	Human Wildlife Coexistence Strategy
IPP	Indigenous Peoples Plan (also referred to as the SAP)
IT	Information Technology
KCS	Kalahari Conservation Society, an NGO
METT	Management Effectiveness Tracking Tool, for the assessment of protected areas
MEWT	Ministry of Environment Wildlife and Tourism
MOMS	Management Oriented Monitoring System
NBHWCP	Northern Botswana Human Wildlife Coexistence Project, also referred to as 'the project'
NGO	Non-Government Organisation
ORAF	Operational Risk Assessment Framework
PAD	Project Appraisal Document
BPCT	Botswana Predator Conservation Trust, an NGO
PDO	Project Development Objective
PIU	Project Implementation Unit of the NBHWCP
PRF	Project Results Framework
PSC	Project Steering Committee
RAD	Remote Area Dweller, a term used to refer to the San/Basarwa Group
SAP	Social Action Plan
ToR	Terms of Reference
WB	World Bank office in Gaborone
VPC	Village Project Committee

The Northern Botswana Human Wildlife Coexistence Project is a six year project (2010 – 2016) implemented by the Department of Wildlife and National Parks and supported by the Global Environment Facility in partnership with the Government of Botswana. The project has successfully achieved the outcomes for which it was established, namely to develop and test an approach towards mitigating the effects of Human Wildlife Conflict.

The first Project Outcome Indicator aimed to achieve a 10% reduction in the annual wildlife conflict incidents in project villages caused by elephants and lions. This indicator was not be achieved as the original baseline data against which the indicators were set was under-estimated. The full extent of human wildlife conflict incidents was only realised once better monitoring was established by the project. This result was anticipated as a risk during design of the project, and does not undermine the overall success of the project.

The second Project Outcome Indicator, which measures the employment of youths from affected areas into the ecotourism industry has achieved outstanding success. Approximately 60% of graduates have found employment, and this figure may rise as the remainder continue to seek employment. Notable in this success was the number of graduates from the disadvantaged San community in Gudigwa village that have acquired employment in the very prestigious tourist lodges in the Okavango Delta. A number of students from this community excelled in the more complex careers such as accounting and lodge management. The village chief stated during the final evaluation visit that this training has provided much hope to the entire Gudigwa community, which is a community that has struggled with depression and despair for many years.

The project has experienced challenges, which have included a high turnover of project staff, delays in procurement and initiating HWC interventions in the early stages of the project, and insufficient mainstreaming of activities into the DWNP's processes. Challenges have been addressed through high level interventions by the Project Steering Committee, flexibility offered by the World Bank and a strong commitment by the DWNP to make this project a success.

The government policy for addressing human wildlife conflict does not encourage farmers to take ownership of protecting their crops and livestock. The project has highlighted these shortcomings and has pioneered the development of the Human Wildlife Coexistence Strategy which is currently in draft form and under review by the Ministry of Environment, Wildlife and Tourism. Development of this strategy document is a significant contribution towards sustainable management of human wildlife conflict in the future. Many lessons have been learnt pertaining to the implementation of specific HWC interventions. These lessons will be valuable for the future management of HWC on a wider scale.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Northern Botswana Human Wildlife Coexistence Project (NBHWCP) is a six year project (2010 – 2016) supported by the Global Environment Facility (GEF) in partnership with the Government of Botswana. The World Bank, acting as the implementing agency of the GEF, assists the Department of Wildlife and National Parks (DWNP) to manage the project and supervises project implementation.

The project's development objective is: (i) to mitigate human-wildlife conflict through proactive prevention interventions in selected rural communities in Northern Botswana; and (ii) to offer local people in the project areas employment choices in wildlife-based tourism to benefit directly from the presence of wildlife (*Section 3*).

The project areas and beneficiaries include 13 villages that are spread over three districts in Northern Botswana, as illustrated in *Figure 1.1*:

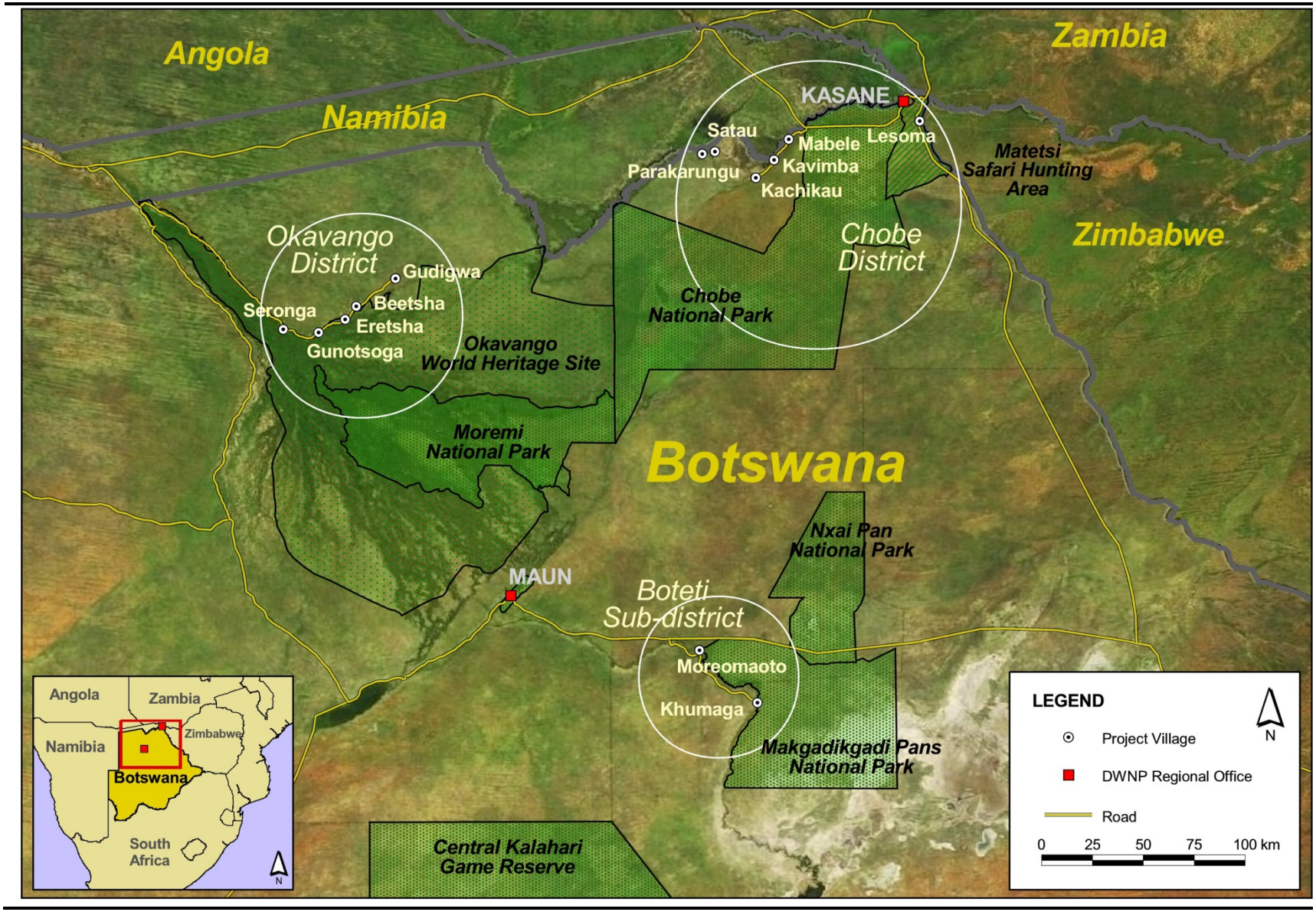
(i) Khumaga and Moreomaoto in the Boteti Sub-district (Makgadikgadi);

(ii) Seronga, Gunotsoga, Eretsha, Beetsha and Gudigwa in Okavango District; and

(iii) Lesoma, Mabele, Kavimba, Kachikau, Satau and Parakarungu in Chobe District.

These villages are located in close proximity to the Makgadikgadi Pans National Park (Boteti Sub-district), Okavango World Heritage Site (Okavango District) and Chobe National Park (Chobe District).

Figure 1.1 *Map of Project Locations*



1.2 TERMS OF REFERENCE FOR THE EVALUATION

The Terms of Reference (ToR) for this project was to compile an evaluation report for the NBHWCP. The evaluation report is required to provide a complete and systematic account of the performance and results of the project, and to capture the experience from the operation design and implementation. The purpose of this evaluation is to make the necessary recommendations for any future roll out of activities or actions to combat human-wildlife conflict, which will be done through consolidating the lessons learnt. The ToR outlines specific duties as presented below:

1. Conduct an assessment of the project design—objectives, components, and organization—including its realism and the degree of complexity, by discussing inter alia the following:
   a. How the project's objectives and components were clear, practicable, and feasible within its time frame and country context;
   b. If the capacities of the executing institutions were properly considered when the project was designed; and
   c. If the lessons from other relevant projects were properly incorporated in the project design?

   Refer to Section 3

2. Conduct an assessment of risks and mitigation measures identified during project design by discussing inter alia the following:
   a. If the risks were correctly identified;
   b. If the mitigation measures were appropriately identified; and
   c. If there were additional risks that affected the project's implementation and outcomes and if they were appropriately addressed.

   Refer to Section 4

3. Description of the factors that contributed to successful implementation or gave rise to problems and actions taken in response to problems.

   Refer to Section 4.3

4. Assessment of the outcome of the operation against the agreed objectives (PDO) - the extent to which the operation's major relevant objectives were achieved efficiently as measured against the indicators outlined in the Project's Results Framework.
   This will include:
   a. Assessment of the project's contribution to global environmental objectives;
   b. Review and evaluation of the qualitative and quantitative aspects of the project achievements;
   c. Comparison of plans for outputs, terms and costs with the results and analyse the efficiency of project implementation; and
   d. Discuss whether or not the project took the least cost option.

   Refer to Sections 6 and 9

5. Critical analysis of the implementation and management arrangements of the project, including an assessment the project's effect and impacts

(intended or unintended, positive or negative) on institutional development, particularly longer-term development of the DWNP capacity.

Refer to Section 8

6. Assessment of the sustainability of the project's interventions.

Refer to Section 8

7. Listing and documenting of lessons learned (positive and negative) concerning project design, implementation and management.

Refer to Section 9

8. Assessment of project relevance to national priorities.

Refer to Section 2

9. Complete the GEF Tracking Tool: GEF Biodiversity Management Effectiveness Tracking Tool (METT).

Refer to Annex 2

10. Evaluation of the Department of Wildlife's performance during the preparation and implementation of the project, with special emphasis on lessons learnt that may be helpful in the future

Refer to Sections 5 and 10

11. Evaluation of the performance of the World Bank, co-financier (Government of Botswana), or of other partners during the preparation and implementation of the project, including the effectiveness of their relationships, with special emphasis on lessons learnt

Refer to Section 5

1.3 APPROACH TO EVALUATION

The evaluation of the project was undertaken on a field trip to the project areas from 14 to 28 October 2015. This field visit was conducted by an external consultant, Andrew Cauldwell in conjunction with the DWNP focal officers seconded to the project in each of those areas.

All three of the project areas were visited and meetings were held with village authorities, village project committee members and project beneficiaries in most of the project villages. A list of the village meetings held for the purpose of the project evaluation is presented in *Table 1.1*. Meetings were also held with various NGOs that have collaborated with the project as indicated in *Table 1.1.* Meetings were held as an open discussion in a friendly but unstructured manner whereby beneficiaries or NGO staff were asked to express their opinions of the project's activities, and to elaborate on the successes and challenges they experienced. The evaluation team stressed in every meeting that their purpose was solely to evaluate the project, that they did not represent the project financiers and were not in a position to make

commitments about support for future interventions. A telephonic interview was held with the chairman of the Project Steering Committee.

Table 1.1 Overview of Meetings Held During the Field Trip in Conducted for the Project Evaluation

Date	Location	Description of Meeting
Boteti Sub-district		
15 Oct 2015	Khumaga Village	Meeting with the local authority, Village Project Committee (VPC) and village members.
15 Oct 2015	Moreomaoto Village	Meeting with the local authority, VPC and a representation of project beneficiaries
Okavango District		
16 Oct 2015	Maun	Introductory meeting with the Acting Regional Wildlife Officer
17 Oct 2015	Seronga Village	Meeting with the VPC and a selection of project beneficiaries
19 Oct 2015	Eretsha Village	Meeting with the local authority, VPC and a selection of project beneficiaries
19 Oct 2015	Gunotsoga Village	Meeting with the local authority, VPC and a selection of project beneficiaries
20 Oct 2015	Gudigwa Village	Meeting with the local authority, VPC and selection of project beneficiaries
Chobe District		
22 Oct 2015	Kasane	Introductory meeting with the Regional Wildlife Officer
22 Oct 2015	Lesoma Village	Meeting with the local authority, VPC and selection of project beneficiaries
23 Oct 2015	Mabele Village	Meeting with the local authority, VPC and selection of project beneficiaries
23 Oct 2015	Kavimba Village	Meeting with the local authority, VPC and selection of project beneficiaries
23 Oct 2015	Kachikau Village	Meeting with the VPC and selection of project beneficiaries
24 Oct 2015	Kasane	Meeting with CARACAL
Gaborone		
26 Oct 2015	Gaborone	Meeting with the Project Implementation Unit
27 Oct 2015	Gaborone	Introductory meeting with the Director, DWNP
27 Oct 2015	Gaborone	Meeting with the implementation team of the Kalahari Conservation Society
27 Oct 2015	Gaborone	Meeting with the management team of Cheetah Conservation Botswana
8 Dec 2015	Telephone	Discussion with the chairman of the Project Steering Committee
10 Dec 2015	DWNP office	Presentation of first draft of the evaluation report and extensive discussion with the PMU many wildlife officers
22 Jan 2016	DWNP office	Presentation of the second draft of the evaluation report to the Project Steering Committee followed by discussion.

1.4 STRUCTURE OF THIS REPORT

This report largely follows the outline of the Terms of Reference (ToR, see *Section 1.2*). Links are provided in the ToR to the parts of the report where the requirements are addressed. Many of the initial requirements of the ToR are answered with summary inputs from the project (for example *Section 4* Assessment of the design risks and *Section 4.3* Factors the led to successful project implementation), whereas the details relating to those summaries are presented later in the report (for example *Section 6.3* Assessment of project indicators and *Section 9* Lessons learnt from project implementation).

1.5 LIMITATIONS

A thorough overview of the project activities was achieved for the purpose of this evaluation, although limitations that were experienced in relation to compiling this report are summarised below.

- The duration of the field visit was short and had the following consequences:
  - Not all of the villages involved in the project could be visited. Villages that were not visited included Beetsha, Parakarungu and Satau; however sufficient replication between villages was achieved to understand the issues at village level.
  - Limited time was available for village meetings and only a selection of project beneficiaries was interviewed.
  - There was no time available to meet the team associated with the Career Dreams training institute in Maun.
  - The evaluation team realised in hindsight that they did not engage with members of any of the Community Based Trusts active in the project area.
  - District authorities were not engaged.

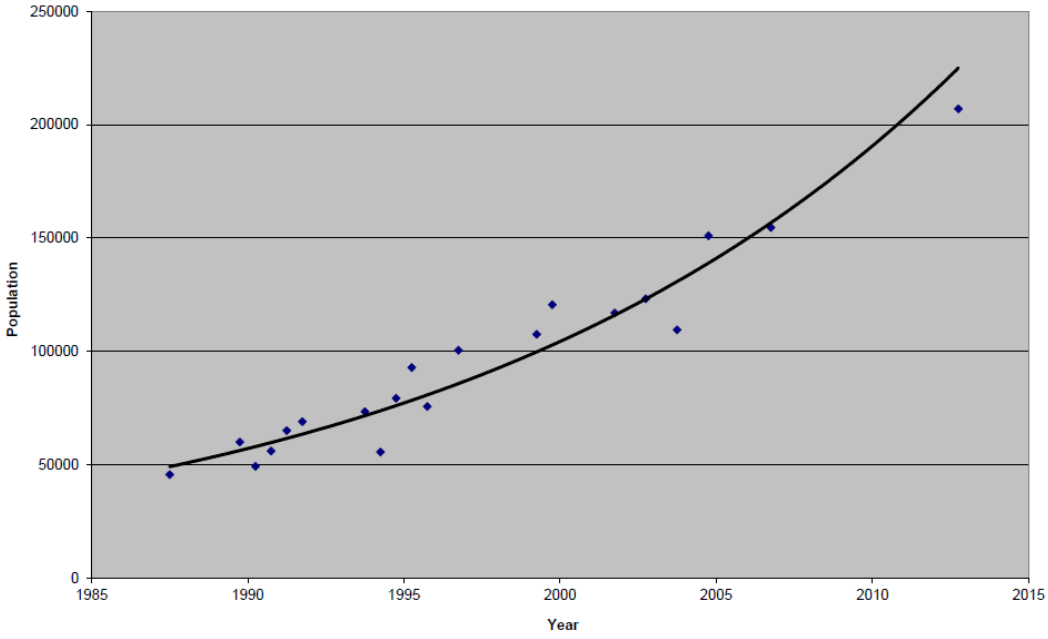
- The field visit was conducted during October 2015. The weather was hot and dry and no crops were cultivated in the fields at this time. Project activities related to elephant deterrents in the fields could not be seen first-hand during this time. Activities relating to predator proof kraals, livestock guarding dogs and an elephant restraining fence were viewed first-hand.

2 BACKGROUND TO HUMAN WILDLIFE CONFLICT AND RELEVANCE OF THE PROJECT

2.1 ELEPHANT ECOLOGICAL BACKGROUND

The latest survey of the Botswana elephant population was conducted in August to October 2012, and estimated a population of 207 545 (±10%) elephants (Taolo, 2013 [(1)]). Elephant population trends over 25 years reveal that the population in Botswana has grown at approximately 5% per annum (*Figure 2.1*). This implies that the elephant population has the capacity to double in size in less than 15 years. The elephant population in Botswana is expanding its range (Taolo, *pers comm.*), which may suggest that the elephant numbers may be approaching their upper limits in the core areas in northern Botswana.

Figure 2.1 Elephant Population Growth in Botswana



Source: Taolo (2013)

The project villages in Okavango and Chobe Districts are located in the core elephant areas, and the effects of high elephant densities are evident there (*Figure 2.2*). Elephants concentrate around areas of permanent water of the Okavango Delta and the Chobe River during the dry season (April to October) but disperse away from these areas during the rainy season. Few elephants remain in these areas during the rainy season.

(1) Taolo, C. 2013. *Status of Elephants in Botswana*. In: Proceedings of the IUCN African Elephant Summit, Gaborone, 2- 4 December 2013.

Figure 2.2 ***Elephant Damage to Mopane Woodland in the Vicinity of Gunotsoga Village, Okavango District***

The situation in Boteti Sub-district is different. This area previously experienced a shortage of surface water during the dry season, until approximately 2008 when the Boteti River started flowing on a permanent basis. This has led to an influx of elephants, and they appear to remain there on a permanent basis. An influx of elephants continues to occur and communities complain that the elephant numbers appear to be increasing daily. There is evidence of elephant damage to the vegetation, but it is not as severe as observed in the Okavango and Chobe Districts.

Within Okavango District, reducing vegetation damage by elephants can be observed when travelling northeast from Seronga and Gunotsoga villages towards Gudigwa Village. The vegetation changes from a thicket in Seronga, to Mopane dominated Woodland in Gunotsoga and Eretsha and then to a Terminalia dominated woodland in Gudigwa. The Terminalia vegetation appears less attractive to elephants, but communities there stated that they have a higher density of bull elephants than elsewhere. The bull elephants do not follow the general migratory movements as strictly as the female dominated herds. The elephant bulls are also less fearful of people and settlements and are more often implicated in crop raiding than the herds of female elephants.

Elephants have a daily movement pattern, whereby they generally drink in the evening and spend the night in the vicinity of water bodies, but disperse into the drier woodlands during the day. Villages and cultivated fields are located near the water and much of the crop raiding therefore occurs at night. Communities are well aware that travelling by foot or bicycle along roads is risky in the evenings and at night.

A fence was constructed along the western edge of the Makgadikgadi National Park before the Boteti River resumed its flow. This fence is not an effective wildlife barrier as it crosses the river frequently. The fence was not designed to be elephant proof and has been broken in many places (*Figure 2.3*). Communities in the area have asked for this fence to be repaired or

upgraded, anticipating that this will reduce the elephant numbers in the village areas. Repair of this fence is, however, unlikely to reduce elephant densities, as large numbers of elephant occur outside of the national park and the fence would merely divide populations. The subpopulation that remains in the community areas would continue to present a problem. The elephant influx may be occurring the north and following the Boteti River. Improving the quality of the fence may even result in an increased density of elephants as the influx comes up against a barrier.

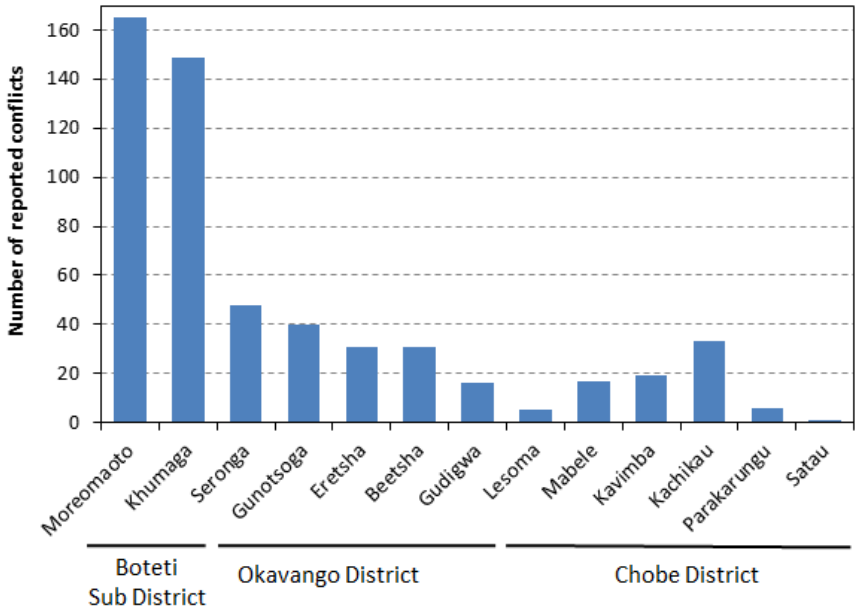
Figure 2.3 ***Elephant Damage to the Wildlife Fence Bordering the Makgadikgadi National Park in the Vicinity of Khumaga Village***

MOMS (Management Oriented Monitoring System) data has been collected as on the extent of HWC an activity of the project. The available data on Human Elephant Conflict is presented in *Figure 2.4*. This data shows a strong emphasis on incidents in the Boteti Sub-district, whereas field observations of high elephant densities suggest that the problem should be greater in parts of the Okavango and Chobe Districts. Differences between districts may thus be the result of different reporting efforts. Human elephant conflicts are further discussed as an indicator in *Section 6.2*.

2.1.1 Other Herbivores Causing Human Wildlife Conflict

During discussion with communities in the project villages, they mentioned experiencing problems (in approximate order of severity) with Warthogs, Porcupines, Kudu and Waterbuck, although it was clear that these wildlife species present a much lower threat to crop security than elephants. Communities in Chobe District did mention that warthogs are difficult to keep out of their fields, as these animals are not deterred by the use of chilli in the same manner that elephants are.

Figure 2.4 MOMS Reporting of Elephant Conflict per Village for the Period 2010 to 2015



2.2 *LION ECOLOGICAL BACKGROUND*

Lions present a problem to communities as they prey on livestock. Predators are however not easily counted and there is a scarcity of data on population trends of all predators, including lions, in Botswana. Lion numbers are documented to have increased in the Kalahari Trans-frontier Park (Maude, 2014 (1)), but there is no evidence to suggest that lion populations have increased in the project area. There has however been a 322% increase in cattle numbers over the past 20 year period (1992 to 2012; 2012 Census Results (2)). The villages within the project area that reported the most severe livestock predation by lion during the evaluation were those that border onto wilderness areas. This is demonstrated by the locations of the following villages:

- Lesoma Village is sandwiched between Chobe National Park and the Matetsi Safari Area of Zimbabwe (*Figure 1.1*);
- Khumaga and Moreomaoto villages are located adjacent to the Makgadikgadi National Park and there is little development towards the Central Kalahari Game Reserve (*Figure 1.1*); and

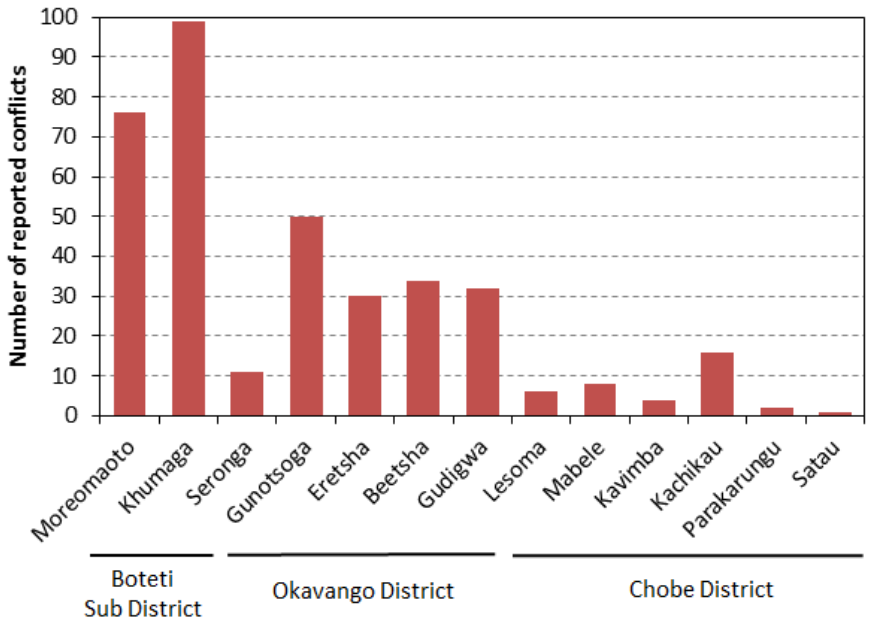
(1) Maude, G. 2014. *Wildlife Population Monitoring in the Arid Regions of Botswana*. In: Proceedings of the Botswana Wildlife Research Symposium, Maun. 4 to 6 February 2014.

(2) Available at: minetravel.co.bw/breaking-news/2013/08/19/botswana-elephant-population-rises-to-207-545-survey-shows/

- Gudigwa Village is the last in a sequence of villages along the edge of the Okavango Delta, and borders onto a vast wilderness area associated with Chobe National Park.

MOMS data on the extent of HWC has been collected. *Figure 2.5* presents the reported lion conflict incidents per village. This data is influenced by the numbers of livestock present in those villages. Villages experiencing the highest lion densities (for example Lesoma Village) have reduced livestock numbers (which may be the result of the lion predation) and are therefore poorly reflected in the MOMS data. The villages in Chobe District are not encouraged to keep livestock and cattle numbers are less in that area. Human lion conflicts are further discussed as an indicator in *Section 6.2*.

Figure 2.5 MOMS Reporting of Lion Conflicts per Village for the Period 2012 to 2015



2.2.1 Other Human Wildlife Conflict Causing Predators

Communities mentioned carnivores other than lion that preyed on livestock (in approximate order of severity) were Hyaena, Leopard, Jackal, Caracal and Wild Dog. Honey badgers were mentioned as problem animals that prey on chickens in Lesoma Village. No mention made of Cheetah, although it is not possible to confirm that there is no conflict with Cheetah in the project area.

2.3 RELEVANCE OF HUMAN WILDLIFE CONFLICT IN BOTSWANA

Botswana has implemented an effective conservation programme over many years and the country presently supports some of the largest wildlife

populations in Africa, particularly for elephant and lion. These elephant and lion populations are key drivers of a vibrant tourism industry which supports up to 6% of the country's Gross Domestic Product. (1) An unfortunate effect of large wildlife populations is the impact on local communities. More elephants in Botswana survive outside of the protected areas than within and regularly come into conflict with local communities. A part of the lion population also exists outside of protected areas, although as stated in Section 2.2 the proximity to protected areas and wilderness areas does appear to increase the level of conflict with livestock keepers.

These wildlife populations will remain or expand in the foreseeable future, and approaches are needed to mitigate these conflicts with communities and find ways to promote a form of coexistence between communities and wildlife.

(1) UNDP 2007. Botswana Strengthening Tourism Statistics and Formulation of an Experimental TSA - 2005/2006. Available at: www.gov.bw/en/Business/Sub-audiences/Investors/Facts-and-Figures

The project design is presented in *Table 3.1*. This structure was initially developed in 2009 but reflects revisions incorporated in March 2014.

Table 3.1 Layout of the Revised (2014) Project Goal, Objectives, Outcomes and Intermediate Results

Long term goal	**Enhancing coexistence between rural communities and key wildlife species through proactive HWC prevention and skills development for nature-based tourism.**	
Project Development Objective (PDO)	**(i) to mitigate human-wildlife conflict through proactive prevention interventions in selected rural communities in Northern Botswana and** **(ii) to offer local people in the project areas employment choices in wildlife-based tourism to benefit directly from the presence of wildlife.**	
PDO Outcomes	**Outcome Indicators**	**Use of Outcome Information**
1. Human-wildlife conflict reduced in selected communities. **2. Local people benefit directly from the presence of wildlife through employment in wildlife-based tourism ventures.**	o Numbers of annual wildlife conflict incidents caused by key species such as elephants and lions reduced by 10 percent in project villages as a result of Project supported intervention. o Number of community member employed in local wildlife-based tourism ventures increased by 50 individuals.	o To assess success of different interventions aiming to enhance coexistence between rural communities and key wildlife species.
Intermediate Results	**Results Indicators**	**Use of Results Monitoring**
Component 1 **Strengthened extension service delivery for Human-Wildlife Coexistence interventions.**	o Number of DWNP extension staff trained and executing proactive HWC prevention strategies increased by 60. o Number of DWNP district offices fully staffed with a trained workforce and equipped with vehicles and IT/GIS gear. o White Paper Human-Wildlife-Coexistence strategies available by year 3.	o To assess DWNP's capacities to implement Human-Wildlife-Coexistence strategies for rural communities.

Component 2 **Strengthened capacity of targeted communities to implement Human-Wildlife-Coexistence strategies.**	o Number of households successfully using proactive HWC prevention strategies increased by 800 households units. o Number of community member trained in MOMS and DSS and applying this tools increased by 26 individuals. o Number of community member trained for tourism-related employment increased by 100 individuals.	o To assess effectiveness of HWC mitigation options. o To assess relevance of MOMS and DSS as a rational response to information gathered and as a basis for replication of successful actions. o To assess relevance of the skills development program.
Component 3 **Project management support.**	o Satisfactory rating of Project implementation. o One unqualified financial audits per year. o Two training events per year for PIU and other relevant personnel in the first three years of project implementation. o Three communication events per year. o Two forum meetings per year.	o Highlights possible delays in Project implementation.

3.1 PROJECT OBJECTIVES AND COMPONENTS

The Project Development Objective (PDO) is separated into (i) mitigating HWC through proactive prevention interventions, and (ii) encouraging employment choices wildlife-based tourism to local people to promote their acceptance of living with wildlife (*Table 3.1*). The PDO is unambiguous and facilitates easy explanations of what is expected of the project.

Indicators of the PDO are simple, but achieving these reduced levels of HWC has been subject to a multitude of factors that are beyond the control of the project or the DWNP. Some of these factors are identified in *Section 4.2* as risks that have been overlooked. Quantifiable indicators for the PDO have been set, as discussed in *Section 5*, but have been difficult to achieve. These indicators were revised downwards in 2014, but the view of this evaluation is that they were not realistic of the baseline situation (see *Section 6.2.1*) and are affected by too many external factors, such as climate and changing wildlife populations (see *Section 4.2*) to provide a reasonable indication of overall project success. The level to which interventions were adopted and taken up by communities faced by the HWC issues may have provided better indicators of the success of these interventions.

3.2 *EXECUTING INSTITUTION CAPACITY CONSIDERED DURING PROJECT DESIGN*

The DWNP has been tasked with executing this project, although many of the interventions are focussed on the mainstream activities of other departments or ministries, with examples being (i) encouraging the use of early maturing seed varieties which is a mainstream activity of the Ministry of Agriculture; and (ii) training community members for tourism-related employment, which is a mainstream activity of the Department of Tourism. These other departments were represented by focal officers from these departments attached to the project.

Many of the project activities are outside of the normal job description of wildlife officers, but their implementation has depended on the dedicated efforts of a few focal officers in the three project areas (*Section 4.3.1*). This evaluation finds that the project has been well implemented (as evidenced by *Section 5*), much of which is attributed to the dedication, flexibility and ingenuity of the focal project officers.

The design of the project has not sufficiently integrated its activities into the mainstream operation of the DWNP. Some examples where there has been a lack of mainstreaming within the DWNP include:

- The Problem Animal Control unit, which is directly involved in addressing HWC has not been integrated with project activities;
- Project Focal Officers have not been sufficiently dedicated
- The Research Unit of the DWNP has had limited involvement in monitoring of HWC incidents for the project; and
- The project has not reported to different units within the DWNP that could potentially have been involved in its activities.

A requirement for mainstreaming could have been built into the project design and indicators developed that measured their success. Reasons for the project design are attributed to the history of its development, as the project was initially structured for implementation by an NGO, but was subsequently revised for implementation by the DWNP. This concept is mentioned briefly as a risk in *Section 4.2.1*.

3.3 *WERE LESSONS FROM OTHER RELEVANT PROJECTS INCORPORATED INTO THE PROJECT DESIGN?*

HWC is of national concern and a rapidly escalating issue, particularly the conflict that occurs between farmers and crop-raiding elephants (for background see *Section 2.1*). The project was designed based on advice taken from experiences gained in other countries, notably Zimbabwe and Kenya and much of that has been relevant in the design of the project.

Advice on the use of honey bees as an elephant deterrent has not been appropriate to the hot arid climate of Northern Botswana where interventions were expected to be implemented (*see Sections 9.2.4*).

Other interventions have been ingenious, for example encouraging the cultivation of early maturing crops (see *Section 6.3.2*) to avoid conflict where elephants follow a seasonal migratory pattern.

The success achieved through providing training to the youth from project villages to enable them to access wildlife tourism-related employment has exceeded expectations (see *Sections 6.2.2* and *6.3.2*). This activity to assist the youth has generated hope amongst the communities in all of the project villages, and was most prominently detected amongst the San/Basarwa people in Gudigwa Village. This is a community that has struggled for decades with a lack of hope.

4.1 EVALUATION OF RISKS AND MITIGATION MEASURES

This chapter assess the project risks as they are presented in the Operational Risk Assessment Framework (ORAF) of the revised project structure dated March 2014. *Table 4.1* presents an overview of the risks and mitigation measures from the ORAF together with an evaluation of the risk. Risks that could be considered to have been overlooked by the ORAF are presented in *Section 4.2.*

Table 4.1 Operation Risk Framework Revised in 2014 with Evaluation of Relevance

Description of Risk (identified in the ORAF)	Risk Management Measures (presented in the ORAF)	Evaluation Opinion
Project Stakeholder Risks		
Insufficient coordination between project activities and other Natural Resource Management programs in the project areas *Risk rating:* ***Substantial***	Coordination mechanism adopted. Coordination meetings led by the Project Steering Committee (PSC). *Residual Risk rating:* ***Moderate***	The Project Restructuring Document (PSD), March 2014 states that this risk was being managed adequately. The PSC has met regularly and through good leadership has avoided significant coordination challenges.
Implementing Agency Risks		
Capacity: DWNP staff and local communities may not have sufficient experience in implementing a GEF funded project. *Risk rating:* ***Moderate***	Substantial training during preparation, implementation and provision of experienced technical service providers built into implementation design. *Residual Risk rating:* ***Low***	The revised project structure states this risk has materialized and has slowed down implementation. World Bank staff continue to support the PIU to ensure that procurement is done according to the Bank's rules. Adhering to the WB / GEF requirements and procedures has been challenging, particularly in the early stages of the project.
Governance: Potential risk that local village and district elites capture the decision making process and direct benefits from the project preventing more vulnerable community members from appropriate participation. *Risk rating:* ***Moderate***	Project design (component 2), has carefully considered relationships within community capacity for collective action, elite control over project decisions and elite capture of project benefits by focusing most of its interventions and resource allocations on individual community members. Vulnerability of the project to elite capture is therefore limited and the approach does increase the community and/or individual household's control over the development process. It is anticipated that both non-elites	This risk has materialised but was managed through development of representative Village Project Committees (VPC). A balance exists between the participation of both non-elite and elite project beneficiaries in project activities. Elite involvement has encouraged involvement of non-elites by way of setting examples and has contributed towards project sustainability (see *Section 8*). The PSC has provided support in the form of senior level decision-making to keep beneficiary selection and support in accordance with the project requirements (*Section 5*).

Description of Risk (identified in the ORAF)	Risk Management Measures (presented in the ORAF)	Evaluation Opinion
	and elites will participate in project activities. Further, the project's safeguard frameworks will permit DWNP to demonstrate its ability to minimize and redress elite capture when it occurs. *Residual Risk rating:* ***Low***	
Project Risks		
Design: Compensation schemes for wildlife damage and subsidies from other government programs for agriculture and livestock production continue to encourage a "culture of dependency" among local communities, and impede take-up of proactive prevention strategies. *Risk rating:* ***Substantial/ Moderate***	Implementation design has placed great emphasis on communication and outreach, demonstration plots, community impact monitoring and participation. The design includes the preparation of a Strategy Paper that analyses the pros and cons of these compensation schemes and will propose alternative arrangements if needed. The Green Paper is being prepared with a wide input from local actors in the field. *Residual Risk rating:* ***Moderate***	A culture of dependency has prevailed with communities expecting the DWNP to address their HWC issues (*Section 8*). Prevailing policies cannot be changed, however a Draft Human Wildlife Coexistence Strategy (HWCS) has been developed (*Sections 6.3.1* and *10*) and an effective communication strategy was implemented to present the message to communities.
Delivery Monitoring and Sustainability: The number of Human Wildlife Conflicts may increase at the end of the project, rather than decrease, due to poor reporting and monitoring activities. *Risk rating:* ***Substantial***	Baseline data and definition of incident reporting has been made by an independent NGO and will continue to be monitored during project implementation. *Residual Risk rating:* ***Moderate***	This risk has materialised. The baseline state for Human Predator Conflict may have been under-stated (*Section 6.2.1*). The effects of climate variability, increasing elephant populations and elephant range expansion were not accounted in this risk assessment but have contributed to increased Elephant Conflict during the project period (*Section 4.2*). Community support only began in 2012. Subsequent years were affected by drought and resulted in some interventions (such as Early Maturing Seeds) failing due to lack of rainfall prior to their effectiveness being tested as an HWC tool (see *Section 9.2.5*).

Description of Risk (identified in the ORAF)	Risk Management Measures (presented in the ORAF)	Evaluation Opinion
Social and Environmental: Insufficient participation in consultations, training and adoption of proactive conflict mitigation options by local communities, in particular by San and other vulnerable Remote Area Dweller (RAD) groups. However, the Project has emphasized the need to work within the SAP (IPP) developed for the Project, to strengthen traditional consultation techniques widely accepted at the local level, to mitigate the risk through proactive involvement of San and other vulnerable RAD Groups. *Risk rating:* ***Substantial***	Strong emphasis on consultation with local communities has been built into Project design and implementation. Interventions are entirely voluntary. Community-based management and monitoring systems are an integral part of Project design. Efforts embedded to build community knowledge of the impact of proactive prevention. *Residual Risk rating:* ***Moderate*** The project has carried out environmental and social assessments during preparation, prepared an ESMF and an IPPD. A Process Framework was also prepared as part of the ESMF. Clear responsibilities for safeguard implementation and monitoring have been defined.	This risk has been managed by the project through a commitment to implementing the Social Action Plan, and extensive participation by vulnerable and RAD groups was achieved (*Sections 6.3.2 and 7*). Great success was achieved to provide training and integrate the youth from San/Basarwa communities into the wildlife tourism industry. Activities, such as construction of an Elephant Restraining Fence, were effective as an HWC tool but internal village conflict has raised unexpected challenges (see *Section 9.2.6*).
Overall Implementation Risk		
Given the stakeholder engagement requirements and the weak government capacity lead to the determination of an overall substantial risk rating for the project. *Risk rating:* ***Substantial***	World Bank procurement staff have supported the preparation of documents. The Country manager for Botswana has appointed a local staff member to follow-up with the client on the preparation and delivery of procurement and financial documents. The mid-term review provided useful advisory services on tourism and social implementation issues and this advice will result in improved quality in the implementation of these actions.	Overall implementation of the project has been successful (see *Section 5*). There is increased awareness and understanding of HWC among affected communities, and project activities have provided considerable Thought Leadership on practical HWC management (*Sections 6.3.1* and *Annex 1*). The Draft HWCS described above was evaluated by World Bank Aide Memoire (Dec 2013) as 'Excellent'. A variety of HWC interventions have been tested on a large scale by communities. HWC will continue but lessons learnt from the project implementation will be very useful for the future management of HWC.

4.2 RISKS OVERLOOKED IN THE OPERATIONAL RISK ASSESSMENT FRAMEWORK

4.2.1 *Semi-autonomous Project Operation and Lack of Mainstreaming*

There is a risk that outside funding and reporting mechanisms can encourage the project to operate semi-autonomously and independently of the existing DWNP structures, which results in a lack of mainstreaming and reduced sustainability of project achievements. This concept is further discussed in the assessment of the project design (*Section 3.2*) and in the challenges affecting project implementation (*Section 4.3.2*).

4.2.2 *Climate Variability*

Climate has not been included as a project risk but has had an overriding influence on the occurrence and intensity of HWC incidents, whereby reduced rainfall and drought is generally associated with increased HWC due to the following reasons:

- Elephants will spend longer periods in their dry season range during these times, resulting in reduced food availability there and an increased pressure to raid crops, fruit trees and come into conflict with communities.

- Prey populations will tend to cluster in the greater vicinity of permanent water during reduced rainfall periods, resulting in an influx of lions and other predators leading to a corresponding increase in the numbers of livestock that are predated.

The 2013/2014 and the 2014/2015 rainy seasons have experienced below average rainfall, which has increased the occurrence and intensity of HWC and reduced the ability of the project to meet the outcome indicators (*Section 6.2*).

Another impact to the project resulting from the effects of drought has been that many crops failed in the 2014/2015 season which prevented the testing the use early maturing seeds as an effective HWC avoidance measure.

4.2.3 *Changing Wildlife Populations*

Changes in wildlife populations have a large impact on the occurrence of HWC incidents, but were not considered as a project risk. The following elephant population changes have impacted the project:

- Elephant populations are increasing in the project areas, which is increasing the number of HWC incidents.
- The DWNP state that there has been an influx of elephants into the Chobe District from Zimbabwe as a result of increased levels of poaching in that country.

- Communities state that there has been an influx of elephants into the Boteti Sub-district following the resumption of water flows in the Boteti River, as described in *Section 2.1*. This change has occurred largely during the period of the project.

4.2.4 Changing NGO Capacity during Collaboration

NGOs have collaborated extensively in the implementation of project activities, but there have been a number of delays resulting from declining capacity in some NGOs, which was not initially foreseen. An example has been BOCOBONET which has ceased to exist despite having a valid contract with the project. Many NGOs in Botswana are small operations that depend on the services of one or two key staff members, and any change in those persons availability has a dramatic impact on the NGO's capacity to meet commitments made with the project. This does not apply to all NGOs as some project collaborations have been very successful, for example the collaboration with the Kalahari Conservation Society (*Annex 1*).

4.2.5 Recognising the Value of Community Assets and Wildlife Values

The project has focussed on testing approaches to reducing HWC and has considered the direct cost of interventions, but has not considered a cost-benefit analysis that includes the potential value of what is at risk from HWC (crops and livestock) together with the conservation value of wildlife. A clear example has been the project's approach to explore low cost kraal construction that has resulted in a product that is not predator proof (*Section 9.3.1*); whereas the livestock at risk has a high financial value and the predators (lions and leopards) have a high conservation value. Audit reports indicate a low utilisation of project funds (*Figure 6.4*) which suggests that financial capacity was not the determining factor for exploring a low cost option.

4.2.6 Environmental Impacts Associated with Project Activities

The PAD makes the assumption that there would be no adverse environmental impacts associated with project activities, however there were some complaints from communities in Eretsha about the impacts associated with cutting trees for kraal construction (*Section 9.3.1*). Many similar kraals were constructed elsewhere and this impact could be more widespread.

4.3 FACTORS THAT CONTRIBUTED TO SUCCESSFUL IMPLEMENTATION OR CHALLENGES

4.3.1 Key Factors Contributing to Successful Implementation

1. A key factor that has made this project successful has been the level of commitment by the project focal officers, which needs to be commended.

Community members facing serious wildlife conflict are frequently frustrated and angry. They feel a sense of despair as a result of not being able to deal with a problem that is far beyond their control. Community engagement is difficult under such circumstances, yet the Focal Officers have maintained a close communication and have provided practical solutions and encouragement.

2. Village Project Committees (VPCs) have been established in each of the project villages through appointment of community members. Their role has been a key component in the successful implementation of the project. These VPCs have been supported with project branded clothing, mobile phones and airtime which has given them a status above their neighbours within the community. This small support has been greatly appreciated by VPC members.

3. Implementation of the project has been facilitated by a widespread recognition of the importance of finding solutions to address HWC issues. This awareness extends from the farmers in the village, the village authorities to district and national levels. The active participation of village leaders, elders and a broad spectrum of community members has been a key factor leading to the project's success.

4. There has been a strong desire by village communities and local authorities to improve the standard of living of their youth, which has been demonstrated in the successful uptake of training incentives which has exceeded expectations (*Sections 6.2.2, 6.3.2 and 9.4.1*).

4.3.2 Challenges that have Affected Project Implementation

- The DWNP has raised the following internal challenges that have been experienced during implementation of this project:
  - Mainstreaming of project activities within the DWNP (see CBNRM integration below);
  - High level of staff turnover within the project has had an effect on the continuity of some activities;
  - Project team capacity and the need for the team as a whole to be stronger.

- Addressing HWC has generally not been incorporated into the Problem Animal Control and Community Based Natural Resource Management (CBNRM), which are ongoing programmes within the DWNP. The effects of HWC are felt at the grassroots level of communities, whereas the thrust of CBNRM approaches are targeted at a higher level of the Community Based Trusts (CBT). CBNRM approaches would benefit from greater integration with communities at the grassroots level, while HWC issues would benefit from higher recognition within community structures.

- A general mind-set among communities and politicians representing them is that Government, and specifically the DWNP is responsible for managing HWC. This is identified as a risk in *Table 4.1.* The implications of this effect are discussed in the lessons learnt from implementing the HWC interventions (*Sections 9 and 10*).

- CBNRM-related policy changes have recently been implemented by the Ministry of Environment Wildlife and Tourism (MEWT) which have, or have the potential to affect community attitudes towards wildlife and conservation. These changes include:

    - The leasing arrangements of concession areas have been changed, whereby concessions are leased directly to private operators rather than through Community Based Trusts (CBTs). This is expected to reduce the income earning potential of the CBTs and impact negatively on communities, although no sentiment was detected during the evaluation field visit.
    - A country-wide ban on the professional hunting industry (with the exception of private ranches) was imposed in 2014, and follows a ban on lion hunting several years earlier. The hunting industry previously provided a source of income and protein to rural communities, which they could relate directly to the presence of wildlife in their neighbourhoods. In addition to the financial impact, the hunting ban has resulted in a negative psychological impact on communities living with wildlife conflicts. The communities feel there is no longer any population control and that the wildlife is becoming increasingly fearless of people as a result. Communities blame the ban on hunting as one of the key reasons for escalating HWC incidents, although there is no scientific basis to these opinions.

5 EVALUATION OF INSTITUTIONAL PERFORMANCE

5.1 DWNP PERFORMANCE

The DWNP has implemented this project successfully and the DWNP's performance of this project has been good. Project staff interviewed for this evaluation have the required capacity and a high level of commitment. There have been some challenges raised by the PSC (see below) and DWNP staff as presented in *Section 3.2* and *5,* which have included:

- The lack of mainstreaming of the project into the DWNP is a result of project design and DWNP leadership;
- There has not been sufficient monitoring of the outcomes of project activities. Some DWNP staff feel that a normal lifecycle for the project has not been considered, for example many HWC interventions have ended abruptly without sufficient evaluation of their success;
- There have many changes of project staff, particularly project coordinators which have changed five times and has presented a challenge to the continuity of project implementation. This aspect has however stabilised during the second half of the project; and.
- There have been delays in the initial stages of the project as a result of procurement issues and capacity of NGOs that were identified for collaboration during the project planning.

5.2 PROJECT STEERING COMMITTEE

To assess the Project Steering Committee (PSC) discussion was held with Mr Felix Monggae, chairman of the PSC and Deputy Permanent Secretary (DPS) of the Ministry of Natural Resources and Tourism.

The PSC has mobilised support from other ministries and departments, which have included the Land Board, the Department of Tourism, Department of Agriculture, Department of Forestry and the Department of Veterinary Services. Representation from other sectors of government has been important to 'sell' the project activities across the government. This has alerted the project and other government representatives to programmes, synergies and opportunities of relevance to the project and allowed the cross-pollination of ideas that have greatly facilitated project implementation. The PSC has involved government officials both from Gaborone, from the district level and from the field which has kept the project aligned with national developments and also kept it practical and relevant to the situation faced on the ground.

Some project challenges where the PSC has assisted have included the following:

- The PSC has been successful in making a final decision to no longer pursue the use of bees as an elephant deterrent further pursue this intervention and to prevent the further use of funds into an unsuccessful approach.
- Expectations by some project beneficiaries have not been easy to manage, and various individuals have escalated their complaints to higher government positions. Some farmers have expected greater support, while others have expected support that was not aligned with policies and plans of the Land Board. The PSC has been able to provide senior level decisions that have supported the PIU to keep project implementation in line with the agreed approach and outcomes.
- The PSC has dealt with the collapse of BOCOBONET. Individuals with this NGO were eager to continue accessing project support after the organisation had folded and the PSC has been able to support the project in addressing that issue.

The DPS highlighted the following aspects that have been essential to successful implementation of the project:

- Representation across other sectors of government has required involvement of both directors and middle management staff. Securing the support of middle management and their allocation of time to the project has been essential.
- The support and involvement of District Commissioners has been essential for successful project implementation in the various project locations.
- The unwavering support of the Director of the DWNP to the project has been instrumental in the project's success.

The DPS believes that members of the PIU should be employed by the project to retain staff in these positions for the duration of the project. This change to the project structure could however further encourage the project to operate as a separate entity from the DWNP (*Section 3.2*) and undermine Component 1 of the project outcomes which aims to build the service delivery for HWC interventions (*Section 6.1*).

The PSC has stated that many human wildlife coexistence lessons have been learnt from implementing this project, and concepts are currently being implemented with government support in the project area and beyond. The HWC issues do however continue to escalate and future targeted funding to address these issues will always be well received.

The PSC has been chaired by the Deputy Permanent Secretary of the Ministry of Environment Wildlife and Tourism, and has performed a crucial role of bringing specialists together from other sectors of government to guide the implementation of project activities that are not mainstream activities of the

DWNP, as discussed in *Section 5*. This evaluation finds the PSC's performance during implementation of this project as successful.

5.3 WORLD BANK AND GEF PERFORMANCE

The project has been well planned and has been implemented on schedule. The PSC and the DWNP have found the World Bank office (WB) to been very flexible. They have been agreeable to an extension of the project and have been tolerant of the government in tracking the core financing requirements of the project. The WB procedures have differed from the DWNP's procedures and meeting these requirements have been challenging, particularly during the first year of implementation. The WB have nevertheless been supportive in providing the necessary guidance and training in this regard. This evaluation finds no fault with the WB support provided to the project.

6.1 OVERVIEW OF ACHIEVEMENT OF INDICATORS

The Project Results Framework (PRF) provides six tables of indicators for the Project Outcomes and Intermediate Outcomes for assessment of the project success. A baseline state is presented for many of these indicators followed by successive levels of achievement from year 1 up to year 5. Frequency of reports, data collection instruments and responsibility for data collection are also specified. This section assesses the level of achievement of the indicators based only on year 5. *Table 6.1* presents a summary of the findings with the details described in *Sections 6.2* and *6.3*.

Table 6.1 Summary of Project Outcome and Intermediate Indicators with Levels of Achievement (details presented thereafter)

Requirement from the Project Results Framework (PRF)	Level of Achievement
PROJECT OUTCOME INDICATORS	
Total numbers of annual wildlife conflict incidents caused by key species such as elephants and lions reduced by 10% in project villages as a result of Project supported interventions. • Reduction in Human Elephant Conflicts • Reduction in Human Lion Conflicts	Baseline data was under-estimated and the outcome cannot be assessed based on available data. (*see page 32*)
Total number of community members employed in local nature-based tourism ventures increased by 50 individuals.	Requirement exceeded. (*see page 34*)
INTERMEDIATE OUTCOME INDICATORS	
Component 1: Strengthened Extension Service Delivery for Human-Wildlife Coexistence Interventions	
1.1 Number of DWNP extension officers trained in executing proactive HWC prevention interventions increased by 60 persons.	Requirement exceeded (*see page 34*)
1.2 Number of DWNP district offices fully staffed with a trained workforce and equipped with vehicles and IT/GIS gear.	Partially achieved (*see page 35*)
1.3 White Paper on Human Wildlife Coexistence Strategy (HWCS) available by Year 3	Achieved, but still in draft state (*see page 36*)
Component 2: Strengthened Capacity of Targeted Communities to Implement Human-Wildlife-Coexistence Strategies	
2.1 Total number of households successfully using proactive HWC prevention intervention	Requirement exceeded for most interventions (*see page 36*)
2.2 Training executed for: (i) CBT members trained in operation management; and (ii) Community members trained in MOMS and DSS.	Requirement exceeded (*see page 37*)
2.3 Solar-powered fence lines demarcated and installed	Achieved (*see page 40*)
2.4 Skills Development: Total number of community member trained for tourism-related employment increased by 100 individuals	Requirement exceeded (*see page 41*)
Component 3: Project Management Support	
3.1 Satisfactory rating of project implementation	Partially achieved (*see page 41*)
3.2 Number of unqualified financial audits	Achieved (*see page 43*)

Requirement from the Project Results Framework (PRF)	Level of Achievement
3.3 Number of training events for PIU and other relevant personnel	Achieved (*see page 43*)
3.4 Number of communication events per year	Requirement exceeded (*see page 43*)
3.5 Number of forum meetings per year	Partially achieved (*see page 44*)

6.2 ASSESSMENT OF PROJECT OUTCOME INDICATORS

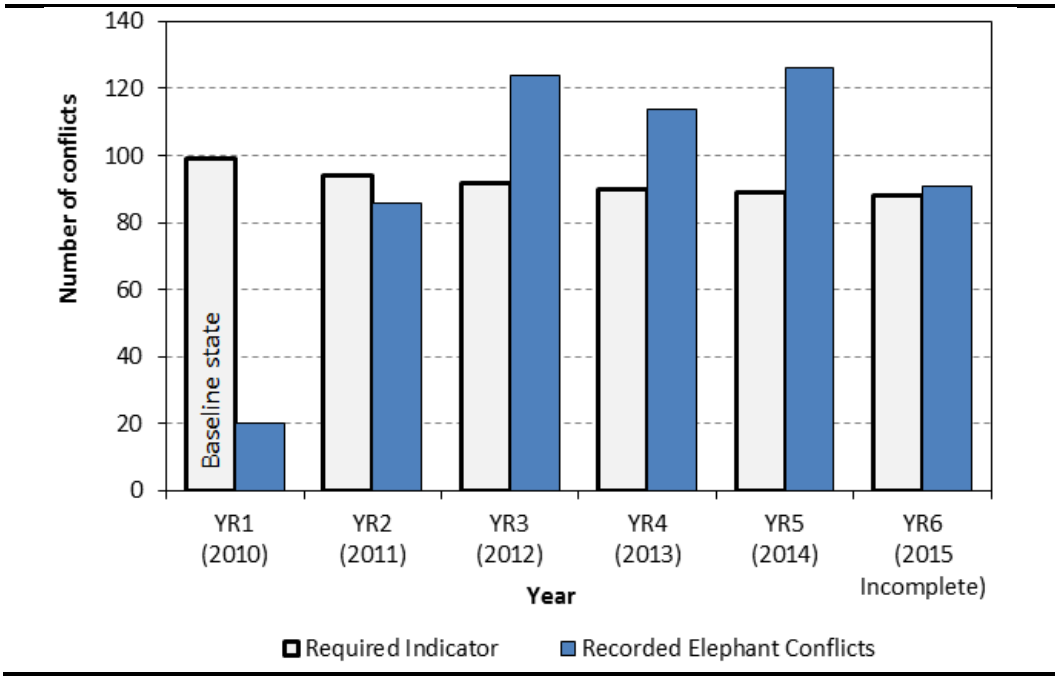
6.2.1 Total Numbers of Annual Wildlife Conflict Incidents Caused by Key Species such as Elephants and Lions Reduced by 10% in Project Villages as a Result of Project Supported Interventions.

The available MOMS data on elephant and lion conflicts recorded in the project villages are presented in *Figure 6.1* and *Figure 6.2* respectively. *Figure 2.4* and *Figure 2.5* present the same data per village. Both elephant and lion data sets demonstrate a shortage of data during the initial years of the project, which is attributed to a lack of reporting capacity. Baseline data was estimated by CARACAL and MOMS data was originally going to be collected by them in collaboration with communities but this activity failed as a result of the NGO capacity and was taken over by the project. Better data on HWC incidents has become available once Village Project Committees (VPCs) were established, the MOMS programme was introduced and communities trained to collect this data. This is clearly reflected from YR3 onwards in *Figure 6.1* and *Figure 6.2.* These data illustrate the effectiveness of the MOMS programme, the VPCs and the potential for community-based monitoring.

The recorded number of elephant conflict incidents is understated in 2010, and possibly to a lesser extent for 2011 (*Figure 6.1*). The number of incidents has however exceeded expectations in 2012, 2013 and 2014. The data presented for 2015 was incomplete at the time of writing this report. The expected number of incidents in 2010 represents a pre-recorded baseline, and there has clearly been an increase in the severity of the problem. A small reduction occurs in 2013, which was a year associated with average rainfall, whereas 2014 was associated with reduced rainfall which may explain an increased number of incidents. Available data suggests that the project interventions have not managed to reduce the number of human elephant conflicts over a six-year period. *Section 2.1* provides some background discussion on the human elephant conflict in the project area.

Overview of Annual Elephant Conflicts

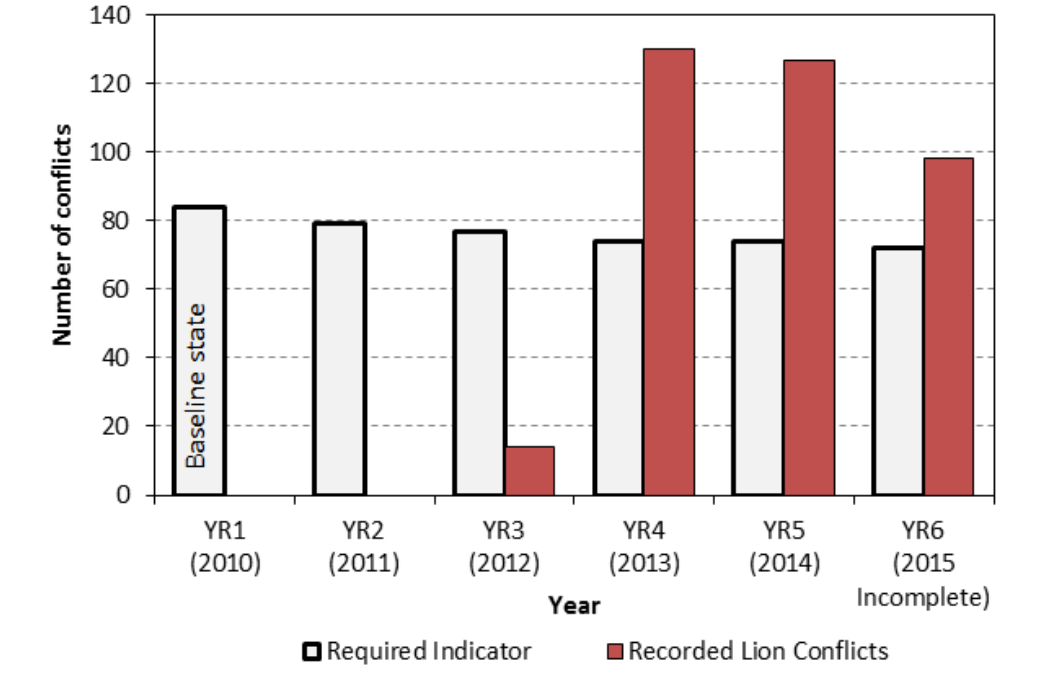
Figure 6.1 Overview of Annual Recorded Human Elephant Conflict Incidents in the Project Villages Compared to the Required Reduction of Incidences



See also *Figure 2.4*

Overview of Annual Lion Conflicts

Figure 6.2 Overview of Annual Recorded Human Lion Conflict Incidents in the Project Villages Compared to the Required Reduction of Incidences



See also *Figure 2.5*

Available data suggests that the baseline estimate of human lion conflict (84 incidents) may have been under-estimated, and that the problem is greater than was initially anticipated. Data collection began after demonstration kraals were constructed, which was in 2012 and increased as more kraals were constructed. Data was recorded only for the project villages in Chobe District in 2012, whereas all of the project villages are represented in the data for 2013 to 2015. Khumaga (Boteti Sub-district) and Gunotsoga (Okavango District) villages show the highest incidents (*Figure 2.5*). MOMS data for 2015 was incomplete at the time of writing this report, and there is unlikely to be a decrease in the level of livestock predation by lions. *Section 2.2* provides further discussion on the human lion conflict in the project area.

6.2.2 *Total Number of Community Members Employed in Local Nature-based Tourism Ventures Increased by 50 Individuals.*

The Project Outcome Indicators required 50 community members to be employed by Year 5 (2014). Data provided for 2013 and 2014 (*Table 6.2*) by the training institution (Career Dreams, Maun) indicate that a total of 93 community members had acquired employment at that time. Many of the current group of 39 students undergoing training in 2015 will find employment, and the project results have therefore exceeded the requirements on this outcome.

Table 6.2 ***Overview of the Numbers of Students Trained and Secured Employment from 2013 to 2015***

Year	Students Trained	Employed after Training	Ongoing with their Studies	Percentage Employed
YR4 (2013)	104	71	0	68%
YR5 (2014)	58	22	0	38%
YR6 (2015)	39	*Training ongoing*	39	-
Total	**162**	**93**	**21**	**-**

6.3 *ASSESSMENT OF INTERMEDIATE OUTCOME INDICATORS*

6.3.1 *Component 1: Strengthened Extension Service Delivery for HWC Interventions*

1.1 Number of DWNP Extension Officers Trained in Executing Proactive HWC Prevention Interventions Increased by 60 Persons.

The PRF lists six categories of training and requires from 10 to 60 officers to be trained within each category. An overview of the training courses for DWNP officers that have been supported by the project is presented in *Table 6.3*. The data indicates that the requirements have been either met or exceeded for each

category of training. Aspects of this training are also relevant to the PIU and is further discussed in *Section 6.3.3*.

Table 6.3 Overview of the Required Indicators and the Numbers of DWNP Officers Trained per Category

Training Conducted	Required Indicator	Officers Trained	Year	Venue(s)
(i) Training in proactive HWC prevention				
HWC mitigation strategies		22	2011	Kasane
Use of chili pepper		6	2011	Zambia
Use of chili pepper as a deterrent method		20	2011	Kasane
Training of trainers in HWC strategies		35	2012	Kasane
Use of bees as a deterrent method		21	2012	Three project areas
Human elephant conflict		35	2013	Maun
Subtotal: Officers trained in HWC prevention	**60**	**139**	***Requirement Exceeded (231%)***	
(ii) Training in MOMS and DSS				
Training in MOMS		30	2012	Molepolole
Training in MOMS		30	2012	Maun
Subtotal: Officers trained in MOMS	**60**	**60**	***Requirement Met (100%)***	
(iii) Training in GPS receiver operation				
GPS receiver operations		60	2012	Maun
Subtotal: Officers trained in GPS use	**60**	**60**	***Requirement Met (100%)***	
(iv) Training in GIS				
General GIS use		16	2011	Gaborone
Advanced GIS use		9	2013	Gaborone
Subtotal: Officers trained in GIS	**10**	**25**	***Requirement Exceeded (250%)***	
(v) Training in Strategic Management				
Training in strategic management		20	2011	Gaborone
Subtotal: Officers trained in Strategic Mgmt.	**10**	**20**	***Requirement Exceeded (200%)***	
(vi) Training in Operational Management				
Training in project monitoring & evaluation		22	2013	Gaborone
Training in project management		10	2013	Gaborone
Training in operational management		15	2011	Gaborone
Training in operations management		15	2012	Gaborone
Training in advanced project management		2	2015	Namibia
Subtotal: Officers trained in Operational Mgmt.	**30**	**64**	***Requirement Exceeded (213%)***	

It is noted that MOMS training has been conducted, and the skills acquired have been extensively used, as evidenced by the improvement in data collection in *Figure 6.1* and *Figure 6.2*. DSS (Decision Support Systems) and associated training was however not implemented. The use of MOMS data in wildlife management decision-making has therefore been limited to date.

1.2 Number of DWNP District Offices Fully Staffed with a Trained Workforce and Equipped with Vehicles and IT/GIS Gear.

District offices have been established to support the project in Maun, Rakops, Khumaga, Seronga and Kasane. These offices are functional and are equipped with computers, printers and office furniture.

Sufficient GPS have been procured and provided to project staff together with training on GPS use.

Vehicles procured include:

- Toyota Hilux single cab pick-up vehicles (four vehicles);
- Toyota Land Cruiser single cab 4wd Petrol pick-up vehicles (two vehicles);
- Chevrolet sedan for office support (two vehicles).

All vehicles were in a functional state at the time of the evaluation.

GIS facilities have not been installed or used by the project. The project targeted complex GIS software and licensing problems were experienced. It is unfortunate that freely available GIS software such as Basecamp for integrating with GPS receivers and Google Earth were not installed and used. These software products are simple to use and much could have been achieved through integrating the spatial aspect and understanding of HWC into project activities.

1.3 White Paper on Human-Wildlife-Coexistence Strategy Available by Year 3

A Draft Human Wildlife Coexistence Strategy (HWCS), dated April 2015, has been prepared by the project for the MEWT and will make a substantial contribution towards guiding the management of HWC issues on a national scale in future. The draft HWCS advocates a different approach to dealing with HWC, particularly compensation for wildlife damage which will have a widespread impact within the country. The HWCS has been shared with principal stakeholders and is awaiting comment at ministerial level. This document is reviewed in *Annex 1*. The draft HWCS was evaluated as excellent in a WB aide memoire (Dec 2013). DWNP staff have stated that there are lessons learnt from HWC interventions, as a result of this evaluation that can be incorporated into the HWCS prior to its finalisation.

6.3.2 *Component 2: Strengthened Capacity of Targeted Communities to Implement Human Wildlife Coexistence Strategies*

2.1 Total Number of Households Successfully Using Proactive HWC Prevention Intervention

The PRF lists five HWC mitigation interventions that are to be implemented across the various villages involved in the project. *Table 6.4* provides an overview of the numbers of each intervention per village and per district. Requirements for the majority of these interventions are exceeded. Implementing these interventions have been one of the major activities of the project and occupied much of the focus of the field trip conducted for this evaluation report. *Section 9* describes the lessons learnt from implementing these activities.

Table 6.4 ***Overview of the Total Numbers of Community Members Participating in HWC Mitigation Interventions per Village***

Village	Chilli Pepper Fence	Beehive Fence	Early Maturing Seeds	Predator-Proof Kraals	Herding Dogs
Boteti Sub-district					
Khumaga	83	7	1	3	5
Moreomaoto	83	7	4	4	14
Okavango District					
Seronga	61	3	8	4	1
Gunotsoga	62	3	4	3	1
Eretsha	61	4	4	3	0
Beetsha	61	3	8	4	1
Gudigwa	62	4	8	3	1
Chobe District					
Lesoma	61	1	10	2	2
Mabele	61	2	25	3	2
Kavimba	61	2	12	2	3
Kachikau	61	3	25	2	2
Parakarungu	61	2	27	4	2
Satau	61	2	19	1	2
Total	**839**	**43**	**155**	**38**	**36 ***
Requirement	800	40	100	40	40
Indicator	*(Exceeded)*	*(Exceeded)*	*(Exceeded)*	*(Shortfall)*	*(Shortfall)*

* A number of livestock guarding dogs have died as a result of various causes, although this was not considered when designing the indicators for the PRF (*Section 7.2.2*).

2.2 Training Executed for: (i) CBT Members Trained in Operation Management, and (ii) Community Members Trained in MOMS and DSS.

The PRF requires that 20 Community Based Trust (CBT) members are trained in operational management and 26 community members are trained in MOMS and DSS.

Training for CBT members was conducted initially by BOCOBONET at the start of the project, and later directly by the MOMS unit staff in the DWNP with subsequent support provided by the Kalahari Conservation Society (KCS). An overview of the numbers and types of participants is presented in *Table 6.5*, and exceeds the expected requirements presented in the PRF.

Table 6.5 ***Overview of Numbers of Community Members Provided with Training***

Description of Training Participants	Training provided by BOCOBONET (2010)	MOMS and yellow module design for Data collection (2015)
Total number of people trained	62	60
Village Project Committees	0	15
Village Development Committee	4	15
Community Based Trust Members	48	15
Total Community Members	52	45
Requirement Indicator	20	26

Description of Training Participants	Training provided by BOCOBONET (2010)	MOMS and yellow module design for Data collection (2015)
DWNP Staff participating in training	2	15

Introduction of MOMS

MOMS (Management Oriented Monitoring System) is a monitoring tool used for natural resource monitoring. It is mainly used for organized record keeping and data analysis up to the reporting stage. The concept started in Zimbabwe (known as POMS) and was adapted for use in rural conservancies in Namibia where the name changed to MOMS. Botswana adopted the program, with support from the NBHWC Project in 2004, and it is currently being implemented and used in Protected Areas, CBOs and Problem Animal Control.

The NBHWCP supported a fact-finding trip to Namibia in November 2011 to introduce DWNP staff and CBT members to the MOMS program. The objective was to stimulate sharing of ideas between the Namibian Conservancies and the Botswana CBTs on the use the MOMS in wildlife management, sustainable use of natural resources and human wildlife coexistence overall.

MOMS training was provided to communities by the Research Unit of the DWNP. Dates and locations of training were:

24 to 25 June 2013 in Moreomaoto, Boteti
12 to 14 June 2013 Eretsha, Okavango
27 to 28 June 2013 in Kasane, Chobe

Objectives of the MOMS training were:

- Orientate the Problem Animal Control Unit of the DWNP as well as the communities where the Human Wildlife co-existence project is being piloted on the use of MOMS.
- To develop modules on the piloted activities of NBHWCP for proper monitoring to measure, analyze and report on the project activities using MOMS.

The workshops designed modules for the collection of HWC data specific to the project. Other existing Human Wildlife Conflict (HWC) modules were elaborated to the audience. These modules include monitoring and recording of HWC incidents, Damage incurred and Problem animal details.

Results of MOMS Data Collection

MOMS training for community members was conducted, as presented in *Table 6.5* and the subsequent implementation of the programme and collection of data has been successful. This is evidenced by the data presented in *Figure 6.1* and *Figure 6.2*. MOMS data collected by village communities under the supervision of the respective VPCs has demonstrated that former baseline estimates for the incidence of HWC involving elephant and lion were under-estimated. The project has not achieved its primary indicators to show a 10%

reduction in the incidence of HWC, as presented in the Conclusion (*Section 11*) and the Executive Summary. The project has demonstrated that the collection of MOMS data by communities is effective, and is included as an important lesson learnt for the future management of HWC (*Section 10*).

Training in Decision Support Systems (DSS) has not been provided, and the use of MOMS data has therefore not been incorporated into wildlife management decision-making. This decision-making is handled by the DWNP and MOMS data will certainly be used in future.

Community-based Trust (CBT) Support

The NBHWC Project has provided support to CBTs through the Kalahari Conservation Society (KCS). This support has involved capacity building in the following components, with results achieved:

- Coordinate and provide training to local communities in craft production for the tourism market.
  Results: A successful five-day workshop was held in Kasane in which 25 community members participated. An independent consultant, Mrs Charlie Paxton from Rhundu, Namibia was contracted to facilitate the workshop.

- Provision of technical assistance to CBTs as necessary as a follow up of capacity building skills during Phase 1
  Results: Evaluation of the improvement in the capacity of CBTs was conducted following the previous training provided by KCT. An impressive development of capacity was noted evidenced by attendance at board meetings, records of minutes, proposals developed by the boards to solicit funding, AGM meetings held on time, and overall interest in engaging on issues that affect trusts and CBNRM at large.

- Assistance with Joint Venture proposal writing and negotiation with private sector partners with support to ensure that partnerships are implemented.
  Results: KCS has engaged five CBTs in the project area. *Table 6.6* provides an overview of these trusts and the nature of engagement, while *Table 6.7* presents an overview of the levels of participation.

A review of the KCS final report is provided at the end of *Annex 1*.

Table 6.6 Overview of Community-based Trusts Engaged by KCS with Project Support

Community Based Trust	Nature of Engagement
Chobe Enclave Conservation Trust	Support in the management of two joint venture partnerships with African Bush Safaris and Ngoma Lodge
Okavango Community Trust	Support in the management of a joint venture partnership with Okavango Wilderness Safaris
Ngande Community Trust, Khumaga, Boteti	Development of a Management Plan for their lease area known as the Garagwa Game Park
Moreomaoto Village,	Mobilising and support for the registration of a village trust.

Community Based Trust	Nature of Engagement
Boteti	Meetings have subsequently been facilitated by KCS to develop objectives and a constitution for the trust also to adopt a name. Popular names proposed for the trust include Moreomaoto Community Trust, Mowaza Community Trust and Moreomaoto Sesana Community Trust.
KALEPA Community Trust (Kazangula and Lesoma Villages), Kasane	Support to resuscitate the trust following a former dispute with a joint venture partnership with Akuna Mathata

Table 6.7 Participation in Meetings for the Various Community-based Trusts

Type of Participants	Okavango Community Trust	Chobe Enclave Community Trust	KALEPA (Chobe)	Ngande Trust (Khumaga)	Moreomaoto Community Trust
Community	9	9	3	5	5
Tribal Administration	2			1	2
Village Development Committee				5	2
District Administration				1	1
KCS	4	3	3	3	3
DWNP/NBHWCP		3	3	3	3
Total Participants	15	15	9	18	16

2.3 Solar-powered Fence Lines Demarcated and Installed

Solar powered fences (*Figure 6.3*) have been installed in two phases in Lesoma Village, Chobe District, primarily as a means of mitigating human elephant conflict. A 9.2 km length of electrified fence was viewed there during the October 2015 field trip and some of the lessons learnt from this activity are described in *Section 9.2.6*.

Figure 6.3 Photographs of a Solar Powered Fence Installed in Lesoma Village, Chobe District

2.4 Skills Development: Total Number of Community Member Trained for Tourism-related Employment Increased by 100 Individuals

Table 6.8 provides a simple breakdown extracted from the data provided by Career Dreams for 162 students that have been provided with tourism related training with project support. The PRF required that 100 students be trained, which has been exceeded. As mentioned above, students in the class of 2015 were being trained while writing this report, which further exceeds the requirements of the PRF. Some of the lessons learnt from this training are further discussed in *Section 9.4.1*.

Table 6.8 Breakdown of the Numbers of Students Provided with the Various Types of Training

Type of Training	Number of Participants	
	2013	2014
Junior Hospitality	-	32
Food and Beverage	22	-
Food Production	32	-
Front Office	12	-
Housekeeping	10	-
Lodge Management	14	13
Professional Safari Guides	14	13
Total Participants	**104**	**58**

6.3.3 Component 3: Project Management Support

3.1 Satisfactory Rating of Project Implementation

The PRF requires that the project receives satisfactory ratings for annual reviews of project implementation and status. Five reports issued by the WB are available, with their summary results presented in *Table 6.9*. An overview of large procurement items is presented in *Table 6.10*. A graph for disbursement of funds taken from the last report (30 April 2014) is presented in *Figure 6.4* and suggests an underutilisation of funds.

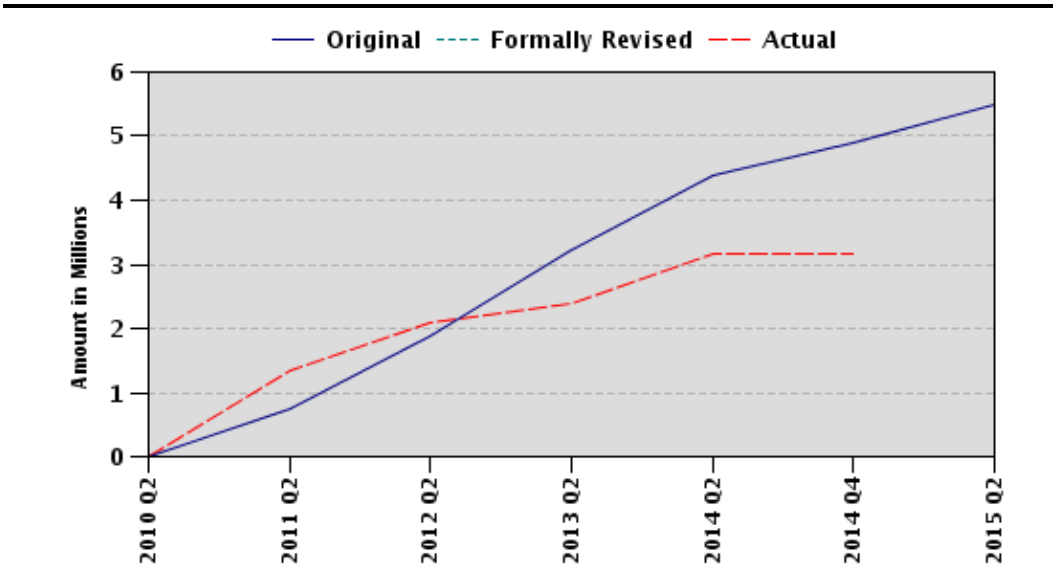
Table 6.9 Results of World Bank Reviews of the Project Implementation and Status

Report Date	Progress towards achievement of GEO	Overall Implementation Progress	Overall Risk Rating
Previous Rating	Moderately Satisfactory	Moderately Unsatisfactory	*Not assessed*
10 Feb 2011	Moderately Satisfactory	Moderately Unsatisfactory	Medium-L
25 Sept 2011	Moderately Satisfactory	Moderately Satisfactory	Substantial
07 Aug 2012	Moderately Satisfactory	Moderately Satisfactory	Substantial
27 March 2013	Moderately Satisfactory	Moderately Satisfactory	Substantial
30 April 2014	Satisfactory	Satisfactory	Moderate

Table 6.10 Overview of large procurement items for the NBHWC Project

Date Received/ Service Started	Description Of Goods/Service/Consultancy	Type of Procurement	Amount Paid
23-Apr-2012	GPS	Goods	P 67,200.00
Apr-2011	Support by introducing training - Bocobonet	Service provider	USD 107,375.00
Apr-2011	Support by introducing training - Caracal	Service provider	USD 162,360.00
01-Sept-2012	Training in beehive strategy	Consultancy	USD 90, 000.00
18-Sept-2010	Demonstration plot material	Goods	P 177,752.25
18-Sept-2010	Untreated gum poles	Goods	P 137,027.75
07-Nov-2012	Agricultural tool kit (chilli pepper trial fence)	Goods	P 1,333,338.00
19-Oct-2012	Agricultural tool kit (chilli pepper trial fence)	Goods	P 199, 192. 00
Nov-2010	Four (4) 4x4	Goods	P 1,334 396.00
15-Nov-2010	2 x Chevrolet	Goods	P 342,368.00
21-Nov-2012	2 x 4wd single cab land cruiser 4.0 Petrol pick-up	Goods	P 767,923.76
21-Aug-12	Kraal material	Goods	P 38,954.41
02-Jul-2013	Construction of kraals by cheetah conservation Botswana	Service provider	P 702,000.00
Sept-2014	Demonstration kraals - using local available materials	Service provider	P 301,280.00
01-Mar-2013	Tourism training consultant (Contract renewed)	Consultancy	USD 100,008.00
01-May-2014	Tourism training service provider (Contract renewed)	Service provider	USD 1,044,330.00
01-Nov-2013	Community conservation trust training provider (Contract renewed)	Service provider	USD 127,206.50

Figure 6.4 Disbursements by the NBHWCP for a 2.5-year Period from 2010 Quarter 2 to 2014 Quarter 4



Source: World Bank Project Review dated 30 Apr 2014

3.2 Number of Unqualified Financial Audits

The PRF requires five unqualified audit reports for the project. Four audit certificates have been issued to date by the Auditor General, as listed in *Table 6.11*, and a fifth audit report for 2015 was pending at the time of writing this report. All certificates issued make the unqualified statement that the Auditor General is of the opinion that financial statements present fairly the financial position of the project.

Table 6.11 Periods and Dates of Audit Certificates Issued for the Project

Financial Year Ending	Date of Issue	Signed by
31 March 2011	14 November 2011	Robby B. Sebopeng, Auditor General
31 March 2012	15 January 2013	Robby B. Sebopeng, Auditor General
31 March 2013	7 November 2013	Robby B. Sebopeng, Auditor General
31 March 2014	17 November 2014	Pulane D. Letebele, Auditor General

3.3 Number of Training Events for PIU and Other Relevant Personnel

The PRF requires that six training events are held for members of the PIU and other relevant personnel. Training of project staff has overlapped with the training of DWNP officers, for which the results are presented in *Table 6.3*. The project has launched the following six management-related training events (extracted from *Table 6.3*), which meets the requirement of the PRF:

- Training in project management (2013) for 10 officers;
- Training in advanced project management (2015) for 2 officers;
- Training in strategic management (2011) for 20 officers;
- Training in operational management (2011) for 15 officers;
- Training in operations management (2012) for 15 officers; and
- Training in project monitoring and evaluation (2014) for 22 officers.

3.4 Number of Communication Events per Year

The project has implemented a broad range of approaches to communicate the project activities and methods of addressing HWC. These include the dissemination of large numbers of posters, booklets (*Figure 6.5*), DVDs and flash cards with data and movie clips, travelling live performances by theatre artists and radio broadcasts relating to living with HWC. A communication strategy is reviewed in *Annex 1* which has been effectively implemented during the later stages of the project. A number of events with specific dates are presented below in *Table 6.12*, although the total contribution to communication has been far greater and certainly exceeds the requirements stipulated within the PRF for 15 events.

Table 6.12 List of Communication Events Supported by the Project

Area	Communication Event	Year
Kasane	Habitat day	2012
Mabele	Tree planting day	2012
Mmadikola	Tree planting day	2012
Kasane	Market day	2012, 2013
Parakarungu	Taking services to the people	2013
Satau	Taking the project to the people	2013
Lesoma	Taking the project to the people	2013
Pandamatenga	Taking the project to the people	2013
Pandamatenga	Exhibiting at the agricultural show	2013
Gaborone	Exhibiting at the National agricultural show	2014
Six project villages	Theatre performances sensitizing communities about the project	2014
Gaborone	Broadcasting project activities over the radio	2014
Gaborone	Radio program (*Tokafatso maduo*) on phone in by members of the public	2014
Project areas	Human Wildlife Conflict messages sent to community mobile phones	2014
Serowe	Exhibiting at the regional agricultural show	2015
Gaborone	Exhibiting at the National agricultural show	2015
Gaborone	Exhibiting at the consumer fair	2015
Gaborone	Radio interviews	2015

Figure 6.5 Booklet and a flash card developed by the project for communities to promote human wildlife coexistence

3.5 Number of Forum Meetings per Year

The PRF requires 10 forums to be attended by project staff. Details of three forums have been provided which include the following:

- NBHWCP Forum on HWC was held at the Grand Palm on 19 February 2013. This forum was attended by 32 delegates who included 19 DWNP officers.

- Botswana Wildlife Research Symposium, hosted by the Botswana Wildlife Training Institute in Maun from 4 to 6 February 2014. This symposium was attended by 202 delegates, which included 59 DWNP officers and 24 Botswana Wildlife Training Institute officers. Proceedings of this Symposium are reviewed briefly in *Annex 1*.

- The Botswana Wetlands and Wildlife Research Symposium from 17 to 19 March 2015 was hosted by the Botswana Wildlife Training Institute in Maun. This symposium was attended by about 250 delegates, which included about 93 DWNP officers. Proceedings were in the process of being finalised at the time of writing this report.

7 EVALUATION OF THE IMPACT OF THE SOCIAL ACTION PLAN

7.1 BACKGROUND TO THE SOCIAL ACTION PLAN

A Social Action Plan (SAP) was prepared for the project to achieve the following outcomes:
a) To ensure that people affected by the Project, and in particular, vulnerable and marginalized groups, are fully informed and consulted about the Project and how they can participate;
b) To avoid potentially adverse effects on vulnerable and marginalized groups; and
c) To ensure that Project benefits are distributed fairly.

The SAP sets out measures to facilitate the participation of San/Basarwa in the Project, and to ensure that they are able to share in Project benefits. These measures include a Consultation Framework to ensure that all community members are fully informed in good time about the Project activities (such as chilli-pepper farming, beekeeping, kraaling, dogs, early maturing seeds, tourism training and wildlife conflict monitoring), that all applicants who qualify for benefits have an equal chance of being selected to take part, that the selection methods used are fair and transparent, and that grievances and complaints are effectively addressed.

The SAP contains measures to encourage and support the San/Basarwa to participate in the various Project activities. These consist of including them on Village Project Committees, prioritising them in selection processes, providing extra support to them during implementation, and ensuring that training addresses their needs.

7.2 OBSERVATIONS RELATING TO THE SOCIAL ACTION PLAN

Two villages are of particular relevance to the SAP, namely Gudigwa Village in Okavango District and Lesoma Village in Kasane District. The majority of the inhabitants in these villages are of San/Basarwa descent.

7.2.1 *Observations from Gudigwa Village*

Background to Gudigwa Village

Gudigwa Village is the last village located on the road that connects the project villages in Okavango. The area beyond Gudigwa Village is a vast wilderness area. The occurrence of Human Wildlife Conflict is considered greater in Gudigwa Village than in the other villages of Okavango District for the following reasons:

1. The Village Chief stated that there was a higher proportion of elephant bulls in the vicinity of this village. As stated in *Section 2.1*, elephant bulls

are less predictable in their daily and seasonal movements than the female-dominated herds, and also have less fear of humans, possibly because the bulls do not need to protect their young. Crop-raiding by elephant bulls is therefore greater than by female herds.

2. Few facts are available on the abundance and population dynamics of predators, but it was the view of this evaluation that project villages adjacent to parks and wilderness areas were exposed to the highest predator densities, and the communities there suffered high levels of predation of their livestock, particularly by lions. Gudigwa Village was considered by the Okavango District Focal Officer to have a higher incidence of lion attacks than other Okavango villages.

The soils in the vicinity of Gudigwa Village consisted of a pale sand and supported an open Terminalia woodland vegetation, whereas the vegetation in the vicinity of other villages in the Okavango District consisted of Mopane woodland or dense thicket (*Section 2.1*). Terminalia woodlands generally grow on poorer soils than thicket vegetation. The soils were not tested for this evaluation, but it is possible that Gudigwa Village is in a marginalised location from an agricultural perspective, as well as from a wildlife conflict perspective. Gudigwa Village however did enjoy the benefit of a committed village authority that strongly supported the project activities.

Project Activities

Most of the inhabitants of Gudigwa Village are neither agronomists nor pastoralists. Introducing interventions for minimising HWC have therefore met with limited success. Discussion during the community meeting revealed that many of the project beneficiaries had not utilised the resources provided to them, such as poles, wire or chilli as they did not have fields of crops to protect. Many of the beneficiaries stated that they still had the materials provided to them in their homes. One beneficiary proudly showed the evaluation team how he had carefully stored the items provided to him. Other beneficiaries had sold or traded their materials and were not at all shy to state that to the evaluation team.

A few beneficiaries of San/Basarwa origin had tried to implement their HWC interventions, and there was a clear observation that this community had appreciated the support they received. The VPC members were present and visible by their project branded clothing. The VPC was effective and there was a high level of participation by the community in the project's HWC prevention activities and the support received was certainly appreciated even if not put to proper use.

Contrary to the HWC interventions, the results achieved from training the youth for entry into the tourism industry was beyond expectation. Members of Gudigwa community had excelled in the most complex training courses provided, namely lodge management and accounting. Graduates from this village have acquired employment with some of the most prestigious lodges

in the Okavango Delta, for example Wilderness Safaris. Also San/Basarwa graduates of the Wildlife Guiding programme are evidently in demand by tourist lodges.

One of the graduates of that programme assisted the evaluation team as an interpreter for the village meeting, and explained how he has since been selected for further training by the well-respected Botswana Youth Development Programme and has received funding to start his own business. This was made possible by the initial training he received through the project.

The Village Chief stated that the success of the training programme provided by the project for the youth of Gudigwa Village has inspired hope into the entire community.

7.2.2 *Observations from Lesoma Village*

Background to Lesoma Village

Lesoma Village is located adjacent to the Zimbabwe Border in Kasane District, and the Matetsi Safari Concession covers a large area on the Zimbabwean side of the border (*Figure 1.1*). A forest reserve adjacent to Lesoma Village is continuous with the Chobe National Park, and this village is therefore located tightly between two vast wilderness areas. Elephant densities are high in the entire area. There are also high lion densities and keeping cattle there is not viable. The Village Chief stated that every one of his cows has been eaten by lions. Village members stated that Honey Badgers also present a problem preying on their poultry.

Project Activities

Due to the severity of HWC, the Lesoma Village was selected for testing a solar-powered Elephant Restraining Fence (*Section 6.3.2*). A fence was erected (*Figure 6.3*) to enclose an area of arable land for the community to cultivate crops. Erection of the fence did alter the land use pattern of the village, as all members wanted land within the fence, and the fence did cut the access to some distant crop fields.

Extensive meetings were held in the village by the project and plots of land were allocated to community members in a fair and transparent manner. Problems have since arisen with some community members having sold the rights to their plots within the fence to people from Kasane Town, while others have prevented their neighbours' access within the fenced area.

The fenced area was visited during the evaluation and there was little evidence of crop production taking place there. As with Gudigwa Village, the community are not naturally agronomists. Instead allegations are rampant and there is a great deal of disagreement between members of the village. A meeting held in the village as part of the project evaluation was a riotous event and productive discussion about the merits of the project's activities was

not possible. Success achieved through training the youth from that village could not be assessed due to the tense atmosphere of the meeting.

A lesson learnt from the project activities in Lesoma Village was that the success of project activities is closely correlated to the support provided by the village leadership. Also strong leadership is required when a change of land use is implemented.

7.3 EVALUATION OF THE SOCIAL ACTION PLAN

7.3.1 Social Action Plan Criteria

a) *To ensure that people affected by the Project, and in particular, vulnerable and marginalized groups, are fully informed and consulted about the Project and how they can participate.*
During the evaluation visit, it was clear that communities were well informed and consulted about the project. A communication strategy developed by KCS (see *Section 6.3.3* and *Annex 1*) has been well implemented across all of the project areas. Active participation in project activities was seen in all project villages. This included members of marginalized groups in Boteti, Okavango and Kasane Districts. Additional training opportunities have been provided to members of the San/Basarwa communities and have been used.

b) *To avoid potentially adverse effects on vulnerable and marginalized groups;*
The VPCs have been established in every project village and have been representative of those communities. Vulnerable persons and members of marginalised groups have been included within the VPCs and participated in the processes of selecting beneficiaries from their communities.
The VPCs have been sensitised to the needs of providing for the vulnerable and marginalised members of their communities. Women beneficiaries have not been able to plant the poles for creating chilli fences, or would never have the resources available for building kraals. Interventions by the VPCs with project support have overcome many of these implementation issues.

The SAP requires that training must address the needs of marginalised San/Basarwa groups. This has not been necessary as members of these groups have performed well in the normal training programmes provided.

c) *To ensure that Project benefits are distributed fairly.*
Members of marginalized groups have been represented on the VPC in many of the project villages. A balance has been achieved in the distribution of project resources between elite, non-elite and vulnerable members of the communities. As described in *Section 4.1*, incorporating elite members of communities into project activities has been beneficial as these community members are typically have a formal or informal leadership role in their communities. A large majority of the project beneficiaries are women and many of them are elderly members of their communities.

7.3.2 Integration of the SAP into the Project Design

Implementation of the SAP has been inhibited by the lack of integration of the plan into the project design. The SAP is not mentioned in the Project Results Framework (*Table 3.1*) and the Project Outcomes and Indicators (*Section 6*). There is a risk assessed related to the integration of Rural Area Dweller (RAD) groups into project activities (*Section 4.1*), which refers to the San/Basarwa communities. The original project design was developed prior to the date when the SAP was compiled (2010), however the project design revised in 2014, yet the SAP was not included.

The SAP does not provide any indicators of its own to evaluate performance.

An evaluation of the SAP was not included in the Terms of Reference for evaluation of the project. This additional chapter has nevertheless been included.

Conflicts between communities and wildlife are expected to increase during the coming decade as wildlife populations remain in place while some populations, particularly elephants continue to expand at an exponential rate. Climate change is a reality and rainfall appears to be declining. The key sustainability lessons resulting from this project are not the resolution of HWC issues, but rather the lessons learnt in how best to manage these conflicts and promote coexistence.

Key issues affecting the sustainability of HWC and wildlife coexistence are discussed below.

- **Development of the Human Wildlife Coexistence Strategy (HWCS)**
  The HWCS is a well prepared strategy that presents the best way forward for addressing HWC. It provides a structured approach to guide the development of action plans and coordination approaches to address the challenges of HWC across the nation where it occurs. This strategy was lacking in the past and is a significant contribution towards sustainability of addressing HWC.

- **Capacity Building within the DWNP**
  DWNP staff capacity for dealing with HWC has been significantly improved, and many practical implementation lessons have been learnt by staff. HWC interventions need to be rolled out on a larger scale, which will certainly be facilitated by staff capacity gains that have been achieved as a result of the project's activities.

  DWNP staff of the PIU have gained useful experience following successful implementation of the GEF project and the requirements international donor procedures. Implementation of future donor funded projects will be facilitated by this experience.

- **Adoption of HWC Interventions by Communities**
  Communities have shown varying levels of acceptance of HWC interventions, but in every village visited during the evaluation field survey there were individuals that had successfully adopted interventions. The project did target old and vulnerable community members as beneficiaries within many of the villages. These people are not leaders or trend setters within their communities, however there have been enough prominent community members involved in activities to act as positive role models for the continuation of future HWC interventions.

- **Dependence and Lack of Ownership by Communities**
  Compensation schemes do create a disincentive for communities to take ownership of the responsibility for protecting their crops and livestock against destruction by wildlife, and there is a culture of dependence in

many of the villages where the project has been active. This is heavily influenced by the standard of leadership in the village, and good village leadership has been the overriding determinant for the success of the project's activities. The HWCS highlights these issues and wisely recommends the requirement for implementation of HWC deterrents to qualify for compensation.

- **Financial Implications Associated with HWC Interventions**
  As stated above, HWC will continue and ongoing support will be required to minimise the impacts. The climate not suitable for growing chilli in the areas where severe conflicts with elephants occur and this product will need to be imported. Supply chains need to considered if chilli-based deterrents are to be made available to address the full extent of elephant crop-raiding that does occur.

  Lessons learnt have shown that kraals are an effective measure for reducing livestock predation but the materials used and the standard of construction is important, which has a direct financial implication. Improved ownership of kraals in terms of maintenance and responsibility for minimising livestock predation is required and appropriate financial mechanisms need to be developed.

  Durability of kraals has been raised by communities as an issue. The project has experimented with different designs for kraals and valuable lessons have been learnt (*Section 9.3.1*).

- **Socio-political Risks of Wildlife Policy Affecting CBNRM and HWC**
  Recent changes in wildlife policies and the manner in which these affect communities, such as the hunting ban and leasing of concessions, are raised as a concern (*Section 4.3.2*). Changes have the potential to reduce the tolerance by communities for HWC and their willing to coexist with wildlife. There is widespread misconception of the implications of policy changes, and better communication on the reasons for the policy changes to prevent growing frustration and alienation of communities.

9 LESSONS LEARNT FROM PROJECT IMPLEMENTATION

The project evaluation has focussed on the lessons learnt from the implementation of the various HWC interventions, which are presented here. Both advantages and disadvantages of the various interventions are presented below, although inevitably the number of disadvantages tends to exceed the advantages. These disadvantages do not necessarily imply that the interventions were unsuccessful, but are included to provide insight for future improvement of the interventions. Recommendations for the future management of HWC have been distilled from the lessons learnt and are presented in *Section 10*.

9.1 MONITORING

Baseline data for HWC incidences on which project was planned have underestimated the extent of wildlife conflicts that actually occur. Better data became available once Village Project Committees (VPCs) were functional in the project villages. This is reflected in *Figure 6.1* and *Figure 6.2*. A key lesson to be learnt is that community-based monitoring of baseline HWC is effective, and that potential should be used in future monitoring activities.

9.2 INTERVENTIONS FOR REDUCED CROP-RAIDING BY ELEPHANTS

Interventions used to discourage elephants crop-raiding have focussed on two broad approaches, namely the use of chilli as a deterrent effect and planting of early maturing seeds as an avoidance mechanism. Use of beehive fences was tested as a pilot study and forms a third approach. Avoidance is possibly the most sustainable means of reducing conflict, as there is a risk that elephants may acclimatise to the effects of chilli, in a similar manner to which some people become accustomed to chilli additives in their food. There is some suggestion that elephants in the Kasane area of Chobe District may be coming increasingly tolerant of chilli as they are able to find weak spots such as corners which they use to enter the fields that are protected by chilli.

9.2.1 *Erecting Chilli Fences*

Chilli fences have been created through hanging small cloths smeared with a mixture of crushed chilli and grease. The grease prevents the chilli from being washed away by the rain. The cloths are hung from a thin wire supported by poles where the smell of chilli is dispersed into the air and deters crop-raiding elephants.

Advantages

- Community farmers stated that the use of chilli fences did deter elephants. This intervention has not provided a complete solution to elephant crop-raiding, but many farmers have commented that they noticed that fields not protected by chilli-impregnated cloths were raided more frequently by elephants.
- Minimal effort is required to maintain the chilli deterrent, and farmers stated that they would be willing to continue using this method.
- Farmers do not need to be present at their fields to benefit from this intervention, which makes this approach practical as many farmers houses are located in the villages, which are sometimes far from their fields.

Disadvantages

- Farmers stated that they needed to use gloves and protective clothing when handling the chilli as it causes a skin reaction and a severe reaction to the eyes. Some protective gear was provided but there is a risk involved.
- Some community farmers complained that the chilli was washed out by the rain, but they had not used the correct chilli and grease mixture.
- Community farmers were generally not willing to invest any of their own resources into this intervention. Many farmers complained that resources supplied were insufficient when locally resourced materials, such as locally harvested poles would have been adequate. Imported poles had to be supplied, planted in cement and they needed to be provided with wire. Farmers complained that they did not receive staples to attach the wire to the poles or tools such as hammer and pliers, although many alternatives are possible.
- Many poles were broken by elephants, much of which could have been avoided if the wire was removed after the crops were harvested.

Lessons Learnt

- Farmers need to take a greater level of ownership of protecting their crops for their own benefit, and the manner whereby such interventions are introduced to farmers needs to be improved. One option may be a requirement for farmers to make some contribution of their own, which should be conditional to receiving materials for elephant deterrent support.
- The availability of chilli is limited, and production on a commercial scale is necessary to provide sufficient chilli to a large number of beneficiaries.
- Incorrect use of chilli resources that are provided to farmers could be overcome by supplying a pre-mixed chilli and grease paste in a form that is safe to handle, ready to use and not suitable for any other purposes. Some experimenting with mixtures may be useful to determine an optimum consistency, effectiveness as an elephant deterrent and simple application techniques.

- The full supply chain needs to be considered and developed for provision of safe and ready-to-use chilli products. There is widespread scope for use of chilli products to deter crop-raiding elephants in Botswana and the potential for large scale production should be investigated.
- Dissemination of information to farmers on how to implement chilli products as an elephant deterrent has been good, however many farmers still rely on communication between one another and there is a need to expand the scope of HWC extension services to farmers.

9.2.2 Burning Chilli Impregnated Blocks

Blocks (approx. 30cm diameter) are made from a mixture of crushed chilli and elephant manure which is pressed and dried in a mould. Cow manure has also been used by some communities for making blocks. These blocks are burnt slowly around cultivated fields and produce an acrid smoke that is repulsive to elephants.

Advantages

- Elephants respond very acutely to the smell of burning chilli, and this technique was popular with small scale farmers. They believe in this concept as an effective means to deter elephants which has created a large demand for chilli.

Disadvantages

- Many of the home-made blocks burn up within approximately three hours, and therefore need to be replaced in the fields at regular intervals. Most elephant raids occur during darkness and repeated placement and igniting of blocks is therefore required through the night. Farmer's homes are generally in the villages and many of their cultivated fields are distant, and they are understandably reluctant to spend the night out there igniting chilli blocks. This is compounded by a fear of elephants, particularly in the dark.
- Farmers stated that they were supplied with insufficient chilli to produce enough blocks to adequately protect their crops.
- Chilli that was provided to farmers for erecting chilli fences was often used for creating chilli impregnated blocks instead.
- Wind direction is important for the correct placement of chilli blocks, and in most cases at least four blocks are required for effective coverage of a small field with changing wind directions.

Lessons Learnt

- A block that burns for approximately eight hours would be practical and some simple ingenuity invested into production techniques would be helpful. Simple examples include the following:

- The blocks made from elephant manure are very light, fibrous and burn relatively fast, whereas use of cow manure slows the burning process. It should be possible to create a slower burning and cost effective block through experimenting with various binding materials.
- Compacting the mixture into a more solid block, possibly using a device similar to that used for making building bricks may also be helpful.

- The full supply chain needs to be developed for provision of slow-burning blocks to farmers in a form that is ready to use. There is widespread scope for use of this technique in Botswana and the potential for large scale production should be investigated. Investigation of the production process by experienced Chemical Engineers is recommended if the use of chilli-burning blocks is to be widely rolled out to a large number of beneficiaries.

9.2.3 Chilli Cultivation

Growing chillies on site has been attempted in Khumaga, Eretsha and Mabele villages under the supervision of DWNP focal officers involved in the project, but with limited success. Chilli bushes have been provided with drip irrigation, and in some instances grown under shade cloth. Chilli seeds have also been provided to farmers to grow chilli to meet their own requirements. There has been some success, although a number of farmers mentioned that they experienced problems growing their own chilli, mostly due to the arid climate. There has however been a shortage of chilli and large quantities of chilli have been imported by the project from Zimbabwe and Zambia.

Advantages

- Chilli demonstration plots have received attention from village communities and many practical lessons about chilli production have been learnt.

Disadvantages

- The arid climate in the project area is not conducive to large scale growing of chillies and the cost of irrigation including the pumps, plumbing for irrigation, storage tanks and other equipment has been high.
- Chilli production under DWNP supervision was most successful in Khumaga Village, however the production from one season was sufficient to produce only 100 chilli impregnated blocks. Each of those blocks would burn up within three hours, and this production was therefore insufficient to support one farmer for a one month. An analysis of the total production costs including of staff salaries, equipment and field preparation will most certainly reveal a very high cost of production for relatively small quantities of chilli.

- The DWNP project officers are not naturally farmers and the time needed to supervise chilli production has competed with other important project tasks required of them.

Lessons Learnt

- The local climate is arid and not suitable for large scale chilli production and providing drip irrigation at high cost is not sustainable in the long term. A sustainable supply of chillies for elephant deterrent purposes will therefore need to be sourced from elsewhere. Importing chilli from neighbouring countries with higher rainfall climates will be far more cost effective and reliable.
- The chilli variety (Tabasco) that has been cultivated produces a small fruit and hence a low yield. A range of chilli varieties are readily available commercially through various large agricultural seed suppliers and some experimentation with different chilli varieties may be useful (if chillies are going to be cultivated) to either increase the yield, achieve better drought tolerance and/or achieve an increased elephant deterrent effect.

9.2.4 Use of Honey Bees

Consultants have stated that elephants are afraid of honey bees and will avoid the areas around active beehives. This concept is based on observations in Kenya and has been experimented in the project area. Trials have been done to establish beehives around the periphery of fields, but minimal success has been achieved.

Disadvantages

- Focal project officers and community farmers have both stated that they have experienced difficulty sourcing bee swarms to place into beehives.
- Bee swarms that have been placed in hives have mostly absconded.
- Beehives were constructed with thin plywood which has not been durable. The plywood warps when getting wet and many beehives have fallen apart soon after being constructed.

Lessons Learnt

- Use of honey bees as an effective elephant deterrent is unlikely for various reasons, some of which are included below:
  - The project area is hot with a pronounced dry season. Minimal forage in the form of flowers is available for honey bees during the dry season, and very few bee colonies occur naturally in the area. Honey bee colonies therefore need a high level of care to survive under conditions where they don't naturally occur, and particularly if they are to be kept at sufficient high density to deter herds of hungry elephants.
  - Beehives located around the perimeter of fields are exposed to the hot sun where they are likely to overheat and the honeycomb wax will

melt, resulting in conditions that are simply not conducive to keeping honey bees.
    - Honey badgers are common in the area, and will readily raid beehives. The beehives needed to be located in exposed positions such that the honey bees will defend their hives, which makes them very vulnerable honey badger predation. Metal sheets were placed around poles to stop badgers climbing up to beehives, however these animals are extremely tenacious and persistent, and would quickly learn to bypass simple deterrents.
    - Honey bees are averse to smoke, and burning chilli impregnated blocks cannot be used in conjunction with bee-keeping.
    - Honey bees are active during daylight hours, whereas most crop-raiding by elephants occurs during darkness, when the deterrent effect of honey bees is limited.
    - Elephants do get natural exposure to honey bees in riparian habitats such as within the Delta and along the Chobe River. Elephants can therefore be expected to be familiar with these insects and the deterrent effect of honey bees is likely to be limited.
- Community members that have managed to establish beehives have noted that elephants have no fear of them and will actually step over active hives.
- A big effort was made to test this concept, however it has not been successful. Advice on the use of honey bees received from external consultants was not appropriate to local conditions and experience from the project has shown that bees are not a practical means of deterring crop-raiding elephants. The use of honey bees must be discontinued as an HWC intervention.

9.2.5 Cultivating Early Maturing Crop Varieties to Avoid Conflict with Elephants

The elephant herds disperse during the rainy season but tend to concentrate around permanent water sources during the dry season. Many of these dry season ranges are the same areas favoured for human settlement and crop production. Crop-raiding by elephants therefore increases during the dry season, and is exacerbated by the shortage of forage for elephants at this time.

Various hybrid crop varieties that are early (also fast) maturing can be cultivated and harvested while most of the elephant herds are dispersed and crop raiding is minimal.

Advantages

- Community farmers stated that in 2013 the rains were adequate and they did harvest crops from hybrid seed that was provided to them by the project.

Disadvantages

- The later years of the project have been associated with drought and general crop failure in the project area due to inadequate rainfall. This has prevented effective testing of the concept as an effective avoidance of conflict with elephants.
- Communities have complained that seeds were provided late, which prevented early planting and thus early harvesting, which further defeated the purpose of avoiding elephant crop damage through timing.
- Hybrid maize seed dries quickly on reaching maturity and provides a very short window (less than a week) during which it can be harvested in a green state (on the cob), which is the preferred state for consumption by many of the communities.

Lessons Learnt

- Cultivating early maturing maize is an innovative concept for avoiding conflict that is well-suited to areas where elephants are seasonally absent. Conducting trials on the effectiveness as a means of conflict avoidance is a wise concept.
- Early maturing maize/other crops should be the preferred variety for areas that experience erratic rainfall and in drought prone areas. Promoting the use of optimum maize and other crop varieties is the mainstream activity of the countries agricultural extension services, and they are better placed than the DWNP to promote this concept over the long term.

9.2.6 Elephant Restraining Fence

An Elephant Restraining Fence (ERF) was built in Lesoma Village to replace a previously existing fence (*Figure 6.3*). This is an electrified fence surrounding many fields and powered by the national grid (Botswana Power Cooperation) and uses solar panels as a backup. This site was chosen because Lesoma Village experiences severe human wildlife conflict as it is located between Chobe National Park and the Matetsi Safari Area of Zimbabwe, also because members of the village are predominantly of the San/Basarwa ethnic group and the SAP emphases to need for these people to be supported.

Advantages

The ERF has been well constructed and is both elephant and predator proof. Local communities are pleased with the design of the fence and believe that it will be effective as a HWC intervention. There are however a number of problems that have resulted from construction of this fence.

Disadvantages

- Construction of an ERF requires a thorough reorganisation of village land use arrangements which can cause lot of disruption. Inevitably some

community members will benefit while others will not. Strong leadership is required to address these consequences in a fair and equitable manner.

- Members of the community were allocated plots of land within the ERF, but many of them have sold these plots to people from Kasane town. Wildlife conflicts are an issue in Kasane and residents there are buying plots of land within the ERF for other purposes, which defeat the reasons for constructing the fence.
- People within Lesoma Village do not manage their finances well and many of those that have sold plots have spent the money and remain in a state of poverty and without access to land.
- There is intense disagreement within the village and some people have blocked other people's access to their plots within the ERF. This has led to the complaint that there are not enough access gates into the ERF. Two gates were installed and more gates would increase the likelihood that they are left open and defeat the entire purpose of the ERF.
- Meetings were held in many different villages during the evaluation field visit, and it was readily apparent that the supportiveness of the village leadership was a crucial factor for the success of project activities there.
- Extensive consultation was attempted in Lesoma Village regarding siting and layout of the ERF, but consultation sessions were poorly attended by village members.

Lessons Learnt

- The concept of the ERF can be an effective approach towards dealing with HWC, particularly in areas where the HWC issues are severe.
- Success of such a venture is strongly influenced by the village leadership and such ventures should only be supported if there is adequate local support.
- A clear set of village regulations are required prior to development of a community structure such as the ERF, but if consultation efforts are not taken seriously then it becomes a fruitless exercise.

9.3 INTERVENTIONS FOR REDUCED LIVESTOCK PREDATION

Two types of interventions have been tested for reducing livestock predation, namely the construction of improved predator proof kraals and promoting the use of livestock guarding dogs.

9.3.1 Construction of Predator-proof Kraals

Most livestock predation occurs at night, and livestock losses can be reduced by kraaling animals at night. However predators will enter into poorly built kraals in which case they are able to kill multiple animals. Well-built predator

proof kraals are seen as an effective approach towards reducing the losses of livestock.

A number of kraals have been built for livestock keepers, and two designs have been implemented. Kraals were initially built by Cheetah Conservation Botswana (CCB) using imported materials. These kraals were popular with livestock owners but were considered to be expensive to construct. The project has since experimented with a smaller kraal using local materials (locally cut tree trunks) built by the Botswana Predator Conservation Trust (BPCT) at lower cost.

Figure 9.1 ***Examples of Kraals Built by Cheetah Conservation Botswana (CCB) Using Imported Materials and Kraals Built by Botswana Predator Conservation Trust (BPCT) Using Local Materials***

Kraal constructed with imported materials, Moreomaoto Village

Kraal constructed with local materials, Seronga Village

Advantages

- There has been a high demand amongst communities for the CCB built kraals and community cattle keepers have been grateful to receive these. Many of these kraals have been well used.
- There have been no livestock losses within any of the well-built kraals, where these have been maintained and well managed.

Disadvantages

- Kraals built by BPCT using local materials have not been robust and are perceived by communities to be inadequate for holding cattle, and therefore serve no purpose guarding against predator attacks. Much of this community opinion is justified based on the following observations:
  - A number of the BPCT built kraals had severely deteriorated within a year of use by keeping livestock. This suggests that these kraals were inadequate to hold cattle.
  - The standard of construction of the BPCT-built kraals was poor, for example corner posts of a kraal built with local materials in Seronga Village (*Figure 9.1*) had not been firmly planted in the ground; and

- Lions and leopards are easily able to climb over the walls of the kraals built with local materials.

- Local authorities and VPC members in Eretsha Village complained about the excessive numbers of trees that were cut down to construct the BPCT kraals, also the manner in which community members were not consulted by BPCT prior to trees in their areas being cut.
- Communities do not have the resources to maintain kraals built with imported materials. The basic structures were mostly still strong and predator proof, but shade cloth has become torn and untidy.
- Cattle are heavy animals and when confined into a small space, they exert a heavy pressure onto the structure. The better-built CCB kraals have mostly lasted for the duration of the project, but suitability of the materials to last over the long term is questionable. These kraals are essentially based on a normal security fence, whereas robust kraal designs are readily available on the internet.
- The CCB built kraals are effective but the standard of construction could have been better, for example gates don't close easily, do not match the gap made for the gate or there is no solid structure beneath the gate to prevent predators from crawling in.
- Some inappropriate locations were selected by the communities for kraal construction. A CCB built kraal in Seronga village was built in 2014 within an active elephant corridor and enclosed trees that elephants regularly fed on. This kraal has suffered elephant damage, and this livestock owner has been too afraid to gather his livestock due to the frequent presence of many elephants in the evening, and so this kraal has often not been used.
- Beneficiaries were selected to receive kraals based on the number of predator-related livestock losses they incurred, rather than the percentage of their herd that was affected. This approach has favoured those community members with large numbers of cattle, and who are influential/elite members of the community (for example the VPC Chairman in Moreomaoto Village). This was foreseen as a risk in the design of the project but not excluded (*Section 4.1*), and is discussed in the assessment of the project sustainability (*Section 8*). Owners of large herds of livestock are wealthy people and should be able to contribute some of their own resources towards the protection of their cattle.
- The better-built kraals are permanent structures unlike the traditional kraals which are less permanent, and a build-up of manure occurs over time which becomes a problem during the rainy season. Livestock owners stated that they do not have the means to clean out the accumulation of manure in their kraals. This indicates some lack of ownership and dependency on the government. This manure has a value as fertilizer if mechanisms could be developed to clean it out and distribute for cultivation purposes.
- Limited success has been achieved with predator-proof kraals in Chobe District as development plans for some villages there promote wildlife tourism over livestock keeping. Sites allocated by the Chobe Land Board

have not always been ideal locations for kraals, for example there has been no water available for the cattle.

Lessons Learnt

- Kraals have been effective in reducing livestock predation, and demonstrate the importance of confining animals securely at night.
- Kraals need to be built to a good standard using quality materials if they are to serve as an effective HWC intervention.
- Poorly built kraals require extensive maintenance which in most cases is more costly than building to an appropriate standard initially.
- The cost of constructing a kraal must be reconciled against the value of the animals being protected, including both the livestock and the predators (primarily lion and leopard). Livestock have a monetary value, but it is difficult to ascribe values to predators outside of protected areas. These predators have significant conservation value, which when combined with the value of livestock greatly exceeds the value of imported materials to build a kraal. There is a cost associated with protecting livestock and apex predators, and adequate kraals are one of those costs.

9.3.2 Use of Livestock Guarding Dogs

Local dogs have been raised together with livestock (primarily goats) and trained to guard their herd against harm (*Figure 9.2*). Dogs are alert and will bark at and highlight the presence of predators, which defeats the element of surprise upon which predators rely on to hunt, and effectively reduces the predation of livestock. The use of livestock guarding dogs has been successfully introduced in the project area, and there have been a number of livestock owners who have adopted the technique on their own initiative, most notably in Moreomaoto and Kavimba Villages.

Livestock guarding dogs can effectively protect a herd of up to 40 goats. CCB have noted that a herd of goats will tend to remain in a close group making them easier for a dog to watch over than cattle which will tend to spread out over a larger area.

Figure 9.2 Photographs of Livestock Guarding Dogs in Moreomaoto Village, Boteti

Advantages

- Beneficiaries have stated that they have had no livestock losses to predators over a few years that their guard dogs have been present.
- In some instances, neighbouring livestock owners have benefitted from the presence of a guard dog, provided the dog is familiar with the neighbour's livestock.
- Beneficiaries have stated that their dogs have helped to bring their livestock back to the kraal at the end of the day, and in some cases have avoided their livestock from getting lost.
- Local dog breeds are suitable for use as livestock guarding dogs and this is a low cost intervention that is readily being adopted by local communities.

Disadvantages

- Guard dogs have been exposed to a variety of dangers while out guarding their herds, with dogs in the project area having been eaten by pythons and crocodiles. Some dogs have been killed by cars. These causes of dog mortality are natural, but were not considered during development of the indicators within the PRF (*Section 6.3.2*).
- Dogs need to be reproductively sterilised otherwise they lose interest in guarding livestock once they become sexually mature. Effective and ethical sterilisation is an impediment to the guard dog concept being adopted by small scale pastoralists.
- Many livestock guarding dogs have developed behavioural problems, possibly due to an identity crisis coupled with the side effects of sterilisation. A common example has been dogs that are overly protective of their livestock herd and have attacked other livestock and/or people which has led to conflict with neighbours. In some instances, dogs have had to be removed. Behavioural problems can be easily addressed, but livestock owners/dog handlers need to be taught the correct procedures to handle their dogs.
- The project intervention has provided a high (and possibly unsustainable) level of pet care, such as imported dog food and veterinary support. Dogs are abundant within local communities and are able survive and multiply without these provisions, however the approach has resulted in a level of dependence and expectation by beneficiaries. This effect may hinder the adoption of the concept by other small livestock keepers.

Lessons Learnt

- Use of livestock guarding dogs is an effective and low cost means of reducing predation of small livestock. This concept has the potential to roll itself out in a self-sustaining manner, although the following technical support is required if this approach is to be promoted as an effective approach to reducing pastoralist and predator conflict:

- Local support for dealing with dog behavioural problems is needed. Suitable local extension support staff need to be identified and trained how to train dog owners on handling techniques, as well as puppy selection and training.
- Ongoing veterinary support for vaccination and ethical sterilisation of dogs is required.

- A high turnover of guarding dogs is to be expected, and a realistic life expectancy for livestock guard dogs needs to be determined, which can be used in future for evaluating effectiveness of the intervention and planning the needs for technical support.
- An ongoing introduction of the techniques for training puppies to guard livestock is required, due to the high turnover rate of guard dogs.
- Increased use of livestock guarding dogs will provide a partial solution to the problem of dogs attacking other livestock, as guard dogs are likely to avoid one another.

9.4 TRAINING OF COMMUNITIES

9.4.1 Incorporating Communities into the Wildlife-tourism Industry

The project has supported tourism-related training of young people from each of the project villages. Students have been sent on Lodge Management Training, Professional Guide Training and Junior Hospitality Training. Training was conducted by the Career Dreams College based in Maun, and in Kasane. Training consisted of six months of theory plus three months of practical apprenticeship, referred to locally as attachment. Additional San/Basarwa members were sent for training based on recommendations within the Social Action Plan (SAP).

Advantages

- All graduates interviewed were satisfied with the standard of the training provided by Career Dreams.
- Many students have been trained and a large proportion of them have found employment in the field in which they were trained.
- Some students have excelled and have progressed with further training, while others have had their talents recognised and have been incorporated into national youth programmes.
- Some members of the San/Basarwa ethnic group in Gudigwa Village have done well in this training and have acquired employment with some of the most prestigious tour operators in Botswana. It has demonstrated to members of the village that there is hope for their people and is one of the big achievements of the project.
- This component of the project has been the most appreciated by the village authorities and the beneficiaries in the majority of the villages visited.

Disadvantages

- A certificate that was issued by Career Dreams to a girl in Mabele Village did not display the logo of the National Qualifications Authority (BOTA), and this girl stated that she found herself outcompeted by job seekers with qualifications from training institutions that demonstrated their accreditation. It is not known if this applies to all of the Career Dreams certificates, and it is noted in *Section 6.2.2* that many graduates from the college have found employment.
- Young people living in remote villages have been unsure how to seek employment opportunities, as there has been no structured approach to facilitate graduates to find employment.
- None of the tourism operators interviewed during the evaluation were aware of the programme. Project staff mentioned that tourism operators were invited to graduation ceremonies but there was a poor turnout.

Lessons Learnt

- Improving the employment prospects of the youth in HWC affected villages has improved the attitudes of communities towards coexistence with wildlife. This approach should therefore be incorporated into future programs to promote human wildlife coexistence.
- Human Wildlife Coexistence is a national concern and high level attention needs to be given towards improving wildlife-related careers for those people suffering the consequences of living with wildlife.
- Training supported by donor funding must be accredited to national standards. Training the trainers should be considered to improve the capacity of training institutions in Botswana to be able to incorporate the youth from HWC affected rural communities.

9.4.2 Capacity Building of Community Based Trusts

A number of Community Based Trusts (CBTs) have previously been formed in the project area and were authorised to lease concession areas. These CBTs have also been mandated with some responsibility to address HWC within their areas. Training was offered by BOCOBONET and CARACAL (*Section 6.3.2*) during the early stages of the project, but issues relating to continuity and the standard of delivery of services were experienced. The Kalahari Conservation Society (KCS) have a history of development and involvement in CBNRM in Botswana, and were subsequently contracted to address this component of the project. KCS have provided a professional approach that meets a high standard. Much has been achieved but the short duration of KCS's involvement has limited the success that could realistically be expected.

This component of the project has not featured strongly in the PRF and was a somewhat intangible component of the project. One meeting was held with KCS at their Gaborone Office but there were no meetings with CBTs.

Lessons Learnt

The success of addressing HWC interventions depends heavily on the enthusiasm and technical delivery at the grassroots level. There is a strong lack of ownership of HWC interventions by communities and a corresponding dependence on government structures to address the issue. Developing and enabling CBT offers part of a solution and should be given far greater priority in the future and HWC should be integrated into CBNRM programmes.

10 RECOMMENDATIONS FOR FUTURE MANAGEMENT OF HWC INTERVENTIONS

1. The draft HWC strategy is well formulated and will encourage farmers to adopt a greater level of ownership of their crops. Implementing the key components of this strategy will effectively reduce many of the HWC incidents that currently occur.
2. Monitoring of HWC incidents by communities is effective and should be incorporated into monitoring programmes where possible.

Provision of Chilli for Fences and for Burning Impregnated Blocks

3. The use of Chilli for creation of chilli fences or as chilli impregnated blocks for burning is effective in deterring crop-raining elephants and farmers should be widely encouraged to adopt these techniques. Chilli should be provided to farmers in a safe and ready-to-use format that discourages waste or inappropriate use.
4. The full supply chain for provision of safe and ready-to-use chilli (ie. in the form of burning blocks or mixed with grease for chilli fences) needs to be developed. There is widespread scope for the use of chilli products and the potential for large scale production should be investigated by experienced Chemical Engineers before these interventions can be widely rolled out.

Use of Bees as an Elephant Deterrent

5. Use of honey bees is not a practical means of deterring crop-raiding elephants, and must be discontinued as a DWNP approved HWC intervention.

Cultivating Early Maturing Maize Varieties to Avoid Conflict with Elephants

6. Use of early maturing crop varieties does offer some mitigation against crop-raiding by elephants. Promoting the use of early maturing crop varieties is the mainstream activity of the agricultural extension services, and they are better placed than the DWNP to promote this concept over the long term.

Elephant Restraining Fence

7. An Elephant Restraining Fence (ERF) can be an effective approach towards dealing with HWC, particularly in areas where the HWC issues are severe. The concept can however lead to considerable land use disruption. Strong leadership and a clear set of village regulations are therefore required prior to implementing such a development.

Construction of Predator-proof Kraals

8. Strong kraals can be effective in reducing livestock predation. There is a high value of livestock at stake and the affected predators (lion and leopard) have an important conservation value. Predator-proof kraals are worthy of funding and an adequate source of funds need to be established to continue this HWC intervention.
9. Kraals need to be strong and built to a good standard using quality materials if they are to serve as an effective HWC intervention. Improved designs for cattle kraals should be further investigated.

Use of Livestock Guarding Dogs

10. Use of livestock guarding dogs is an effective and low cost means of reducing predation of small livestock. This concept has the potential to roll itself out in a self-sustaining manner, although the following technical support is required if this approach is to be promoted as an effective approach to reducing pastoralist and predator conflict:
    - Suitable local extension staff need to be identified and trained how to train dog owners on handling techniques to avoid dog behavioural problems, as well as puppy selection and training.
    - Ongoing veterinary support for vaccination and ethical sterilisation of dogs is required.

Incorporating Communities into the Wildlife-tourism Industry

11. Improving the prospects of the youth in HWC affected villages to find employment in the wildlife sector has improved the attitudes of whole communities towards coexistence with wildlife. This approach should therefore be incorporated into future programs to reduce conflict and promote human wildlife coexistence.
12. Improving the standard of the training provided in Botswana through developing a programme for training the trainers would contribute towards achieving greater levels of human wildlife coexistence. Training must be accredited to national standards.

Mainstreaming HWC management with DWNP programmes

13. Developing and enabling CBT offers a partial solution to addressing HWC within villages and should be given some priority in the future. The management of HWC should therefore be integrated into CBNRM programmes.

11 CONCLUSION

The project has successfully achieved the outcomes for which it was established, namely to develop and test an approach towards mitigating the effects of HWC.

The first Project Outcome Indicator was intended as an overall indicator of project success, and required a 10% reduction in the annual wildlife conflict incidents in project villages caused by key species, namely elephants and lions. This indicator was not be achieved as the original baseline data against which the indicators were set was under-estimated. The full extent of human wildlife conflict incidents was only realised once better monitoring was established by the project. This result was anticipated as a risk that was rated as Substantial during design of the project, and therefore does not undermine the overall success of the project.

The second Project Outcome Indicator has achieved outstanding success. This indicator measures the employment achieved by youths from project (HWC affected) villages that were offered skills training for entry into the ecotourism industry. Approximately 60% of graduates have found employment, and this figure may rise as the remainder continue to seek employment.

The Social Action Plan (SAP) required additional support to be provided to vulnerable groups and ethnic minorities such as the San/Basarwa communities. In response to the SAP, additional training opportunities were made available to these communities, and a number of their students have excelled in the more complex careers such as accounting and lodge management. A number of graduates from the San community in Gudigwa village have acquired employment in some of the very prestigious tourist lodges in the Okavango Delta. The village chief stated during the final evaluation visit that this training has provided much hope to the entire Gudigwa community, which is a community that has struggled with depression and despair for many years.

The following three Intermediate Outcome Indicators have been achieved, with many achieved beyond expectation:

- Component 1: Strengthened Extension Service Delivery for Human-Wildlife Coexistence Interventions
- Component 2: Strengthened Capacity of Targeted Communities to Implement Human-Wildlife-Coexistence Strategies
- Component 3: Project Management Support

The project has experienced challenges, which have included a high turnover of project staff, delays in procurement and initiating HWC interventions in the early stages of the project, and insufficient mainstreaming of activities into the DWNP's processes. Challenges have been addressed through high level interventions by the Project Steering Committee, flexibility offered by the

World Bank and a strong commitment by the DWNP to make this project a success.

The prevailing government policy for addressing human wildlife conflict in Botswana does not encourage farmers and local communities to take ownership of protecting their crops and livestock. The project has highlighted these shortcomings and has pioneered the development of the Human Wildlife Coexistence Strategy. The strategy is currently in draft form and under review by the Ministry of Environment, Wildlife and Tourism. Development of this strategy document is a significant contribution towards sustainable management of human wildlife conflict in the future.

Many lessons have been learnt pertaining to the implementation of specific HWC interventions. These lessons will be valuable for the future management of HWC on a wider scale.

ANNEX 1 OVERVIEW OF DOCUMENTS REVIEWED

REVIEW OF DOCUMENTS DEVELOPED OR GUIDED BY THE DWNP

Human Wildlife Coexistence Strategy (Draft). Ministry of Environment, Wildlife and Tourism, April 2015.

A draft Human Wildlife Coexistence Strategy (HWCS) was developed as an outcome of the project. This document (25 pages) and has been rated by the World Bank review team as excellent. The strategy assesses the nature and key causes of HWC in Botswana and presents a practical overview of actions that can be taken to address the problem. Some comments on the Draft Strategy are presented in *Box 1*.

Box 1 Comment on the Draft Human Wildlife Coexistence Strategy

Key Strengths	Possible Shortcomings
• It promotes a paradigm shift away from HWC mitigation and towards Human Wildlife Coexistence • It acknowledges that the current approach to HWC compensation does not encourage communities to address HWC. • It promotes the concept that communities should implement at least a minimum set of mitigation measures to qualify for future compensation. • The document encourages involvement, establishment and strengthening of Community Based Organisations where HWC occurs. • It prioritises the importance of effective land use planning as a means to avoid HWC, which includes the establishment of buffers around protected areas. • It acknowledges that addressing HWC is a shared responsibility between the Government, the private sector and communities. • It acknowledges the importance of animal welfare when dealing with wildlife. • It promotes ongoing research into HWC for increased understanding and constant improvement in addressing the problem.	• The strategy does not promote the integration of community members from HWC affected areas into the wildlife-related economy, which this project has shown to provide an effective psychological boost to whole communities. • It does not address supply chain issues to ensure the ready availability of materials required to discourage problem animals. • It does not address the need to develop extension services at various levels from Districts, DWNP offices and CBOs to develop the technical capacity to address HWC. • It does not emphasise recording the spatial importance of HWC incidents through accurate recording of coordinates, use of GPS and management of spatial data using GIS technologies. • The draft strategy should be unbiased, but instead promotes close collaboration with a specific NGO, namely BOCOBONET which has become defunct.

Proceedings of the Botswana Wildlife Research Symposium, February 2014

This document provides a detailed overview of the proceedings of the above research symposium, and has a high level of relevance to the project. From

these proceedings, it is clear that the project has played a constructive role in thought leadership relating to HWC in Botswana, and has engaged key participants in this field. The proceedings are structured into the following components:

- Wildlife Monitoring;
- Community Based Natural resource Management;
- Human-Wildlife Conflict;
- Human-Livestock-Wildlife Interface Issues;
- Transboundary Conservation; and
- Critical Management Issues.

Some useful extracts from the proceedings that have relevance to the project are presented in *Box 2*.

Box 2 ***Some Useful and Relevant Statements in the Proceedings***

- "HWC remains a grave threat in and around conservation areas. Several presentations emphasised the need to use a 'tool-box' approach for the mitigation of HWC as no single technique can effectively ease conflict." (Symposium wrap-up)
- "HEC mitigation often bears limited results due to the ability of elephants to habituate quickly to the measures, learning to avoid or ignore them." (L. King)
- "Capsicum-based elephant deterrents such as chilli fences and chilli bricks are yielding positive results if administered effectively." (L. King)
- "Certain fields were found to be more vulnerable to crop-raiding than others, implying that mitigation measures should target these high risk fields." (L. King)
- "Local Tswana dogs are more effective at guarding livestock than traditionally preferred alternatives; small dogs are as effective as large ones; and even non-effective guard dogs improve tolerance towards predators and reduce the level of lethal control used by farmers." (Kgotla & Hogan)

REVIEW OF NGO REPORTS BASED ON THEIR INVOLVEMENT

BOCOBONET, December 2010. Community Trusts Operations Management Training for Boteti, Chobe and Okavango. Final Report.

This report was compiled while BOCOBONET while they were operational, however they have since terminated operations. The report describes training of 62 people consisting of four Village development Committee members, 48 CBO representatives and two DWNP staff (See also *Section 6.3.2* and *Table 6.5*).

Evaluation Comment: The training was conducted during initial stages of the project lifecycle, and the report highlights the lack of capacity of community members to manage CBOs. The training was planned to be delivered at a higher level but needed to be adjusted to meet participant capacities. This was an important initial step in identifying challenges related to CBO management, and demonstrates that a lot has been achieved by the project.

CARACAL, May 2011. Training of Government Extension Staff in HWC Interventions (Component A3). Final Training Report.

This report was compiled during the initial stages of the project, and describes the training of 20 DWNP officers from six office locations involved in project implementation. The training was provided at the CARACAL offices in Kasane from 9 to 13 May 2011. The objective of the training was to provide officers with an understanding of HWC mitigation strategies with an emphasis on those implemented by the project. This training was provided as a once-off event, and primarily through a workshop approach.

CARACAL, January 2012. Survey/Mapping of Elephant Corridors and Cluster Fences (Component B). Final Report.

This report presents results of a program to map elephant movements and corridors in the project areas of Okavango and Chobe Districts. Paths are mapped in these two areas and the report speculates whether these paths are created by community use, livestock or elephants.

Evaluation Comment: A complex approach was adopted by CARACAL to map elephant densities in the Okavango District which merely provides data that confirms local community knowledge on seasonal elephant movements in that area. Maps provided in this report are too small for practical use and the methodology used is too complex for regular replication. Results presented have therefore been of little use to the project.

Dr Lucy King, July 2013. Using Honey Bees as an Elephant Deterrent for Small Farms. Evaluation Report and Recommendations for Makgadikgadi, Okavango and Chobe Beehive Fence Projects.

This report presents the results following an evaluation of initial trials using honey bees as an elephant deterrent. A total of 21 farmers equally spread over the three project areas were selected to benefit from support to place beehives around their crop fields. The report highlights a series of problems experienced which include late arrival of the rains, low participation by communities, shortages of bee swarms to capture and place into beehives, problems with cattle disturbing beehives, high elephant densities, farmers not protecting their fields at night, busy schedules and transfer of DWNP officers and a lack of dedicated beekeeping officers.

Evaluation Comment: The report overlooks fundamental issues that prohibit the keeping of bees in many parts of the project area, such as climate suitability and a lack of bee forage during the dry season. Community members have observed elephants in the project area having no fear of active beehives, and the effectiveness of the recommendations provided in this report should be questioned (*see also Section 9.2.4*).

Elephant Pepper Development Trust, September 2013. Final Report and Recommendations [for general mitigation of human elephant conflict].

This report presents a set of recommendations for using chillies and other means to deter elephants from crop raiding covering a variety of activities which include erection of chilli fences, burning of chilli blocks, burning chilli in braziers, using pepper sprays and shooting chilli bombs at elephants (designs for homemade devices resembling a potato gun are provided in the report). The report also promotes the use of beehives, noise makers, using catapults and throwing sticks, spears and other projectiles to further deter elephants. The report also promotes the cultivation of chilli plants around fields as a form of deterrent.

Evaluation Comment: The use of chilli can be an effective elephant deterrent, as described in *Section 9.2* and commented in proceedings of the Wildlife Research Symposium *(Box 2)*. However some of the recommendations in this report conflict with one another, are impractical or potentially place community members in serious danger as per the following examples:

(i) Use of chilli spray and burning of chilli is not compatible with keeping bees.
(ii) The local climate is not suitable for cultivating chillies around fields as these plants need regular irrigation.
(iii) Shooting chilli bombs or throwing spears at elephants has the potential to make these animals aggressive, which could risk fatal consequences for the farmers involved, and/or other community members walking or riding bicycles in the area. Any methods that involve direct confrontation between communities and elephants are potentially not safe and should not be advocated.

Kalahari Conservation Society, August 2014. NBHWCP Communications Strategy.

This report was provided recommendations for improved communication with project beneficiaries and other community members. Unfortunately the Kalahari Conservation Society (KCS) were contracted by the project at a late stage following problems with BOCOBONET and CARACAL. The communication strategy adopts a broad approach that uses a multitude of methods. These include production of manuals and posters, touring theatre productions that are presented to coincide with stakeholder workshops, use of the media such as radio, television and newspapers and production of a documentary of the NBHWCP interventions.

Evaluation Comment: Many of the recommendations within the communication strategy have been effectively implemented, with positive comments received from villages. Many posters are present and village chiefs have recently requested the theatre productions return to the project area to continue their performances.

Cheetah Conservation Botswana, October 2014. Summary of Activities and Monitoring for the NBHWCP from July 2013 to September 2014. Final Report.

This report presents the results of implementing two predator conflict interventions, namely the construction of kraals and promoting the use of livestock guarding dogs. The report presents an overview of the activities and provides an analysis of the successes and challenges associated with those interventions.

Evaluation Comment: Both interventions implemented by CCB have been positively received by communities and provide a useful approach towards mitigating livestock losses to various predators. These interventions and some of the lessons learnt are discussed in greater detail in *Sections 9.3.1* and *9.3.2*.

Kalahari Conservation Society, July 2015. Community Conservation Trust Trainings Project (Phase II). Final Report.

Discussion of the results of this report is included in *Section 6.3.2*.
This document presents the results of the second phase of KCS's engagement with communities and community trusts. No report has been seen for Phase I, but this focussed on preliminary training of Community Based Trusts (CBTs) conducted in 2013. A second training was conducted in August 2014, and there was evidence of ample improvement in the capacity of CBTs demonstrated by improved attendance at board meetings, proper records of meetings, proposals compiled to solicit funding, AGMs held and overall community interest in issues that affect growth of these trusts and Community Based Natural Resource Management (CBNRM) as a whole. The second phase focussed on the following components:

- Training of local communities in income generation through production of local crafts using a train-the-trainer approach;
- Technical assistance and capacity building of CBTs building on the results of Phase I; and
- Assisting the development and negotiation of Joint Venture Partnership proposals with private sector partners.

A major challenge that KCS experienced when dealing with CBTs was the change of policy within the Ministry of Environment Wildlife & Tourism, whereby the Ministry have started leasing Wildlife Management Areas/Concession areas directly to private operators which undermines Joint Venture Partnerships and bypasses the CBTs.

ANNEX 2 GEF MANAGEMENT EFFECTIVENESS TRACKING TOOL (METT)

The Terms of Reference for evaluation of the project (*Section 1.2*) require that the GEF Biodiversity Management Effectiveness Tracking Tool (METT) is completed. Use of the Tracking Tool is obligatory for all GEF protected area projects at least three times during the projects lifespan, which includes evaluation. The template for this tracking tool version 5 (2007) was accessed online (1) and is presented over the pages that follow. The Tracking Tool consists of Data sheet 1, Data sheet 2 and a 30 question Assessment Form.

The Management Effectiveness Tracking Tool (METT or Tracking Tool) has been developed to help track and monitor progress in the achievement of the World Bank/WWF Alliance worldwide protected area management effectiveness targets. If biodiversity continues to decline, the protected area objectives are not being met, and questions on condition assessment have disproportionate importance in the overall Tracking Tool. The Tracking Tool is aimed at providing a quick overview of the management steps identified in the World Commission on Protected Areas Framework.

The NBHWCP is focussed on addressing HWC issues that affect communities outside of protected areas. The project areas are located close to some important protected areas, but the objectives of the project are not aimed at addressing protected area management. The Tracking Tool would therefore seem to have little relevance to the project, but it has nevertheless been compiled focussing on the protected areas in the vicinity of the project.

(1) METT template accessed from:
http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&ved=0CEIQFjAFahUKEwjP0ceeloXJAhXIbxQKHWU1DLk&url=http%3A%2F%2Fassets.panda.org%2Fdownloads%2Fmett2_final_version_july_2007.pdf&usg=AFQjCNFWzFWc_zJGz2oX7TlPdDNbsI8T9g&sig2=_obPUQbzIOOBHfQtzv5Kjg&bvm=bv.106923889,d.ZWU

METT Datasheet 1

Name, affiliation and contact details for person responsible for completing the METT (email etc.)	Botswana Department of Wildlife and National Parks (*DWNP contact name and contact details*) Andrew Cauldwell (Andrew.Cauldwell@erm.com)			
Date assessment carried out	November 2015			
Name of protected area	Community areas in the vicinity of: • Makgadikgadi Pans National Park; • Panhandle of the Okavango Delta; and • Chobe National Park.			
WDPA site code (available on www.unep-wcmc.org/wdpa/)	• Makgadikgadi Pans Nat. Park, ID: 1224 • Okavango Delta World Heritage Site, ID: 555577555 • Chobe National Park, ID: 600			
Designations	National	IUCN Category	International (please also complete sheet overleaf)	
	Makgadikgadi Pans Nat. Park	1b		
	Okavango Delta World Heritage Site	Not applicable		
	Chobe National Park	1b		
Country	Botswana			
Location of protected area (province and if possible map reference)	• Makgadikgadi Pans National Park (Boteti Sub-district); • Panhandle of the Okavango Delta (Okavango District); and • Chobe National Park (Chobe District).			
Date of establishment	• Makgadikgadi Pans National Park - 1992; • Panhandle of the Okavango Delta - 2014; • Chobe National Park: 1968			
Ownership details (please tick)	State ☐	Private ☐	Community ☒	Other ☐
Management Authority	Botswana Department of Wildlife & National Parks (DWNP)			
Size of protected area (ha)	• Makgadikgadi Pans National Park – 4902 km²; • Panhandle of the Okavango Delta – 20236 km²; • Chobe National Park: 11 000 km²			
Number of staff	Permanent	Temporary		
Annual budget (US$) – excluding staff salary costs	Recurrent (operational) funds	Project or other supplementary funds		
What are the main values for which the area is designated	• Makgadikgadi Pans Nat. Park – Undisturbed wilderness; Congregation of threatened birds (lesser Flamingo), Zebra migration. • Panhandle of the Okavango Delta – Exceptional beauty and aesthetic importance; outstanding ecological biodiversity and hydrological processes; threatened and endangered species. • Chobe National Park: Large wildlife concentrations, particularly elephants, threatened and endangered species vast wilderness area			
List the two primary protected area management objectives				
Management objective 1				
Management objective 2				
No. of people involved in completing assessment				
Including: (tick boxes)	PA manager ☒	PA staff ☒	Other PA staff ☒	NGO ☐
	Local community ☐	Donors ☐	External experts ☒	Other ☐
Was assessment carried out in association with a particular project, on behalf of an organisation or donor	Assessment conducted as a part of an evaluation of the Northern Botswana Human Wildlife Coexistence Project funded by the World bank / GEF.			

Information on International Designations			
UNESCO World Heritage site (see: whc.unesco.org/en/list)			
Date listed	**Site name**	**Site area**	**Geographical co-ordinates**
1992	Makgadikgadi Pans National Park	Boteti Sub-district	
2014	Okavango Delta World Heritage Site	Okavango District	
1968	Chobe National Park	Chobe District	
Criteria for designation (i.e. criteria i to x)			
Statement of Outstanding Universal Value			
Ramsar site (see: www.wetlands.org/RSDB/)			
Date listed **9 Dec 1996**	Site name Okavango Delta	Site area 5,537,400 ha	Geographical number 19°17'S; 022°54'E
Reason for Designation (see Ramsar Information Sheet)	Set in a semi-arid region and subject to large fluctuations in flooded area, the site includes permanent and seasonal swamp, riverine floodplains and a seasonal freshwater lake. The floodplains form critical habitat for many species of birds and wildlife at their southern limits of distribution in the region. The diverse flora and fauna includes 1060 different plant species, 32 large mammal species, over 650 species of birds, 68 species of fish, and a highly diverse insect population, all of which include rare, endangered and endemic species. Human activities include recreation, tourism, subsistence farming, fishing, and livestock grazing. The present area figure has been recalculated downward in 2006, with no change of site boundaries.		
UNESCO Man and Biosphere Reserves (see: www.unesco.org/mab/wnbrs.shtml)			
Date listed None	**Site name**	**Site area** Total: Core: Buffer: Transition:	**Geographical co-ordinates**
Criteria for designation	Not applicable		
Fulfilment of three functions of MAB (conservation, development and logistic support.)	Not applicable		
Please list other designations (i.e. ASEAN Heritage, Natura 2000) and any supporting information below			
Name:	Detail:		
Name:	Detail:		
Name:	Detail:		
Name:	Detail:		
Name:	Detail:		
Name:	Detail:		

METT Data Sheet 2: Protected Areas Threats

Threats ranked as of **high** significance are those which are seriously degrading values; **medium** are those threats having some negative impact and those characterised as **low** are threats which are present but not seriously impacting values or **N/A** where the threat is not present or not applicable in the protected area.

1. Residential and commercial development within a protected area

Threats from human settlements or other non-agricultural land uses with a substantial footprint

High	Medium	Low	N/A	
		✔		1.1 Housing and settlement
			✔	1.2 Commercial and industrial areas
		✔		1.3 Tourism and recreation infrastructure

2. Agriculture and aquaculture within a protected area

Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture

High	Medium	Low	N/A	
		✔		2.1 Annual and perennial non-timber crop cultivation
			✔	2.1a Drug cultivation
			✔	2.2 Wood and pulp plantations
	✔			2.3 Livestock farming and grazing
			✔	2.4 Marine and freshwater aquaculture

3. Energy production and mining within a protected area

Threats from production of non-biological resources

High	Medium	Low	N/A	
			✔	3.1 Oil and gas drilling
			✔	3.2 Mining and quarrying
			✔	3.3 Energy generation, including from hydropower dams

4. Transportation and service corridors within a protected area

Threats from long narrow transport corridors and the vehicles that use them including associated wildlife mortality

High	Medium	Low	N/A	
	✔			4.1 Roads and railroads (include road-killed animals)
		✔		4.2 Utility and service lines (e.g. electricity cables, telephone lines,)
			✔	4.3 Shipping lanes and canals
			✔	4.4 Flight paths

5. Biological resource use and harm within a protected area

Threats from consumptive use of "wild" biological resources including both deliberate and unintentional harvesting effects; also persecution or control of specific species (note this includes hunting and killing of animals)

High	Medium	Low	N/A	
		✔		5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)
		✔		5.2 Gathering terrestrial plants or plant products (non-timber)
		✔		5.3 Logging and wood harvesting
	✔			5.4 Fishing, killing and harvesting aquatic resources

6. Human intrusions and disturbance within a protected area

Threats from human activities that alter, destroy or disturb habitats and species associated with non-consumptive uses of biological resources

High	Medium	Low	N/A	
	✔			6.1 Recreational activities and tourism
			✔	6.2 War, civil unrest and military exercises
		✔		6.3 Research, education and other work-related activities in protected areas
		✔		6.4 Activities of protected area managers (e.g. vehicle use, construction, artificial watering points and dams)
		✔		6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors

7. Natural system modifications

Threats from actions that convert, degrade habitat or change the way the ecosystem functions

High	Medium	Low	N/A	
		✔		7.1 Fire and fire suppression (including arson)
		✔		7.2 Dams, hydrological modification and water management/use
		✔		7.3a Increased fragmentation within protected area
		✔		7.3b Isolation from other habitats (e.g. deforestation, dams without effective aquatic wildlife passages)
	✔			7.3c Other 'edge effects' on park values
	✔			7.3d Loss of keystone species (e.g. top predators, pollinators etc.)

8. Invasive and other problematic species and genes

Threats from terrestrial and aquatic non-native and native plants, animals, pathogens/microbes or genetic materials that have or are predicted to have harmful effects on biodiversity following introduction, spread and/or increase

High	Medium	Low	N/A	
		✔		8.1 Invasive non-native/alien plants (weeds)
		✔		8.1a Invasive non-native/alien animals
		✔		8.1b Pathogens (non-native or native but creating new/increased problems)
			✔	8.2 Introduced genetic material (e.g. genetically modified organisms)

9. Pollution entering or generated within protected area

Threats of exotic and/or excess materials or energy from point / non-point sources

High	Medium	Low	N/A	
		✔		9.1 Household sewage and urban waste water
		✔		9.1a Sewage and waste water from protected area facilities (e.g. toilets, hotels etc.)
			✔	9.2 Industrial, mining / military effluents and discharges (e.g. poor water quality discharge from dams, e.g. unnatural temperatures, de-oxygenated, other pollution)
		✔		9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)
		✔		9.4 Garbage and solid waste
		✔		9.5 Air-borne pollutants
		✔		9.6 Excess energy (e.g. heat pollution, lights etc.)

10. Geological events

Geological events may be part of natural disturbance regimes in many ecosystems. But they can be a threat if a species or habitat is damaged and has lost its resilience and is vulnerable to disturbance. Management capacity to respond to some of these changes may be limited.

High	Medium	Low	N/A	
			✔	10.1 Volcanoes
			✔	10.2 Earthquakes/Tsunamis
			✔	10.3 Avalanches/ Landslides
	✔			10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)

11. Climate change and severe weather

Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events outside of the natural range of variation

High	Medium	Low	N/A	
	✔			11.1 Habitat shifting and alteration
✔				11.2 Droughts
✔				11.3 Temperature extremes
	✔			11.4 Storms and flooding

12. Specific cultural and social threats

High	Medium	Low	N/A	
		✔		12.1 Loss of cultural links, traditional knowledge and/or management practices
		✔		12.2 Natural deterioration of important cultural site values
			✔	12.3 Destruction of cultural heritage buildings, sites etc.

METT Assessment Form

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
1. Legal status Does the protected area(s) have legal status (or in the case of private reserves is covered by a covenant or similar)? *Context*	The protected area is not gazetted/covenanted	0		The protected areas in the vicinity of the project are properly gazetted, recognised on the World Database of Protected Areas and their IUCN categories are clearly defined.	No further steps required other than keeping abreast with legislative changes.
	There is agreement that the protected area should be gazetted/covenanted but the process has not yet begun	1			
	The protected area is in the process of being gazetted/covenanted but the process is still incomplete (includes sites designated under international conventions, such as Ramsar, or local/traditional law such as community conserved areas, which do not yet have national legal status or covenant)	2			
	The protected area has been formally gazetted/covenanted	3	**3**		
2. Protected area regulations Are appropriate regulations in place to control land use and activities (e.g. hunting)? *Planning*	There are no regulations for controlling land use and activities in the protected area	0		The legislation is adequately developed to conserve the Botswana protected areas network.	No further steps required other than maintaining regulations abreast with legislation and appropriate to prevailing conditions.
	Some regulations for controlling land use and activities in the protected area exist but these are major weaknesses	1			
	Regulations for controlling land use and activities in the protected area exist but there are some weaknesses or gaps	2			
	Regulations for controlling inappropriate land use and activities in the protected area exist and provide an excellent basis for management	3	**3**		
3. Law enforcement Can staff (i.e. those with responsibility for managing the site) enforce protected area rules well enough? *Input*	The staff have no effective capacity/resources to enforce protected area legislation and regulations	0		The DWNP has operational anti-poaching units who receive support when required from the Botswana Defence Force	No deviation from the current approach towards law enforcement is advocated here
	There are major deficiencies in staff capacity/resources to enforce protected area legislation and regulations (e.g. lack of skills, no patrol budget, lack of institutional support)	1			
	The staff have acceptable capacity/resources to enforce protected area legislation and regulations but some deficiencies remain	2			
	The staff have excellent capacity/resources to enforce protected area legislation and regulations	3	**3**		
4. Protected area	No firm objectives have been agreed for the protected area	0			

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
objectives Is management undertaken according to agreed objectives? *Planning*	The protected area has agreed objectives, but is not managed according to these objectives	1			
	The protected area has agreed objectives, but is only partially managed according to these objectives	2			
	The protected area has agreed objectives and is managed to meet these objectives	3	**3**		
5. Protected area design Is the protected area the right size and shape to protect species, habitats, ecological processes and water catchments of key conservation concern? *Planning*	Inadequacies in protected area design mean achieving the major objectives of the protected area is very difficult	0		The protected areas are large and support intact ecosystems, however the arid climate and unreliable rainfall has resulted in various migratory movements which cause populations of wildlife to move in and out of the protected areas. Veterinary fences have impacted on migratory movements, but wildlife populations have since stabilised and various migratory movements continue.	Ongoing Land use planning ecological monitoring and research should continue
	Inadequacies in protected area design mean that achievement of major objectives is difficult but some mitigating actions are being taken (e.g. agreements with adjacent land owners for wildlife corridors or introduction of appropriate catchment management)	1			
	Protected area design is not significantly constraining achievement of objectives, but could be improved (e.g. with respect to larger scale ecological processes)	2	**2**		
	Protected area design helps achievement of objectives; it is appropriate for species and habitat conservation; and maintains ecological processes such as surface and groundwater flows at a catchment scale, natural disturbance patterns etc.	3			
6. Boundary demarcation Are the boundaries known and demarcated? *Process*	The boundary of the protected area is not known by the management authority or local residents/neighbouring land users	0		Protected area boundaries are described, mapped and are adequately demarcated on the ground. Local stakeholders are aware of the protected area boundaries.	No deviation from the current approach towards boundary maintenance is advocated here
	The boundary of the protected area is known by the management authority but is not known by local residents/neighbouring land users	1			
	The boundary of the protected area is known by both the management authority and local residents/neighbouring land users but is not appropriately demarcated	2			
	The boundary of the protected area is known by the management authority and local residents/neighbouring land users and is appropriately demarcated	3	**3**		
7. Management	There is no management plan for the protected area	0		A management plan exists for the Okavango Delta	

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
plan Is there a management plan and is it being implemented? *Planning*	A management plan is being prepared or has been prepared but is not being implemented	1		Ramsar Site *Uncertain for protected areas*	
	A management plan exists but it is only being partially implemented because of funding constraints or other problems	2			
	A management plan exists and is being implemented	3	**3**		
Additional points: Planning					
7a. Planning process	The planning process allows adequate opportunity for key stakeholders to influence the management plan	+1	**1**		
7b. Planning process	There is an established schedule and process for periodic review and updating of the management plan	+1	**1**		
7c. Planning process	The results of monitoring, research and evaluation are routinely incorporated into planning	+1	**1**		
8. Regular work plan Is there a regular work plan and is it being implemented *Planning/Outputs*	No regular work plan exists	0			
	A regular work plan exists but few of the activities are implemented	1			
	A regular work plan exists and many activities are implemented	2	**2**		
	A regular work plan exists and all activities are implemented	3			
9. Resource inventory Do you have enough information to manage the area? *Input*	There is little or no information available on the critical habitats, species and cultural values of the protected area	0		African wildlife ecology involves a wide diversity of species and complex species interactions. There are still many gaps in the ecological understanding of critical habitats and ecological processes.	Ongoing ecological monitoring and research
	Information on the critical habitats, species, ecological processes and cultural values of the protected area is not sufficient to support planning and decision making	1			
	Information on the critical habitats, species, ecological processes and cultural values of the protected area is sufficient for most key areas of planning and decision making	2	**2**		
	Information on the critical habitats, species, ecological processes and cultural values of the protected area is sufficient to support all areas of planning and decision making	3			

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
10. Protection systems Are systems in place to control access/resource use in the protected area? *Process/Outcome*	Protection systems (patrols, permits etc.) do not exist or are not effective in controlling access/resource use	0		Some illegal resource use does occur, but efforts are taken to manage and address this.	No deviation from the current approach towards resource protection is advocated here
	Protection systems are only partially effective in controlling access/resource use	1			
	Protection systems are moderately effective in controlling access/resource use	2	**2**		
	Protection systems are largely or wholly effective in controlling access/ resource use	3			
11. Research Is there a programme of management orientated survey and research work? *Process*	There is no survey or research work taking place in the protected area	0		Many NGOs and institutions are involved research into wildlife and ecosystems in the project area. They are not always coordinated with one another or with the specific management needs of the protected areas concerned.	Ongoing ecological monitoring and research to be continued
	There is a small amount of survey and research work but it is not directed towards the needs of protected area management	1			
	There is considerable survey and research work but it is not directed towards the needs of protected area management	2	**2**		
	There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs	3			
12. Resource management Is active resource management being undertaken? *Process*	Active resource management is not being undertaken	0		The ecology is diverse and complex making it difficult to conclusively state that species, habitats and processes are adequately addressed, but certainly the important issues are being addressed.	Ongoing ecological monitoring and research to be continued
	Very few of the requirements for active management of critical habitats, species, ecological processes and cultural values are being implemented	1			
	Many of the requirements for active management of critical habitats, species, ecological processes and, cultural values are being implemented but some key issues are not being addressed	2	**2**		
	Requirements for active management of critical habitats, species, ecological processes and, cultural values are being substantially or fully implemented	3			
13. Staff numbers Are there enough people employed to manage the	There are no staff	0		There will always be scope for more staff and better capacity, but there is a good level of human resource capacity for managing the	
	Staff numbers are inadequate for critical management activities	1			
	Staff numbers are below optimum level for critical management activities	2	**2**		

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
protected area? *Inputs*	Staff numbers are adequate for the management needs of the protected area	3		protected areas.	
14. Staff training Are staff adequately trained to fulfil management objectives? *Inputs/Process*	Staff lack the skills needed for protected area management	0		The Botswana Wildlife Training Institute does provide a high standard of training, staff are trained but there will always be opportunities for further training.	
	Staff training and skills are low relative to the needs of the protected area	1			
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	**2**		
	Staff training and skills are aligned with the management needs of the protected area	3			
15. Current budget Is the current budget sufficient? *Inputs*	There is no budget for management of the protected area	0		Availability of funding is not a constraint for effective resource protection and protected area management.	
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1			
	The available budget is acceptable but could be further improved to fully achieve effective management	2			
	The available budget is sufficient and meets the full management needs of the protected area	3	**3**		
16. Security of budget Is the budget secure? *Inputs*	There is no secure budget for the protected area and management is wholly reliant on outside or highly variable funding	0		The Botswana Government has committed itself at the highest level to protecting the country's wildlife resources, and is committed towards providing ongoing financial resources to achieve this.	
	There is very little secure budget and the protected area could not function adequately without outside funding	1			
	There is a reasonably secure core budget for regular operation of the protected area but many innovations and initiatives are reliant on outside funding	2			
	There is a secure budget for the protected area and its management needs	3	**3**		
17. Management of budget Is the budget managed to meet critical management needs? *Process*	Budget management is very poor and significantly undermines effectiveness (e.g. late release of budget in financial year)	0		The DWNP follows proper procurement and accounting procedures, and these do not impose constraints onto the effectiveness of resource protection and protected area management.	Financial planning and maintaining the capacity of financial staff is a priority for the DWNP.
	Budget management is poor and constrains effectiveness	1			
	Budget management is adequate but could be improved	2			
	Budget management is excellent and meets management needs	3	**3**		

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18. Equipment Is equipment sufficient for management needs? *Input*	There are little or no equipment and facilities for management needs	0		There will always be scope for better equipment for management and protection purposes.	Ongoing development of equipment and facilities remains important
	There are some equipment and facilities but these are inadequate for most management needs	1			
	There are equipment and facilities, but still some gaps that constrain management	2	**2**		
	There are adequate equipment and facilities	3			
19. Maintenance of equipment Is equipment adequately maintained? *Process*	There is little or no maintenance of equipment and facilities	0		There will similarly also always be scope for better maintenance of equipment. The protected areas are located is harsh and remote environments with abundant deep sand. This does result in considerable wear and tear of vehicles and other equipment.	Ongoing maintenance of equipment and facilities remains important
	There is some *ad hoc* maintenance of equipment and facilities	1			
	There is basic maintenance of equipment and facilities	2	**2**		
	Equipment and facilities are well maintained	3			
20. Education and awareness Is there a planned education programme linked to the objectives and needs? *Process*	There is no education and awareness programme	0		The DWNP has a strong and active community support programme.	No deviation from current programmes are advocated
	There is a limited and *ad hoc* education and awareness programme	1			
	There is an education and awareness programme but it only partly meets needs and could be improved	2			
	There is an appropriate and fully implemented education and awareness programme	3	**3**		
21. Planning for land and water use Does land and water use planning recognise the protected area and aid the achievement of objectives? *Planning*	Adjacent land and water use planning does not take into account the needs of the protected area and activities/policies are detrimental to the survival of the area	0		Water resources associated with the protected area are not managed but are kept in a natural state. The DWNP does not have control over the management of water catchments as these are outside of Botswana. There is however little disturbance of these catchments at the landscape level.	Maintain an open dialogue with the conservation authorities of neighbouring countries.
	Adjacent land and water use planning does not takes into account the long term needs of the protected area, but activities are not detrimental the area	1			
	Adjacent land and water use planning partially takes into account the long term needs of the protected area	2	**2**		
	Adjacent land and water use planning fully takes into account the long term needs of the protected area	3			

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Additional points: Land and water planning					
21a: Land and water planning for habitat conservation	Planning and management in the catchment or landscape containing the protected area incorporates provision for adequate environmental conditions (e.g. volume, quality and timing of water flow, air pollution levels etc.) to sustain relevant habitats.	+1		The hydrological systems that provide water to the protected areas is largely undisturbed and management of this process is not necessary. Management of hydrological flows would be a challenge as the key rainfall catchments are outside of the borders of Botswana. There is a cross-border fisheries management programme involving Namibia and Zambia.	Maintain an open dialogue with the conservation authorities of neighbouring countries.
21b: Land and water planning for connectivity	Management of corridors linking the protected area provides for wildlife passage to key habitats outside the protected area (e.g. to allow migratory fish to travel between freshwater spawning sites and the sea, or to allow animal migration).	+1	**1**		
21c: Land and water planning for ecosystem services & species conservation	"Planning addresses ecosystem-specific needs and/or the needs of particular species of concern at an ecosystem scale (e.g. volume, quality and timing of freshwater flow to sustain particular species, fire management to maintain savannah habitats etc.)"	+1			
22. State and commercial neighbours Is there co-operation with adjacent land and water users? *Process*	There is no contact between managers and neighbouring official or corporate land and water users	0		The DWNP does engage with the TAWANA and Chobe Land Boards and they strive to achieve a balance between community needs and conservation requirements.	Engagement and collaboration between the DWNP, village authorities and other arms of government must continue
	There is contact between managers and neighbouring official or corporate land and water users but little or no cooperation	1			
	There is contact between managers and neighbouring official or corporate land and water users, but only some co-operation	2	**2**		
	There is regular contact between managers and neighbouring official or corporate land and water users, and substantial co-operation on management	3			
23. Indigenous people Do indigenous and traditional peoples resident or regularly using the protected area have input to management	Indigenous and traditional peoples have no input into decisions relating to the management of the protected area	0		San / Basarwa have stated that they are restricted from accessing their traditional areas, and hunting activities are prohibited as this conflicts with wildlife legislation. Communication channels are maintained and the DWNP has made a large effort to support these	The traditional San/Basarwa lifestyles are not compatible with the current demands on wildlife resources, and their culture needs to adapt accordingly. Support programmes are implemented are need to be continued.
	Indigenous and traditional peoples have some input into discussions relating to management but no direct role in management	1	**1**		
	Indigenous and traditional peoples directly contribute to some relevant decisions relating to management but their involvement could be improved	2			

Issue	Criteria of the METT	Score: Tick only one box per question		Comment/Explanation	Next steps
decisions? *Process*	Indigenous and traditional peoples directly participate in all relevant decisions relating to management, e.g. co-management	3		communities in minimising human wildlife conflict and incorporating them into tourism economies.	
24. Local communities Do local communities resident or near the protected area have input to management decisions? *Process*	Local communities have no input into decisions relating to the management of the protected area	0		The DWNP has supported the development of community Based Trusts (CBT) to benefit from wildlife resources, engage and empower their members in Community Based natural Resource Management (CBNRM) activities. Policy changes within the Ministry of Environment, Wildlife and Tourism have reduced the authority of CBTs.	Capacity building of CBTs and regular engagement with communities needs to continue.
	Local communities have some input into discussions relating to management but no direct role in management	1			
	Local communities directly contribute to some relevant decisions relating to management but their involvement could be improved	2	**2**		
	Local communities directly participate in all relevant decisions relating to management, e.g. co-management	3			
Additional points *Local communities/indigenous people*					
24a. Impact on communities	There is open communication and trust between local and/or indigenous people, stakeholders and protected area managers.	+1		Conflict-causing wildlife extend far beyond the protected areas and issues relating to crop raiding by elephants and predation of livestock are frequently raised by communities.	Ongoing support is required towards promoting improved Human Wildlife Coexistence
24b. Impact on communities	Programmes to enhance community welfare, while conserving protected area resources, are being implemented	+1	**1**		
24c. Impact on communities	Local and/or indigenous people actively support the protected area	+1			
25. Economic benefit Is the protected area providing economic benefits to local communities, e.g. income, employment, payment for environmental services *Outcomes*	The protected area does not deliver any economic benefits to local communities	0		The DWNP have a strong community outreach programme that supports and empowers CBNRM programmes. This ensures a flow of benefits to communities, although the legislation that regulates these activities is currently in a state of change.	Support will be required to align CBNRM approaches to new legislative changes
	Potential economic benefits are recognised and plans to realise these are being developed	1			
	There is some flow of economic benefits to local communities	2	**2**		
	There is a major flow of economic benefits to local communities from activities associated with the protected area	3			

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26. Monitoring and evaluation Are management activities monitored against performance? *Planning/Process*	There is no monitoring and evaluation in the protected area	0		Wildlife censes are conducted in a professional manner at regular intervals to provide reliable indicators of wildlife population trend. This data is readily available and integrated with extensive research is conducted by the DWNP in collaboration with NGOs and academic institutions. Outcomes are integrated into management decisions where relevant.	Ongoing ecological monitoring and research to be continued
	There is some *ad hoc* monitoring and evaluation, but no overall strategy and/or no regular collection of results	1			
	There is an agreed and implemented monitoring and evaluation system but results do not feed back into management	2			
	A good monitoring and evaluation system exists, is well implemented and used in adaptive management	3	**3**		
27. Visitor facilities Are visitor facilities adequate? *Outputs*	There are no visitor facilities and services despite an identified need	0		The protected areas associated with the NBHWCP are rated amongst the most popular wildlife tourism destinations in Africa. Numbers of tourists are increasing and the majority of tourists are satisfied with their wildlife experiences.	Ongoing development and maintenance of visitor facilities is required
	Visitor facilities and services are inappropriate for current levels of visitation	1			
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2			
	Visitor facilities and services are excellent for current levels of visitation	3	**3**		
28. Commercial tourism operators Do commercial tour operators contribute to protected area management? *Process*	There is little or no contact between managers and tourism operators using the protected area	0		There is a healthy private tourism sector that is both profitable and engages with the DWNP on tourism issues.	Ongoing engagement with tourism operators is required to keep tourism management in line with trends and market needs
	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1			
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain protected area values	2			
	There is good co-operation between managers and tourism operators to enhance visitor experiences, and maintain protected area values	3	**3**		
29. Fees If fees (i.e. entry fees or fines) are applied, do they help protected	Although fees are theoretically applied, they are not collected	0		The DWNP has a well-structured fee collection system that is priced according to market conditions. Citizens and residents receive preferential	Ongoing market research to keep fee schedules in line with market trends
	Fees are collected, but make no contribution to the protected area or its environs	1			
	Fees are collected, and make some contribution to the protected area and its environs	2			

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area management? *Inputs/Process*	Fees are collected and make a substantial contribution to the protected area and its environs	3	**3**	rates. Protected area fees are accounted for and contribute towards management purposes.	
30. Condition of values What is the condition of the important values of the protected area as compared to when it was first designated? *Outcomes*	Many important biodiversity, ecological or cultural values are being severely degraded	0		The large elephant populations are having an impact on the vegetation, particularly in the vicinity permanent water sources where elephant densities increase during the dry season.	Ongoing ecological monitoring and research to be continued
	Some biodiversity, ecological or cultural values are being severely degraded	1			
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2	**2**		
	Biodiversity, ecological and cultural values are predominantly intact	3			
Additional Points: Condition of values					
30a: Condition of values	The assessment of the condition of values is based on research and/or monitoring	+1	**1**	As above	As above
30b: Condition of values	Specific management programmes are being implemented to address threats to biodiversity, ecological and cultural values	+1	**1**		
30c: Condition of values	Activities to maintain key biodiversity, ecological and cultural values are a routine part of park management	+1			
TOTAL SCORE			**80**		