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The World Bank

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IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(TF-96337)

ON A GRANT FROM  
THE GLOBAL ENVIRONMENT FACILITY  
IN THE AMOUNT OF US\$ 5.5 MILLION  
TO THE  
REPUBLIC OF BOTSWANA  
FOR A  
NORTHERN BOTSWANA HUMAN WILDLIFE COEXISTENCE PROJECT

July 28, 2016

Environment and Natural Resources Global Practice

Africa Region

## CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2016)

Currency Unit = Botswana Pula (BWP)

1.00 = US\$ [0.14]

US\$ 1.00 = [6.95]

FISCAL YEAR

April 1- March 31

## ABBREVIATIONS AND ACRONYMS

ACRONYM	DESCRIPTION
BOCOBONET	Botswana Community Based Organizations Network
CARACAL	Center for the Conservation of African Resources, Animals, Communities and Land Use
CBNRM	Community based Natural Resource Management
CBO	Community Based Organisation
CBT	Community Based Trust
CCB	Cheetah Conservation Botswana
DCEC	Directorate of Corruption and Economic Crimes
DPS	Deputy Permanent Secretary of the MEWT
DSS	Decision Support System
DWNP	Department of Wildlife and National Parks
ESMF	Environment and Social Management Framework
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
GPS	Geographic Positioning System
GoB	Government of Botswana
HEC	Human Elephant Conflict
HWC	Human Wildlife Conflict
HWCS	Human Wildlife Coexistence Strategy
IP	Indigenous Peoples
IPP	Indigenous Peoples Plan (also referred to as the SAP)
IPPF	Indigenous Peoples Planning Framework
ISR	Implementation Support and Results Report
IT	Information Technology
KCS	Kalahari Conservation Society
METT	Management Effectiveness Tracking Tool
MEWT	Ministry of Environment Wildlife and Tourism
MOMS	Management Oriented Monitoring System
MTR	Mid-term Review

M&E	Monitoring and Evaluation
NBHWCP	Northern Botswana Human Wildlife Coexistence Project
NCA	National Capital Account
NGO	Non-Government Organisation
NRM	Natural Resources Management
PAC	Problem Animal Control
PAD	Project Appraisal Document
PDO	Project Development Objective
PIU	Project Implementation Unit
PSC	Project Steering Committee
RAD	Remote Area Dweller
SAP	Social Action Plan
SEEA	System of Environment and Economic Accounting
ToR	Terms of Reference
VPC	Village Project Committee
WAVES	Wealth Accounting and Valuation of Ecosystem Services
WB	World Bank

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ICR Team Leader:	Claudia Sobrevila

**BOTSWANA**  
**Northern Botswana Human Wildlife Coexistence Project**

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A. Basic Information			
Country:	Botswana	Project Name:	Northern Botswana Human Wildlife Coexistence project
Project ID:	P095617	L/C/TF Number(s):	TF-96337
ICR Date:	06/07/2016	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	REPUBLIC OF BOTSWANA
Original Total Commitment:	US\$ 5.5M	Disbursed Amount:	US\$ 5.5M
Revised Amount:			
Environmental Category: B-partial assessment		Global Focal Area: Biodiversity	
Implementing Agencies: DEPARTMENT OF WILDLIFE AND NATIONAL PARKS			
Cofinanciers and Other External Partners:			

<b>B. Key Dates</b>				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	08/17/2005	Effectiveness:	January 2010	03/31/2010
Appraisal:	07/06/2009	Restructuring(s):	04/01/2014	04/01/2014
Approval:	11/19/2009	Mid-term Review:	May 2012	04/10/2012
		Closing:	01/31/2015	01/31/2016

<b>C. Ratings Summary</b>	
<b>C.1 Performance Rating by ICR</b>	
Outcomes:	Moderately Satisfactory
Risk to Global Environment Outcome	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

<b>C.2 Detailed Ratings of Bank and Borrower Performance</b>			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Moderately Satisfactory	Implementing Agency/Agencies:	Moderately Satisfactory
<b>Overall Bank Performance:</b>	Moderately Satisfactory	<b>Overall Borrower Performance:</b>	Moderately Satisfactory

<b>C.3 Quality at Entry and Implementation Performance Indicators</b>			
<b>Implementation Performance</b>	<b>Indicators</b>	<b>QAG Assessments (if any)</b>	<b>Rating</b>
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Moderately Unsatisfactory		

<b>D. Sector and Theme Codes</b>		
	<b>Original</b>	<b>Actual</b>
<b>Sector Code (as % of total Bank financing)</b>		
General agriculture, fishing and forestry sector	100	100
<b>Theme Code (as % of total Bank financing)</b>		
Biodiversity	40	40
Other environment and natural resources management	40	40
Improving labor markets	10	10
Environmental policies and institutions	10	10

<b>E. Bank Staff</b>		
<b>Positions</b>	<b>At ICR</b>	<b>At Approval</b>
Vice President:	Makhtar Diop	Obiageli K. Ezekwesili
Country Director:	Guang Zhe Chen	Ruth Kagia
Practice Manager:	Magda Lovei	Idah Pswarayi-Riddihough
Project Team Leader:	Claudia Sobrevila	Juan Gaviria and Karsten Feuerriegel
ICR Team Leader:	Claudia Sobrevila	
ICR Primary Author:	Claudia Sobrevila	

## F. Results Framework Analysis

### Project Environment Objectives (PDO) and Key Indicators (as approved)

The PDO 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.

#### (a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Number of annual wildlife conflict incidents caused by key species such as elephants and lions reduced by 33% in project villages as a result of project supported intervention.			
Value		33%	10%	
Date achieved	19-Nov-2009	19-Nov-2009	1-Apr-2014	29-Jan-2016
Comments	Baseline data was under-estimated and the outcome cannot be assessed based on available data.			
<b>Indicator 2 :</b>	Number of community members employed in local wildlife-based tourism ventures increased by 75 individuals.			
Value	0	75	50	93
Date achieved	19-Nov-2009	19-Nov-2009	1-Apr-2014	29-Jan-2016
Comments	Revised target exceeded.			

#### (b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Number of DWNP extension staff trained and executing proactive HWC prevention strategies increased by 60.			
Value	0	60		139
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded			
<b>Indicator 2 :</b>	Number of DWNP extension staff trained in MOMS and DSS.			
Value	0	60		60
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target met			
<b>Indicator 3 :</b>	Number of DWNP extension staff trained in GPS receiver operation			
Value	0	60		60
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target met			

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 4:</b>	Number of DWNP extension staff trained in GIS			
Value	0	10		25
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded			
<b>Indicator 5 :</b>	Number of DWNP extension staff trained in strategic management			
Value	0	10		20
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded			
<b>Indicator 6 :</b>	Number of DWNP extension staff trained in operational management			
Value	0	30		64
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded			
<b>Indicator 7 :</b>	Number of DWNP district offices fully staffed with a trained workforce and equipped with vehicles.			
Value	0	6	No Change	8
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 8 :</b>	Number of DWNP district offices fully staffed with a trained workforce and equipped with IT office equipment.			
Value	0	5	No Change	10
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded. District offices were established in Maun, Rakops, Khumaga, Seronga and Kasane. These offices are functional and are equipped with computers, printers and office furniture.			
<b>Indicator 9 :</b>	Number of DWNP district offices fully staffed with a trained workforce and equipped GIS gear.			
Value	0	5		0
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target not met. GIS facilities have not been installed or used by the project.			
<b>Indicator 10 :</b>	Number of DWNP district offices fully staffed with a trained workforce and equipped GPS receivers.			
Value	0	30		30
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target met.			
<b>Indicator 11 :</b>	White Paper on Human Wildlife Coexistence Strategy (HWCS) developed available by Year 3			
Value	0	yes		partially
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Achieved, but still in draft state and not officially endorsed by GoB.			
<b>Indicator 12 :</b>	Total number of households using chili peppers fences to mitigate HEC			
Value	0	1500	800	839
Date achieved	19-Nov-2009	19-Nov-2009	1-Apr-2014	29-Jan-2016



Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Comments	Target was revised in the restructuring paper and was exceeded			
<b>Indicator 13 :</b>	Total number of households using kraaling to mitigate predator conflicts			
Value	0	40		38
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Substantially achieved.			
<b>Indicator 14 :</b>	Total number of households using herding dogs to mitigate predator conflicts.			
Value	0	40	No Change	36
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Not achieved. A number of guarding dogs have died as a result of various causes, although this risk was not considered when designing the indicators.			
<b>Indicator 15 :</b>	Total number of households using beehives to mitigate HEC.			
Value	0	40	No Change	43
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 16 :</b>	Total number of households using early maturing seeds to mitigate HEC.			
Value	0	100	No Change	155
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 17:</b>	CBT members trained in operation management.			
Value	0	20	No Change	52
Date achieved	09/01/2005	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 18 :</b>	Community members trained in MOMS and DSS.			
Value	0	26	No Change	45
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Partially achieved. 45 community members were trained in MOMS. But the training in DSS was never carried out.			
<b>Indicator 19 :</b>	Elephant seasonal migration corridors and cluster fences demarcated.			
Value	0	3	0	0
Date achieved	19-Nov-2009	19-Nov-2009	1-Apr-2014	29-Jan-2016
Comments	This indicator was eliminated in the restructuring paper.			
<b>Indicator 20 :</b>	Solar power fences demarcated and installed			
Value	No	80 km	No Change	9.2 km
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target partially met. The fence in the Lesoma Village installed and functioning. Target of 80 km was overestimated.			
<b>Indicator 21 :</b>	Total number of community members trained for tourism related employment increased by 100 individuals.			
Value	0	100	No Change	162
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 22 :</b>	Satisfactory rating of project implementation.			

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Value	No	Yes	No Change	No
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Partially achieved. The project was rated moderately unsatisfactory (3x), moderately satisfactory (6x) and satisfactory (3x).			
<b>Indicator 23 :</b>	Number of unqualified financial audits			
Value	0	5	No Change	4
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Partially achieved. Four audit certificates have been issued to date by the Auditor General and they found them adequate.			
<b>Indicator 24 :</b>	Number of training events for PIU and other relevant personnel.			
Value	0	6	No Change	6
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target met.			
<b>Indicator 25 :</b>	Number of communication events per year.			
Value	0	15	No Change	18
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target exceeded.			
<b>Indicator 26 :</b>	Number of forum meetings per year.			
Value	0	10	No Change	4
Date achieved	19-Nov-2009	19-Nov-2009		29-Jan-2016
Comments	Target not achieved.			

## G. Ratings of Project Performance in ISRs

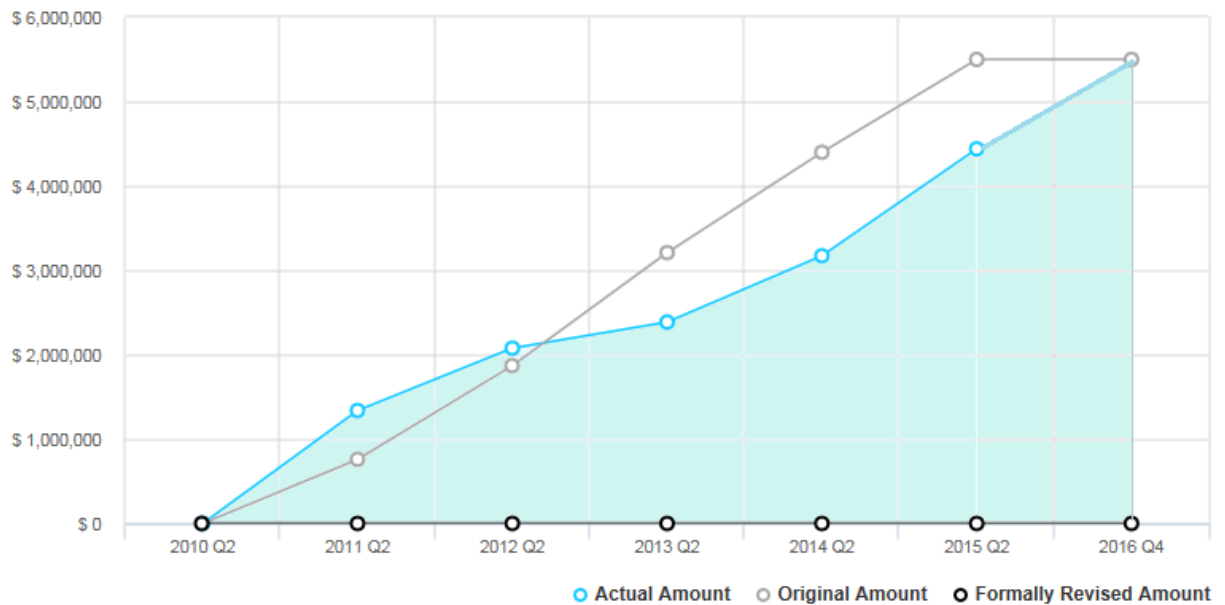
No.	Date ISR Archived	PDO	IP	Actual Disbursements (US\$ millions)
1	06/05/2010	Moderately Satisfactory	Moderately Satisfactory	0.00
2	10/26/2010	Moderately Satisfactory	Moderately Unsatisfactory	1.34
3	03/07/2011	Moderately Satisfactory	Moderately Unsatisfactory	1.34
4	09/25/2011	Moderately Satisfactory	Moderately Satisfactory	2.08
5	03/24/2012	Moderately Satisfactory	Moderately Satisfactory	2.08
6	08/07/2012	Moderately Satisfactory	Moderately Satisfactory	2.08
7	03/27/2013	Moderately Satisfactory	Moderately Satisfactory	3.17
8	09/22/2013	Moderately Satisfactory	Moderately Satisfactory	3.17
9	04/30/2014	Satisfactory	Satisfactory	3.17
10	12/09/2014	Satisfactory	Satisfactory	4.44
11	06/12/2015	Satisfactory	Satisfactory	4.44
12	12/22/2015	Moderately Unsatisfactory	Moderately Unsatisfactory	5.50

## H. Restructuring

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in US\$ millions	Reason for Restructuring & Key Changes Made
		PDO	IP		
04/01/2014	N	S	S	3.17	Closing date extension from January 31, 2015 to January 31, 2016 (implementation delays). Change in the values of some of the target indicators to measure project outcomes by the end of the project.

## I. Disbursement Profile

### CUMULATIVE DISBURSEMENTS



## **1. Project Context, Global Environment Objectives and Design**

### *1.1. Context at Appraisal*

1. At the time of appraisal, Botswana had managed to sustain growth of 9 percent over three decades (1975-2005) and graduated from one of the poorest nations to the upper middle income range. Per capita income was estimated at US\$6,150, rated one of the top in the African continent. The sustained growth was mainly led by the prudent management of diamond production discovered after independence. Revenues from the mineral were invested heavily in physical infrastructure and human capital which resulted in the transformation of the country. The country experienced high fiscal surpluses accompanied by balance of payments surpluses and low public debt. The country has also maintained high rankings in governance, transparency and business environment.

2. Botswana gem diamonds are rated the top in the world. The diamonds account for a third of the gross domestic product (GDP), over 60 percent of total annual exports and contribute about 40 percent to government revenues. Projections at the time of appraisal were showing that diamonds would continue to be produced at high levels until 2021 after which they would gradually decline until they were depleted by 2030. Despite these positive conditions, Botswana faced a daunting task of economic diversification, reducing its dependence on imports and reducing the dependence on the government sector which remains the main employer, providing 40 percent of formal employment to its citizens.

3. Despite the significant revenues gained from mining, there are challenges related to high unemployment rate, inequalities and poverty because the mining sector is capital intensive. Botswana's income inequality, with a Gini Index<sup>1</sup> in excess of 0.605, is one of the highest in the world. Botswana is committed to economic diversification as well as to increasing job opportunities. Nature-based tourism has been identified as one potential sector to be explored in that respect. Botswana's natural beauty, its wilderness, wildlife and cultural diversity make it a world-class tourist attraction. The Okavango River feeds the largest inland delta on the planet, bringing life to the arid sands of the Kalahari Desert. The river is the source of high biodiversity in this region including impala, sable and kudu, zebra, giraffe and herd of elephant, with lion and leopard in close pursuit. Botswana has been developing as a tourist destination for more than 30 years, focusing on offering exclusive wildlife viewing opportunities, and has established an enviable position as a high-end destination, attracting a relatively low volume of tourists that are prepared to pay high prices for an exceptional experience. Botswana's tourism sector is the second largest contributor to GDP (with a direct contribution of 3.5 percent in 2011) (Tourism Satellite Account, 2011) and is second after diamond mining. At the time of appraisal, Botswana's tourism industry generated around US\$1.6 billion in annual

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<sup>1</sup> The Gini index is a measurement of the income distribution of a country's residents. This number, which ranges between 0 and 1 and is based on residents' net income, helps define the gap between the rich and the poor, with 0 representing perfect equality and 1 representing perfect inequality.

revenue and directly contributed to four percent of total employment (higher than the mining sector).

4. Botswana has implemented an effective conservation program over many years. The country has 71 protected areas – catalogued under categories I to VI of the International Union for Conservation of Nature (IUCN) – covering more than 30 percent of Botswana’s total land area. The responsibility for protected areas lies mainly with the Department of Wildlife and National Parks (DWNP) as well as other government departments within the Ministry of Environment, Wildlife and Tourism. The DWNP is responsible for the management of national parks and game reserves, problem animal control, implementation of environmental education programs, and scientific research and monitoring of wildlife and habitats. Botswana’s protected areas and surrounding areas support some of the largest wildlife populations in Africa, particularly elephants and lions and are the basis of the growing nature-based tourism sector.

5. The latest survey of the Botswana elephant population was conducted in August to October 2012, and estimated a population of 207 545 ( $\pm 10\%$ ) elephants. During the period from 2000 to 2010, the elephant population in Botswana nearly doubled, making it probably the largest elephant population in Sub-Saharan Africa. Elephant population trends over 25 years reveal that the population in Botswana has grown at approximately 5 percent per annum. This implies that the elephant population has the capacity to double in size in less than 15 years. The elephant population in Botswana is also expanding its range, which may suggest that the elephant numbers may be approaching their upper limits in the core areas in northern Botswana. An unfortunate effect of large wildlife populations is the impact on local communities. Large populations of elephants in Botswana live outside of the protected areas and regularly come into conflict with local communities. A part of the lion population also exists outside of protected areas.

6. Conflicts between humans and large cats are frequent in the northern and central districts and there is growing concern about the number of lions being killed, which would negatively impact the development of nature-based tourism. In a unique effort to reduce the conflict and promote conservation, compensation programs for wildlife damage have been implemented by the Government of Botswana (GoB). These programs provide direct compensation to farmers for crop and livestock losses caused by wildlife. While the program has helped affected farmers, it has also created disincentives to protect crops and manage livestock in a more sustainable manner. The total annual costs (compensation and recurrent) in Botswana are currently estimated at US\$6.8 million. Thus, the GoB was interested in exploring alternative options for dealing with the problem.

7. In 2005, the GoB, in its effort to address human wildlife conflicts made a request to the Bank to finance a US\$5.5 million Northern Botswana Human Wildlife Coexistence Project with funds from the Global Environment Facility (GEF). The Bank was well placed to support this project because of its experience in biodiversity conservation in Southern Africa and the world and its global knowledge and experience in innovative and participatory conservation approaches. This project was the first operation in Botswana

and it presented an important opportunity for the Bank to build on its experience and support the GoB's wildlife strategy that was based on the concept of coexistence. The strategy aimed to remove barriers to conservation through adaptive management, learning and information sharing, strengthening the institutional core and improving the quality of life of local communities. In particular, the focus was on Human-Wildlife Coexistence through proactive conflict prevention and on skills development for nature-based tourism, as a way of moving from conflict management for or on behalf of communities, to one of coexistence with communities, one that ultimately leads to a situation of actual management by communities. Additional objectives of the strategy were to gradually reduce the dependency on the compensation scheme, to increase conditional access to foster sustainable livestock management and to raise awareness of conflict mitigation measures to determine eligibility for compensation.

8. The project was consistent with the priorities of the GEF operational programs for Biodiversity integrated ecosystem management (OP12) and for arid and semi-arid ecosystems (OP1). Also, the project was in line with GEF Strategic Priority 2 for Biodiversity, as conservation would be enhanced and mainstreamed into the various production landscapes (mainly wildlife, forestry and tourism).

### *1.2. Original Project Development Objectives (PDO) and Key Indicators*

9. The Project's Development Objective<sup>2</sup> (PDO) was to:
- i. Mitigate human-wildlife conflict through proactive prevention interventions in selected rural communities in Northern Botswana.
  - ii. Offer local people in the project areas employment choices in wildlife-based tourism, and to benefit directly from the presence of wildlife.
10. The key performance indicators were:
- i. Numbers of annual wildlife incidents caused by key species such as elephants and lions reduced by 33 percent in project villages.
  - ii. Numbers of community members employed in local wildlife based tourism ventures increased by 75 individuals.

### *1.3. Revised PDO and Key Indicators, and reasons/justification*

11. The PDO and key indicators were not revised. However the targets for the key indicators were changed (see Paragraph 20 and 21).

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<sup>2</sup> This is the PDO as stated in the Project Appraisal Document (PAD). The purpose of the project described in the Grant Agreement is: (i) strengthening the policy and institutional framework for wildlife management; (ii) strengthening conservation and sustainable use of wildlife resources, and (iii) building partnerships with communities, non-governmental organizations, and the private sector to secure wildlife conservation. The description in the Grant Agreement is generic and process-oriented as a means to an end, while the PAD statement defines the project scope and is a better reflection of the intended project outcomes. This ICR therefore bases the analysis on the objectives as stated in the PAD.

#### *1.4. Main Beneficiaries*

12. The primary target group of the project identified at appraisal consisted of 13 villages that are located along three important biodiversity regions in northern Botswana - the Okavango Delta panhandle, the Chobe-Linyanti wetlands, and the Makgadikgadi wetlands. The ethnic composition of the project villages was mixed and communities included representatives from Tswana and non-Tswana speaking tribes such as Hambukushu, Wayeyi and San, all of whom are engaged in mixed subsistence economies based on the production of: i) maize, millet and sorghum agriculture; ii) livestock farming; iii) fishing; and iv) collection of wild plants and herbs. All ethnic groups in the project areas have adopted sedentary lifestyles but live under subsistence farming conditions with vulnerable production systems.

13. Other beneficiaries included staff from the Department of Wildlife and National Parks (DWNP) and NGOs that implemented activities under the project (Kalahari Conservation Society, Cheetah Conservation Botswana, BOCOBONET and Caracal).

#### *1.5 Original Components*

14. The project consisted of three components.

15. **Component 1: Strengthened extension service delivery for HWC interventions.** The first component aimed at strengthening DWNP's extension service delivery for Human Wildlife Coexistence strategies such as proactive wildlife conflict interventions by addressing administrative and operational capacity requirements at district level. This was to ensure that district staff can plan, make decisions, implement and monitor HWC in three main project areas. It also provided for sufficient staffing, training and office systems for this task. In addition, the component was to provide for an enabling environment to implement the HWC policy of DWNP, and transition from depending on compensation towards engaging communities in proactive conflict prevention strategies. Activities to be financed under this component included, among others: Training for national and district based staff in strategic and operations management; and implementation support, community mobilization and training in proactive HWC interventions for DWNP staff.

16. **Component 2: Strengthened capacity of rural target population to implement HWC strategies.** The second component simultaneously addressed reducing vulnerability and increasing rural livelihood and income opportunities. The component aimed at building capacity of rural populations at the three project sites to adopt proactive prevention methods in order to mitigate HWC impacts and gain skills to be able to find employment in the tourism industry. Communities were expected to adopt tested deterrent methods to reduce the destruction of crops by elephants and deploy livestock-predator mitigation practices such as fences for cattle and other domesticated animals. About 1500 households were targeted to adopt elephant deterrents while 100 candidates were to be trained in various hospitality management operations.

17. **Component 3: Project management support.** This component was designed to ensure that DWNP staff was able to execute the project in terms of managing procurement of goods and services and disbursement of funds and implement all activities of the project. It further sought to enhance external communication tools including an information dissemination forum for all relevant stakeholders and development partners. A Project Steering Committee (PSC) was to be set up and advise the project throughout its implementation.

#### *1.6. Revised Components*

18. Project components remained unchanged during implementation.

#### *1.7. Other significant changes*

19. The project underwent one restructuring on April 1, 2014, to extend the closing date from January 31, 2015 to January 31, 2016 and to include a change in the value of the targets for some indicators. The indicators themselves did not change. The extension was requested to enable full disbursement of project activities, particularly the tourism training, thereby maximizing the benefits to targeted communities.

20. When the project was designed, one of the project outcome indicators was the number of annual wildlife conflict incidents caused by elephants and lions reduced by 33 percent in project villages as a result of project supported interventions. The revised value of this target in the restructuring was 10 percent. The reason for this change was that project sites were very scattered and it was hard for the project implementation unit to reach affected farmers that are in remote areas. This new target was more realistic given the logistics of the project. The second project outcome “number of community members employed in local wildlife based tourism venture” was reduced from 75 individuals to 50 individuals. The reasons for this change was that by the mid-term review the tourism training activities had not been initiated and with two and a half years remaining for project completion, it was deemed necessary to reduce the original target. There were some other minor changes in the targets for the Intermediate Outcome Indicators.

## **2. Key Factors Affecting Implementation and Outcomes**

### *2.1. Project Preparation, Design and Quality at Entry*

21. The Northern Botswana Human Wildlife Coexistence Project (NBHWCP) was a five year project (2010–2015) supported by the Global Environment Facility (GEF) in partnership with the GoB. The World Bank acted as the implementing agency on behalf of the GEF, to assist the Department of Wildlife and National Parks (DWNP) to manage and supervise the project.

22. The project concept review took place in August 2005 and a US\$320,000 GEF Project Preparation Grant (PPG) “Wildlife Conflict Management and Biodiversity



Conservation for Improved Rural Livelihood in Botswana” was provided to DWNP in July 2006. This was the first WB operation in Botswana and the GoB had to learn the various WB requirements for an investment funding operation. Previous GEF funds in Botswana had been executed directly by UNDP. Signing this first preparation grant agreement and applying the WB procurement and disbursement procedures turned out to be very slow due to the lack of experience and was further delayed with the failure to include the project in the GoB’s development budget. It took almost 4 years from concept to WB Board approval. By the time the PPG closed in June 2009, it had an undisbursed amount of US\$40,892.

23. During project preparation, project intervention sites were selected based on records collected by DWNP on HWC. Since 1994, DWNP had been compensating owners for loss of stock, crops, and infrastructure when damaged by wildlife. In order for compensation to be paid, owners had to submit a report to DWNP, which was followed by a DWNP site visit to assess the nature and extent of the damage. During this site visit, a compensation form was completed which details information about the owner, the type of damage, and the problem animal (wildlife) responsible. The NGO Caracal was contracted to collate and analyze the data between 1994 and 2006. This helped identify which community villages in Botswana suffered the most from damages due to wildlife conflicts and these were selected as project beneficiaries. This analysis was detailed in the technical addendum 2 of Annex 1 in the Project Appraisal Document (PAD).

24. Community consultations were an important aspect in the preparation of this project. Project preparation involved a series of village level meetings following the traditional “kgotla” format to discuss local level priorities, experiences and concerns regarding the project design, as well as financing and implementation mechanisms. Based on the village and district level consultation, a national workshop was carried out with local representation to discuss the PAD. The national workshop allowed the project team to present the final PAD for comments in order to secure a feedback mechanism for participants regarding the process which would continue during project implementation. Annex 17 of the PAD describes in detail the consultative process with NGOs, communities and different government directorates. This process ensured that no conflicts came up during implementation.

25. A positive feature of project preparation was convening an advisory Project Steering Committee (PSC) that was launched as soon as the project was approved and would operate on a biannual basis throughout project implementation. Members of the PSC were to include the Permanent Secretary of the Ministry of Environment, Wildlife and Tourism or his representative, and representatives of the Director of Wildlife and National Parks, Department of Environmental Affairs, Ministry of Finance and Development Planning, Ministry of Agriculture, affected District Council Secretary and Land Board Secretary. The PSC was meant to help DWNP coordinate and have synergies with other various institutions and NGO-supported conservation projects working on similar issues. The lead institution in the PSC would be DWNP with representatives from both national and district levels.

26. One risk identified during preparation was that local village and district elites take over the decision making process and direct benefits from the project, preventing more vulnerable community members from appropriate participation. This risk was managed through the establishment of representative Village Project Committees (VPC). A balance was reached 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. The PSC provided support in the form of senior level decision-making in beneficiary selection and support in accordance with the project requirements.

27. HWC is of national concern and a rapidly escalating issue in many countries in Africa, particularly the conflict that occurs between farmers and crop-raiding elephants. The project was designed based on solutions that had been tested and proven successful, notably in Zimbabwe, Kenya, South Africa and in other parts of Botswana. Solutions included the use of chili pepper as a deterrent for elephants, early maturing maize, solar powered elephant restraining fence lines, beekeeping, guard dogs and Management Oriented Monitoring System<sup>3</sup> (MOMS) as a suitable monitoring system by communities. Given the difficulties over the last ten years with community managed business ventures in nature-based tourism, the project decided to focus solely on tourism skills training for community members in areas where there was a clear market demand.

## *2.2. Implementation*

28. The project was the first Bank operation in Botswana and the GoB needed to learn the WB/GEF's financial, procurement, safeguards and auditing procedures. The Project Implementation Unit (PIU) in the Department of Wildlife and National Parks was fully staffed and trained in March 2010, including the financial and procurement personnel. Planning, implementation and financial and procurement management for the first year activities progressed at a slower pace than expected, in particular due to slow procurement decisions and delays which preceded the establishment of the project account with the Ministry of Finance. The use of WB/GEF procedures and requirements in the early years of project implementation was a challenge for the PIU, despite the training provided.

29. In June 2010, the project coordinator retired leaving a significant leadership gap. The new coordinator was only appointed in September 2011 after the Bank firmly insisted on it during the implementation support mission. Aside from the leadership loss, other DWNP staff changed several times, resulting in loss of time and capacity. The other implementation challenge came from the use of NGOs such as CARACAL and

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<sup>3</sup> A devolved monitoring process first developed in Southern Africa. The process involves field staff and community members in designing a monitoring process and undertaking the data collection, recording and analyzing with minimal support from external or senior technicians. It is a simple and cost effective approach that was initially developed for community managed conservation areas that have limited long term funds and resources to conduct high-tech monitoring systems.

BOCOBONET which had limited staffing and did not deliver the activities under their contract with DWNP. BOCOBONET ceased to operate during implementation despite the fact it had a contract with the project. During these first two years, project implementation was rated moderately unsatisfactory for two periods.

30. An early mid-term review (MTR) was carried out in April 2012. The MTR confirmed that the project design, scope and implementation arrangements were still fully relevant. The MTR mission met with community members and farmers who expressed very positive feedback from the training in HWC mitigation techniques they had received but also showed their eagerness to receive the materials and start applying the prevention methods. This strong interest was a marked qualitative change from the meetings held during project preparation where people were skeptical about applying these techniques. Good progress was observed in drafting the Green Paper on Human Wildlife Coexistence Strategy. However, the mission found that the procurement of goods and their delivery to the farmers was slow. DWNP staffing at the field sites to provide support to the villagers was found to be insufficient, creating a burden on the few officers working on the project.

31. During the MTR, agreements were reached to: i) adjust the outcome targets as they appeared to be overly ambitious; ii) deliver urgently the mitigation kits to the farmers; iii) support the Village Committees to mobilize community members; iv) accelerate the skills training component to community members so that they are able to find employment in the tourism industry and; v) provide the Monitoring and Evaluation training to communities (MOMS). Most of the recommendations of the MTR were implemented within six months, except for the MOMS training that took longer.

32. The project underwent restructuring in 2014, as detailed in section 1.7. On the World Bank side, the project changed team leadership in August 2011. This change did not seem to affect project implementation. By closing, the grant was fully disbursed and accounted for.

### *2.3. Monitoring and Evaluation (M&E) Design, Implementation and Utilization*

33. The M&E system for the project was designed taking into consideration existing capacity and monitoring efforts from involved stakeholders at the local and national levels. The Project Appraisal Document (PAD) and the Project Implementation Manual detailed the monitoring and evaluation arrangements. The focus was on monitoring and evaluation of indicators and target values of the results framework. The results framework comprised 2 PDO-level results indicators and 26 intermediate results indicators.

34. Indicators to measure the PDO were: i) Numbers of annual wildlife conflict incidents caused by key species such as elephants and lions reduced by 33 percent in project villages as a result of project supported intervention (for elephants and lions) and, ii) Number of community members employed in local wildlife-based tourism ventures increased by 75 individuals. These indicators were simple, but measuring the baseline and achieving the reduced levels for the first indicator turned out to be difficult.

35. For the first indicator, the original baseline data was under-estimated and was affected by too many external factors, such as climate and changing wildlife populations, to provide a reasonable indication of overall project success. In 2014, the original target number for the first indicator was decreased from 33 percent to 10 percent (see section 1.7 for details). This indicator was not achieved even with its reduced target numbers. If a better monitoring of human wildlife incidents would have been established sooner and monitored carefully, the full extent of human wildlife conflict incidents would have been known and the project restructuring would have suggested an indirect measure of the indicator. For example, the level to which interventions were adopted and taken up by communities faced by the HWC issues may have provided for a better indicator of the success of these interventions. The risk to achieve the target for this indicator was anticipated in the risk section of the PAD and was rated as Substantial during design of the project.

36. The second 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 percent of graduates have found employment, and this figure may rise as the remainder continue to seek employment.

37. The high number of intermediate indicators were meant to capture: i) a variety of training and equipment provided to the Government officials that would carry out the extension services (10 intermediate indicators such as HWC mitigation, GIS and GPS, strategic and operational training; MOMS, ITT, etc.); ii) the delivery of Human Wildlife Coexistence Strategy (1 indicator); iii) the delivery of equipment and training to villagers for each of the HWC mitigation techniques that were tested (7 intermediate indicators such as chili peppers, kraals, herding dogs, beehives, early maturing seeds, solar panel fence). The indicator “elephant seasonal migration corridors and cluster fences demarcated” was eliminated during the restructuring as the study of elephant migration did not show any clear patterns and cluster fences could not be identified; iv) training of Community based Trusts (CBT) in operational management and MOMS (2 indicators); v) tourism skill training of community members (1 indicator) and vi) a variety of indicators for project management (5 indicators). The indicators on training reflect the importance that the project gave to building the capacity of DWNP officials to deliver extension services and monitoring and to give communities different mitigation techniques to test. The five indicators to measure project management were probably excessive and could have been reduced to one.

38. The PIU employed one person dedicated to reporting the status of the results framework indicators. Reporting on the results framework was provided to the Bank every six months. The Management Oriented Monitoring Systems (MOMS) and Decision Support Systems (DSS) that had been in place and has worked well in communal areas of Namibia and (to a limited extent) in three communities in the Ngamiland district in Botswana, were introduced in many of the villages. This type of monitoring involved DWNP field staff and community members who undertook data collection, recording and analysis with minimal external support. The training and deployment of MOMS to

DWNP staff and communities suffered significant delays. In the February 2015 mission, the PIU informed the Bank that they had entered in an agreement with Ecoexist to assist them with M&E. Data on HWC incidents started to be collected by the Village Project Committees after the communities were trained on the MOMS program. This only happened at the end of the third year of implementation. Therefore, the use of MOMS data in wildlife management decision-making was limited. Furthermore, even though the data was being collected at the site level, the PIU did not provide the data to the Bank implementation support missions. The Bank team only received the data in the final evaluation report presented by the Government.

#### *2.4. Safeguard and Fiduciary Compliance*

39. Safeguards: The project triggered two Bank safeguard policies (Environmental Assessment, OP 4.01 and Indigenous Peoples, OP 4.10). The project carried out environmental and social assessments during preparation, prepared an Environment and Social Management Framework (ESMF) and an Indigenous Peoples Planning Framework (IPPF). The project did not finance any activity dealing with involuntary land acquisition with implications and ramifications of relocation of people and compensation. A Process Framework was also prepared as part of the ESMF. Clear responsibilities for safeguard implementation and monitoring had been defined in the PAD.

40. The IPPF required the preparation of an Indigenous Peoples Plan (IPP) (called Social Action Plan by the PIU). It was prepared and approved in February 2011. It was clear in the PAD that the population of the project sites was approximately 12,000 people, with most villages having around 1,000 people each. This population was made up of a number of different language and ethnic groups, both Bantu-speaking and San/Basarwa. Bantu speaking groups form the majority in most villages, except in villages such as Gudigwa and Lesoma where San/Basarwa groups are understood to form the majority. The IPP ensured that project activities were socio-culturally appropriate and avoided or minimized further marginalization of the San/Basarwa through, for example, control over project resources by representatives of ethnic groups that traditionally are more advanced or simply more dominant. The IPP was deployed by DWNP staff to the field staff and to the Village Project Committees.

41. One strong feature of the IPP was the establishment of representative Village Project Committees in every project village. The IPP allowed DWNP to demonstrate its ability to minimize and redress elite capture when it occurred. Members of marginalized groups were represented on the VPC in many of the project villages. Vulnerable persons and members of marginalized groups were included within the VPCs and participated in the processes of selecting beneficiaries from their communities. A balance was achieved in the distribution of project resources between elite, non-elite and vulnerable members of the communities. The VPCs were sensitized to the needs of providing for the vulnerable and marginalized members of their communities.

42. A large majority of the project beneficiaries were women and many of them were elderly members of their communities that benefitted from training and mitigation

interventions. However, women beneficiaries were not able to plant the poles for creating chili fences, and did not receive resources for building kraals.

43. During the mid-term review, the Bank reviewed progress on social safeguards in all project areas and found that the Social Action Plan was being implemented satisfactorily. In particular, community mobilization around project activities had taken place and training of trainers has been held. DWNP had informed community members and screened in accordance with the Social Action Plan. The mission discussed with DWNP specific items in the plan intended to facilitate the functioning of the Village Project Committees, and it was agreed that these items would be purchased and distributed to all its members. These materials were subsequently provided to the VPC. The mission also noted that DWNP staff responsible for Community Relations presented detailed and site-specific knowledge about the project villages and provided insight into the opportunities and challenges in implementation.

44. The Social Action Plan 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.

45. The project has shown a good record of compliance with both GoB's environmental requirements and the Bank's environmental safeguards policies. The project expected that one of the environmental impacts would be building new cluster fences. However these were never built. The study of elephant migration and the assessment of possible elephant corridors in the project areas did not recommend the building of fenced cluster plots for the communities. All other project activities at the site level, which were minor (such as chili pepper fences and kraals) were screened for environmental impacts by the project HWC officers. During the final evaluation of the project, some communities in Eretsha complained about the impacts associated with cutting trees for kraal construction. Many similar kraals were constructed elsewhere and this impact could be more widespread, but the ICR team was not able to confirm this.

46. Financial Management: The implementing agency maintained adequate financial management arrangements and followed the procedures required in the Grant Agreement. DWNP staff was trained during preparation and when the financial officer was hired, and further training was provided by the Bank. The financial management performance was not always adequate as the required annual audited financial reports were often presented six months after their due date. The Bank had to send reminder letters to receive these. Another issue faced by the project was the delays in submitting the unaudited interim financial reports (IFR) and withdrawal applications due to the electronic signatures required by some senior staff that were not always able to respond to the financial officer on time.

47. Procurement: The management of procurement activities was the responsibility of the implementing agency, which was adequately staffed with a full time procurement officer. However, during the first two years, procurement suffered from a lack of capacity of the procurement officer. The first procurement post-review was carried out during the July 2011 mission and identified several issues in the procurement procedures: i) bidding requires improvements in the conditions stated in the Requests for Quotations to allow for item evaluation; ii) evaluation reports need improvement to show price comparisons and compliance to specifications; iii) all verbal communication with suppliers must be confirmed in writing and this must be filed; and iv) awards must be made to the lowest evaluated quotations and not just be made to suppliers who quote for all/most items in a lot. The mission recommended that all contracts under post review in the procurement plan be reverted to prior review until improvement was seen. Procurement improved and in May 2013 was rated satisfactory. However, in May 2014, the procurement specialist left the project. The PIU requested the Bank that a staff from DWNP take on this role. With intense supervision from the Bank, the PIU managed to procure the remaining goods and services. The procurement for the repair of an electric fence in the Lesoma village was challenging but was delivered at the end.

## *2.5. Post-completion Operation/Next Phase*

48. The project finalized most of its activities before it closed in January 2016, and there is no next phase planned for now. The only pending task is the official adoption of the Human Wildlife Coexistence Strategy by the GoB. Beyond this project, implementing the HWC strategy will be critical to guide and encourage farmers to take responsibility of ownership of their crops. Implementation of key components of this strategy will be further undertaken in the future to sustain results from the project. Monitoring by communities will be continued and where possible, it needs to be mainstreamed in development programs.

49. Two issues important to highlight are: i) that CBNRM-related policy changes have recently been implemented by the Ministry of Environment Wildlife and Tourism (MEWT) which have or will have the potential to affect community attitudes towards wildlife and conservation. 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 negatively impact communities, although no negative reaction was detected during the evaluation field visit and; ii) a country-wide ban on the professional hunting industry (with the exception of private ranches) was imposed in 2014, this follows a ban on lion hunting several years earlier. The hunting industry previously provided a source of income and meat to rural communities, which they could relate directly to the presence of wildlife in their neighborhoods.

50. The Bank has been supporting the GoB on the Wealth Accounting and Valuation of Ecosystem Services (WAVES) as part of the a global partnership that aims to promote sustainable development by mainstreaming natural capital in development planning and national economic accounting systems (National Capital Accounts (NCA)), based on the

System of Environmental-Economic Accounting (SEEA). Botswana's work plan includes components for developing water, minerals, energy and ecosystems (including tourism) satellite accounts as well as developing macroeconomic indicators of sustainability based on NCA. As a continuation of this project and the WAVES program, the Bank is financing a study to analyze the impacts of different types of nature-based tourism investments on the country's economy. Different investments for consideration might include typical ecotourism lodges, safari hunting enterprises, CBNRM models in which tourism operators engage in agreements with CBNRM groups, craft enterprises, conservancies paying royalties, community campsites, hunting lodges, tented camps and luxury tourist lodges operating within concessions.

### **3. Assessment of Outcomes**

#### *3.1. Relevance of Objectives, Design and Implementation*

51. The relevance of objectives, design and implementation is rated **substantial**.

52. Relevance of objectives: The objectives of the Northern Botswana Human Wildlife Coexistence project remains highly relevant to the GoB. Support to community development and reducing the cost of living with wildlife is still a priority for the GoB, development partners and the Bank. The project is aligned with Pillar 2 of the GoB's National Vision 2016, which is relevant to the development of nature-based tourism and includes: i) Employment; ii) A positive movement in the workforce to greater gender balance; iii) Economic Growth and Diversification; iv) Historically, quite impressive growth, though slowing down in recent years; v) Sustainable Development with local communities becoming involved in the planning, use and preservation of their environmental assets, including wildlife and good success in managing some wildlife species (especially elephants).

53. The Botswana Country Partnership Framework (May 2015) assessed the implementation of the four pillars of Country Partnership Strategy (CPS) (2010-2014). Pillar IV focused on the environment and covered six objectives. Each objective indicator was evaluated and rated as either being achieved, mostly achieved, partially achieved, or not achieved. The CPS completion report rates the program performance as moderately unsatisfactory across all four pillars, as most of the outcome indicators were only partially achieved.

54. Botswana's wildlife resources are extensive and globally significant, and a growing source of economic activity. In recent years, the Government has recognized the need to strike a balance between conservation and promoting sustainable utilization of wildlife resources. In this context, the Government has requested Bank assistance in developing a Global Environment Facility (GEF) cofinanced project to strengthen conservation, promote sustainable use and mainstream wildlife and biodiversity resources in Botswana's economic development. In response, the Bank is preparing a Wildlife Conflict Management and Biodiversity Conservation for Improved Rural Livelihoods Project (US\$5.5 million, FY10). The Bank team will also provide a policy note on



nature-based tourism, to strengthen the country's ability to tap into that promising sector. Support in this area is particularly important given that several donors previously active in the environment sector have shifted their support to the health sector in view of the magnitude of the HIV/AIDS situation

55. Relevance of design: The design of the project is also considered highly relevant, allowing for the flexibility and reactivity necessary for the implementation of human wildlife conflict mitigation strategies and to offer local people in the project areas alternatives such as skill training in tourism that could provide them with employment opportunities. The components design and results framework were well aligned, although some targets were high, and adjustments were subsequently made. It is worth mentioning that two activities in particular prove to be challenging to deliver. One is the study to define elephant corridors and build cluster fences around them. The study of elephant migrations did not point out specific corridors that the elephants use. Thus the cluster fences were not procured. Two, the side of the solar power fence was estimated at 80km to support a fence in the Magkadikadi area and another one in the Lesoma village. Only the Lesoma village was rebuilt and was only 9 km long.

56. Relevance of implementation: Project implementation demonstrated flexibility and the analytical focus to better understand and resolve the development challenges posed by HWC. The project is aligned with the renewed emphasis by the GoB, the World Bank and the international community on: (i) wildlife management in the face of the poaching crisis in Africa; and (ii) climate change mitigation and adaptation, particularly with respect to rural land use sector (forestry and agriculture). The vision promoted by the project, namely linking natural resource management to economic growth and to rural poverty reduction through mitigating the costs to communities of living close to wildlife and nature-based tourism development, remains highly relevant to the World Bank's current natural resource management strategy.

### *3.2 Achievement of Global Environmental Objectives*

57. This project was designed to respond to an issue of great importance to the GoB. The GoB had been compensating farmers affected by HWC and wanted to test approaches to deal with HWC and at the same time provide incentives such as tourism skills training to farmers as a new way to earning income and reduce the dependency on farming/grazing, particularly in high HWC zones. This led to designing a project with a dual objective. i) mitigate human-wildlife conflict through proactive prevention interventions in selected rural communities in Northern Botswana and ii) offer local people in the project areas employment choices in wildlife-based tourism to benefit directly from the presence of wildlife. To meet the first objective, the project included activities to improve HWC policies and increase the capacity of the government to provide better extension services to help communities address HWC, as well as provide materials and training to villagers to test the HWC mitigation techniques and help them find employment. To meet the second objective the project finance tourism skill training to villagers. The achievement of both objectives is discussed below.

58. **Objective 1: Mitigate human-wildlife conflicts**

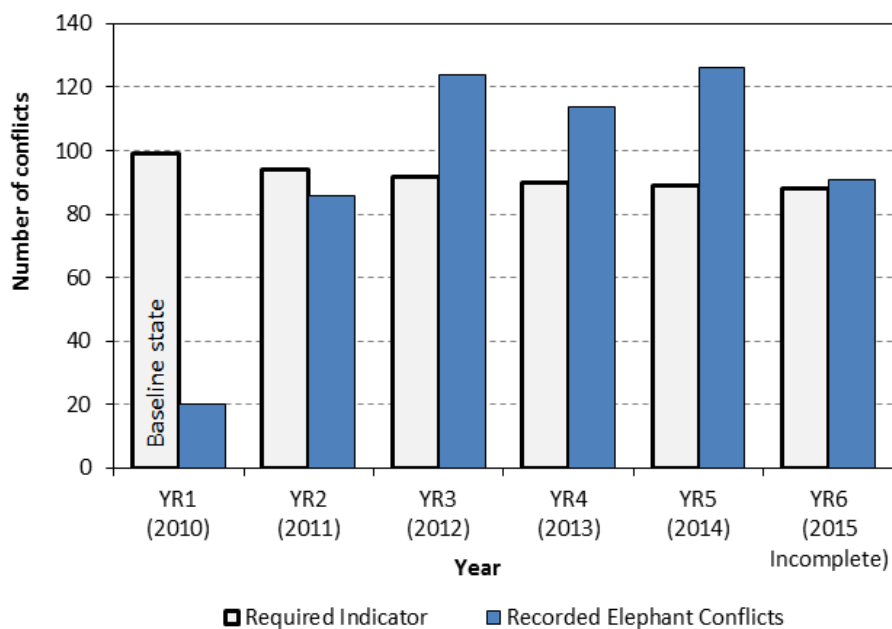
*Related PDO-level results indicators:*

- *Number of annual wildlife conflict incidents caused by key species such as elephants and lions reduced by 33% in project villages as a result of project supported intervention.*

59. The achievement of this objective is rated **modest**. The first project outcome indicator aimed at reducing wildlife human conflicts by 33 percent (revised down to 10 percent) in project villages compared to the baseline. This indicator was divided in two: elephant conflict and lion conflict. The Management Oriented Monitoring System (MOMS) was used to collect data on the extent of HWC and was an activity funded by the project. The available MOMS data on elephant and lion conflicts recorded in the project villages was only made available to the Bank in 2015 after the last implementation support mission of the project.

60. The number of incidents for Elephant conflicts is presented in Figure 1.

*Figure 1: Overview of Annual Recorded Human Elephant Conflict Incidents in the Project Villages Compared to the Required Reduction of Incidences.*<sup>4</sup>



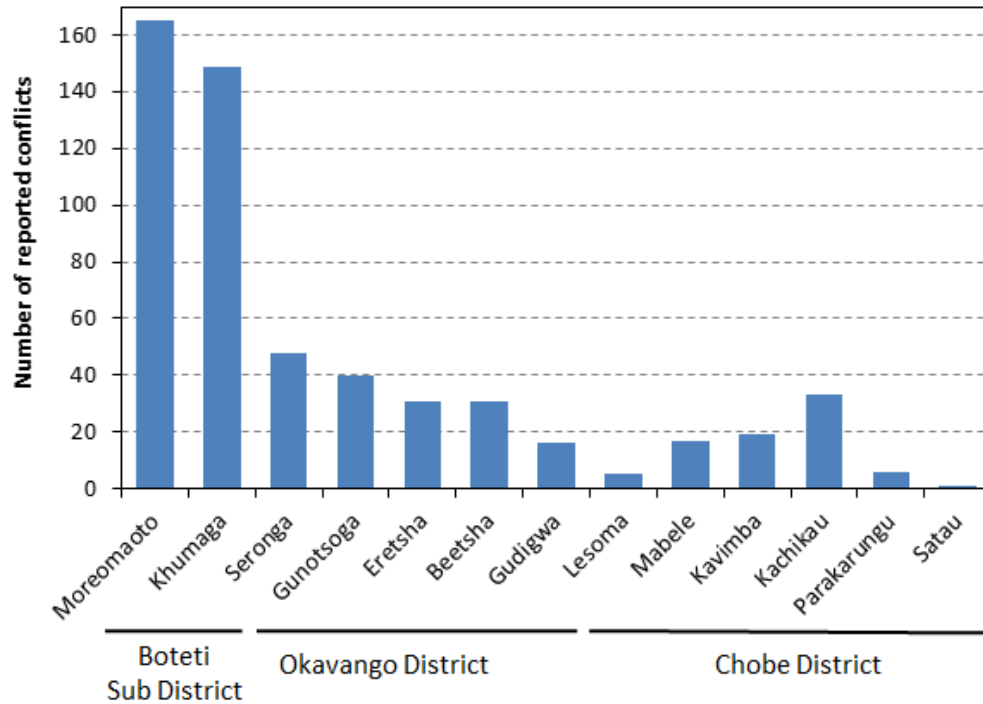
<sup>4</sup> All figures and tables in this report come from the Northern Botswana Human Wildlife Coexistence Project - Project Evaluation Report, 27 January 2016, Ministry of Environment Wildlife and Tourism, Department of Wildlife and National Parks, available in the project's files.

61. The elephant data set demonstrates 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 low capacity and was then taken over by the PIU. HWC incidents started to be collected once the Village Project Committees were established and the MOMS training was provided to communities. The data collected was only collated and analyzed once the PIU contracted Eco-exist, a local NGO.

62. The recorded number of elephant conflict incidents is understated in 2010, and possibly, to a lesser extent for 2011 (Figure 1). However, the number of incidents has exceeded what was indicated in the results framework in 2012, 2013 and 2014. The data presented for 2015 was incomplete at the time of writing the ICR. 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 occurred in 2013 and could be explained by the difference in rainfall, since 2013 was a year associated with average rainfall, whereas 2014 was associated with reduced rainfall leading to an increase in number of incidents. (see paragraph 66 for explanation). Available data suggests that the project interventions have not managed to reduce the number of human elephant conflicts over a six-year period.

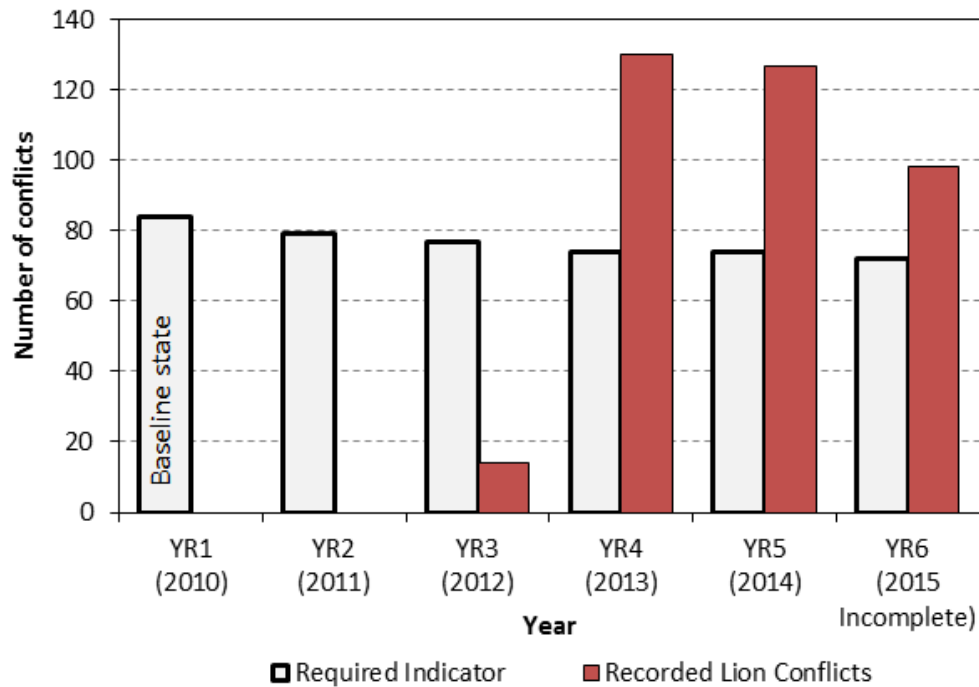
63. Figure 2 shows the same available data on Human Elephant Conflict by village. This data shows a strong emphasis on incidents in the Boteti Sub-district with the highest number of incidents in Moreomaoto and Khumaga, whereas field observations of high elephant densities suggest that the problem should be greater in parts of the Okavango and Chobe Districts. Differences between districts may be the result of different reporting efforts.

*Figure 2 shows the aggregate number of incidents per village for the period between 2010 and 2015.*



64. The number of incidents for Lion conflicts is presented in Figure 3.

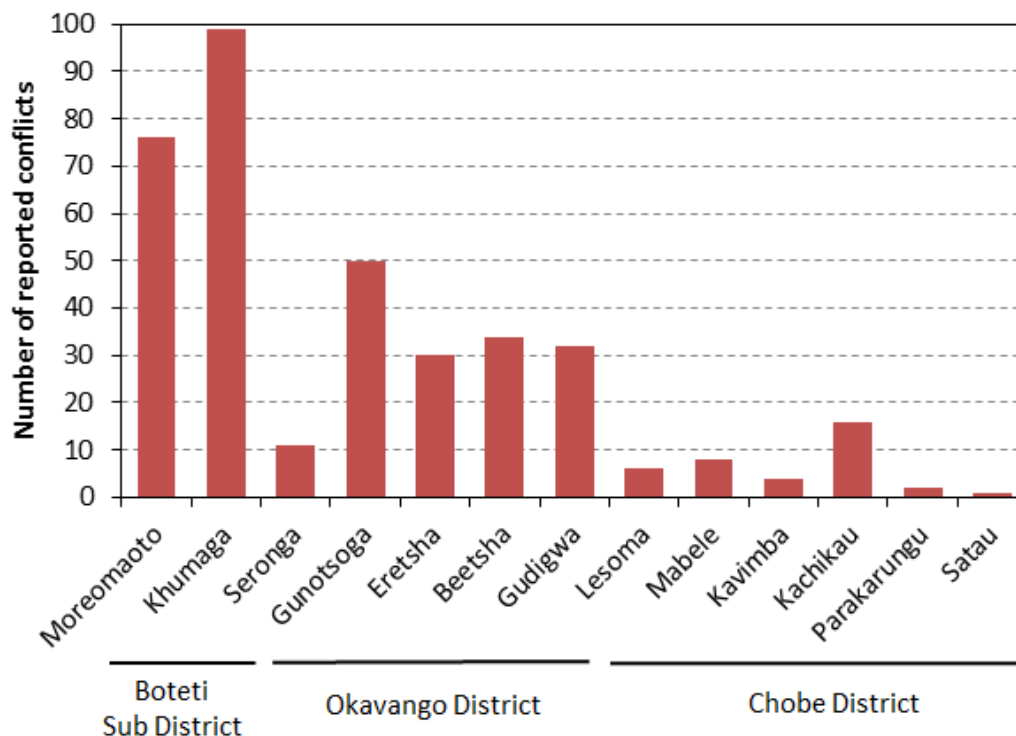
Figure 3: Overview of Annual Recorded Human Lion Conflict Incidents in the Project Villages Compared to the Required Reduction of Incidences.



65. Available data in Figure 3 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. 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. Similarly to the elephant conflicts, lion conflicts have not been reduced as a result of the project interventions.

66. Figure 4 shows the data available for Lion conflicts per village. Khumaga (Boteti Sub-district) and Gunotsoga (Okavango District) villages show the highest incidents. 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.

*Figure 4: MOMS Reporting of Lion Conflicts per Village for the Period 2012 to 2015.*



67. Due to the problem of under-estimation at the preparation stage, the indicator was revised downwards after monitoring measures were instituted by the project. This result was anticipated as a risk during the design of the project. Climate was not 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: i) Dry seasons result in reduced food availability and elephants in search of food, raid crops, fruit trees and thus, come into conflict with communities and; ii) 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.

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

69. It is worth mentioning that while the first objective was measured strictly by the mitigation of HWC, there have been several activities funded by the project that indicate that progress towards solving this issue in the long run is underway. First, the Human Wildlife Coexistence Strategy 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. This strategy was lacking in the past and is a significant contribution towards sustainability of addressing HWC. Second, 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. Third, many farmers have significantly improved their skills to deal with HWC. These farmers were considered champion farmers and they have been used as role models to inspire other farmers to use the techniques presented under the project more effectively.

**Objective 2: Offer local people in the project areas employment choices in wildlife-based tourism**

*Related PDO-level results indicators:*

- *Number of Community Members Employed in Local Nature-based Tourism Ventures Increased by 75 Individuals.*

70. The achievement of this objective is rated **substantial**. The relative weight of this objective is considered higher as it directly relates to improving human well-being. As mentioned earlier, the foundation of the project was to reduce HWC and offer tourism skill training to young villagers to increase their chances of employment and as a new way to earning income and reduce the dependency on farming/grazing and minimize the costs of wildlife damages. This was designed in the high HWC zones. The population of these zones is approximately 12,000 people, with most villages having around 1,000 people each. This population is made up of a number of different language and ethnic

groups, both Bantu-speaking and San/Basarwa. Bantu speaking groups form the majority in most villages, except in villages such as Gudigwa and Lesoma, where San/Basarwa groups are understood to form the majority. Household sizes in Northern Botswana appear to be larger than the national average for rural Botswana, with an average of 6.6 people per household in Ngamiland. More than half of these households are headed by women. Migrant labor, especially by men, is an important component of the local economy. In addition, a trend towards migration of young people away from rural areas in search of work tends to leave behind a population comprised of older people and children.

71. The second project outcome indicator, which measures the employment of the rural communities in the ecotourism ventures, has surpassed the revised requirement that 50 community members be employed by Year 5 (2015). Data provided for 2013 and 2014 by the training institution (Career Dreams, Maun) indicates that a total of 93 community members had acquired employment at that time. Many of the current group of 39 students that underwent training in 2015 will find employment, and the project results have therefore exceeded the requirements on this outcome. Approximately 60 percent of graduates have been employed, and this figure was estimated to rise as the search for employment continued beyond the evaluation of the project. What is worth noting is that most of those who were employed were the most vulnerable members of the Bushman/San tribe and they perform well and excelled in the more complex careers such as accounting and lodge management. This achievement was even appreciated by the village chief who stated during the final evaluation visit that this training has provided much hope to the entire Gudigwa community. The community has struggled with depression and despair for many years.

*Table 1: 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	<i>Training ongoing</i>	39	-
<b>Total</b>	<b>162</b>	<b>93</b>	<b>21</b>	<b>-</b>

### 3.3. Efficiency

72. The efficiency is rated **substantial**. Consistent with the requirements for GEF-supported projects, the Project Appraisal Document included an incremental cost analysis rather than the estimation of a net present value or economic rate of return in a cost-benefit analysis. The incremental cost principle of the GEF is usually understood as the additional costs associated with transforming a project with national or local benefits into one with global environmental benefits. It argued that without the GEF alternative (i.e.

the project), the communities would continue to suffer from human wildlife conflicts (crop and livestock losses). Communities will also retaliate against wildlife and kill them or engage in poaching. This would jeopardize wildlife conservation which is an objective of the GEF. For DWNP, the cost of administering the compensation program will continue to be a burden. The project design and appraisal did not incorporate any computations of economic and financial analysis but aimed at achieving the global biodiversity conservation objective.

73. The cost of the baseline scenario was estimated at US\$14.97 million and the incremental cost of the GEF alternative was estimated at US\$5.5 million. The GEF grant was to cover the total incremental cost and was fully disbursed. Under the alternative scenario, the project intended to develop solutions to mitigate wildlife damage ex-ante rather than claiming compensation for wildlife damage ex-post, while providing an enabling environment for phasing out the use of compensation mechanisms which are unsustainable in the long run (considering perverse incentives and the fact that these consume a third of DWNP's annual budget). The project interventions, if successful, could gradually introduce fiscal savings in the long run. The project's ultimate goal was looking at promotion of eco-tourism ventures and managing wildlife by those communities living with wildlife thus encouraging biodiversity conservation.

74. The project had several aspects that are cost-effective. For the interventions selected, the focus has been to use cost-effective solutions. The proposed proactive prevention techniques such as chili-pepper deterrents, early maturing maize, restraining fence lines, and improved livestock kraaling are more cost-effective than large scale wildlife-proof fencing and do not impact negatively on wildlife movement patterns. For training, the project deliberately sought to partner with local training institutions which, besides being less expensive than other providers (for example the Tourism Board), may encourage skills development adapted to the local market. The same advantages apply to the use of local NGOs instead of international ones in project implementation.

75. It is clear that the project achieved only one of its stated objectives which is increasing jobs for communities that suffer from the loss of crops and livestock due to elephant and lion's conflicts. The increase human wildlife conflict in Botswana was a challenge at appraisal and continues to be so. The project proved to be a cost-effective way to pilot different approaches and interventions and provided an opportunity for DWNP to learn from the project results.

#### *3.4 Justification of Overall Outcome and Global Environment Outcome Rating*

##### **Rating: Moderately Satisfactory**

76. The overall outcome rating is moderately satisfactory, based on substantial relevance of objectives, design and implementation, substantial efficacy, and substantial efficiency. The project over achieved in the outcome indicator of tourism related employment (see paragraph 69 and 70 for details), while did not achieve the outcome indicator of mitigating human wildlife conflicts in the project areas. The fact that poor



data was available on HWC at the site level during project implementation limited the possibilities to use an adaptive management approach and predict more accurately whether these targets would be met on time. The short term goal of mitigating HWC at project sites was challenging due to the trend in elephant populations trends in Botswana. Elephant population trends over 25 years reveal that the population in Botswana has grown at approximately 5 percent per annum. The elephant population in Botswana is also expanding its range. Project design and subsequent supervision missions perhaps could have acknowledged this and looked for ways to adjust the project design. On the other hand, project interventions provided an opportunity to learn many lessons pertaining to the implementation of specific HWC interventions. These lessons will be valuable for the future management of HWC on a wider scale.

77. The project pioneered the development of the Human Wildlife Coexistence Strategy that was widely consulted with multiple stakeholders (government and private sector, academics, NGOs and local community organizations) and that is a significant contribution towards sustainable management of HWC in the future. It promotes a paradigm shift away from HWC mitigation and towards Human Wildlife Coexistence. The strengths of this strategy are: i) it acknowledges that the current approach to HWC compensation does not encourage communities to address HWC; ii) it promotes the concept that communities should implement at least a minimum set of mitigation measures to qualify for future compensation; iii) the document encourages involvement, establishment and strengthening of Community Based Organizations where HWC occurs; iv) it prioritizes the importance of effective land use planning as a means to avoid HWC, which includes the establishment of buffers around protected areas; v) it acknowledges that addressing HWC is a shared responsibility between the Government, the private sector and communities; vi) it acknowledges the importance of animal welfare when dealing with wildlife; vii) it promotes ongoing research into HWC for increased understanding and constant improvement in addressing the problem.

#### **4. Assessment of Risk to Development Outcome**

##### **Rating: High**

78. The Risk to Development Outcome is assessed in terms of the global objectives, which comprise; 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. The overall assessment is based on the following elements:

- Coordination with other stakeholders: The project had identified the potential risk that there would be insufficient coordination between project activities and other Natural Resource Management programs in the project areas. The proposed mitigation measure to establish a formal Project Steering Committee (PSC) was adopted and has met regularly and through good leadership has avoided significant coordination challenges.

- Institutional capacity: The project had identified the potential risk that DWNP staff and local communities may not have sufficient experience in implementing a GEF-funded project. This risk has materialized and has slowed down implementation. The World Bank staff has supported the PIU to ensure that procurement is done according to the Bank's rules. However, adhering to the WB / GEF requirements and procedures has been challenging, particularly in the early stages of the project.
- Governance: The project had identified the potential risk that 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. This risk has materialized but was managed through the development of representative Village Project Committees (VPC). A balance was reached 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.
- Design: The project had identified the potential risk that compensation schemes for wildlife damage and subsidies from other government programs for agriculture and livestock production would continue to encourage a "culture of dependency" among local communities, and impede take-up of proactive prevention strategies. A culture of dependency has prevailed with communities expecting the DWNP to address their HWC issues. Prevailing policies were not changed, however a Draft Human Wildlife Coexistence Strategy (HWCS) has been developed and an effective communication strategy was implemented to present the message to communities.
- Monitoring and Sustainability: The project had identified the potential risk that the number of Human Wildlife Conflicts may increase at the end of the project, rather than decrease, due to poor reporting and monitoring activities. This risk has materialized. The baseline state for human wildlife conflict were under-stated. 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 and lion conflicts during the project period.
- 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 was identified as a risk. This risk has been managed by the project through a commitment to implementing the IPP (SAP) that strengthened traditional consultation techniques widely accepted at the local level. There was extensive participation by vulnerable and RAD groups. Community-based management and monitoring systems was achieved as well as mechanisms to build community knowledge of the impact of proactive prevention.

## **5. Assessment of Bank and Borrower Performance**

### *5.1. Bank*

#### *(a) Bank Performance in Ensuring Quality at Entry*

**Rating: Moderately Satisfactory.**

79. The Bank participated actively and constructively in the design phase, ensuring that the project took into account the results and lessons learned from HWC prevention techniques that had been tested and proven successful, notably in Zimbabwe, Kenya, South African and Botswana. These included the use of chili pepper as a deterrent for elephants, early maturing maize, solar powered elephant restraining fence lines, beekeeping, guard dogs and MOMS as a suitable monitoring system by communities. The Bank also ensured that community consultations were used during preparation and involved a series of village level meetings following the traditional “kgotla” format to discuss local level priorities, experiences and concerns regarding the project design, as well as financing and implementation mechanisms. Preparation lasted almost four years. The GoB had never managed a grant from the WB before. The Bank could have explored other options to manage the grant (ie. a local or international NGO). Also, the influence of climate change had 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.

*(b) Quality of Supervision*

**Rating: Moderately Satisfactory.**

80. The Bank team provided useful training on all fiduciary aspects to the PIU during implementation. Adhering to the WB / GEF requirements and procedures has been challenging, particularly in the early stages of implementation. World Bank staff supported the PIU to ensure that procurement was done according to the Bank's rules. Bank implementation support missions were regular and constructive, and actively contributed to improved project performance. The Bank team was able to identify issues readily, extract lessons from practice and propose solutions to challenges proactively, including on technical, fiduciary and safeguard matters. A total of 12 follow-up supervision missions were conducted during the life of the project, averaging two missions per year from effectiveness to closing. Aide Memoires and internal reporting through ISRs were used regularly. The Bank team included most of the expertise needed to supervise the Project. The social safeguard specialist assigned to the project and a tourism specialist were added to the team during the mid-term review of the project. The MTR identified the need to revise the targets for certain indicators and the restructuring procedures were followed in a timely manner. By the mid-term review (MTR), the performance of the project was on track and Bank supervision was satisfactory. However, by the last supervision mission, the Bank was conservative and rated the project as moderately unsatisfactory due to the fact that the PIU had not provided the data on the HWC incidents that were key to measure one of the outcome indicators and due to a procurement issue in the selection of the tourism consultant by the PIU that came under investigation by Directorate of Corruption and Economic Crimes (DCEC) of Botswana. By closing, the Bank was not able to confirm if the case had been closed.

*(c) Justification of Rating for Overall Bank Performance*

**Rating: Moderately Satisfactory.**

81. The overall Bank performance is rated **moderately satisfactory** consistent with the evaluation of each section above.

*5.2 Borrower*

*(a) Government Performance*

**Rating: Moderately Satisfactory.**

82. The GoB supported the project throughout its implementation, although with varying degrees of interest. The fact that the Permanent Secretary and/or the deputy PS of the Ministry of Natural Resources and Tourism chaired and provided leadership to the PSC is an evidence of the Government's support to the project. The PSC mobilized 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 was important to 'sell' the project activities across the government. This has alerted the project and other government representatives to programs, 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 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. The functioning of the PSC would not have been possible without the leadership and commitment from the Ministry.

*(b) Implementing Agency or Agencies Performance*

**Rating: Moderately Satisfactory.**

83. The PIU team demonstrated enthusiasm and commitment to the Project. But their performance suffered from the resignation of the Project Coordinator and other staff, lack of capacity, lack of internal communication, insufficient project planning and management, poor performance of the Monitoring and Evaluation system, changes in the procurement personnel and poor procurement performance. Financial management that had been satisfactory during many implementation stages, suffered when the financial specialist resigned. The consequence was that the final withdrawal application to the Bank came in very late. On the other hand, the level of commitment by the project focal officers 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.

84. Addressing HWC was expected to have been incorporated into the Problem Animal Control (PAC) and Community Based Natural Resource Management (CBNRM), which

are ongoing programs within the DWNP. The Bank reminded the PIU several times of the importance to mainstream the HWC interventions within other departments to leverage the actions and increase the likelihood of project success, however, this action failed. For example, the use of early maturing crop varieties offered some positive 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 would have been better placed than the DWNP to promote this approach during implementation.

*(c) Justification of Rating for Overall Borrower Performance*

**Rating: Moderately Satisfactory.**

85. The overall Borrower performance is rated **moderately satisfactory** consistent with the evaluation of each section above.

**6. Lessons Learned**

86. Lessons learned can be divided in operational and technical issues:

*Operational issues:*

87. Government institutional capacity: As discussed in this ICR, project implementation took a business-as-usual approach without anticipating the fact that this engagement was entirely new to the client. For investment projects in new countries, the capacity needs of the implementing agencies should be carefully assessed and include sufficient detail to provide appropriate guidance to the implementing agency on setting up the project management structure, fully staff the project team, contract out the functions for which it lacks in-house capacity, and establish appropriate project management processes and procedures. It is also important to recognize that there is a core responsibility of the owner to manage overall project implementation, which cannot be delegated. To the extent that some project management functions can be subcontracted, this should be done at the beginning of the project, when responsibilities are being defined and the project management organization is being put in place.

88. Institutional capacity of service providers: NGOs and other service providers 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. 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. An example has been BOCOBONET which has ceased to exist despite having a valid contract with the project. CARACAL also consisted of two main staff that spent extensive periods of time abroad. They failed to deliver the M&E system to DWNP and the PIU did not renew their contract. This does not apply to all NGOs as some project collaborations have been very successful, for example the collaboration with the Kalahari Conservation Society. A lessons learned for future projects is that at the design stage, an

institutional capacity assessment of service providers should be carried out diligently before selecting them to implement project activities.

89. Improved cost-benefit analysis of project interventions: The project focused 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 and the job opportunities from tourism employment. Such cost-benefit analysis would strengthen the approaches that the government would take in the future to address human wildlife conflicts.

*Technical issues:*

90. Land use planning and elephant restraining fences 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. Land use planning by government officials to determine agriculture or wildlife habitat expansion need to be put in place to ensure that HWC is addressed. At the local level, clear set of village regulations are therefore required prior to implementing such land use plans and determine where the investments in fences are worthwhile.

91. Human elephant deterrents: The use of chili peppers for creation of fences or as chili impregnated blocks for burning is effective in deterring crop-raiding elephants and farmers should be widely encouraged to adopt these techniques. Chili should be provided to farmers in a safe and ready-to-use format that discourages waste or inappropriate use. The full supply chain for provision of safe and ready-to-use chili (ie. in the form of burning blocks or mixed with grease) needs to be developed. There is widespread scope for the use of chili products and the potential for large scale production should be investigated before these interventions can be widely rolled out. Use of honey bees is not a practical means of deterring crop-raiding elephants, and was discontinued as a DWNP approved HWC intervention. 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.

92. Human predator deterrents: Strong predator proof 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. Procurement of the least cost option for kraals did not result in the purchase of strong kraals. Many of them were not of good quality. 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.

93. Opportunities for local community youth and female: Improving the prospects of the youth and female 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. Improving the standard of the training provided in Botswana through developing a program for training the trainers would contribute towards achieving greater levels of human wildlife coexistence. Training must be accredited to national standards.

## 7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

### (a) Borrower/implementing agencies

94. The draft ICR was shared with the counterpart, who responded positively and had no substantive additions.

### (b) Cofinanciers

### (c) Other partners and stakeholders

(e.g. NGOs/private sector/civil society)

## Annex 1. Project Costs and Financing

### (a) Project Cost by Component (in US\$ Million equivalent)

Components	Appraisal Estimate (US\$ millions)	Actual/Latest Estimate (US\$ millions)	Percentage of Appraisal
Component 1	1.15	0.94	81.7%
Component 2	3.81	3.68	96.6%
Component 3	0.54	0.64	118.5%
<b>Total Baseline Cost</b>	<b>5.5</b>	<b>5.26</b>	<b>95.6%</b>
Physical Contingencies	0.00	0.00	-
Price Contingencies	0.00	0.00	-
<b>Total Project Costs</b>	<b>5.5</b>	<b>5.00</b>	<b>100.00%</b>
Project Preparation Facility (PPF)	0.00	0.00	-
Front-end fee IBRD	0.00	0.00	-
<b>Total Financing Required</b>	<b>5.5</b>	<b>5.0</b>	<b>100.00%</b>

### (b) Financing

Source of Funds	Type of	Appraisal	Actual/Latest	Percentage of
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	Cofinancing	Estimate (US\$ millions)	Estimate (US\$ millions)	Appraisal
Global Environment Facility (GEF)		5.5	5.5	100.0%



## Annex 2. Outputs by Component

<b>Component 1: Strengthened extension service delivery for Human-Wildlife Coexistence interventions</b>	
<b>(1.1) Review of existing policies and laws and support for targeted policy and legal revisions and/or development</b>	
<p><i>Description:</i> The component seeks to strengthen DWNP's extension service delivery for Human-Wildlife Coexistence strategies such as proactive HWC interventions. It will address the administrative and operational capacity of DWNP at district level for planning, decision making, implementation and monitoring of HWC management in the three Project areas. The targeted district offices are expected to be fully staffed, trained and computerized by year 3. The activities of this component support the creation of an enabling environment for implementation of the evolving HWC policy of DWNP, which is to move from relying exclusively on compensation for HWC towards engaging communities in proactive conflict prevention strategies.</p> <p>Activities that will be financed under Component 1 include:</p> <ul style="list-style-type: none"> <li>(i) Training for national and district based staff in strategic and operations management;</li> <li>(ii) Implementation support, community mobilization and training in proactive HWC interventions for DWNP staff;</li> <li>(iii) Implementation support for environmental and social safeguard policies;</li> <li>(iv) Support for development and provision of training in Management Oriented Monitoring Systems (MOMS) and Decision Support Systems (DDS);</li> <li>(v) Provision of Geo-Information-System equipment (GIS), GPS receivers and related</li> </ul>	<p><i>Outputs:</i></p> <p><b>1. Number of DWNP extension staff trained and executing proactive HWC prevention strategies by year and location.</b></p> <p>a) <u>Training in proactive HWC prevention</u></p> <ul style="list-style-type: none"> <li>· HWC mitigation strategies: 22 (Kasane 2011)</li> <li>· Use of chili pepper: 6 (Zambia, 2011)</li> <li>· Use of chili pepper as a deterrent method: 20 (Kasane 2011)</li> <li>· Training of trainers in HWC strategies: 35 (Kasane 2012)</li> <li>· Use of bees as a deterrent method: 21 (Three project areas 2012)</li> <li>· Human elephant conflict: 35 (Maun 2013)</li> </ul> <p>Subtotal: Officers trained in HWC prevention: 139 Requirement Exceeded (231%)</p> <p>b) <u>Training in MOMS and DSS</u></p> <ul style="list-style-type: none"> <li>· Training in MOMS: 30 (Molepolole 2012)</li> <li>· Training in MOMS: 30 (Maun 2012)</li> </ul> <p>Subtotal: Officers trained in MOMS: 60 Requirement Met (100%)</p> <p>c) <u>Training in GPS receiver operation</u></p> <ul style="list-style-type: none"> <li>· GPS receiver operations: 60 (Maun 2012)</li> </ul> <p>Subtotal: Officers trained in GPS use: 60 Requirement Met (100%)</p> <p>d) <u>Training in GIS</u></p> <ul style="list-style-type: none"> <li>· General GIS use: 16 (Gaborone 2011)</li> <li>· Advanced GIS use: 9 (Gaborone 2013)</li> </ul> <p>Subtotal: Officers trained in GIS: 25 Requirement Exceeded (250%)</p> <p>e) <u>Training in Strategic Management</u></p> <ul style="list-style-type: none"> <li>· Training in strategic management: 20 (Gaborone 2011)</li> </ul> <p>Subtotal: Officers trained in Strategic Mgmt: 20 Requirement Exceeded (200%)</p> <p>f) <u>Training in Operational Management</u></p> <ul style="list-style-type: none"> <li>· Training in project monitoring &amp; evaluation: 22 (Gaborone 2013)</li> <li>· Training in project management: 10 (Gaborone 2013)</li> <li>· Training in operational management: 15 (Gaborone 2011)</li> </ul>

<p>training;</p> <p>(vi) Provision of IT and office equipment as well as vehicles for HWC related extension activities;</p> <p>(vii) Support to develop a White Paper on Human-Wildlife-Coexistence strategies; and</p> <p>(viii) Provision of adequate resources to cover the recurrent costs associated with the above-mentioned activities (financed by Government).</p>	<ul style="list-style-type: none"> <li>· Training in operations management: 15 (Gaborone 2012)</li> <li>· Training in advanced project management: 2 (Namibia 2015)</li> </ul> <p>Subtotal: Officers trained in Operational Mgmt.:64 Requirement Exceeded (213%)</p> <p><b>2. Number of DWNP district offices fully staffed with a trained workforce and equipped with vehicles and IT/GIS gear.</b> Vehicles procured include:</p> <ul style="list-style-type: none"> <li>· Toyota Hilux single cab pick-up vehicles (four vehicles);</li> <li>· Toyota Land Cruiser single cab 4wd Petrol pick-up vehicles (two vehicles);</li> <li>· Chevrolet sedan for office support (two vehicles).</li> </ul> <p><b>3. A Draft Human Wildlife Coexistence Strategy (HWCS), dated April 2015</b></p>
<p><b>Component 2: Strengthened capacity of rural target population to implement Human-Wildlife-Coexistence strategies</b></p>	
<p><i>Description:</i> This component seeks to strengthen the capacity of the Project's rural target populations in undertaking proactive prevention strategies to mitigate HWC impacts and to improve skills of selected local community members to become more competitive for Botswana's tourism industry. Component 2, consequently, is addresses simultaneously reducing vulnerability and increasing rural livelihood and income opportunities. HWC interventions will focus on tested methodology which can easily be demonstrated and supported, while piloting additional approaches. Concerning HEC, the aim is to actively encourage 1,500 households to successfully adopt elephant restraining techniques by the end of the Project period. Skills training will focus on tourism-related competences for various aspects of hospitality management. About 100 candidates will be selected according to transparent, merit-based criteria.</p> <p>Activities that will be financed include:</p> <p>(i) Training for local</p>	<p><i>Outputs:</i></p> <p><b>4. Number of households successfully using proactive HWC prevention strategies increased by 800 households units.</b></p> <p>a) <u>Chili Pepper for fences</u></p> <ul style="list-style-type: none"> <li>· 800 farmers have been given the materials. Chili fences have been created through hanging small cloths smeared with a mixture of crushed chili and grease. The grease prevents the chili from being washed away by the rain. The cloths are hung from a thin wire supported by poles where the smell of chili is dispersed into the air and deters crop-raiding elephants.</li> <li>· 421 beneficiaries had put up gum poles.</li> <li>· 225 had constructed trial fences.</li> <li>· Some farmers experimented burning chili impregnated blocks using manure mixed with chili. They reported that this technique is worth using.</li> </ul> <p>b) <u>Chili pepper cultivation</u></p> <ul style="list-style-type: none"> <li>· Support for communal chili plots in Khumaga, Eretsha and Mabele. Chili seedlings were provided as well as drip irrigation, and shade cloth. Chili pepper harvested at the demonstration plots are: <ul style="list-style-type: none"> <li>· Okavango – 170kg</li> <li>· Khumaga – 50kg</li> <li>· Rakops – 50kg</li> </ul> </li> <li>· Chili seeds provided to many individual farmers.</li> </ul> <p>c) <u>Beehives</u></p> <ul style="list-style-type: none"> <li>· 43 farmers were provided beehives kits. The experimentation with bee hive fences proved challenging for various reasons linked to the difficulty of maintaining bee hives due to the hot weather and the lack of capacity on the part of the farmers.</li> </ul> <p>d) <u>Predators proof kraals</u></p>

<p>community members in Operations Management (i.e. for Community Trust Members), MOMs and DSS;</p> <p>(ii) The provision of sub-grants (cash transfers) directly into Community Trusts to help finance HWC activities at the community level based on community needs and priorities, or help communities expand/scale up activities financed by the project (financed by Government);</p> <p>(iii) Support for proactive HEC prevention with demonstration plots and scaling up support for chili-pepper deterrent techniques, including technical assistance and provision of training by experienced service providers, distribution of elephant restraining kits, support for initial chili-pepper cultivation, extension and monitoring;</p> <p>(iv) Support for the piloting and eventually rolling out less conventional prevention strategies like early maturing seeds (sorghum, maize, millet and cowpeas) as a mechanism to support HEC mitigation;</p> <p>(v) Support for improved kraaling and herding to mitigate livestock-predator conflict particularly caused by lions and the use of herding dogs as additional preventive devices for mid-size predators;</p> <p>(vi) The construction of solar-powered elephant restraining fence lines (including solar units) to manipulate elephant spatial use and reduce conflict as well as piloting the use of bees as a means to deter elephants and support for an alternate food/income source; and</p> <p>(vii) Skills development for tourism-related employment, including wildlife guides, chefs, waiters/waitresses, restaurant and/or lodge managers, receptionists and accountant/book-keepers.</p>	<ul style="list-style-type: none"> <li>· 38 predator proof kraals have been constructed. 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 built by the Botswana Predator Conservation Trust (BPCT). Kraals built by BPCT have not been robust and are perceived by communities to be inadequate for holding cattle, and therefore serve no purpose guarding against predator attacks.</li> <li>e) <u>Herding dogs</u> <ul style="list-style-type: none"> <li>· 36 herding dogs were provided to farmers. 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</li> </ul> </li> <li>f) <u>Early maturing seeds</u> <ul style="list-style-type: none"> <li>· 155 farmers were provided early maturing seeds. Crop-raiding by elephants 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.</li> </ul> </li> <li>g) <u>Elephant restraining electric fence</u> <ul style="list-style-type: none"> <li>· An Elephant Restraining Fence (ERF) was built in the Lesoma Village to replace a previously existing fence. 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 emphasizes the need for these people to be supported.</li> </ul> </li> </ul> <p>5. <b>Number of community member trained in MOMS and DSS and applying this tools</b></p> <ul style="list-style-type: none"> <li>· 45 community members were trained in MOMS and supported in the subsequent collection of data. MOMS data was collected by village communities under the supervision of the respective VPCs. 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.</li> </ul> <p>6. <b>Number of CBT members trained in operation management</b></p> <ul style="list-style-type: none"> <li>· 52 community members from Community Based Trusts (CBTs) were trained. CBTs had previously been formed in</li> </ul>
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	<p>the project areas and were authorized 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 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.</p> <p>Training included:</p> <ul style="list-style-type: none"> <li>- Chobe Enclave Conservation Trust: Support in the management of two joint venture partnerships with African Bush Safaris and Ngoma Lodge</li> <li>- Okavango Community Trust: Support in the management of a joint venture partnership with Okavango Wilderness Safaris</li> <li>- Ngande Community Trust, Khumaga, Boteti: Development of a Management Plan for their lease area known as the Garagwa Game Park</li> <li>- Moreomaoto Village, Boteti: Mobilising and support for the registration of a village trust. 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.</li> <li>- 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</li> </ul> <p><b>7. Number of community member trained for tourism-related employment</b></p> <ul style="list-style-type: none"> <li>· 162 community members 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).</li> </ul>
<b>Component 3: Project management support</b>	
<p><i>Description:</i> The component sought to strengthen DWNP's capacity to efficiently administer of Project</p>	<p><i>Outputs:</i></p> <p><b>8. Training events per year for PIU and other relevant personnel</b></p> <ul style="list-style-type: none"> <li>· Training in project management (2013) for 10 officers;</li> </ul>

<p>funds, as well as coordination and implementation of project activities. It also aims to improve the Project's external communications, including the establishment of a permanent information dissemination forum to involve all relevant stakeholders and development partners.</p> <p>Activities financed under Component 1 included:</p> <p>(i) Support for Project administration, including procurement and financial management and related training for DWNP staff</p> <p>(ii) Logistical support, IT and office equipment for Project coordination;</p> <p>(iii) Development of a communication strategy including the establishment of a permanent dissemination forum, a Project launch workshop, and bi-annually discussions thereafter;</p> <p>(iv) Coordination with ongoing environmental development activities including for example the Biokavango Project and the Western Kgalagadi Conservation Corridor Project (financed by Government); and</p> <p>(v) Provision of adequate resources to cover the recurrent costs associated with the above-mentioned activities (financed by Government).</p>	<ul style="list-style-type: none"> <li>· Training in advanced project management (2015) for 2 officers;</li> <li>· Training in strategic management (2011) for 20 officers;</li> <li>· Training in operational management (2011) for 15 officers;</li> <li>· Training in operations management (2012) for 15 officers; and</li> <li>· Training in project monitoring and evaluation (2014) for 22 officers.</li> </ul> <p><b>9. Communication events</b></p> <p>The project 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, DVDs and flash cards with data and movie clips, travelling live performances by theatre artists and radio broadcasts relating to living with HWC. A number of events with specific dates is available in project files reached 18 at project closure. The total contribution to communication has been far greater and certainly exceeds the requirements stipulated of 15 events.</p> <p><b>10. Forum meetings per year:</b></p> <ul style="list-style-type: none"> <li>· 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.</li> <li>· 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.</li> <li>· 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 finalized at the time of writing this report.</li> </ul>
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### Annex 3. Bank Lending and Implementation Support/Supervision Processes

#### (a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Mohammed A. Bekhechi	Consultant	GEN05	
Arbi Ben Achour	Consultant	GSU11	
Slaheddine Ben-Halima	Consultant	GGO05	
Robert A. Clement-Jones	Consultant	WBISD - HIS	
Jonathan Nyamukapa	Sr Financial Management Specialist	AFTME - HIS	
Sophia Elizabetha Fredrik Prinsloo	Senior Executive Assistant	AFCS1	
Navin K. Rai	Adviser	SDV - HIS	
Franco Russo	Senior Operations Officer	GED02	
Christopher James Warner	Sr Natural Resources Mgmt. Specialist	GCCIA	
Jacomina P. de Regt	Consultant	SDV - HIS	
Rogier J. E. van den Brink	Program Leader	EACPF	
<b>Supervision/ICR</b>			
Claudia Sobrevila	Senior Environmental Specialist	AFT	
Benjamin Garnaud	Senior Environmental Specialist		
Loungo Lolo Tibone			
Karsten Feuerriegel	E T Consultant	AFTN1 - HIS	
Jemima Harlley	Program Assistant	AFCS1	
Paula F. Lytle	Senior Social Development Spec	GSU07	
Tandile Gugu Zizile Msiwa	Financial Management Specialist	GGO13	
Sophia Elizabetha Fredrik Prinsloo	Senior Executive Assistant	AFCS1	
Chitambala John Sikazwe	Senior Procurement Specialist	GGO01	

#### (b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
<b>Lending</b>		
FY05		8.61
FY06		31.21
FY07		112.17
FY08		30.34
FY09		96.91
<b>Total:</b>		279.24

<b>Supervision/ICR</b>		
FY10		124.39
FY11		52.78
FY12		115.73+19.87 (BB)
FY13		47.89
FY14		41.55
FY15		18.21
FY16		38.51
<b>Total:</b>		458.93

## **Annex 4: Summary of Borrower's ICR and/or Comments on Draft ICR**

1. 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.

2. 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 achieved as the original baseline data against which the indicators were set was underestimated. 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.

3. 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.

4. 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.

5. 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.

### **Key Factors Contributing to Successful Implementation**

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

#### Challenges that have Affected Project Implementation

11. 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.

12. 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.

13. A general mind-set among communities and politicians representing them is that Government, and specifically the DWNP is responsible for managing HWC. This was identified as a risk in project preparation. This has serious implications for implementing successfully HWC interventions. Communities need to be empowered to take responsibility and be part of the solution.

14. The lack of mainstreaming of the project into the DWNP is a result of project design and DWNP leadership.

15. 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.

16. There have been 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.

17. 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.

18. 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.

# MAP

