

IUCN Eastern Africa Programme

Forest and Social Perspectives in Conservation *No. 11*

Securing Protected Area Integrity and Rural People's Livelihoods:

Lessons from Twelve Years of the Kibale and Semliki Conservation and Development Project

Edited by:



February 2004



IUCN
The World Conservation Union

**IUCN - Eastern African Regional Office Publications on Forest and
Social Perspectives in Conservation**

1. Nurse, M. & Kabamba, J., 2000, Defining Institutions for Collaborative Mangrove Management: A Case Study from Tanga, Tanzania
2. Barrow, E., Gichohi, H. & Infield, M., 2000, Summary and Key Lessons from a Comparative Review and Analysis of Community Conservation in East Africa
3. Bakema, R. & Iyango, L., 2000, Engaging Local Users in the Management of Wetland Resources: The Case of the National Wetlands Programme, Uganda
4. Hinchley, D., Turyomurugyendo, L. & Stonewall, K., 2000, Review of Collaborative Management Arrangements for Mt. Elgon National Park
5. Matiru, V., Revised by, 2000, Forest Cover and Forest Reserves in Kenya: Policy and Practice
6. IUCN, 2000, Regional Workshop on Community Involvement in Forest Management in Eastern and Southern Africa, June 2000, Kampala, Uganda
7. Alden Wily, L. and S. Mbaya (2001): Land, People and Forests in Eastern and Southern Africa at the beginning of the 21st century. The impact of land relations on the role of communities in forest future. Nairobi, IUCN-EARO.
8. Mogaka, H., Gacheke, S., Turpie, J., Emerton, L., Karanja, F., 2001; Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa.
9. Edmund Barrow, Jeanette Clarke, Isla Grundy, Kamugisha-Ruhombe Jones and Yemmeserach Tessema (2002): Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa.
10. Fred Kigenyi, Peter Gondo and John Mugabe (2002): Practice Before Policy: An Analysis of Policy and Institutional Changes Enabling Community Involvement in Forest Management in Eastern and Southern Africa.
11. Purna B. Chetri, Edmund G. C. Barrow and Alex Muhweezi (2004): Securing Protected Area Integrity and Rural People's Livelihoods: Lessons for Twelve Years of the Kibale and Semliki Conservation and Development Project.

Securing Protected Area Integrity and Rural People's Livelihoods:

Lessons from Twelve Years of the Kibale and Semliki Conservation and Development Project

Edited by:

Purna B. Chhetri¹, Edmund G. C. Barrow² and Alex Muhweezi³

February 2004

The findings, interpretations and conclusions in this publication are those of the authors and editors, and do not necessarily reflect those of IUCN-The World Conservation Union, the Uganda Wildlife Authority (UWA), or the Government of Uganda.

¹ Chief Technical Adviser March 1999 to January 2003. Currently at No.7a, Gregory's road, Colombo 07, Sri Lanka, email pbchhetri@hotmail.com

² Coordinator, Forest Conservation and Social Policy, IUCN-The World Conservation Union Eastern Africa Regional Office, P.O.Box 68200, Nairobi Kenya; email egb@iucnearo.org

³ Uganda Country Representative IUCN, P.O.Box 10950, Kampala, Uganda; email alex.muhweezi@iucn.co.ug

Reproduction of material in this volume for educational and other non-commercial purposes is authorised without prior permission from the copyright holder. Reproduction of material in this volume for resale or other commercial purposes is prohibited without prior permission of the copyright holder.



Copyright: © 2004. International Union for Conservation of Nature and Natural Resources

The views expressed in this volume do not necessarily reflect those of IUCN-The World Conservation Union, the Uganda Wildlife Authority (UWA), or the Government of Uganda.

Citation: Editors: Purna B. C., Edmund G. C. Barrow and Alex Muhweezi. *Securing Protected Area Integrity and Rural People's Livelihoods: Lessons for Twelve Years of the Kibale and Semliki Conservation and Development Project.* xii + 156pp.

ISBN: 2-8317-0781-1

Cover photo:

1	2
3	4

1. Road through Kibale National Park
2. View of Kibale National Park and its Important Forest
3. Construction of trench in Nyabweya village
4. Viewing platform in Kibale National Park
(Cover and all inside photos by Purna B. Chetri)

Design & Layout by: Gordon O. Arara

Printed by: LabaGraphics Services

Available from: IUCN Eastern Africa Regional Office
P.O. Box 68200 - 00200, Nairobi, KENYA
Tel: ++ 254 20 890 605 - 12
Fax: ++ 254 20 890 615/407
Email: mail@iucnearo.org

The text is printed on Diamond Art Paper, made from sugarcane waste, recycled paper and totally chlorine free pulp.

Table of Contents

List of Acronyms	vii
Acknowledgements	viii
Preface	ix
Author and Editor Details	x
Foreword	xi
Executive Summary	1
Chapter 1: Kibale and Semliki Areas of Western Uganda – The Area, The People and The Protected Areas	18
1.1 Introduction.....	18
1.2 The Project Area of Kibale and Semliki Conservation and Development Project (KSCDP)	20
1.3 Kibale and Semuliki National Parks.....	24
Chapter 2: Overview of Kibale Semliki Conservation and Development Project ..	26
2.1 Introduction.....	26
2.2 Phase One (September 1988 – September 1990)	26
2.3 Phase Two (January 1993 – June 1998).....	26
2.4 Phase Three	27
Chapter 3: Improvement of Protected Area Integrity	33
3.1 Introduction.....	33
3.2 Strategies adopted to address the conflicts	33
3.3 KSCDP, KNP and Tourism.....	36
3.3 Impacts of KSCDP initiatives	40
3.4 Conclusion	42
Chapter 4: Addressing Problem Animals	43
4.1 Introduction.....	43
4.2 Uganda Wildlife Authority Strategy	43
4.3. KSCDP support.....	44
4.4 Deterrent testing.....	46
4.5 From Experiment to Action - An Example from Nyabweya parish.....	49
4.6 Challenges Facing Problem Animal Management.....	52
4.7 Opportunities	54
4.8 Lessons learned.....	55
4.9 Conclusion	56
Chapter 5: Collaborative Resource Management for livelihood prosperity and biodiversity conservation	58
5.1 Introduction.....	58
5.2 Why Collaborative Resource Management Agreements in KNP?	58
5.3 The Process	61
5.4 Progress to date.....	65
5.5 Impacts of CRM and Lessons Learnt.....	67
5.6 The Future	69

Chapter 6: Conservation Education around Kibale National Park - A Comparative Assessment of the Methods Used by KSCDP.....	71
6.1 Introduction	71
6.2 Methods Used by KSCDP.....	71
6.3 Results and Comparison of Effectiveness of Different Methods	78
6.4 Conclusion.....	83
Chapter 7: Extension Approaches used by the Kibale and Semliki Conservation and Development Project	85
7.1 Introduction	85
7.2 Participatory Rural Appraisal (PRA).....	85
7.3 Community Meetings	86
7.4 Field Exchange Visits	87
7.5 Demonstrations	88
7.6 Individual Visits.....	89
7.7 Capacity Building.....	90
7.8 Lessons Learnt.....	91
Chapter 8: Alternatives and Substitutes – Improved Tree Options Contributing to Livelihood and Environmental Security	92
8.1 Introduction	92
8.2 Approaches used	92
8.3 Results and Achievements	94
8.4 Lessons learned.....	96
8.5 Conclusion.....	97
Chapter 9: Planning Income Generating Activities in Conservation: KSCDP Experience	98
9.1 Introduction	98
9.2 Selection of income generating activities	98
9.3 Lessons learnt.....	106
9.4 Conclusion.....	109
Chapter 10: Fuel Efficient Cookstoves in Energy Conservation, Reflections on KSCDP Experience	110
10.1 Introduction	110
10.2 Cookstove Program	110
10.3 Case Study: Stove Production at Hima	112
10.4 Lessons learned.....	113
10.5 Conclusion.....	114
Chapter 11: DEAP – Decentralised Environmental Management in Uganda - Reflections on the KSCDP/Kabarole District Experience.....	116
11.1 Introduction and Environmental Management in Uganda.....	116
11.2 Environmental Planning in Kabarole: Problems Identified, Actions Desired...	117
11.3 Conclusion.....	122
Chapter 12: The KSCDP Analysis – Resolving Natural Resources Conflict through Integrated Conservation and Development.....	123
12.1 Introduction	123
12.2 Summary of KSCDP Strategies Used.....	124
12.3 Some Conclusions.....	126
12.4 Some Key Lessons	130

References and Bibliography used134

Annex 1: A Collaborative Resource Management Agreement, Between Uganda Wildlife Authority and Members of Ruragama Beekeepers Group Kybandara Parish, Kamwenge Sub-County Kamwenge District.....137

List of Boxes

Box 1.	Kibale Forest Corridor Evictions - Early 1990's.....	38
Box 2.	Bigodi Womens Canteen	42
Box 3.	Visitor comments at Kanyanchu Tourism Centre at Kibale National Park.....	43
Box 4.	Vermin Animals and the UWA Statute (1996, Section 58).....	47
Box 5.	Trench protects wildlife	55
Box 6.	Clauses in Uganda Wildlife Statute (1996) of Importance for Collaborative Management.....	60
Box 7.	A sample section from Nyabweya Multiple Resource Use Agreement.....	67
Box 8.	Summary of Progress from Nyabweya and Mainaro Resource User Groups.....	68
Box 9.	Sample Letters Received By KNP From CRM Groups On Illegal Activities	70
Box 10.	A New Development In Mauritius Thorn Barrier Planting	74
Box 11.	Headmaster acclaims KSCDP support to WCU.....	79
Box 12.	WCU success leads to international recognition.....	80
Box 13.	Pairwise Ranking of Environmental Problems in Kinoni Parish	89
Box 14.	Community meeting in Kinoni Parish to address Coffee Wilt disease.....	89
Box 15.	Exchange visit on Mauritius Thorns	90
Box 16.	Demonstration on Pig Husbandry in Kiziba Parish.....	91
Box 17.	Some Of The Skills Given To Contact Farmers.....	91
Box 18.	Strength and Weaknesses of individual visit approach.....	92
Box 19.	Operations of the Fruit Nursery in Nyabweya Parish	92
Box 20.	Paul Mullera and his Farmer Field School.....	101
Box 21.	Yousouf Karyamagashi - Learning from Other Innovators.....	103
Box 22.	From a hunter to a Conservation Worker.....	105
Box 23.	Assessment of Improved Livelihood Security.....	108
Box 24.	Steps in Environmental Planning.....	120
Box 25.	Summary Of the Key Findings of the Final Evaluation of KSCDP.....	129
Box 26.	Sustainability - Gaps and Opportunities, Views of the Final Evaluation.....	131
Box 27.	Some Suggestions for the Future to Assure Livelihood Security and Conservation Integrity.....	132

List of Maps

Map 1:	Uganda and its Conservation Estate.....	21
Map 2:	Kibale National Park and the Surrounding Parishes.....	23
Map 3:	Semuliki National Park and the Surrounding Parishes	24
Map 4:	Major Problem Animal Areas around KNP	46
Map 5:	Kibale National Park Showing Parishes where CRM was Tested.....	64
Map 6:	Sample of Participatory Map of where Certain Resources are Located in KNP.....	65

List of Tables

Table 1.	Institutional partners.....	30
Table 2.	Key ICD steps and issues	31
Table 3.	The Natural Resources Related Conflicts	36
Table 4.	KNP Revenue from tourism (US \$s)	39
Table 5.	Deterrents proposed for addressing problem animals at KNP	48
Table 6.	Summary of four new deterrents tested in parishes around Kibale National Park with support from KSCDP.....	52
Table 7.	The Cost of Digging the Nyabweya Parish Elephant Trench.....	54
Table 8.	Strengths and Weaknesses of Various Deterrents Tested around Kibale National Park	57
Table 9.	Examples of resources used from Kibale National Park by local communities.....	62
Table 10.	2001 wild coffee harvests in Kibale National Park.....	68
Table 11.	Illegal activities in KNP, 1999-2001	70
Table 12.	Some Key Lessons from CRM around KNP	72
Table 13.	Summary of Radio Programmes Aired.....	75
Table 14.	Summary of MDD Activities.....	76
Table 15.	Awareness Materials Produced.....	77
Table 16.	Nursery types established per year 1993-2000.....	96
Table 17.	Trees planted per year from 1993 - 2000.....	96
Table 18.	Major Species promoted by KSCDP.....	97
Table 19.	Coffee nursery groups	102
Table 20.	Fruit nursery groups.....	103
Table 21.	Beehives and honey production in KSCDP target areas.....	104
Table 22.	Expenditure Statement for Stove Production.....	115
Table 23.	Attributes of various fuel-efficient cookstoves.....	115

List of photographs

Photograph 1:	View of Kibale National Park and its Important Forest.....	40
Photograph 2:	Road through Kibale National Park.....	40
Photograph 3:	Viewing platform in Kibale National Park.....	41
Photograph 4:	Kibale National Park and adjoining tea estates	41
Photograph 5:	Construction of trench in Nyabweya village	48
Photograph 6:	Farmers tree nursery.....	95
Photograph 7:	Paul Mullera's coffee nursery.....	101
Photograph 8:	Pineapple garden.....	103
Photograph 9:	Bee hives and beekeeping.....	104
Photograph 10:	Everest's new house.....	105
Photograph 11:	Improved pigs in pig sty.....	106
Photograph 12:	Lorena stove in use.....	113
Photograph 13:	Upesi stoves being manufactured.....	114

List of figures

Figure 1:	An example of pig distribution.....	107
-----------	-------------------------------------	-----

List of Acronyms

CBO	Community Based Organisation
CBT	Community Based Tourism
CCU	Community Collaboration Unit of Uganda Wildlife Authority
CIG	Community Interest Group
CRM	Collaborative Resource Management
CTA	Chief Technical Adviser
DEAP	District Environment Action Plan
DEC	District Environment Committee
DEO	District Environment Office
DDP	District Development Plan
DEP	Department of Environment Protection
EIA	Environment Impact Assessment
FCSDP	Forest Conservation and Sustainable Development Project
GMP	General Management Plan
ICD	Integrated Conservation and Development
ICDP	Integrated Conservation and Development Project
IGA	Income Generating Activities
IUCN	The World Conservation Union
KAFRED	Kibale Association for Rural and Environmental Development
KBA	Kibale Bee-keepers Association
KFF	Kibale Forest Foundation
KNP	Kibale National Park
KSCDP	Kibale Semliki Conservation and Development Project
LEU	Law Enforcement Unit of Uganda Wildlife Authority
MDD	Music Dance and Drama Groups (Roadshows)
MECDP	Mount Elgon Conservation and Development Project
MEP	Ministry of Environment Protection
MNR	Ministry of Natural Resources
MWLE	Ministry of Water, Land and Environment
NEAP	National Environment Action Plan
NEMA	National Environment Management Authority
NES	National Environment statute
NGO	Non government organisation
NORAD	Norwegian Agency for International Development
PAC	Problem Animal Control
PEAP	Parish Environment Action Plan
PMA	Plan for Modernisation of Agriculture
SEAP	Sub county Environment Action Plan
SNP	Semuliki National Park
UK	United Kingdom
UNDP	United Nations Development Programme
UNP	Uganda National Parks
UWA	Uganda Wildlife Authority
USA	United States of America
UCOTA	Uganda Community Tourism Association
VOT	Voice of Toro (FM radio station in Fort Portal Town)
WCU	Wildlife Clubs of Uganda

Exchange rates

1 US Dollar is approximately Uganda Shillings 1,700.00 (2002 rates)

Acknowledgements

This book has been long in the completion, as it has been a learning process for all concerned – author chapters, editors and facilitators of the lesson learning process over the past three years. We are particularly grateful to all the former project staff of the Kibale Semuliki Conservation and Development Project (KSCDP) who contributed so freely of their time over the past three years. They have been key to the lesson learning process, and are central to IUCN's underlying objectives of working with the partner staff associated with the project to compile and write about the lessons learnt. The support and encouragement for KSCDP from the Royal Netherlands Embassy in Uganda has been very strong over the years, and we hope that, in some small way, this book demonstrates some of the results of that support. In particular we are grateful to the two people who have been most associated with KSCDP over the years, namely the late Chris van Vugt, and Charles Drazu. They have, together with others, been part of the project steering committee which, over the life of the project provided strong, and useful guidance and oversight.

All through the life of the project the staff and IUCN have received great support from those institutions we worked with in the project areas, namely the District Administrations of Kabarole (and subsequently Kamwenge and Kyenjojo) and Bundibugyo; the staff of the Uganda Wildlife Authority (UWA) both in the National Parks of Kibale and Semuliki, but also those from UWA headquarters in Kampala, and the staff of the Makerere University Biological Field Station located in Kibale National Park (KNP); the many Non Governmental Organizations (NGO's) and Civil Society Organizations (CSO's) the project worked with, including the private sector. As much of this book is about the interactions of National Park Authorities with their neighbouring communities, the successes of KSCDP would not have been possible without the support and active engagement from numerous community groups and individuals from the parishes which surround the Parks. Many of them spent many hours with UWA and project staff so as to better understand, and benefit from conservation through the development and negotiation of collaborative management agreements.

We are also very grateful to Andrew Roberts, as contributing editor who spent time editing an earlier version for consistency, language and flow. Gordon Arara ably laid out the book and integrated the photographs and diagrams. Dr Eldad Tukahirwa provided valuable comments and input into a pre-publication draft. It is hoped that this publication will contribute to the evolving literature on, and analysis of integrated conservation and development approaches.

Purna B. Chhetri, Edmund G.C.Barrow and Alex Muhweezi

Preface

Learning lessons from project activities and approaches is a key activity, yet often unrecognised in importance, or treated as an add on or after thought to the project activities. Without the learning, articulation and dissemination of such lessons, the influence of a project will not reach further than the project area or some of the project beneficiaries. If a project does not document its work for wider dissemination, it will be forgotten, the best of work and project activities not with standing.

KSCDP has tried to take a more novel approach to lesson learning. Often lesson learning is carried out as a research exercise during a project, or after the project has ended. It is externally driven, and so owned externally. Yet key to changes of attitude, behaviour and practice is the ownership of such change at the locale required – and this is at the local and national level.

In 2001 KSCDP and its partners (UWA and District Government) staff with technical support and advice from IUCN, agreed on a process to document the approaches and lessons the project has used, particularly during the last 6 years, but also over the life of the whole project. A series of three writers workshops were convened to

- Discuss and agree on the approaches to be used;
- Agree on the teams of people who would write the early draft papers;
- Explore and share the experiences of KSCDP in terms of approaches and methods, practices and activities, opportunities and constraints, and lessons learnt as a result;
- Edit and enrich each other's text, as well as build on editorial comment received from the editors and others; and
- Brainstorm and agree on the larger lessons learnt issues, which was particularly important for the final chapter.

During the intervening periods, the authors worked on their chapters and text. As a result of this, the main content of the book was developed, and in particular for chapters 3 to 11. The first two chapters were compiled from existing material to set the scene, while the final more analytical chapter was written from the context of the existing detailed chapters, and the final writers workshop to explore the broader lessons.

In addition to the book, IUCN has facilitated the compilation of a CD of the project and related materials. We have attempted to compile as many of the technical type reports, papers, and research theses as we could, and stored them in a coherent form on CD. We are sure that the CD is not an all embracing institutional memory of the project, but it does provide in one CD a significant collection of material relating to the project and the area.

Author and Editor Details

1. Patrick Kidiya, (Project Co-ordinator 1993 to January 2003), B.Sc Forestry (Honors), Makerere University, Uganda.
2. Pross Katuura, (Co-ordinator, Environment Education, January 1997 to February 2002), B.Ed. Makerere University, Uganda.
3. Anne Manyindo, (Extension Officer, July 1996 to February 2002), Makerere Institute of Environment Development and Practical Skills.
4. Anthony Tumwisigye (Extension Officer, January 1999 to June 2002), B.Sc Forestry, Makerere University, Uganda.
5. Michael Aboneka (Co-ordinator, Sustainable Development Unit, from March 1999 to November 2002), B.Sc Forestry, Makerere University, Uganda..
6. Deo Kahangire (Co-ordinator, Extension Unit June 2001 to June 2002), B.Sc Agriculture, Makerere University, Uganda.
7. Eddie Kyaligonza (Drama Organiser/Publicity Officer from December 1994 to June 2002), Certificate in Accountancy, College of higher Diploma in Accountancy, Kabarole, Uganda.
8. Joseph Serugo (Chief Warden, Kibale Conservation Areas, Uganda Wildlife Authority from Jan 2001 to June 2003), B.Sc Zoology and Botany Makerere University, Uganda. Post Graduate Diploma in Wildlife Management, Mweka, Tanzania.
9. Patrick Illukol (Local consultant, problem animal management from July 1998 to December 2001), M.Sc, Makerere University, Uganda.
10. Nicholas Mujuni (Assistant Officer, Environment Education Unit from March 2000 to June 2001). Makerere Institute of Environment Development and Practical Skills.
11. Bernard Akunda (Warden, Community Conservation from April 2001 to April 2002), B.Sc from Makerere University, Post Graduate Diploma in Wildlife Management from the same University
12. Annet Kandole (Warden Community Collaboration Unit, KNP, from December 1998 to February 2001). M.Sc in Forestry and Rural Development, Reading University, UK.
13. Mr. Tinka John, founder KAFRED (1991), Tour guide in Kibale National Park, Teacher Bigodi Secondary School.
14. Mr David Azoora and Mr. Nicholas Magara both worked with the District Environment Office in Kabarole District when the District Environment Action Planning work was implemented.
15. Purna B Chhetri, (Chief Technical Adviser March 1999 to January 2003); Ph.D. Crop and Soil Sciences. Michigan State University, USA.
16. Alex Muhweezi, Country Representative, IUCN Uganda Country Office.
17. Edmund G.C.Barrow. Coordinator, Forest and Dryland Conservation, and Social Policy, IUCN-The World Conservation Union Eastern Africa Regional Office, P.O.Box 68200, Nairobi Kenya

Foreword

The Uganda Wildlife Authority inherited the Kibale and Semliki Conservation and development Project in 1996. The other collaborating institutions at the time were the then Ministry of Natural Resources (now Ministry of Water, Lands and Environment) and the then districts of Kabarole and Bundibugyo (now Kabalole, Kyenjojo, Kamwenge and Bundibugyo). The project aimed at supporting the conservation of the rich biodiversity of both Kibale and Semuliki national parks while reconciling the conservation objective with the development aspiration of the people in neighboring communities.

For almost a decade now, wildlife conservation in Uganda spearheaded by Uganda Wildlife Authority has emphasized the need to integrate conservation and development. In Uganda, integrated conservation and development programs have been implemented in collaboration with our partners especially around the forested national parks of Kibale, Semuliki, Mt. Elgon, Mt. Rwenzoori, Mgahinga and Bwindi Impenetrable ensuring conservation benefits local people who incur conservation costs. We have witnessed a high degree of success in integrating conservation and development needs of the local communities living adjacent to protected areas on one hand and national priorities on the other. This success has partly been achieved because Uganda Wildlife Authority and her partners have consistently prioritized integrating conservation with development not only to demonstrate the linkage between conservation and development but also to deliver the benefits of conservation to peoples livelihoods.

Through collaboration with IUCN in this project, UWA has been able to gain experience in collaborative resource management approach towards conservation, management planning for the protected areas and building partnerships with neighbours and Districts that house such protected areas. We hope to build on these experiences to strengthen management of Uganda's wildlife protected areas and enlisting participation of neighboring communities and other stakeholders for the benefit of Ugandans and the global community. We continue to be faced with challenge of managing wildlife, especially, the problem animals and associated conflicts between this wildlife and humans. We therefore value the lessons learnt from this project and will apply them where appropriate. This publication will go along way to enabling us share our experiences widely and help others learn from us.

It therefore gives me pleasure in writing a foreword for this publication that gives analysis of the efforts towards integrating conservation and development in and around Kibale and Semuliki national parks. I take this opportunity to thank IUCN for the technical assistance provided to this project and the Royal Netherlands Government for the financial support to UWA through this project. I also thank all those that made the production of this publication possible. It is our hope that the experiences shared here will go a long way to contribute to the understanding of conservation and development in other countries, and continue to inspire conservation practitioners in Uganda. I wish you good reading.

A handwritten signature in black ink, appearing to read 'A. Mugisha', with a stylized flourish at the end.

Dr. Arthur R. Mugisha

Executive Director,

Uganda Wildlife Authority

Executive Summary

Kibale and Semliki - The Area and the Project

Uganda is a landlocked country that lies astride the equator, and covers an area of approximately 241,500 km². Seasonal wetlands cover 9% of the total area and permanent wetlands cover 3% of the total area. The Rift Valley runs near the western border of the country, with two troughs occupied by lakes Albert, Edward and George. There are 10 national parks (covering 11,180 km²), 10 wildlife reserves, seven wildlife sanctuaries, and 13 community wildlife management areas. Kibale and Semuliki National Parks are distinct ecosystems, and form part of a near contiguous jigsaw of trans-boundary protected areas in the Albertine Rift Valley. Kibale National Park (KNP) covers 766km² and is dominated by medium altitude (1,100 – 1,590 m) moist evergreen to semi-deciduous forest. The annual rainfall ranges from 1,200 – 1,500 mm. The forest has high biodiversity and socio-economic value, and acts as an important water catchment serving Kabarole district, Lake George and its surrounding wetlands, and Lake Edward. Semuliki National Park (SNP) is a moist, semi-deciduous forest which covers 219km² on the floor of the Albertine Rift Valley, and an altitudinal range between 670 to 760m. The average rainfall is around 1,500mm. The northern and western park boundary follows the Semuliki and Lamia rivers which also mark the international border with the Democratic Republic of Congo.

The people living around the Parks are primarily subsistence farmers. In the north of KNP, where large tracts of land are occupied by tea estates, only about 0.8 Ha per family is available. However, to the east and south, an average family has approximately 2.0 Ha. In the past, the local communities relied extensively on products obtained within Kibale forest. These included timber, game meat, land for cultivation, medicinal plants, firewood, poles, craft materials and wild coffee. A growing human population, poor farming practices, and the breakdown of law and order in the 1970s resulted in intense pressure on these forest resources. The single most destructive activity was the massive encroachment of the former Kibale Forest Corridor Game Reserve by approximately 13,000 people. The encroachers were evicted in 1992, and relocated to land north of Kabarole in Kibale district.

The Kibale Semliki Conservation and Development Project (KSCDP) was based on the principles of integrated conservation and development, and worked in the then Kabarole District (now divided into Kabarole, Kamwenge, and Kyenjojo districts) and Bundibugyo Districts from 1988 to 2002. In 1988, the Ministry of Environment Protection established the Forest Conservation and Sustainable Development Programme to support the long-term conservation of natural forest resources. The Kibale, Semliki and Mount Elgon Forest Reserves were identified as priority sites. A two-year planning phase was implemented to prevent further deterioration of the Forest Reserves, and prepare a detailed program of activities for implementation. The second phase of the KSCDP began in 1993, and the Department of Environment Protection of the Ministry of Natural Resources implemented the Project in collaboration with the Forest Department of the Ministry of Natural Resources, the Ministry of Agriculture, Animal Industry and Fisheries, and the local governments of Kabarole and Bundibugyo districts. IUCN managed the project on behalf of the partners, and provided technical support and advice. The overall project goal was to conserve the rich biological diversity and ecological processes within Kibale and Semliki National Parks by promoting sustainable natural resource management, and to:

- Assist the Government to protect Kibale and Semuliki National Parks from encroachment and other threats;
- Assist Uganda National Parks (subsequently the Uganda Wildlife authority - UWA) to prepare and implement long-term management plans;
- Promote community-based approaches to provide substitutes for forest products and encourage sustainable natural resource use in and around the National Parks;
- Promote the capacity of women to participate in, and benefit from conservation and the sustainable management of natural resources; and
- Increase environmental awareness within local communities.

The final phase of KSCDP (1998 - 2002) placed greater recognition on the role of local communities, through:

- Conserving biodiversity and ecological processes both in and outside the parks;
- Strengthening the capacity of Kibale and Semuliki National Parks;
- Strengthening the capacity of District Authorities in natural resource management;
- Reducing negative impacts caused by local communities within the ecosystems;
- Strengthening the management capacity of the Parks and local communities to implement Collaborative Resource Management (CRM) initiatives; and
- Documenting project activities and the lessons learned from them.

KSCDP had three primary institutional partners, namely the Ministry of Environment Protection (1988-1990), the Ministry of Natural Resources (1993-1998), and the Ministry of Water, Lands and Environment (1998-2002). The Norwegian Government provided funding for the first phase (1988-1990), while the second and third phases were both funded by the Royal Netherlands Government with technical assistance from IUCN. KNP and SNP management authorities were the principal partners to plan and implement conservation activities in the parks. Activities concerning conservation of natural resources outside the Parks were supported through District Environment Offices. Out-of-park sustainable development activities were implemented in partnership with district departments and several CBO's.

At the start of the KSCDP, the conflicts between the Protected Areas and neighbours arose from uncontrolled and illegal use of forest resources, and agricultural encroachment and human settlement within KNP. These challenges were compounded by limited institutional capacity within the then Forest Department (and later UWA) to deal with them. The project supported activities that would help ensure forest integrity, and the preparation of long-term strategies for natural resources management both within and outside the protected areas, through:

1). Defining institutional roles and integrating project supported activities into host institutions which ensured that i) the project supported priority needs of the host institutions, ii) the project supported activities that were incorporated in the host institution work plans, and iii) the roles and responsibilities of the participating institutions were defined and agreed upon.

2). Capacity building (Parks, District, communities) which was approached through i) formal and informal training of host institution staff, ii) strengthening host institution management capacity, and iii) establishing long-term management strategies. Additional

institutional strengthening focused on developing strategies for the financial sustainability of parks.

3). Action-learning and adaptive management which helped promote innovative approaches. There were no “blue prints”, as the project adapted interventions to progress made and lessons learnt.

4). Appreciating Conservation to improve the understanding and appreciation for environmental protection, and sustainable natural resource use.

5). Promoting substitutes and alternatives to forest resources and the provision of access to essential goods and services that were hitherto obtained from forests. The development of alternatives, coupled with improved resources management, addressed the issue of tenure of resources, and instilled a sense of ownership and hence good practices for the sustainable use of the natural resources.

Improved Protected Area Management

One major objective was to improve the park-people relationships by identifying conflict areas, and developing activities to resolve them. Major sources of conflict included the prohibition of local people to collect park resources, unclear boundaries and crop loss due to wild animals. KSCDP assisted the two Parks with the development of General Management Plans (GMP). The GMP for KNP was reviewed in 2002, and a new 10-year plan prepared.

Unclear boundaries were a major source of conflict between Parks and people. A large part of south western KNP previously the Kibale Game Corridor, was heavily encroached from the 1970s to 1992 when the settlers were removed. The Game Department established the game corridor boundary (now the SW boundary of KNP) in 1992, and this was re-surveyed in 1998. The 1998 survey revealed inaccuracies in the 1992 boundary, and people considered to be legitimately occupying their own land were now shown to be living inside the Park, resulting in further conflict. UWA commissioned a survey to address the problem, and a proposal was submitted to Parliament recommending that some of the problem areas be de-gazetted to resolve the boundary conflicts. The Park was clearly established through boundary tree planting

KSCDP supported the construction of centralised staff quarters at the Isunga headquarters which accommodate 17 junior and senior staff and their families. SNP can now house six staff families. KNP is considered to have some of the best staff housing in the UWA estate. The ranger quarters at KNP and SNP have been taken as a model by UWA for duplication in other protected areas.

Through KSCDP, KNP has trained over 70 staff in visitor handling, use of geographic information and global positioning systems, first aid, communication, community dynamics, participatory resource assessment, planning skills and driving. The staff have displayed their enhanced capacity by developing the 10-year General Management Plan (GMP) with minimal external support.

In the late 1980's, the return of stability to Uganda saw the appearance of tourists in the Fort Portal area to see chimpanzees and other primates, birds, and visit the Kibale forest. A site to cater for tourists was developed at Kanyanchu, which KSCDP assisted with the development of. KSCDP successfully trained locally recruited guides in conservation education guiding techniques. KSCDP worked on other tourism activities with the Kibale Association for Rural and Environmental Development (KAFRED), a CBO that works to conserve natural resources outside protected areas, wetlands in particular, through the promotion of ecotourism. KAFRED invests the income from tourism in community development projects e.g. education, roads and health. KNP now attracts increasing numbers of visitors, and an increasing duration of visitor stays due to additional attractions and improved facilities. In 2002, KNP earned a record income of US \$133,800, which benefits both park and people, as 20% of the gate fee collected goes directly to adjacent sub counties.

Managing Problem Animals

KNP's biodiversity create conflict between the Park and adjoining communities, as wild animals move freely between park and farm land, leading to crop damage and human injury. Local communities are not allowed to kill or injure such animals as long as they are not designated as vermin. In 2000, UWA declared baboons, vervet monkey and bush pigs as vermin, meaning that they can be controlled at the local level.

A series of consultative meetings were held in 1998 involving KNP and KSCDP staff, local community leaders, and a consultant to discuss deterrents. High technology options included barbed wire fencing and the use of chili pepper guns. Low-technology options included trenches, the placement of sharp objects, scare shooting, and thorn hedges. This problem animal initiative was a partnership between KSCDP, KNP and local communities. The trench, placement of sharp objects, use of pepper sprays, and the thorn hedging were new to KNP, and were tried to assess their suitability for wider application. None of the deterrents were a 100% effective. The trench worked well against elephants and bush pigs, but is ineffective against baboons and chimpanzees. Mauritius Thorn hedging appears to prevent the movement of small animals, particularly baboons and bush pigs, but concerns remain regarding its invasive qualities. Crop loss from problem animals around KNP averages about US \$12 per farmer or US \$200 per kilometer of border per year. The average cost of establishing a trench is US\$1.07 per metre, or US \$1,072 per km which is unrealistic for farmers to bear. Assuming a crop loss of US \$100 per kilometer per season, the cost of a trench would be recovered in about five years. The most effective deterrent tested was the trench (for non-jumping animals) dug 1.5 metres deep and 2 metres wide. However, a trench does not entirely eliminate the problem but diverts it elsewhere. Therefore, a continuous trench around the Park is required, but this has implications concerning the confining wild elephants permanently inside the Park borders.

To improve the effectiveness of trenches, Mauritius Thorn should be planted on the outer community side of the ditch to prevent both non-jumping animals and small animals from passing. At Nyabweya the trench prevents elephants from entering farmland, and also stops cattle from moving into the park. However measures to address problem animal issues extend beyond barriers, and a more holistic approach is required to provide local communities with alternatives, and combinations of options. These include the use of buffer crops, access to selected park resources through CRM, the instigation of better communication channels between key stakeholders, and the formation of task forces at

grassroots levels to monitor wild animal activity and damage caused. Finally, Local Government could consider instituting a sliding tax scheme for farmers who border the Park, and suffer from crop damage.

Collaborative Resource Management (CRM)

The underlying principal of CRM is that benefits, responsibilities and decision-making powers are shared through a range of approaches, among some or all of the stakeholders in resource conservation. The importance of CRM is recognised in the Uganda Wildlife Authority Statute (1996), and the five-year UWA Strategic Plan (2001 – 2005) contains provision for CRM. The rationale for CRM in KNP included the following:

- Policy and legal provisions which enable UWA to undertake CRM;
- UWA's interest and commitment to involve local communities in conservation;
- The dependency of local people on natural resources for their livelihood and security;
- The need to integrate conservation and development;
- The recognition of the legitimacy of the local people to secure their livelihood; and
- The role local people can play in conserving the environment.

The communities who border the Park use more than 20 products from the Park to meet some of their subsistence, commercial, medicinal, and cultural needs. Increasing population pressures, declining agricultural productivity, and a lack of alternative sources of materials create increasing demands for park resources. CRM represents an alternative strategy to escalating law enforcement. Rather than attempting to exclude villagers, CRM recognises their interest in, and use of park products, and involves them in managing these resources. KNP started CRM activities with pilot initiatives in four boundary parishes. Arriving at CRM agreements with communities was time consuming. Negotiations began towards the end of 1997, but the first agreements were not signed until November 1999. The major reasons for this slow progress included that:

- It was necessary to build the confidence of local communities to become genuinely involved in CRM;
- Regular field visits were necessary to ensure that all users were identified;
- Training was necessary to equip the members of KNP's Community Collaboration Unit (CCU) in group dynamics, participatory resource assessment, and negotiation skills;
- Numerous sensitization workshops were required to explain the concept, rationale and implications of CRM; and
- Being a new initiative at KNP, the completion of the actual CRM agreements took a long time, as they had to be reviewed and approved by various stakeholders before signing.

Four further agreements have since been signed in 2002, permitting the placement of beehives inside the Park, and the negotiation process only took six months, due to the increased capability of KNP's Community Collaboration staff in setting up CRM agreements, and that the development of agreements for single resource is less complex than for multiple resources. Since the implementation of CRM, over 20 illegal cases have been reported to park management by local communities. In some cases, the users have gone to the extent of arresting the poachers, confiscating their tools and handing the

culprits over to local council and park management. Local communities have also removed snares, and put out fires. This reduces park management costs, as reports from Kibale National Park shows a decline in illegal activities in the last three years, due to more effective law enforcement activities, combined with increasingly positive contributions by local communities. Such legitimate access to use and manage selected park resources has induced a sense of local responsibility as people take pride in talking about their part of the park, and their actions to protect it from illegal activities. Legitimized access to water, medicinal plants, pole wood, grass and fish in the park are examples of how the use of Park resources can contribute to local livelihood security. CRM will be more successful if alternative and substitute sources of Park products are also available on farmland outside KNP.

Despite KNP efforts to support CRM, it still lacks adequate human and financial resources for effective monitoring. As a result KNP will require continued support for CRM initiatives. Unfortunately this is an area where UWA is still weak, as once the CRM agreements have been officially signed, there has been little follow-up with respect to their implementation. Such follow-up is vital for ensuring that all parties really understand their rights and responsibilities, as well as to solve any problems that might occur. Delegating some responsibility for monitoring CRM to local communities might compensate for the limited number of CCU staff. However, spot checks by KNP will remain essential, as monitoring CRM activities is time consuming. KSCDP has helped KNP to develop participatory monitoring tools. The system to monitor beekeeping is appropriate, although the formats for multiple resource use, and wild coffee require simplifying to be more user friendly.

UWA policy requires CRM agreements to be signed by the Executive Director. This is possible as long as the number of agreements remain small, and while the system is still being tested. Increased numbers of agreements will make it difficult for the Executive Director to personally approve all agreements, and UWA might consider delegating this task to its Chief Wardens. CRM is a good management tool in KNP, even if its implementation is relatively new, as it is clear that it contributes to local livelihood security and the conservation of biodiversity. Weaknesses in implementing CRM on the part of KNP are largely due to limited staffing and financial resources available to the CCU.

Conservation Awareness and Education

KSCDP employed a variety of methods to target the different mental and sensory faculties through which people can appreciate environmental educational messages. The most effective methods were those that were demand driven. The methods included radio, audio visual shows, joint-productions with the Wildlife Clubs of Uganda, facilitating school based wildlife clubs, production of awareness raising materials, road shows using music, dance and drama groups (MDDs), and seminars and workshops for special groups, e.g. women, teachers and local leaders.

The project had a number of achievements using different forms of environmental education, though many were intangible, especially those that relate to changing attitudes and behaviour. It is hard, for example, to gauge the effect of a play or a song about tree planting. An MDD event may, in some cases, inspire some individuals to plant trees. Surveys were carried out to assess the effectiveness of the different methods in disseminating messages. MDD was the most effective way, as people seem to easily

understand the messages, while the timing of performances (usually at weekends, and especially after church services) meant that attendance was high.

Different methods of environmental education are appropriate for different purposes and target groups. MDD is the most effective for women and youth. The school clubs are best for school children and teachers, because it is organised in a school setting. Radio can be listened to by anybody and reaches people of all categories over a wide area. The best combination has been MDD and locally relevant video as people enjoy watching themselves on video. Both methods are entertaining and participatory, which are key factors for successful learning. It is important that a variety of methods of environmental education continue to be used, and that environmental education links directly to other conservation issues being addressed, as different people and groups respond differently to various methods of teaching.

Extension Approaches

KSCDP used different extension approaches, including Participatory Rural Appraisal (PRA) tools, individual visits, field exchange visits, use of contact farmers, community meetings, demonstrations, and mass awareness. None were used in isolation, as a combination of two or more were used to promote particular activities. A number of lessons were learnt from the extension approaches used by KSCDP, including that:

- Successful implementation of an activity requires a combination of extension approaches, which, if used in isolation, are less likely to be successful;
- PRA tools are necessary when initiating an activity or intervention in the community;
- Field extension workers are vital to any extension programme which uses a contact farmer approach;
- Using model farmers worked better than contact farmers used by KSCDP during its third phase; and
- Seeing truly is believing. Field visits to witness successful activities in other locations have done more to encourage local action, particularly for income generation schemes, than any of the other approaches.

Alternatives - Trees

In an area of increasing land pressure, little viable forest remains outside protected areas, and there is a heavy dependence on KNP for poles, timber, fuel wood and fodder. The project worked with local communities and other partners to plan tree planting through, for example the establishment of woodlots, planting trees along community-park boundaries, in school compounds, and on private lands. These additional wood sources supplemented subsistence needs by:

- Providing additional and alternative sources of fuel wood, poles and timber;
- Supplementing medicinal and fodder needs;
- Generating income through the sale of wood products;
- Improving soil fertility by using nitrogen-fixing trees; and
- Stabilizing soil by planting trees on steep slopes.

Tree planting has been successful, due to local scarcity of tree products, as the example of Kiko parish exemplifies, where the only remaining option for obtaining tree was illegally

from KNP. Kiko residents welcomed KSCDP support to plant trees on their own land to supplement their needs. However the community nursery approach failed because community members did not like working in groups for small profit whilst conflicts arose concerning benefit sharing from the nurseries. Private nurseries were more successful, where one person (or family) is in charge and manages the nursery.

Tree planting has been enthusiastically adopted and is an important step to reduce the pressures for tree products from National Parks. Tree planting initiatives are more meaningful if promoted as part of a wider programme which incorporates complimentary activities such as the use of fuel-efficient cook stoves. It is possible that grown timber is commercially sold, while growers continue to remove trees from parks and other local forests for their own requirements. In this case, KSCDP activities would represent a contribution to poverty alleviation rather than conservation. The issue is to try and ensure increased emphasis on tree planting on farm, combined with a reduced access to the National Park for the same products.

Income Generating Activities (IGA's)

Food security and lack of cash income directly contribute to poverty in the project area. So, Protected Area conservation initiatives must take into account the needs of people who have traditionally been dependant on the parks and reserves. If the use of protected area resources is to be restricted and regulated, then alternative sources must be provided on private lands and this formed the basis for planning IGAs outside the park. The criteria used for selecting the IGAs were that the interventions should be locally adaptable, products must have markets, and interventions should not be totally exogenous. As a result, four main areas were identified:

- Growing clonal coffee to substitute for wild coffee and generate income;
- Fruit growing as a source of income, and household consumption (nutrition);
- Beekeeping as a source of income, and household consumption (medicine & nutrition); and
- Pig farming as a source of income, and to substitute for bush meat.

The biggest impact made by KSCDP's income generation work was capacity building. The five coffee and three fruit nurseries produce quality seedlings locally at affordable prices. Farmers earn significant income from beekeeping, pig farming, coffee growing and fruit planting. An independent assessment of KSCDP supported activities revealed the important contributions of IGAs to the livelihoods of local communities and the conservation of biodiversity. Income-generating activities are best initiated by members and groups with a common interest, commitment and adequate capabilities. But those who possess these attributes are often well placed in their communities, and are rarely the poorest or most deserving cases. For example, exotic pigs provided to the poorer community of Kahangi died, as people could not afford to provide the required standard of feed or living conditions. In contrast, pigs in the comparatively well off Kiziba village thrived.

Local community members now produce their own high quality fruit seedlings, and farmers obtain clonal coffee from a choice of five nurseries established by local communities. As such, local skills to produce fruit and tree seedlings and coffee are likely to remain, if they are profitable. The original reason for establishing group nurseries was to provide fruit seedlings to communities bordering the Protected Area at an affordable rate.

The rewards from growing improved varieties may be great, but this success can bring increased risks of failure. Yields can be three to four times greater than local varieties but improved plants are more susceptible to pests and diseases. For example, over 20 farmers established passion fruit gardens using improved varieties, and were very happy with the results until early 2002 when root collar disease (*Fusarium oxysporium*) started to destroy their plants. When encouraging improved strains, a project must provide growers with the necessary support to combat problems that may arise. The rate of adoption of IGAs needs to be linked to market forces, rather than the performance of extension workers or the availability of technology. When local markets approach saturation, growers can be assisted to identify additional markets further a field.

Selling produce from KSCDP-supported income generating activities has not been a problem. An extensive marketing network exists for honey, while there is a ready demand for pigs both within, and outside the district. However, initial problems were experienced when marketing passion fruit locally. Now merchants come from Kampala to Busiriba parish to buy pineapples and honey. The group has also been assured of a market for passion fruits. Pigs (mostly exotic and crosses) are sold locally to buyers from Kasese. IGAs contribute to both poverty reduction and conservation, with the following observations that:

- It is necessary to analyse the market properly. Beekeeping and pig farming succeeded due to a ready market. Cook stoves however did not thrive as a market product, as few stoves per household are needed while their durability means that repeat purchases are infrequent;
- Coffee used to be a good source of income. However, due to declining world prices of coffee, farmers are reluctant to grow or expand areas under coffee;
- The introduction of improved papaya was not a success. Although yields were high, the fruits were not as tasty as the local variety;
- Small numbers of members are most effective if IGAs are to be implemented by groups;
- The “rate of adoption” as an indicator of success is not always the best way to measure success; and
- If provided with tools and skills in farming techniques, farmers can experiment on their own.

Fuel Efficiency

With the Parks out of bounds, firewood was increasingly collected from unprotected forest, which were too small to meet increasing demands. One technique, introduced by KSCDP in 1994 to reduce fuel consumption, was the use of fuel-efficient stoves. KSCDP promoted the three-pot, brick-built Lorena cook stove until 1997, when a study of fuelwood consumption revealed that it was not actually fuel-efficient! Recommendations to improve the design were suggested and tried out, and included:

- Constructing cooking holes to match the size of pots used in the household;
- Adjusting the height of the stove based on the diameter of the saucepan and the wood used; and
- Putting doors or a covering over the fire entrance.

KSCDP's initial assumption was that fuel-efficient cook stoves would be readily adopted by local communities because they save fuel. This is valid if the users themselves wish to save fuel, or spend less time collecting it, or if there actually is a shortage of fuelwood. However, if fuel gathering is appreciated as a social activity, or if users have ample supplies of free firewood from unprotected forests, then they may have little interest in saving fuel. KSCDP identified a number of barriers to the successful adoption of fuel-efficient stoves, including that:

1. Fuel-efficient cook stoves are often supply driven serving the interests of conservation rather than the needs of users;
2. The durability of stoves means that their production as a viable income generating activity is short, and a local producer is unlikely to remain in business once he has provided for local demand, unless he identifies new markets elsewhere;
3. The cost of stoves is always a factor, as the primary target groups of KSCDP are poor, firewood gathering communities who do not have the money to buy improved cook stoves. Unless stoves are provided free, such groups may not be able to use them. However, if they *are* given free, recipients are likely to attach little value to them and they may not be cared for. A conservation project might subsidize stove production by funding the difference between local willingness-to-pay and a fair price for the makers;
4. In some parishes, households do not have separate kitchen buildings, and in these situations there is a reluctance to buy and install a permanent stove in temporary sheds. Often, these communities are unwilling to replace the three-stone cooking hearths, that have been used for generations with something new and unproven;
5. The traditional three-stone fireplaces are more versatile than improved stoves. They can use a wide variety of fuel wood, including wet material and even reeds. Large pots can be used while new models are restricted to pots matching the cooking holes. The improved stoves do not roast effectively or emit enough heat to smoke food hung above the stoves. The regular maintenance required for the new models is seen as extra work; and
6. However much the stove might save on fuelwood, unless other, complementary fuel-saving methods are used, then the saving may be small. Methods such as soaking dry food overnight, simmering quietly rather than boiling merrily, and covering pans while cooking can be promoted to reduce fuel consumption.

District and Local Environmental Planning (DEAP)

KSCDP support to DEAP began in 1998 in the form of technical advice, equipment, materials and logistics. The rationale for working with the districts was to:

- Support the mandate of the Districts in environmental management;
- Strengthen the linkage between the Protected Areas and the planning and development of the District and its people; and
- Foster greater partnership with the Districts to implement interventions promoted by KSCDP and enhance the linkage between Protected Areas and the Districts as a whole.

Support to the district's environmental action planning began with environmental assessments in thirty-five parishes to identify key environmental issues as the basis for the District Environmental Action Plan and State of Environment Report. The process was highly participatory, and parish residents were invited to identify environmental problems that affected their communities. Three environmental problems consistently arose, namely;

- Deforestation (71%);
- Soil fertility loss or poor soils (57%); and
- Wetland fencing and degradation (40%).

Deforestation resulted in women spending longer periods gathering fuelwood and medicinal herbs. Soil fertility loss directly affected household incomes, since it caused stunting and decreased yields. The degradation of wetlands, particularly through conversion to pasture for dairy farming, resulted in the loss of access to water for domestic needs, and the reduced availability of important building materials such as papyrus and reeds. Community members identified small-scale initiatives that would help them address these problems. They identified the need for increased agricultural outreach and access to information on improved agricultural methods, agroforestry, and tree nursery development. Communities also wanted better service from the district and UWA, wanted the District Environment Officer to prosecute wetland degraders, and UWA to deal with problem animals. Community members increasingly saw the linkages between their farming practices and standards of living.

Districts need to reconsider spending priorities with respect to environmental issues, but these priorities tend to follow signals from the central Government, as in determining the priority sectors for funding, they adhere to priorities laid out in the Poverty Eradication Action Plan. Because the environment is not prioritized, neither the District Environment Office (DEO) of Bundibugyo or Kabarole have been able to access the Poverty Action Fund (PAF). A second obstacle to better environmental management is the lack of sufficient capacity to manage their forests effectively, provide extension services to farmers, and provide environmental education.

The environmental planning enabled people to articulate their needs, raise awareness about the environment and its importance to their daily lives. The actions identified were small-scale and do-able, such as the establishment of tree nurseries or training in improved agriculture, and people want to see that they are implemented. This in turn increased demand for accountability and service from District governments. Unfortunately the current process dilutes the importance of environment issues as they are treated as something different, rather than an integral consideration in developmental planning. Integrating the DEAP process into the District Development planning process might better reflect the importance of the environment. The DEAP process could be a basis to ensure that District development plans are developed in a more participatory manner, and that environmental concerns are integrated. The best way perhaps to secure funding from local government is to address and incorporate environmental issues in development plans from the parish to the district level. This would then avoid the preparation of parallel plans and some duplication of financial and human resources.

The KSCDP Analysis – Resolving Natural Resources Conflict through Integrated Conservation and Development (ICD)

ICD recognizes that the conservation of natural resources cannot succeed without addressing people's livelihoods and development needs through the development and promotion of long term conservation strategies, the understanding of conservation values and benefits to local people, the delivery of benefits to people, and ensuring the integration of conservation needs in broader community development strategies and frameworks. The twelve years of KSCDP experience demonstrated that an ICD programme can contribute to the conservation of biodiversity **and** help mitigate poverty. One major reason for the success of KSCDP was its ability to analyse and understand issues related to the conservation of KNP and SNP, in terms of wider landscape management, and the integration of conservation objectives and management into district and wider environmental planning. Loss of traditional access to park resources, crop loss due to problem animals, unclear park boundaries and a lack of options outside for regulated resource use were the key sources of conflict between Park and local communities. KSCDP designed and implemented inter-related strategies that addressed conflicts by considering:

- Poverty and livelihood needs by recognizing that poverty is one key factor contributing to unsustainable natural resource use, and encroachment in the Parks;
- Improved use and management of natural resources through enhanced capacity within the communities, Districts and Parks to plan for and manage natural resources; and
- Awareness needs on biodiversity values, and the need to conserve the biodiversity of the two Parks.

The following are the key achievements of KSCDP:

Instituting mechanisms to allow local people to access vital resources for their livelihood: With the gazettment of Kibale and Semuliki Forest Reserves as National Parks, local communities lost their customary rights to Park resources, and this caused negative feelings. The inter-relationships between park and people was ignored, and the people living around the Parks were now seen as a threat to conservation. During the course of the project, KSCDP learned that conservation initiatives would not be successful as long as people affected by conservation were living in poverty. As a result local communities were involved and extensively consulted in developing the long-term management plans of the Park. Collaborative resource management agreements were developed to allow communities to use and manage selected resources from the Park, which are vital for their livelihoods.

Addressing crop losses due to problem animals: KSCDP worked with the Park authorities and local communities to identify deterrents to keep wild animals from entering farms. Two deterrents were found effective and feasible, namely trenches and live fencing, preferably in combination. Such an approach has helped improve park-people relationships, as Park authorities were seen to be responding to local community needs. UWA's policy of sharing 20% of the Park entrance fees with surrounding communities also contributed to improving this relationship. The declaration of baboons, vervet monkeys, and bush pigs as vermin by UWA has been an important step forward by Park authorities in responding to local problems.

Clearly defining park boundaries: Prior to gazettement of Kibale and Semliki forests into National Parks, there was intensive encroachment attributed to unclear boundaries between the Parks, communities and private lands. KSCDP supported the then Uganda National Parks to resurvey and demarcate the boundary with a live fence to distinguish the boundary. Encroachment has been eliminated due to the clearly established, recognized and now respected boundaries.

Developing of options and substitutes: The dependency of local communities on Park resources was such that, even after gazettement and strict policing, they continued to access the Park to meet subsistence needs. This was resolved to some extent by providing alternatives and options outside the Park, including the development and use of, for example coffee, fruit growing and the keeping of pigs and bees. KSCDP worked with partners and local communities to implement activities to meet some of these subsistence and cash income needs. For resources such as medicinal plants, papyrus, craft materials that required Park habitat, access was provided through CRM arrangements, though in some cases medicinal plants were domesticated on farm. These activities helped park and people to come closer and work in a mutually beneficial way.

Capacity building, sensitization and education: KSCDP placed considerable effort on capacity building of its partners, and local communities. Today, Kibale and Semliki National Park staff are able to use tools and techniques to monitor biodiversity changes, and negotiate with local communities to take up CRM initiatives. Local communities are able to produce better quality tree, fruit and coffee seedlings by themselves. In addition, KSCDP worked with its partners to disseminate conservation messages through various means, for example music, dance and drama groups, radio and school programmes, celebration of events such as the World Environment Day, and the production and distribution of materials such as posters, calendars, postcards and field based training courses.

At a time when contributions of conservation programmes in mitigating poverty are being questioned and debated, the KSCDP experience offers good examples and lessons in linking conservation and development. KSCDP evolved from a more traditional ICD approach based on the Protected Area to one that became increasingly integrated into district development and planning. After 12 years of project activities and its achievements, many conclusions and lessons can be drawn:-

(1). Management and ecological integrity of two National Parks have improved: Through the construction of attractive bandas, multipurpose viewing platforms, introduction of night walks, and establishment of long distance trails, KNP has diversified its tourist attractions. The construction of staff accommodation and offices have improved staff morale, as KNP and SNP now have some of the best infrastructure in the UWA system. The General Management Plan, had the full agreement of all stakeholders, and further enhanced the harmony between Park and surrounding peoples. The broad based understanding and acceptance of the plan further reduced boundary conflicts and gave increased legitimacy to CRM agreements. The planting of Eucalyptus trees, from which the people will be able to benefit along the boundary has ensured that everyone knows where it is. With the improved infrastructure in the Park, combined with the establishment of walking trails, tourist accommodation and the visitor centre, this has set the scene for tourism numbers to increase, and an improved revenue base.

(2). The importance of collaborative resource management - the "glue" between Park and people:

With the implementation of CRM, local communities started to see tangible benefits, and requests for CRM agreements have increased from other parishes and groups. CRM is now demand driven, and is seen as a tool for sustainable resource management. Since the implementation of CRM, there has been a marked reduction in conflict between the Park and people, and this has eased the enforcement burden on Park management. For example, since the negotiations began in the middle of 1998, over 22 cases of illegal operations and poaching have been reported to KNP by local communities. Such reporting would never have happened in the past, and indicates the increasing responsibility these parishes have for the Protected Area, and the benefits which accrue. Local people are more involved in various aspects of Park management, and the benefits are starting to show from that collaboration, through improved security, reduced poaching, and improved benefit flows to rural people. CRM agreements take time to develop, negotiate and agree to, as it is process driven, cannot be based on a blueprint, and has to be equitably negotiated. While understanding the technical and natural resource issues is important, getting the social issues right is the crucial factor on which success or failure hinges. The institutional mechanisms have to be built up and developed to take on these responsibilities, and the benefits from the CRM agreements have to outweigh, at least from the people's perspective, the costs of engagement.

(3). Improved natural resource management and over-all environmental awareness:

KSCDP played a significant role in strengthening the District Environment Offices of Kabarole, Kyenjojo, Kamwenge and Bundibugyo District. Environment Action Plans were developed and are being implemented. Training has resulted in raised environmental skills and awareness for District technical officers, as well as raising the profile of the environmental office, as individuals, community leaders, and CBOs know where to go for further information or advice. In addition, the office works closely with the media to ensure that environmental messages are broadcast widely. This has begun to bear fruit as increasing numbers of people report environmental abuses, or ask for awareness training. Since the implementation of sustainable development activities, such as the establishment of woodlots, use of fuel-efficient cook stoves, and promotion of ecologically sound agricultural techniques to boost production, this has led to a reduced pressure on park resources. Alternatives, such as rearing pigs as a substitute for bush meat, clonal coffee as a replacement for wild coffee, and on-farm woodlots as a source for pole wood and fuelwood have all been adopted to varying degrees by farmers.

(4). Impact on people's livelihood:

KSCDP assisted line agencies and CBOs to implement income-generating activities that contributed to increased income and food security. These included planting clonal coffee and improved fruit for cash income and family nutrition, bee-keeping for honey and cash income, rearing of improved breeds of pigs, and making available improved and disease-free planting materials of cassava, soybean and coffee. All of these contributed significantly to increasing both the cash income of people, and the overall productivity per unit area. Households have improved nutrition due to increased food production as a result of improved methods of agricultural production, increased yields and availability of a variety of fruits (avocado, jackfruit, pineapples, passion fruit) on farm. The project tried to link Park related activities with those of sustainable development with the communities who border the Park. For example where CRM activities are taking place, activities relating to farm and soil fertility improvement, and the use of alternative and substitutes for Park based resources have been worked on. This is a crucial, if obvious, link to make. Based on KSCDP work, Kamwenge district have now

made by-laws concerning soil conservation. With improved farming practices, this has meant a reducing need to use Park based resources, as there is a wider range of economic opportunities available to farmers. But this also requires being able to provide the links to markets, in terms of processing, for example honey, and actual markets, for example for passion fruit and pineapples. While external markets have an added value, it has been equally important to respond to local market demands.

(5. Importance of a project process or a process project? Over the life of the project KSCDP has evolved from being a more 'traditional' project with its own institutional and structural arrangements, to one where it supported and worked with existing institutions, and has made major efforts to house the ownership of the activities either within the Parks, or with the parishes and communities concerned (and the CBO's there), as well as with District authorities. This has fostered a much greater sense of local ownership, improved local planning and integration of activities into host institution planning processes. Yet it still allowed a project of this nature to pilot and test innovative approaches to, for example CRM, environmental awareness, and improved land use. The challenge is the balance between one of local ownership (at the District, Parish, and Park levels), and the need to be able to try and test so as to improve on existing norms and approaches. The major lesson in this area for KSCDP is to seek a balance between being able to test and pilot, yet at the same time ensure institutional ownership, and it is uncertain as to whether the present approach to development support in Uganda, which revolve around broad sectoral support, can actually achieve both of these aspects.

(6. Reconciling conservation with development: Successful and effective implementation of ICD requires a relatively long time to establish strong linkages between conservation and development objectives. This project has been relatively successful in fostering these linkages. There are often high expectations by communities that they should benefit from development activities unrelated to conservation. But a National Park's mandate has to be limited to what development activities it can engage in. Both the Parks and communities have to make trade-offs in order to reach compromises, and this takes time. As long as differing perceptions persist, the Parks' conservation efforts will meet resistance. Greater awareness and understanding related to Park management objectives, community needs and conservation goals will improve communication between parks and community. This is based on an improved understanding of the in- and out-of-park natural resource use by local communities. It is clear that integrated conservation and management approaches are process-oriented and time consuming, and need to be flexible. The ICD approach allowed for the incorporation of new science and innovative conservation approaches such as collaborative resource management, and helped promote strategic partnerships among players, including the recognition of community and stakeholder needs.

(7. Institutional and financial sustainability: Conservation goals are long-term, whereas the needs and expectations of local communities are generally short-term. It is difficult to meet the aspirations of local communities for short-term gain from long-term conservation objectives and strategies. Although new concepts and approaches are received with enthusiasm, they can take too long to be fully accepted and integrated in the local land use systems.

(8. Gender, equity and capacity: From its inception, KSCDP involved women in every aspect of project-supported activities. The project female staff, were generally more receptive to specific women's issues. But, it has been difficult to fully involve women, as

communities consistently choose more men than women for training, more men than women attend group meetings, and more men than women apply for positions such as extension agents. Only where it concerns obtaining information at a household level, do women make up half the respondents. This reality compelled KSCDP to take affirmative action, for example in the training of women in fruit tree grafting. KSCDP approached capacity building in different ways targeting institutional strengthening and staff skills development. But, capacity building often fell short of its target due to inconsistent implementation of internal institutional policies and procedures within host institutions. The most affected ones are personnel procedures, reporting (on progress and finances), inadequate supervision of field staff, and inconsistencies in developing and implementing policies. Capacity building was further undermined by political interference, e.g. civil strife, and vested interests, and by unrealistic budget provisions (both donor and host institutions) as well as short-term funding and budget cycles that does not permit longer-term capacity building.

(9). Sustainability and ownership: KSCDP demonstrated that project supported activities can become sustainable if they are owned by the host institutions, including at the farm level. Ownership is secured if the project design and implementation mechanisms offer opportunities to draw commitment from the host institutions. But, government institutions sometimes over-look the importance of community institutions simply because they are often taken for granted. KSCDP was implemented by institutions that often lacked adequate resources to meet their commitments. There were frequent staff transfers, as well as variable levels of confidence in the field staff, for instance, not permitting them to implement institutional commitments without reference to their headquarters. A case in point was the delay in formal approval of the long-term management plan.

(10). Role of Government policy: KSCDP was successful partly because there are enabling environmental and protected areas conservation policies. The Government policy on decentralized environment management provided an excellent opportunity to undertake field activities with the districts and communities. But, macro-economic policies such as the Poverty Eradication Action Plan (PEAP) did not give adequate recognition to environment and natural resource issues, and so undermined continued support to project activities, because neither the central government nor the district would make adequate provisions in their budgets to meet their obligations. The macro-economic policies also affected continued support from the donor, as Uganda did not prioritize the environment as a sector for funding under PEAP, because Uganda rightfully considers the environment as a cross cutting theme. As a result donors focused their assistance programmes on the prioritized sectors, which, at a strategic level, diminished the importance of the environment and many activities suffered as a consequence. It is interesting to note that the Government of Uganda is now in the process of mainstreaming the environment through the Environment and Natural Resources Sector Working Group.

It is naïve to expect a conservation and development project such as the KSCDP to achieve all of its expected results. KSCDP did its part in terms of building the capacity of its partners, including local communities, to take up participatory conservation and development initiatives. The project was instrumental in testing and promoting various participatory resource management models and in linking conservation to poverty alleviation. The project was successful in building coordination between stakeholders. In addition to building the capacity of its partners, the project was also able to build the capacity of its own staff who are now working in various development programs in the

country. The success of the ICD model depends on a number of factors such as local socio-economic settings, project design, working mechanisms, the extent of stakeholder participation in planning and implementation of the project and, most importantly, the real conflicts pertaining to resource use are identified. Thus, the success of ICDP models are likely to vary from one location to the other. But, as the final evaluation of KSCDP states, ***"This project has contributed significantly to the knowledge base and mechanisms for biodiversity conservation of Kibale and Semuliki National Parks and enhanced Collaborative Resource Management. The outcomes indicate that there are strong links between livelihood security and conservation, and therefore such interventions should be scaled up"***.

Chapter 1: Kibale and Semliki Areas of Western Uganda – The Area, The People and The Protected Areas

Alex Muhwezi, Purna B. Chhetri and Patrick Kidiya

1.1 Introduction

Uganda is a landlocked country that lies across the equator between latitudes 4°N and 1°S and longitudes 29°W to 35°W. The country covers an area of approximately 241,500 km². The main topographic features of Uganda are rangelands (covering 43% of the total area), forests (20% of the total area), open water (15% of the total area). Seasonal wetlands cover 9% of the total area and permanent wetlands cover 3% of the total area. The Rift Valley runs near the western border of Uganda, with two troughs occupied by Lakes Albert, Edward and George. The glaciated peaks of the Ruwenzori Range lie between these troughs and rise to 5,100 metres above sea level.

Most of the central part of the country lies in the Lake Victoria Basin. The basin is drained by the River Nile, which flows through Lake Kyoga in northern Uganda to the Mediterranean Sea. Much of the rest of Uganda lies on a plateau at altitudes ranging between 900m and 1500m above sea level. This deeply incised plateau reaches its greatest elevation at over 2,000m above sea level in the south-western Kabale District. In the south, the landscape is dominated by flat-topped, hills intersected by valleys dominated by swamps. Towards the north the landscape consists of gently rolling open plains interrupted by occasional hills and mountains. The main topographical features in northern Uganda are found towards the eastern and north-eastern borders and include four large volcanoes, including Mt. Elgon.

Uganda experiences a lot of climatic variation related to variations in elevation and landform. The mean annual maximum temperature ranges between 18°C and 35°C, with a minimum range is 8°C to 23°C. Relative humidity is often high, ranging between 70-100%. Much of the country receives between 1,000 mm and 1,500 mm of rain each year, which increases with altitude. The southern part of the country experiences two rainy seasons (April to May, and October to November), while the north experiences one long wet season between June and October. In general, rainfall becomes less reliable towards the north.

In Uganda, wildlife⁴ is abundant both within and outside protected areas. There are 10 national parks (covering 11,180 km²), 10 wildlife reserves (covering 8,764 km²), seven wildlife sanctuaries (covering 850 km²) and 13 community wildlife management areas (covering 27, 600 km², Map 1). Wildlife resources in some protected areas have been adversely affected by poaching and human settlement. Therefore, many of the potential benefits of wildlife to the livelihoods of rural communities have not been realised. There is a threat that this trend may make Uganda less competitive in the regional tourism market, and

⁴ Wildlife here refers primarily to fauna, and even more to the larger fauna

Wildlife resources are important for foreign exchange earnings, which have grown consistently from \$26.7 million in 1990 to over \$200 million in 2000, mainly as a result of the increasing numbers and expenditure of tourists. Since 1990, average annual earnings from tourism have ranged between 1.5% and 1.8% of Gross Domestic Product (GDP). Communities in different parts of the country have benefited from tourism by engaging in various activities, including the management of tourist attractions and wildlife-related enterprises, and the sale of crafts.

Seventy percent of the forests occur on private land. Hitherto, the Forest Department had jurisdiction over 15% of the country's forests and the Uganda Wildlife Authority manages the remaining 15%, including Kibale and Semuliki National Parks. A small proportion (0.03%) of forests are situated within local forest reserves under the jurisdiction of local government authorities. Currently, the main issues related to the management of forest resources in Uganda are deforestation and encroachment. Population growth, as well as the increasing rates of urbanisation and industrialisation, have led to increased demand for forest products and, in some areas, conversion of forested land to other uses. Forest cover, particularly within private land, has dwindled due to unsustainable farming methods, urbanisation, and the high demand for charcoal and fuelwood.

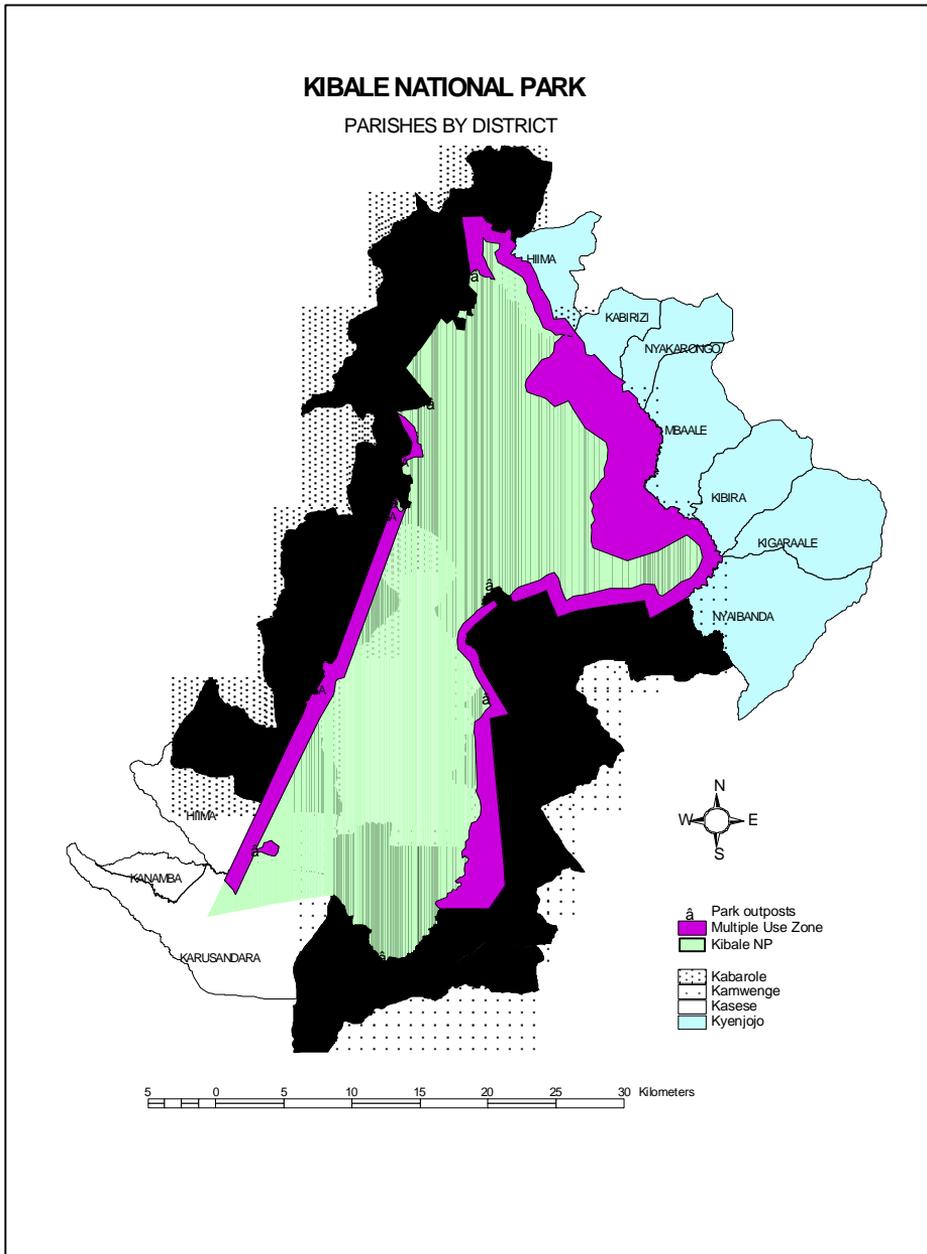
Approximately one third of wetland areas in Africa are found in eastern Africa, and close to 10% of the wetlands found in eastern Africa occur in Uganda. The wetland ecosystems fall into two broad categories, namely, natural lakes and lacustrine swamps, and riverine and flood plain swamps. In south-western Uganda, as population pressure has increased, a significant proportion of wetlands have been reclaimed.

Rangelands occupy about 43% of the total land area, stretching from the northwest to the southwest and extend beyond the national boundaries. This rangeland system is commonly referred to as the 'Cattle Corridor'. Over 90% of the livestock in Uganda is raised by pastoralists within rangelands, compared to less than 10% that is raised by smallholders in mixed-farming systems. The livestock production sub-sector makes an important contribution to national food security, and the nutritional status of the people. The most important rangeland management issues are land use conflicts (between pastoralists, crop farmers and members of different tribes), land degradation, declining quantity and quality of pastures, poor quality of livestock, inadequate water supply, and poor marketing facilities for livestock products.

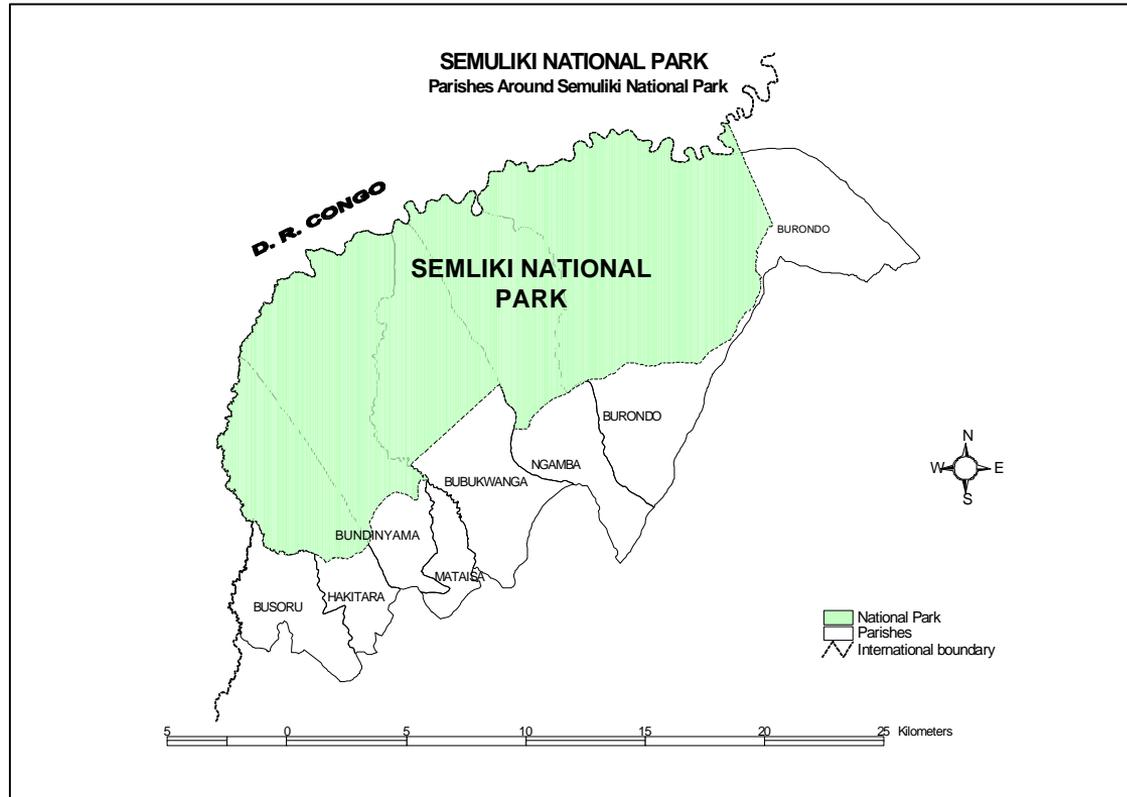
1.2 The Project Area of Kibale and Semliki Conservation and Development Project (KSCDP)

As the goal of the project is to conserve the biodiversity in and around Kibale and Semuliki National Parks, the target areas were parishes bordering the National Park (Map 2 and 3). There are twenty-seven, and seven parishes bordering KNP and SNP respectively. KSCDP initiatives also addressed wider environmental concerns in the four target districts by providing support to the District Environment Offices. SNP is located entirely in Bundibugyo district while KNP is located in Kabarole, Kamwenge, Kyenjojo and Kasese. As there are only two parishes in Kasese district bordering KNP (which were, in any case, receiving support from other projects), KSCDP limited its activities to Kabarole, Kamwenge and Kyenjojo districts.

Map 2: Kibale National Park and the Surrounding Parishes



Map 3: Semuliki National Park and the Surrounding Parishes



1.2.1 The people

KNP is surrounded by a dense human population. This is largely due to immigration from southern Uganda and high human fertility rates. Kibale is surrounded by 27 parishes with an estimated population of 120,000 (Census 1991) comprised mostly of the indigenous Batoro people, and immigrants dominated by Bakiga from southern Uganda. The people are primarily subsistence farmers who grow crops such as banana, groundnuts, sweet potatoes and sugarcane. Land pressure varies around the park. In the north, where large tracts of land are occupied by tea estates, about 0.8 Ha per family is available. However, to the east and south, a family can expect to occupy approximately 2.0 Ha. Tree plantations, primarily *Eucalyptus*, meet timber and fuelwood requirements to some extent. Some livestock rearing occurs in the south but production is very low. Additional economic activities include the brewing of crude *waragi* (local gin), fishing and working in the tea plantations. In the past, the local communities relied extensively on products obtained within Kibale forest. These included timber, game meat, land for cultivation, medicinal plants, firewood, poles, craft materials and wild coffee.

A growing human population, poor farming practices and the breakdown of law and order in the 1970s and early 1980s has resulted in intense pressure on forest resources. The single most destructive activity was the massive encroachment of the former Kibale Forest Corridor Game Reserve by approximately 13,000 people. The encroachers were evicted in 1992 and relocated to land north of Kabarole in Kibale district (KNP 2003).

SNP is located in Bwamba county of Bundibugyo district, which has thirty parishes, seven of which border the Park. Bwamba county is home to an estimated 30,000 families with a density of 300 people/km² (Census 1991). The population of Bwamba county is increasing at a rate of 3.4% per year with the majority of people belong to three ethnic groups, the Bamba (74%), Bakonjo (22.8%), Batwa (0.01%), and others (3.1%).

The Bwamba people practice subsistence agriculture, which is predominantly based on banana, cassava, maize and beans. Cocoa, vanilla and oil palm are important cash crops. Family smallholdings average 1.0 Ha in size. SNP is a source of many natural resources for the people living nearby. Historically, the most active users of forest resources have been the Batwa, who are traditionally forest dwelling hunter-gatherers. This age-old situation is changing as efforts are made to introduce the Batwa to 'conventional' lifestyles outside the forest.

1.2.2 Insurgencies in Bundibugyo District

Insurgencies in Bundibugyo between 1997 and 2001 caused considerable delays in implementing KSCDP supported activities, as between March 1998 and February 2002 KSCDP had to suspend activities there. In December 2000, all the staff from SNP were evacuated due to the insurgencies. During this time, park offices and tourism facilities were partially destroyed and communication equipment was stolen by rebels. People from various parts of the district were relocated to internally displaced people's camps, guarded by soldiers.

It was only from February 2002, that KSCDP resumed its activities on a limited scale, and were confined to the construction of tourism attractions and renovation of war-torn buildings inside the park. This was possible as the construction activities were implemented under the supervision of park staff. Out of park sustainable development activities could

not be implemented as people were living in the camps, and priorities had changed from farming to health and sanitation. A number of emergency and relief organizations were already active in the camps, so support to environmental programmes was not a priority. At the time of writing this book, people were still living in the camps, and KSCDP continued to work with district and parks to build their capacity by organizing training courses outside the district during the time of insurgencies.

1.3 Kibale and Semuliki National Parks

Kibale and Semuliki National Parks are distinct ecosystems within the Albertine Rift Valley system. They are located at the junction of several climatic and ecological zones, resulting in high diversity of flora and fauna. They form part of a near contiguous jigsaw of trans-boundary protected areas in the Albertine Rift Valley. Other Protected Areas in the region include Uganda's Rwenzori Mountains, Bwindi Impenetrable, Mgahinga Gorilla and Queen Elizabeth National Parks, and the Kigezi, Kyambura and Semuliki Wildlife Reserves, the Congolese Parc National des Virunga, and the Rwandan Parc National des Volcans.

The Forest Department managed the Kibale and Semliki Forest Reserves from 1932 to 1993. These reserves were gazetted as national parks in 1993, and taken over by then Uganda National Parks (UNP). They are now managed by the Uganda Wildlife Authority (UWA) which was created in 1996 by the merger of the then UNP and the Game Department (Bensted-Smith and Cobb 1995).

1.3.1 Kibale National Park - Conservation Significance and Socio-Economic Values

KNP covers 766km² and is largely covered by medium altitude (1,100 – 1,590 m) moist evergreen to semi-deciduous forest. The annual rainfall ranges from 1,200 – 1,500 mm. The forest has high biodiversity and socio-economic value (KNP, 1997). In terms of biodiversity, 351 forest tree species (28% of the country's total) have been recorded, with seven species having a very limited range in western Uganda. Species listed as endangered include *Cordia millenii* (Drum tree-Mutumba), *Chlorophora excelsa* (Mvule), *Lavoa swynnertonii* (Brown Mahogany-Mukuso) and *Etandrophragma anglosensis* (Mahogany) (Langdale Brown et al, 1964; Kingston, 1967; Osmatston, 1959; Wing and Bus, 1970; Kasenene, 1987; Howard, 1991). Kibale fauna is also varied with thirteen primate species, including large numbers of red colobus monkey (*Bandius tephrosceles*), the vulnerable L'Hoest Monkey (*Cercopithecus l'hoesti*) and Chimpanzee (*Pan troglodytes*). Kibale probably contains the only viable population of red colobus monkey in Uganda (IUCN, 1988).

The avifauna and invertebrates of Kibale are also rich. At least 372 species of birds from fifty-eight families have been listed. The following are notable due to their limited distribution - olive long-tailed cuckoo, western green tinker bird, Willcock's honeyguide, collared apalis, red-faced woodland warbler, white-bellied crested flycatcher, blue-headed sunbird, tiny sunbird and the Kibale Prigogine's ground thrush, which is not seen outside Kibale). Common birds include black and white casqued hornbill, crowned eagle, great blue turaco, and grey parrot. Reptiles and amphibians are also abundant but little is known about them. The invertebrates include 45 species of forest swallowtail and *Charaxes* butterflies (KNP, 2003).

Kibale forest is an important water catchment serving Kabarole district, Lake George and its surrounding wetlands (a Ramsar site), and Lake Edward. It feeds several permanent rivers including the Mpanga and Dura. The River Mpanga is an important source of water and fish for communities who border the National Park. Local communities have long used the forest as a source of bush meat, building poles, thatching materials, fuelwood, medicinal products, wild coffee, and other non-timber forest products. The forest is also an important source of commercial timber from designated plantations in the Park, though Uganda Wildlife Authority policy is to phase out softwood plantations in National Parks, including KNP.

1.3.2 Semuliki National Park - Conservation Significance and Socio-Economic Values

SNP is a moist, semi-deciduous forest which covers 219km² on the floor of the Albertine Rift Valley. It has a limited altitudinal range between 670 to 760m. The average rainfall is around 1,500mm. The northern and western park boundary follows the Semuliki and Lamia rivers which also mark the international border with the Democratic Republic of Congo.

The flora and fauna is similar to those found in the Congo basin forest and many central African species reach the eastern limit of their ranges in the Semuliki Forest. The flora is dominated by the tree species ironwood (*Cynometra alexandri*), mixed with other tree species of a more evergreen nature. Swamp forest communities are also found.

The forest fauna is rich with numerous rare species. Nine species are found nowhere else in East Africa including the Bay Duiker (*Cephalophus dorsalis*), and the Pygmy flying squirrel (*Idiurus zenkeri*). Seventy five percent of the *Charaxes* butterfly genus are found in Semuliki. Four-hundred bird species have been recorded including nine species of hornbills. Large mammals include forest elephant, buffalo, hippopotamus and nine species of duiker. Threatened and near threatened species include the Forest Ground Thrush (*Turdus Oberlaenderi*), elephant (*Loxodonta africana*), chimpanzee (*Pan troglodytes*) and Sassi's Olive Greenbul (*Phyllastrephus lorenzi*).

Chapter 2: Overview of Kibale Semliki Conservation and Development Project

Patrick Kidiya, Purna B. Chhetri, Alex Muhweezi and Edmund Barrow

2.1 Introduction

The Kibale Semliki Conservation and Development Project (KSCDP) was based on the principle of an integrated approach to conservation. The project worked in the districts of Kabarole, Kamwenge, Kyenjojo and Bundibugyo in western Uganda between 1988 and December 2002, during three phases. The first phase was from September 1988 to September 1990. After a gap of three years, a second phase ran from January 1993 until June 1998, with the third phase from July 1998 to December 2002. This final phase included an eighteen-month extension from July 2001 to December 2002. This represents a total of 12 years of project activity.

2.2 Phase One (September 1988 – September 1990)

In 1988, the then Ministry of Environment Protection established the Forest Conservation and Sustainable Development Programme (FCSDP) to support the long-term conservation of natural forest resources. The Kibale, Semliki and Mount Elgon Forest Reserves and their environs were identified as priority sites for forest conservation. An initial, two-year planning phase of the programme was funded by NORAD with the objectives of:

- Preventing further deterioration of the Forest Reserves; and
- Preparing a detailed program of activities for implementation.

These objectives were to be achieved through:

- Forest protection and conservation activities;
- Outreach activities directed at local communities, and at sub-county and district officials; and
- Data collection and development of a project and activities for a second phase.

The FCSDP was based in Mbale in eastern Uganda. This enabled some forest activities on nearby Mount Elgon. However operations in Kibale and Semuliki at this stage were restricted to planning work in preparation for the second phase.

2.3 Phase Two (January 1993 – June 1998)

The second phase began in January 1993. Activities on Mount Elgon continued under the separate Mount Elgon Conservation and Development Project. Programme operations in Western Uganda were initiated with the establishment of KSCDP in the then districts of Kabarole and Bundibugyo. Kabarole has since been split to form the districts of Kabarole, Kyenjojo and Kamwenge. The Government of the Netherlands provided funding. The

Department of Environment Protection (DEP) of the then Ministry of Natural Resources (MNR) implemented the Project in collaboration with the Forest Department (up to November 1993), and Uganda National Parks and Uganda Wildlife Authority (1994 to 2002), the Ministry of Agriculture, Animal Industry and Fisheries and the local governments of Kabarole and Bundibugyo districts. IUCN managed the project on behalf of the partners, and provided technical assistance.

The overall project goal was to conserve the rich biological diversity and ecological processes within Kibale and Semuliki National Parks by promoting sustainable natural resource management. This was to be achieved by:

- Assisting the Government of Uganda to protect Kibale and Semuliki National Parks from encroachment and other threats;
- Assisting the Uganda National Parks to prepare and implement long-term management plans;
- Promoting community-based conservation approaches that provide substitutes for forest products and encourage sustainable natural resource use in and around the national parks;
- Promoting the capacity of women to participate in and benefit from conservation and sustainable management of natural resources; and
- Increasing environmental awareness within local communities.

2.4. Phase Three

Phase Three of KSCDP began in July 1998, and placed a much greater recognition on the role of local communities in conservation. The project had six main objectives, namely to;

- Conserve biodiversity and ecological processes both in and outside the parks;
- Strengthen the capacity of Kibale and Semuliki National Parks;
- Strengthen the capacity of District Authorities in natural resources management;
- Reduce negative impacts caused by local communities on the National Parks and associated the ecosystems;
- Strengthen the management capacity of the parks and local communities to implement collaborative resource management initiatives; and
- Document project activities, and the lessons learned from them.

2.4.1 Institutional partners

During its operation, KSCDP had three primary institutional partners (Table 1).

- **The Government of Uganda:** Ministry of Environment Protection (MEP) from 1988-1993; Ministry of Natural Resources from 1993 - 1998; Ministry of Water, Lands and Environment (MWLE) from 1998 to the end of the project in 2002;
- **Donors:** The Norwegian Government (NORAD) from 1998 - 1990; the Royal Netherlands Government (1993 to the end of the project); and
- **Technical Partner** - IUCN – the World Conservation Union from 1988 to the end of the project (Table 1).

Other collaborating agencies included the local district governments. KNP and SNP Park management authorities were the principal partners on the ground to plan and implement conservation activities in the parks. Activities concerning conservation of natural resources outside the parks were supported through District Environment Offices. Out-of-park sustainable development activities were implemented in partnership with district line agencies such as the Forestry Department and the Ministry of Agriculture; and several community-based organisations.

Table 1. Institutional partners

Date	Technical Agency	Donor	Government partners	
1988 –91	IUCN	NORAD	MEP	Forest Department
1992 – Nov. 1993		Dutch Government	MEP	
1994 - 1996			MNR	Uganda National Parks
1996-1998			MNR	Uganda Wildlife Authority
1998- 2002		MWLE; Districts		

MEP: Ministry of Environmental Protection

MWLE: Ministry of Water, Lands and Environment

MNR: Ministry of Natural Resources

2.4.2 Administration

The Project was managed from Fort Portal town, the capital of Kabarole district. A small liaison office was maintained in Bundibugyo district, but was closed in 1998 during the rebel insurgency. The Project had a Manager seconded from the Government lead ministry and full-time IUCN advisers (Chief Technical Advisor and District Environment Planning Adviser). Project implementation was supported by technical, administrative, extension and logistic staff.

2.4.3 Rationale for Using an Integrated Conservation and Development Approach for KSCDP

ICDP (Integrated Conservation and Development Projects) represent an approach that attempts to ensure the conservation of biological diversity by reconciling the management of protected resources with social and economic needs of local people. Integrated Conservation and Development (ICD) is preferred because:

- Managing protected areas in isolation has proved unsuccessful, and ICD offers an opportunity to address this;
- ICD promotes the interaction between natural resources and development aspirations of the people and their livelihoods;
- ICD puts into practice the principle of devolving or sharing management responsibility to actual resources users; and
- ICD offers opportunities to reduce the burden of costly budgets for managing protected areas.

The KSCDP experience demonstrates that the implementation of ICD involves key steps that aim at ensuring the participation by stakeholders, based on solid information and learning from past experience (Table 2).

Table 2. Key ICD steps and issues

Task	Output
Identification of issues and problems	
• Baseline surveys:	• Socio-economic dynamics and context.
	• Insight and record of some of bio-physical attributes.
	• Understanding of local political issues.
• Planning and interventions:	• Awareness raising and consensus building.
	• Identification, prioritisation and development of conservation strategies.
Implementation	
• Defining and executing roles and responsibilities:	• Managing authorities capacities built to manage protected area resources.
	• Target communities and stakeholders identified and their capacity built to conserve subsistence resources.
	• Key areas for technical assistance identified and training courses organized.
• Monitoring and evaluation:	• Indicators for assessing biodiversity changes identified.
	• Monitoring plan produced, tested and refined.
• Dissemination of lessons learned:	• Lessons documented and shared.
	• Lessons learnt integrated into remaining and/or future work.

For ICDPs to succeed, the following should be met or put in place:

- Striking a balance between conservation and development;
- Fulfilling institutional roles and obligations;
- Participatory management of protected resources;
- Favourable policies on both natural resources management and rural development; and
- Appropriate monitoring and evaluations systems and procedures.

The KSCDP used ICD approaches to address conflict regarding natural resources use. At the start of the KSCDP, the conflicts arose from uncontrolled and illegal use of the forest resources (logging, hunting, and removal of other non-timber wood products), and agricultural encroachment and human settlement within KNP. These conservation challenges were compounded by limited institutional capacity within the then Forest Department (and later UWA), to deal with these challenges. Consequently, the project was designed to address these conflicts by supporting activities that would ensure forest integrity by preventing further deterioration of the forest reserves through encroachment and over-exploitation, and preparation of long-term strategies for natural resources management both within and outside the protected areas.

The KSCDP began as a Forest Conservation and Development Project in 1988, with a 1.5 year set of pilot activities that focused on:

- Securing the integrity of the Forest Reserves by supporting the Forest Department to protect and conserve the forest. Specific activities supported by the project included boundary demarcation, planting and maintenance, reforestation and law enforcement;
- Biodiversity conservation outreach targeting local communities and sub-county and district officials; and
- Socio-economic and biodiversity baseline surveys provide data to design interventions for long-term management strategies.

Building on these pilot activities, subsequent activities of KSCDP focused on interventions that aimed at incorporating conservation and development aspirations, including:

a). Poverty and livelihood needs of the communities: rural poverty in the project area was (and is still), one of the key factors contributing towards the unsustainable use of natural resources and former encroachment on the two forest reserves. Interventions were aimed at:

- Increasing household incomes through support to income generating activities (pig farming, bee-keeping, crop diversification, provision of micro-credit funds to support natural resources based enterprises - Chapter 9) and eco-tourism (Chapter 3);
- Improving quality of life through population control initiatives, energy conservation, crop diversification and support to community infrastructure (classrooms, bridges and road improvement, Chapters 7-10);
- Promoting alternatives and/or substitutes to the forest resources within the national parks through agro-forestry, tree planting and fish farming (Chapter 8); and
- Addressing problem animals and vermin⁵ control (Chapter 4).

b). Improved use and management of natural resources by enhancing the capacity within communities, districts and park authorities to plan for, and manage natural resources. The specific activities that were promoted included:

- Integrating conservation within district development plans through environmental planning that led to development and implementation of environmental action plans at parish, sub-county and district levels (Chapter 11);
- Developing mechanisms for the rational use and management of natural resources such as soil and water conservation actions and energy conservation (Chapter 7); and
- Ensuring conservation of the national parks through strengthening management capacity of the national parks (long-term management planning, staff training, infrastructure development, tourism development, collaborative resources management initiatives and equipping the staff, (Chapter 5).

⁵ Vermin are not clearly defined. However they are wild animals that either occur on people's land or come from a conserved area which are allowed, by the Uganda Wildlife Authority, to be destroyed when they are found to be destroying crops or causing human injury when they are outside the reserved area.

c). Awareness and advocacy: the interventions aimed at raising awareness on biodiversity values of the two national parks and the needs and means for conserving biodiversity. The specific activities included conservation awareness and publicity, research, sharing lessons learnt and influencing or strengthening conservation policies.

2.4.4 KSCDP Project Implementation Strategies

The project design was conscious of the need for sustainability, and used the following strategies in planning and implementation of the activities in order to secure sustainability:

a). Defining institutional roles and integrating project supported activities into host institutions: The project emphasized definite institutional roles and responsibilities in the planning and implementation of project activities. All key institutions were involved in planning processes where priority actions for individual work plans and subsequent phases of the project were identified. This strategy ensured that i) the project supported priority needs of the host institutions, ii) project supported activities were incorporated in the host institution work plans and budgets, and iii) the roles and responsibilities of the participating institutions were defined and agreed upon. Regarding the technical input, project technical staff worked as counterparts to host institutions staff with the intention of transferring skills. To the extent possible, technical staff and relevant equipment were housed in host institution and appropriate technologies were promoted.

b). Capacity building (Park, district, community): The main reason for the KSCDP being in existence was capacity building for natural resources managers. Capacity building was approached in three ways, namely i) formal and informal training for host institutions staff, ii) strengthening host institutions management capacity (equipment, infrastructure, strengthening compliance to internal procedures and policies), and iii) establishment of long-term management strategies (e.g. park management plans, environment action plans at parish, sub-county and district level). Additional institutional strengthening focused on developing frameworks and strategies for the financial sustainability of parks (tourism facilities and promotion of good park-community relationships). The project emphasized working through host institutions as opposed to creating parallel structures. In this regard, the project limited itself to the provision of technical input to host institutions staff to undertake the work. Only in exceptional cases, such as shortage of relevant staff, did the project-hired staff implement the activities. Even under such circumstances, this was done in agreement with the host institution with the view that the host institution would eventually absorb such personnel into their own staffing structure.

c). Action-learning and adaptive management: The Project focus was to promote innovative approaches to conservation. There were no “blue prints”, and interventions were adapted according to the progress made and lessons learnt. Lessons learnt were documented, disseminated and used to design follow up actions.

d). Appreciating Conservation: Knowledge and awareness formed core values that were promoted to improve the understanding and appreciation for environmental protection and wise use of natural resource use. Public awareness was carried out extensively throughout the project area. Likewise, awareness raising through dissemination of technical information was promoted through close contacts with the relevant staff and institutions, seminars and focused training. The project was instrumental in influencing district and national park policies and development plans, supporting district and national events such as celebrations to mark World Environment Day. In other circumstances, the project acted as a

“watchdog” and advocated for action against bad management practices committed by staff in host and other institutions.

e). Promotion of substitutes and alternatives to forest resources: The project promoted the development of appropriate substitutes and alternatives to forest products, so as to provide access to certain goods and services that were obtained from the forests and thereby the reduce pressure on the forest. This empowered the forest resources users by giving them alternatives to secure their livelihoods. In addition, the development of alternatives together with improved resources management addressed the issue of tenure, and a instilled sense of ownership, and good practice for the sustainable use of the natural resources.

Chapter 3: Improvement of Protected Area Integrity

Purna B. Chhetri, Joseph Serugo, Patrick Kidiya, and Alex Muhweezi

3.1 Introduction

The integrity of the Kibale and Semuliki National Parks had been threatened by a variety of factors, including encroachment, illegal resource extraction, lack of local support and insensitive management policies. KSCDP worked with Kibale and Semuliki National Parks and local communities to improve their integrity, primarily by improving park-people relationship. It worked to improve local attitudes towards the park, increased income for the parks and local people through tourism activities, and helped the parks to develop adequate management capacity for their operations.

KNP and SNP have both faced many challenges and obstacles to biodiversity conservation, both external and internal, including, for example competing land uses, problem animals, pressure for park resources, demonstrating the value for conservation, and poor harvesting methods. The major challenge for SNP between 1997 and 2002 was insecurity in the area arising from anti-government rebel attacks and continued insurgency. As a result, there was no Park management presence in Semliki. Local people were displaced from their homes and settled in camps. A lot of the infrastructure at the Park Headquarters and the Visitor Centre was looted or vandalized. The major challenges to KNP (and in many respect to SNP), originate from poor land use and low agricultural yields. With population increases, mainly due to immigrants, this increased the pressures on the Park, which was exacerbated in the 1970's when there was a break down in law and order. Until fairly recently, there has been a focus on "command and control" approaches to Park management which further alienated people. As a result it has been a challenge for the Park to demonstrate the real conservation value to local people, especially when problem animals are still big issues.

3.2 Strategies adopted to address the conflicts

The conflicts relate to meeting local peoples livelihood and development needs, Protected area-people relationships, and past management regimes. Table 3 categorizes these conflicts under the headings of Protected Areas and neighbours, livelihood survival versus conservation and, socio-political dynamics. The KSCDP strategies to support KNP and SNP was based on these conflicts and problems, and the following strategies were used to improve park integrity:

- Improvements in community-park relationships;
- Public and institutional sensitisation concerning the value for biodiversity conservation;
- Capacity building to develop strategic plans and effective working environments;
- Development and promotion of substitutes;
- Resolution of boundary disputes; and
- Diversification of tourism attractions.

Table 3. The Natural Resources Related Conflicts

Conflict Category	Type of conflict	Cause
Protected Area and neighbours	Limited access to natural resources	<ul style="list-style-type: none"> ➤ Protected area management policies that restrict access; ➤ Inequity access (poor versus rich); and ➤ Limited or loss of access to natural resources within the Protected Areas to satisfy community needs.
	Problem animals & vermin	<ul style="list-style-type: none"> ➤ Crop raids and human attack; ➤ Competition for resources; and ➤ Interference in animal dispersal routes and areas.
	Benefit and revenue sharing schemes	<ul style="list-style-type: none"> ➤ Unfulfilled commitment by UWA; ➤ Empowerment to local population through various policies and legislation that has created unrealistic expectations; and ➤ Unequal distribution of benefits and participation.
	Decreased agricultural land	<ul style="list-style-type: none"> ➤ Human population increases; ➤ Reduced soil fertility and over all poor soil productivity; ➤ Evictions from the protected area in early 1990's, resulting in a loss of agricultural land (Box 1); and ➤ Commercial agriculture (tea and coffee) by a few rich people, which displaced local people).
	Management history	<ul style="list-style-type: none"> ➤ Violent evictions of the early 1990's; ➤ Command and control management regimes of the past; ➤ Mistrust between people and park staff; and ➤ Past "corrupt" tendencies and over-all weak management capacity.
Livelihood needs versus conservation	Poverty & low income	<ul style="list-style-type: none"> ➤ Poor agricultural outputs and poor marketing of produce; and ➤ Limited options for better livelihood and incomes.
	Food security	<ul style="list-style-type: none"> ➤ Heavy reliance on traditional crops and farming systems;
		<ul style="list-style-type: none"> ➤ No access to bush meat; ➤ Degraded soil productivity; and ➤ Crop and animal diseases and pests.
	Poor resource utilization	<ul style="list-style-type: none"> ➤ Insecure land and resource tenure; and ➤ Low capacity to plan and manage natural resources from a long term perspective.
Socio-political dynamics	Decentralized natural resource management	<ul style="list-style-type: none"> ➤ Limited capacity at district and community levels to manage natural resources resulting in mismanagement; and ➤ Low prioritisation of natural resources and environment in district budget and planning.
	Past political events	<ul style="list-style-type: none"> ➤ Evictions of early 1990's; and ➤ Election periods where natural resources are used as ploys to win votes.
	Immigrants	<ul style="list-style-type: none"> ➤ Increased conversion of natural habitats for agriculture and settlement; and ➤ Competition for land, power and social status.

The basis for improving park-people relationship was to identify the conflict areas, and then develop activities to resolve the conflicts. A major source of conflict derived from the prohibition of local people to collect park resources, unclear boundaries, and crop loss due to wild animals from the National Park. Therefore, KNP, with KSCDP assistance, worked towards developing collaborative resource management arrangements to access and manage certain park resources (Chapter 5), tested and provided options to deter park animals from entering crop fields (Chapter 4), and clearly established park boundaries, through boundary tree planting. Due to insecurity, KSCDP was unable to provide similar support to communities living around Semuliki National Park.

The importance of conserving biodiversity was addressed through various means such as community-based workshops, radio programs, road-shows, and the use of promotional materials such as posters, calendars and tee shirts (Chapter 6). Conservation messages were also emphasised at field-based training events, e.g. in tree planting, the use of fuel-efficient cook stove and income generation activities (Chapter 10). KNP carried out community workshops to explain laws and policies associated with conservation of natural resources. KNP law enforcement staff were trained to inform offenders (poachers, illegal entrants) of the reasons for their detention, and the consequences of their actions.

Since 1996, KSCDP assisted with the development and implementation of the General Management Plans (GMP) for KNP and SNP, as a basis for effective natural resource management. These management plans also included Tourism Development Plans. The GMP for KNP was reviewed in 2002, and a new 10-year plan prepared with the involvement of key stakeholders including local communities.

KSCDP developed the capacity of the Park and staff to fulfil their mandates through the provision of infrastructure and training. KNP headquarters was built to establish good working facilities. Staff accommodation was built, and offices were equipped with basic tools such as computers, communication equipment, transport, and audio-visual equipment. Staff were trained to use Geographic Information Systems, Global Positioning Systems, and communication equipment. Training was provided for driving, visitor handling, accounting, book keeping and records management skills.

Unclear boundaries are a major source of conflict between parks and people in Uganda, and KNP proved to be no exception (Box 1). A large part of south western KNP (previously the Kibale Game Corridor) was heavily encroached from the 1970s to 1992 when the settlers were removed. The massive encroachment is partly attributed to unclear boundaries of the Park. Subsequent attempts to re-survey the boundary, which KSCDP supported, revealed more problems with the boundary, which further fuelled the conflict. Since then, there has been broad agreement on the boundaries, and in many places the boundaries are identified by the lines of Eucalyptus trees.

Box 1. Kibale Forest Corridor Evictions - Early 1990's

During the social, political and economic turmoil of the 1970s and 1980s in Uganda, many of Uganda's Protected Areas were encroached. The form and extent of encroachment varied. In most national parks encroachment tended to be relatively minor, and in some cases was the result of original errors in survey and demarcation of the boundaries. In some National Parks, grazing was unofficially allowed through varied accommodations made between Park authorities and local residents though permanent residence does not seem to have resulted. In Queen Elizabeth National Park enclave fishing communities grew through relaxation of the rules governing fish landing sites, and illegal sale of plots by local government. Encroachment tended to be more serious in game and forest reserves, many of which were badly effected.

While it is not possible to relocate a community without causing negative impacts, it is nonetheless, regularly carried out. The establishment, maintenance and reclamation of protected areas is believed by most governments to be in the public interest. Steps taken by the Government in recent years in Uganda to remove resident populations from conservation areas have met with varied success, both in terms of the degree to which Government's aims were achieved (reducing human population in the Protected Area), and the degree to which Government was able to reduce the impact on communities.

In 1992, many thousands of people were evicted without compensation or the provision of land from the Kibale Forest Corridor. Government supported the contention of both the Forest and Game Departments that the encroaching residents had broken the law knowingly, and that compensating them would promote encroachment. The Game Department with the support of the Forest Department and the police evicted the communities by force, having made repeated requests to the communities to leave voluntarily. Unofficial reports of ill treatment of community members by the government forces, including beatings and theft, were made, and notwithstanding official denials, these may have occurred. The evicted people, many of whom claimed to have nowhere else to go, remained in the area until they were eventually assisted by Oxfam who implemented a costly resettlement programme on lands made available by Government in a neighbouring District. Similar evictions had been earlier carried out from other forest reserves without the apparent problems and controversies associated with the Kibale eviction. This may be attributable to a variety of factors including the length of stay of residents, whether they had land outside the protected area, and the strength of their political support.

(Source: M. Infield, pers. comm.)

3.3 KSCDP, KNP and Tourism⁶

In the late 1980's, the return of stability to Uganda saw the re-appearance of tourists in the western region of Uganda where both National Parks are found. They wanted to see chimpanzees, other primates, and birds, and visit the Kibale forest. Kanyancho was proposed and developed as the site to cater for tourists. This location was selected due to its distance from the research zones around MUBFS's two field stations (Kanyawara and Ngogo), and proximity to the main road which facilitated visitor access. Kanyancho site was opened in 1992, and KSCDP has supported tourism activities in and around Kanyancho, with the development of infrastructure at the Kanyancho visitor's centre. By 1996, the existing structures were in poor repair and the reputation of the site was starting to suffer. KSCDP engaged a designer and site supervisor to plan and oversee improvements with local labourers. Permanent, brick cooking shelters, showers and latrine buildings were provided, and some existing structures renovated. In 2000, KSCDP assisted with the replacement of the old safari tents with comfortable attractive cottages for visitors.

⁶ John Tinka has made a considerable contribution to this section

Through the preparation of the KNP/SNP Tourism Plans, and their subsequent implementation, KSCDP supported the diversification of tourism attractions, improvements of infrastructure, and staff training. These investments demonstrated that there is tourism potential for both Parks to earn revenue (Table 4).

Table 4. KNP Revenue from tourism (US \$)

Year	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
1999	14,200	14,200	25,100	6,500	60,000
2000	7,100	6,500	13,100	6,000	32,700
2001	8,700	7,100	18,500	15,800	50,100
2002	20,200	19,600	62,800	31,100	133,700

Since 1994, KSCDP facilitated many community groups e.g. schools children, women, youths, and local leaders on guided tours at Kanyanchu, for the purpose of conservation awareness building. Based on this, KSCDP identified the opportunity to train guides in conservation education guiding techniques. On-site training, with practical demonstrations, was organised for guides. This training was successful, and the guides still use the techniques learnt. Importantly, the guides' personal awareness of the importance of conservation increased as well. However training is a continuous process, as staff changes take place, and skills have to be continually reinforced and upgraded. Out of the 12 guides recruited in 1992/93, seven have remained in the park, due to their interest in their jobs. Women are as adept at guiding as men, and can give local women increased livelihood opportunities. Perhaps they recognise this value, as the women around Semliki appeared to be more reliable than the male guides. Of the six women recruited as guides in Semliki in 1993, three have remained in service until 2002. Such recruitment as a guide is often a first step on a ladder to higher positions. For example, Steven Tibende was recruited as a guide in Semliki in 1993, and is now the Assistant Head Warden of Katonga Wildlife Reserve, and John Tinka began work as a guide in KNP in 1992, and is now co-ordinator of the Nation-wide Heritage Trails Project in Kampala.

Through the Tourism Development Plan for KNP developed in 1996, tourism activities were developed over a wider area. A long distance hiking trail was developed from Sebitoli in the north of the park to the Kanyanchu tourism site, sixty kilometres to the south. To complement this, three overnight tourist camps were established by local communities in public lands along the eastern edge of the park for use by hikers. Unfortunately, they were not utilized by tourists as much as anticipated. Many reasons account for this happening, including insecurity. The facilities were too basic to meet the minimum requirements for tourism. It is clear that for any form of tourism development, there are certain basic minimum standards which need to be met.

KSCDP has successfully worked on other tourism activities outside the park with the Kibale Association for Rural and Environmental Development (KAFRED). KAFRED is a Community Based Organisation (CBO) which was set up in 1992, and uses tourism as a tool to conserve natural resources outside protected areas, wetlands in particular. KAFRED does this by investing the income from tourism in community development projects such as education, roads and health, e.g. the construction and management of a secondary school in



Photograph 1: View of Kibale National Park and its Important Forest.



Photograph 2: Road through Kibale National Park.



Photograph 3: Viewing platform in Kibale National Park.



Photograph 4: Kibale National Park and adjoining tea estates.

Bigodi village. This project has increasingly made the community aware of the importance of conservation, as the funding for the secondary school was based on income from the Bigodi Wetland Board Walk. This swamp walk generates income as an additional activity after a visit to the national park. Also the Women's group from Bigodi ran a canteen in the park to cater for tourists (Box 2).

Box 2. Bigodi Womens Canteen

At Kanyanchu Tourist Centre at Kibale National Park there is a canteen managed by a group of women from the nearby Bigodi parish. Instead of giving the management to a private concessionaire, the Park gave it to Bigodi Women's Group to help them earn income from tourism activities. The profits from the Bigodi canteen goes to support a local elementary school. KNP and KSCDP provided the group with necessary equipment to run the canteen, and trained the group in cooking and customer care. The facility is provided free of cost. Bigodi Canteen is one example of KNP's initiative to provide local communities with the opportunity to profit from conservation. Although the idea behind supporting the women's group is laudable, the group has not been able to maintain the required standard. As a result, tour organizers have started to bring in their own food. Despite the best effort on the part of KNP and KSCDP to train the group members in catering and visitor services, there has been little improvement. This brings in a debate as to who is best suited to handle tourism facilities – local communities or private companies.

The Parks' efforts to attract tourism has tended to focus on international tourists and resident foreigners. Little seems to have been done to motivate, excite and develop packages to attract national visitors. While local tourists might not generate as much income as foreign tourists, it cannot be overlooked from both the income earned, and from increasing the local "ownership" of the Protected Area estate in Uganda.

3.3 Impacts of KSCDP initiatives

Over the past ten years, KNP has gone a long way towards conserving biodiversity in a manner that is socially acceptable, environmentally sound and economically viable. The following achievements underline the improved integrity of the park.

a). Community support to conservation: In the past few years KNP has been able to solicit community support for the conservation of biodiversity. This would not have been possible had KNP not adopted a holistic approach towards conservation. Factors that have contributed to an improved community relationship include:

1. Resolution of boundary disputes;
2. Legitimate access to park resources (Chapter 5);
3. Initiatives to address crop losses by park animals (Chapter 4); and
4. Provision of options outside the Park (Chapters 7-9).

b). Staff offices and housing: KSCDP supported the construction of centralised staff quarters at the Isunga headquarters which can accommodate 17 junior and senior staff and their families, and six staff families at KNP and SNP, respectively. This has led to financial savings in terms of travel costs and house rent, reduced absence from work, increased punctuality and greater motivation. KNP is now considered to have some of the best staff housing in the UWA estate. The ranger quarters at KNP and SNP have been taken as a model by UWA for duplication in other protected areas.

c). Equipment and tools: KNP and SNP are equipped with basic tools and equipment such as computers, global positioning systems, communication equipment, motorbikes and four-wheel drive vehicles. As a result, they are able to operate more effectively and efficiently.

d). Reduced illegal activities: According to a report from KNP (2002) there has been a general decline in illegal activities, which would not have been possible without effective law enforcement with reliable transportation and communication systems. The contribution of local communities in limiting illegal activities is also significant, particularly in areas where CRM agreements are in place.

e). Skills enhancement and training: Park management requires appropriate tools and skills. Through KSCDP, KNP has trained over 70 staff in various skills such as visitor handling, use of geographic information and global positioning systems, visitor handling, first aid, communication, community dynamics, participatory resource assessment, planning skills and driving. The staff have displayed their enhanced capacity by developing the 10-year General Management Plan (GMP) with minimal external support. The revised GMP was completed by early 2003.

f). Tourism and visitor handling facilities enhanced: KNP has been upgraded from a Grade B to a Grade A park according to UWA ratings, which reflects the improvements made in the standard of services, facilities and accommodation, the capacity of park staff to handle visitors, the number of visitor attractions, and the level of satisfaction (Box 3).

Box 3. Visitor comments at Kanyanchu Tourism Centre at Kibale National Park

- "Kibale National Park is one of the most professionally organised parks I have visited in East Africa. Thank you for all the effort that has been put in. Please keep up the anti-snaring measures, as this is very disturbing for foreign visitors. Thank you to all the guides and rangers who were most knowledgeable." Howard Saunders, March 24, 2002, Kenya.
- "I have liked the place. It's very nice. Mostly I have enjoyed the elevated banda, very nice and comfortable. Unfortunately, I did not see the chimps. All staff are lovely. Hope to come back and see chimps." Joy, May 27, 2002.
- "After a long uneventful hike through the forest, Aston finally found us the elusive chimpanzees. The sights and sounds were overwhelming. The experience was terrific. The elevated banda was wonderful and staff lovely. Keep up the good work." Aubie, 27 May 2002. USA.
- "Last stop on our Uganda trip – lovely banda and delicious food. Thank you so much especially for awesome chimpanzees viewing." Caroline and Eliza, June 19, 2002, Capetown, South Africa.
- "We were here on an official visit from The World Bank. Our impression is that all is running very well here at the Park. The UWA staff are extremely professional and knowledgeable and a pleasure to work with. The tourist options are very well presented, and the staff all very well trained technically as well as for handling tourists." Nathalie Johnson, June 30, 2002, The World Bank.
- "Excellent progress on capacity building. Keep up the good work." Jack Ruiterebeck, June 30, 2002. The World Bank.
- "Thanks for making this experience possible. The chimps are so amazingly beautiful. Thanks, and the night in the treehouse was fantastic." Aukji and Louk, May 11, 2002, Netherlands.
- "I have been to most national parks in Uganda. I feel that Kibale is one of the best. Friendly and accommodating staff, beautiful surroundings and accommodation and the most incredible chimpanzee experience ever. In future I hope Kibale can sell tee-shirts and other tourist related items." Jessica Garas, May 13, 2002, Uganda.

KNP attracts increasing numbers of visitors, due to the relative peace in the region and an increasing duration of visitor stays due to additional attractions and improved facilities. In 2002, KNP earned a record income of US \$133,800 (Table 4). This income benefits both the Park and people, as 20% of the gate fee collected goes directly to adjacent sub counties. Tourism revenue from Semuliki National Park remains minimal as the Park remained threatened by insecurity. This insecurity had a severe impact on KNP in 2000, as tourism revenue was nearly halved due to a security incident in Bwindi Impenetrable Forest National Park (Table 4). Tourism is a fickle industry, and returns can vary greatly, depending on security, quality infrastructure, and the real interest of tourists. In particular, tourism is very sensitive to insecurity. As a result, visitor levels can drop, and frustrate community hopes and expectations

The tourism guide work has been successful, as it was based on local people and their knowledge and interest. Guiding enables people from rural areas to adapt and use their local knowledge, and so enjoy a prestigious profession. They develop new interests and are exposed to a variety of situations and people which they would not encounter as a subsistence farmer. KSCDP's environmental training at Kibale has been interpreted to hundreds of local school children since 1994, thereby increasing local awareness on conservation issues (Chapter 6). Visitor interpretation and handling, combined with increasing experience, makes the Kibale guides one of UWA's more valued human resources. These guides contribute considerably to the appeal of the Kibale experience and revenue generation for UWA.

3.4 Conclusion

KNP now has a well established Park management and tourism infrastructure which are appropriate to the area. The success of the GMP is also related to the variety of other activities undertaken in, and around KNP in particular in relation to collaborative resource management (Chapter 5), problem animal management (Chapter 4), and efforts to improve the livelihoods of local farmers bordering the National Park (Chapters 7-9). This multi-disciplinary approach has been key to the overall improvement in the status and integrity of KNP.

Chapter 4: Addressing Problem Animals

Purna B Chhetri, Patrick Ilukol, Bernard Akunda and Patrick Kidiya

4.1 Introduction

This chapter shares KSCDP's experience gained whilst working with KNP management and local communities to tackle the issue of problem animals. Elements of KNP's remarkable biodiversity also create conflict between the park and adjoining human communities. In the absence of a buffer zone between the Park and surrounding public lands, certain wild animals move freely between park and farm land. This leads to significant damage to crops and injury to human beings. In 2000 alone, children were twice attacked by chimpanzees near KNP, in one case fatally. KSCDP supported UWA to develop, test and implement various problem animal management options in a number of parishes around the border with KNP, where problem animals caused a lot of problems (Map 4). In this chapter deterrents tested are described and their strengths and weaknesses evaluated. A case study on implementation of a trench excavated in a KNP boundary parish is presented. The results are considered and recommendations made for future action.

Problem animal refers to any wild animal that causes damage to agricultural crops and/or human beings. Animals which cause significant damage around the KNP include elephants, baboons, bush pigs, monkeys (notably red tailed and vervet), and chimpanzees. Conflicts between wild animals (elephants in particular) and human beings are neither new, nor fully understood (Hoare, 2001; Parker and Osborn, 2001). In some places, the problem of conflict has become so severe that relocation has been suggested (Karindawaro, 1998), while others argue that this will not solve the problem (Hoare, 2001). In some areas, the incidence of crop raiding is so high that affected farmers have migrated to less affected areas (Lahm 1996, Naughton and Treves 1997).

Crop damage caused by elephants is more prominent in areas adjacent to parks and wildlife areas (Bell 1994). Naughton & Treves (1997) observe that this is the case in Uganda, as larger mammals are increasingly confined to protected areas. Despite the longevity of the issue, the extent of human-animal conflict has not been monitored systematically or assessed quantitatively (Hoare, 2001). The damage caused by problem animals ranges from 10% to 90% depending on location and crop types. Naughton et al (1997) observed that crop loss caused by park animals along the KNP boundary is between 4-7% which equates to nearly US\$6 per farmer or US\$100 per kilometre of boundary per year.

4.2 Uganda Wildlife Authority Strategy

Uganda Wildlife Authority has developed a strategy to deal with problem animals, in the form of a problem animal control unit (PAC) based at its Kampala headquarters which is responsible for the following tasks:

- Co-ordinating with local governments to agree to problem animal interventions around UWA's protected area, e.g. trenches, live fencing;

- Collaborating with districts and local councils to tackle problem animal and vermin control, as the Local Governments are to establish vermin control offices/units;
- Developing guidelines and procedures to enable local government to undertake vermin control in accordance with the wildlife statute; and
- Establishing mechanisms that support the implementation of the wildlife use rights policy among the communities.

Local communities are not allowed to kill or injure wild animals as long as they are not designated as vermin. Vermin are defined as problem animals which cause much damage to people, their farms and assets. The responsibility for declaring problem animals as vermin lies with the Executive Director of UWA (Box 4). On December 6, 2000 UWA declared baboons, vervet monkey and bushpigs as vermin. Problem animals also include other species such as elephants and chimpanzees. Even if they cause problems, their management is retained by UWA. Successful implementation of the PAC strategy requires strong collaboration between UWA, local Government, and the communities affected by problem animals.

Box 4. Vermin Animals and the UWA Statute (1996, Section 58)

- “Sub-section (1), page 53. The Board may, on the advice of the Executive Director, declare any animal or class of animals to be vermin.
- Sub-section (2), page 53. The declaration under subsection (1) may be effective for the whole of Uganda or for such part or parts of Uganda as may be specified in the notice.
- Sub-section (3) page 54. The declaration of vermin shall be published in the Gazette and local newspapers having wide circulation in the areas affected.”

4.3. KSCDP support

KSCDP involvement in the problem animal issue began in 1999 through working with KNP and local communities to address means of easing the park-people conflict associated with problem animals. A series of consultative meetings were held in early 1998 involving KNP and KSCDP staff, local community leaders, and an IUCN hired consultant. Both high and low-technology options were proposed, their cost estimated, effectiveness analysed and selections made. High technology options included barbed wire fencing, and the use of chilli pepper guns. The low-technology options included trenches, the placement of sharp objects, scare shooting, and thorn hedges (Table 5). This problem animal initiative was seen as a partnership between KSCDP, KNP and local communities with all parties being expected to contribute appropriately. The park-boundary communities were expected to provide voluntary labour to implement the recommended measures. Of the five deterrents, the trench, the placement of sharp objects, the use of pepper sprays and the thorn hedging were new to KNP. These were selected for trial to assess their suitability for wider application.

Map 4: Major Problem Animal Areas around KNP

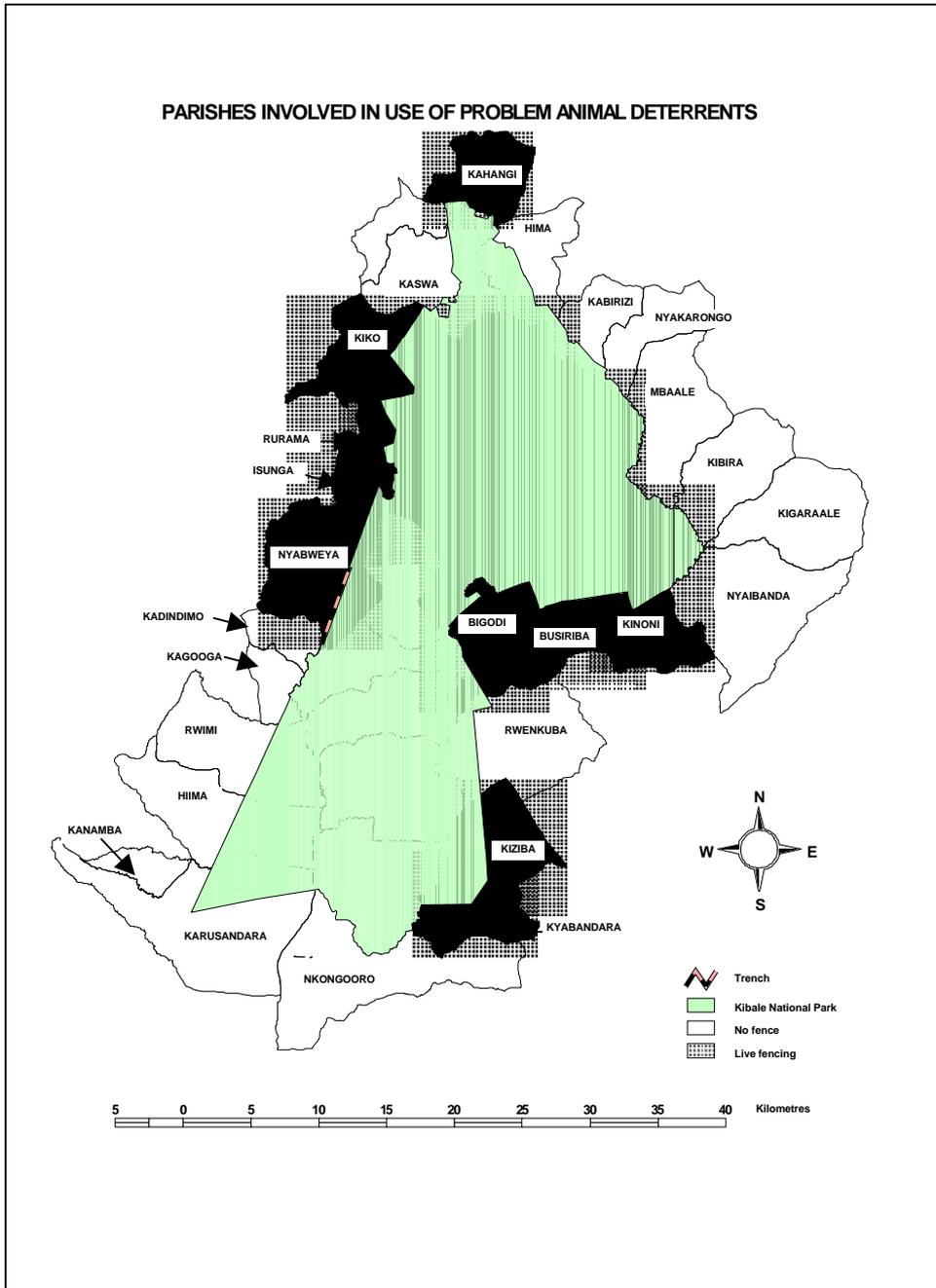


Table 5. Deterrents proposed for addressing problem animals at KNP

Deterrent	Rationale	Comments
Barbed wire fencing.	Works well for small-medium sized animals.	Expensive and easily damaged by large animals such as elephants. Rejected due to cost.
Digging trenches	Works for non jumping animals such as elephants and bush pigs.	New to KNP. Recommended for testing.
Placement of sharp objects	Low cost. Materials (stones and sticks) available locally.	New to KNP. Recommended for testing.
Use of pepper sprays	Tried in Zimbabwe.	New to KNP. Recommended for testing.
Scare shooting	Technique known already to KNP staff.	Already tried. Will be continued to be used as a deterrent (particularly against elephants).
Mauritius Thorn (<i>Ceasalpanea decapitata</i>) hedges	Tried in Lake Mbuoro and Bwindi National Parks in Uganda.	New to KSCDP. Recommended for cautious testing due to its potential as an invasive.

4.4 Deterrent testing

4.4.1 Trench

This deterrent was tested for non-jumping problem animals, such as elephants and bush pigs at Kabigyemere village in Kinoni parish. This area has a long history of crop raiding by elephants. A 1,000-metre long trench, one-metre deep and two-metres wide was dug along the park boundary. However the elephants crossed the trench as it was too shallow. An additional 1000 metre length of trench was dug half a metre deeper. This prevented further incursion and was deemed effective.



Photograph 5: Construction of trench in Nyabweya village.

In the year before the trench was established in Kabigyemire, seventeen raiding events were recorded between September and November 1997. After installation of the one-metre deep trench, the number of incidents fell by 83% to just three. However, the reasons for this drop in incidents may relate to more than just the trench, and remain to be established. It is possible that changes in land-use from banana plantations to cattle keeping, and a seasonal abundance of food within the park were also contributory factors.

4.4.2 The placing of sharp objects (sticks and stones)

The target animals for the use of sharp sticks were elephants and bush pigs. Sticks with a diameter ranging from 2 – 4 cm and an average height of 1.5 – 2m were used to establish the barrier. These sticks were placed firmly into the ground at an angle of 45 degrees facing the park at intervals of 50cm. Four rows, two-metres apart were set up along a length of 435 metres. As not enough sticks were available in sufficient quantity locally, they had to be brought from a rehabilitated Tea Estate at Kijura, over 30 km away from the trial site. The sticks were soon found to be less effective, as termites and wet ground conditions caused them to decay. The test remained inconclusive as neither elephants nor bush pigs invaded the trial site before the barrier decayed.

Sharp stones, on average 300mm across, were placed along the park boundary covering a length of 8m with a width of 2m. The stone barrier was placed in a gap left between two sections of trench. The consultative process gave the impression that substantial quantities of suitable stones would be easily available close to the KNP boundary. In fact it was actually necessary to import stones by truck (at a cost of US \$38 per trip) from Kazingo, 60 km away. After the stones were placed on the ground, no incidents of crop raiding were reported in the first year (1998) but this apparent effectiveness was short-lived. In 1999, the stones began to sink into the ground and elephants were able to cross over them. Financially and logistically, the use of sharp stones was impractical.

4.4.3 Use of Mauritius Thorn as a live fence

The idea of using a Mauritius Thorn hedge (*Cesalpanea decapitata*) as a 'live fence' was borrowed from Lake Mburo National Park. Hedging was tried in the parishes of Busiriba, Kahangi and Bigodi to deter small animals, mainly baboons. These sites were selected due to a history of crop raiding by primates, and local community support for the project.

Pre-soaked Mauritius Thorn seeds were direct seeded at intervals of 50cm in three rows, 30cm apart. The resultant hedge was effective when established at these distances and when the branches were layered and intertwined by hand to form an animal-proof barrier. The incidence of damage to crops enclosed by a thorn hedge, and with a 24-hour guard was found to be 10% of the damage to unfenced and unguarded fields. The cost of planting Mauritius Thorn was US \$170 per km making this deterrent the most affordable option. However, a potential problem with the use of Mauritius Thorn is that it can be invasive if it is not well managed. This is an important consideration for KNP which already has numerous exotic species within its boundaries as a legacy of earlier agricultural encroachment. Farmers using Mauritius Thorn hedges must therefore be trained well to manage the hedge and control its spread. KSCDP observations on Mauritius Thorn revealed the following:

- Mauritius Thorn does not grow well under shade and trees, and so does not spread into undisturbed or closed forest;
- Mauritius Thorn seed is very heavy and normally drops under the Mauritius Thorn itself, therefore limiting dispersal by mechanical means; and
- There is a risk of Mauritius Thorn boundary planting invading grasslands and riparian habitats, where there is no forest and shade inside the national park over a period of time.

4.4.4 Use of Pepper spray

It was not possible to test pepper gun on Kibale's elephants. The consultant engaged to demonstrate this technique could not visit KNP due to the insurgency in western Uganda. Secondly there was, in any case, no guarantee that elephants would be conveniently available for the consultant to demonstrate the pepper gun on them during the limited period of the visit.

4.4.5 Scare shooting

Scare shooting has been practised around KNP for some time. KNP records indicate that between 1994-97, the rangers scared off elephants with rifle fire during 70 raiding events over 60 nights. Elephants showed resistance to scare shooting in 10% of the events. In 14% of these events, the same elephants returned a second time after the initial scare shooting. In 1994, the average number of bullets fired during a single raid was 6.3, rising to 8.5 in 1997, indicating that the elephants were not longer so scared of the shooting. In addition, rebel activities have discouraged scare shooting as gunshots could easily cause panic amongst the local people.

Table 6 provides a summary of the four deterrents tested by KSCDP around the Kibale National Park.

4.4.6 Alternative to deterrents

Deterrents alone are not enough to address problem animals, as the problem needs to be tackled with a holistic approach which extends beyond deterrents and scare shootings. KSCDP has been working with KNP and local communities to provide alternatives (Chapter 8), and to devise compensatory mechanisms to mitigate crop damage caused by problem animals.

KNP and local communities worked together, from 2000, to identify crops which are not readily raided by wild animals (i.e. buffer crops). Sesame, soybean and clonal coffee were suggested and over 1500 kg of soybean seeds and 14,280 coffee seedlings were made available to communities bordering KNP under a 50% cost-sharing scheme, where half of the cost was to be met by the local farmers. By late 2002, no damage to these crops by wild animals had been reported. In 2002, cocoa from Bundibugyo was introduced as a further potential buffer crop for communities in Kamwenge district bordering KNP.

In addition to planting buffer crops, local communities entered into CRM agreements with KNP to use and manage selected park resources (Chapter 5). These arrangements are intended to provide alternative benefits to compensate, to some extent, for crop losses caused by wild animals. It is also UWA policy to share 20% of the gate fee with sub counties adjacent to the National Parks. If this money is directed to the parishes most

affected by crop raiding, this could help compensate for crop damage. The possibility of a local (district) tax rebate or waiver in areas seriously affected by problem animals was proposed by communities during a workshop on problem animal management. However, no decision has been made at the time of writing this book.

4.5 From Experiment to Action - An Example from Nyabweya parish

In response to repeated requests to address crop raiding by elephants, KNP, assisted by KSCDP, entered into an agreement with Nyabweya communities to dig a trench along the park boundary. In August 2001, KNP and KSCDP staff surveyed the nature and extent of the raids. It was found that local farmers had stopped cultivating their fields close to the Park, and some were even considering moving to other areas. A trench along at least five kilometres of the boundary would be required if the elephants were to be kept out of adjacent farmland. Discussions were held with local communities and the following agreement was reached:

- KNP and KSCDP would provide the tools for digging the trench;
- Five kilometres of trench would be dug for three villages of Nyabweya B, Kanyante A, and B;
- A daily wage of US \$0.38 would be paid to each worker. As the average local wage was US \$0.82, the remaining US \$0.44 would be a voluntary contribution by the workers;
- The trench would be 2 metres wide and at least 1.5 metres deep;
- The trench would be dug along the park edge to further help define the KNP boundary line; and
- The work would be completed within two months.

Table 6. Summary of four new deterrents tested in parishes around Kibale National Park with support from KSCDP

Deterrent	Target animal	Site selection criteria	Size of experiment	Observation	Advantage	Disadvantages	Cost
Trench	Non jumping animals (bush pigs and elephants)	History of elephants crop raiding and likelihood of experiencing raiding.	Line One: 1000 metres of 2 metres wide and 1 metre deep. Line Two: 1000 metres of 2-metre wide and 1.5 metres deep.	Trench of 1m depth was found to ineffective as elephants could cross. Trench of 1.5m depth was effective.	Simple technology can be replicated.	Labour intensive and costly. Not suitable for all terrain, e.g. swampy/hilly areas.	It took 923 mandays to complete 5409 meters of trench. The cost of digging the trench came to US \$5,800 or \$1.07 per meter or \$1,072 per kilometre. This excludes voluntary labor contribution (33%).
Sharp sticks	Elephants and bush pigs	Based on previous knowledge of raiding entrance and exit routes.	Length of 435 m. Average height of sticks between 1.5 – 2 m put at an angle of 45 degrees towards the park.	Deterrence effect against elephants and other large animals could not be assessed as the sticks rotted within 3 months of barrier being erected, during which time no animals visited the area.	Sticks can be placed or removed based on crop raiding pattern.	Costly. Sticks tend to rot easily in moist areas and are susceptible to termites. Easily removed by children.	Total cost of sticks was US \$262. Transportation (3 trips) was US \$410. Twenty six people worked to erect a 435 m. long barrier which cost US \$286. The total cost came to US \$958, or a cost of US \$2.2 per meter or \$2,200 per Km.

Deterrent	Target animal	Site selection criteria	Size of experiment	Observation	Advantage	Disadvantages	Cost
Placement of stones	Elephants and bush pigs	Based on previous knowledge of raiding entrance and exit routes.	8m-long barrier with a width of 2 metres. Average size of stone was 0.028 cubic metres	The elephants avoided the barrier in the first year but crossed over it in the second year. Some stones had sunk into the soil and some had vegetative growth over them making crossing easier for elephants.	Establishment does not require expertise.	Labour intensive. Stones are not easily available near KNP. Stones sink easily into wet ground.	Stones and their transportation cost US \$38. The cost of labour was US \$14 for 8 metres., and the total cost of came to US \$6.50 per metre, or US \$ 6,500 per Km.
Mauritius Thorn live fence	Small animals (bushpigs and monkeys). If there is more than one row, and branches are closely knitted, it can also be effective against elephants and bush pigs	Parishes experiencing frequent crop raiding by baboons and monkeys and demand from local farmers.	Mauritius Thorn seeds were planted @ 50cm intervals in three rows 30cm apart.	Preliminary trials showed that crop damage in fields planted with Mauritius Thorn and guarded day & night saved crops by 10 fold over unguarded Mauritius Thorn free fields.	Effective against primates and bush pigs when planting is well designed and maintained. Low establishment cost. Hand labour and local materials used.	Labour intensive. Invasive if not cared for. Thorns are not easy to work with. Wide gaps can let animals enter.	1 kg of Mauritius Thorn cost US \$5.50. 1 kg of seed can plant a distance of 90m or 12 kg of seeds for 1000 metre. On an average, 1 man planted 8 metres a day (125 mandays per 1000m). At the daily wage of US \$0.82, the cost of planting Mauritius thorn came to about US \$170 per Km. (US\$66 for seeds and 103 for labor).
Pepper gun	Not tested.						

KSCDP provided forty hoes, forty spades, ten axes and ten pick axes. The work began in August 2001. After a week, the workers claimed that the tools provided were insufficient and that the allowance of US \$0.38 was too low. KNP and KSCDP management entered into further negotiations with local communities. It was agreed that a further forty pick axes, five axes, twenty spades and thirty hoes would be provided. Also, the daily wage/person would be raised to US \$0.44 with an additional US \$0.11 provided as food allowance. Thus, daily KNP and KSCDP financial contribution per worker came to US \$0.55 while the community contribution was US \$0.27 (33%). The tools after the completion of the trench were returned to KNP. By the end of November 2001, the communities had completed 5.4 km of trench during 923 man-days in the three villages (Table 7) at a cost to KSCDP of US \$5,800. The labour cost came to US \$1,072 per km, excluding community contribution and the cost of tools.

Table 7. The Cost of Digging the Nyabweya Parish Elephant Trench

Location	Length of trench dug (metres)	No of people involved	Cost (\$'s)
Nyabweya B	1,911	318	2,100
Kanyante A	1,803	314	1,900
Kanyante C	1,695	291	1,800
Total	5,409	923	5,800

The local communities went on to dig a further 2km of trench on their own initiative which gave a total length of a trench of 7.5 km. However, the trench is working, and does deter the elephants. Box 5 presents a report on the trench which appeared in the New Vision (a popular newspaper in Uganda) in July 2002, which demonstrates this.

4.6 Challenges Facing Problem Animal Management

The implementation of problem animal management initiatives in KNP has not been easy. A number of factors have made the task challenging. The deterrents tested by KSCDP do not provide a 100% solution. Each method has its own strengths and weaknesses (Table 8). For example, the trench works well against elephants and bush pigs, but is ineffective against baboons and chimpanzees. The efficacy of sticks and stones remained unproven since no elephants raided the trial sites before the barriers became ineffective, and the size and scale of the experiment was insignificant. However, the cost and logistics of transporting materials made this deterrent impractical. Mauritius Thorn hedging appears to prevent the movement of small animals, particularly baboons and bush pigs, but concerns remain regarding its invasive qualities.

The wider use of more effective deterrents is complicated by the costs involved. Using the figures of Naughton et al (1998), crop loss from problem animals around KNP average about US \$6 per farmer or US \$100 per kilometre of border per attack. The average cost of establishing the trench is US\$1.07 per metre or US \$1,072 per km which farmers cannot afford. Assuming a crop loss of US \$200 per kilometre per year, the cost of trench could be recovered in about five years.

Box 5. Trench protects wildlife

There is probably no park where authorities and communities are not at loggerheads. Wild animals, which raid the villager's crops are always provoking conflict. However, Kibale National Park in Western Uganda has made a giant leap to overcome the crop raiders. Their magic is simply a barrier. This comprises of a trench of one and half meters deep, two meters wide and thorny trees. When complete, it will give the animals only one option of remaining inside the park.

Bernard Akunda, Community Conservation Warden says that the barrier is the first of its kind in the country. " We have secured three villages from the crop raiding animals." Akunda says that elephants cannot cross from the park because of the barrier, which appears too deep. "The heaps of soil dug from the trenches are heaped on the side next to the villages. There are Eucalyptus trees planted on these heaps, which help to make a fence," says Bernard.

The elephants have abandoned the route which they frequently used to terrorise the villagers. The Park now plans to intertwine Eucalyptus trees with Mauritius Thorn. By so doing small animals such as baboons will not be able to pass through.

Over 180 elephants, thousands of baboons and monkeys occupy the park. The area was gazetted as a park at the beginning of the last decade. Kibale National Park has the highest population of primates. "It is the baboons and monkeys that are so fond of crop-raiding. The gardens have a high concentration of food compared to the natural habitats of the wild animals. So, they are easily attracted by the crops especially when food scarcity occurs. "We used to bang objects such as jerrycans, drums and the beasts would take to their heels," Mali says, "But the elephants are stubborn and they would just march on majestically once they got used to the sound." The villagers also planted crops such as coffee, cotton which the primates do not eat. But as the population grew, the farmer's garden became smaller and smaller. Therefore, the beasts would easily traverse their farms.

Akunda says that they have been assisted by the Kibale Semliki Conservation and Development Project, which is undertaken with assistance of the World Conservation Union (IUCN). The project helps communities to address conservation and development concerns around Kibale and Semuliki. Besides the construction of the trench, the Project also encouraged communities to plant trees so as to relieve pressure on the conservation areas and control soil erosion. The Park authorities undertook mobilisation and monitoring of the activities. As for now, in terms of results, people are so happy. " Parks with similar problems can now borrow a leaf from us".

Source: The New Vision, Tuesday July 2, 2002

Farmers have the option of implementing alternative land-use strategies such as growing buffer crops or developing tourism bandas. However, buffer crops do not offer a long-term solution as, in times of extreme shortage, animals will learn to eat even unpalatable plants. Farmers have planted tobacco as a buffer crop at Bigodi village near KNP. Although baboons do not eat tobacco, they simply visit the fields to uproot the plants – perhaps in frustration! A more robust buffer crop may be tea. Discussions are underway between Park and private companies to encourage farmers bordering the Park to grow tea along the park boundaries.

Efforts to address the problem animal issue are complicated by a lack of background data concerning the problem. Estimates of crop loss remain unreliable. Limited studies around KNP suggest a loss of 4-6% of the annual crop production, while farmers inevitably provide greatly inflated figures. Without reliable data, it has been difficult to accurately assess the real effect⁷. The problem animal issue is hampered by institutional complications. The UWA Statute (1996) and the Local Government Act (1997) are clear on their roles and responsibilities. The Local Government Act mandates the control of vermin to the local government (with technical assistance from UWA), while the Wildlife Statute mandates the control of problem animals to UWA.

⁷ The issue is presently of research interest only. Uganda Wildlife Authority has no policy to provide direct financial compensation for such losses.

The recent strategy developed by UWA (2001) proposes the formation of vermin control office/units to address vermin. However an earlier circular released by UWA on the 6th of December 2000 recommended that local government should form wildlife committees to address vermin issues⁸. UWA has also set up Community Protected Area Institutions (CPAI) to address park-people conflict issue. However, instead of creating numerous committees to tackle the problem, it is more important to clarify the roles and responsibilities of the key players and to work with committees already existing.

The relative conservation values of problem animals are an important consideration. While some raiding animals may be designated and destroyed as vermin, this is not the case for species of high conservation value such as elephants and chimpanzees. This means that local communities must bear the damages caused by these animals unless an affordable means to contain these animals inside the park is developed. However, if the animals are of national and international importance should local communities be asked to bear all the costs, costs that they can ill-afford to bear?

4.7 Opportunities

Tackling problem animals is a difficult and complex issue. KSCDP's efforts in this field have identified three factors that may be further addressed to facilitate ongoing and future initiatives. Although no single deterrent is effective against all animals, a combined option, for example trenches and 'live fencing' could deter the two animals that cause most damage to crops, namely elephants and bush pigs. UWA needs to continue to test other deterrents and combinations, and further explore options for alternative land-use.

UWA's policy of allocating 20% of park entrance fees to surrounding sub counties is a good example of sharing benefits from conservation. However, the amount still remains insignificant. For example, KNP earned a total of US \$133,880 in the year 2002. But, only \$11,292 (8.4%) has actually gone to the adjoining sub-counties. In 2001, the park earned just US \$52,450 (due to insecurity) of which \$1,600 (3.1%) went to the sub counties. Divided between three sub counties, this sum is totally inadequate for any meaningful development activities or crop protection measures. An additional concern is whether this money will actually benefit those directly affected by animals along the park edge, since the monies go to the sub-county. The effectiveness of revenue sharing is further reduced by the fact that compensation accrues to the community whilst losses are suffered by individual farmers (Mugisha, 2002). It is important that such revenue sharing monies benefit those most directly impacted by the Park, and those who have to bear most of the costs. Ideally, although presently unrealistically, the percentage of revenue shared should be increased. Irrespective of the amount, a mechanism is necessary to ensure that the money reaches the boundary adjacent communities. It might be more beneficial to revert back to the 20% of all Park fees, and not merely the Park entrance fees (Uganda National Parks 1994).

⁸ On December 6, 2000, Uganda Wildlife Authority declared bush pigs (*Potamochoerus porcus*), olive baboon (*Papio anubis*) and vervet monkey (*Cercopithecus aethiops*) vermin at the national level.

Table 8. Strengths and Weaknesses of Various Deterrents Tested around Kibale National Park

Deterrent	Strength	Weakness	Comments
Trench	Works for non-jumping animals. Simple technology which can be replicated.	Costly and labour intensive.	Costly in the short run, much more cost effective in the long run.
Stakes, and stones	Could work on non jumping animals.	Costly and sticks rot easily; and are prone to termite damages.	Not recommended due to their high cost of transport and, in the case of sticks, susceptibility to decay. Stones sink into ground over time rendering the barrier ineffective.
Mauritius Thorn	Works well on small animals such as baboons.	Requires intensive management. Reported to be invasive in open areas.	Recommended where farmers are willing to plant and manage the thorn as per recommendations.
Scare shooting	Works as an emergency tool to scare animals.	High cost of ammunition. Requires rapid response from Park management. Not applicable during insecurity situations.	Scare shooting has been discouraged due to rebel activities. Gunshots could panic people. Elephants quickly habituate to gunshots reducing the deterrent value.

Institutional frameworks, e.g. the Wildlife Committee and Vermin Control Unit, exist together with a well-defined policy to address problem animals and vermin. Their effectiveness is however limited by a lack of technical, financial and logistical support from other partner institutions. Perhaps the key obstacle to the policy implementation is a lack of awareness of their roles and responsibilities by the various partners, and a lack of firm linkages to formal district structures.

4.8 Lessons learned

Since the implementation of problem animal management initiatives, KSCDP has learned the following lessons:

1. The most effective deterrent resulting from the trials was a trench (for non-jumping animals) dug 1.5 metres deep and 2 metres wide. Excavation is an expensive undertaking costing about \$1.07 per metre. But the value of crops saved would recover the initial cost in about five years. However, a trench does not entirely eliminate the problem but diverts it elsewhere. For example, the Nyabweya trench has caused the elephants to start raiding new areas. Therefore, a continuous trench around the park is needed instead of short, fragmented sections. A further consideration concerns the implication of confining wild elephants permanently inside the Park borders. These animals migrate from one habitat to another through long-established corridors which are increasingly constricted or closed by human activities.

2. To improve the effectiveness of the trench, it is recommended that Mauritius Thorn be planted on the outer community side of the ditch to prevent both non-jumping animals and small animals from passing. Tree planting on the Park side of the trench is not recommended, as elephants can push these over and use them to cross the trench. In addition the trench provides a barrier from both sides. At Nyabweya the trench prevents elephants from entering farmland and also stops cattle from moving into the park.
3. Sticks and stones (sharp objects) are not recommended. Sticks rot easily due to moisture and termite activity. Placement of both sticks and stones are labour intensive, which increases the cost, whilst neither are available in sufficient quantities close to KNP.
4. Measures to address problem animal issues extend beyond the mere erection of barriers. Other options and alternatives must be identified and made available. KSCDP supported activities initially took a narrow approach by simply concentrating on testing deterrents. Subsequently a more holistic approach has been adopted, seeking to provide local communities with alternative and combinations of options. These include, for example the use of buffer crops, access to selected park resources, which links CRM and problem animal management, the instigation of better communication channels between key stakeholders and the formation of task forces at grassroot levels to monitor animal activity and damage caused.
5. The success of problem animal management initiatives lies in the commitment and ownership of the key players, in this case KNP, District authorities and local communities. While the Local Government Act (1997) has responsibility for problem animals, there has been little dialogue between the local authorities and UWA. As a result, local government officials remain unclear about their responsibilities, and lack the capacity to discharge this difficult duty. KSCDP initiated a dialogue process that stalled, mainly because of a lack of initiative from the partners.

4.9 Conclusion

Problem animal management is a continuous process that calls for shared responsibility. It requires commitment from farmers who are willing to adopt practical interventions in order to safely and productively use farmland along the park boundary. Applied research across Africa helped identify several control measures. These include traditional methods applied by local farmers, disturbance of problem animals, killing of animals, erection of fences and barriers, olfactory and sound repellents, relocation of animals, compensation schemes etc. Clearly there is no single, simple and effective solution. However, live fencing with Mauritius Thorn is the least expensive option to deter small animals. But, such live fencing requires good management by both communities and Park management.

The Local Government Act (1997) passes the responsibility for problem animals to the local government. It is the responsibility of the local government to address wild animals declared to be vermin through Wildlife Committees. At the time of writing, no such committees had been formed around the Kibale National Park. KSCDP is of the view that the responsibility of addressing problem animals should lie with UWA which has the mandate for conservation management, and who should work closely with the local governments and local communities to combat the problem animal issue.

Another crucial aspect is sustainability. Until the end of 2002, KSCDP had acted as the catalyst by encouraging KNP staff, communities and the Government to tackle the problem animal issue. However the KSCDP ended in December 2002, so there is a need to identify new means to ensure that the momentum created continues. Institutions are required, with a clear awareness of their responsibilities and with access to reliable funding to support their activities. Part of the income generated from the park could be set aside for this purpose, as it is in KNP's own interests to have a real solution to problem and vermin animals.

Linking the subjects of sustainability and responsibility is important issue as it relates to the maintenance of deterrent measures. In particular, the effectiveness of the elephant ditch will reduce over time if it is not looked after. Yet neither KNP, nor the boundary communities have accepted responsibility for its maintenance, although negotiations are presently underway. Finally, local government could consider the institution of a sliding tax scheme for farmers who border the Park, and suffer from crop damage.

Chapter 5: Collaborative Resource Management for livelihood prosperity and biodiversity conservation

Purna B Chhetri and Annett Kandole

5.1 Introduction

This chapter describes the experience gained by KSCDP in working with Kibale National Park (KNP) to develop collaborative resource management (CRM) agreements with local communities. The process used to reach the agreements is described, together with lessons learned and recommendations to assist future processes.

CRM permits substantial involvement in management activities for some or all of the relevant stakeholders in a protected area (Borrini-Feyerabend, 1996). Effectively done, such collaboration between management authorities and local people can be a valuable tool facilitating biodiversity conservation (Bennett, 1999; Borrini-Feyerabend, 1996; Barrow et al, 2000). Failure to do so can result in a lack of local interest in conservation (Davey, 1999), thus hindering conservation initiatives. The underlying principle of CRM is that “benefits, responsibilities and decision-making powers are shared, to varying degrees, and through a range of approaches, among some or all of the stakeholders in resource conservation” (Scott, 1998).

The foundation for a successful conservation initiative is the effective involvement of local communities (Barrow et al, 2000; Chhetri et. al. 2003; Fisher, 1995; Borrini-Feyerabend, 1996) and the contribution of such efforts to the livelihood of people involved (Murphree, 1995; cited in Barrow et al, 2000). The importance of CRM is recognised in the Uganda Wildlife Authority (UWA) Statute of 1996, Section 20 (Box 6). The recently developed five-year UWA Strategic Plan (2001 – 2005) also contains provision for CRM.

Box 6. Clauses in Uganda Wildlife Statute (1996) of Importance for Collaborative Management

Section 20, sub-section (1), clause (e) page 25. The purpose of wildlife protected area under sub-section (2) of section 19 shall be to generate economic benefits from wildlife conservation for the people of Uganda.

Section 20, sub-section (2), clause c : “The purpose of wildlife management areas under subsection (3) of section 19 shall be to facilitate the sustainable exploitation of wildlife resources by and for the benefit of the people and communities living in the area”.

5.2 Why Collaborative Resource Management Agreements in KNP?

The rationale for collaborative management in KNP include the following:

- UWA’s interest and commitment to involve local communities in conservation;
- The dependency of local people on natural resources for their livelihood;
- The need to integrate conservation and development;
- Recognition of the legitimacy of the local people to secure their livelihood;

- The role local people can play in conserving the environment; and
- New approaches to conservation.

Kibale National Park is a source of livelihood for many people living in the 27 parishes bordering the Park and even beyond. The 1991 census estimated that these parishes are home to 120,000 people. These boundary communities extract more than 20 products from the park to meet some of their subsistence, commercial, medicinal, and cultural needs (Table 9).

Increasing population, declining agricultural productivity, and limited alternative sources of livelihood options are creating an increasing demand for park resources. At the same time, conservation practices have excluded people from these resources as well as from decision-making concerning the management of the park. This has contributed to the negative attitudes local people have towards KNP and, increasingly, extract the required resources illegally.

Findings in the second phase of KSCDP revealed that illegal extraction is primarily carried out by people living immediately around the Park, resulting in increasingly expensive UWA law enforcement operations (UWA 1997). CRM represents an alternative strategy to indefinitely escalating law enforcement. Rather than attempting to exclude boundary villagers from the KNP, it instead recognises their interest in, and use of park products, and involves them in managing these resources. KNP started CRM activities with pilot initiatives in four boundary parishes.

Development of CRM arrangements is time consuming. In the KNP case, it took two years to identify, negotiate and sign the first agreements. However the subsequent agreements have been agreed to more speedily. The CRM process is time consuming because:

- It was necessary to build the confidence of both parties (local communities and Park staff) to become genuinely involved in CRM activities;
- Care is needed to ensure that all users are identified and included in the process of negotiation;
- Training is necessary for the lead actors to conduct CRM. This included training the KNP's Community Conservation Unit (CCU) in group dynamics, participatory resource assessment, and negotiation skills;
- Awareness creation is necessary to inform the local communities about the concept, rationale and implications of CRM; and
- The completion of the actual CRM agreements takes some time, as they have to be reviewed and approved by various stakeholders before signing.

Table 9. Examples of resources used from Kibale National Park by local communities

Products	Use
Subsistence materials	
1. Trees (e.g. <i>Eucalyptus</i> and <i>Cassia</i> ⁹)	Building houses, firewood
2. Grass (e.g. <i>Imperata cylindrica</i>)	Thatching
3. Banana (<i>Musa spp</i>)	Brewing liquor
4. Wild fruits (e.g. <i>Dioscorea spp.</i>)	Household consumption
5. Wild mushrooms	Household consumption and sale
6. Fish	Fishing for subsistence
7. Clay	Making bricks, cookstoves
Saleable materials/ raw material for commercial products	
8. Ebitatara (<i>Marantochloa mani</i>)	Making crafts, baskets and trays
9. Rattan cane (<i>Calamus derratus</i>)	Furniture
10. Smilax (<i>Smilax Kraussiana</i>)	Baskets, trays and stretchers
11. Palm leaves (<i>Phoenix reclinata</i>)	Hats, baskets and mats
12. Reeds (<i>Pennisetum perperium</i>)	Building
13. Wild coffee ¹⁰ (<i>Coffea canephora</i>)	For sale
14. Papyrus (<i>Cyprus papyrus</i>)	Crafts
15. Fish	Commercial fishing
Medicinal plants	
16. Medicinal plants (e.g. <i>Rytigynia kigeziensis</i> , <i>Vernonia amgalina</i> , <i>Phytolaca dedocandra</i>)	Medicines, ointments, etc.
Others	
17. Use of park trails	Access to resources; short cuts through park.
18. Wild game	Bush meat
19. Pasture	Grass for cattle
20. Forest habitat	Siting of beehives

Source: KSCDP field survey, 1998.

⁹ KNP management plan prescribes the elimination of exotic tree species from the Park.

¹⁰ Wild coffee in this paper refers to *Coffea canephora*. It attains optimum development in the forest understory strata and forms a small tree of about 7.5m tall. Historically the local communities near the KNP have been harvesting wild coffee for traditional use such as chewing, exchange as gifts for friendship and small scale trade (Rwetsiba et al, 1999).

5.3 The Process

KSCDP worked with KNP's Community Collaboration Unit (CCU) to set up the CRM process. The process of acquiring and reaching an understanding with communities included numerous meetings with communities in parishes adjacent to KNP. The procedure used is briefly summarized as follows:

1 Village level meetings were held with the objectives of:

- Understanding the types and levels of resources accessed by local communities;
- Soliciting community historical attitudes towards the Park, and their reaction to the concept of CRM; and
- Visiting resource collection sites.

2 Site selection: After the village meetings, Park and KSCDP project staff developed criteria to select pilot CRM sites, which included the

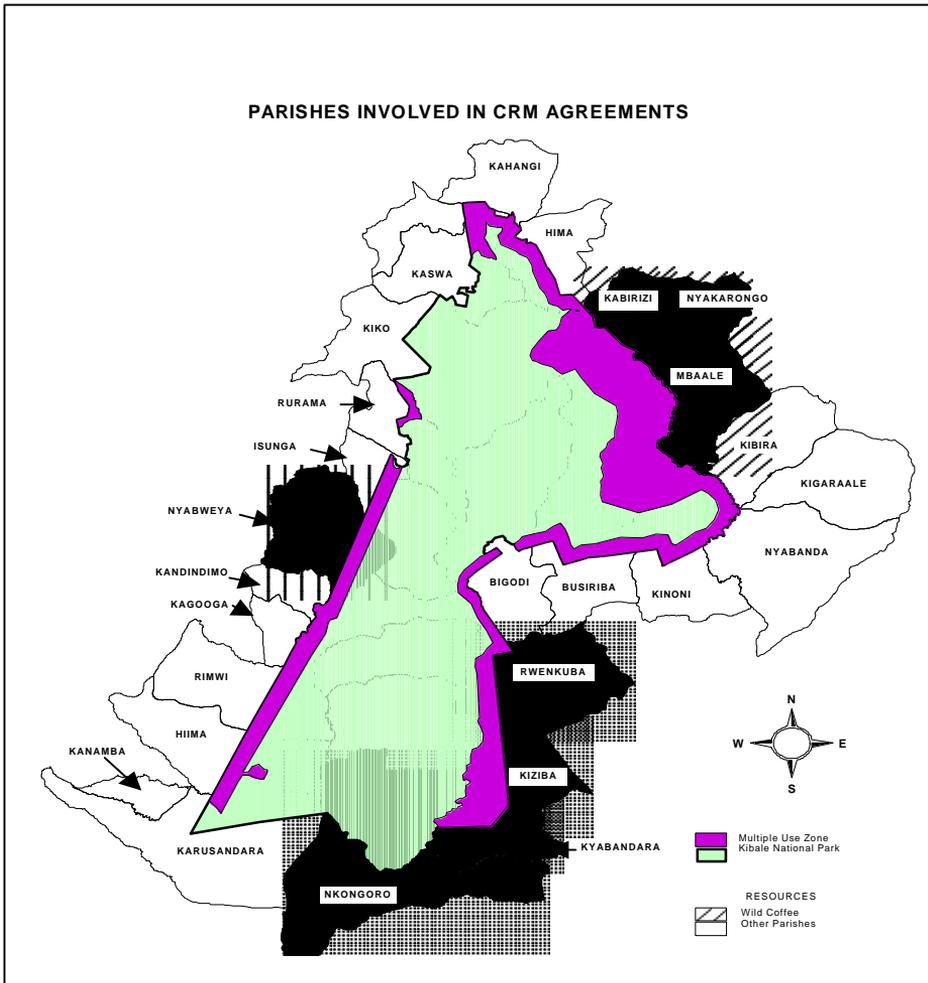
- Level of dependency of local communities on park resources, expressed in terms of quantities extracted, and their uses;
- Attitude of local communities towards the Park, expressed in terms of co-operation and assistance rendered to park staff during exploration visits;
- Proximity to the Park, expressed in terms of distance. The closer the communities are to the park, the higher the use of park resources was assumed to be;
- Abundance of resources, expressed in terms of availability of resources and their regeneration. The number of resource use groups were also used as an indicator. It was assumed that the larger numbers of such groups implied greater abundance of resources; and
- Cost of conservation to communities bordering the Park, in terms of incidents and extent of crop damage caused by park animals.

Using these criteria, four parishes, namely Mbale, Nyakarongo, Kabirizi and Nyabweya, were selected to test CRM initiatives (Map 5).

3 Community sensitisation: After the sites were selected, community awareness raising meetings were held to explain the rationale and concept behind CRM initiatives. Meetings were held with various groups including key informants, men and women (in mixed and separate groups), schoolteachers and local leaders. The awareness process also aimed at explaining the rights of local people, the importance of biodiversity conservation, and the role of the community in this process.

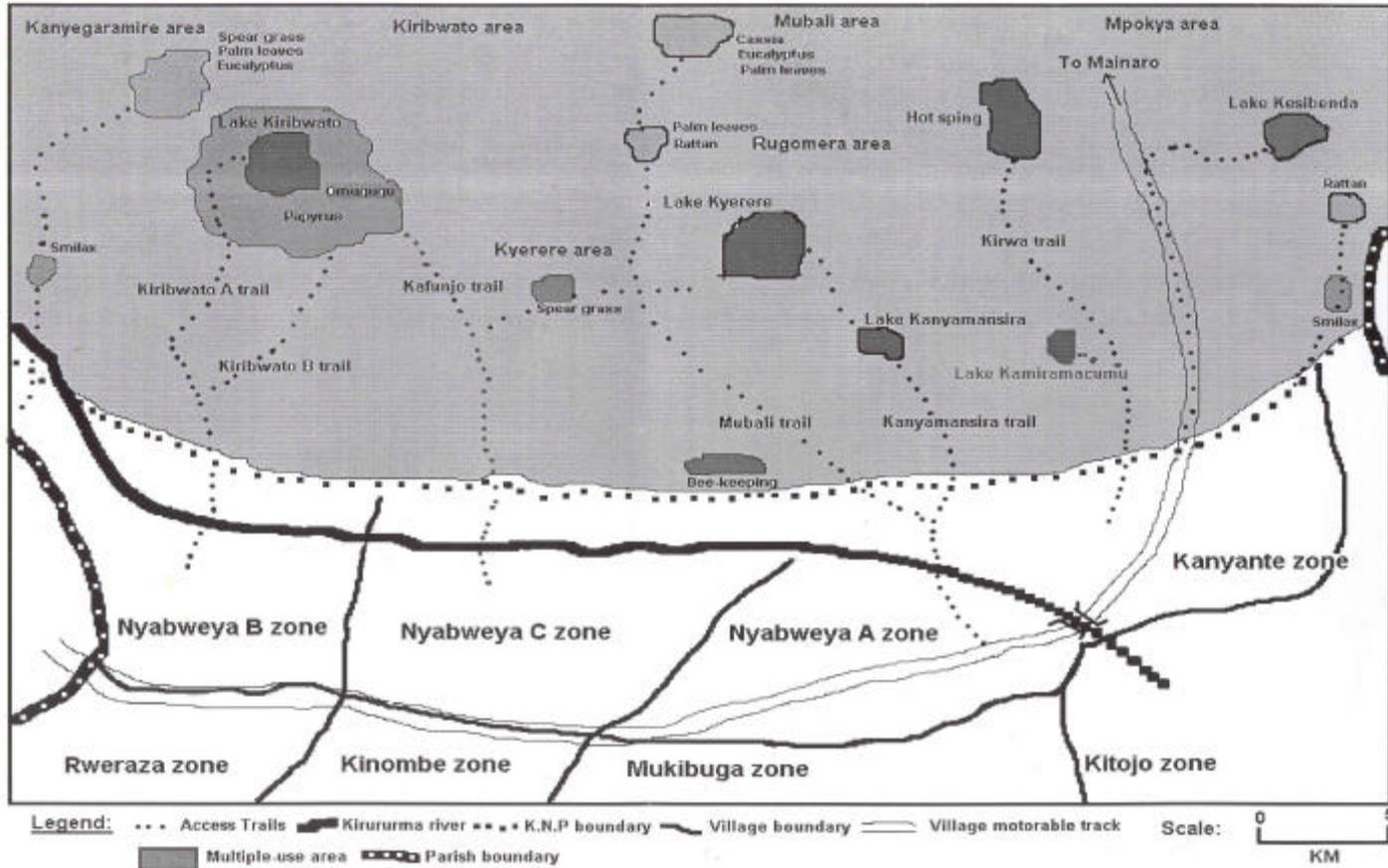
4 User identification and focused discussions: Successful development of workable and sustainable resource management agreements depends on the proper and correct identification of users (Hinchley, 2000). Each product that is extracted from the Park from the four pilot areas was recorded and the users identified (Table 9). This process required at least three visits per parish over a period of one year.

Map 5: Kibale National Park Showing Parishes where CRM was Tested



After the sites and users were identified, more focused discussions began, concerning the nature and level of each depending on the resource in question. For example, discussions regarding the use of water or papyrus involved large groups, while the use of medicinal plants involved small groups of traditional healers, and key informants. Discussions were followed by field visits to the sites to record resource availability, access trails used and distances involved. Participatory resource maps were drawn to depict the sites, trails and other important features (Map 6). Findings were presented to the users for feedback by the park staff and the local leaders.

Map 6: Sample of Participatory Map of where Certain Resources are Located in KNP



5 Negotiation of terms and conditions and committee formation: The information gained was shared with the users in the presence of local formal and informal leaders. This set the stage for negotiations which addressed the terms and conditions of resource use, the roles and responsibilities of members, groups and the committees, and monitoring mechanisms. This process took about six months which gave users time to fully understand the terms and conditions, and raise any concerns or disagreements. At the end of this period, draft agreements were prepared

All users were able to contribute to the development of the terms of resource use. Only after this participatory process was completed was further decision-making entrusted to a small, representative committee. The committees were agreed to through a democratic process, with members nominating candidates for election. Before the elections, candidates were appraised of the roles and responsibilities which would be expected of them.

For the wild coffee agreement, committee members were elected directly from the users. A different process was used at Nyabweya where multiple resource use allows the extraction of seven different products. First a five-member user group was formed for each of the seven permitted resources. Then one member of each resource group was selected to sit on a Nyabweya Multiple Resource Use Committee. This helped ensure that responsibility for the resource was embedded in the committee.

6 Sharing the draft agreement with other stakeholders: After the formation of the Committee, the agreements were shared with other stakeholders including the Departments of Agriculture, Livestock, and Forestry. This took place at a presentation attended by representatives from each user group. After incorporating final comments, the draft agreements were sent to UWA Headquarters for approval.

7. Signing the agreement: The first agreements between UWA and local communities were signed at the KNP's Isunga Headquarters in November 1999. Three were for wild coffee, in Mbale, Kabirizi and Nyakarongo, and one for multiple resources at Nyabweya (Box 7, and Annex 1).

The first four agreements took a long time to be negotiated, as both the staff and communities were learning how to do it, and the users had to be identified and verified. In addition this was a novel process in Uganda. The subsequent agreements took less than 6 months, because the staff were more experienced. For example the Beehive agreements were not complex as it only required agreement on the placement and number of bee hives. In general the negotiation process involved at least 3-4 visits (last 2-3 days for each visit spread over the 3-4 month period).

Box 7. A sample section from Nyabweya Multiple Resource Use Agreement

Roles and Responsibilities of KNP

- a) Sensitising the local people about Park bylaws and policy;
- b) Take appropriate and legal actions on cases reported by the users to the committee and Park management;
- c) Resolving any disputes, conflicts, claims or controversy arising from resource use, management of sites and access trails by the users;
- d) The Park, in liaison with relevant stakeholders, shall ensure that resource users are issued with permits;
- e) Linking the resource user groups with other stakeholders such as KSCDP, Makerere University Biological Field Station, District Environment Office, Forest, and Agriculture Offices, and Local Councils for sustainable resource management;
- f) Contribute in mitigating the problems created by problem animals on crops and local communities; and
- g) Ensuring that there are collaborative monitoring and evaluation mechanisms to assess the performance of resource use agreements. Monitoring may be done through patrols, spot checks, periodical data collection and analysis, meetings etc.

Roles and Responsibilities of the Committee

- a) Sensitising the local people about Park bye-laws and policy;
- b) Monitor the methods used to collect agreed resources in relation to their impact on associated ecosystems;
- c) Take appropriate and legal actions on cases reported by the users to the committee and Park management;
- d) Respond to users' report regarding illegal activities within the sites or areas;
- e) Resolve conflicts and disputes related to use and misuse of agreed resources; and
- f) Periodic monitoring of identified sites to develop schedules for resource harvesting, and to ensure that resource collection methods conform to recommendations.

Roles and Responsibilities of Users

- a) The users shall be responsible for reporting fire incidences and take an active role in controlling fire outbreaks inside the Park;
- b) The users shall be responsible to ensure that proper methods are used for collection of resources;
- c) The users shall report to the committee any illegal activities encountered or observed in the Park; and
- d) In case the Committee fails to perform their task to the satisfaction of the Park and People, the Committee may be dissolved by the Users who in turn will elect the new committee in the presence of majority of the members.

5.4 Progress to date

An additional four agreements were signed in August 2002, allowing beehives to be placed inside the Park. The process of negotiation and signing took only six months, due in part to the increased capability of KNP's Community Collaboration staff in setting up CRM agreements. It is also true that the development of agreements for single resource use is less complex than for multiple resources (as for Nyabweya parish).

Since the first agreements were signed in November 1999, there has been intermittent insurgency in Western Uganda. Rebels were reported to be moving within the park, including areas involved in CRM agreements. This discouraged the users from entering the park. However, with the presumed return of peace in late 2001, the users started to go back to the Park on an occasional basis.

2000 was a bad year for wild coffee, as the prolonged dry period meant that the crop yield was so low that no harvesting took place. However with a reliable wet season in late 2001, the users were able to harvest some coffee (Table 10).

Table 10. 2001 wild coffee harvests in Kibale National Park

Period	Harvest (fresh weight)
February-March 2001	731.5 kg
May-June 2001	696.4 kg

Source: Kibale National Park, 2001

Workshops were held in 2002 to review the progress of the wild coffee and multiple resource use groups (Box 8). The Community Collaboration Unit of Kibale National Park led both workshops with facilitation from KSCDP. The implementation of the wild coffee CRM agreement was complicated by the existence an overlapping agreement between UWA and the Kibale Forest Foundation. This latter agreement was developed without the resource users and holders of the previous CRM agreement, and resulted in some confusion to the KNP management and the CRM users.

Box 8. Summary of Progress from Nyabweya and Mainaro Resource User Groups

General Observations:

- a) Insecurity from early 2000 to mid-2001 discouraged users from entering the Park to collect resources and place beehives. It was only in the second half of 2001 that users returned to the Park.
- b) Most resources accessed were used for subsistence rather than for sale, and there is no detailed data on actual amounts harvested, although there was some control on the amounts anyone could take at one time.
- c) Marketing of handicrafts produced by users has been ineffective, leading to reduced pressure on the Park for craft materials.
- d) None of the groups are holding regular meetings. Those that do occur take place on an *ad hoc* basis and have never been attended by Park staff.
- e) Resources are collected at no cost, with the exception of poles which cost US \$0.03 each. However, the pole system has collapsed as KNP is trying to eradicate exotic plants (e.g. eucalyptus).

Contribution to conservation and livelihood:

- a) The incidence of bush fire has reduced as a result of local actions.
- b) CRM communities are increasingly reporting illegal activities to Park authorities, arresting poachers and confiscating their equipment.
- c) Over 40% of the local communities still use traditional medicine produced from Park plants. Twelve people were cured from snakebites with the aid of medicinal plants taken from the Park between 2000 and 2002.
- d) Grass is used for thatching roofs and poles from exotic species are used for building houses.
- e) Cash income is generated from the sale of handicrafts made from materials taken from the Park.
- f) Honey is produced from beehives sited within and close to the Park.
- g) Local people enjoy year-round access to water at designated spots within KNP.

Issues and Way forward

- a) KNP contains four crater lakes, yet the use of fishing hooks is allowed in only one of these. Nets are expensive so Park authorities were requested to allow hooks in all the crater lakes. KNP needs to amend the contract to allow the use of fishing hooks in the agreement.
- b) Groups do not hold regular meetings and KNP staff do not attend the few that occur. Reasons for irregular meetings include low level of activities due to insecurity, and a lack of know-how concerning how to conduct formal meetings. It was agreed that user groups and the committee will hold regular meetings, and Park staff will attend the committee meetings, which will be held on the first Saturday of each quarter;
- c) No records are kept about the resources extracted, partly due to the irregular and informal nature of meetings. KNP will train the committee members to keep records, records of minutes of meetings, and how to conduct meetings. It will also provide receipt books for the committee and the groups.
- d) There is no market for handicrafts made by the users, probably due to poor workmanship. KNP will link with other institutions involved in craft making and investigate the possibility of additional training.
- e) KNP is unable to respond rapidly when illegal activities are reported by the users and committees. There is a need for improved collaboration between KNP's Community Collaboration and Law Enforcement Units to respond to such requests. KNP will carry out intermittent spot checks to monitor legal and illegal resource harvesting.

5.5 Impacts of CRM and Lessons Learnt

CRM, if well negotiated and implemented, can facilitate both conservation and livelihood objectives. This has been demonstrated by a reduction in the illegal activities in the Park as a result of actions by local people to protect their CRM sites. Legitimised access to water, medicinal plants, polewood, grass and fish in the park are examples of how the use of Park resources can contribute to local livelihood security. However the benefits of CRM must be assessed in both quantitative and qualitative terms. Quantitative data are attractive to many but are hard to collect, particularly when monitoring indicators are poorly developed and human resources and logistics are limited. In such situations qualitative assessments, e.g. trends in illegal activities, and in park-people relationships, are more useful. Key lessons from the CRM activities include

- Training and capacity building, particularly in participatory skills is essential to equip both Park staff and communities to be able to negotiate CRM agreements;
- CRM needs to be linked with other rural development options, for example through the promotion of alternatives and substitutes;
- Good CRM work helps to improve the relations between the Park and surrounding communities;
- Such improved relations can be demonstrated through, for instance the reduce incidence of illegal activities;
- Negotiating good CRM agreements and maintaining good community relations requires time and manpower, which argues for an increased commitment to community extension as opposed to enforcement;
- Monitoring and evaluation of CRM agreements and process is important, but needs to be appropriate to both the communities involved and the Protected Areas; and
- Where there is genuine and transparent negotiation, the CRM process is likely to be a win:win for all parties, as trust will have been built on mutually agreed rights and responsibilities.

CRM More success if combined with other activities: CRM initiatives are likely to be more successful if alternatives or substitutes to resources accessed under CRM are made available on land outside the Protected Area. In the case of KNP, CRM has tended to be more successful in parishes where KSCDP supported sustainable development activities as well, for instance pig farming, agroforestry, fruit trees, clonal or improved coffee etc.).

Need for Human and Financial Resources: CRM requires adequate human and financial resources for effective monitoring. KNP will require alternative sources of funding and technical expertise to support CRM initiatives for three to five more years in order to consolidate the CRM process and practice. Unfortunately this is an area where UWA is still weak, as once the CRM agreements have been officially signed there is little UWA follow-up with the communities with respect to the actual implementation of the agreement. Such follow-up is a very important part of the overall process so as to ensure that all parties really understand their rights and responsibilities, as well as to solve problems that might occur. CRM seems to be still seen as a donor driven activity with minimal financial and human resources allocated to the CCU. Indeed little or no mention is made of CRM in the 2002-03 UWA annual report (ref ??). However given the progress to date in terms of the reduction in illegal use of Park resources (Table 11), improved community relations (Box 9), it is important that KNP follow-up on the collaborative management work so that it increasingly improves Park-people relations, while, at the same time, reducing enforcement effort.

Reduction in Illegal Activities in the Park: The implementation of CRM agreements has been a recent event, and it is really too early to judge the process. It is possible to make a number of initial observations. Since the implementation of CRM, over 20 illegal cases have been reported to park management by local communities (Box 9). In some cases, the users have gone to the extent of arresting the poachers, confiscating their tools and handing them over to local council and park management. Local communities have removed snares and put out fire in the park. Such action on the part of local communities considerably reduces park management costs in CRM sites.

Box 9. Sample Letters Received By KNP From CRM Groups On Illegal Activities

- | | |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a) | “This is to tell you that when we went in the Park we saw four people pit sawing timber around Lake Kiribwato. We are therefore calling you to come and patrol the area. The resource users reported to me of that illegal activity.” (General Secretary, LC II, Nyabweya Parish, June 6, 2000). |
| b) | “There are five people who are in the park hunting. We saw them while we were checking coffee areas. Bring Rangers and we will arrange to catch them. Come quickly before they come out of the forest.” (Resource User, Nyakarongo Parish, March 2, 2000). |
| c) | “Madam, we are informing you that people are burning charcoal in the Park. Please arrange to send Rangers for patrolling. We shall guide you to show the areas and the people involved.” (LC II Office, Kiziba Parish, November 8, 2000). |
| d) | “I hereby inform you that after Mweya co-ordination meeting we patrolled the Park and found that pit sawyers had split a tree in the park but upon seeing us they ran away. So, we collected their tools and handed them over to the office of LC II. We have in our possession 2 machetes, 1 wedge, 1 rope (huzi) and 1 file for sharpening. We wanted them to come so that we may get them to your office. But they never showed up.” (User Group member, Kakooga). |

Reports from Kibale National Park shows a decline in illegal activities in the last three years. According to Okote (2002), the number of arrests made, tools confiscated, snares placed and animals killed have all declined (Table 11) This decline in illegal activities can be attributed to more effective law enforcement activities, combined with increasingly positive contributions by local communities, which also plays an important part.

Improvement in park and people relationships: “We do not run away or hide from Park rangers as we did in the past. Rather, we work together to stop poaching and illegal activities such as pit sawing or unauthorised resource collection,” said a local resident during a visit by a KNP and KSCDP team. “A positive development mentioned in Nyabweya was that in comparison to previous years, there is peace with the Park because people are allowed to get certain resources from the Park under CRM agreements” (Mangheni et. al. 2000. Pg. 47).

Table 11. Illegal activities in KNP, 1999-2001

Years	Arrests	Spears confiscated	No of snares	Animals killed
1999	121	172	266	26
2000	148	15	96	17
2001	104	10	53	10
% Reduction 1999 to 2001	14%	94%	80%	61%

Source: Okote (2002)

Sense of Local Responsibility enhanced: Legitimate access by local communities to use and manage selected park resources has induced a sense of responsibility, thereby boosting their image and status. People take pride in talking about their part of the Park, and their actions to protect it from illegal activities. With the formation of interest groups, there has been an increase in interaction among the members. Resource use meetings, although not held regularly, create a forum where other social matters can be discussed in addition to resource issues. CRM has contributed to community team building, thereby increasing social cohesiveness. The following statement, made by the Chairperson of the Nyabweya Resource Users Committee during the September 2002 review, epitomises the attitude of involved boundary communities to CRM.

“In the past we were not allowed to go into the Park as we were always tortured, and now we are happy because we now have legal access to harvest exotic poles, papyrus, medicinal plants, smilax, rattan and have access to fish in crater lakes inside the Park. Our people have constructed houses using the poles in addition to making canoes. Students have earned income through the sale of handicrafts made out of papyrus and other materials. In return we have tried to control poaching and bush fires. Further, ten people have been cured from snakebites using herbs from the park. We also appreciate the support we received in digging the trench barrier to keep the elephants from entering the crop field.”

5.6 The Future

Successful CRM agreements must involve local people in decision-making processes, including development and planning of the agreements (Fisher 1995). If this is not the case, CRM agreements will simply turn out as “resource access” agreements. However negotiation for resource use agreements must be made in a transparent manner. For example, during multiple-use negotiations at Nyabweya, communities proposed the extraction of clay from the park, a request that was rejected as a prohibited mining activity. This summary ruling was contrary to the spirit of CRM. Whether or not requests are approved, it is central to the process that proponents deserve a reasoned consideration of their suggestions rather than an out-of-hand dismissal.

Regular monitoring of CRM initiatives is essential to determine the impact on the conservation of biodiversity, and changes in the livelihoods of people involved. There is a need for UWA to commit the human and financial resources necessary for monitoring. This might help justify a re-evaluation of the uneven distribution of the KNP 37-strong ranger force. At present, 30 are allocated to the Law Enforcement Unit, two to the Research and Monitoring Unit and five to the CCU. If communities are taking more responsibilities, as seems to be the case (Box 11), then this would suggest that if KNP put more effort into community conservation, less effort will be needed in law enforcement in future, thereby reducing Park costs.

Delegating some responsibility for monitoring CRM to local communities might compensate for the limited number of CCU staff. However, this responsibility should not entirely be passed on to community level, spot checks by KNP will remain essential. Monitoring CRM activities is time consuming and demands considerable human and financial resources. Involving local people in monitoring activities might reduce these burdens. KSCDP has helped KNP to develop participatory monitoring tools. The system to monitor beekeeping is appropriate although formats for multiple resource use and wild coffee require simplifying to become more user friendly. The extent and level of

involvement of local people in developing the monitoring formats is still far from adequate, and, at a community level, need to relate to what data communities can collect effectively and simply on a regular basis.

UWA policy requires CRM agreements to be signed by the Executive Director. This is possible as long as the number of agreements remain small, and while the system is still being tested. An increase in this number will make it practically difficult for the Executive Director to personally assimilate and approve agreements. UWA might consider delegating this task to its Chief Wardens to shorten the process.

CRM has been shown to be a good management tool in KNP. Although CRM implementation in KNP is relatively new, initial observations shows it can contribute to local livelihood security and the conservation of biodiversity. Weaknesses in implementing CRM on the part of KNP is largely due to the limited staffing and financial resources available to the CCU. However the testing of new innovations does require policy support. It would not have been possible to test this participatory approach to biodiversity conservation at all without an enabling policy, and a general willingness on the part of Uganda Wildlife Authority. Nevertheless, the CRM is still often perceived as a donor and project driven initiative. Encouragingly, however, there are now clear signs on the part of the involved institutions and communities to internalise it. Table 12 provides some of the positive lessons from CRM, together with some of things which should be avoided.

Table 12. Some Key Lessons from CRM around KNP

Positive Lessons	Things that need to be avoided or improved upon
<ul style="list-style-type: none"> • Negotiations need to be genuine and built on mutual respect and trust; • Mutual understanding of, and respect for each parties needs is required; • Both the Park staff and communities need training in participatory approaches so as to better understand resource use; • Negotiations need to be fair and equitable; • Where responsibility has been delegated, this should be respected; • Communities can monitor, but do so at their level; • First CRM agreements took longer than subsequent ones as demand increased, and lessons were learnt; • Importance of continued interaction between PA authorities and communities. 	<ul style="list-style-type: none"> • Carrying out the process too rapidly, as ownership is likely to be lost or weak at best; • Delays in approvals to be avoided where possible; • With the expansion of CRM, authority for signing CRM by UWA should be delegated to the Park; • Excessive demands (in excess of the benefits which might accrue) should not be placed on communities, for example with respect to monitoring and evaluation; • The manner by which UWA negotiated the wild coffee agreement with KFF has casued problems, and some loss of trust; • Insecurity, and rebel insurgenices make any form of community work very difficult.

Chapter 6: Conservation Education around Kibale National Park - A Comparative Assessment of the Methods Used by KSCDP

Pross K. Katuura, Eddie Kyaligonza

6.1 Introduction

This chapter analyses the conservation awareness and education methods and approaches used by KSCDP to promote environmental conservation in the Kabarole and, to a lesser extent Bundibugyo districts. More specifically, the chapter:

1. Documents KSCDP's experiences of a conservation education programme relating to environmental issues concerning communities living beside Kibale and Semuliki National Parks;
2. Analyses these experiences and points out the strengths, weaknesses, constraints and failures of the methods employed;
3. Shares the lessons learnt during implementation for the interest of other organisations and partners; and
4. Makes recommendations for future approaches and interventions.

Conservation or environmental education is a planned process through which people teach and learn about environmental issues affecting them. Conservation education involves interacting holistically with the biophysical world -socially, politically and economically - for a better quality of life (Yeld, 1997). Non-governmental Organisations (NGOs) have put a lot of effort into non-formal environmental education to raise public awareness about environment issues, e.g. soil erosion, desertification, pollution and global warming. The underlying objective of environmental education is to encourage people to participate actively and effectively in decision making concerning environmental issues at local, regional, national and global scales. Environmental education is equally relevant to all aspects of society, ranging from children in schools to adults in the workplace and at all levels of government.

6.2 Methods Used by KSCDP

KSCDP employed a variety of methods to target the various mental and sensory faculties through which people can appreciate educational messages. Different approaches are required to successfully target different people, depending on their age and personal situations. As such, the methods used in schools, villages bordering the Protected area and government offices all varied. In all situations, however, the most effective methods were those that invited participation from the targeted group. As the old Chinese saying goes: *"Tell me and I will forget. Show me and I will remember. Involve me and I will understand"*.

The methods employed included radio, audio visual shows, joint-productions with the Wildlife Clubs of Uganda, production of awareness raising materials, road shows using music, dance and drama groups (MDDs) and seminars and workshops for special groups, e.g. women, teachers and local leaders.

6.2.1 Radio

The radio station used by KSCDP was the Voice of Tooro (VOT), a local FM station. VOT is widely listened to in the districts of Kabarole and Bundibugyo, and has been used to broadcast conservation messages. Subjects included tree planting, wetland conservation and degradation, tree nursery establishment and management, fruit growing, crop raiding by animals, pig farming, soil and water conservation, and the role of national parks in conserving biodiversity in Uganda. The programmes were aired in the local languages of Runyoro, Rutooro, Runyankole, and Rukiga to reach the widest possible audience.

The fifteen-minute programmes were recorded with communities in KSCDP target areas using a simple portable cassette recorder, and broadcast on VOT once a week for several months. Listeners were strongly encouraged to participate in the radio programmes, by phoning in during the broadcast or sending a letter, to share their own views and experiences relating to the subject in question. Box 10 summarizes some feedback received from a KNP farmer bordering the Park who has heard a VOT programme on the subject of crop raiding.

Box 10. A New Development In Mauritius Thorn Barrier Planting

Mr. Barugahare, a farmer in Kahangi, one of the parishes adjacent to KNP, felt that using Mauritius Thorn as a hedge around his land helped him to keep out all crop raiding animals including elephants. He had heard KSCDP's radio programme which considered that a hedge was incapable of repelling elephants. But Barughare reasoned that if the width of the fence is doubled, and if one can exclude elephants until the fence reaches a height of at least two-metres, then elephants would never pass through. Mr. Barugahare tested his theory and later claimed that elephants did not cross into his field after he had doubled his fence width. This could mean that a thicker fence is a more effective barrier, or simply that they found it easier to invade other farms which are not so well protected.

KSCDP also sponsored competitions on radio presentations, which generated a considerable following among listeners. Competitions were organised to encourage local people to share their experiences with a wider audience. Small prizes such as greeting cards and T-shirts were given out to participants. Competitions also served as a means to monitor audience characteristics, and assess the spatial area covered by the programme. The frequency of airing a certain programme depended on the demand from listeners and the scope of the subject. Table 13 shows the frequency of the different messages aired between 1997-2000.

6.2.2 Music Dance and Drama

Music, Dance and Drama (MDD) disseminated messages in the form of songs, plays, and dances. Messages in MDD were clear, simple and brief to prevent misinterpretation. KSCDP worked with existing groups, based within or very close to the Project area, instead of encouraging the formation of new ones (Table 13). KSCDP worked with eleven local MDD groups around the two national parks. Seven of these groups are in Greater Kabarole district (Mbale, Kiziba, Kahangi, Busiriba, Bigodi, Nyabanda and Kakooga parishes), and 5 in Bundibugyo district (Matasia, Bundinyama, Bosoro, and Burondo parishes). They staged a total of 166 shows between 1996 and 2001, and about 3-4 shows are staged per broad message area, so as to gain as wide a showing as possible. Three of these groups are solely composed of women.

Table 13. Summary of Radio Programmes Aired

Message or Topic	Times Aired	Summary of Content	Assessment of Impact of Radio Messages
Tourism	15	Importance and benefits of tourism to community members	About 4 local groups have started developing eco-tourism sites.
Tree planting & nursery establishment	20	It provides fuel, poles etc. Also use in terms of income generation	Communities around the park have planted their own wood lots to reduce pressure on the Park. 85% of the schools with Wildlife Clubs have planted trees on their compounds or have woodlots which have helped them earn some income.
Soil & water management & conservation	20	A measure to protect the soil erosion	Pineapple production has increased due to its increased use as a contour stabiliser.
Fruit growing	10	A means to increase income from fruits like Passion, Avocado, Mangoes etc.	There is increased demand for improved fruit saplings for income generation.
Medicinal plants	15	Capacity for the use of local medicines	There was a high level of interest in these programmes, which were repeated several times on request.
Bee-keeping	25	Benefits of bees and honey	All bee-keepers have been connected to the main association, Kabarole Bee-keepers Association (KBA)
Environment	15	Importance of environment	There is a better understanding of environment conservation.
Agro-forestry	10	Importance of, and the recommended species	There is improved food production in parishes next to the park, as well as improved land utilisation.
Women in environment	12	Roles and responsibility of women in environment, women working in protected areas.	The number of women working in parks (UWA) and environmental related organisations have increased. More women are participating in environmental conservation activities e.g. nursery establishment, training workshops and meetings

Table 14. Summary of MDD Activities

Group	Location Parish)	Constitution of group		Number of shows
		Men	Women	
1. Kiziba Drama Group	Kiziba (KNP)	9	13	25
2. Bigodi Nyange Women's Group	Bigodi (KNP)	-	20	19
3. Busiriba Golden Performers	Busiriba (KNP)	8	13	30
4. Gendampora Drama Performers	Kahangi (KNP)	4	10	28
5. Kakooga Women Group	Kakooga (KNP)	-	25	10
6. Katunguru Women group	Kibira (KNP)	-	22	11
7. Mbale Drama Actors	Mbale (KNP)	4	7	inactive
8. Mataisa Stars	Mataisa (SNP)	11	3	10
9. Bundinyama Singers	Bundinyama (SNP)	14	6	20
10. Busaru MDD group	Busoro (SNP)	15	13	8
11. Ngamba Drama Group	Ngamba (SNP)	8	8	5

The MDD groups were voluntary and already in existence. They received expenses and non-financial support only from KSCDP, including training and materials such as musical instruments and props. When the group was exclusively scheduled to perform conservation messages, KSCDP provided transport and a contribution towards their costs. KSCDP then ensured that these shows were staged free of charge. If the group intended to stage other messages, KSCDP provided only transport and the group would ask the audience to pay for the show. In addition, the Project provided T-shirts bearing the project logo and a conservation message which performers were required to wear.

The first step in developing a MDD event was to identify a conservation topic, e.g. tree planting, and from this, develop a specific theme or message, e.g. "Plant trees on private land to reduce the impacts on the national park". The next step was to educate the dramatists so they understand the subject – the uses of trees, how to plant them, which species are best for what purpose and so forth. By fully appreciating the topic themselves, they were better equipped to impart the messages to their audiences. The MDD group then use this training and material to design a drama show to present the tree planting message. The result became part of the group's environmental repertoire.

The underlying project motive, and the actual message presented in a play can of course be different. The KSCDP message above is unlikely to elicit much response from an audience bordering the Park. However, the drama group might consider that local people would take more heed if they were exhorted - "Don't spend hours walking to the forest each day; plant your own trees to enjoy convenient sources of building-poles, fuelwood, timber, fruit etc.!"

6.2.3 Awareness Raising Materials

KSCDP produced a variety of awareness materials such as T-shirts, posters, postcards, calendars, slides, video films and photographs. Table 15 provides an overview of the various materials produced during the third phase of KSCDP (1998 to 2002).

Table 15. Awareness Materials Produced

Type	Period	Number	Main target group	Comment - Impact, Use
Calendars	1994 – 2001	7,000	Farmers & line agencies	Used as a learning aid & for visibility.
Bee keeping posters	2000	2,000	Farmers & line agencies	Used as a learning aid & for multiplier effect.
Tree planting posters	1995, 1997 & 2000	3,000	Farmers & line agencies	Used as a learning aid & for multiplier effect.
Land use posters	1999	2,000	Farmers & line agencies	Used as a learning aid & for multiplier effect.
T-shirts	1994 – 2000	1,750	Project staff, farmers, & MDD members	Increased visibility of the project on the ground especially in communities & schools. A conservation message is written on the T-shirts.
Environmental education teachers guides	2000	2,500	Primary schools, education & environment officers, parent-teacher committees	They have acted as supplements to the school syllabus mostly on science subjects. Provides continuity of environmental education in schools.
Video Tapes		2	Farmers, schools	An entertaining tool that can be used many times & in different locations.
Radio cassette tapes	1998 – 2002	109	For use in radio shows & as a tool for extension	Farmers, line agencies & communities have listened & responded with letters of appreciation.
Pamphlets	1993 – 2000		Farmers	The farmers have been able to capture & utilise the message displayed on them. Pamphlets were produced on contour bunding, composting, mulching, tree planting, bee-keeping & the use of fuel efficient cook stoves.
Project logos	1994		All stakeholders	The project is publicised.

The following criteria were used to develop promotional materials:

- Relevancy of themes to local needs;
- Good readability, avoiding technical terms or jargon. Where appropriate technical words were simplified or defined to promote understanding;
- Accuracy of information;
- Good presentation with appropriate illustrations, layout and a suitable amount of information at the right technical level for the targeted audience;
- Acknowledgement of sources of information used; and
- Allocation of space to allow for actions to be undertaken, for references, contacts, etc. to enable further exploration of opportunities.

KSCDP hired a part-time artist to help project staff prepare extension and promotional materials. The artist also met with community members, district officials, local officials, and school children (Wildlife Club members) to plan and develop materials. Now, almost all households in KSCDP target areas possess at least one environmental awareness product, the most popular being calendars and posters. One of the biggest impacts of such materials is seen in schools where school children are found copying the drawings onto their notebooks. These materials have helped students to articulate environmental problems and concerns and have helped them debate environmental issues in competitions.

6.2.4. Audio-Visual Shows

KSCDP used slides and videos to disseminate conservation messages. Unfortunately the initial films shown – a set of National Geographic videos - were not appropriate for the target audiences. Though they contained entertaining information about wild animals and rainforest environments, they did not address issues of direct concern to the people in the project area, e.g. soil erosion, lack of firewood, loss of soil fertility, etc. Then the Project obtained locally produced tapes that do tackle these issues. Unfortunately (again) though relevant in content, they were presented in English or Luganda, two languages in which only a few people are fully conversant. It is important to use audio-visuals that are acceptable, relevant and understandable at the local level.

During Phase III, KSCDP started to produce its own simple video films to document local experiences and success stories. However, to film and edit a video to a professional standard is a challenging task. Nevertheless, the results proved very popular with people, especially when they can view familiar people in familiar settings. People are excited to know that they can also 'star' in a video recording their environmental achievements on their farms. This 'local flavour' is an advantage that often offsets the need for more polished, nationally or internationally produced media.

6.2.5. Wildlife Clubs of Uganda

Environment education is not currently directly addressed by the Ugandan school syllabus. As a result, students interested in environmental issues form Wildlife Clubs which, when registered, become affiliated to the Wildlife Clubs of Uganda (WCU). WCU is a NGO with its headquarters in Kampala, which is funded by donors and conservation-related projects such as KSCDP. The WCU mission is conserving wildlife and the environment to maintain a natural balance of life for educational, aesthetic, economical, cultural, medicinal and

technological values. WCU has adopted a quotation by Thor Hyerdahl to explain their commitment to conserving wildlife and the environment:

“In fighting nature, man can win every battle except the last. If he should win that too, he will perish, like an embryo cutting its own cord. All other living creatures could exist without man. They did exist before man. But man could not exist before they were present, nor would he survive after they have gone” [Adapted from a WCU Handbook].

KSCDP was committed to enhancing sustainable environmental activities through existing agencies. It has worked closely with the existing WCU District Association in Kabarole, and was instrumental in the foundation of an association in Bundibugyo district. KSCDP offered assistance and support to WCU at the district level, including training teachers and head-teachers in non-traditional teaching methods, and conservation education. KSCDP supported WCU in its target area by organising and sponsoring general meetings, regional conservation celebrations, study tours, and WCU attendance at national functions. It provided office space and logistical support to the Kabarole District WCU Chairperson. In addition the project worked closely with the District Education Officer using existing institutions such as Teacher Training Colleges (TTCs).

By 2001, KSCDP supported 110 groups in Kabarole and Bundibugyo districts reaching some 4000 children of whom 50% were girls. Student members participate in conservation-related activities such as tree planting, nursery management, fuel conservation measures, mass awareness campaigns, soil and water conservation and the development of awareness raising materials. These activities are usually done outside normal school hours, including weekends and holidays.

Due to the limited resources of the project, student membership of the project-supported WCU's was necessarily limited to 40 per club. To cater for students who were unable, or not interested to join their school's WCU, two environmental education teaching handbooks were developed with the help of USA Peace Corps volunteers and funding from IUCN, WWF and the National Environment Management Authority. These guides were meant to help integrate environment education into the Science and Social Studies (History, Geography and Religious Studies) syllabus. They were developed with the intention of providing teachers with alternative lesson plans that can be linked directly into the existing primary school syllabus. The environmental education Teacher's Guide will help to involve the whole school in Environment Education. This will be introduced into schools with close collaboration from Canon Apollo Teachers College which is a core TTC serving the Kabarole, Kasese, Bundibugyo, Kyenjojo and Kamwenge Districts.

Some members of local WCU branches have raised their incomes as a result of activities learned at the WCU, for example the establishment of tree nurseries (Box 1 and Box 2).

Box 11. Headmaster acclaim KSCDP support to WCU

Mr. Magezi Muntu is the Headteacher of Mpumbu Primary School in Kabarole District. He is the patron of his local WCU and vice chairman of the Kabarole District WCU Association. He recently wrote a letter to the KSCDP thanking the project for the various WCU interventions that have been carried out by KSCDP in his school. These included tree nurseries, environmental conservation education, improved stove making, and environmental workshops. He said that the club members had learnt much about environmental conservation and had put it into practice by setting up a tree nursery. From the sale of seedlings the patron was able to purchase a motor scooter for use in WCU activities. The school has also launched an agricultural programme and the pupils are now producing some of their own agricultural produce. In his letter to KSCDP he says "If I were the Minister of Natural Resources in the Ugandan Government, I would give KSCDP more money and more time to continue the work they have been doing to uplift the standards of our community, district and country at large."

Box 12. WCU success leads to international recognition

Mr. Alex Muhumure is a WCU patron of Bigodi Primary School. During his nine-year term of office he has had several achievements. He established a Eucalyptus woodlot in the school, which has earned the school a significant amount of money. He established a school tree nursery for planting trees on the school compound, and for sale to local people. Around his home he has made the most of KSCDP-promoted interventions, for example by planting trees, using fuel efficient stoves, constructing contour bunds and planting fruit trees. As a result he has managed to build a new and bigger house, and send his children to better schools. Through visitors from the school's WCU, Mr. Muhumure has received an invitation to make a one-month (fully sponsored) visit to the USA to share his experiences as a patron of a successful conservation club in Africa.

6.3 Results and Comparison of Effectiveness of Different Methods

The project has had a number of positive achievements using different forms of environmental education. However, many are intangible, especially those that relate to changing attitudes and behaviour. It is hard, for example, to gauge the effect of a play or a song about tree planting. An MDD event may, in some cases, inspire some individuals to plant trees. It may raise other listeners' awareness of the subject matter, while to the remainder of the audience, the display may merely represent an entertaining diversion.

A significant setback to the effectiveness of radio shows, which took some time to identify and resolve, was the timing of programmes. From February 1997 (when the programme started) until June 2000, the programme was aired at 4 p.m. every Saturday. However, after the first survey about the programme, it was found that the timing excluded many of those targeted who were still farming or engaged with household activities. In February 2000, the Saturday shows were re-scheduled at the later time of 8:15 p.m. Informal reports have so far indicated that this is a more convenient time, as people have finished their daily routine and are relaxed and more attentive.

Several surveys were carried out to assess the effectiveness of the different methods in disseminating messages to KSCDP's target audiences. It was found that MDD was the most effective way to reach the minds of communities. People seem to easily understand the messages, while the timing of performances (usually at weekends and especially after church) means that attendance is usually high. The results of this assessment are presented in the following sections:

6.3.1 Radio

Advantages

- Radio can reach a large audience across a large geographic area at the same short time;
- It is easy to listen to radio while engaged in other activities. Radio reaches women effectively since they can listen whilst continuing with their tasks;
- The anonymity of radio is useful. Listeners feel free to say things that they would be most unlikely to say face to face. For example a local leader who was draining a wetland in one of the parishes bordering the Park was exposed on radio whilst a public denunciation would have been very difficult;

- Radio creates a forum for all people. On air, their views can be widely heard, and officials get to hear views from all quarters on contentious issues like land ownership for women, and the marginalisation of the disabled;
- Radio can be cheaper than some other methods such as seminars and workshops;
- Radio can be used to air a variety of topics; and
- Several resource people can be brought together to produce a programme so that a message can be passed to many people through the radio in a short time.

Disadvantages

- The process of direct feedback may not be easy, especially from listeners in remote areas without access to fast communication systems like telephones or e-mail. Sending a response or a question via surface mail takes time;
- It is difficult to know the impacts of the messages. It is hard to tell if the radio message causes a change in behaviour or attitude;
- It can be expensive to run many programmes;
- Some topics are too technical or too visual to be effective on radio. The use of an A- frame to measure contour bunds, for example, needs to be seen to be understood;
- Effective programmes build up a regular following who tune in at the expected time. Sufficient and regular funding must be available to provide quality programmes to an expectant audience; and
- Radio is not effective for poor communities who cannot afford radios or the battery cells to operate them.

Lessons learnt

- For the maximum impact of a programme, advertising is necessary to generate interest beforehand;
- People like listening to their own experiences and learn much from them. The Mauritius Thorn fence example (*Box*) and farmers' interviews are very popular;
- The listeners like a varied and entertaining programme including MDD. Too much talking leads to a loss of attention;
- Overly visual or technical programmes, e.g. 'How to use an A-frame' or 'How to construct a fuel saving cookstove,' are not popular and should be addressed through alternative media; and
- Programmes that directly benefit people are more popular. Popular programmes have focused on the use of traditional herbs, crop-raiding animals, poaching, and income generating activities like pig farming, clonal coffee and fruit growing.

6.3.2 Music, Dance and Drama

Advantages

- MDD is entertaining;
- MDD can be used to address groups of varying ages. Children and adults can both pick up a message from the same MDD show;
- MDD is a good method for deaf people who can appreciate the message from visual actions;
- After the initial investment, when the play is part of the group's repertoire, MDD is a cheap method for disseminating information; and
- In some cases, MDD group members have strengthened their working relationships and embarked on other activities. For example, the Kiziba MDD group has successfully established a tree nursery as a Community Based Organisation (CBO).

Disadvantages

- MDD can be boring if the message is monotonous or the activity too long;
- Accompaniments (musical instruments, props and costumes) are usually needed to make the show pleasant to listen to and watch. However, these can increase the costs;
- Group dynamics can become a problem. A good group may break up or lose a key actor or actress because of a small misunderstanding or bad leadership. For example, Busiriba MDD once broke up because a church leader told them that if they were loyal to him he would get KSCDP to pay them their salary. He said that the MDD promoter had misappropriated the money. This brought about disgruntlement amongst the group members and the group broke up because the salary never materialised; and
- Local leaders can misuse the groups to further their personal, political ambitions.

Lessons learnt

- It is important to have a strong MDD group, if possible one already in existence;
- Working with volunteers is more difficult because it is difficult to control them;
- KSCDP has seen that areas with good MDD groups tend to have a higher rate of adoption of project promoted conservation measures. For example, the adoption rates of KSCDP-supported activities were highest in the home parishes of the dynamic Kiziba Drama Performers and Gendampora Drama Actors;
- Groups with a large number of youth rarely stay together long, probably because they are often impatient to earn money, and therefore soon move on. It is better to work with a group of more mature people;
- Groups comprised mostly of women are the most stable. Perhaps women are culturally more stable, and stay in one place longer. In addition, MDD might represent other, non-financial benefits, e.g. presentation of an important social issue, or one that enhances women's status in local society; and
- MDD audiences are predominately female, making MDD the best forum to direct messages at women. The reasons for this are not clear.

6.3.3 Awareness Raising Materials

Strengths

- Pictures can be used to prompt questions or incite interest in an issue. The visual impact of a picture is often more lasting than words;
- If strategically placed, colourful posters serve as a reminder of certain issues;
- Materials can be created to reinforce messages given via other methods of dissemination. For example, a poster can be used together with a brochure to give a better understanding of an issue;
- Materials act as a data and information bank, and can be used by subsequent conservation projects and other stakeholders. For example, material developed by the WWF Rwenzori Mountains Project on stove manuals has been used by KSCDP; and
- Materials serve to promote the KSCDP as they usually bear the project logo and contacts of institutional partners.

Weaknesses

- Some materials cannot be used on their own. They have to be used with other methods;
- Good materials are usually expensive to produce and develop; and
- The significance of photographs, diagrams and pictures cannot be understood by everyone.

Lessons learnt

- Materials should be developed bearing in mind the targeted users;
- Materials should be pre-tested before they are distributed or used. This enhances their effectiveness; and
- Materials with local relevance are preferred over materials with obviously 'foreign' connotations. For instance a poster with captions in Rutoro is more welcome in Kabarole than one with Lugandan text.

6.3.4 Audio-visual Shows

Advantages

- Videos can reach a large audience in one sitting;
- They maximise the use of both sight and hearing; and
- Once recorded, peoples' experiences can be shared with other communities far away at little additional cost. In this way, for example, 150 people in Nyaibanda can share the experience of a tree planting project in Kiziba, over 100km away, without the exertion or expense of travelling there. For example Mr. Jackson Turyatunga from Nyabweya Parish, watched a video of a progressive fruit farmer from Mukono District during training. He was impressed by what he saw, and when he returned home, he established a garden of 50 improved passion fruit plants.

Disadvantages

- Most people come to watch the pictures for entertainment value, and do not concentrate on the words. It is very easy to presume that people have got the message when in fact they have absorbed very little. It is critical therefore that the pictures also tell the story. If possible, the message should be followed up by a discussion immediately after the show;
- The appropriate video should be shown during the right occasion. For example, a tree-planting video shouldn't be shown during a PRA training;
- The initial cost of purchasing a video player and generator is high; and
- The cost of making video films is high, since it requires either buying a video camera and editing equipment or hiring a professional cameraman and editor on every occasion. Hiring a professional has a disadvantage in that that it requires prior planning, and spontaneity tends to be lost. Furthermore, a hired cameraman might not capture exactly what is required, although the technical quality of the end product may be higher.

Lessons learnt

- Video shows can be used to boost participation for other events. The promise of a video show can guarantee a larger than usual attendance for an important meeting;
- People love videos and slides that depict their own people and home settings. If a lesson is to be taught or a message disseminated, the audience will be more receptive if they recognise the teacher, speaker or the areas where the examples are located;
- KSCDP found that the best method was for project staff to do the video recording themselves, and then pass it to a professional to produce an attractively edited result.

6.3.5 WCU School Programme

Opportunities

1. The number of registered and active Wildlife Clubs of Uganda in Kabarole District steadily increased from 15 in 1993 to 89 in 2000. Numbers in Bundibugyo increased from zero in 1993 to 21 in 1999. There is an average of 40 members per club;
2. A District Wildlife Club Association has been formed in Bundibugyo District (a district qualifies for an association when it attains a minimum of eight clubs);
3. Kabarole District Wildlife Club Association has registered the highest number of clubs nationally since 1997. This has earned them an annual prize of a goat valued at US \$30;
4. Primary and secondary school children from Kabarole won the national conservation competitions in 1999 and 2000. The competitions included essay writing, creative art and composing poems. The competitions were usually held on special occasions such as the World Environment, National Wetlands or World Tourism Days;

5. About 60% of the children involved in WCU have planted trees around their homes. About 50% of the homes of junior WCU members have adopted other conservation interventions, e.g. tree planting, soil and water conservation, energy saving stoves and fruit growing; and
6. The scholastic performance of WCU children in Primary Leaving Examinations exceeds that of non-members. This may in part be related to the topics discussed during WCU visits and training, e.g. water cycle and photosynthesis, which reinforce topics taught in regular classes.

Setbacks

1. The Wildlife Clubs of Uganda have targeted only a small group of students, and a maximum of two teachers (Patron and Assistant) per school. This excludes the rest of the school, meaning that conservation messages are only directly appreciated by about 10% of the school population;
2. Most conservation work is voluntary. It is difficult to expect the teachers to work hard during their free time without additional payment;
3. Funds are usually insufficient to carry out all the activities planned for school groups;
4. Staff transfers present a problem to WCU and KSCDP. When a teacher trained in WCU activities is transferred, the project must train a replacement which is wasteful of time and resources;
5. A school is a dynamic institution with children progressing to other levels of education and younger ones joining. This means that training must be continuous to sustain progress;
6. The District Education Office has not been involved in the school conservation work. This raises problems for long term sustainability and integration of environmental education into the school curriculum; and
7. The Wildlife Clubs of Uganda work through schools. They do not cater for children outside the educational system, i.e. drop-outs and others unable to attend school.

6.4 Conclusion

Different methods of environmental education are appropriate for different purposes and target groups. MDD is most effective for women and youth who comprise the majority of audiences. WCU is best for targeting schoolchildren and teachers, because it is organised in a school setting. Radio can be listened to by anybody and reaches people of all categories over a wide area. The best combination has been found to be MDD, and locally relevant video as few rural people have access to video or television. People also enjoy watching themselves in action on video. Fundamentally, both methods are entertaining and participatory, which are key factors for successful learning.

In terms of cost effectiveness, voluntary MDD groups are cheaper. This in itself is something of a disadvantage as unpaid groups are harder to control than salaried staff. This has in some cases caused groups to break up or meetings to fail because some members are engaged elsewhere with income generating activities.

It is important that a variety of methods for environmental education continue to be used, and that environmental education links directly to other conservation issues being addressed. This is because different people and groups respond differently to various methods of teaching and therefore no method is entirely effective. KSCDP has tried to be sensitive to varying levels and interests of people in society by using different methods to disseminate information, assessing their effectiveness, improving on them and introducing new techniques when appropriate.

Chapter 7: Extension Approaches used by the Kibale and Semliki Conservation and Development Project

Michael Aboneka

7.1 Introduction

This chapter discusses the various natural resources management extension approaches used by KSCDP to support districts and counties in improving natural resource management. The objective of these activities was to strengthen the natural resource base and so reducing pressure on park resources by adjacent communities. The following extension approaches were used by KSCDP:

- Participatory Rural Appraisal;
- Individual visits;
- Field exchange visits;
- Community meetings;
- Demonstrations;
- Capacity building; and
- Mass awareness.

None of these approaches were used in isolation. KSCDP used a combination of two or more to implement a particular activity.

7.2 Participatory Rural Appraisal (PRA)

KSCDP operated in 27 parishes around Kibale National park (Map 2). Before work began, the project conducted rural assessment surveys. These identified community needs and priorities, and collected baseline data on target groups, resource needs and physical information. The project employed Rural Assessment Officers, who spent their time in the target parishes gathering this information. The officers entered a community with specific objectives. A typical four-day study of a parish conducted by the Rural Assessment Team from KSCDP and KNP would seek to:

- Learn about natural resources and their related problems;
- Assess the social-economic factors that impact on the integrity of forest areas;
- Determine the project's target groups, i.e. those affecting and affected by the presence of the Park;
- Identify other projects operating in the area in order to identify gaps in interventions;
- Collect baseline data for future monitoring and evaluation;
- Provide communities with the opportunity to participate in planning and decision-making; and
- Assess local attitudes towards management of Kibale National Park in order to promote forest conservation in the context of sustainable local development.

The project used participatory approaches to conduct parish environmental surveys to gather baseline information. The techniques included group and thematic discussions, mapping (in particular of areas where there were environmental problems), and matrix ranking to prioritise the problems (Box 12). The PRA tools used by the project included informal, semi-structured group and individual interviews, transect walks, timelines, seasonal calendars, time budgets and priority ranking. In the majority of cases, the same tools are used in each parish. From the information gathered, the project was able to identify and plan appropriate interventions and activities that meet the identified needs.

The project used the same PRA tools, such as pair-wise ranking (Box 13) to conduct Parish Environmental Surveys to gather baseline information required for the Parish Environment Action Plans (Chapter 11). These surveys have been done in the majority of target parishes during which a number of environmental problems were identified with the communities. The results of PRA have provided a basis for the project to monitor its activities and evaluate its performance. During PRA, the people and communities identified problems that affect people within the target parishes. These usually, but not always, concerned the Park, for example:

- Inadequate supplies of polewood and firewood (50% of the women interviewed in Kinoni parish collect most of their firewood from the park. 70% of the men interviewed asked for knowledge on tree planting and where to get seeds for planting);
- Poor soils due to multiple soil erosion problems (Busiriba parish);
- Absence of a dependable cash crop. Maize was the major crop grown by people living around the National Park, and which fetched poor prices due to poor marketing (Kiziba parish);
- Crop raiding by park animals (Kahangi, Kiko and Nyabweya parishes);
- Lack of knowledge on how to conserve the small amounts of firewood people could obtain from their farms (Busiriba parish);
- Termites were affecting the few trees they had managed to plant; and
- The need to diversify crops both for income and food with plants which were not easily raided by park animals.

The information collected from these PRAs provided a data base for the project to formulate and implement interventions that could tackle the problems listed above.

7.3 Community Meetings

Community meetings were normally organised by project field staff in collaboration with Parish Chiefs or Local Councils. The project used such meetings to address specific issues affecting a community. These were related to project activity implementation or sought to resolve a problematic local environmental issue (Box 14).

Box 13. Pairwise Ranking of Environmental Problems in Kinoni Parish

Problems Identified:									
1. Wetland degradation (WD)									
1. Deforestation (DEF)									
1. Loss of soil fertility (FSF)									
1. Soil erosion (SE)									
1. Overgrazing (OG)									
1. Poor sanitation (PS)									
1. Lack of safe water and adequate domestic water (LSDW)									
1. Crop pests and diseases (CPD)									
1. Bush burning (BB)									
Pairwise Ranking of the problems identified.									
WD	DEF	LSF	SE	OG	PS	LSDW	CPD	BB	Results
	WD	LSF	SE	OG	PS	LSDW	CPD	WD	2
		DEF	SE	OG	PS	DEF	CPD	DEF	3
			SE	LSF	PS	LSF	LSF	KSF	3
				SE	PS	SE	SE	SE	7
					PS	LSDW	CPD	OG	4
						PS	PS	PS	8
							CPD	LSDW	2
								CPD	4
The pairwise ranking demonstrates that poor sanitation was the major environmental problem in Kinoni parish, followed by soil erosion and crop pests and diseases.									

Box 14. Community meeting in Kinoni Parish to address Coffee Wilt disease

Coffee wilt disease (*Tracheomyces spp.*) had devastated many coffee gardens in Kinoni parish. Local people wanted to know how to prevent the infection from spreading. The field extension worker of Kinoni Parish, together with the local chief, asked the project to invite the District Agricultural Officer to talk to the people about the problem. They called a community meeting where the Agricultural Extension Officer explained the causes of wilting, the symptoms, how to detect infection early, and how to control the disease. This was followed by practical demonstrations in a local farmer's coffee garden which contained some infected trees. The demonstration addressed the identification of early symptoms, uprooting of infected trees, burning infected trees. Subsequent reports from the Kinoni Parish field extension worker indicated that twelve of the thirty-three farmers who attended the meeting had practised the recommended control measures. They had also received a total of two-hundred clonal coffee seedlings from the District Agricultural Officer to replace the trees that had wilted.

Through these community meetings, many other local issues were tackled and solutions sought. The meetings helped to bring people together, to think together and tackle local problems together. Sometimes the project proposed a new intervention or skill. For example, after a consultancy to identify local Income Generating Activities, new activities such as clonal coffee, improved fruits, bee-keeping and pig farming were identified and prioritised by the communities around KNP. It took a series of meetings both with the community and local leaders to impart the required skills. In other instances the project approached the community through meetings intended to resolve conflict, particularly concerning problem animals.

7.4 Field Exchange Visits

The project conducted exchange visits for farmers, CBOs and field extension workers to expose them to practical issues and successful cases, both within and outside the project area. These visits enabled participants to share experiences, learn new ideas, attempt new

activities and increase their confidence (Box 15). Farmers have also made a number of exchange visits, especially concerning sustainable agriculture. For example, farmers from the new parishes of Kakooga and Kadindimo were taken for a visit to the older parishes of Busiriba and Kinoni to learn more about growing clonal coffee. Since then, farmers from Kadindimo alone have planted over 6,000 plants of coffee under the cost-sharing arrangement of the project (Chapter 8&9).

Box 15. Exchange visit on Mauritius Thorns

In Kiko parish, farmers who live beside KNP find their crops frequently raided by wild animals. The extension worker in Kiko parish often found it difficult to convince farmers to plant Mauritius Thorn hedges as an animal deterrent. In one meeting where the community met Park and project staff, it was resolved that farmers should visit their counterparts in Kahangi parish who had successfully used Mauritius Thorn as a barrier. Selected farmers from Kiko then made a visit to farmers in Kahangi parish where they were convinced that they could use the same approach along their section of the Park boundary. They asked the project for Mauritius Thorn seed, and have since planted more than 4 km of hedge along the park boundary. Where the plants have matured, farmers have successfully prevented small animals like baboons and bush pigs from entering their fields.

Field exchange visits are slowly changing farming practices from subsistence methods to more commercialised activities. This has partly been achieved by exposing farmers to new methods during cross-visits to other farms. This change is most noticeable in the area of coffee and fruit growing. Farmers from selected CBOs visited Mukono to witness small-scale commercial farming which inspired them to commercialise fruit farming in their home areas. Eight of the 22 participants have established impressive gardens of passion fruits and clonal coffee. The rest have made simpler improvements and produce higher yields than previously. Other farmers in their parishes have been able to copy technologies from those who went on the visit.

The KNP Community Conservation Rangers and the project's field extension workers made a joint cross-visit to meet counterparts working with a sister project, CARE, operating around Queen Elizabeth National Park. Members of both teams benefited by sharing their experiences. In addition farmers learnt about the use of Mauritius Thorn from Lake Mburo National Park. While the planting of cocoa was learnt from Bundibugyo, and the improved pineapples came as a result of visits to the nearby Mukwano district. Farmers also started making cross-visits on their own initiative, with the project only contributing towards their transport costs. Field reports show that the lessons that farmers learn from these visits are put into practice.

7.5 Demonstrations

Project staff, together with field extension workers, often organise demonstrations. This is appropriate when introducing a new technology, and when tackling community problems that require technical backstopping. Regardless of the problem, the entire farming community is mobilised to attend these demonstrations. Annotated technical leaflets are handed out to illustrate the subject during preliminary teaching, after which practical demonstrations are given (Box 16).

The extension methods were not used in isolation. A combination of approaches might be used to promote a particular activity. For instance, a community meeting in Kibira parish to raise awareness about tree planting concluded with demonstrations on planting and caring for trees. After these demonstrations, the community bought tree seedlings from a local farmer's tree nursery and about 300 trees were planted on that day.

Box 16. Demonstration on Pig Husbandry in Kiziba Parish

The exotic pigs distributed to Kiziba parish (Chapter 19) contracted a skin infection. The field extension worker of Kiziba invited the local Sub-County Veterinary Officer to advise. After diagnosing the problem, the pigs were treated but the Veterinary Officer asked the extension worker to mobilise farmers into a meeting, where he could demonstrate good pig husbandry practice. The problem diagnosed by the Veterinary Officer was due to poor feeding, and a general lack of proper management. In this meeting, the farmers (seven men and fourteen women) were taught how to detect worm infections and to improve nutrition through properly mixed feeds. Practical demonstrations were made on one of the farmers pig farms. Farmers learnt how to mix feeds using local foodstuffs and how to improve the general sanitation by providing concrete floors. This resulted in improved pig husbandry, and most of the pig units in Kiziba parish are now thatched with concrete floors.

Tree planting has successfully been carried out through a combination of community meetings and demonstrations on farmers' plots. Over 200 farmer nurseries were established during the project period, producing over 230,000 seedlings (Chapter 8) that were planted by farmers in the project parishes. Tree planting is the most widely adopted activity in schools and the community. In schools, the conservation message most widely accepted by pupils concerned the value of tree planting. In addition, the majority of conservation messages relayed on radio and in music, dance and drama performances portray tree planting as the easiest way for people to improve the quality of their local environment (Mangheni et. al., 2000).

Demonstrations have also been used to show how to make and use the A- Frame to map out contour bunds. At least 30% of the farming community now know how to do this. By the end of phase three, a total of 2,150 contour bunds had been constructed with a total length of 33.3 Km. on 626 farmers' plots.

7.6 Individual Visits

In June 1998, the project adopted the Contact Farmer Strategy. Each of the 27 field extension workers worked with several contact farmers for a period of six months. Every working day, the extension worker visited a number of farmers. Each visit involved demonstrating a new skill or monitoring to see if a skill taught earlier was being practiced correctly (Box 17). Where a new skill was being demonstrated on one farm, other nearby farmers were invited to attend. It is more practical to demonstrate a new skill with a small number of farmers before involving the entire community. If the activity is successful, the field extension worker then invites other farmers to witness the development.

In April 1999, strengths and weaknesses of the individual visit approach were analysed (Box 18), and ways to improve on the individual visit approach were suggested.

Box 17. Some Of The Skills Given To Contact Farmers

- Making an A-Frame for making contour bunds;
- Construction of mud-stoves for energy conservation;
- Tree planting layouts in agricultural situations;
- Banana husbandry;
- Pruning of passion fruits; and
- Harvesting of bee-honey (without using fire/ smoke).

Box 18. Strength and Weaknesses of individual visit approach

Strengths

- Field extension workers find more time to work with individual farmers. This makes it easier to monitor progress;
- Regular visits by field extension workers makes the contact farmer more active; and
- Demonstrations save time because they can reach several farmers.

Weakness

- Some contact farmers get bored with regular visits by the field extension worker;
- Because field extension workers focus on contact farmers, they may miss other potentially active farmers; and
- Contact farmers have high expectations for handouts.

Means to Improve Individual Approaches

- Field extension workers should become role models for some of the interventions;
- The number of daily contact farmers visited should be reduced to enable field extension workers interact more effectively; and
- Local leaders should be encouraged to generate support for some extension activities, for example, fuel-efficient stoves.

7.7 Capacity Building

The project worked with local community organisations including CBOs and farmer's Common Interest Groups (CIG) to implement some interventions. The project built the capacity of the CBOs, CIGs, and field extension staff to enable them to implement activities. Capacity building was in the form of skills training, training of trainers, and provision of the necessary inputs. For example, nursery attendants from CBO fruit nurseries (Chapter 9) were trained in grafting and budding techniques. These trainees in turn passed on their new skills to other members of their groups thus involving every member of the group (Box 19). This has enabled activities to continue even when some members of the group leave.

Box 19. Operations of the Fruit Nursery in Nyabweya Parish

The Nyabweya fruit nursery belongs to a CBO, Nyabweya Fruit Farmers, which has been supported by KSCDP. Avocados, pawpaws, passion fruits, mangos and oranges are raised with improved planting materials, and seed from Kawanda Agricultural Research Institute. The project provided training in grafting, budding and general nursery management. The project also assisted with potting materials, watering cans, grafting and budding knives, wheelbarrows, spades seed and scions from research farms. Members of the group meet every Thursday for general discussions and provide extra labour in the nursery. When they meet, they also learn skills in nursery practices. When the nursery attendants left for better jobs, the members were able to easily replace them with others in the group who had learnt the skills, and production actually increased.

The field extension workers were also trained in community mobilisation, and equipped with basic skills in plant and animal management. The capacity given to these groups and individuals meant that they can now work with little assistance from the project. The project has offered a range of training opportunities to the CBOs that work with the project. These include financial management, institutional organisation, record keeping and proposal writing. Subject-specific skills such as fruit and coffee propagation have also been taught.

7.8 Lessons Learnt

The following lessons have been learnt from the extension approaches used by KSCDP:

- Successful implementation of any activity requires a combination of extension approaches, and none of the approaches discussed above can be used in isolation;
- PRA tools are necessary when beginning any activity or intervention with a community;
- Field Extension Workers are vital to any extension programme which uses the Contact Farmer Approach;
- However, using model farmers for interventions works better than the contact farmer strategy. This is because when the project ends there will be no field extension workers available to continue with the contact farmer approach; and
- Seeing is believing. Field visits to witness successful activities in other locations have done more to encourage local action, particularly for income generation schemes, than any other approach.

KSCDP used a variety of extension approaches to implement interventions involving community participation. Initially PRA was used to identify problems which affected communities and provided a useful database of information to formulate interventions. Subsequent KSCDP interventions helped to reduce local dependence on park resources, and many products are now produced privately. The extent to which KSCDP activities have benefited the Park boundary populations differs from parish to parish. The results in each situation depended largely on the level of extension services provided by the project, and the extent of community co-operation and encouragement.

In general, the official extension services provided by sub counties around the KNP are inadequate. If the local communities are to benefit from alternative options outside the park, then KNP management must work with sub counties to improve extension services. This could be achieved using existing national and district programmes to establish and maintain close co-ordination. For example, the Community Collaboration Unit of KNP could work with extension departments to include KNP boundary villages within their target areas. Under the Plan for the Modernisation of Agriculture, funds are available to develop income-generating activities, e.g. clonal coffee. Such programmes are particularly important for CRM communities which have forgone some of their traditional exploitation of some park resources, in return for legitimate rights to other materials.

Chapter 8: Alternatives and Substitutes – Improved Tree Options Contributing to Livelihood and Environmental Security

Anthony Tumwesigye

8.1 Introduction

This chapter describes KSCDP's tree-planting programme. At the inception of KSCDP Phase II, rural assessment surveys were carried out to assess community problems, identify resource needs and uses, and collect baseline data. These surveys formed the basis for developing participatory action plans, which guided project activities. In an area of increasing land pressure it was found that no viable forests remained outside the protected areas. Surviving fragments were considered incapable of meeting local demand for wood products. Assessments also revealed a heavy dependence by local communities on KNP for poles, timber, fuel wood and fodder. It was recommended that communities bordering KNP should be encouraged to establish their own supplies of wood products by planting trees on private lands (Rural Assessment Survey, 1998).

The project worked with local communities and other partners to plan tree planting in various forms, for example the establishment of woodlots, planting trees along community-park boundaries, in school compounds, and on private lands. It was anticipated that these additional wood sources would supplement subsistence needs by:

- Providing additional and alternative sources of fuel wood, poles and timber;
- Supplementing medicinal and fodder needs;
- Generating income through the sale of wood products;
- Improving soil fertility by using nitrogen-fixing trees; and
- Stabilising soil by planting trees on steep slopes.

8.2 Approaches used

KSCDP initiated the tree-planting programme by promoting the establishment of tree nurseries. Large numbers of small-scale nurseries were developed in the target tree planting areas, in preference to fewer, larger more centralized tree nurseries. This was done to reduce the transport costs of seedlings, and to stimulate income-generating opportunities in the target areas.

Initially, group nurseries were encouraged in the hope that financial benefits would be distributed throughout the communities involved (Table 16). The project also worked with the Wildlife Clubs of Uganda to promote nursery development and tree planting through schools. KSCDP support to the tree-planting programme was limited to the establishment of the nurseries. Thereafter, nursery groups were responsible for setting prices and selling their tree seedlings to farmers and other buyers. KSCDP deliberately refrained from subsidising or providing free seedlings. It was reasoned that people would tend seedlings more carefully if they had purchased them.



Photograph 6: Farmers tree nursery.

Tree planting activities began with a series of community-based workshops to plan the establishment of community nurseries. Key partners were community members and line agencies of the local government. At each workshop, the roles and responsibilities of each partner were agreed to. KSCDP then provided each group with free supplies of tools (e.g. hoes, machetes, rakes, watering cans, spades and polythene tubes) and seeds. Technical advice was also provided. Community inputs included labour for planting, aftercare and general management of the nurseries.

Initial enthusiasm by the community groups for KSCDP-supported nurseries was encouraging. Interest was so high that the project had to advise against creating too many nurseries as the seedling supply might exceed market demand. The project had high hopes that these initiatives would be self-sustaining through the sale of tree stock. Over time, however, the collective enthusiasm of community groups waned, and members began to drop out. This was largely because individuals were unused to working together for a common goal, e.g. tree planting. It was also found that nurseries are hard to run successfully with large numbers of members. Shares of profits per person are small whilst the more active, harder-working members felt that equal distribution of rewards, e.g. seedlings and profits was unfair.

For the tree planting programme, nursery establishment was seen as a means to an end, i.e. to create planting stock. Community benefits through group nurseries were simply a desirable side benefit. When it became clear that the community-driven nurseries were failing, KSCDP changed tactics and encouraged privately operated nurseries. By the end of 2000, a total of 226 nurseries had been established in fifteen parishes. Of these, 199 were private and 27 were group nurseries, and these group nurseries have subsequently been privatised due to conflict between members.

Table 16. Nursery types established per year 1993-2000

Year	Communal	Private
1993	6	
1994	15	
1995	6	20
1996		6
1997		62
1998		16
1999		43
2000		52
Total	27	199

KSCDP worked with WCU to promote environmental awareness in over twenty schools during the third phase of KSCDP. Club activities included the establishment of woodlots in schools and encouraging school children to plant trees at home. Working with WCU to promote tree planting conformed well with KSCDP strategies. The mid term review of KSCDP (2000) observed that the key conservation practice adopted by the pupils in schools visited with WCU was tree planting. The majority of the pupils (60% of club members) the team met had planted trees at home. Pupils had also acquired skills in nursery establishment and management from the WCU. For example, all of the nineteen pupils the team talked to at Nyabweya Primary School were confident that they could raise eucalyptus seedlings on their own at home.

8.3 Results and Achievements

Tree planting is now well accepted in the area where the project is working. After 2,223 trees were planted out in 1993, planting activity increased to reach a peak in 2000 with 52,693 trees planted a cumulative total of 238,742 in 2001 (Table 17). An assessment of KSCDP supported sustainable development activities in 1999, by Makerere University indicated that 95% of sampled respondents were involved in tree planting. In parishes such as Kinoni, Kiko and Busiriba, where tree planting has been most successful, farmers are now producing their own seedlings from locally collected seeds and are no longer reliant on external sources.

Table 17. Trees planted per year from 1993 - 2000

Year	No of trees planted
1993	2,223
1994	17,000
1995	14,835
1996	33,241
1997	39,428
1998	12,875
1999	42,201
2000	52,693
2001	24,246
Total	238,742

Eucalyptus is the most popular tree species due to its fast growth and multiple uses. Poles and fuelwood from Eucalyptus are readily sold and the species has become an important local cash crop. A wider variety of tree species has been promoted by the project (Table 18).

Table 18. Major Species promoted by KSCDP

Common Name	Scientific Name	Where planted	Purpose
Albizia*	<i>Albizia zygia</i>	Intercropping	Nitrogen fixing, timber, pollard for firewood.
Bottle brush	<i>Callistemoni citrinus</i>	Compound trees	For wood, bee forage and ornamental.
Calliandra	<i>Calliandra calothyndus</i>	Inter-cropping	Nitrogen fixer, fuelwood.
Casuarina	<i>Casuarina eqnsetifolia</i>	Compound and inter-cropping	Ornamental, timber, and nitrogen fixer.
Cordia*	<i>Cordia millenis</i>	Compound and inter-cropping	Ornamental, shade provider, nurse tree.
Croton*	<i>Croto maerostachyus</i>	Compound trees and inter-cropping	Poles, fuelwood, nurse tree.
Cypress	<i>Cupressus lusitanica</i>	Plantation (woodlot)	Timber, pollard for fuelwood.
Eucalyptus	<i>Eucalyptus spp</i>	Woodlot planting	For poles and firewood for sale and subsistence, timber.
Euphorbia*	<i>Euphorbia trucalli</i>	Boundary marker	
Fig tree*	<i>Ficus natalensis</i>	Compound, gardens	Poles, firewood, nurse tree
Lucaena	<i>Leuceana leucocephala</i>	Hedge, inter-cropping	Firewood, nitrogen fixer, fodder.
Markhania*	<i>Markhamia platycalyx</i>	Agroforestry trees	Poles, fuelwood and timber.
Maesopsis*	<i>Maesopsis eminii</i>	Woodlots and farm.	Timber and nurse tree. Good for agroforestry systems.
Maurithius thorn	<i>Ceasalpinia decaptela</i>	Hedgerow planting (used to deter wild animals)	Live fencing to deter wild animals from the park.
Moon flower	<i>Dacura spp</i>	Compounds	Ornamental, bee forage.
Persialitac	<i>Melia aziderach</i>	Intercropping	Agroforestry and pesticides against termites.
Pigeon pea	<i>Cajanus cajan</i>	On farm planting	Nitrogen fixation, grains for consumption, and for firewood.
Pine	<i>Pinus patula</i>	Woodlots	Timber, fuelwood,
Sesbania	<i>Sesbania sesban</i>	Inter-cropping	Nitrogen fixer to improve soil fertility and therefore crop yields.
Silky oak	<i>Grevillea robusta</i>	In agroforestry systems	Nurse tree.
Terminalia*	<i>Terminalia superba</i>	Woodlots	Timber, ornamental.

Note * Indigenous species

During the third phase of KSCDP over 450 community members were trained in various skills such as nursery management, tree planting, and after care. The latter was particularly useful for new species such as *Niem* (*Azadirachta indica*) which have numerous medicinal uses. Most training courses were organised in the field with the assistance of local extension agents, and officials from partner organisations such as the Forest Department.

8.4 Lessons learned

Tree planting has been one of the KSCDP's more successful activities, largely due to a local scarcity of legitimate sources of tree products. There has been an increase in the number of communities interested in establishing woodlots on their lands. Two important lessons for successful tree planting programmes may be drawn from the parishes of Kinoni and Kiko Parishes. Tree planting was successful at Kinoni, largely due to extension agents who were committed and motivated to carry out tree planting activities. Kiko parish exemplifies the importance of careful selection of project sites. The only remaining option for obtaining tree products in this parish was illegal extraction from Kibale National Park where people were liable to arrest. Kiko residents therefore welcomed KSCDP support to plant trees on their own land to supplement their needs.

The community nursery approach failed because community members do not like working in groups for small profits whilst conflicts arose concerning benefit sharing from the nurseries. Private nurseries seem to do better, where one person (or family) is in charge and manages the nursery. Private nurseries are more productive and efficient than group nurseries. A number of small-scale nurseries should be developed near planting sites (instead of large centralised nurseries) to reduce transportation costs and logistics.

Environmental education and awareness campaigns directed at communities have contributed to the increase in tree planting. These helped dispel erroneous beliefs that previously discouraged tree planting; e.g. that government would take over the land once the woodlots were established. People also feared that they would be taxed more, and that the trees would attract problem animals and vermin. Cultural practices also presented obstacles, as tree planting by women, for example, was considered taboo. Men felt that if women planted trees, they would assume entitlement to the land used. Men therefore discouraged this practice. These attitudes are, however, gradually changing.

Communities prefer some species to others. KSCDP faced particular difficulties in promoting indigenous tree species. People were interested in quick returns from fast growing trees and often rejected slower growing indigenous species. The project made an effort to promote indigenous trees and, some CBOs and individual farmers planted species that are resistant to termite attack, such as *Niem* (*Azadirachta indica*). A consequence of this failure to popularise local hardwood species is that people will continue to extract these trees from the park and surrounding forest remnants. It is important to promote slow-growing hardwood species as well as fast-growing softwoods. A case in point is *Albizzia coriaria*, which is slow growing but is popular for its good charcoal. If the current rate of cutting continues, an acute shortage of good quality charcoal will result. It is suggested that projects assisting nursery activities make it a condition of support that a percentage of stock consists of native hardwood species.

Communities, particularly those living close to the National Parks or other forests, often do not readily accept the idea of planting trees on their own lands. Farmers in some parishes claim to be squatters on land belonging to tea estates. Without secure tenure rights, they are unwilling to establish long-term crops such as trees.

Eucalyptus was preferred due to its fast growth, multiple uses and market value. Its seedlings are also cheap, readily available, and easy to raise. It also proved popular for the 'wrong' reasons. Eucalyptus has a high water uptake and it has been planted to drain wetlands, which was contrary to the environmental objectives of the project! It was necessary for KSCDP, in conjunction with the district authorities, to sensitise communities about the importance of wetlands as well as tree planting.

8.5 Conclusion

Tree planting has achieved many of the objectives of creating new sources of fuelwood, poles and timber, medicine, fodder, shade, and improved soil fertility and stability. About half the farmers involved indicated that tree production activities met their fuelwood requirements to some extent. This has helped reduce demand for park resources, although people still enter the parks to obtain the local hardwood species, as these were not attractive species for planting.

While tree planting has been enthusiastically adopted by local people, it is however too soon to claim that it is an unqualified conservation success. Planting trees is an initial and important step in reducing the pressure for tree products from National Parks. However the conservation benefits will only become visible in time. Tree planting initiatives can be more meaningful if promoted as part of a wider, holistic programme which incorporates complimentary activities such as the use of fuel-efficient cookstoves. The alternative use of Eucalyptus to drain wetlands is a case in point. In other situations, the destination of the timber from planted trees has not been ascertained. It is possible that grown timber is commercially sold, while growers continue to remove trees from parks and other local forests for their own home based requirements. In this case, KSCDP activities would represent a contribution to poverty alleviation rather than conservation. The issue is to try and ensure increased emphasis on tree planting on farm, combined with a reduced access to the National Park for the same products.

Chapter 9: Planning Income Generating Activities in Conservation: KSCDP Experience

Purna B Chhetri, Michael Aboneka, Deo Kahangire

9.1 Introduction

Poverty eradication is the fundamental objective of the Government of Uganda. The Government aims at reducing absolute poverty from 44% in 1997 to less than 10% by the year 2017 (GOU, 2000). In order to achieve this, the Government of Uganda has put together the Plan for Modernisation of Agriculture (PMA). According to the PMA, poverty is more widespread in the rural populations which comprise 85% of the country's population. Forty-four percent of Ugandans are unable to meet their basic needs, and 25% cannot obtain their daily food requirements. Although past efforts have had some success at the macro level, the results are extremely uneven. While poverty has decreased by 43% in urban areas, it has reduced by only 18% in the rural areas. Increasing efforts are necessary to redress this imbalance and eradicate rural poverty.

Two major factors that directly contribute to poverty in KSCDP target area are food security and lack of cash income. The project has implemented income-generating activities (IGAs) to address these issues, which are described in this chapter, combined with some successful case studies together with lessons learned and recommendations.

To be successful, protected area conservation initiatives must take into account the needs of people who have traditionally been dependant on the parks and reserves. If the use of protected area resources is to be restricted and regulated, then alternative sources must be provided on private lands. KSCDP rural assessments found that people living adjacent to Kibale National Park access the park for over 20 materials for cash income, food, and medicinal purposes (Chapter 5). These needs formed the basis for the planning of IGAs outside the park.

9.2 Selection of income generating activities

The following criteria were used for selecting the IGAs:

1. Interventions should be locally adaptable;
2. Products must have markets; and the
3. Interventions should not be totally exogenous.

The following interventions were identified;

- Growing clonal coffee to substitute for wild coffee and generate cash income;
- Fruit growing as a source of income, and household consumption (nutrition);
- Beekeeping as a source of income, and household consumption (medicine & nutrition); and
- Pig farming as a source of income, and to substitute for bush meat (Box 20).



Photograph 7: Paul Mullera's coffee nursery.

Box 20. Paul Mullera and his Farmer Field School

Paul Mullera, of Kiziba Parish in Kamwenge district, worked with KSCDP as an extension agent from 1993 until June 2001. Before then, he worked with the Ministry of Health as a Community Health Care Trainer on a voluntary basis for nine years (1984-93). Paul was a key informant when KSCDP was gathering data on village profiles to plan community development activities. Because of his local knowledge, and the respect he commanded in his village, Paul was recruited as an extension agent when KSCDP started supporting field activities. He was assigned to promote soil and water conservation practices, tree planting, use of fuel-efficient cookstoves, beekeeping, pig farming, and crop diversification through the use of demonstrations and field based practical training courses.

For farmers seeing is believing, and extension agents had to demonstrate what they preached by establishing demonstration plots in their own farms. Paul established a small tree nursery, raised local pigs, installed beehives and grew some fruits. KSCDP contributed some basic nursery materials, with the remainder of the inputs coming from Paul. Later, Paul formed his own community group to graft fruit saplings, grow clonal coffee seedlings, and raise exotic pigs. At the start, they had one beehive, one tree nursery and two local pigs. Today they have expanded to farm 330 beehives, manage two fruit nurseries and one large coffee nursery, together with 28 exotic and cross breed pigs. After acquiring skills and experience, the 23 members agreed to divide up the group into smaller units. Paul's work has therefore created four groups actively producing coffee, fruit saplings, pigs and honey.

Paul's farm is now referred to as the 'farmer field training school,' where he and his colleagues train other farmers in improved farming techniques. Activities include experimentation with new crops. The school is currently attempting to grow cocoa seeds from Bundibugyo district in Kiziba parish. Paul has also been contracted by the local government to train farmers under the PMA. The income from his activities enables him to send his seven children to good schools in Kamwenge. *'Determination and belief are two important qualities one must have in order to be successful,'* says Paul, as he remembers the initial hardships experienced by his group. *"People adopt activities only when they see income coming in. When they saw us making money through the sale of honey for example, the rate of adoption picked up."*

9.2.1 Clonal coffee

The coffee programme began in 1999 by identifying groups that were already involved in coffee growing. KSCDP sought to expand the capacity of existing groups rather than encouraging new ones, as experience suggested that groups which form to implement NGO-driven activities, tend to disintegrate when support is withdrawn. Five existing groups

were identified and members were trained in nursery skills and provided with basic nursery materials. Group-owned mother gardens were established to produce cloning materials or scions. By June 2002, a total of 187,305 coffee seedlings had been produced, sold and planted in the main fields, covering about 116 hectares. The groups (Table 19) are now fully capable of producing coffee seedlings from their nurseries. Their nurseries have become major producers of coffee seedlings within the districts of Kabarole and Kamwenge. This represents important sources of stock for the Government's PMA coffee initiative.

Table 19. Coffee nursery groups

Group	Year founded	No of members		No of Seedlings produced	No. sold	Income earned (\$'s)
		Initially	Now			
Nyabubale Farmers Development Association	1995	20	8	6720	4300	\$1,175
Kyakatwire Clonal Coffee Project, Nyabanda	1998	39	32	19,085	13,585	\$3,720
Masaka Elite Coffee and Fruit Production Nursery, Kiziba	1999	25	4	135,000	105,000	\$11,500
Kyabandara Clonal Coffee Nursery, Kyabandara	1999	16	8	15,500	13,500	\$3,690
Kahungye Sub-county Nursery, Kahunge	1999	S/c	S/c	11,000	N/a	N/a
Totals				187,305	\$136,385	\$20,085

Note: These groups were in existence but were strengthened in 1999 when KSCDP started working with them; S/c - since closed

9.2.2 Growing of high quality fruits

Fruit growing started in 1999. Field visits were made to identify interest groups and nursery sites. Three groups were identified (Table 20). Criteria for site selection included community interest, location, and working with existing groups rather than creating new ones. With the help of Kawanda Research Station, Kampala, six community members were trained in nursery skills, e.g. grafting, pruning, selection of planting materials, and general plant protection. These people have since transferred their skills to twenty-eight other members who are now equally capable. Mother gardens were established to provide planting materials. Since 1999, over 20,000 seedlings have been produced and sold. The fruit nursery at Kiziba has expanded to become known as the "Farmer Field School", and is the venue for practical training courses that include beekeeping, raising tree seedlings, grafting, and pig farming (Box 21).



Photograph 8: Pineapple garden.

Table 20. Fruit nursery groups

Name of the group	Year founded	No of members		No of saplings produced	No sold	Income earned (\$'s)
		Initially	Now			
Nyabweya Fruit Farmers Group	1999	24	18	5,250	3,153	1,100
Masaka Elite Coffee and Fruit Nursery, Kiziba	1995	25	4	8,800	5,227	2,250
Nyabweya Foundation for Rural Development, Kiko	1993	25	15	6,605	4,128	1,650
Totals				20,655	12,508	5,000

Note: These groups were in existence but were strengthened in 1999 when KSCDP started working with them.

Box 21. Yousouf Karyamagashi - Learning from Other Innovators

Yousouf Karyamagashi is a farmer who used to be content with the small yields of maize and beans from his farm. When he saw the new farming activities transforming the life of Everest Beyanga, his neighbour, he started seeking advice from Everest, and learnt to grow passion fruit, coffee, trees, raise pigs and install beehives. Everest helped him with plant stock and by September 2002, Yousouf had planted 1,000 seedlings of clonal coffee, 2,000 sugarcane plants, 2,000 pine apples, fifty grafted avocado, five jackfruit and installed 18 beehives. Today, he earns cash income from the sale of avocado, honey, pineapple and sugar cane. He harvests 12 kg of honey per year from eighteen hives, an activity that earned him US \$164 in 2001. He is also cultivating medicinal plants from the forest on his own land. Yousouf remembers that his main source of polewood and firewood used to be the park. Today, he cuts them from his private thousand-tree plantation. Just as Yousouf learnt from watching Everest, at least five farmers have copied his own efforts. One of these is a woman who has planted pineapples to earn cash to become financially independent from her husband.

9.2.3 Beekeeping

Beekeeping is an important activity in KSCDP target areas. KSCDP worked closely with local communities and the Kabarole Beekeepers Association (KBA) to plan and implement activities related to beekeeping. These included training in beekeeping, selection and installation of various types of beehives, harvesting of honey and marketing. Between 1994–2001, a total of 5,375 beehives were established, involving nearly 400 households. KSCDP provided training in beekeeping, environmentally-friendly honey harvesting techniques (without the use of fire), and the provision of equipment to harvest honey. Local hives were preferred in most cases as they can be made from locally available materials at little or no cost. A KSCDP assessment in September 2002 in nine parishes revealed an average production of 7.45 kg of honey per hive per year (Table 21). This is 3kg lower than yields reported by Kabarole Beekeepers Association. The selling price of honey ranges from US \$0.80 to \$1.10 per kg. Beekeepers can therefore expect to earn at least US \$6.00 per hive per year (calculated at \$0.80 per kg). With an average of 9 hives per household, the annual total reaches US \$54, which represents about 15% of their per capita income.

Table 21. Beehives and honey production in KSCDP target areas

Parish	No of households	No of Active hives	Honey produced (kg)	Yield per hive per year (kg)	Income per hive per year (\$'s)
Kinoni	49	352	326	0.93	0.80
Kiziba	28	407	4210	10.34	8.50
Rurama	8	42	79	1.88	1.55
Isunga	21	131	2430	18.55	15.20
Nyabweya	6	36	375	10.42	8.55
Kyabandara	21	258	2463	9.55	7.85
Kiko	11	162	730	4.51	3.70
Busiriba	29	186	632	3.4	2.80
Rwenkuba	25	231	2205	9.55	7.85
Total	198	1805	13450		
Average				7.45	6.30



Photograph 9: Bee hives and bee keeping.

In August 2002, UWA approved four collaborative resource management agreements which allow local people to site beehives inside the park (Chapter 5). According to the local communities, hives placed inside or near the park produce 10-12 kg of honey per hive per season, which is twice the yield of hives placed on private lands away from the park (Box 22, for example) Therefore regulated beekeeping inside the park is an example of a positive linkage between conservation and poverty alleviation.

Box 22. From a hunter to a Conservation Worker

Everest Beyanga of Busiriba Parish was a hunter before he started working as an extension agent for KSCDP in 1993. He used to go inside Kibale National Park to hunt bush pigs, collect honey and cut pole wood. On an average he had to spend three days in the forest to catch a single bush pig. It was an event fraught with the fear that he would be caught by the park rangers, imprisoned and fined. His domestic conditions were basic, as he had a small mud house on 0.41 Ha of land to support his family.

Life was hard and Everest was eager for opportunities to improve his situation. When KSCDP started promoting tree-planting activities, he took a keen interest. He planted his own trees and started asking for additional information. KSCDP recognised his potential, and employed him as an extension agent in 1993. He started beekeeping, fruit growing and tree planting for both household needs and cash income. He had six beehives, one small fruit nursery and a tree nursery. Soon he started earning income from the sale of honey, tree seedlings, passion fruit and avocados. By 1996, he had eight beehives, three additional nurseries for fruit and tree seedling production, and he also raised pigs. Today, he has forty-seven beehives, medium size fruit and tree nurseries, passion fruit and pineapple gardens, keeps exotic and cross-bred pigs and now has 4.1 Ha of land. Everest and his groups, with the help of KSCDP, established a kiln to produce fuel-efficient cookstoves (Lorena and Upesi types, Chapter 10). Recently, Everest has started grafting experiments, combining various scions and rootstocks, to identify a variety that are disease tolerant, and to test his own skills in grafting.

Everest is now a contented man. He has five children and has built a brick house with 5 rooms and an iron roof with money earned from income generating activities, and his monthly project allowance of US \$50 during his association with the project which ended in June 2000. He no longer needs to enter the forest to hunt bush pig or collect honey as his needs are met on farm. Everest Beyanga is proud of his achievements and can boast that, due to his activities, each household in his village has planted an average of two-hundred trees while at least eight local farmers have benefited by copying his expanded farming practices.



Photograph 10: Everest's new house.

9.2.4 Pig Farming (Improved breeds)

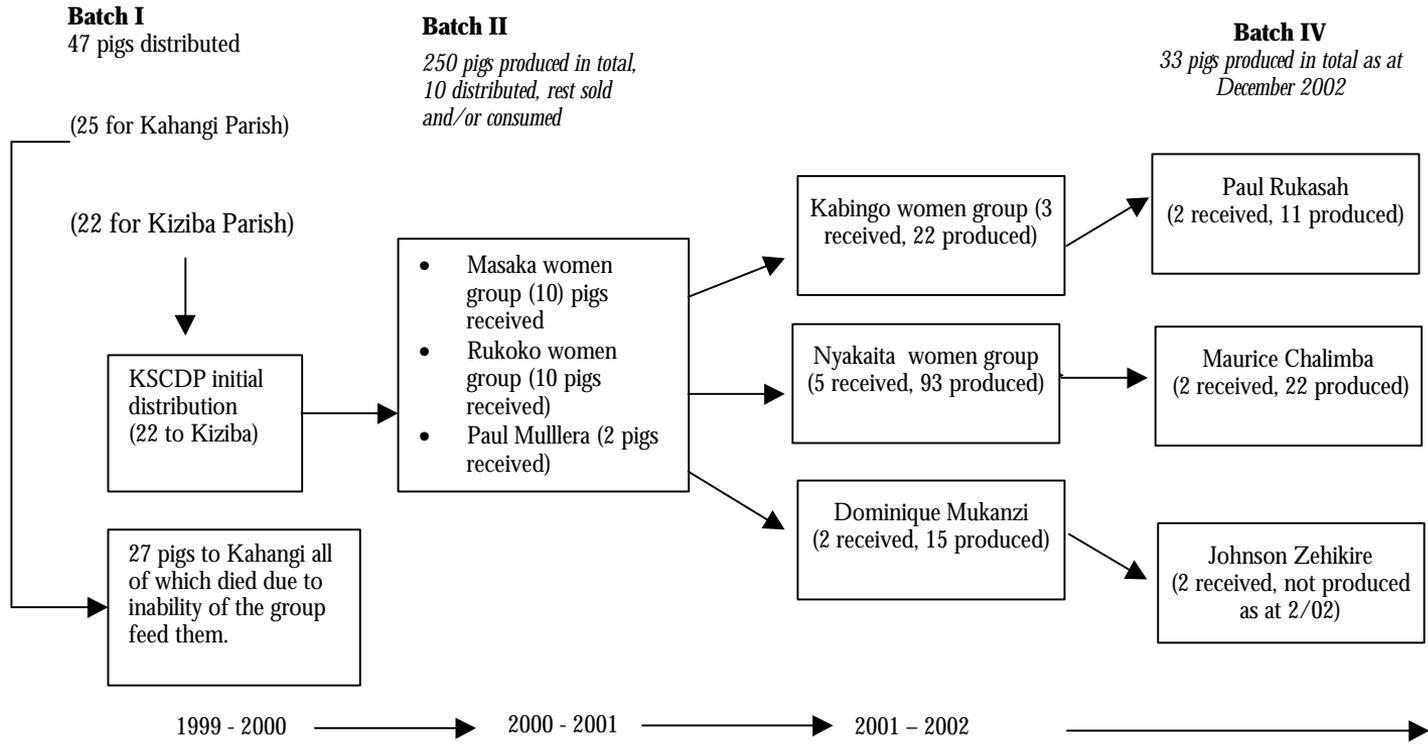
Local people have long obtained pork, a popular local delicacy, by hunting bush pig in the Kibale forest, but now the hunting of wild pigs, and other creatures, is prohibited. Nevertheless, it still occurs in some areas. KSCDP has attempted to remove the need for hunting by empowering local people to produce their own pork by breeding domestic pigs. In collaboration with the District Veterinary Office, KSCDP introduced forty-three pairs of exotic pigs in 1999. These animals were handed over to three groups (one in Kahangi and two in Kiziba), and to one extension agent as breeding stock. This was done on condition that each recipient would donate a pair of newly born piglets per pig to another farmer, thus distributing improved pigs through the project area. By the end of 2002, the initial pigs had produced 413 offspring. A flow diagram (Figure 1) shows how the pigs introduced by KSCDP were distributed.

Under normal conditions, a healthy sow can give birth to as many as 14 piglets in a litter (a sow produces two litters per year). The market price of a one-month old piglet ranges between US \$2.75 to \$4.40, depending on location and demand. Assuming two small litters with six surviving piglets selling at US \$4.40 per pig, a farmer can earn at least US \$53 from a single sow per year. The rewards increase with larger numbers of sows and with improved care which encourages larger litters and higher survival rates. Pig farming has become an attractive enterprise and is likely to expand.



Photograph 11: Improved pigs in pig sty.

Figure 1: An example of pig distribution



9.2.5 Oil Palm Production in Bundibugyo District

A limited number of IGA activities were also initiated in parts of Bundibugyo district adjoining Semuliki National Park. Participatory rural assessments suggested beekeeping as an IGA, an idea that was accepted by local communities. However, this activity did not progress, apparently due to lack of money to buy the beehives. KSCDP therefore provided hives to start the scheme, but still, nothing happened. Further investigation revealed that people around SNP area feared bees too much to risk this activity – they were just too polite to displease the project that was trying to help them! Much later, in 2002, it finally transpired that the project had failed because people were simply not interested in keeping bees. Accustomed to collecting free honey from the forest, there seemed little reason to have hives and tolerate stinging insects around their homesteads to achieve the same result. However other NGOs have since succeeded in promoting beekeeping in Bundibugyo where KSCDP had failed. This was an important lesson that emphasised the need to understand the local culture and beliefs before initiating an activity. Further discussions identified fish farming which became a great success until the 1998 insurgency forced people to relocate to Internally Displaced People's Camps.

9.3 Lessons learnt

The biggest impact made by KSCDP support to income generation program is the increased resource capital that became available to people. The five coffee and three fruit nurseries produce quality seedlings locally at an affordable price. People no longer have to get quality fruit and coffee seedlings from external sources which have helped in saving cost, and time. Similarly the 47 exotic pigs introduced by KSCDP have produced over 400 pigs (pure and cross). It is apparent that farmers can earn significant income from beekeeping, pig farming, coffee growing and fruit planting. Although a detailed studies have yet to be made, an independent assessment of KSCDP supported activities around KNP revealed that the contributions of IGAs to livelihood of local communities and conservation of biodiversity (Box 23).

Box 23. Assessment of Improved Livelihood Security

Households have improved nutrition because of increased food production resulting from improved methods of agriculture production, increased yields and availability of a variety of fruits on the farm. There is increased income particularly for men resulting from adoption of income generating activities. More families can now afford to send their children to school. Out of 192 households sampled, 89% felt that the project had benefited them in some way while 31% had not benefited at all. About 84% reported benefit for women, 91% for men and 77% for children. Regarding specific benefits attained, increased income was reported by 25%, improved soil fertility by 23%, increased food availability by 13%, increased fuelwood availability by 19% and ability of children to go to school by 22%.

(Mangheni et al., 2000)

KSCDP has trained local communities in grafting, nursery skills and improved farming practices. Today, these trained people have gone on to carry out experiments with grafting and trial plantings including cocoa trees and medicinal plants from the national park. This would not have been possible without KSCDP's capacity-building.

The size of a group is a key determinant in initiating sustainable IGAs. Both the fruit growing and pig raising groups started with large memberships, but ultimately discovered that smaller groups are more workable, and have a better chance of sustaining the initiative. For example, when exotic pigs were first introduced to various groups in KSCDP target areas, widespread enthusiasm resulted in large group sizes. These were, however, short-

lived. Kiziba-Masaka Women's Group of Kiziba began with twenty-six members but numbers dwindled to eleven by the end of 2001. Similarly, membership of Ruhoko-Enjoki Women's Group of Kiziba fell from twenty-four to eight. Initially, both groups raised their pigs in a communal sty which members visited to look after. This arrangement proved difficult, especially for members who lived some distance away. The groups eventually decided to raise the pigs individually in their own yards. This arrangement proved successful, as each member understood their responsibilities and the benefits they stood to gain.

The first task when planning an IGA is to properly identify capable target groups. KSCDP experience is that IGAs are best initiated by members and groups with a common interest, commitment and adequate capabilities. Those who possess these attributes are often, by definition, already well placed in their communities, and are rarely the poorest or most deserving cases. For example, exotic pigs provided to the impoverished community of Kahangi all died, as the people simply could not afford to provide the required standard of feed or living conditions. In contrast, pigs in the comparatively well off Kiziba village thrived, and have produced offspring. However, the resultant crosses are cheaper to maintain and are more robust in local conditions, and even the poorer households are able to raise these pigs. Thus, although the rewards from initial IGA initiatives may seem restricted to relatively well-off people, in time benefits can trickle down.

Participatory planning is necessary to involve local communities in programme planning but, if carried out in a strictly consultative manner, it has limitations. Planning is not just about asking local communities their needs and wants. It is also about empowering people with new information to help them make informed decisions. For example, IGA participatory assessments sought local views and ideas. This led to the identification of activities already known to the local participants and overlooked the potential to discuss new alternative options which might have a higher market value or other advantages. This issue was particularly relevant in remote and undeveloped districts such as Bundibugyo. Isolated behind the Rwenzori mountains, local peoples' experiences can be both limited and parochial. These factors can limit their contributions to participatory planning. In such instances, there is scope to introduce and discuss ideas and information from the 'outside world' that might help local people to challenge the disadvantages of their location.

For KSCDP-supported activities to be sustainable, ongoing production of fruit saplings, piglets, coffee seedlings was encouraged in local situations. After training, local community members became capable of producing their own high quality fruit saplings. Farmers can now obtain clonal coffee from a choice of five nurseries established by local communities with KSCDP support. The availability of high quality pig stock (cross and pure breeds) has significantly increased in the KSCDP target area. Even after the KSCDP has concluded, local skills to produce fruit saplings/tree seedlings and coffee are likely to remain.

IGAs will be sustained only if they are profitable. The original reason for establishing group nurseries was to provide fruit saplings to communities bordering the Protected Area at an affordable rate. A single price of US \$0.30 was therefore set for all fruit saplings. However, this sum proved too low for the profitable operation of the nurseries. Prices were revised to reflect the true cost of production. Consequently, fruit saplings were sold for US \$1.10, \$0.55, \$0.82 and \$0.30 for mango, passion fruit, avocado and papaya, respectively.

The rewards from growing improved varieties can be great but this success brings an increased risk of failure. Yields can be three to four times greater than local varieties but improved plants are susceptible to a host of pest and diseases. Since the fruit growing programme started in early 2000, over 20 farmers established passion fruit gardens using improved varieties. They were very happy with the results until early 2002 when root collar disease (*Fusarium oxysporium*) started to destroy their plants. These problems can, however, be avoided by skilled and careful management. When encouraging improved strains, a project must also provide growers with the necessary support, e.g. training, to combat problems that may arise.

The rate of adoption is commonly used as an indicator to determine the success of an activity. However, this is not necessarily true in the case of IGAs. KSCDP experience is that uptake is influenced by the market. So long as a market exists, activities are adopted faster than extension agents can handle. But, when supply exceeds market demand, adoption decreases. Some producers may even abandon the activity because their produce is surplus to local needs. The rate of adoption of IGAs must be attributed to market forces rather than the performance of extension workers or the availability of technology. So, successful IGAs must be supported by relevant market research. When local markets approach saturation, growers can be assisted to identify additional markets further afield, thus extending adoption of an activity. The stability of markets must also be considered. Rural incomes were swelled and poverty levels reduced as a result of the 1992-97 coffee boom. However, current low prices mean that there is little incentive to plant coffee. Finally, short-term projects such as KSCDP can only initiate activities. Long-term sustainability for IGAs requires linkages with institutions at the national level. This is well summarized by the New Vision Newspaper:

“Ugandan farmers are faced with lots of problems. There is no market for their produce, there is lack of proper information, the road network in some agricultural areas is still bad, to mention a few. For example, a few years ago, farmers were told to rear silk worms, only to be told later that there was no market. They were told to rear rabbits, only to be told that there is no market for the meat. For many years coffee has been the major export earner for Uganda. Currently hundreds of hectares have been destroyed. Coffee being the best income earner for Ugandans, this is a big threat to their livelihood.” (The New Vision. October 17, 2002)

In general, selling produce from KSCDP-supported income generating activities has not been a problem. An extensive marketing network exists for honey while there is a ready demand for pigs both within and outside the district. However, initial problems were experienced when marketing passion fruit locally. Therefore, in December 2002 KSCDP sponsored a trip for three IGA farmers from Busiriba district to identify outlets nationwide. The group was able to identify at least five prospective buyers and is now planning production to meet these new requirements. KSCDP provided a mobile phone to the group to help them communicate with the buyers to start the process. Between February and April 2003 merchants from Kampala had already come four times to Busiriba parish to buy pineapple and honey. The group has also been assured of a market for passion fruits. Pigs (mostly exotic and crosses) are sold locally to buyers from Kasese. The only fruits that have suffered lack of market are pawpaw and avocado.

The issue of whether or not to subsidise activities remains an important question. Can one do away with the subsidy? Is it practically possible? The experiences of KSCDP suggest not. For example, without a KSCDP subsidy local interest groups would not have been able to acquire the skills and resources that they now have. While the subject of subsidy is

debatable it is still, in some cases, unavoidable. It must also be remembered that in developed countries (e.g. Europe, USA), farmers receive considerable subsidy payments to engage in certain agricultural activities. It must be considered important when development programmes target poor, subsistence based farmers. In such a setting, a subsidy can encourage and empower a farmer to take a risk he would otherwise be unable to afford. A subsidy might also be applicable to encourage people to purchase environmentally-friendly items promoted by a project which they do not value or covet sufficiently to pay a viable price to local producers. The sale of fuel-efficient stoves is an example of this. The critical point is that a subsidy must, by definition, merely subsidise but not substitute. Both parties must be required to contribute, preferably financially, to the transaction. This will encourage the beneficiary of the subsidy to value and care for the items received.

9.4 Conclusion

Solutions to poverty are as complex and challenging as the causes, which are subject to both internal and external factors. Nevertheless, at the grassroots level, KSCDP experience finds that IGAs contribute to both poverty reduction and conservation. This chapter concludes with the following observations and recommendations:

- It is necessary to analyse the market properly while planning IGAs. A market that is lacking or has a small or localised demand can limit an IGA or cause it to fail. Beekeeping and pig farming have succeeded due to a ready market. Cookstoves however did not thrive as a market product, as few stoves per household are needed while their durability means that repeat purchases are infrequent;
- Coffee used to be a good source of income. However, due to declining prices of coffee in the recent years, farmers are reluctant to grow or expand areas under coffee;
- The introduction of improved papaya was not a success. Although yields were high, the fruits were not as tasty as the local variety and therefore fetched a low price;
- Small numbers of members are most effective if IGAs are to be implemented by groups;
- Income-generating activities should be carefully chosen on the basis of an adequate market. In the absence of a market farmers may end up wasting their time and losing capital. Fruit farming, particularly passion fruit produced large yields that exceeded local demand. This problem was tackled by facilitating farmers to travel and identify distant markets for their produce;
- Initially, income-generating activities in the KSCDP target area are best implemented through leader or progressive farmers. Poor farmers may lack the resources, skills and financial security to start an IGA unless supported by strong extension services and some form of subsidy;
- Whether to subsidise an IGA programme or not depends on local social, economic, political factors and international politics. KSCDP experience is that subsidies, when planned and implemented correctly, can yield benefits without necessarily creating a dependency syndrome;
- “Rate of adoption” as an indicator of success is not always a good indicator to measure the success for IGA; and
- If provided with tools and skills in farming techniques, farmers can be empowered to make experiments on their own.

Chapter 10: Fuel Efficient Cookstoves in Energy Conservation, Reflections on KSCDP Experience

Anne Manyindo

10.1 Introduction

The gazettement of Kibale and Semuliki National Parks in 1993 had significant implications on the adjacent communities. These people had depended on fuelwood from the forests and were greatly affected by the ban on collecting fuelwood imposed by the then Uganda National Parks, and now UWA. KSCDP found out that supplies of fuelwood were particularly scarce. With the parks out of bounds, firewood was sought in areas of unprotected forest outside the protected areas. These small remnant patches were insufficient to meet the demand. As early as 1986, the World Bank had estimated the fuel wood demand for Uganda to be 18.3 million cubic meters per annum. In 1991, Uganda's annual production of woody biomass was estimated at 15.6 million cubic metres, leaving a deficit of 2.7 million cubic metres (New Vision 2025). These figures showed an urgent need for reforestation and fuel wood conservation. One technique, introduced by KSCDP to reduce fuel consumption, was the use of fuel-efficient stoves. This chapter describes KSCDP's experiences during this program.

10.2 Cookstove Program

KSCDP initiated the stove programme in 1994 by promoting the three-pot, brick-built Lorena Cookstove. The Lorena stove programme, as in the case of tree nurseries and planting programmes (Chapter 8) was well accepted from the beginning. The stove was attractive to users, as it is easy to construct from readily available materials, eliminates smoke from the kitchen and introduces a modern element to cooking.

The promotion of the Lorena stove went on for three years until 1997 when a study of fuelwood consumption revealed that it was not actually fuel-efficient! The study indicated that the stove only saved fuel under laboratory conditions when it reduced consumption by just 7% when cooking typical meals such as beans and potatoes (Walmo, 1996). In home conditions, the Lorena stove did not save fuel, even when compared to the traditional three-stone fire. Recommendations to improve the design were suggested and tried out, including the following:

- Construction of cooking holes to match the size of pots used in the household;
- Adjusting the height of the stove according to the diameter of the saucepan and diameter of the wood entry; and
- Putting doors or a covering over the fire entrance.

These recommendations were tried but made no significant difference, and KSCDP ended its promotion of the Lorena stove. The stove programme was revived in 1999 following a visit by two staff members from KSCDP to its sister project – the Mount Elgon Conservation and Development Project – in Mbale district. MECDP reported that two

different types of cookstoves had been successfully tried, namely a single pot small portable Upesi stove, and a larger 3-pot Lorena stove. Both were reported by the users to be fuel-efficient with the Upesi and Lorena models saving 30 and 40% of fuel wood consumption, respectively. The Mount Elgon Lorena stove was made entirely out of clay which appeared to provide better insulation than bricks. It could therefore attain and maintain cooking temperature using less fuel.

The next step was to adapt and introduce the successful MECDP stoves to KSCDP target communities. A stove maker from Mount Elgon was hired to visit and train potters in KSCDP areas to make cookstoves. Local potters were identified, selected and trained and two production units (kilns) were established in Hima and Busiriba parishes. By September 1999, the two kilns started operating. By June 2000, a total of 176 stoves had been produced and distributed comprising 56 Clay Lorena and 120 Upesi stoves. The Upesi proved more popular due to its portability, and its compact size which is suited for cooking normal family meals. However, for ceremonies and large gatherings, the larger Clay Lorena is used (Doreen, 2001).

KSCDP field observations found that 1,027 improved stoves were in use in the project area by the end of 2001, comprising 42 Brick Lorena, 308 Clay Lorena, and 677 Upesi stoves. Overall, the adoption rate in the targetted communities was 10%. In an area, where fuelwood is freely available from existing forest patches outside the protected area, this is seen as an achievement. Uptake is likely to increase in future as these fuelwood sources become increasingly depleted.



Photograph 12: Lorena stove in use.



Photograph 13: Upesi stoves being manufactured.

10.3 Case Study: Stove Production at Hima

Combined Energy and Environment Works is an indigenous group supported by KSCDP to produce cookstoves, mainly the Upesi. Formalised in 1998, the group has eleven members, nine of whom are women. These people were amateur potters who were trained by KSCDP to make fuel-efficient cookstoves and establish a kiln. Between September 1999, and November 2001, the group produced and sold 285 stoves at an average price of US \$0.44 each. This earned them a gross income of US \$126 (Table 21). After deducting the cost of production (\$99), dividends (\$19) and labour, the group realised a disappointing profit of \$0.03 per stove. As the group did not have their own vehicle, transporting the stoves to markets became a problem. They now make stoves on order only, and their future must be considered uncertain.

A number of stove promoters have constructed stoves for their neighbours and other people in the surrounding area. This has earned them small sums of additional income. For example Mr. Samuel Kirikana of Kahangi Parish in the northern part of Kibale National Park makes about five Lorena stoves per month valued at US \$0.27 each, which earns him an additional income of US \$1.40 per month. Ms. Komurubi Malyamu, a stove promoter, now earns a steady income from constructing Lorena clay and brick stoves. She makes and sells about six stoves per month valued at US \$0.81 each which earns her an additional US \$5.0 per month.

Despite the availability of more fuel-efficient models, it is interesting to note that the Brick Lorena continues to be the most popular in KSCDP mainly because of its durability. It was realised that KSCDP's objective in promoting fuel-efficient stoves does not necessarily match the reasons people have for using them. Table 22 shows how the choice of model varies according to the needs of users, and fuel efficiency is not always the main criteria.

Table 22. Expenditure Statement for Stove Production

Income	US \$s
Sale of stoves (285 stoves)	\$126
(Expenditure)	
Cost of clay	\$16
Repair cost of kiln	\$8
Hired labour	\$4
Transportation of clay	\$4
Members input (labour)	\$29
Sub-total	\$99
Member's dividends	\$19
Cash at hand	\$12
Total	\$126

Table 23. Attributes of various fuel-efficient cookstoves

Attributes	Brick Lorena	Clay Lorena	Upesi	Traditional Stove
Fast cooking		✓		
Cooking large pots				✓
Convenience	✓	✓		
Fuelwood saving		✓		
Most preferred by small families			✓	
Portability			✓	

10.4 Lessons learned

No programme will succeed unless the technologies promoted match the needs of the target communities. KSCDP's initial assumption was that fuel-efficient cookstoves would be readily adopted by local communities because they save fuel. However, this assumption is valid only if the users themselves wish to save fuel, for example to spend less time collecting it, or if there actually is a shortage of fuelwood. However, if fuel gathering is appreciated as a pleasurable or social activity, or if users have ample supplies of free firewood from unprotected forests, then they may have little interest in saving fuel. From experience, KSCDP has identified a number of barriers to the successful adoption of fuel-efficient stoves;

1. Effective conservation efforts must include the interest of the end users. Fuel-efficient cookstoves are often a supply driven activity which serve the interest of conservationists rather than the needs of the users. This is exemplified by the popularity of the fuel-inefficient Brick Lorena over more fuel-efficient models. This is one reason why the end users are not so willing to pay for the stoves.
2. The durability of stoves means that their production is a viable income generating activity only for a short period of time. Once bought, stoves are not replaced unless they break or kitchens are expanded. Therefore, a local producer is unlikely to remain in business once he has provided for local demand unless he identifies new markets elsewhere.

3. The cost of stoves is always a factor. The primary target groups of KSCDP are poor, firewood gathering communities who do not have the money to buy improved cookstoves. Unless stoves are provided free such groups will not be able to use them. However, if they *are* given free, the recipients will attach little value to them, and they may not be cared for. Experience has shown that supply-driven activities generally fail due to a lack of ownership. Unless, fuelwood is scarce and local people have an incentive to save fuel, it is unlikely that fuel-efficient stoves will become popular.
4. Experience with the Hima stove group suggested that the profit margin allowed by local economic conditions is so low as to be unrealistic. It will not be surprising if this group stopped producing stoves.
5. It is important to understand that local culture can play a role in the success or failure of new technologies. They need to be adequately understood before designing interventions. In some of the KSCDP parishes, households do not have separate kitchen buildings, and in these situations there is a reluctance to buy and install a permanent stove in temporary sheds. These communities are also unwilling to replace the three-stone cooking hearths that have been in use for many generations with something new and unproven.
6. The traditional three-stone fireplaces are more versatile than improved stoves. They can use a wide variety of fuel wood, including wet material and even reeds. They can cook large pots whilst new models are restricted to pots matching the cooking holes. Furthermore, the improved ones do not roast effectively or emit enough heat to smoke food hung above the stoves. The regular maintenance required by the new models is seen as extra work by housewives.
7. It is important to 'sell' the concept of fuel-efficient stoves to the end user. In effect this means developing promotional material to reach women. It is useless persuading husbands to modernise their houses with a new stove if their wife's, who actually does the cooking, remain unconvinced. In this case, the new stove will not be used.
8. However much the stove might save on fuelwood, unless other, complementary fuel-saving methods are used, then the saving may be very small. Methods such as soaking dry food overnight, simmering quietly rather than boiling merrily, and covering pans while cooking can be promoted to reduce fuel consumption.

10.5 Conclusion

Deforestation is not a tidy and simple problem to address, and KSCDP does not claim that improved stoves are the ultimate solution, as it is difficult to conclusively link improved fuel efficiency with reduced deforestation. But it maintains that these stoves do have an important role to play in conservation of our forests, particularly in combination with other activities such as tree planting and awareness raising.

Considerable effort is required, on the part of the project, its extension workers and producers, for each household which adopts a fuel-efficient stove. In each case, the amount of fuel saved may not be large, and becomes significant only when a number of households are using the improved stoves. The effort of each individual 'conversion' would achieve far greater fuel-savings if applied to a large institution (e.g. schools, hospitals and prisons) rather than small households. These institutions have large kitchens fuelled by firewood and charcoal, and the potential for savings is considerable.

For some communities, fuelwood is still freely available, especially those living close to the national park and forest reserves. This is a consequence of national park community collaboration initiatives which have reversed the initial policy of prohibiting fuelwood extraction, and allow some access for fuelwood. It is therefore unrealistic to expect them to start using fuel-efficient cookstoves quickly. In such areas, other attributes of cookstoves such as safety, improved kitchen conditions and personal hygiene should be promoted as the primary attraction of the stoves.

If a cookstove programme is to be successful, durability needs to be improved so as to reduce maintenance requirements. Holes for cooking pots should be made to accommodate the size of the pots generally used by local communities.

Future conservation initiatives might consider the option of subsidising stoves. Conservationists want rural people to utilise fuel-efficient stoves whilst potential users place insufficient value on them to pay a fair price for their manufacture. The experiences of the Hima group suggest that profits are too small to be economically viable. A conservation project might therefore subsidise stove production, and fund the difference between local willingness-to-pay and a fair price for the makers. It is important that the stoves are sold at an attractive price, rather than distributed freely if the householder is to place any value on it.

Despite the problems experienced, fuel-efficient cookstoves should continue to be promoted with tree planting and environmental awareness. This is especially important in areas where there is an acute shortage of fuelwood. Fuel-efficient cookstoves have been introduced in many developing countries as a means to reduce fuelwood consumption to mitigate the pressure on forest resources. However, many of these programmes have faced social and technical difficulties and KSCDP has not been an exception.

Chapter 11: DEAP – Decentralised Environmental Management in Uganda - Reflections on the KSCDP/Kabarole District Experience

Ellen Bassett, David Azoora, Nicholas Magara, and Nicholas Mujuni

11.1 Introduction and Environmental Management in Uganda

The paper reflects on the experience of the KSCDP whilst working with district authorities to strengthen natural resource management. The paper argues that the district environmental action planning process has the potential to address key issues of environmental degradation affecting the country. One of the key outcomes of the environmental planning processes is that it raises peoples' awareness about environmental concerns which are usually not recognised. It also argues that the actions identified in the environmental action planning process are those that serve to raise rural incomes and contribute to poverty alleviation. Obstacles to improved environmental management at the district level are identified and possible options to strengthen decentralised environmental management are suggested.

Because KSCDP was such a multifaceted operation, it is difficult to succinctly present the impacts of project activities on poverty alleviation. This paper attempts to reflect on the newest component of the project, namely KSCDP's collaboration with district authorities to strengthen their capacity for natural resource management and environmental planning.

Before describing the Kabarole experience, there are three caveats to acknowledge. First when speaking of Kabarole, this chapter refers to the "old" Kabarole, i.e. the geographic area that has recently been divided into the three districts of Kabarole, Kamwenge and Kyenjojo. Second, the Kabarole experience is assumed to be fairly representative and relevant to other areas. Third, this chapter will attempt to establish the linkage between conservation and poverty alleviation. It may be noted that the central issue is not to prove a linkage between environment conservation and poverty alleviation but to consider the potential of the environmental action planning process. The performance of Uganda's decentralised system for environmental management is described, and steps to strengthen this system are proposed.

The framework for environmental management in Uganda is well laid out. Uganda, through its National Environment Action Plan (NEAP), has undertaken an ambitious restructuring of its institutions for environmental protection. Among the many outcomes of the NEAP, the government passed the National Environment Statute (NES) in 1995. This provides the framework for environmental management in the country, and established an independent national agency charged with environmental affairs, the National Environment Management Authority (NEMA). It passed important subsidiary regulations that requires Environmental Impact Assessments as a method of ensuring that environmental quality is not sacrificed in the development process.

Uganda's approach to environmental management delegates significant powers and responsibilities to local government units, particularly districts. This approach is in harmony with the overall policy of the Government to decentralise Government functions, and devolve powers and responsibilities to the local level. Under the NES, district authorities are required to create a sub-committee, the District Environment Committee (DEC). This committee is charged with advising the district council on environmental issues and ensuring that district development plans incorporate environmental concerns. The DEC is responsible for the development of district environmental policies and ordinances, and is legally responsible for producing a District Environment Action Plan every three years. To assist the DEC with these responsibilities, district councils are required to recruit a District Environment Officer. This officer's many responsibilities include ensuring that environmental issues are integrated into development plans.

In 1995, Kabarole District recruited a District Environment Officer. The officer was placed in charge of environmental issues in a district consisting of 7 counties, 35 sub-counties, and 177 parishes across an area of approximately 8,000km². The District component of KSCDP has been focusing District Authorities on developing environment plans from a grass-root level and involving sectoral district departments of NEMA. The NEMA process uses participatory rural appraisal (PRA) tools to help people identify their problems relating to their socio-economic well-being and associated with individual natural resources. People rank these problems and select the top three problems where they would like to take action. A variety of PRA tools were used including seasonal calendars, semi-structured interviews, transects and observation, pair wise ranking, and participatory ranking. By way of this process and by some modifications, development of environment action plans starts at parish level (PEAPs-Parish Environment Action Plans) then taken further to sub county Environment Action Plans (SEAPs), and finally developed into District Environment Action Plans (DEAPs). KSCDP support to the District Environment office began in 1998, in the form of technical advice, equipment, materials and logistics. The rationale for working with the districts was threefold, namely to:

- Support the mandate of the District in environmental management;
- Strengthen the linkage between the Protected Areas and the planning and development of the District and its people; and
- Foster greater partnership with the District to implement interventions promoted by KSCDP in the parishes around the National Park and to the District as a whole.

11.2 Environmental Planning in Kabarole: Problems Identified, Actions Desired

One of the main areas of collaboration between KSCDP and Kabarole District was support to the district's environmental action planning process. This process began with environmental assessments in thirty-five parishes of the district to identify key issues affecting Kabarole residents. This information was used for the action plan and State of Environment Report. The process was highly participatory. Local leaders were trained to PRA field exercises in their parishes in conjunction with the DEO. Box 24 summarizes the steps in the environmental planning process.

Box 24. Steps in Environmental Planning

Step 1.	Discussion with district officials regarding the process adopted to develop environmental action plans;
Step 2.	Capacity building for DEOs, Forest Officers, Agriculture Officers in the use of GIS, GPS and participatory resource assessment skills (2-4 weeks);
Step 3.	Ensuring that all the DEOs have the tools and facilities (computer, motorbike, GPS etc);
Step 4.	Selection and training of parish officials (trained by DEOs and KSCDP staff, for 1 week);
Step 5.	Implementation of the study (6 weeks to nearly 4 months, depending on the district area);
Step 6.	Drafting of the plans (6 to 8 weeks);
Step 7.	Sharing the plan at the parish and levels; and
Step 8.	Carrying out the same task at the sub county and district levels.

On each occasion, parish residents were invited to identify different environmental problems that affected their communities. Three environmental problems consistently arose, namely;

- Deforestation (indicated as a problem in 71% of the 35 parishes);
- Soil fertility loss or poor soils (57% of 35 parishes);
- Wetlands enclosure and degradation (40% of 35 parishes).

Residents reported a variety of negative consequences of these problems. Deforestation, women complained, caused them to spend longer periods gathering fuelwood and medicinal herbs. Men tended to focus on farming problems caused by changes in the pattern of rains and drought. Soil fertility loss was considered to directly affect household incomes, since it causes stunting and decreased yields. The degradation of wetlands, particularly through conversion to pasture for dairy farming, was also reported as a negative development. In regard to wetlands, community members were concerned about the loss of access to water for their domestic needs, and the reduction of important building materials such as papyrus and reeds.

Judging from community reports these three problems are inter-related. In Kabarole, and particularly in the areas that now constitutes Kyenjojo and Kamwenge districts, people still practice slash and burn agriculture. They clear land through burning, farm for a few years until the fertility is exhausted, and then look for alternative land. In Kamwenge and the “new” Kabarole, farmers are turning increasingly to wetlands for cultivation and dairy farming. In Kyenjojo, especially Kyaka, farmers are clearing forests for new land for cultivation. In group meetings, farmers estimated the figures for the clearing of natural forest to be as high as 1.6 to 2.4 Ha per year per farmer around Kakabara.

In the community action planning that took place during the environmental assessments, community members identified a variety of small-scale initiatives that would help them address these problems. They asked for sensitisation training and awareness raising on the environment. They were not aware of the environmental benefits of wetlands and were shocked, even hostile, to learn that they are not free to claim and develop wetlands adjacent to their land. Rural people thought that one forest is as good as another, and did not realise the benefits of indigenous trees. To help them manage their land better, they identified the need for increased agricultural outreach and access to information on improved agricultural

methods, agroforestry, and tree nursery development. Communities also wanted better service from the district and UWA. They wanted the District Environment Officer to prosecute wetland degraders, and UWA to deal with crop raiding animals.

Through the participatory methods of the Kabarole DEAP process, community members were given an opportunity to express their views about the natural environment and the impact of environmental degradation upon their lives. They clearly saw linkages between their farming practices and standards of living. They articulated the actions that they could implement — often with some assistance from the district — to improve their livelihoods, and conserve the environment. The DEAP process has significant potential as a tool for addressing the twin goals of poverty alleviation and environmental protection. But there are several obstacles to overcome before the full potential can be realised. Likewise, there are important issues to be addressed before districts can become effective natural resource managers.

11.2.1 District Commitment to Natural Resources Management

KSCDP's experience with district environmental action planning showed that resources are required for an effective process. Planning, training, field visits, mobilisation of communities and production of documents all make demands on limited local government resources. The interventions identified in the planning process, while not expensive, do demand financial commitment.

Kabarole district, however, was reluctant to devote its own funds to natural resource management. For example, in the last quarter of 1999 the district released about \$4,700 – just 18% of the required funding. Most of the balance (62%) was provided by two other donor funded projects, namely ULAMP (SIDA) and HASP (DANIDA) which is devoted to 2 parishes and 6 sub-counties respectively. The remaining 20% came from non-wage agriculture conditional grant money. The district's attitude was difficult to justify given the fact that most of its residents rely directly upon land for their living, and that the production sector has been identified as a key sector by the district leadership. Environmental action planning processes for Kabarole, Kamwenge and Bundibugyo districts failed to go to the sub-county and parish levels due to a lack of funding. However Kyenjojo district received funds from NEMA's Environmental Management and Capacity Building Project Phase II project to continue the process.

Districts need to reconsider their spending priorities. However, these often follow signals of the central government. In determining the priority sectors for funding, Kabarole district adheres to the priorities laid out in the Poverty Eradication Action Plan. So there is a need to continue to advocate for the environment at the higher level, so as to increase funding by Government.

11.2.2 Capacity for Environmental Management: Depth, Expertise, and Information Needs

A second obstacle to better environmental management is the issue of capacity. Three key issues are involved. Firstly, manpower is required to manage nature reserves effectively, provide extension services to farmers, and provide environmental education. Districts do not have sufficient staff to be effective in the field. Even with the sub-division of Kabarole district, the resources of the three DEOs created are far from adequate to address the environmental issues over an area of about 8,000km².

Most of the government personnel in the field require additional training to adopt modern conservation approaches. Using forestry as an example, there is a need to retrain foresters schooled in the production tradition, if the objective is to support community forestry. Finally, in many instances there is a lack of information for effective environmental management. Again using forestry as an example, there is a need for more information on the status of Uganda's forests. Forest cover is obviously reducing, but exactly how much, where, and what is being lost remains unclear. So, it will be important to:

- Increase the staffing for the District Environment Offices which are currently under staffed;
- Adopt novel approaches to agricultural extension, for example the model farmer approach;
- Support capacity building activities, including greater emphasis on in-service training; and
- Fill information gaps through research. There is the potential for productive research partnerships with Universities, and other institutions of higher learning.

Conservation efforts in the Kibale area currently concentrate on protected areas only. Little, for example, is being done to conserve the forest fragments that survive outside the parks and reserves. It is to be expected that, once these remnants have been destroyed, pressure to exploit resources within protected area islands will increase. Rather than waiting for this to happen, protected area managers should adopt a more holistic approach to conservation *now* by establishing linkages to work together with other, relevant institutions. The primary step should be the development of a strong formal relationship between protected area systems and District Environment Offices. While protected area managers are entrusted with the conservation of parks and reserves, District Environment Offices have the mandate to address environmental problems throughout their entire district. They therefore provide a good forum for protected area managers to address wider environmental issues in a more holistic manner.

11.2.3 The Institutional and Legal Framework - Difficulties in Implementation

The current institution framework presents some difficulties for effective environmental management and particularly for the enforcement of environmental law. In Kabarole, the most aggressive wetland drainers are prominent individuals who include influential businessmen and political leaders. Because District Environment Officers are answerable to the district council, enforcement actions against such individuals are difficult. Attempts to work with Resident State Attorneys on enforcement have not produced results. They are not familiar with the environmental laws, and are sometimes reluctant to prosecute individuals they know personally.

Another major weakness in the institutional framework concerns urban environmental management and land use planning. Because municipal councils are independent entities, the local council does not consider itself answerable to the District Environment Office. Land use decisions, development approvals, or projects necessitating EIAs do not pass through the office routinely — they are often discovered when half completed. Locally, environmental legislation is perceived as anti-development and something to be avoided.

The third difficulty in enforcing environmental law is the stringent nature of some of the legislation passed. National standards are so high as to be almost unenforceable. Recent regulations on lakeshores, riverbanks and wetlands, for instance, have the potential to stop most urban development in Fort Portal. If it had been applied retroactively, a large swathe of the township would need to be removed. Part of the problem concerns the manner in which this legislation was created. Future processes should be more participatory, involving all stakeholders, and should therefore be more acceptable and easy to implement.

The fourth difficulty is the way the District Environment Office is set up within the Local Government. The District Environment Office is a line department within the district, and is parallel to other departments such as forestry and agriculture. The primary environmental concerns identified in action plans are the responsibility of other existing line departments. For example, deforestation and bush burning are handled by the Forestry Department, while the Department of Agriculture addresses declining soil fertility. Similarly, wetlands issues are handled by the Wetlands Inspection Division. This raises the question of what, exactly, is the role of District Environment Office and Officer? The DEO's role is clearly to take the lead in bringing environmental issues to relevant authorities and departments, and ensure that environmental issues are addressed in Development Plans at various levels. As a result it will be important to:

- Reassess the placement of the DEO in the local council system. Perhaps these officers would be better off as non-decentralised staff (i.e., employees of NEMA or MWLE). This is already the case with the District Forest Officer. Ideally, District Environment Officers could be placed in the District Planners Office to ensure that development plans prepared by various departments have incorporated environmental planning;
- Gazette all District Environment Officers as Environment Inspectors. This would strengthen their hand as enforcement agents; and
- The training of environmental lawyers should be a priority. Public interest lawyers are urgently needed to ensure that the Government takes action against those who violate the law.

11.2.4 Missed Opportunities - The Land Act

The other stumbling block for improved environmental management at the district level is the Land Act. One of the main objectives of the Land Act is to enhance tenure security. It was hoped, as a result, that farmers and other resource users would become better land managers with positive environmental effects. Unfortunately Government delays in implementing the Land Act is actually having the opposite result. The message that “the land belongs to you” has been heard while the clause that states that land should be utilised in accordance with the laws of Uganda is ignored. In Kabarole, the transition from public land to private land has resulted in accelerated deforestation, as restraints that prevented large-scale clearance are perceived to have been removed.

Likewise the lack of land tribunals at the local level is causing tenure insecurity. Most community members cannot afford to have the district land board process their certificates of customary ownership whilst more affluent individuals can manage this. This has led to some conflict over land. For example, an entire village discovered that its land was being surveyed because a prominent man had reportedly purchased it. The Land Act is not intended to make people landless.

It is clear that the work of the land tribunals needs to be simplified. In addition resources need to be committed for wider sensitisation concerning the provisions of the act, including the environmental dimensions of the act and potential uses of the provision for Customary Land Associations for community forests and wetlands associations.

11.3 Conclusion

KSCDP's experience in working with the Kabarole District Environment Office has shown that the DEAP process is a potential tool for improving environmental management and addressing poverty. District planning was highly participatory, and enabled communities to articulate their needs, raise awareness about the environment, and its importance to their daily lives. The actions that communities identified were small-scale, do-able initiatives, such as the establishment of tree nurseries or training in improved agriculture, which have positive livelihood impacts and conservation benefits.

The DEAP process, moreover, is potentially quite empowering for community members. The opinions expressed are theirs, and the projects identified are their projects. As such, the plans benefit from local ownership. People want to see that they are implemented. This in turn increases demands for accountability and service from district governments. In this respect the participatory processes the DEAP has used could be a basis for ensuring that the District Development Plans are developed in a more participatory manner, and to ensure that the environmental concerns are responsibly integrated.

But there are obstacles to realising the full potential of the environmental action planning process and decentralised environmental management. One key obstacle is the low level of resources that districts are putting into this sector. Districts link their budgets to what is being indicated from the centre. If the environment is not a priority for the centre, it will not be a priority for the districts. Thus, the best way perhaps to secure funding from local government is to address and incorporate environmental issues in development plans themselves from the parish level to the district level. This therefore means there is a need to develop a separate plan for the environment. However, it is also clear that trying to have environmental action plans for all parishes and sub-counties is very expensive. This might be possible with donor funding. But, NEMA will need to undertake future DEAP planning in a manner that is fiscally realistic at the District level.

The ultimate aim of the Environmental Action Plans is to ensure that environment issues are incorporated into the Development Plans (District, Sub-county and Parishes). In this case, environmental issues would be better tackled as part of these plans. This would avoid the preparation of parallel plans and some duplication of financial and human resources. The current process in fact dilutes the importance of environment issues as they are treated as something different rather than an integral consideration in developmental planning. Integrating the DEAP process into the District Development planning process might, in fact better reflect the importance of the environment.

Chapter 12: The KSCDP Analysis – Resolving Natural Resources Conflict through Integrated Conservation and Development

Purna B. Chhetri, Alex Muhweezi, Edmund Barrow, and Patrick Kidiya

12.1 Introduction

This chapter analyses the lessons learnt based on the principles of Integrated Conservation and Development (ICD) for resolving natural resource use based conflict. At the start of KSCDP, there were high degrees of conflict that had caused a lot of encroachment and irrational use of the resources within the Kibale and Semliki Forest Reserves. Further, there was a lot of destruction of natural resources outside the gazetted areas due to poor land use practices.

ICD as a conservation approach tries to reconcile the conservation of biodiversity with the social and economic aspirations of the local people adjacent to such resources. ICD recognizes that the conservation of natural resources cannot succeed without addressing people's livelihoods and development needs, and aims at ensuring that there is a balance between conservation and peoples livelihoods through the development and promotion of long term conservation strategies, the understanding of conservation values and benefits to local people, the delivery of benefits to people, and ensuring the integration of conservation needs in broader community development strategies.

The conservation status of the then Kibale and Semliki Forest Reserves required such an approach to secure their integrity. Central to the poor conservation status of these Forest Reserves at the time was the conflict between the managers of protected resources and local communities revolving around resources use. These conflicts related to the need to satisfy local peoples livelihood and development requirements. Due to restricted access to resources within the Protected Areas, the past management regimes were characterized by harsh evictions, and often inhuman treatment of offenders, unclear boundaries of the Protected Areas, unresolved effects of problem animals and vermin, and institutional rivalries. KSCDP set out to assist the Government of Uganda to improve the management of the Kibale and Semliki Forest reserves, and reconcile these management objectives with the often conflicting social and economic needs of the local people.

One question, often debated, concerns the applicability of ICD approaches to conserve biodiversity. The ten years of KSCDP experience has demonstrated that an ICDP, if planned and implemented well, can contribute to the conservation of biodiversity **and** help mitigate poverty. A good conservation strategy attempts, to analyse and understand the factors and issues affecting conservation, and their impact on local communities, while the success or failure of conservation also relates to social, economical, environmental and political factors. One major reason for the success of KSCDP was its ability to analyse and understand issues related to the conservation of KNP and SNP, in terms of wider landscape

management, and the integration of conservation objectives and management into district and wider environmental planning. Loss of traditional access to park resources, crop loss due to park animals, unclear park boundary and lack of options outside for regulated resource use were the key sources of conflict between park and local communities. These issues formed the basis for developing conservation strategies which were accepted by Protected Area Authorities, local communities, and leaders.

12.2 Summary of KSCDP Strategies Used

The KSCDP designed and implemented inter-related strategies to address conflicts by considering:

- Poverty and livelihood needs, recognizing that poverty is one of the key factors contributing to unsustainable natural resource use, and the encroachment in the reserves;
- Improved use and management of natural resources through enhanced capacity within the communities, Districts and Parks to plan for, and manage natural resources with Protected Areas, and the surrounding lands; and
- Awareness needs on biodiversity values, and the need to conserve the biodiversity of the two Forest Reserves.

Strategy 1 - Instituting mechanisms to allow local people to access vital resources for their livelihood: With the gazettement of Kibale and Semliki Forest Reserves as National Parks, local communities lost their customary rights to park resources resulting in economic and social hardships as they were neither consulted, nor were their considerations taken into account during the re-gazettement. This caused strong negative feelings towards the National Parks. The inter-relationships between park and people was ignored, and the people living around the parks were now seen as a threat to conservation. During the course of the project, KSCDP learned that conservation initiatives would not be successful as long as people affected by conservation were living in poverty - poverty that was exacerbated by lost customary rights to natural resources which were not inside the National Park. As a result, KSCDP ensured that local communities were involved and extensively consulted in developing the long-term management plans of the Park. Collaborative resource management agreements were developed to allow communities to use and manage selected resources from the Park, which are vital for their livelihoods. The eight agreements that are in implementation have already shown significant improvements in park and people relationships. Through KSCDP, the Uganda Wildlife Authority has been able to further test participatory resource management initiatives subsequently contributing in fine-tuning of conservation policies at the national level.

Strategy 2 - Addressing crop losses by wild animals: The second major source of conflict was crop damage by park animals. KSCDP worked with the Park authorities and local communities to identify deterrents to keep animals from entering farms. A number of deterrents were tried, two of which were found effective and feasible, namely trenches and live fencing, preferably in combination. Such an approach has helped improve park-people relationships, as Park authorities were seen to be responding to local community needs and problems. In addition, UWA's policy of sharing 20% of the Park entrance fees with the surrounding communities also contributed to improving this relationship. The declaration

of three problem animals – baboons, vervet monkeys, and bush pigs – as vermin by UWA has been seen as a step forward by Park authorities in responding to local problems.

Strategy 3 - Clearly defining Park boundaries: Prior to gazettement of Kibale and Semliki forests into National Parks, there was intense encroachment. This was attributed partly to unclear boundaries between the Protected Area, communities and private lands. The encroachers were evicted by the Forestry Department in the early 1990's. As a result KSCDP supported the then Uganda National Parks to resurvey and demarcate the boundary with a live fence to clearly secure and distinguish the boundary. To date encroachment has been eliminated largely due to the clearly established, recognized and now respected boundaries.

Strategy 4 - Developing options and substitutes: KSCDP recognised that if conservation initiatives were to be successful, then options need to be provided for sustainable resource use. The dependency of local communities on Park resources was such that, even after gazettement of the Park and strict policing, they continued to access the Park to meet subsistence needs. So people were seen as encroachers, a threat to conservation, and were arrested and penalized. This was resolved to some extent by providing alternatives and options outside the Park, including the development and use of, for example clonal coffee, fruit growing and the keeping of pigs and bees. KSCDP worked with the relevant partners and local communities to plan and implement development activities to meet some of their subsistence and cash income needs. For resources such as medicinal plants, papyrus, craft materials that required park habitat, access was provided through collaborative resource management arrangements, though in some cases medicinal plants were domesticated on farm. These activities helped park and people to come closer and work in a mutually beneficial way. The important issue here is to combine in an integrated manner, Park based approaches (boundary agreements, problem animal management and CRM) with improved land use (soil conservation, tree planting and fuel efficiency, use of alternatives and substitutes and the promotion of IGAs) for farmers outside the Park.

Strategy 5 - Sensitisation and education: KSCDP worked with its partners to disseminate conservation messages through a variety of approaches, for example music, dance and drama groups, radio and school programs, celebration of events such as the World Environment Day, and the production and distribution of materials such as posters, calendars, postcards and field based training courses.

Strategy 6 - Capacity building: KSCDP placed considerable effort on the building of capacity of its partners (institutional and individual), and local communities. Today, Kibale and Semliki National Park staff are able to use tools and techniques to monitor biodiversity changes, and negotiate with local communities about collaborative resource management and problem animal management, for example. Local communities are able to produce better quality tree, fruit and coffee seedlings by themselves. Some farmers are testing various combinations of rootstock and scions to identify disease tolerant planting materials, particularly for passion fruit. This would not have been possible had they not been trained.

12.3 Some Conclusions

At a time when contributions of conservation programmes in mitigating poverty are being questioned and debated, the KSCDP experience offers good examples and lessons in linking conservation and development, and in instituting a mutually beneficial participatory conservation activities. KSCDP evolved from a more traditional ICD approach based on the Protected Area to one that became increasingly integrated into district development and planning through the District Environmental Action Planning process. This helps set the Parks as parts of much wider human influenced landscape, and not as secluded islands of biodiversity in a "sea of humanity". Through the work of KSCDP, the following broad objectives were accomplished, in that the project

- Implemented conservation initiatives in and around Kibale and Semliki National Parks in a manner that was adaptive and reacted to changing needs, yet retained the overall goal and broad objectives of the project;
- Contributed in the testing of participatory resource management which is helping UWA to fine-tuning its conservation policy, and in particular with respect to community conservation; and
- Helped test conservation as a tool to alleviate poverty in addition to conserving biodiversity.

The impact of an ICDP like KSCDP can only really be seen after decades. However after 12 years of project activities and its achievements, many conclusions and lessons can be drawn. The final external evaluation highlighted some of the major conclusions of this project (Box 25). In addition, at a lesson learning workshop held during the last quarter of 2002, participants discussed the positive and negative lessons from the KSCDP project which have informed this discussion.

Management and ecological integrity of two National Parks have improved. Through the construction of attractive bandas, multipurpose viewing platforms, introduction of night walks, and establishment of long distance trails KNP has been able to diversify its tourist attractions, which are crucial for improving its income generation base. The construction of staff accommodation and offices have improved staff morale, as KNP and SNP now have some of the best infrastructure in the UWA system.

The General Management Plan, since it adopted a participatory approach and had the full agreement of all stakeholders, has further enhanced the harmony between the Park and surrounding peoples. The broad based understanding and acceptance of the plan has further reduced boundary conflicts and given increased legitimacy to CRM agreements. This is supported by the fact that when the boundary was re-surveyed it was done with the full and active participation of the surrounding communities. As a result it had their full agreement. The planting of Eucalyptus trees, which the people will be able to benefit from through their sustainable use along the boundary has ensured that everyone knows where it is.

With the improved infrastructure in the Park, combined with the establishment of walking trails, tourist accommodation and the visitor centre, this has set the scene for tourism numbers of increase. With that has come an improved revenue base for the Park and increased revenues for revenue sharing. This combined with, for example CRM and problem animal management has engendered an increased sense of community responsibility.

The Importance of Collaborative Resource Management - the "glue" between Park and People: With the implementation of CRM agreements, local communities started to see the benefits from such collaboration and for conservation. As a result, requests for CRM agreements have increased from other parishes and groups. The fact that CRM is now demand, and not supply driven shows the impact of their conservation efforts, as CRM is seen as a tool for sustainable resource management. Since the implementation of CRM there has been a marked reduction in conflict between the Park and people in areas where the initiatives have been launched. The implementation of CRM agreements has eased the enforcement burden on Park management. For example, since the negotiations began in the middle of 1998, over 22 cases of illegal operations and poaching have been reported to the KNP management by local communities. Such reporting would never have happened in the past, and indicates the increasing responsibility these parishes have for the Protected Area, and the benefits which accrue.

Box 25. Summary Of the Key Findings of the Final Evaluation of KSCDP

- | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Capacity for KNP and SNP Management Authority strengthened: The project greatly influenced the strengthening of the management in Kibale National Park by improving communication, visitor services, collaboration with other stakeholders, and planning.</p> <p>2. Capacity of District Authorities strengthened: The project undertook a lot of training and capacity building for district staff to carry out District Environmental Action Planning. Skills were built, for example on Environmental Action Planning, and Environmental Impact Assessments. But the level of district capacity is still impeded by inadequate staffing, transfers and voluntary movements of trained staff - without the adequate transfer of skills combined with inadequate funding for environment related activities from the District budgets.</p> <p>3. Impacts of local communities on biodiversity values within the target ecosystems reduced: Tremendous achievements were made towards putting systems and activities on the ground to reduce the negative community impacts at KNP, including:</p> <ul style="list-style-type: none"> • Improved park-community relationships; • Improved legal access to, and decision making by communities concerning the natural resources of the Park as provided by the CRM agreements; • Increased community sense of ownership and readiness to co-manage with the Park; • Reduced incidence of animal damage and conflict between Park and community; • Number of illegal activities that were reported increased as a result of improved trust between Park authorities and communities; • Community livelihood opportunities increased through income generating activities; and • Improved sustainable development interventions were already bearing fruit, e.g. improved agricultural productivity. <p>4. Adopting an effective and adaptive management strategy: The project functioned over the years, despite many challenges, most of which were external and beyond its control, including a high level of insecurity within both parks at various times, restructuring of district government administrative structures, combined with inadequate capacity in districts to implement project related activities.</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(Source: Chege et. al., 2002)

The success of CRM has been based on the increasing mutual respect and trust between Park staff and people. The people are increasingly aware of the importance of the Park to them, as well as to the Nation. Meanwhile the Park staff realize that without local support, Park management becomes increasingly difficult and hostile. Mutual respect evolved with reduced suspicion and increased trust. Local people are more involved in various aspects of Park management, and the benefits are starting to show from that collaboration, namely improved Park security, reduced poaching, and improved benefit flows to rural people.

CRM agreements take time to develop, negotiate and agree to, as trust is required. It is process driven, and cannot be based on a blueprint, and have to be equitably negotiated by all parties. While understanding the technical and natural resource issues is important, getting the social issues right is the crucial factor on which success or failure hinges. That is why CRM takes time, as all different stakeholder groups have to be involved, understand and agree. The institutional mechanisms have to be built up and develop to take on these responsibilities, and the benefits from the CRM agreements have to outweigh, at least from the people's perspective, the costs of engagement.

The Park authorities are seen to be trying to address problem animal management issues through from example the planting of live thorn fencing and digging of trenches, as well as the declaring of certain animals as vermin. This has helped improve the food security of farmers living close to the Park. However these structures require continued management by both Park and people to be effective.

Improved natural resource management and over-all environmental awareness: KSCDP played a significant role in strengthening the District Environment Offices of Kabarole, Kyenjojo, Kamwenge and Bundibugyo District. Environment Action Plans were developed and are currently being implemented. Training activities were conducted that have resulted in raised environmental skills and awareness for District technical officers. This has also raised the profile of the environmental office, as now individuals, community leaders, and CBOs concerned with environmental issues know where to go for further information or advice. In addition, the environment office works closely with the media to ensure that environmental messages are broadcast widely. This has begun to bear fruit as increasing numbers of people report environmental abuses, or ask for awareness training.

Improved natural resources management outside the National Parks: Since the implementation of sustainable development activities, such as the establishment of woodlots, use of fuel-efficient cook stoves, and promotion of ecologically sound agricultural techniques to boost production, this has led to a reduced pressure on park resources. Alternatives, such as rearing pigs as a substitute for game meat, clonal coffee as a replacement for wild coffee, and on-farm woodlots as a source for pole wood and fuelwood have all been adopted to varying degrees by farmers.

Impact on people's livelihood: KSCDP assisted Government agencies and departments, and community based organizations in implementing income-generating activities that directly contribute to increased income and food security. The activities included planting clonal coffee and improved fruits for cash income and family nutrition, bee-keeping for honey and cash income, rearing of improved breeds of pigs, and making available improved and disease-free planting materials of cassava, soybean and coffee. All of these contributed significantly to increasing both the cash income of people, and the overall productivity per unit area. Households have improved nutrition due to increased food production as a result of improved methods of agricultural production, increased yields and availability of a variety of fruits (avocado, jackfruit, pineapples, passion fruit) on farm. There is increased income resulting from adoption of income generating activities.

The project has tried to link Park related activities with those of sustainable development with the communities who border the Park. For example where CRM activities are taking place, activities relating to farm and soil fertility improvement, and the use of alternative and substitutes for Park based resources. This is a crucial, if obvious, link to make.

Box 26. Sustainability - Gaps and Opportunities, Views of the Final Evaluation

Important Gaps

- **Inadequate mechanisms for building synergy** between the Parks' Long-Term Management Plans, the District Planning cycles, and the Environment Action Plans. The project was able to link, and get advice from the District Project Co-ordination Committee, but this committee was abandoned due to budgetary constraints;
- **Inadequate human resource capacity** at the district level to undertake DEAPs which are the main framework for environmental planning ;
- **Inadequate funding mechanisms** in the district with respect to the environment, as the environment is not one of the key local government priorities; and
- **Poor marketing infrastructure for agricultural produce** as some of the improved farming interventions promoted by the project have increased farmers produce to unexpected high levels, but there are inadequate mechanisms in place for selling the produce.

Key Opportunities

- **Awareness of the need to conserve the environment:** the project has raised awareness on the importance of conservation to rural livelihoods, as well as improved conservation skills at the park, district and community levels;
- **Skills in tree husbandry and agricultural activities:** Communities are now able to raise seedlings to meet their own demands, and for sale;
- **Collaborative Resource Management Agreements** have been piloted in four parishes, and are frameworks for accessing and monitoring park resources, in accordance with UWA policy. Expansion of the areas covered by the CRM agreements would further reduce illegal activities in the parks, and so further reduce the costs to UWA in law enforcement; and
- **Harnessing institutional linkages and synergy:** Several activities undertaken by institutions, other than the project, contributed to some of project result areas. By strengthening and revitalizing networking and collaboration mechanisms, e.g. the District Technical Coordination Committee, synergies can be enhanced to ensure the best use of limited funds, and help build best practices through lessons learned.

(Source: Chege et. al. 2002)

Improvements in soil fertility have lead to improved food security and crop yields. Based on KSCDP work, Kamwenge district have now made by-laws concerning soil conservation. With improved farming practices, this has meant a reducing need to use Park based resources, as there is a wider range of economic opportunities available to farmers. But this requires more than inputs and extension work, as it has to link up to markets, in terms of processing, for example honey, and actual markets, for example for passion fruit and pineapples. While external markets have an added value, it has been equally important to respond to local market demands.

However there are areas of conflict which still remain. These conflicts and other issues need to be addressed as part of on-going collaboration between UWA and the districts (community, CBO's, NGO's and Government). This concurs with the final evaluation, which pointed out a number of gaps and opportunities (Box 26), which need to be taken into account, as well as some suggestions for the future (Box 27).

Importance of a "project process" or a "process project"? Over the life of the project KSCDP has evolved from a more 'traditional' project with its own institutional and structural arrangements, to one where it supported and worked with existing institutions. During the last five years the project has made major efforts to house the ownership of the activities either within the Parks, or with the parishes and communities concerned (and the CBO's there), as well as with the district authorities. This has fostered a much greater sense of local ownership, improved local planning and integration of activities into host institution planning processes. Yet it still allowed a project of this nature to pilot and test innovative approaches to, for example CRM, environmental awareness, improved land use. The

challenge is the balance between one of local ownership (at the district, parish, Park levels) and the need to be able to try and test so as to improve on existing norms and approaches to carrying out work. The major lesson here is seeking the balance between being able to test and pilot, yet at the same time ensure institutional ownership, and it is uncertain as to whether the present approach to development support in Uganda can actually achieve both of these aspects.

Box 27. Some Suggestions for the Future to Assure Livelihood Security and Conservation Integrity

- Need to address inadequate technical, as well as funding capacity at all levels of local government, for example through the Poverty Eradication Action Plan, and the Poverty Alleviation Fund;
- UWA needs to maintain and increase its funding for park management, as the funding of recurrent costs at the present time is inadequate;
- The Ministry of Water Lands and Environment should articulate the importance of the role of environmental goods and services in poverty eradication, and the need to prioritise environment in its development planning and funding. The formulation of the Environment and Natural Resource Sector Working Group is a step in the right direction;
- NEMA needs to address the costs of developing District Environmental Action Plans as it requires that data should be collected from all parishes. Further, it is not clear how the DEAPs become part of the District planning process, and be funded;
- District authorities should harmonize conservation initiatives undertaken by different Government and NGO institutions to build synergies, and reduce the confusion on what various groups are doing;
- Districts and UWA should utilize the opportunities provided by the presence of the Makerere University Biological Field Station (MUBFS) to monitor, for example, biodiversity trends, and the impact of management interventions such as CRM agreements;
- All stakeholders need to address the problem of marketing farm produce. Opportunities exist, for example the existence of funds in the Plan for Modernization of Agriculture for marketing, and adding of value to farm products;
- There is need to strengthen the planning and funding cycles between UWA and the Districts, so that UWA's role in the Park-adjacent areas is reflected in District Development Plans. The Wardens should participate in District planning activities and the District Technical Planning Committee; and
- The role of the District Environment Officer (DEO) needs to be clarified, as the DEO should play a coordinating role, rather than undertake implementation, with most activities being undertaken by line departments, with the exception of wetland issues.

(Source: Chege et. al. 2002)

12.4 Some Key Lessons

Reconciling Conservation with Development: Successful and effective implementation of ICD requires a relatively long time to establish strong linkages between conservation and development objectives. This project has been relatively successful in fostering these linkages. However there have been some mixed receptions within communities adjacent to the parks due to conflicting perceptions between the local communities and the authorities on the role and responsibilities of National Parks, and of communities. There are often high expectations by communities that they should benefit from development activities unrelated to conservation. On the other hand, National Park's mandate has to be limited to what development activities it can engage in. Both the Parks and communities have to make trade-offs in order to reach compromise, and these processes take time. Again, it is clear that such trade-offs need to be discussed and negotiated at the landscape level where National Park management is better and more strategically integrated with that of the surrounding districts and vice versa. As long as differing perceptions persist, the parks' conservation efforts will meet resistance. Greater awareness and understanding related to Park management objectives, community needs and conservation goals will improve communication between parks and community.

Developing a sound socio-economic understanding: Gaining an understanding of the in- and out-of-park natural resource use by local communities is important in planning integrated natural resource use activities. The project used Participatory Rural Appraisal tools, in-forest resource use and socio-economic surveys to provide baseline information that formed the basis for project supported interventions. Whilst such information collected proved useful in explaining the interdependence of the people and park resources, it cannot be relied upon for long because social and societal change is a continuous process, and community needs change with time.

Institutional and Financial Sustainability: Conservation goals are long-term, whereas the needs and expectations of local communities are both short- (mainly and long-term). It is difficult to meet the aspirations of local communities for short-term gain from long-term conservation objectives and strategies. Although new concepts and approaches are received with enthusiasm, they can take too long to be fully accepted and integrated in the local land use systems. In order to meet short-term needs without compromising long-term sustainability, initiatives to address livelihood security are essential, e.g. the introduction of fuel-efficient cooking methods, fruit planting and soil conservation, and income generating activities.

Role of less-advantaged groups: From its inception, KSCDP involved women in every aspect of project-supported activities. The project female staff, were generally more receptive to specific women's issues. Despite the efforts to engage women more in project supported activities, it has been difficult to fully involve women, as communities consistently choose more men than women for training, more men than women attend group meetings, and more men than women apply for positions such as extension agents. Only where it concerns obtaining information at a household level, do women make up half the respondents. This reality compelled KSCDP to take affirmative action, for example in the training of women in fruit tree grafting.

Sustainability and ownership: The experiences of KSCDP demonstrate that project supported activities can become sustainable if they are owned by these host institutions, including at the farm level. Ownership is secured if the project design and implementation mechanisms offer opportunities to draw commitment from the host institutions. But, government institutions sometimes tend to over-look the importance of community institutions simply because they are often taken for granted. The participation by the host institutions and stakeholders in planning for, and implementation of the interventions ensured that the participating institutions and stakeholders were "empowered" to own project activities.

KSCDP was implemented by institutions that often lacked adequate resources to meet their commitments. However, there has been a considerable demonstration of the willingness to meet the roles at the field and district levels compared to the centre. This is related to the fact that KSCDP was a site-specific programme, and so could not attract the necessary commitment, or understanding from the centre. As a result, the centre would often ignore specific issues which committed their institutions, for example with respect to the release of counterpart funding in a timely manner. There were frequent staff transfers, as well as variable levels of confidence in the field staff, for instance, not permitting them to implement institutional commitments without reference to the centre. A case in point was the delay in formal approval of the long-term management plan.

Capacity building: Ensuring that relevant capacity is built in any institution was perhaps the most challenging aspect of the KSCDP approach. The KSCDP approached capacity building in different ways targeting institutional strengthening and staff skills development. Capacity building combined different approaches (staff training, provision of equipment, strengthening or developing internal procedures and policies among others) with equal emphasis, and at different levels (community, CBO, NGO, Government). But, capacity building often fell short of its target due to inconsistent implementation of internal institutional policies and procedures within host institutions. The most affected ones are personnel procedures, reporting (on progress and finances), inadequate supervision of field staff, inconsistencies in developing and implementing policies. Capacity building was further undermined by political interference, e.g. civil strife, and vested interests. On the part of project resources, capacity building was undermined by unrealistic budget provisions (both donor and host institutions) as well as short-term funding and budget cycles that do not permit a longer-term capacity building focus.

Role of Government policy: The KSCDP was successful partly because there were enabling environmental and protected areas conservation policy frameworks. The Government policy on decentralized environment management provided an excellent opportunity to undertake field activities with the districts and communities. But, macro-economic policies such as the Poverty Eradication Action Plan (PEAP) did not give adequate recognition to environment and natural resource issues, and so undermined the continued support to project activities, because neither the central government nor the district could make adequate provisions in their budgets to meet their obligations to the counterpart funding of the project. The macro-economic policies also affected continued support from the donor, as Uganda did not prioritise the environment as a sector. For funding under PEAP, Uganda rightfully considers the environment as a cross cutting theme. As a result donors focused their assistance programmes on those prioritised sectors, which, at a strategic level, diminished the importance of the environment, and many activities suffered as a consequence. It is interesting to note that the Government of Uganda is in the process of mainstreaming the environment through the Environment and Natural Resources Sector Working Group.

Socio-cultural-economic factors: The progress made by KSCDP in promoting community participation in park management, in particular CRM agreements, suffered unnecessary delays in their approval largely because there was, and still continues to be, mistrust between the park and communities emanating from past management regimes. Similarly, communities think that Government programmes should not use their time and resources, and so there was reluctance to commit their input.

The interaction between the indigenous Batoro people, and people from other areas (dominated by Bakiga and Bafumbira) yielded a different level of reception and participation in project promoted activities. The new comers were keen to take up project activities more than the indigenous people. This is attributed to resource tenure and security. The immigrants occupy the more remote areas, and this served as an incentive to make them more active in project supported activities, so as to catch up with the development levels of the host population.

The merits of ICDP approach: Integrated conservation and management approaches are process-oriented and time consuming, and require strong monitoring and evaluation mechanisms to keep activities and approaches consistent with objectives. The ICD

approach is flexible, and has enabled KSCDP to take on board issues that arose out of the social, economic and political dynamics, e.g. District Environment Action Planning processes. The ICD approach allowed for the incorporation of new science and innovative conservation approaches such as collaborative resource management, and helped promote strategic partnerships among players, including the recognition of community and stakeholder needs.

It is naïve to expect a conservation and development project such as the KSCDP to achieve all of its expected results. KSCDP did its part in terms of building the capacity of its partners, including local communities, to take up participatory conservation and development initiatives. The project was instrumental in testing and promoting various participatory resource management models and in linking conservation to poverty alleviation. In addition, the project was successful to a considerable degree in building coordination between stakeholders. In addition to building the capacity of its partners, the project was also able to build the capacity of its own staff who are now working in various development programs in the country.

The success of the ICD model depends on a number of factors such as local socio-economic setting, project design, working mechanism, the extent of stakeholder participation in planning and implementation of the project and most importantly the real conflicts pertaining to resource use are identified. Thus, the success of ICDP models are likely to vary from one location to the other. But, as the final evaluation of KSCDP states,

"This project has contributed significantly to the knowledge base and mechanisms for biodiversity conservation of Kibale and Semliki National Parks and enhanced Collaborative Resource Management. The outcomes indicate that there are strong links between livelihood security and conservation, and therefore such interventions should be scaled up" (Chege et. al. 2002).

References and Bibliography used

- Adolf, Bagonza (2002). Personal communication. Kabarole Beekeepers Association, Fort Portal, Uganda.
- Barrow, Edmund, Helen Gichohi, and Mark Infield (2000). Rhetoric or Reality? A review of community conservation policy and practice in East Africa. Evaluating Eden Series No. 5.
- Bennet, Andrew F. (1999). Linkages in the Landscape: the role of corridors and connectivity in wildlife conservation, IUCN (The World Conservation Union), Gland.
- Bensted-Smith, Robert and Stephen Cobb (1995). Reform of Protected Areas Institutions in East Africa. PARKS. Vol 5 No 3.
- Bell, R.H.V (1984). The man-animal interface: an assessment of crop damage and wildlife control. In: Bell R.H.V. and McShane-Caluzi, eds., Conservation and wildlife management in Africa: US Peace Corps Seminar, Malawi.
- Borrini-Feyerabend (1996). Collaborative management of protected areas: Tailoring the approach to the context. IUCN– The World Conservation Union.
- Chhetri, P., Mugisha A., and S. White (2003). Community Resource Use in Kibale and Mt. Elgon National Parks, Uganda. Parks Vo. 13 No. 1, 28-38
- Chege, F., Onyango G., Drazu C., and S. Mwandha (2002). Kibale and Semuliki Conservation and Development Project. End of Phase 3 and End of Project Evaluation. Government of Uganda and IUCN, 76 p.
- Daveport, T & Howard, P (eds) (1996). Kibale National Park Biodiversity Report No. 5. Forest Department, Uganda
- Daveport, T & Howard, P (eds) (1996). Semuliki National Park Biodiversity Report No. 15. Forest Department, Uganda
- Davey, Adrian G. (1999). National system planning for protected areas. In: Stolton and Dudley (eds.) Partnerships for Protection: New Strategies for Planning and Management for Protected Areas. IUCN, Gland, Switzerland.
- Fisher, J. (1995). Collaborative Management for Forest Conservation and Development, Issues in Forest Conservation, IUCN (The World Conservation Union) and World Wildlife Fund for Nature.
- Goriup, P (2001). ICDPs: Working with Parks and People. Vol II No. 2. WCPA, IUCN Gland
- Government of Uganda (1964). Forest Act, Game Preservation and Control Act
- Government of Uganda (1991). Population and Housing Census. Government Printer, Entebbe
- Government of Uganda (1995). National Environment Statute. Government Printer, Entebbe
- Government of Uganda. (1997). Local Government Act. Government Printer, Entebbe
- Government of Uganda (2000). *Poverty Eradication Action Plan*. Government of Uganda.

- Hinchley, David, Levand Turyomurugyendo and Kato Stonewall (2000). Review of Collaborative Management Arrangements for Mount Elgon National Park. IUCN – The World Conservation Union.
- Hoare, Richard (2001). Management implications of new research on problem animals. *Pachyderma* 30.
- Howard, Peter (1991). *Nature Conservation in Uganda's Tropical Forest Reserves*. WWF and IUCN.
- IUCN (2002). *Links Between Biodiversity Conservation, Livelihoods and Food Security. The sustainable use of wild species for meat* (Sue Mainka and Mandar Trivedi eds.). Occasional paper, IUCN Species Survival Commission, No 24.
- Jackson, W.J. and A.W. Ingles (1995). "Developing Rural Communities and Conserving the Biodiversity of Nepal's Forests Through Community Forestry", In: Community Development and Conservation of Forest Biodiversity Through Community Forestry, RECOFT Report 12 – Proceedings of a seminar, October 26-28. 1994. RECOFT, Bangkok.
- Karindawaro, K.S. (1998). Nineteen problem elephants relocated to Montana Ranch. *Zimbabwe Wildlife* (July), 20.
- KNP (1997). Long Term Management Plan (1997-2001). Kibale National Park. Isunga, Uganda Wildlife Authority.
- Kristi, W. (1996). Comparison of Lorena Cookstove and traditional stoves in Western Uganda. M.Sc Thesis. Kibale and Semliki Conservation and Development Project. Fort Portal.
- KSCDP (1993-present). Project Reports
- Lahm, S. A. (1996). A nationwide survey of crop-raiding by elephants and other species in Gabon. *Pachyderma* 21.
- Mangheni M. N., Biryabaho F. M., and C. Bukenya (2000). Review of the out-of-park sustainable development activities of the Kibale and Semliki Conservation and Development Project (KSCDP). Final Report. KSCDP/IUCN, Kampala.
- Mugisha, Arthru (2002). Evaluation of community-based conservation approaches: Management of Protected Areas in Uganda – A dissertation presented to the School of the University of Florida in partial fulfilment of the Degree of Doctor of Philosophy.
- Naughton-Treves. L. (1997). Farming the forest edge: vulnerable places and people around Kibale National Park, Uganda. *Geographical Review*, 87.
- _____ (1998). Predicting patterns of crop damage by wildlife around Kibale National Park, Uganda. *Conservation Biology* 12.
- NEMA (1997). *Kabarole District Environmental Profile*. National Environment Management Authority. Kampala, Uganda.
- Okote, John Mitchell. (2002). *Assessment and reporting of illegal activity in Kibale National Park covering June 1999 to December 2001 period*. Kibale National Park, Uganda Wildlife Authority.

- Parker, G. E and F. V. Osborn (2001). Dual-season crop damage by elephants in eastern Zambezi valley, Zimbabwe. *Pachyderm* No. 30. January – June 2001.
- Reardon Thomas and Stephen A. Vosti (1995). *Links Between Rural Poverty and the Environment in Developing Countries: Asset Categories and Investment Policy*.
- REN (1999). *Regional Energy News*. A quarterly newsletter on energy in Africa. Volume 5, No 1/2. Forest Action Network. Nairobi, Kenya.
- Rwetsiba, Aggrey (1999). Progress Report for Research on Kibale Forest Wild Coffee. The Potential of Kibale Forest Wild Coffee for rural economic development of communities peripheral to the park. KNP. UWA.
- Scott, Penny (1998). *From Conflict to Collaboration. People and Forests at Mount Elgon, Uganda*. IUCN.
- Stewart, Bill (1987). *Improved wood waste and Charcoal burning stoves*. Intermediate Technology. Kenya.
- The New Vision (2002). World Poverty Day Supplement, *New Vision*, October 17, 2002, Kampala, Uganda.
- Vision 2025, 1 (1999). Strategic frame work for National Developments, National Long Term Perspective Studies Project. Ministry of Finance, Planning and Economic Development.
- UNEP Project (1989). *The use and misuse of fuel saving stoves*. UNEP Informal and Public Affairs, Kenya.
- Uganda National Parks (1994). *Proceedings of the First Revenue Sharing workshop*. Uganda National Parks, Kampala, 28 p.
- UWA (1996). *Uganda Wildlife Statute, 1996*.
- UWA (1997). *Long Term Management Plan, Kibale National Park*. Uganda Wildlife Authority, Kampala.
- UWA (2000). *Strategic Plan (2001 - 2005)*. Uganda Wildlife Authority, Kampala, Uganda.
- Wildlife Clubs of Uganda (Undated). *A Handbook For Your Environmental Club*.
- Yeld, John (1997). *Caring for the Earth: South Africa. A guide for sustainable living*. WWF-SA Environment Programme.

Annex 1: A Collaborative Resource Management Agreement, Between Uganda Wildlife Authority and Members of Ruragama Beekeepers Group Kybandara Parish, Kamwenge Sub-County Kamwenge District

Preamble

WHEREAS, the members of Ruragama village, Kiziba Parish Kamwenge Sub County, Kamwenge District under the name of **Ruragama Beekeepers Group** through their Ruragama Beekeepers' Committee (herein referred to as the Committee) enter into an Agreement with **Uganda Wildlife Authority** (hereafter referred to as UWA) for the purpose of placing beehives in sites inside the multiple use zone of Kibale National Park (KNP) managed and controlled by UWA.

WHEREAS, Ruragama Beekeepers Group is permitted to place beehives in KNP, it will be subject to ensure that the placement of hives will not conflict with conservation objectives of KNP and shall report and resolve any anomaly, abuse or violation of terms and conditions related to this agreement.

WHEREAS UWA and Ruragama Beekeepers Committee agree to collaborate, in case of violation of the terms and conditions set out in this Agreement, UWA shall first warn the Committee. Failure(s) to further comply with the terms and conditions shall result in UWA terminating the Agreement.

WHEREAS, the agreement shall be effective for 3 years from the date of signing, the Committee and KNP management on behalf of UWA shall be responsible for carrying out monitoring the placement and use of hives as per the Management Pan during this period. The Agreement may be reviewed after 3 years and amendments made, if necessary. The Management Plan shall be reviewed at least once a year or earlier as deemed if necessary, and amendments made which must be approved by KNP before they are implemented.

We append our signatures to this agreement on this

_____ day of _____ 2001.

.....
For Uganda Wildlife Authority

Executive Director

.....
For Kibale National Park

Senior Warden-In-Charge

.....
**Chairman
Ruragama Beekeepers
Committee**

.....
**Secretary
Ruragama Beekeepers
Committee**

.....
**LC-II Chairman
Kamwenge Sub-County**

.....
**Chairperson,
Community Park Advisory
Committee**

1 Introduction

- 1.1 **WHEREAS** this Agreement satisfies the provisions of the Uganda Wildlife Authority Statute 1996, under Section 15 subsection 1 (a), it constitutes written permission from Uganda Wildlife Authority for use and management of the KNP as outlined in the terms and conditions of this Agreement and thus, does not conflict with Park by-laws.

2 Parties to the Agreement

- 2.1 **WHEREAS** Kibale National Park of UGANDA WILDLIFE AUTHORITY (herein after referred to as KNP) and the people of Ruragama village of Kyabandara Parish in the name of Ruragama Beekeeping Group (hereafter referred to the Group), through their Ruragama Beekeepers Committee (hereafter referred to as the Committee) on the other hand, hereby enter into an agreement to collaborate in use and management of the specified area within the Kibale National Park to place beehives, based on the terms and conditions in this Agreement.

IT IS HEREBY AGREED BETWEEN THE PARTIES AS FOLLOWS:

3 Scope of the Agreement

- 3.1 This Agreement shall be implemented in the sites identified jointly by KNP and the local communities in the multiple use zones. This Agreement shall be for a period of 3 years, subject to satisfactory implementation. As stipulated in the Uganda Wildlife Statute (1996), Section 15, Sub Section 2 the implementation of this Agreement will be guided by the Management Plan attached to this Agreement. The Management Plan shall be reviewed annually by the parties hereto and modifications made, if necessary between the two parties.

4 Description of the areas covered by the Agreement

Ruragama village is located in Kyabandara Parish. The village lies in the south western part of the Kibale National Park bordering Nkorongo Parish the south and Kiziba Parish to the north. Ruragama village has a total of 100 households with an estimated population of 600 people. Beekeeping is an important income-generating activity in Ruragama village and therefore is a major source of cash income. This Agreement will therefore provide local communities an opportunity to earn cash income through placement of beehives inside the Park, and utilization of Park's renewable resources in an environmentally compatible manner.

This Agreement does not amount to a transfer of ownership of Kibale National Park or any part thereof to any party. The ownership of KNP remains with the Government of Uganda. Use rights shall not be abused or meant to infringe or compromise the integrity of KNP.

5 Definitions

- 5.1 **Uganda Wildlife Authority** shall mean the Uganda Wildlife Authority under the Ministry of Tourism, Trade and Industry, as defined in the Uganda Wildlife Statute No. 14.
- 5.2 **Kibale National Park** shall mean Kibale National Park under the Uganda Wildlife Authority.
- 5.3 **Protected Area** in this Agreement shall mean National Parks or Wildlife Reserves.
- 5.4 **Collaborative resource management** in this Agreement shall mean entering into an arrangement between park and people to place beehives for honey production in designated areas, within the multiple resource use zone of Kibale National Park, in a manner that is environmentally sound and economically viable.
- 5.5 **The Group** in the Agreement shall mean local communities from Ruragama who are going to participate in this Agreement as per the terms and conditions stipulated in the Management Plan.
- 5.6 **The Committee** in this Agreement shall mean representatives democratically elected by the Group/members from the group. In this case, Ruragama Beekeepers Committee.
- 5.7 **Community** in this Agreement is taken as per the definition in the **Uganda Wildlife Statute** (1996) which defines it as an assemblage of human beings living in a defined geographic area, and identified by common history, common culture or common residence in the area.
- 5.8 **Beekeeping** activity in the Agreement shall mean only placing of and harvesting of honey, and looking after beehives inside the Park in designated sites.
- 5.9 **CPI** in this Agreement means the newly established Community Protected Area Institution of the Uganda Wildlife Authority.
- 5.10 **Members/Users** in the agreement shall mean members registered with the Ruragama Beekeeping Group to participate in beekeeping activity in designated sites within Kibale National Park.
- 5.11 **Management Plan** in this Agreement means the activities jointly developed by the Group and KNP to implement and monitor beekeeping activities in the Park.

6 Purpose of the Agreement

- 6.1 The purpose of this Agreement is to allow the members of the Ruragama Beekeeping Group to place beehives inside the Kibale National Park at Mwibale, in sites jointly identified by KNP and local communities.

7 Rights and Benefits

UWA and the people of Ruragama beekeeping Group shall agree to collaborate in the sharing of rights and benefits as follows:

7.1 For the Community the Rights and Benefits shall be:

- 7.1.1 To be able to access designated sites within KNP, during the subsistence of this Agreement.
- 7.1.2 To be able to seek technical assistance from the KNP.
- 7.1.3 A role in decision making over the future of the management and use of designated sites for beekeeping.
- 7.1.4 Participate as partners with KNP to make amendments in the Agreement/Management Plan.

7.2 UWA benefits shall be:

- 7.2.1 Improved conservation of Kibale National Park environment, positive relations and cooperation with the people of Ruragama village Kyabandara parish in the conservation of the National Park.
- 7.2.2 Reduction in the cost of patrolling in areas covered under this Agreement.
- 7.2.3 Promotion of community benefit schemes geared towards improving the livelihood of partner communities.

8 General Management Roles and Responsibilities

There shall be shared roles and responsibilities for the management of the Agreement area, with the people of Ruragama having the primary role in protecting the Park environment and regulating resource use, and the UWA having the primary role in giving technical advise and in monitoring and evaluating the implementation of the Agreement.

8.1 The UWA and the people of Ruragama will share the following collaborative management responsibilities:

- 8.1.1 Monitor the condition of sites pertaining to this Agreement.
- 8.1.2 Monitor and review the Management Plan.
- 8.1.3 Monitor and evaluate the performance of the Committee.
- 8.1.4 Ensure equity in issuing permits and placement of beehives.

8.2 Role of the Ruragama Beekeepers Committee (The Committee)

- 8.2.1 Abide by the rules and regulations stipulated in this Agreement in reference to placement of beehives.
- 8.2.2 Sensitize its members of the rules and regulations stipulated in this Agreement.
- 8.2.3 Help KNP in conservation of natural resources, especially at the areas that have been identified for placing the beehives.
- 8.2.4 Issuing permits for beekeeping. The permits shall be developed and provided by KNP to the Committee.

- 8.2.5 Ensure that membership fees are collected are deposited in Group account before issuing the permit.
- 8.2.6 Open up group saving account where banking facilities are available. Where banking facilities are not available, the committee shall propose an alternative place for the savings as agreed by the members.
- 8.2.7 Deal with offenders
- 8.2.8 Report any illegal activities taking place inside KNP, particularly in the sites covered by this Agreement.
- 8.2.9 Keep record of resources (honey) harvested, sold and the rate at which it is sold.
- 8.2.10 Liaise with the area (sub-county) Community Protected Area Institution to share information and for coordinated planning on issues related to Park and the Committee.
- 8.2.11 Amend the Management Plan as and when necessary in consultation with Kibale National Park.
- 8.2.12 Not to do or suffer to do anything outside this Agreement or activities that contravenes any legal provisions as established.

8.3 UWA's Roles and Responsibilities

- 8.3.1 Educate local communities and users of UWA policies related to natural resources utilization.
- 8.3.2 Educate /sensitize local communities/users of Park by-laws governing resource use/access from the National Parks
- 8.3.3 Strengthen local community skills in implementing and monitoring of the Agreement.
- 8.3.4 Monitor and assess the impact of beekeeping activities on Park ecosystem.
- 8.3.5 Train the community members in appropriate resource use (beekeeping) techniques.
- 8.3.6 Attend the meetings conducted by the Committee and ensure that minutes are recorded.
- 8.3.7 Respond to reports/request submitted by the Committee.
- 8.3.8 Provide user permits and membership identification cards.

9 Duration of the Agreement

- 9.1 The duration of this Agreement shall be 3 years from the date it is signed.

10. Review and Revision of the Agreement

This Agreement shall be reviewed and revised every 3 years, or earlier if deemed necessary by mutual agreement of the parties. While the renewal/revision of the Agreement may be made between the local communities and Uganda Wildlife Authority Head Quarter, the Management Plan may be reviewed, updated jointly

by KNP and the Committee, and approved by the KNP as and when necessary in consultation with local communities.

11 Conflict Resolution Mechanism

All disputes, difference and questions, which may at any time arise between the parties, shall be resolved as follows:

11.1 Intra-group dispute

- 11.1.1 Hold group discussion to discuss the dispute, queries or difference and resolve the issue. The Group shall resolve the disputes, differences, queries and levy appropriate penalty as per the Management Plan.
- 11.1.2 If the dispute, query or difference still exists the matter shall be discussed and resolved with the help of Local Councils.
- 11.1.3 If the dispute, difference, query still persist, the parties involved shall be recommended to seek advice from KNP.

11.2 Inter-party conflict

- 11.2.1 In the first instance, the parties shall endeavor to resolve their disputes amicably through having meetings, exchanging the necessary information and negotiating to resolve the dispute.
- 11.2.2 Failure to resolve the dispute through mechanism mentioned in (11.2.1) above within the first 3 months, the Chairperson of the Local Councils I or II or CPI (as agreed to by both parties) shall act as the 3rd party (mediator) to resolve the dispute or differences.
- 11.2.3 Failure to reach a reconciliation within 2 months through the mechanism mentioned in (11.2.2) above, this Agreement shall be suspended for a period of not more than 3 months in which period the dispute shall be referred to a neutral party to be appointed by mutual agreement of the parties. Any person who is not satisfied by the final arbitral decision of KNP shall be at liberty to appeal to the courts of law.

12 Termination of the Agreement

- 12.1 This Agreement can be terminated at any time if both parties are in full agreement to terminate it.
- 12.2 If either party is not satisfied with the way the Agreement is being implemented in terms of its terms and conditions they shall notify the other party in writing of the dispute, difference or questions which have arisen.

MANAGEMENT PLAN

1. Introduction

1.1 *This Management Plan will form a basis to guide the members of Ruragama Beekeeping Group to place beehives inside the designated areas of Kibale National Park (KNP) and to harvest honey under the following terms and conditions.*

1.2 *Ruragama village lies in Kyabandara Parish, Kamwenge Sub-County, Kamwenge District. There are approximately 100 households in this village of which 30 households will participate in beekeeping activity inside the Kibale National Park (**Appendix I**). Major economy of Ruragama village is agriculture and beekeeping is an important activity in the area. Beekeeping therefore is expected to help the people of Ruragama in earning cash income thereby mitigating poverty.*

2. Ruragama Beekeepers Committee

2.1 *In order to ensure that members of the Ruragama Beekeeping Group comply with the terms and conditions of Agreement, the Group has formed a Committee called Ruragama Beekeepers Committee (herein after referred to as the Committee). The Committee will have 5 members elected democratically from among the users. The names of the Committee members have been provided in **Appendix II**.*

2.2 *The life of the Committee is one year after which members shall get together and re-elect new committee members. Election of Committee members will be done in the presence of at least 70% of the Group members.*

3. Expected benefits

Some of the expected benefits from this Agreements or implementation of the Management Plan include:

3.1 *Conservation of KNP by way of reporting or stopping illegal activities, arresting or preventing bush fires etc.*

3.2 *Increased income opportunity through harvesting of honey for members participating in this Agreement.*

3.3 *Reduced policing costs of KNP in areas covered by the Agreements as local communities partaking in this agreement will help report or arrest illegal activities..*

3.4 *Community cohesiveness – bringing interest groups together*

3.5 *Community development by way of using the fees/funds collected for taking up development activities as deemed appropriate by the Group.*

3.6 *Improved relationship between KNP and local communities.*

4. Terms and conditions of resource (site) use

4.1 *Beehives may be placed only inside the designated area(s) in the Park.*

4.2 *Only 60 beehives will be kept in total in the two sites. The need to add additional beehives may be determined during the review of the management plan.*

- 4.3 *Each member is allowed to keep only 2 hives per year. Only one hive may be placed per permit. Additional beehive may be placed only after securing an additional permit.*
- 4.4 *Only members registered in the Group are allowed to participate to place the beehives. Therefore, it is the responsibility of the Committee and its members to ensure that only registered members go inside the park for placing the hives and/or for collecting honey.*
- 4.5 *Honey collection will be done 6 times a year. The frequency of harvesting may be revisited during the review of the Management Plan.*
- 4.6 *Permits will be issued at a rate to be determined by the Committee. However, for every permit sold, a sum of Ush 1000 will be provided to KNP to be used in conservation of the Park.*
- 4.7 *The fee collected by the Committee through the issue of permit shall be used for community development activities as identified by the Group.*
- 4.8 *Financial records are kept transparent and up to date.*
- 4.9 *No one shall be allowed to go inside the Park without the permit. If any one is found inside the Park without the permit, the Committee shall levee an appropriate fine to the offender.*
- 4.10 *Hunting and killing of any animals inside the Park is illegal. Violation to this rule shall be dealt with by Park Management.*
- 4.11 *Anyone found to cause unnecessary conflicts or fights shall be subject to a fine to be determined by the Committee upon case by case basis. The responsibilities of treating the injuries from the fight shall lie with the offender.*
- 4.12 *Camping inside the Park without the permission is an offense, liable to prohibition of entering the Park.*
- 4.13 *Taking any animals (pets or domestic) and weapons into the Park shall be considered an offense liable to a fine to be determined by the Committee.*
- 4.14 *Anyone found to possess or set traps such as snares shall be liable to pay a fine of Ush 20,000 per case.*
- 4.15 *Stealing honey belonging to others shall be an offense liable to confiscation of the permit or suspension from the group.*

5. Roles and responsibilities of the Committee

The Committee shall:

- 5.1 *Ensure that beehives are placed and maintained in prescribed area only.*
- 5.2 *Ensure that none of the members use fire to collect honey.*
- 5.3 *Issue permits and collect membership fee.*
- 5.4 *Deposit the fee in local banks if available or in any other safe place, identified by the members. The Committee is responsible for safekeeping of the money.*
- 5.5 *Determine the use of fees collected in consultation with the Group.*
- 5.6 *Arrest and forward Park offenders to LC Courts and/or KNP.*
- 5.7 *Report any illegal activities to KNP as and when they occur.*
- 5.8 *Stop/discourage/report bush burnings inside the Park.*

- 5.10 *Keep financial records up to date and transparent.*
- 5.11 *Hold group meetings to review the impact of beekeeping activity and keep minutes of every meeting. At least 6 meetings will be conducted each year.*
- 5.12 *Develop strategies with key agencies to market honey and the by-products.*
- 5.13 *Invite Chairman of Local Council I to group meetings.*
- 5.14 *Liaise with the area CPI and/or KNP to seek advise/opinion on technical and managerial matters when needed.*
- 5.15 *Suggest ideas to improve beekeeping activities.*

6 Roles and responsibilities of the Group members

Members shall:

- 6.1 *Abide by the rules and regulations stipulated in the Management Plan.*
- 6.2 *Report any illegal activities encountered in the Park to the Committee immediately.*
- 6.3 *Attend meetings conducted/called by the Committee*
- 6.4 *Participate in electing Committee members.*
- 6.5 *Ensure proper placement of the beehives inside the park.*
- 6.6 *Remove wire snares and traps as and when they come across one.*

7 Role of Community Park Advisory Committee (CPAC)

- 7.1 *Assist in resolving conflict associated with beekeeping activity.*
- 7.2 *Provide or seek appropriate technical backstopping for the Group/Committee when requested.*
- 7.3 *Participate in Committee meetings and ensure that the meetings are democratic and fair.*
- 7.4 *Participate in joint planning between the communities and KNP.*
- 7.5 *Keep track of beekeeping activities especially those linked to KNP and the neighboring communities.*
- 7.6 *Assist beekeeping groups in developing and implementing development projects supported under the Revenue Sharing Scheme.*

8. Monitoring mechanism

- 8.1 *Major responsibility to monitor the impact of this Agreement will lie with the Committee. The Committee shall monitor the sites at least 12 times a year. The Committee may assign the responsibility of monitoring to selected members from the group upon mutual agreement to carry out monitoring of the sites and activity.:*
- 8.2 *Monitoring shall be done to assess the changes that are taking place inside the Park in beekeeping sites and on the livelihood of the participating community. The members/group shall use simple monitoring formats to record above mentioned changes/impact jointly developed by them and KNP. In addition, each member is to observe any changes (negative or positive) that are taking place while they are visiting the sites. Such changes should be*

reported to the Committee who in turn will make formal report to KNP and Local Councils.

8.3 *At every group meeting (organized by the Committee) there will be discussion on issues, changes (impact) and minutes recorded properly.*

9 Penalties and Rewards

9.1 Penalties

Any wrong doing or unlawful act committed by the member(s) to the procedures stipulated in the Agreement and the Management Plan will result in the following disciplinary actions depending on the gravity of the unlawful or unauthorized act committed:

9.1.1 Be requested to give an explanation of the accounts pertaining to the unlawful act.

9.1.2 Be required to give a written apology.

9.1.3 Lose membership and access right to the Park.

9.1.4 Be made to pay a fine levied by and agreed upon by the Committee.

9.1.5 Be brought to Courts of Law (in case of major offence(s) for prosecution.

9.2 Reward(s)

9.2.1 Certificates of merit and performance shall be issued in conjunction with the Committee and KNP for an outstanding work done.

Appendix I

List of Ruragama Beekeeping Group Members

#	Name	#	Name
1.	Nshekanabo, Clemensia	29	Anyesigye, Michael
2.	Bangirana, James	30	Muganzi, Dominic
3.	Izongoza, Christopher		
4.	Ndayonde, Ediwadi		
5.	Karasira, Frances		
6.	Bangamwabo, Yakobo		
7.	Kangyenyenka, Guderiya		
8.	Turyahikaya, Ricadi		
9.	Byamugyisha, Paskari		
10.	Bimanyomwe, Abusoromu		
11.	Kabwiga, Yafesi		
12.	Kanyankore, Patrick		
13.	Babirukamu Francis		
14.	Mwebesa, James		
15.	Tweyongere Patrick		
16.	Karibeta, Charles		
17.	Satade, Andrew		
18.	Rubanyegyeya, Wirigamu		
19.	Gakyaro, George		
20.	Habomugisha, Benjamin		
21.	Rwanika, Charles		
22.	Kanyohone, Yosefu		
23.	Kyarikunda, Francis		
24.	Rumandonda, Francis		
25.	Twongirwe, Provia		
26.	Kakwegami, Francis		
27.	Kyarisima, Dezi		

Appendix II

Executive members

Title	Name
Chairman	Nshekanabo Klemensia
Secretary	Izongoza Christopher
Treasurer	Ndayonde Edward
Adviser	Kakwegami Francis
Adviser	Bengamwabo Yakobo

Appendix III (d)
Some indicators of improvement/contribution in conservation
Annual report

Conservation indicators		Observation	Remarks
1	No of committee meetings attended by Park staff	Times a year	
2	Amount of financial (permit) fee made to KNP	Amount paid	
3	No of monitoring visits	No of visits made	
4	Reduction in use of snares	No of snares observed or reported	
5	Reduction in bush burning	No of bush fires in a year.	
6	Reduction in number of illegal hunting (poaching)	No of hunting activities taken place.	
7	Reduction in incidences of charcoal burning	No of charcoal burning in a year.	
Socio-economic indicators			
1	Registration with Kabarole beekeepers association	No of members registered.	
2	Income earned.	Amount of money earned from beekeeping (as a group)	
3	honey harvested (as a group)	Amount (cans)	
4	Fee collected from issuing of permits	Amount in shillings	

PARK BY-LAWS:

The Republic of Uganda

The National Park's Act of 27 of the Laws of Uganda

and on the Matter of Bye-Laws Made Pursuant to Section 12

of the National Park's Act for Kibale National Park

Provision Park Bye-Laws:

In the exercise of the powers conferred upon the trustee of Uganda National Parks, pursuant to Section 12 of the Park's Act, the Trustees, have found it expedient, to make the following Bye-Laws.

Citation	1	These Bye-laws may be cited as the Kibale National Park provisional by-laws, 1996 until such a time that the Board endorses them as the Kibale National Park by-laws.
Interpretation	2	In these by-laws, unless the context otherwise requires, the works defined below shall be presumed, so far as consistent with these provisional by-laws to be with the meaning to them hereunder and shall be construed in accordance therewith.
		Park means the National Park in the areas between 0°13'041 N and 30° 19'30'32E and established by the proclamation contained in the legal Notice Statutory instruments supplemented No. 0 off Nov 1993 No 76 and known as the Kibale National Park.
		Trustees means the Trustees of Uganda National Park appointed under the provision of Section 5 of the National Park Act, 1964.
		Warden means any Warden of the Park.
		"Park Road or Trail or Track" means a road or track or trail passing through the park and or maintained by the Park.
		"Dangerous weapons" means any man made tool that can be used to terminate life within the Park.
		"Wildlife" means all forms of undomesticated forms of plants and animals.
Servants of Trustees	3	Nothing in these provisional By-Laws shall be deemed in any way to affect the servants of the Trustees on duty acting in the scope of their environment under the lawful orders of their superiors.
Entry into the Park	4	No person shall enter the Par without a valid entry permit, which may be issued by the Warden on behalf of the Trustees. The issue of an entry permit shall not in any way be deemed to make the Trustees liable for any injury or damage done while in the Park to the person or persons in respect of whom the permit has been issued.

Residence in the Park	5	No person may reside in the Park without the written permission or full knowledge of the Warden.
Camping	6	No person may camp in the Park in areas reserved and marked as camping grounds without the written permission of the Warden.
Vehicles	7	No person shall travel or ride in any vehicle within the Park boundaries, except in areas reserved for such purpose.
Speed limit	8	No person shall drive a vehicle at a speed greater than 45km per hour while within the Park.
Motor Horns	9	No persons shall hoot horns of their vehicles within the Park.
Signals	10	All drivers within the Park shall obey the rules any regulations established by the Park in such a way as to obstruct any Park road, track or trail.
Obstruction of Roads	11	No person having been allowed to drive in the Park, shall park his vehicle within the Park in such a way as to obstruct any Park road, track or trail.
Closed Roads	12	No person may use any road, track or trail closed by order of the Warden. Any road, track or trail on which there is notice of its closure shall be deemed closed until otherwise ordered by the Warden.
Alighting from Vehicle	13	No person other than research/management purpose shall leave or step or alight from the established trail systems unless directed by the Warden or Ranger Guide/Field Assistant.
Prohibition of Weapons	14	No person shall bring into the Park without permission any firearms, traps or dangerous weapon or ammunition. Any permission granted under the Bye-Law may be granted subject to such terms and conditions as the Warden may see fit.
Noise	15	No person shall cause noise by radios, tape players or discos within the Park.
Touch or Feed	16	No person shall touch or feed wild animals in the Park except for purpose of research or rescue or veterinary intervention.
Fires	17	No person shall light any fire in the Park other than places set aside for that purpose by the Warden.
Domesticated Animals	18	No person shall bring a dog or other domesticated animals or plants into the Park.
Harassment	19	No person shall damage, scare, threaten or harass any wildlife or animals within the Park.
Protection of Wildlife	20	No person shall remove from the Park any wildlife or animals, rocks, vegetation or trees without a written permission of the Warden.
Large Animals	21	No person shall approach large mammals especially elephants, buffaloes, leopards and chimpanzees without a Ranger Guide/Field Assistant.

Park Resources	22	No person shall have access to any Park resource, without permission of the Warden. This written permission will be made public and will be prearranged with community representatives. Such access will be only in designated areas of the Park.
Litter	23	No person shall leave litter or human waste or any pollutant in the Park except in places reserved for such purposes.
Boundary Beacons	24	No person shall interfere with any boundary beacon or marker within or at the edge of the Park.
Operators in the Park	25	Non-government organizations, Tourism companies and such other bodies operating within the Park shall do so only with the permission of the Warden and the Trustees. All such organizations are responsible for the good conduct of their members and visitors while within the Park boundaries.
Times of Entry	26	Subject to any special directions that may be given by the Warden from time to time, no person may enter or move within the boundaries of the Park between 7:15 p.m. and 6:30 a.m.
Risk	27	Any persons entering the Park do so at their own risk.
Track or Trail	28	No person shall construct, or establish a track or road or trail within the Park, except with permission of the Warden.
Introduction of Wildlife	29	No person shall introduce into the Park any wildlife, rocks, water or soil without the written permission of the Warden.
Photography	30	Any person may take photographs in the Park while on a road or track or trail, but no person may take photographs from any other place in the Park unless he/she is in possession of a permit issued by the Warden.
Cinematography	31	No person shall film any part of the Park without written permission of the Warden and the Ministry of Information and Broadcasting.
Fees	32	The fees payable for the services/permits shall be determined by the Trustees from time to time.



IUCN - Eastern African Regional Programme

IUCN established the Eastern Africa Regional Office (EARO) in Nairobi in 1986. EARO facilitates the implementation of the IUCN Programme in Sudan, Eritrea, Djibouti, Somalia, Kenya, Tanzania, Comoros, Seychelles, Uganda and Ethiopia. Through its technical group, established in the early 1990s, the IUCN Programme assists members and partners in the region with capacity building through the implementation of programmes and projects, networking, and technical advice. Specific areas of expertise include: protected areas, ecosystem management, biodiversity conservation, environmental planning and strategies, and support to environmental NGOs.

IUCN – Eastern African Activities with Tree Dominated Landscapes

EARO's Forest Conservation activities evolved as a discrete theme in 1993, as part of IUCN's global Forest Conservation Programme, to assist the conservation and forest authorities in the region, and address some of these needs by building on the expertise of the Union and its membership so as to contribute to the overall regional programme. The work focuses on practical methods for conserving forests and promoting sustainable forest use and management. Through this IUCN hopes to help in influencing, encouraging and assisting the countries of Eastern Africa to conserve the integrity and diversity of forest resources and to ensure that the use of these resources is equitable locally, nationally and globally. This will be done through partnerships cooperating to address the priority themes of forest conservation and sustainable management in the region.

Tree-dominated landscapes play an important role in the provision of goods and services to local resource users, communities, and countries in the region. IUCN will work with members and partners to develop the knowledge base about these ecosystems, their importance for both biodiversity conservation and in the livelihoods of rural people. Within conservation areas, sustainable use of trees will continue to be explored through collaborative forest management. Lessons about balancing sustainable use with biodiversity conservation, will be used to inform and influence both conservation and livelihood policy processes in wider and more integrated land use.

IUCN – Eastern African Activities with Social Perspectives in Conservation

It is only recently that IUCN in Eastern Africa has become more involved in work with social issues. The range of social issues are being integrated into the IUCN portfolio of projects as part of implementation and this will enable lessons to be learnt in different ecological and social systems in the region. Such issues include, gender and stakeholders, participatory processes and tools, tenure of land and resources, economics (implemented by the Economics and Biodiversity unit), capacity building for addressing social issues, and the integration of social issues into conservation and natural resource management in the region.

Increasingly conservation has to be seen as a component of land and landscape planning. If this does not take place, conservation resources and areas are likely to be further excluded from mainstream national and local land use planning and land use. Local people and resource users need to have greater responsibility for their natural resources, and not be in conflict with natural resource managers. To achieve this they must benefit from, and have some degree of proprietorship for such resources.

