NATURE & FAUNE

Volume 23, Issue 2

Success stories in management of wildlife and nature in Africa

FAO Regional Office for Africa

Front Cover Photos:
Top left: View on the mountain range in the dry season, Majete Wildlife Reserve, Malawi, Hanneke Hogerheijde

Bottom left: A view of a waterfall and gallery forest in Darfur, Sudan, Ata El Mannan

Right: Elephant, Majete Wildlife Reserve, Malawi

Back Cover Photos:
Top left: Buffalos, Majete Wildlife Reserve, Malawi

Bottom left: Rhino & baby, Majete Wildlife Reserve, Malawi

Right: East African Yellowwood (*Podocarpus falcatus*), of the central and eastern highlands of Ethiopia, Bekele-Tesemma

Nature & Faune is a peer-reviewed open access international bilingual (English and French) publication dedicated to the exchange of information and practical experience in the field of wildlife and protected areas management and conservation of natural resources on the African continent. *Nature & Faune* has been in wide circulation since 1985.

Nature & Faune is dependent upon your free and voluntary contribution in the form of articles and announcements in the field of wildlife, forestry and nature conservation in the Region.

Nature & Faune

Vol. 23, Issue 2

Success stories in management of wildlife and nature in Africa

Editor: Foday Bojang
Assistant Editor: Ada Ndeso-Atanga
FAO Regional Office for Africa

nature-faune@fao.org
http://www.fao.org/africa/publications/nature-and-faune-magazine/

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Accra, Ghana
2008

Table of Content

Message to Readers

Maria Helena Semedo[1]

Everyone wants to be part of a good thing!

Several writers in this Issue narrate success stories in management of wildlife and nature in Africa. Nature & Faune magazine is raising this subject because it is important to understand how a project, programme and a community initiative can succeed where others failed. It is time to develop a deeper and comprehensive critique of what the civil society, government, conservationist and network are doing right in Africa. This is more so as Africa is a very diverse continent (socio-culturally, economically and ecologically), with one of the richest biological diversity on planet earth.

This Issue of the magazine aims at reflecting on and rekindling interest in successful field projects, capacity-building initiatives and networking of natural resources practitioners. It is a strategy to sustain ideas that could enhance conservation of wildlife and natural ecosystems and improve Africa's rural livelihoods. This edition of Nature & Faune offers project managers and natural resources practitioners a platform to showcase and describe their activities, thus offering readers the opportunity to communicate with them and exchange information on areas of common interest.

If you are looking for heartening accounts and chronicles from Africa, then this issue is for you. The Cairo (Egypt) based FAO Senior Forestry Officer, Pape Djiby Kone, leads off with the editorial "Wildlife and Nature management in Africa: evolution and success stories." Hanneke Hogerheijde, Marketing Manager, Majete Wildlife Reserve in Malawi, then provides a special feature about the first private park management institution in Africa that takes on long-term management responsibility of parks by combining conservation practice with business expertise. Michel Laverdière, Million Bekele, Habtemariam Kassa, Meshack Malo and Mafa Chipeta share thoughts on how forestry in Ethiopia lays down building blocks for success in the sector. In their turn, Christopher Manu and William Oduro describe the quest in Ghana for wildlife in forest management.

We received also a contribution form Samuel Koffa and his compatriots Somorgar Zwuen and Jonathan Yiah in Liberia on redefining wildlife management strategy to stem imminent bushmeat crisis in Liberia, which begins on page 46. Other contributors on the impact of hunting include Rolf Baldus, Gerhard Damm and Kai-Uwe Wollscheid. They highlight best practices in Sustainable Hunting with illustrations of success stories from Southern Africa.
Chi Augustine Muam, a Senior Lecturer at the Faculty of Law and Political Science, University of Douala, Cameroun, discusses the reconciliation of resource value differences of stakeholders in sustainable landscape management, pointing to the case of a tri-national landscape in the central Africa sub-region.

You will enjoy the exuberance and pride with which Mohamed Khamis, Assistant Professor, Department of Forestry and Range Sciences, University of Al Fashir, Northern Darfur, Sudan shares his reflections on the integrated management of plants and animal wildlife in Jebel Marra Forest in western Darfur, Sudan.

Seraphin Dedi Nadje, Konan and Helguile take us to the arena of fisheries in Assomlan in Cote d'Ivoire where a lagoon crab is emerging as a factor in the livelihoods of the community. Mzeka Paul, Coordinator, Apiculture and Nature Conservation Organization (ANCO) narrates how Dom, a tiny village in the Bamenda highlands of Cameroon swings into prominence, through community environmental protection project.

[1] *Maria Helena Semedo, Officer in Charge - Regional Office for Africa, United Nations Food and Agriculture Organization, P. O. Box 1628 Accra. GHANA, Tel: 233 -21-675000 Ext. 3194, 233 21 7010 930 ext. 3194; fax: 233-21-668 427*

Paul Bosu and Clement Chilima acquaint readers with the milestones achieved by the Forest Invasive Species Network for Africa (FISNA) under whose auspices forest health experts unite against invasive species on the continent.

Ghana is the Country Focus in this Issue. This feature highlights our conversation with a team of Ghanaian natural resource managers - Professor Kwabena Tufuor, former Chief Administrator of the Ghana Forestry Commission, Mr. Fredua Agyeman, Technical Director (Forestry) at the Ministry of Lands, Forestry and Mines and Mr. Alexander Asare, Manager of the Collaborative Resource Management Unit of the Forestry Commission. In unison they explore key organizational, administrative and policy measures that led to the celebration of 100 years of organized forestry management in Ghana.

So we welcome you to this Issue and we hope that you will gain as much inspiration as we did from these articles.

Editorial

Wildlife and Nature management in Africa: Development and success stories

Pape Djiby Koné[1]

For many decades, including the era of colonization, Africa has been famous for its luxuriant forests and its fascinating and rich wildlife. These wild animals and plants were dramatized by tales of the first explorers and adventurers who travelled its length and breath in search of glory, exotic thrills and treasures.

Historical background

Even though, the colonialists deserve praise for establishing forest administrative institutions and structures with the responsibilities of managing and protecting the forest resources in most of the African countries, it is necessary not to downplay the important role played by some of our traditional institutional mechanisms for managing wild flora and fauna. Indeed, most of the 'sensitive' and charismatic wildlife species in Africa have always enjoyed some sort of protection through the traditional belief system that could be compared to blood relations between certain species and names or clans. This is the case for families such as the N'diayes in Senegal, the Konés and Keitas in Mali which are related to the Lion. On this account, they are interested in protecting this animal, never to eat its meat and always foster its survival. Some animal species were also associated to traditional chieftaincy symbols. Thus, even today, animal or plant representations can be found on symbols (rings, scepters, thrones…) for kings and traditional chiefs. However, even though our wildlife still inspires the adoption of emblems and mascots this is still not enough to successfully raise the awareness of a population that is increasingly disconnected from nature in favour of television and the Internet. The national coats of arms of many African countries show animals or trees, and many of the national football teams bear names originating from wildlife, e.g. the Mambas of Mozambique and the Zebras (EZIMBIZI) of Botswana.

African wildlife in danger

During the last years of colonization, and especially following the independence of most African countries, under the leadership of inexperienced, ill-equipped and often inexistent administrations, African wildlife suffered a systematic slaughter by poachers better armed than most of our national armies and enjoying wealth and impunity thanks to highly organized networks. This plundering of our fauna was worsened by the massive destruction of its habitat through logging, firewood harvesting and the clearing of new agricultural lands both for subsistence farming and for the installation of large cash crops agriculture.

In view of the progressive extinction of certain species (the great apes of Central Africa, the elephants and big cats of West Africa) and threats to the survival of some of them (Addax and Derby Eland in North Africa, Okapi in Central Africa and Rhinoceros in Southern and Eastern Africa), vigorous campaigns have been conducted both at local and international levels.

The African Forestry and Wildlife Commission and *Nature & Faune*

It was in the above context, that the FAO African Forestry Commission decided in the 1970s to create a Working group on wildlife and national parks and also change its name to 'African Forestry and Wildlife Commission' to better emphasize the equal importance given to forest and wildlife by African countries. In the same vein, FAO launched, through funding from the United Nations Environment Funds (UNEP), the '*Nature et Faune*' publication which subsequently became bilingual and has over the years greatly encouraged and facilitated the emergence of Africans authoring exciting articles on the management, evaluation and monitoring of African wildlife.

[1]*Pape Djiby Koné, Senior Forestry Officer, Executive Secretary, NEFC Regional Office for the Near East El Eslah El Zerai Street, 11 Dokki, Cairo PO Box 2223, Cairo - Egypt*
Tel. +202-3-3316000 / +202-3-3316136 (direct line) Email: djiby.kone@fao.org

Initiatives that made a difference

Under the impulse of the African Forestry and Wildlife Commission and its additional body, the Working Party on Wildlife and National Parks which by then had been renamed 'Working Party on Wildlife and Protected Areas Management', many programmes and projects have been initiated on the continent by FAO and various partners: reintroduction of extinct species such as the ostrich and Dorcas gazelle in the North of Senegal; development of simple breeding techniques of the cane rat in West Africa, of the crocodile in Mozambique and Madagascar, etc. The most significant achievements are: the support to African countries in the development of regulations on wildlife and hunting, policies for the creation and management of protected areas, and the development of mechanisms to facilitate the assumption of responsibility for and full participation by communities in wildlife management. These developments enabled the creation of initiatives such as CAMPFIRE - Zimbabwe's Communal Areas Management Programme For Indigenous Resources, which helped more than 80% of rural communities to significantly improve their living standards through ecotourism and wildlife management.

In Ghana, an FAO project contributed to ensuring the livelihoods and food security of farmers around the Kakum conservation area, by developing simple techniques for preventing elephants from regularly destroying their food crops.

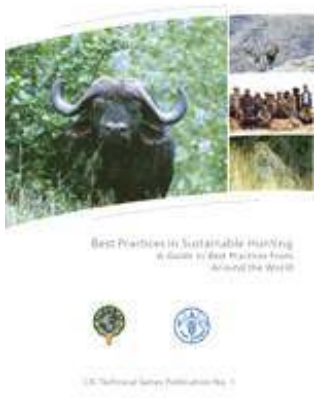
Challenges to overcome

Even with the above overview of a number of successful initiatives that represent a significant progress in the sustainable management of African wildlife, there still remain several serious challenges to overcome. The issue of bushmeat, especially in West and Central Africa, remains important despite some progress made during the last five years. Potential conflicts between the fauna and human activity are far from being resolved, as well as the issue of protected areas management in the context of global development of rural areas.

This is the reason why there is an urgent need to reinforce regional exchange and cooperation, especially through mechanisms and instruments such as the Working party on Wildlife and protected areas management of the African Forestry and Wildlife Commission. There is also a need for better information provision through initiatives such as *Nature & Faune magazine*. It is equally important to have a better integration of wildlife issues in forestry projects and programmes in Africa.

Announcements

A publication on best practices in sustainable hunting
The Food and Agriculture Organization of the United Nations (FAO), together with the International Council for Game and Wildlife Conservation (CIC) in a joint venture looked at some of the factors that determine whether wildlife develops upwards or downwards and they examined how sustainable use of wildlife, in particular hunting can contribute to conservation. A number of success stories from around the world, some of them from Africa, were presented as "best practices" in a publication titled "Best Practices in Sustainable Hunting. A Guide to Best Practices from around the World"(See photograph and link below). The African cases include an assessment of the economic scale and the conservation significance in Sub Sahara Africa by Peter A. Lindsay and a position paper on trophy hunting by the WWF of South Africa. L. Chris Weaver and Theunis Petersen explain the success of the Namibian Communal Area Conservancies. More general articles analyse recreational trophy hunting tourism, the economic potential of sustainable hunting tourism and the need for conservation areas to be financially self-sufficient to the greatest extent possible. The book can be downloaded as a complete volume or by chapters at:
http://www.cic-wildlife.org/uploads/media/Best_Practice_Book_EN_final.pdf;
http://www.fao.org/docrep/010/aj114e/aj114e00.htm



Best practices in sustainable hunting

A guide to best practices from around the world

CIC Technical Series Publication No.1

© CIC – International Council for Game and Wildlife Conservation, 2008

FAO, 2008

A new Policy Brief –'Agroforestry Option for Tanzania' has been published by the World Agroforestry Centre. The full text of the brief along with other related ones is available at the following link http://www.worldagroforestry.org Tanzania is listed among the thirteen African countries worst affected by climate change impacts and vulnerability, and having the least adaptive capacities. The country faces the challenge of revitalizing her agricultural sector by improving the natural resource base. The brief explains how agroforestry could offer robust options to improve productivity and achieve environmental sustainability and outlines policy recommendations – both technical and institutional – that will go along way in mitigating the effects of climate change and reduce farmers' vulnerability.
http://www.worldagroforestry.org/af1/downloads/publications/PDFs/BR09007.PDF

Knowledge and Information Sharing project requests your collaboration
A project designed to contribute to the eradication of hunger by providing a scheme for information sharing among development partners is requesting for collaboration. This project titled "Enhancement of Efficiency for Effective Knowledge and Information Sharing of FAO's Resources" will produce a technical manual that introduces technology of good practices in South-South Cooperation (SSC) conducted by FAO and Japan. The experience could be transferred to the Least Developed Countries (LDCs) of Sub-Saharan Africa to increase agricultural production and productivity.

The manual is planned to cover the following four areas: ①Rice Cultivation; ② Aquaculture development; ③Small scale irrigation and water management; ④Market access etc. The project is interested in the technology on Post-harvest Handling and Marketing, Domestication, Post-harvest Handling and marketing of Selected indigenous Fruit Trees (TCP/NAM/0167) carried out from 2002-2003.

The following information are needed when submitting a synopsis of your project:

1. General information of the project
   - Project site (Country, City)
   - Targeted beneficiary groups or people (Category, The total number of beneficiaries)
   - Objectives of the project
   - Period of implementation of the project
   - Expense
   - Contents of the project
   - Outputs of the project

2. Detail description of techniques
   - Introduction of techniques (with photographs and/or figures)
   - Details of inputs (budget, duration, materials, technical assistance etc.)
   - Difficulties faced under implementation
   - Some knacks for successful implementation

3. Conditions for transfer of the techniques to the LDCs
   - Ideal conditions for transfer of the techniques at the LDCs of Sub-Saharan Africa
   - Factors to take into account both from natural and social aspects, when transferring the techniques to areas under different conditions (soil, water, meteorology, human resources, budget etc.)

4. Provide some examples depending on conditions as well as reference and contact address for further information/queries on the techniques

Contact: Tomihisa, Yukiko

Project GCP/INT/046/JPN
FAO Liaison Office in Japan
Email: Yukiko.Tomihisa@fao.org

A conference on Forest tenure, governance and enterprise: New opportunities for livelihoods and wealth in Central and West Africa will hold in Yaoundé Cameroon, May 25-29, 2008
Organized by: The International Tropical Timber Organization (ITTO), Rights and Resources Initiative (RRI), Food and Agriculture Organization of the United Nations (FAO) and the Cameroon Ministry of Forests and Wildlife

This conference will catalyze new and broader actions on securing tenure rights in Central and West Africa for implementation by governments, civil society organizations and local communities with the support of international institutions and funding agencies. This will involve setting up goals and developing agendas for new interventions and reforms. Participants will share experiences in securing tenure rights, including the relationship between tenure reform and other goals such as improving livelihoods, securing investment, spurring small scale enterprises, and addressing climate change. The diversity of stakeholders present and the multiplicity of perspectives they represent will allow for discussion, debate and the strengthening of collaborations and partnerships. The new initiatives emanating from this conference will help strengthen the impact of other key efforts particularly on forest law enforcement and governance and voluntary partnership agreements that are being launched in Africa, all of which point to the necessity and urgency of clarifying rights.

This is a strategic and timely opportunity to build on the existing and growing awareness among Central and West African government leaders of the necessity to address these issues and to spur

action to improve existing frameworks of forest ownership and use. Strengthened and clarified tenure rights will play a crucial role in facilitating the most efficient and just allocation, use and preservation of forest resources to address local, national, regional and global interests and concerns.

Contact:
Eduardo Mansur
Assistant Director, Reforestation and Forest Management
International Tropical Timber Organization (ITTO)
International Organizations Center - 5F
Pacifico-Yokohama
1-1-1, Minato-Mirai, Nishi-ku
Yokohama, 220-0012 JAPAN
Tel.: +(81-45) 223-1110
Fax: +(81-45) 223-1111
E-mail: mansur@itto.or.jp
Web site: http://www.itto.int/en/workshop_detail/id=44270000

"Football for the Forests" Bushmeat Awareness match will take place in 2010
The anti-bushmeat charity football match scheduled for June 2009 in Yaoundé Cameroon has been moved forward to 2010.

Given that 2009 is the International Year of the Gorilla, the Great Apes Survival Project (GRASP) Secretariat announces that they are planning an anti-bushmeat charity football match to be held in Yaoundé between the national teams of Cameroon and Nigeria (aka Indomitable Lions of Cameroon versus Super Eagles of Nigeria). It is hoped that the good example of the football heroes of Cameroon and Nigeria will have a significant behavioural impact on the illegal harvesting of bushmeat in the region. The aim is to broadcast the match throughout equatorial and southern Africa and use any revenue generated to support gorilla conservation projects in both countries. The Year 2009's "Football for the Forests" match will also serve as an awareness raising pilot project to determine the possibility of future matches between Great Ape range states and to determine possible involvement in 2010's World Cup in South Africa. The GRASP Secretariat is provided jointly by UNEP and UNESCO

For further information contact:

Great Apes Survival Project (GRASP) Partnership Secretariat
United Nations Environment Programme
P.O. Box 30552 Nairobi, Kenya 00100
Tel: +254 20 762 4163
Fax: +254 20 762 4249
E-mail: grasp@unep.org
www.unep.org/grasp

A new publication: Wild heart of Africa –the Selous game reserve in Tanzania
Rolf D. Baldus (Ed.) Rowland Ward Johannesburg 2009, 268 pages. Standard edition Due to its sheer size of 50,000 sq km and its wilderness characteristics, the Selous Game Reserve in Tanzania is one of Africa's most important protected areas. A team of 20 expert contributors who know the place intimately has written the first comprehensive book on the reserve. Together they served the Selous as wardens, researchers and managers for a combined total of over 100 years. The book covers conservation, the history, ecology, wildlife and many other aspects. All articles are well researched and many are scientifically based. Nevertheless, the book makes easy and entertaining reading. The text is complemented by 400 colour photographs, 50 paintings of Selous scenes by Bodo Meier and Wilhelm Kuhnert and by useful maps.
For further details please visit the web site: http://www.rowlandward.com/

News

Forest elephants may be responsible for planting more trees in the Congo than any other species or genus.
Source: Jeremy Hance. mongabay.com
http://news.mongabay.com/ 2009/0409-hance_forestelephant.html
"A new study finds that forest elephants may be responsible for planting more trees in the Congo than any other species or genus. Conducting a thorough survey of seed dispersal by forest elephants, Dr. Stephen Blake, formerly of the Wildlife Conservation Society (WCS) and now of the Mac Planck Institute for Ornithology, and his team found that forest elephants consume more than 96 species of plant seeds and can carry the seeds as far as 57 kilometers (35 miles) from their parent tree."

The National Forest Programme Facility in Africa growing in leaps and bounds!
The National Forest Programme (nfp) Facility is a funding mechanism and an information initiative established in response to recent intergovernmental dialogue on forests which recognizes the essential role of national forest programmes (nfps) in addressing forest sector issues. Since its creation in mid-2002, the Facility has established partnerships with 57 countries, 35 of which are in Africa. In fact, from 5 partner countries in mid-2002 the partnership in Africa grew tremendously to 35 countries, that is a spectacular growth rate of 600% over a short period of 7 years!

The Facility supports active stakeholder participation at country level in the development and implementation of nfps with a focus on capacity building and information sharing. It also offers information services in national forest programmes worldwide.

The Facility has been operational since mid-2002 and is hosted by FAO in Rome. For more information do please visit the following website: http://www.nfp-facility.org. or contact Atse Yapi at the following e-mail address: Atse.Yapi@fao.org.

2009 declared the Year of the Gorilla
Source: Environment News Service (ENS), P.O. Box 10036, Seattle, WA 98110. USA

In 2009, gorilla conservation will be high on the agenda for some of the world's largest conservation organizations, particularly the UN Environment Programme, UNEP. The UNEP Convention on Migratory Species, the UNEP/UNESCO Great Ape Survival Partnership and the World Association of Zoos and Aquariums have partnered to declare 2009 the Year of the Gorilla.

http://www.ens-newswire.com/ens/dec2008/2008-12-24-01.asp

Farms and forests can fight climate change: Incentives needed in developing countries
Source: FAO NEWSRELEASE, FAO Forestry Department, Viale delle Terme di Caracalla 00153 Rome, Italy
Agriculture and deforestation are major contributors to climate change, but by the same token farmers and forest users could become key players in reducing greenhouse gas emissions. The problem of global warming from greenhouse gases, therefore, calls for a stronger involvement of agriculture and farming communities, as well as forestry and forest users in reducing greenhouse gas emissions.
FAO NEWSRELEASE 08/135 EN Online news: http://www.fao.org/newsroom/

Conserving and Managing Biodiversity in Gabon's National Parks
Source: MEA Bulletin (Multilateral Environmental Agreements Bulletin) - a publication created by the International Institute for Sustainable Development (IISD), in cooperation with the United Nations Environment Programme's Division for Environmental Law and Conventions (UNEP DELC).

The World Bank and the Global Environment Facility (GEF) are supporting a project in Gabon to train officers in national park surveillance, with a focus on sustainable forest resource management and local timber processing in order to create greater value for the industry. The Bank will provide US$15 million to assist with the institutional reforms necessary for the management of national forests. Emphasis will be placed on the publication of schedules, zoning permits and revenue projections, the return of delinquent permits to the property office, and third-party monitoring aimed at controlling illegal activities. A US$10 million GEF grant also seeks to build the institutional and operational capacity of the National Parks Service. **Facts on Gabon**: Gabon is home to the second largest forest in the Congo Basin; the Government of Gabon has made a commitment to managing and protecting its forests; in addition to biodiversity management, a national eco-tourism program is also underway. For the complete article visit: http://go.worldbank.org/43QTXPKAC0

Abandoned tropical forests that were once logged or farmed are regrowing!
Source: Environment News Service (ENS), P.O. Box 10036, Seattle, WA 98110
Vast stretches of abandoned tropical forests that were once logged or farmed are regrowing, prompting a international debate among scientists meeting at the Smithsonian's National Museum of Natural History today. At issue is the extent to which this rainforest regrowth might reduce the loss of biodiversity. Scientists have predicted that up to half of all species may be lost in our lifetimes. But some researchers contend that rainforest regrowth has not been adequately factored into estimates of future species loss. For full story please visit:
http://www.ens-newswire.com/ens/jan2009/2009-01-12-01.asp

Building Partnerships bottoms-up: Growing Forest Partnerships (GFP) in Mozambique, Ghana and Guatemala
A new initiative, termed “Growing Forest Partnerships (GFP)” was inaugurated by four organizations – the World Bank, United Nations Food and Agriculture Organization (FAO), the International Union for the Conservation of Nature (IUCN) and the International Institute for Environment and Development (IIED) during the World Conservation Congress held in Barcelona in October, 2008. GFP aims to reinforce sustainable management of forests and respond to newly emerging financing opportunities by facilitating partnerships through multi-stakeholder, bottom-up processes that will help the rural poor to improve their livelihoods and support the maintenance of ecosystem services. The GFP initiative also aims at being a platform that links the international dialogue on forests with local needs and concerns. The focus of the GFP initiative will be on in-country work with the objective to facilitate and strengthen multi-stakeholder partnership processes. IUCN is currently piloting GFP implementation in Ghana, while FAO and IIED are piloting in Guatemala and Mozambique respectively.

For further details, please contact Chris BUSS, Forest Programme Officer, IUCN Forest Conservation Programme, IUCN Headquarters, Gland, Switzerland. E-mail: chris.buss@iucn.org.

Special Feature

African Parks Network, the first Private Park Management Institution in Africa that takes on long-term management responsibility of parks by combining conservation practice with business expertise.

Hanneke Hogerheijde[1], Anthony Hall-Martin [2] and Patricio Ndadzela [3]

Suddenly you see them. They slide majestically and slowly out of the bush and they casually stroll down to the waterhole in the middle of the Tented Camp in Majete Wildlife Reserve in Malawi. It is a stunning sight. They don't seem to know that only 5 years ago there were no elephants left in this beautiful nature reserve, in fact there were almost no animals left at all.

Majete Wildlife Reserve (MWR) is a compelling example of the work of the African Parks Network (APN).The African Parks Network is a solution to Africa's conservation challenges. It is the first private park management institution in Africa that takes on the long-term management responsibility for parks, in Public Private Partnerships with Governments, by combining world class conservation practice with business expertise. APN places emphasis on the stimulation of responsible tourism and associated private enterprise as a mechanism for achieving financial sustainability of the parks as well as providing a foundation for sustainable economic development and poverty reduction. In just six years, African Parks has taken on responsibility for the management of 5 protected areas in three different countries, covering a total area in excess of 2,500,000 hectares.

Philosophy of African Parks Network

In the year 2000 a group of experienced conservationists, who were concerned about the decline of many of Africa's national parks, established The African Parks Network as a visionary and innovative approach to conservation that involved taking on the management and financing of national parks. Working in the sector, they were all too familiar with the inadequacies and inefficiencies associated with the traditional approach to park management and anticipated the benefits of a more commercial approach with parks being run on business principles.

The group, namely Mavuso Msimang, Dr Anthony Hall-Martin, Michael Eustace and Peter Fearnhead approached the late Paul Fentener van Vlissingen who, as a multinational businessman with a strong interest in conservation, was immediately intrigued and they joined forces. Only six years later, The African Parks Network has established a meaningful presence on the continent and demonstrated that national parks can be managed responsibly by a private organisation in partnership with governments, and that the results can be remarkable. Many of Africa's national parks and protected areas face an uncertain future. Governments have committed large tracts of land to the establishment of national parks to conserve their natural heritage, but suffer from a lack of financial resources and limited management expertise and commercial skills that drive successful businesses worldwide. At the same time there is pressure from surrounding communities who often derive little benefit from the existence of parks and hence often use the resources unsustainably.

Africa's wildlife and scenery represent one of the continent's strategic comparative advantages. If managed properly and leveraged responsibly for tourism and associated private enterprise, parks can make a significant contribution to a country's economy with its benefits for job creation, foreign exchange generation, and the stimulation of small businesses. By making parks socially and economically relevant, this will contribute to their survival. Similarly, by treating parks as individual business units with retention of all income at the park level, it will ensure their long term financial sustainability.

[1] *Marketing Manager, Majete Wildlife Reserve; Email: info@africanparksmw.com*
Telephone: +265 (0) 9 521 741; Website: www.majete.org
[2] *Country Manager, African Parks Network*
[3] *Park Manager, Majete Wildlife Reserve*

The process of making a park financially sustainable can take many years to accomplish, especially if a park has been severely depleted, and hence the emphasis on long term commitment to projects. To achieve this APN partners with a variety of entities including bilateral and multilateral donors, conservation NGOs, the private sector, foundations and individuals to assist with the necessary financing requirements of a particular park.

Although The African Parks Network consists of a portfolio of parks spread across the continent, each project is established as an independent business entity responsible for its own budgeting and decision making. The typical structure of a project is shown in the following diagram:

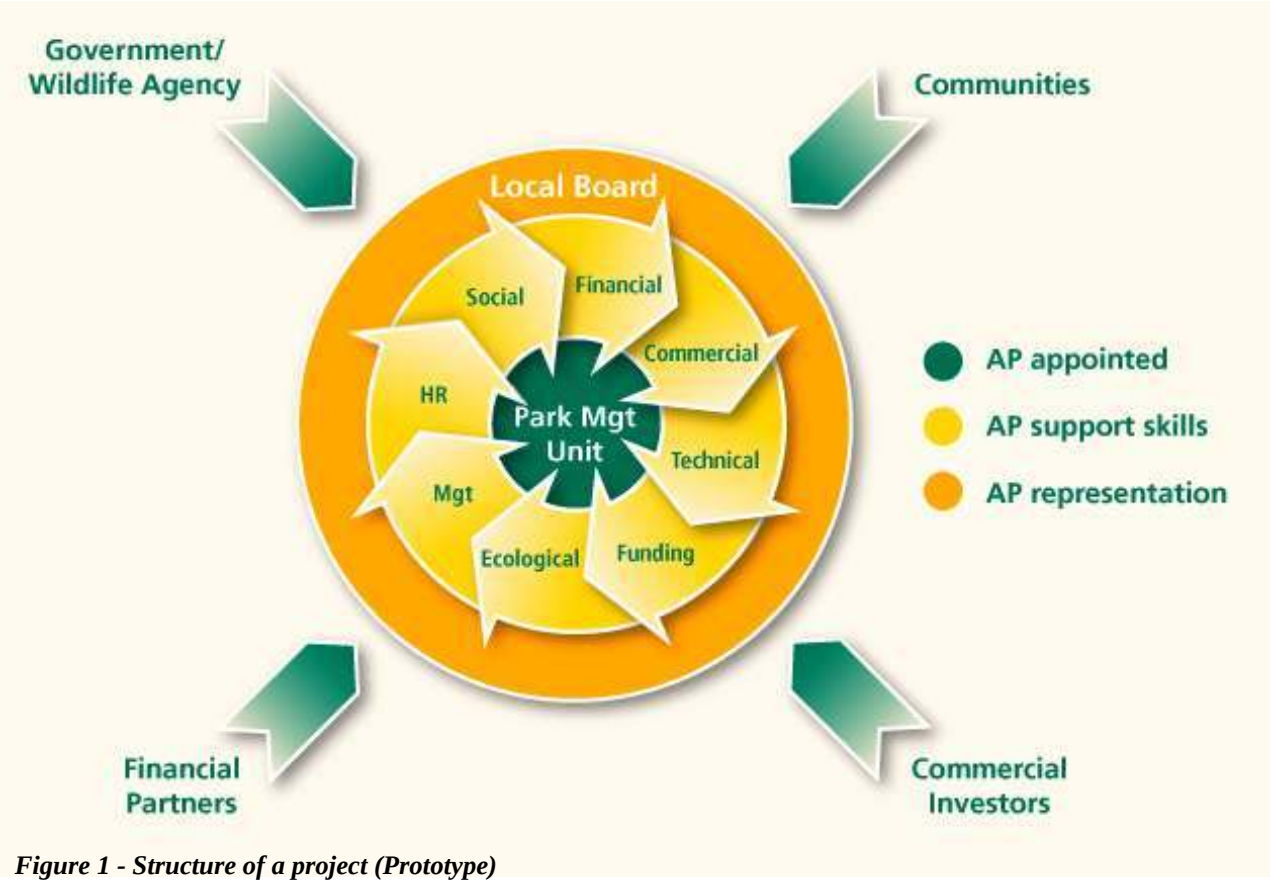


Figure 1 - Structure of a project (Prototype)

There are four critical partnerships which are necessary in the establishment of a project: Government, Communities, Financial Partners and Community Investors.

1. With **Government**: Government or its national wildlife agency must invite African Parks Network to become involved in the management and financing of one of their national parks, must share the basic philosophy and approach to management and must be comfortable with the delegation of various responsibilities to a newly formed local entity, which is the vehicle for executing the project. Importantly Government still owns the park and the wildlife and remains responsible for its statutory functions.
2. With **Communities**: A formal agreement with Government creates the legal mechanism for African Park Network to operate in a country, but experience has shown that communities adjacent to a park can be critical to the success of the project. Therefore community considerations are considered at the outset and built into the project objectives. In some instances this is a formal relationship with community structures represented on the Board, and in others it is informal with specific relationships with different communities.
3. With **Financial Partners**: Significant finances are required for both capital investment and annual operating costs and African Parks Network (APN) only commits to a project once financial partners are in place to shoulder part of this burden. APN encourages active involvement of financing partners in the project and is willing to consider their participation on the local Board created for every project.

4. With **Commercial Investors**: as the park develops African Parks Network partners with commercial investors to develop and operate tourism lodges and other private enterprises. These investors create the income base for the park from entrance fees and concession fees, allowing the park to be weaned from donor support.

Creation of a strong financial foundation to fulfil long-term responsibilities

APN recognises that parks form the cornerstone of the nature-based tourism industry in Africa. APN does not make any significant investments in tourism infrastructure, this is the role of specialised organisations who have the skills, capital and marketing channels to make a success of it. The role of APN is to re-establish the product, create the right investment climate, and conclude agreements with reputable tourism companies. The aim of APN is that the parks will generate a portfolio of sustainable income streams, with sufficient funds to pay for recurrent running costs and capital replacements. The composition of that portfolio will vary from one park to another, but will be a combination of local commercial revenues (entrance fees, concession fees, game sales and filming fees), grants for particular projects, activities undertaken and paid for by specialist wildlife and environmental NGOs, endowment income and hopefully payment systems for ecosystem services such as water delivery and carbon sequestration.

APN contributes to poverty alleviation and economic development for local communities

The African Parks Network's local employment policies provide job opportunities, training and capacity building for people from local communities. A park will typically employ between 80 and 250 local staff in permanent positions and many others benefit from temporary employment opportunities. With the establishment of tourism lodges and other associated private enterprise, a further economic overlay is added to the project, employing more people, increasing the buying power of the people and creating demand for products and services. This in turn creates the opportunity for the establishment of any number of small businesses. In addition the African Parks Network assists communities establish basic tourism infrastructure e.g. campsites within and around the parks to provide accommodation for self-catering visitors. Usually campsites are run by local communities with all tourism income flowing directly to them. Environmental education and community conservation programmes that are directly linked to the success of the park are set up and there is assistance with the development of small business enterprises.

APN in practice

At the moment APN manages the following parks:

- Majete Wildlife Reserve, Malawi
- Liuwa Plain National Park, Zambia
- West Lunga National Park, Zambia
- Bangweulu Wetlands, Zambia
- Garamba National Park, Democratic Republic of Congo

There is a lot to tell about each and every park, but to give an example of APN's work in practice Majete Wildlife Reserve will be highlighted.**Majete Wildlife Reserve (MWR)**

Majete Wildlife Reserve (MWR) was proclaimed in 1955 and is situated in the Lower Shire Valley, at the southernmost section of Africa's Great Rift Valley in Malawi, and measures 75000 hectares (750km2) in extent. Poaching of large mammals accelerated during the late 1980's and 1990's and by the year 2000 most species of large game, including elephants, had been exterminated. Even the smaller species, and the few surviving large mammals, had been reduced to very low numbers. In addition to poaching of animals being rife, illegal logging of hardwoods was widespread and a World Bank funded project to improve the park's infrastructure was terminated prematurely. MWR had little or no positive economic impact on the livelihoods of the communities living on its periphery. In 2003, African Parks Majete (Pty) Ltd. (APM) concluded an agreement with the Department of National Parks and Wildlife (DNPW) of Malawi to take on responsibility for the rehabilitation, development and management of MWR. Since then a lot has happened. African Parks Majete has put an effective management team in place and law enforcement has significantly improved as the scouts have been well-equipped and trained.

Strategy of Majete Wildlife Reserve
The vision of APM is “to restore, develop and manage Majete Wildlife Reserve as a model public private partnership with DNPW. The park must deliver and demonstrate bio-diversity rehabilitation and conservation and sustainable natural resource utilization for the benefit of the economy, the people of Malawi and especially neighbouring communities whilst also ensuring financial viability.”

The process of achieving this vision is based on four main objectives.

1. **Biodiversity Rehabilitation and Conservation**
   Objective: To restore the full spectrum of indigenous large mammal fauna of MWR and to maintain populations at the levels that were likely to have existed prior to any significant modern human interference. This means that an elaborate **Restocking Plan** for MWR has been drawn up in which the full spectrum of indigenous large mammal fauna is planned to be put back over several years. Since 2003 already more than 3,000 animals have been reintroduced These include black rhino, sable antelope, buffalo, waterbuck, eland, impala, nyala, warthog, zebra, hartebeest and elephants. Restocking will carry on in the coming years. Most of the reintroduced animals were provided by the DNPW from other national parks in Malawi, but many were also purchased from game ranches in Zambia and South Africa. African Parks carried the capture and transport costs. One of the goals is to re-establish Majete as a Big 5 Game Reserve, which means that once there is enough game, the big predators like lion, leopard and cheetah will also be brought back. Another important aspect of this objective is to carry out an effective **Law Enforcement** strategy to eliminate the threat of illegal harvesting, tree cutting, fishing and poaching as impediments to wildlife productivity. At the moment there are 35 law enforcement employees (DNPW scouts on secondment to AP) fulltime on duty for APM.

   Furthermore **Fencing** is an important aspect. Where wildlife is free to cross the boundaries of a protected area like MWR and stray onto densely populated communal land there is a serious risk of wildlife/human conflict. This is particularly so when dangerous animals like elephants raid crops and gardens and where predators kill domestic livestock. Electrified game fencing minimizes the risk of such conflict and also clearly demonstrates the concern of AP for the safety and welfare of neighbours and their property. The fence keeps wildlife inside and domestic animals outside the reserve and thereby protects the reserve and the community agricultural lands alike. Since the beginning of 2008 the entire perimeter of the reserve has been fenced and there is now a 180 km long electrified fence around the reserve which is patrolled every day. And last but not least: **Habitat Management**. Specific management activities are: controlled burning and fire breaks, maintenance of waterholes, predator management and controlling and eliminating of exotic species. But also biological monitoring, such as aerial census, wildlife surveys, monitoring selected species and background research.

2. **Building a constituency for conservation**
   Objective: To ensure that MWR contributes to the socio-economic wellbeing of the people living around it. This helps to achieve a general awareness of conservation efforts around MWR, thereby creating an environment conducive to the park's long-term sustainability. To achieve this objective MWR has implemented several strategies. One of them is **Extension and Communication** work. An extension program is the mechanism for communicating with the broader community on issues such as restocking (particularly with dangerous species), job opportunities in the park, poaching, boundary disputes, sustainable harvesting, general progress with the project, problem animal control etc. There are 130,000 people bordering MWR in over 85 villages. These local communities have been organized into 19 CBO's (Community Based Organization) at Group Village Headman level (GVH).

   Also **Targeted Investments in Community Infrastructure** is an important aspect. APM has already built a clinic and a school in one of the neighbouring villages. Community infrastructure is a tangible sign of benefits accruing to communities. Therefore, each year, APM will commit themselves to support community infrastructural projects such as contributions towards

boreholes, school classrooms, clinics, rural libraries, livestock drinking troughs etc. AP also supports 60 orphans by paying their school fees.

In order to create an enabling environment for the conservation message to be assimilated, **Environmental Education** must be promoted. And also **Support to Income Generating Activities** linked to MWR is stimulated. Examples of Income Generating Activities that are already in practice include cultural activities, beekeeping enterprises, oyster mushroom cultivation and local handicrafts. MWR often works on a micro-finance basis. Furthermore APM started The **Resource Utilization Program (RUP)**. This is part of the collaborative management of natural resources, which aims at the sustainable use, or harvesting of selected natural resources by the bordering communities. Local people are allowed regulated access to MWR to harvest various natural resources such as bamboo, reeds, palm leaves, thatching grass, firewood, caterpillars, mushrooms and fruit. The aim of the RUP is to enhance the relationship and build a sustainable partnership between MWR and the local communities. In theory, the communities and APM share the benefits and responsibility of caring for the natural resources both inside and outside the protected area. Conservation agriculture and reforestation programs will be the local communities' obligation outside of the reserve. And another important field were APM plays a role is **Health** (HIV/AIDS and Orphan Care) APM informs and educates the local people on this subject. The intention, however, is to facilitate the involvement of other specialised NGOs in this field..

3. **Financial Sustainability of MWR**

Objective: To ensure the financial sustainability of the park through the establishment of a range of income generating mechanisms. APN believes that by making a Wildlife Reserve financially self-sustainable the chances of survival of that reserve are enlarged tremendously. There are several tools planned for MWR in order to derive an income. First of all: **Entry Fees** and **Tourism**. People that come into the park pay an entrance fee. They can also participate in different activities, such as: Game Drives, Bush Walks, Elephant Tracking and Community Visits. Visitors can stay overnight in a comfortable tented camp where they will enjoy meals and drinks.

Than MWR has designated an attractive area of around 8 000 ha in the north of the park for the exclusive use of a high-end lodge operator to build an **Upmarket Lodge.** Once a viable and sustainable animal population is established, some **Game Sales** may be envisaged if veterinary controls allow. And in the future **Trophy Hunting** will be a source of income for MWR. The animal populations in MWR are all increasing so allowing a small percentage of post-breeding males in the total population to be hunted each year will not impact significantly on the recruitment. In terms of the legislation, hunting is a permitted activity in all wildlife reserves in Malawi. Hunting remains a sensitive issue amongst elements of the general public in Europe, but not in Africa where sustainable use of natural resources is largely an accepted policy. Most conservation and international donor institutions that support conservation initiatives in Africa are familiar with, and support, ethical hunting as a justifiable conservation practice. Sustainable hunting is regarded as even more justifiable when revenues flow back to the park and the practice has a high and positive economic impact on local communities.

4. **Efficient Park Management, Infrastructure and Systems**

Objective: To ensure the development and implementation of efficient management systems that will ensure the realization of all aspects of the vision for MWR.
Proper management of the park requires support systems such as infrastructure, transport, equipment and adequate staffing.

There is also a need for basic infrastructure such as roads, bridges, housing, waterholes, boreholes et cetera. And of course you need people, a Park Management Team, a Board and a Financial Partner. An extensive road network, of more than 200 km, has been developed and two new ranger stations have been built. Infrastructure for wildlife management includes several

water points with fitted boreholes and solar-powered pumps. Staff numbers have been expanded, largely through the appointment of a locally recruited technical and mechanical support and maintenance section. Local staff have been encouraged and assisted with skills development through focused training as well as tertiary education in Malawi and South Africa.

APM has also demonstrated a commitment to building local capacity to manage the enterprise and the expatriate staff component has been scaled down. In line with the policies of the DNPW, APM has engaged positively with local people and has made a significant contribution to fostering cooperative relations with local communities. A range of community outreach projects have been launched with donor support, and continue to generate positive working relations with Majete's neighbours.

As said APN manages Majete Wildlife Reserve since 2003 and all the important goals for the first 5 years have been reached. Everything is going according to plan and MWR is a model example of APN's work.

The future of APN
One of APN's goals is to get more parks in management. APN will expand the management portfolio to 15 parks in 8 countries by 2015. The length of time required to negotiate a management agreement with Government institutions sometimes unfamiliar with the principles of Public Private Partnerships is unpredictable. Lead times for establishing projects can vary from months to years. APN has, therefore, already been engaged in exploratory talks for the development of park management projects in several countries for some time. Countries as Mozambique, Gabon, the DRC, Senegal, Botswana, Namibia, Tanzania and Rwanda.

APN is looking for areas that are important to conserve for biodiversity reasons, that will be able to provide a good tourism product, and where the Government makes APN feel welcome. They will look at particular vegetation types that are not yet properly protected, or that are threatened. They ideally do not want to get into areas where there are disputes over land ownership questions – they want a mandate to manage a specific piece of land that ideally belongs to the State and that has a proclaimed legal status as a national park or some other category of protected area. They will look at community owned land if there is a legal mechanism that makes it possible to manage it as a protected area without conflicting forms of land use – they do not see themselves trying to manage wildlife in areas where there is cultivation or livestock. But again they will look at such areas if there is great biodiversity, threatened species or some other circumstance that merits their interest. African Parks Network is prepared to work on invitation.

For more information contact APN:
Website: www.african-parks.org
Email: shamad@african-parks.org

Office address:
The African Parks Network
Regent Hill Office Park
Cnr Leslie & Turley Roads
Lonehill, Sandton

PO Box 2336
Lonehill 2062, Sandton
South Africa

Telephone: +27 11 465 6802
Fax: +27 11 465 9230

Articles

Forestry in Ethiopia: building blocks for success in the sector

Michel Laverdière[1], Million Bekele,[2] Habtemariam Kassa,[3] Meshack Malo and[4] Mafa Chipeta [5]

Background

Ethiopia is a land locked country located in the northeastern part of the horn of Africa between 3^0 N and 15^0N latitudes and 33^0E and 48^0E longitudes. It is bordered by Eritrea in the North, Sudan in the West, Somalia and Kenya in the South and Somalia and Djibouti in the East (figure 1). The country has a topographic diversity encompassing high and rugged mountains, flat-topped plateaus; deep gorges with rivers and rolling plains in lower altitude. It has a diversified land formation with great variation in altitude ranging from -125m in the Afar depression to the Ras Dajen summit at 4620m. a.s.l.

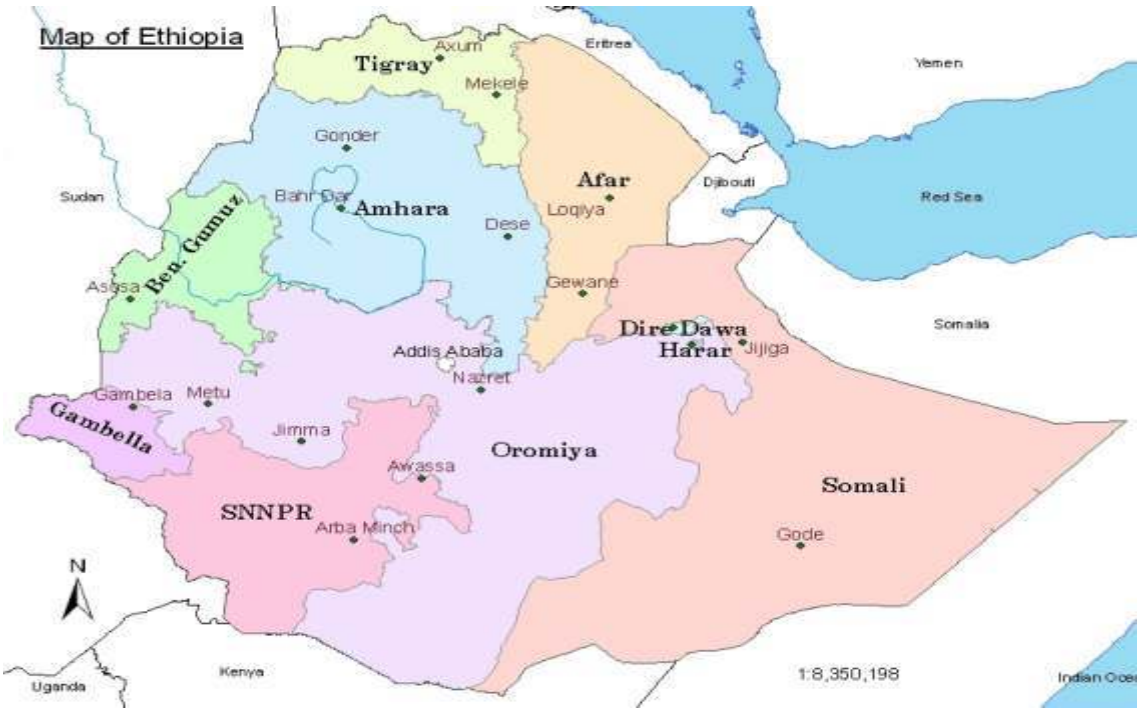


Figure 1 Map of Ethiopia

There are 17 major agro-climatic zones and 47 sub-agro-climatic Zones in the country, ranging from Dry Hot Lowlands to Wet Alpine frost zones through Dry Mid Highlands and Moist Highlands. Diversity in climate and topography has given birth to the wide variety of fauna and flora of Ethiopia. About 277 species of mammals, 862 species of birds, 63 species of amphibians, 150 species of fish, 201 species of reptiles and over 7000 species of plants have so far been identified. Of these, 31 species of

[1] *Michel Laverdière, Forestry Officer, FAO Sub -regional Office for Eastern Africa, Addis Ababa, Ethiopia*
[2] *Million Bekele, Forest and Environment Consultant, FAO Sub -regional Office for Eastern Africa, Addis Ababa, Ethiopia*
[3] *Habtemariam Kassa, Forests and Livelihoods Programme, CIFOR, Addis Ababa; FAO Sub -regional Office for Eastern Africa, Addis Ababa, Ethiopia*
[4] *Meshack Malo, Associate Professional Officer in Natural Resources, FAO Sub -regional Office for Eastern Africa, Addis Ababa, Ethiopia*
[5] *Mafa Chipeta, Sub Regional Coordinator for FAO Sub -regional Office for Eastern Africa, Addis Ababa, Ethiopia*

mammals, 17 species of birds, 9 species reptiles, 30 species of amphibians and 4 species of birds are exclusive to Ethiopia (Hailu, 2006).

It is believed that humans originated in the Great African Rift Valley where many fossil bones of hominids have been found, especially in Ethiopia. Ethiopia has been inhabited by modern man for immemorial times and is already cited in the recordings of the Pharaohs as Punt land 5 millennia ago as well as in the Bible and the Quran. Present day Ethiopia is populated by around 80 million inhabitants from close to 80 ethnic groups, including the Afar and Somali in the East, and Nilotic populations; the two major groups being the Oromo and the Amhara.

Forest Facts

For centuries the Ethiopian people living in the highlands have been faced with wood scarcity. As a result, Eucalyptus and other exotic species such as Grevillea robusta and Pines were introduced by the turn of the 20th Century, and tree planting around major urban areas was promoted. By now, small woodlots are also scattered around small settlements and villages. This was in great part to complement access to wood from dwindling natural forests.

Depending on the definition of forests adopted, areas under forest vary between 3.6 (when only closed and high montane forest is considered) and 12% of the total land area of the country. Montane forests cover about 4.07 million hectares (Hundie, 2006), while the total area under forests in 2005 was estimated at 13 million ha and the other wooded lands at 44,6 million ha. (GFRA, 2005). Most of the closed forests are located in the highlands. One such area is the Bale Mountain (Box 1 and Figure 2).

Box 1

Brief Description of Bale Mountains Reserve

The Bale Mountains are located Southeast of Addis Ababa, and constitute an extensive plateau supporting Afro -alpine vegetation that ranges between 3000m and 4000m. It has numerous lakes, contained closed forests that vary in composition depending on slopes, aspects and micro-climates. *Juniperus*, *Podocarpus* and *Hagenia* species dominate the slopes, and in many of these genera numerous endemic species are found in Ethiopia . The forest is the second largest natural forest block in Ethiopia, and its extent and high diversity mean that it is among the highest con servation areas in the country. It is also important for animal species that include 64 known mammalian species, 11 of which are endemic.

Figure 2. Remnant Hagenia abyssinica and Juniperus forests in the Bale Highlands of Ethiopia

Another 44.6 million hectares is under other wooded land. Close to 90 percent of the natural forest area is located in three Regional States, namely Oromiya, Southern Nations Nationalities and People's, and Gambella Regional States (Hundie, 2006). The natural high forests include various types of montane forests concentrated in the less populated and western parts of the country.

Most of the forests are inaccessible because of the lack of roads and the mountainous geography. These important high forests are grouped into 58 National Forest Priority Areas for management purposes. Some remnant forests are observed scattered around the landscape particularly around churches (Box 2).

Box 2

The Church and Forest Conservation

"... In most parts of Ethiopia, particularly in the northern Regions, churches or monasteries are the only places where indigenous trees or forests can be seen. In much of the landscape of northern Ethiopia, the lush vegetation on the sides of a hill surrounding a church or a monastery presents a sharp contrast to the surrounding planes and mountain slopes. It is the only locality covered by tree vegetation and not affected by gully erosion... *Cordia africana, Olea africana, Strychnos spinosa, Ficus capensis*, and many other species are abundantly found".

Source: K.K. Merahi (2001)

The central and northern parts of the country are almost completely deforested. The humid, mixed forests occur in southern Ethiopia with species in the genera *Podocarpus, Croton, Olea* and *Hagenia* at higher altitudes (Box 2). In the southwest, broad-leaved forests are common. Bamboo is also found in clumps within the high forests. Two species of bamboo (one highland species and another lowland type) are indigenous to Ethiopia. Bamboo covers about one million hectares, accounting for about 67% of the African bamboo forest area. Highland bamboo is found in the southern and southwestern Ethiopia while the lowland bamboo dominates in the northwestern lowlands.

The lowland woodlands are largely restricted to the agro-pastoral and pastoral zones. The woodlands include various species of *Acacia*, *Boswellia*, *Commiphora*, *Combretum* and *Croton*. But understanding about these resources and people's dependence on these has been limited. In some cases, forests and woodlands are treated as areas for agricultural expansion, and where new investment operations can be located (Kassa and Campbell, 2005).

The protection of remaining forests and woodlands areas has not been ensured resulting in deforestation occasioned from the search for new agriculture land and for fuelwood. Recent information on forest distribution, extent and volume of the growth stock, annual net growth (incremental yield), and the rates at which the forest resources are used is very limited. But some estimates show that about 59,000 ha of forest and woodlands are annually cleared in the three forested Regional States alone (Hundie, 2006). But the rate of plantation development is low and has stagnated (GFRA, 2005). Forest plantations cover only 491 000 hectares-(GFRA 2005). Among these, 95 000 ha are industrial plantations, 35 000 ha are peri-urban plantations, 20 000 ha are community woodlots and 50 000 ha are catchments or protection plantations.

Box 3.

An Incongruous Conifer in a Continent of Hardwoods

Podocarpus falcatus (East African Yellowwood) is an evergreen tree from the *Podocarpaceae* family. It is a large tree of the semi-humid lower highland forests of the central and eastern highlands of Ethiopia, found on altitudes ranging from 1500 to 2500 metres. The species is slow growing but hardy once established. Its uses include firewood, timber for furniture, boxes, plywood and panels, poles and medicine from its bark. It is also good for shade and as an ornamental.

Podocarpus falcatus

Source: Useful Trees and Shrubs for Ethiopia, Bekele-Tesemma, ICRAF, Nairobi, 2007

Ethiopia has 9 national parks, 3 wildlife sanctuaries, 8 wildlife reserves and 18 controlled hunting areas. These protected areas all in all cover approximately 5.5 million ha or about 5.5% of the total land area (Halile, 2006). These are situated in both the highland and lowland areas.

Some Functions of Forest Resources and their Management

The productive and protective functions of forests are recognized by the Forest Policy. But concrete plans to enhance these functions are lacking. As a result, the country is suffering from land degradation and massive silt accumulation of dams. In a land dominated by steep highlands and other fragile landscapes, the protective functions are probably at least as important as the productive roles of forests, even though they have not been quantified.

Every year, very large areas of lowland forests and grassland are affected by fire, particularly in the drier parts of the country just before the rainy season. There are no available statistics on the causes of fires, risks or extent of damage by forest fire. But losses due to wildfire are believed to be significant. Communities relying on forest products and timber production are also severely affected.

The productivity of natural forests is also low. Poor management, encroachment and illegal cutting have reduced the growing stock to well below the desirable level. It is therefore assumed that annual yields are 60 percent of what should be expected under proper management. Despite this, residual forests, plantations/woodlots and scattered trees give an average annual industrial roundwood production of about three million cubic metres. This includes wood used for local housing construction, fencing and furniture production and industrial wood products such as lumber, plywood, fiberboard and particleboards. Ethiopia's industrial wood production and consumption per capita are among the lowest in the world, reflecting the fact that the country's limited forest resource base has been and continues to be primarily exploited for fuelwood.

Indeed the energy sector of Ethiopia remains heavily dependent on wood for fuel. Over 90 percent of the country's total energy for household cooking is derived from biomass fuels, of which wood provides 78 percent. In 2005, the fuelwood production was estimated at about 108 million cubic meters.

Gums and incense, among some of the non wood forest products, are important export products, but Ethiopia has not performed very well as a supplier because of a number of reasons such as the uneven quality of the products, a lack of processing facilities and need for improved marketing. The estimated area coverage for the production of gums and gum resins in Ethiopia varies between 28,550 km ^{2}and 43,350 km. S^{2}ome 35 species of *Acacia*, *Boswellia* and *Commiphora* spp. have been identified as potential producers of commercial gums and gum resins. The estimated potential annual production of gums and gums resins in Ethiopia ranges between 35,000 and 70,000 tons. But the export market is still underdeveloped. As a result, the annual export volume is less than 5,000 tons. Between 50% and 60% of the incense produced is consumed locally (Lemenh and Kassa, 2007). The demand for incense exceeds the supply, and the prices are increasing.

There is an ancient tradition of beekeeping in Ethiopia. The density of hives is estimated to be the highest on the African continent. The honey is almost exclusively used for local consumption, while a considerable proportion of the wax is exported.

Policies Affecting Sustainable Forest Management

Forestry sector policies include the regulatory framework for the management and development of public forest lands and the utilization of public forests, policies governing the pricing and marketing of forest products, and policies concerning the management of public enterprises and the development of private-sector forestry. In this regard, key policy documents of the Ethiopian Government are the Forest Policy and the Forest Proclamation, both issued in 2007. The Forest Proclamation states that management of forests is either protective or productive and forests will be managed according to the management plans that will be prepared accordingly. The major policy directives aim at improving the socio-economic aspects of forestry especially benefit-sharing. Other policies that influence the sector include conservation strategies of Ethiopia, the rural and agricultural development policies and strategies document, the rural land use and administration proclamation, the conservation strategy and the environmental policy, the national energy policy, policy on investment, water resources management policy, national policy on bio-diversity conservation and research and the population policy.

The success to policy implementation depends on how government plans and organizes the enabling environment for policy implementation, which is lacking in many areas presently. This is due partly to the fact that the central government does not have sufficient staff to efficiently implement its forest policy; also much of the forestry activities are now implemented a regional level following an important decentralization procedure. There is thus still need to harmonize the national polity with regional ones.

The direct and indirect contributions of the forestry sector to development and poverty alleviation are poorly understood, and attempts to quantify these and attach monetary value to them have been very limited. Though the volume of imported wood products is increasing rapidly, concrete measures to enhance the contribution of forestry to the improvement of rural livelihoods and landscape rehabilitation, like tree planting income tax alleviation, technical support, are difficult to come by (Kassa and Campbell, 2005). Rural development programs initiated so far have been of little assistance in improving the conservation and sustainable management of forests. Mainstreaming forestry's contribution to rural development through employment generation, improved access to fuelwood and non-timber forest products, , agro-forestry and off-farm activities, should be emphasized, particularly in areas where annual crop production has been increasingly difficult due to drought and the poor productivity of soils. Given widespread land degradation and more frequent drought, tree farming and plantation forestry should be seen as a major component of rural development endeavors. Thus, greater emphasis should be given to the integration of forestry in rural development.

The current national development plan envisages increasing the forest cover significantly and promoting agro-forestry. Translating this into action requires harmonizing sectoral policies and building on some successful experiences (such as the Participatory Forest Management of Oromiya, see box 4 below). Therefore, collaborative mechanisms should be established between forestry and other related sectors to increase synergy between conservation and development in Ethiopia. The forestry sector suffers from lack of strong organizational set up to coordinate and promote forestry education, research, extension and development in the country. Strengthened organization will help not only in the planning and implementing of activities within the forestry sector but also in making sure that the linkages between forestry and other sectors such as energy, agriculture and water are properly managed.

Box 4

Participatory Forest Management in Ethiopia: success story of a pilot project

Forest development approaches in the past used to disregard local community involvement and often failed to achieve the objectives of sustainable forest management. The customary rights of people to use forests were denied and demarcation without consulting resident communities has weakened the local level responsibility. The result is the uncontrolled deforestation of the natural forests. This rapid deforestation has forced the government institutions responsible for the conservation and development of forests to look for alternatives to the conventional forest conservation approach and has embarked on participatory forest management practices in the mid 1990s.

This has been complementary to the decentralization policy of 1991. The responsible institutes both at federal and regional levels have developed a management system to minimize further deforestation through involving the local people in benefit sharing. Participatory Forest Management (PFM) approaches were introduced into the country to ensure the involvement of the local communities in the conservation of these resources in such a way that they share benefits accruing from the forests. There has also been an encouraging involvement of non-governmental organizations (NGOs) in the promotion of participatory forest management.

This is based on the experiences of other countries that ensured the contribution of participatory forest management to the conservation and sustainable livelihoods of the poor who are forest dependent. PFM was initiated in Oromiya after an NGO, Farm-Africa, organized a study tour in 1995 to see the popular "Joint forest management approach" in India and Zimbabwe.

The first PFM project, launched in 2002, was the Integrated Forest Management Project (IFMP) in Adaba-Dodolla with the assistance from GTZ. The project focused on establishing and implementing forest dwellers association. The project strategy included regulating access, reducing pressure and marketing trees profitably. The goal is to ensure environmental sustainability through participatory forest management systems.

Adaba-Dodolla Integrated Forest Management Project

Participatory forest management practices have been in place in Oromiya region of Adaba-Dodolla regional forest priority area that started in 1995 as an Ethio-German Bilateral Cooperation project. The objective was to develop a feasible forest conservation approach. In year 2002, Wajib was the name given to forest dwellers association initiated. It comprised 30 households on 400 hectares of forests. The strategy adopted for the implementation of the project was to prepare a forest management plan in collaboration with local community to develop bylaws and sign agreements for formal handing over of the forest to the local people.

The impacts of this initiative on the Adaba-Dodolla community and its 400 ha of forested land included the following:

- The forest dwellers have became the primary caretakers of the forest
- There is significant reduction in illegal tree harvesting
- Increase in the natural regeneration of forest block
- Enhanced tree planting outside of forests
- Up to 15.6 % increase in forest cover through community management
- 77 forest Wajib groups in 77 blocks now use the forest on 35,000 hectares sustainably
- Diversification of income, legal selling of forest products and ecotourism
- This pilot project has become a reference for most PFM projects in the country

The Forestry Sector Institutions
According to the current institutional arrangement, forestry is under the Ministry of Agriculture and Rural Development at the Federal level, and new structural reform is underway. This arrangement is replicated generally in the same Ministries at the regional level, since Ethiopia is a federation of regional states.

The highest forestry education institution is Wondo Genet College of Forestry and Natural Resources. From its inception in the 1970s until now, the College has been supported by SIDA (Swedish Aid). It has been training national and a few foreign foresters for close to three decades. Its programs are wide and cover basic and advanced forestry. The *curricula* also cover areas beyond forestry like land use, wildlife, land valuation, geo-information in environmental resources management.

Many laws and regulations are in place that support the sustainable use of forests. Despite this, implementation and law enforcement remain weak due to weak capacity to implement laws and regulations.

At present, there is a better understanding of the environment and decision makers are better committed to forestry development. In order to utilize natural resources in a sustainable manner, proper land use plans are being put in place and land registration has been completed for about 7 million households in order to provide land user right certificates. It is hopped that this will address the tenure insecurity problem that many thought has been discouraging farmers from planting trees and investing on land ameliorating measures.

Challenges of Forest Management
With the adoption of Federal System of Governance, in the mid 1990s, management responsibilities of forests have been shifted to regional and local institutions. Decentralization of functions to regional governments is expected to stimulate the participation of local people in forestry. But modalities to ensure community participation and increase a sense of ownership in forestry activities are yet to be seen on the ground. In order to influence the sustainability of forest management , a forest management plan has to be prepared that actively involves local communities. In this regard participatory forest management practices have been initiated in some areas of the country where forestry is of high priority. Reports indicate that the results have been encouraging. NGOs and donors supporting the current participatory forest management projects should seek a mechanism to help sustain the practice after the end of the project period. The recent forest proclamation has interesting provisions that promote community participation in the management of forests (Proclamation No. 542/2007).

The advantages of maintaining a forest cover to protect the land and water base remains inadequately quantified; a major challenge is to effectively defend and allocate budgetary and personnel resources to sustain economic and social development. Similarly, pressures continue and are not easy to resist to clear more land for cultivation, as food production is clearly still inadequate in the country. In the long run, therefore, the country's ability to protect remaining forests and to create more forests through plantation forestry may well depend on how fast its farm productivity can increase so that less land is needed to feed the growing population. If such productivity gains are slow or are not achieved, it may prove difficult to hold on to even the limited forest areas remaining today.

To this is added the need to meet requirements for wood products – which is also a major challenge in forest management. Demand for construction and fuel wood to meet the need of farmers and urban dwellers has been increasing. To meet these needs, farmers need to plant trees, and the forest policy stipulates tax incentives for adopting agro-forestry practices and for planting trees. Having woody perennials in and around crop fields helps improve soil fertility, and can be source of fodder, fuelwood and fruits. Different agroforestry practices must be promoted to bring more trees into the farming systems. A mix of practices can be implemented in order to fill the gap between supply and demand of wood in the country.

The key problems facing conservation efforts in forested areas are land use conflicts with the local people. The responsible department is weak and poorly equipped to carry out the tasks entrusted to it and powerless to enforce

regulations due to lack of a trained work force. The government and partners could intervene in the capacity building of the institution so that each protected area would have a management plan that needs to be respected.

Another important challenge is forest fire. Every year large areas of forest is burnt due to man-made or natural fires. Attempts to prevent forest fires have been inadequate. The country is examining the possibilities to reduce fire risks and improve early warning practices. The focus has been on priority areas of high value forests like plantations and high forests.

Ethiopia is also in need of updated information about its forest resources. It has recently benefited from a Woody Biomass Inventory Project which was managed by Canadian Forest Consultancy firm Tecsult under World Bank assistance. But the information provided is already 10 years old, and up-dating the data is necessary. The country is presently exploring ways and means to review its land use and to carry out forest inventories, especially in priority forest areas. Information is presently lacking on the current status and management conditions of forest resources, and it will be important to gain access to such information and to develop capacities for conservation, and responsible use of forest resources.

With the support of Center for International Forestry Research's (CIFOR) Ethiopia Office, the Ministry of Agriculture and Rural Development of Ethiopia submitted a proposal to the National Forest Program Facility that was accepted for funding. The government established, in December 2007, a partnership agreement with the national forest program Facility. Through this partnership Ethiopia will get assistance in updating its Forestry Program and disseminate findings at all levels. This is in addition to a Sustainable Land Management Project started in June 2006 which aims at supporting efforts on sustainable poverty reduction through protection and conservation of natural resources, including forestry, soil and water conservation, agroforestry and land tenure certification. The project was developed by Ethiopia in collaboration with FAO to complement existing activities funded by the Dutch Government in the Kaffa Zone in forested Southern Ethiopia. This is the area where coffee is found growing naturally, and is the original source of *Coffea arabica*. The project demonstrated that there has generally been a lack of land tenure security that has led to low investment in long term ventures such as tree growing. The process of land registration has subsequently been started and about 7 million households have been provided with land user right certificates. It is hoped that this will rectify tenure insecurity and help remedy the related problems.

Besides, an attempt is being made to better manage the dry forest resources of the country in general and the gums and resins production and marketing in particular. The Ministry of Agriculture and Rural Development and Regional Agricultural Bureaus are working with CIFOR's Ethiopia office and NGARA (the Network for Gums and Resins in Africa) to increase the volume and quality of gums and resins harvested, the most important forest export products available.

Conclusions

The direct and indirect contributions of the forestry sector tothe economy are poorly understood, and attempts to quantify these and attach a monetary value to them have been very limited. Though the volume of imported wood products is increasing rapidly, concrete measures to enhance the role of forestry to rural livelihoods and landscape rehabilitation in Ethiopia are difficult to come by.

Forestry in Ethiopia needs to be more visible as a government priority. There is already considerable capacity in the Forestry Department to provide sound policy making and leadership for sustainable management of forests and trees. There are also a good number of foresters working for NGOs and other Ministries that have important expertise in forest land use and management. The private sector is also progressively expanding which implies the development of more processing capacities for wood and non-wood forest products.

The big challenge remains to secure the support of the 85% of Ethiopia's nearly 80 million citizens that live directly off the land to see a high enough value in forests to retain them alongside other land uses. Only if they accept this will they agree to be partners in sustainable land and forest management practices that can support forest resources processing units that can supply the needs for forest products. Also, only then can the country rehabilitate its landscape, create employment opportunities for millions of rural people and produce enough wood and non-wood products to meet its own demands and, eventually, produce more forest products for export.

References

Bekele M. 2007. Review of Forestry in Ethiopia, FAO, Addis Ababa.

Bekele-Tesemma, A. 2007. Useful Trees and Shrubs for Ethiopia. World Agroforestry Centre, Technical Manual No 6, Nairobi , Kenya.

GFRA (2005). Global Forest Resources Assessment 2005. Progress Towards Sustainable Forests management. *FAO Forestry Paper* No. 147. FAO.

Habtemariam Kassa and B. Campbell. 2005. Dry Forests of Ethiopia. CIFOR-Ethiopia Office. Addis Ababa, Ethiopia

Merahi, K.K. 2001. Saints and Monasteries in Ethiopia, Commercial Printing Enterprises, Addis Ababa, Ethiopia.

Mulugeta Lemeih and Habtemariam Kassa (Eds). 2007. Production and Marketing of Gums and Gum Resins in Ethiopia: Opportunities and Constraints. Proceedings of a National Workshop held in Addis Ababa. CIFOR Ethiopia Office.

Tadesse Hailu, 2006. Wildlife Conservation in Ethiopia. In: Forestry and Poverty Alleviation in Ethiopia. Kassa, H., L. Mulugeta, B. Melaku and A. Nigussie (Eds). Proceedings of the National Workshop on Enhancing the Role of Trees, Woodlands and Forests for Poverty Alleviation in Ethiopia. Held in Addis Ababa. CIFOR Ethiopia Office.

Tesfaye Hundie. 2006. Forestry Resources of Ethiopia. In: Forestry and Poverty Alleviation in Ethiopia. Kassa, H., L. Mulugeta, B. Melaku and A. Nigussie (Eds). Proceedings of the National Workshop on Enhancing the Role of Trees, Woodlands and Forests for Poverty Alleviation in Ethiopia. Held in Addis Ababa. CIFOR Ethiopia Office.

The quest for taking due account of wildlife in forest management efforts of Ghana

Christopher Manu[1] and William Oduro [2]

Summary
This paper is about the re-integration of in situ wildlife conservation into forest management in Ghana after the introduction of the Wild Animals Preservation Ordinance of 1901 in the Gold Coast (now Ghana). In this study, the sections of the Ordinance and the Wild Animals Preservation Act, 1961 (Act 43) on preservation, establishment of game reserves and national parks are examined. The development of the Wildlife Division of the Forestry Commission from a Tsetse Control Department, through a Game Branch and the Department of Game and Wildlife is highlighted. Examples of the conversion of portions of some forest reserves into wildlife protected areas are cited. Case studies on local community participation in the in situ conservation of both forest and wildlife resources at the same locations are mentioned. The conversion of Kakum Forest Reserve into a national park and game production reserve is also cited as a successful venture. The study has revealed an urgent need to integrate in situ wildlife conservation into forest management in the forest reserves of Ghana. The paper recommends the adoption of the Man and the Biosphere Reserve Programme approach for the purpose of achieving a speedy integration.

Introduction
The area of Ghana's forest vegetation (represented primarily by the dense evergreen rainforest and moist deciduous forest in the south-western part of the country) declined by about 17.5% during 1975–2000 (from 16,616 km^2 in 1975 to 13,640 km^2 in 2000) {US Department of Interior and US Geological Survey, 2007}.

The Forestry Commission has indicated that the rate of deforestation in Ghana is estimated at between 60,000 ha and 75,000 ha per annum (Green Dove, 2007). The same commission has indicated that the high forest area of the country has been reduced to 1.6 million ha (Resource Management Support Centre of the Forestry Commission, 2009). The area of gallery forest which occurs in central and northern Ghana and contains the most biologically rich habitats has declined mainly because of clear-cutting for agriculture. Forest degradation, particularly in off-reserve areas, is mainly caused by such human activities as the slash and burn method of farming, logging, wildfires and open cast mining. The rate of forest degradation was estimated at 26% during 1975- 2000 (Green Dove, 2007). Expansion of farms and fallow land were the primary drivers for the forest degradation. The overall decline in the entire forest cover in Ghana during 1975 - 2000 was estimated at 22% (US Department of Interior and US Geological Survey, 2007).

The Forestry Commission was established by Act 405 in 1980 as a corporate body responsible for the regulation and management of the utilization of all forestry and wildlife resources of Ghana and the coordination of the policies in relation thereto. The original composition of the Forestry Commission was a Chairman (not a Minister or Deputy Minister), the Chief Administrator, Heads of the Departments of the Commission as *ex officio* members, one representative each of the Ministries responsible for Natural Resources, Trade, Industries, and one representative each of the Bank of Ghana, the National House of Chiefs and the Lands Commission {(The Ghana Forestry Commission Act, 1980) (Act 405)}. The functions of the Forestry Commission include the management, maintenance and protection of forests as economic resource in perpetuity. It is also responsible for the establishment, development, control and conservation of recreational and wildlife resources of Ghana. This includes the establishment, conservation, development control, management and protection of strict nature reserves, national parks, game production reserves, natural history conservation areas and zoological gardens.

For the purpose of addressing the concerns on the declining forest and wildlife resources in the country, the Forestry Commission was reformed in 2000 in line with Ghana's 1992 constitution and in order to achieve the policy objectives of the 1994 Forest and Wildlife Policy. The new Forestry Commission remains a corporate body and is responsible for integrating the activities of all public agencies that were previously responsible individually for the management and regulation of utilization of forest and wildlife resources in Ghana. The mission of the Forestry Commission is "*To provide services that guarantee the conservation, sustainable management and development of Ghana's forest and wildlife resources for the maintenance of environmental quality and optimize their contribution to national socio-economic development for the benefit of all segments of the society*" (Forestry Commission, 2001).The current agencies of the Forestry Commission are the Forest Services Division (former Forestry Department), the Wildlife Division (former Department of Game and Wildlife) the Timber Export Development Division and the Forest Product Inspection Division. The Minister for Lands, Forestry and Mines is responsible for the Forestry Commission and is accountable to parliament for the work of the Commission.

This article provides a historical insight into Ghana's efforts to take due account of wildlife in forest management in the country, beginning with the colonial era. It highlights some significant events in the development of a Game Branch into an autonomous Department of Game and Wildlife which is now the Wildlife Division of Forestry Commission. Against this background, a recommendation is made on the way forward in the process of integrating wildlife conservation into a meaningful forest management.

The pre-colonial era

Wild plants and animals (wildlife) have been a reliable source of food, medicinal, building and cultural materials in Ghana from time immemorial. Non-availability of meat is often associated with poverty. Much attention is therefore given to game or bush-meat by local communities. *"Nnama"* and "*nnam"* are respectively the Hausa and Akan words for meat. "*Wuramu-nnam"* is the Akan word for bush-meat. Wildlife is also part of material culture. Traditional talking drums, totems and sacred groves, for example, have important linkages with wild animals and their habitats. Totems (revered plants and animals) have helped to conserve wildlife and forest resources. For example, the buffalo (*ekuor"* in Akan language and revered as a symbol of skill), is the totem of the Ekuorna clan of the Akan people in Ghana. Leopard, a symbol of aggressiveness, is the totem of Bretuo clan. Parrot, a symbol of eloquence, is the totem of the Agona clan (Conservation International, 2005). Traditional structures, systems, knowledge and practices were therefore developed in the pre-colonial era for an effective community-based management and use of forest and wildlife resources. Sacred groves were miniature forest and game reserves.

The colonial era

The introduction of the Wild Animals Preservation Ordinance of 1901 (Cap. 100) in the Gold Coast Colony undermined the existing traditional structures and systems. The Ordinance was meant to carry into effect in Africa an international convention on preservation of wild animals signed in London in 1900. The Ordinance basically regulated game hunting and exportation of trophies, and provided protection to some wild animals. It also made provision for both the appointment of Honorary Game Wardens and the establishment of game reserves. It marginalized all local communities and traditional authorities in the management of forest and wildlife resources when the area of coverage was extended to Ashanti and the Northern Territories.

In 1953, game preservation became the function of the Tsetse Control Department whose policy, ironically, was to eradicate tsetse flies (source of sleeping sickness) by shooting to destroy game on sight and by clearing habitats along stream and river courses (Asibey, 1970). Wildfires were used extensively for the habitat clearing.

Post independence era

Legislative Instrument No. 31 of February 1958

The Tsetse Control Department was abolished and the Forestry Department assumed the responsibility for the enforcement of the Wild Animals Preservation Ordinance. Mole Game Reserve was declared a

protected area by L.I. 31 of February 1958. A Game Branch was established and the Tsetse Control Department hunters were redeployed as Game Scouts. The Mole Game Reserve and other wildlife matters in Ghana became the responsibility of the Game Branch of the Department of Forestry in the Ministry of Agriculture (UNDP/FAO, 1969)

Act 43 of 1961

The Wild Animals Preservation Act, 1961 (Act 43) was promulgated for the purpose of continuing to observe the convention signed in London in 1900 and for making the necessary amendments to it. In April 1965 the Department of Game and Wildlife was established within the Ministry of Animal Husbandry and later transferred to the Ministry of Parks and Gardens but eventually to the Ministry of Forestry on its creation in September 1965. A forestry graduate from the Aberdeen University was the acting head of the new department until December 1967 when he became the first Chief Game and Wildlife Officer. With support from an Assistant Game Warden and other staff, he formulated and promoted a more comprehensive policy based on sound wildlife management principles. The Minister responsible for forestry and game was empowered to appoint Honorary Game Officers. Section 9(l) of Act 43 empowered the President of the Republic of Ghana to establish (game) reserves (Ghana Government, 1961).

Professionalism

Challenges to professionalism and other issues in Sustainable Forest Management in Ghana have been discussed extensively - e.g. during the technical session of the Ghana Institute of Professional Foresters (GIPF) annual general meeting held in Kumasi in July 2003 (Tropenbos International-Ghana, 2004). The issues identified included political interference, corruption and professionalism; changing roles and professionalism; client relations and professionalism; training and professionalism; and professional body and professionalism. It was noted during the discussions that the social and political challenges to professional forest management in Ghana were complex. Admittedly the issues are intriguing but they must be faced if the goals of sustainable forest management are to be achieved.

As a way forward in the process of integrating wildlife in forest management, it was concluded that one was expected to seek answers to the following three questions: (a) What governance machinery can empower forest and wildlife professionals against political and economic pressures in the quest for taking wildlife into due account in sustainable forest management? (b) What capacities need to be built? (c) What governance machinery can make all stakeholders including forest, wildlife and other professionals, forest fringe communities, traditional authorities, civil society, the state and industry equally accountable?

Opportunities and challenges in wildlife conservation

In the 1960s and early 1970s staff of the Department of Game and Wildlife used to visit Goaso and other areas in Brong Ahafo Region for the purpose of helping villagers to protect farms against rampaging elephants. A good account of some elephant “control operations” in the Brong Ahafo Region has been published by the College of Wildlife Management in Tanzania (College of African Wildlife Management, 1969). Lessons and experiences gained from the “Elephant Control Operations' called for a review of the policy on elephant destruction for the purpose of protecting human life, cocoa farms and other properties. Eventually a permanent base of the department was established at Goaso in the 1970s. The services rendered by the “Elephant Control” team based in Goaso have contributed significantly to wildlife conservation, agriculture and forest management in the Brong Ahafo and the Western Regions.

Wildlife practitioners in Ghana have shown keen interest in some forest reserves for many years. Part of the Boumfum Forest Reserve, for example, was included in the Bomfobiri Wildlife Sanctuary when the latter was established by L. I. 1022 of June 1975. Part of Ankasa River Forest Reserve in the Nzima-Evale-Ajomoro-Owira District of the Western Region was included in Nini Suhien National Park on 27thJuly 1976 by L.I. 1085. Bia Tributaries Forest Reserve was affected by the creation of Bia National Park (L.1. 881 of 14thMay 1974). When logging became an

increasingly important economic activity it was considered appropriate to convert the unlogged part of Bia Game Production Reserve into Bia National Park in order to discourage logging activities in that area. When the demand for timber from the Bia reserve continued to increase while deforestation in Ghana proceeded at an unabated rate, it became necessary to lobby through the 1974 New Year School held in the University of Ghana in order to come up with a resolution that convinced the head of state to establish Bia Reserve as a National Park.

A further decline in the tropical rainforest area of Ghana made Bia National Park increasingly attractive to loggers as a source of timber as supply from other areas diminished. In 1974 the Chief Game and Wildlife Officer and the head of the Environmental Protection Council considered seriously the possibility of upgrading Bia National Park to the status of a Biosphere Reserve. This was achieved in 1975 and Bia National Park was listed as number 103 on the UNESCO Biosphere Reserves map of the world (UNESCO, 1975). Assin-Atandaso Forest Reserve was converted to a Game Production Reserve and Kakum Forest Reserve is now the Kakum National Park (L.I. 1525 of 1991), which is a popular tourist area with the second canopy walk in the world, complementing the canopy walk found in Malaysia.

Case studies

When the Department of Game and Wildlife was faced with a serious problem of poaching of monkeys from Buabeng-Fiema area of the Nkoransa District for export in the early 1970s, the concept of community-based conservation of wildlife was introduced and implemented. The resultant local authority of the Buabeng-Fiema Wildlife Sanctuary established in 1974 tells a success story (Manu, 1992). The Ghana Wildlife Society played a key role in the establishment and development of Buabeng-Fiema Wildlife Sanctuary in the late 1970s.

During May 2004-April 2006, Friends of the Earth-Ghana spearheaded the successful implementation of a Global Environment Facility/Small Grant (GEF/SG) funded project entitled “Biodiversity Conservation and Community Ecotourism Development of the Tafi-Atome Wildlife Sanctuary". A forest area surrounding Tafi Atome village in the Volta Region was established as a Monkey Sanctuary managed by the local community, which maintains the boundary line as a fire-break and protects the Monkey Sanctuary effectively against wildfire. The Survey Department has approved of the land use plan of the sanctuary. The national forest and wildlife statutes in the area are now complemented by Bye-laws. Revenue from ecotourism is shared equitably among the farmland owners, the Traditional Authority and the Hohoe District Assembly. Farming activities in the buffer zone created around the sanctuary promote forest regeneration and the expansion of the core forest area (Manu, 2006). The Tourist Board is helping to advertise the facility.

The Buabeng-Fiema and Tafi Atome Wildlife Sanctuaries are promoting *in situ* conservation (plants and animals) on a small scale but most importantly without resettlement of the directly affected local communities. The approach provides enough motivation for the integration of wild biological resource conservation and ecotourism development into sustainable forest management on a larger scale.

In the early 1990s, traditional authorities in the Wechiau area, fearing (with good reason) that a national reserve would alienate their people from the land (Adjewodah and Beier, 2004), rejected a proposal by the Wildlife Division to establish such a reserve for the protection of one of the only two remnant hippo populations of the Black Volta River. With assistance from the Nature Conservation Research Centre (NCRC, a Ghanaian conservation NGO), the traditional authorities accepted the proposal in 1998 and the Wechiau Community Hippo sanctuary was established. It has become yet another model of a successful community-based conservation and ecotourism project. The NCRC initially provided various grants in support of activities in the reserve but, since late 2003, the revenue generated in the reserve has met all operational costs (local manager, guards, guides, tourist lodge, etc). The benefits from the sanctuary to the local people include the provision of 6 new boreholes for water and two new schools. The integration of old and new local institutions is a cornerstone of the project. For example, byelaws are enforced by a traditional court presided over by

the local chief and his council, but funds derived from fines are deposited in a sanctuary account to which all the communities concerned are entitled.

Conclusion

The urgent need to take due account of wildlife in forest management in Ghana cannot be over-emphasized. It is certainly a challenging endeavour politically, socio-economically and professionally. However challenges often provide opportunities. One should refrain from depending only on professional scientific knowledge and technologies. It is highly recommended to complement these with available indigenous knowledge, traditional structures, systems and practices as well as the experiences and potentials of civil society organizations.

In view of the prevailing climate change and desertification effects, it is advisable to shift emphasis in forest management from the harvesting of timber to Non-Timber Forest Products (NTFPs). Culture, wildlife and ecological services that are provided by forests deserve increasing attention in forest management. The pecuniary value of environmental and ecological services rendered by forests is yet to be assessed realistically in Ghana. Similarly, the contribution made by wildlife to the regeneration of natural forest has not yet been quantified in economic terms. Forest fringe communities contribute towards the protection and sustainable use of forest and wildlife resources, as demonstrated in Buabeng-Fiema and Tafi Atome areas, because they appreciate the value of the Non-Timber Forest Products (NTFPs). The Man and Biosphere Programme approach, which entails the creation of core and buffer zones as well as the effective participation of local communities in forest and wildlife management in the same locality, is recommended as a way forward in the endeavour to integrate wildlife conservation into sustainable forest management in Ghana.

A Biosphere Reserve is a unique category of protected area that combines both conservation and sustainable use of natural resources. It serves a wide range of protected area functions and promotes cooperative research. It is a place where government decision-makers, scientists, managers, civil society organizations, traditional authorities and local communities cooperate in developing a model programme for managing natural resources to meet human needs while conserving natural processes and biological resources. Local communities (people) are integral component of the programme (Manu, 1995).The Man and Biosphere Reserve programme approach (supported by UNESCO) is recommended as a way forward in the quest for taking account of wildlife in sustainable forest management in Ghana.

The development of an effective and autonomous Wildlife Division as a national governmental organization from the Tsetse Fly Control Team is a success story. This is evidenced by the total area covered by national parks in Ghana. The Wildlife Division is now responsible for the management of 18 terrestrial protected areas (16 gazetted and 2 ungazetted) which cover a total area of about 1 247 600 hectares (12 585km^2), constituting 5.3% of the total surface land area of Ghana. The Wildlife Division is also responsible for the development and management of 5 coastal wetlands/Ramsar sites, which cover approximately 800km^2. The establishment of Zoological Gardens, formation of Wildlife Clubs of Ghana and the Ghana Wildlife Society, for example, indicate action taken in public education and awareness creation as well as collaboration with civil society and schools.

The relevant international conventions and treaties ratified by Ghana should be integrated into the Wildlife statutes of Ghana. They include the African Convention on the Conservation of Nature and Natural Resources (OAU Convention of 1969), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (C.I.T.E.S. of 1973), the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention of 1971) and the Convention on Biological Diversity (CBD of 1992). Provision should be made for the effective participation of Governmental organizations, Non-Governmental Organizations and other Civil Society Organizations, the private sector, local communities and traditional authorities in the implementations of these conventions. The need for collaboration in the integration of international conventions into the national statutes has been emphasized (Manu, 1990).

Attention should be paid to the following during the integration process: (i) Improvement of the Wildlife Division for effective implementation of the relevant international conventions and treaties (ii) Involvement of the private sector in wildlife management for the purpose of creating jobs and wealth in the enhancement of sustainable forest management in Ghana. (iii) Equipping forest and wildlife practitioners and other professionals with the requisite knowledge and skills for effective integration of wildlife conservation into sustainable forest management; (iv) Increased participation of local communities and traditional authorities in the management of forest and wildlife resources.

References

US Department of the Interior and US Geological Survey, September 2007; Land-Use and Land Cover Change in Ghana: A Synthesis (Draft).

Ghana Publishing Corporation, Accra-Tema: The Ghana Forestry Commission Act, 1980 (Act 405)

Green Earth Organization, October 2007; Green dove, Issue No. 39.

Forestry Commission, 2001. Protecting our Forest and Wildlife Resources for the Future: The Service Charter of the New Forestry Commission.

Conservation International Ghana, 2005. Handbook of Totems in Ghana: A traditional mechanism for biodiversity conservation.

Wild Animals Preservation Ordinance of 5th February, 1901; Chapter 100 (Cap 100)

Asibey, E. O. A., 1970. Wildlife Conservation in West Africa. Proceedings of the Symposium. 7 Biennial Conference of The West African Science Association; IUCN; Morges, Switzerland.

UNDP/FAO No. TA2623, Rome 1969; Wildlife Management in the Mole Game Reserve: Report to the Ghana Government

Ghana Government, 1961. Wild Animals Preservation Act, 1961 (Act 43). Ghana Publishing Corporation. Accra-Tema

Tropenbos International-Ghana Workshop Proceedings 1; 2004; Natural Resources Management in Ghana: Challenges to Professionalism.

College of African Wildlife Management, 1969. The Ebony Ark

UNESCO, 1975. MAB Secretariat, Paris, France

Manu, C.,1990, International Conventions and Wildlife Conservation. ***Komba*** (Wildlife Clubs of Kenya). Issue No. 3 of December 1990, Pgs 7-9

Manu, C. 1992: Local Community Wildlife Conservation: The Ghana case Study. ***Resources*** (Journal for Sustainable Development in Africa) Vol. 2 No.3 1992. Pgs 20-21

Manu, C., 2006. Tafi Atome Monkey Sanctuary. ***FOELINE*** (Environmental Magazine of Friends of the Earth-Ghana). Issue No. 18 of December 2006. Pgs 6-9

Manu, C., 1995. Mount Kenya Biosphere Reserve. ***Komba*** (Wildlife Clubs of Kenya Magazine) Issue No. 1 of 1995. Pgs 14-15

Adjewodah ,P. and Beier, P. 2004: Working with traditional authorities in conserving nature in West Africa. *African Conservation Telegraph*

Resource Management Support Centre of the Forestry Commission, 2009. Workshop on Social Responsibility Agreements and Sustainable Forest Management

Redefining a wildlife management strategy to stem imminent bushmeat crisis in Liberia

Samuel N.Koffa[1], Somorgar S.Zwuen [2] and Jonathan Yiah [3]

Summary
Bushmeat is a renewable natural resource that remains central to meeting the income and food security needs of resource-dependent households in the Central and West Africa region, and other regions in the developing world. In Liberia, as is variably true in the region, there are heightened concerns about the impending loss or reduction of this resource because of the harvesting methods used, the over centralized strategies and policies governing wildlife use and management and the changing social and economic conditions that drive demand for bushmeat to a level where it now exceeds the rate at which hunted wildlife is replaced in the forest. Finding ways to conserve and protect endangered and threatened wildlife species without compromising the health and welfare of the poor rural and urban families who are almost entirely dependent on this resource is a challenge that can be credibly met by effecting 3 proposed priorities: (1) shift demand to locally produced alternatives to bushmeat, (2) revitalize existing traditional wildlife management practices, and (3) recognize the multiple stakeholders with conflicting interests as leading social actors involved in bushmeat harvesting, processing and marketing. These priorities are suggested as among the key elements of a wildlife management policy and strategy that should be designed so as to deal with the threatening bushmeat crisis in Liberia and are the focus of this article.

1 .Introduction
Defined as meat derived from wild animals (Cowlishaw et al 2004, Martin 1991), bushmeat is a major source of protein whose harvesting (hunting, trapping), processing (drying, packaging) and marketing make up a variety of key income-generating activities in Africa, Asia and the Neotropics, but is gradually and certainly wiping out millions of wild animals from the face of Planet Earth (Bowen-Jones 1998, IUCN 1996, Oates 1996). Bushmeat harvesting to earn income and to provide food is especially common in Central and West Africa (Postnote 2005, Bowen-Jones & Pendry 1999). Separating income earning interest from that for food as among the key driving forces behind the bushmeat industry is very difficult because those mostly involved - poor forest-adjacent, or forest-dwelling individuals and households – supplement their income with the sale of bushmeat (Hoyt 2004, Lahm 1996, Wilkie et 1992).
Experts assert, however, that the need to earn cash from the bushmeat industry far outweighs that for food, and the time is fast approaching when harvesting will no longer be possible if current harvesting methods are not improved and if a means is not found to lessen or end people's total dependence on bushmeat (Bowen-Jones 1998, Rose 1996). Besides serving as food and income safety nets for the poor, other factors driving the bushmeat-dependent world to the imminent crisis are demand (Alvard 1995) and the topdown, overly-centralized approach to wildlife management by the Forestry Development Authority (FDA). Such instruments (e.g. hunting ban, punitive policing of traditional hunters) have encouraged profligate and wanton harvesting methods. In Liberia where bushmeat accounts for 60-90% of the animal protein consumed (FAO 1997) and where extinction of

[1] *Samuel N. Koffa, Ph.D. Senior Research Scientist & Consultant. Agroforestry, Community Forestry, Plantation Silviculture, Biodiversity Conservation. ELWA, Paynesville, Monrovia, LIBERIA. Email: snkoffa@yahoo.com*
[2] *Somorgar S.Zwuen, Senior Lecturer, College of Agriculture and Forestry, Department of Forestry, University of Liberia, Monrovia Liberia. Mobile phone: 231(0)643 5674*
[3] *Jonathan Yiah, Coordinator, Action Research, Sustainable Development Institute, Duarzon, Robertsfiled Highway, Margibi County, Monrovia , Liberia .Email: jyiah@sdiliberia.org; Mobile phone: 231(0)642 6271*

many endemic wildlife species has resulted in the importation of bushmeat from Guinea and Sierra Leone (FDA 1995, FAO 1990) , bushmeat-dependent households living in or around forests (protected or not) are instead faced with a rapidly diminishing pool of this resource now resulting in conflict that is gaining currency between local communities and the nation's forest management agency, the FDA.

There is an urgent need to respond to perceptions of many conservationists – especially those working in poorer countries – that wildlife conservation and protection areas are doomed unless local communities become an integral part of conservation efforts (Adams & McShane 1992, Hackel 1999) - new wildlife management policy and strategies are needed to reverse the dire trend the bushmeat industry is taking. This article is an abridged version of a major report of a bushmeat research that consists of desk and field studies

The article outlines and explores the need to shift demand to locally produced alternatives to bushmeat, revitalize existing customary wildlife management practices, and recognize the need to involve multiple stakeholders engaged in bushmeat harvesting (hunting, trapping), processing (drying, packaging) and marketing in attempts to define and craft a wildlife management policy and strategy to stem the imminent bushmeat crisis in Liberia. The full analyses and results are available in a detailed report submitted to FAO (Koffa et al 2008).

2. Methods

Information for purposes of this research was collected through desk and field studies. For desk studies, over 40 documented experiences on the subject were reviewed. In the field, 584 individuals in 14 villages, towns and cities of 4 of Liberia's 15 counties were surveyed in late 2007 and early 2008. A range of rapid rural appraisal (RRA) techniques was used, chief among which were focus group discussions, general assemblies, key informants, field observations and semi-structured, questionnaire-based interviews. These techniques are fully discussed elsewhere (Messers & Townsley 2003, Hopkins & Short 2001). Table 1 lists the 4 counties from which participants hailed and the number of participants from each. Each of the 14 human settlements constitutes a community and the sum of them all represents the study site.

Table 1. Individuals interviewed or otherwise participated in the study in the 2 regions or zones of the study, relative to the estimated population of the sampled communities

County	Estimated population	Number of participants	Percentage*
Grand Gedeh	3300	124(10F:114M)	4
River Gee	2357	146(5F :141M)	6
Rivercess	2559	203(5F :198M)	8
Sinoe	1730	111(3F :108M)	6
Total: 4	9946	584(23F:561M)	6(Ave)

Percentage of participants/respondents from sampled villages in each county relative to the estimated population in each community. F= Female, M=Male

3. Results and Discussion

3.1. Traditional wildlife conservation practices

In the 14 communities included in the study, there are self-organized traditional hunting groups who define the customary rules for the harvesting of certain animal species, including birds. These unwritten rules, enacted mainly by a council of elderly men, also forbid people, particularly women, from fishing in certain creeks and streams, exclude outsiders from hunting in others' territory and outlaw the use of indiscriminate harvesting methods such as trapping and poisoning. Turtles, snakes and mammals such as chimpanzees and leopards are examples of faunal species that are protected under such customary rules.

Customary rules are respected and obeyed to the letter, and enforcement is by social ostracism, curses, social rebuke, shame, and fines to keep community members in line. To what extent these customary rules and their enforcement mechanisms remain intact after the 14 years of recent war in the country was hard to say with certainty, but it was apparent this system and the respect it earns and commands are still real. This makes grassroots groups the nucleus of local decision-making. A body of key studies points to the need to work with traditional systems in the management of wildlife (Noss 1997, Child *et al* 1997). A range of countries in Africa has sought more equitable governance of their critical natural resource base, wildlife in particular, by devolving decision-making and resource control to local populations (Wily 1997, Murphere 1993), and so there are good examples on the African continent from which Liberia could gain experiences to deal with these pertinent problems.

3.2. **The search for alternatives to bushmeat**

Of recent, the FDA proposes captive breeding of wild animal species, such as cane rat and duikers, as alternatives to hunting of bushmeat. This choice of species is based on experiences in other countries and, as such, has become a problem in itself, because it disregards the domestic animals that villagers in Liberia are accustomed to keeping such as goats, sheep and hogs. However, if domestic animals were to be proposed as an alternative to hunting, this will become another problem because livestock is not commonly used to meet daily meat protein needs in Liberia. Instead, it is used for special occasions or serves as a source of emergency cash in times of imposing needs. Also, such an alternative requires large sums of money up front and as such would only benefit a clique of local elites who have access to cash or credit and who are familiar with the technology required to benefit from this replacement strategy.

The argument here is rather how a list of alternative, promising species can be compiled. Such a list should not only be economically sound, but also pragmatically feasible and socially just and acceptable. In short, the choice of species for captive breeding must be drawn up on the basis of the pertinent realities in Liberia and not only because such species have proven to be successful in other countries in the region or elsewhere. The grasscutter (also known as cane rat) could well be the best bet in Liberia; however, the choice must be made out of a list of species which is a product of a participatory process. Grasscutter (*Thryonomys swinderianus*) is a rodent and can grow to about 60cm long in the longest individuals and weighs about 8.6 kg.

3.3. **Identifying and learning more about stakeholders in the bushmeat industry**

Stakeholder analysis (SA) is defined as an approach to understanding a system by identifying the key actors or stakeholders in the system and assessing their respective interests in that system (Grimble *et al* 1995). Stakeholders include all those who affect, and/or are affected by, the policies, decisions and actions of a given system. They can be individuals, communities, social groups or institutions of any size, aggregation or level in society. The term thus includes policy-makers, planners and administrators in government and other organizations, as well as commercial and subsistence user groups.

Through desk studies and meetings with individuals and institutions, stakeholders of the bushmeat harvesting, processing and marketing activities or simply put, the bushmeat industry, were identified as: (a) traditional hunters (groups, individuals), (b) rural communities, (c) bushmeat traders (buyers , sellers), (d) the urban society, (e) state agencies charged with wildlife conservation and protection, (f) international and national conservation institutions, (g) the donor community, (h) the logging and mining companies, (i) policy makers, and (j) future generations. These stakeholders perform the 5 major functions of production, consumption, supply, management and research support. Figure 1 shows these various stakeholder groups, whose influence and role are important in formulating a wildlife policy and strategy for the country.

Influence is defined here as the power which some stakeholders have over a given project to control decisions that are being taken, facilitate project planning and implementation or exert influence which might affect the project negatively. Influence is perhaps best understood as the extent to

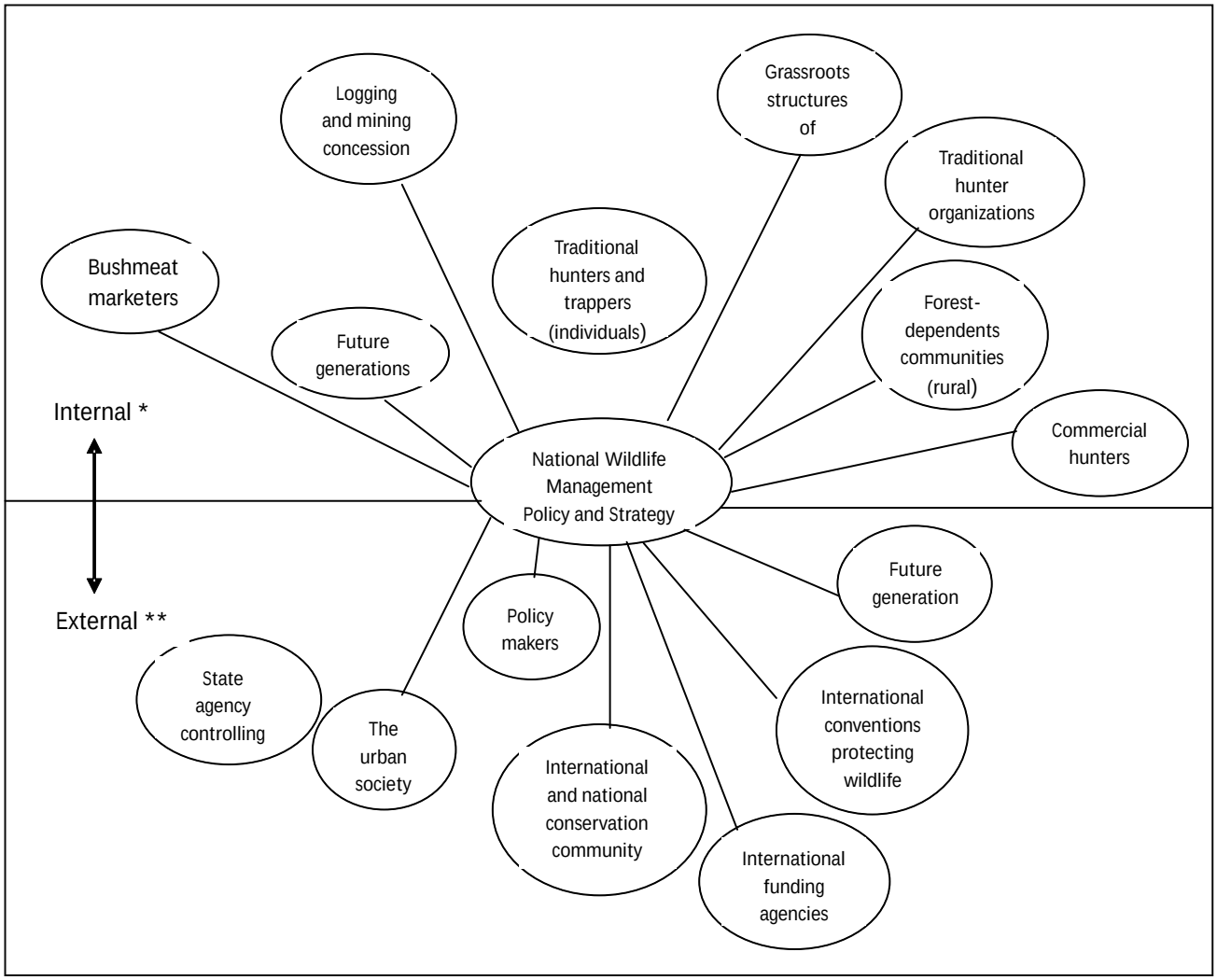


Figure 1.Stakeholder groups whose influence and role is important in formulating a wildlife policy and strategy for Liberia

which people, as groups or individuals, are able to persuade or coerce others into making decisions, following certain courses of action. Power may derive from the nature of a stakeholder's organization, or their position in relation to other stakeholders (i.e. line ministries like the Bureau of Budget that control budgets and other departments, international funding agencies, etc).

Most of the external stakeholder groups (policy makers, funding agencies, NGOs, etc) have the power and influence to facilitate the development of policy and a wildlife management strategy. Internal stakeholder groups such as hunters and forest dwellers are not as equally powerful and influential as their external counterparts in framing national wildlife policy and management strategy. However, externally driven policies and strategies alone will not reverse the dire trend that bushmeat harvesting is taking if they can not improve the lives and general well-being of internal stakeholder groups that are closest to the forest and its resources. Importance is an expression or an end product of the various elements of influence as mentioned above. In other words, the influence an individual or a group exerts in a given situation makes that individual or group important. In crafting Liberia's bushmeat policy and management strategy, the key external and internal stakeholder groups must be kept in mind and their putative and expressed interests taken on board.

The terms *Internal and **external are used to distinguish between stakeholder groups that are residing in and outside the territories
of the wildlife hunting and trapping communities, respectively

4. Conclusions

A large population of forest-adjacent and forest-dwelling families in the Central and West Africa region depend on bushmeat to meet the needs for financial and food security. In Liberia in particular, as is variably true in some countries in the region, demand for bushmeat is about to exceed supply. The challenge is to simultaneously maintain the wildlife industry and preserve Liberia's faunal, floral and other forms of biodiversity. A practical and credible wildlife management policy and strategy is (one of) the best way(s) to meet this challenge. Specific lessons learned are that:

4.1. Traditional structures of resource governance offer a very useful blueprint from which we can learn in our attempts to develop workable wildlife management policy and strategy.

4.2. Dualism in institutional frameworks and resource use decision-making exists. The state monitors and regulates wildlife resource use and management by creating a legal curtain around forests through punitive policing. On the other hand, however, evidence suggests customary rules developed and enforced by councils in local communities successfully serve as the guiding principles in addressing wildlife harvesting and management imperatives.

4.3. Multiple stakeholders with conflicting interests do exist and must work together. Accomplishing sustainable wildlife and other natural resources management objectives is a dynamic and dual challenge. Undoubtedly, it requires the active participation both at the community and state level of various stakeholders with, most of the time, conflicting interests and a variety of approaches towards satisfying them.

5. **Recommendations**

5.1. Recognize traditional structures of resource governance. Government must recognize the key roles communities play in achieving better management of land and forest resources such as wildlife. This can lead to the development of policy and a legal framework that legitimize local experimentation with wildlife management.

5.2. Identify and strengthen local institutions. Facilitation of the establishment of local-level institutions, traditional hunter groups for example, is a vital pivot to success. It will also be useful, where they exist, to enhance the capacity of local institutions or modify their role to better meet new and emerging challenges.

5.3. **Capacitate multiple stakeholders.** Build the capacity of all stakeholders through and informal education. The process should seek to empower people to solve problems actively by fostering participation, self-confidence, dialogue, joint decision-making and self-determination in developing a workable national policy and strategy for the sound management of Liberia's wildlife resources.

References

Alvard, M.1995.Shotguns and sustainable hunting in the Neotropics. *Oryx*, 29(1):58-65

Adams, J.S. & McShane, T.O.1992.*The Myth of Wild Africa: Conservation without Illusion.*W.W.Norton, New York.

Bowen-Jones, E. (Ed.).1998.*The African Bushmeat Trade: A Recipe for Extinction*. Ape Alliance, London.

Bowen-Jones, E. & Pendry, S.1999.The threat to primates from the bushmeat trade in Africa, and how this threat could be diminished.*Oryx*, 33(3):233-246

Child, B., Ward, S. & Tavengwa, T.1997.Zimbabwe's CAMPFIRE programme: Natural resource management by people.IUCN-ROSA.*Environmental Issues Series* No.2.

Cowlishaw, G., Meldelson, S. & Rowcliffe, M.2004.The bushmeat commodity chain: Patterns of trade and sustainability in a mature urban market in West Africa.*ODI Wildlife Policy Briefing* 7, June 2004
Hackel, J.D.1999.Community conservation and the future of Africa's wildlife. Conservation *Biology*, 13:726-734

FAO.1990.The significance of minor forest products. The local use and value of forests in the Western African humid forest zones.

FAO.1997.Wildlife and food security in Africa.*FAO Conservation Guide* No.33.Rome

FDA.1995.Liberia national progress report on forestry and wildlife. Forestry Development Authority. Monrovia

Grimble, R., Chan, M., Aglionby, J. and Quan, J.1995.Trees and trade-offs: A stakeholder approach to natural resource management. *Gatekeeper Series* No.52

Hopkins. & Short, A.2001.Centralized training: A PRA methodology for community development projects in Liberia. Doctors without Borders-Liberia.54pp

Hoyt, R.2004.Wildmeat harvest and trade in Liberia: Managing biodiversity, economic and social impact.*ODI Wildlife: Policy Briefing*. April 2004.4pp

IUCN.1996.The 1996 IUCN Red List of Threatened Animals.IUCN, Gland, Switzerland.

Koffa,S.N., Zwuen, S., & Yiah, J.2008.Crafting Liberia's bushmeat policy and management strategy.A comprehensive report submitted to FAO on a study on the bushmeat industry in Liberia. Sustainable Development Institute.54pp

Lahm, S.1996.Gabon's village hunting: Assessing its impact. African Primates, 2(1):23-24

Martin, C.1991.*The rainforests of West Africa: Ecology, threats and conservation.* Basel, Switzerland: Birkhauser Verlag

Messer. & Townsley, P.2003.Local institutions and livelihoods: Guidelines for analysis. Rural Development Division.FAO, Rome

Murphree, W.W.1993.Communities as resource management institutions. International Institute for Environment and Development. Gatekeeper Series Paper No. 36.London

Noss, A.J.1997.Challenges to nature conservation with community development in Central African forests. *Oryx*, 31(3):180-187

Oates, J.F.1996.Habitat alteration, hunting, and the conservation of folivourous primates in African forests. Australian Journal of Ecology, 21:1-9

POSTNOTE .2005.The bushmeat trade. *Parliamentary Office of Science and Technology*. February 2005 Number 236 .United Kingdom

Rose, A.L.1996.The African forest bushmeat crisis. Report to ASP. *African Primates*, 2:32-34
Willkie, D.S., Sidle, J.G. & Boundzanga, G.C.1992.Mechanized logging, market, hunting, and a bank loan in Congo. *Biology*, 6(4):570-580

Wily, L.1997.Villagers as forest managers and governments “learning to let go”: The case of Dhuru-Haitemba and Mgori forests in Tanzania.*IIED Forest Participation Series* No.9.22p

Best Practices in Sustainable Hunting: ***success stories from Southern Africa***

Rolf D. Baldus[1]*, Gerhard R. Damm*[2] *and Kai-Uwe Wollscheid* [3]

It is most timely that *"Nature & Faune magazine"* presents a number of case studies from the field to prove that wildlife conservation in Africa is far from failing everywhere, even if this is sometimes claimed by some conservationists. Instead of just disseminating the stereotype of Africa's wildlife being doomed to extinction it is high time to ask the question, which are the factors determining whether wildlife develops upwards or downwards.

The Food and Agriculture Organization of the United Nations (FAO), together with the International Council for Game and Wildlife Conservation (CIC) presented in 2008 a similar analysis. In a joint venture the two Organizations looked at some of the factors that determine whether wildlife develops upwards or downwards and they examined how sustainable use of wildlife, in particular hunting can contribute to conservation. A number of success stories from around the world, some of them from Africa, were presented as "best practices" (Baldus et al., 2008). The African cases include an assessment of the economic scale and the conservation significance in Sub Sahara Africa by Peter A. Lindsay and a position paper on trophy hunting by the WWF of South Africa. L. Chris Weaver and Theunis Petersen explain the success of the Namibian Communal Area Conservancies. More general articles analyse recreational trophy hunting tourism, the economic potential of sustainable hunting tourism and the need for conservation areas to be financially self-sufficient to the greatest extent possible. The purpose of this article is to show that properly managed hunting practices has led to increased areas under conservation, increased retention of wild animal species and numbers.

South Africa has wonderful national parks and over 10,000 private wildlife estates, teaming with game. The remarkable growth of wildlife numbers has a rather mundane economic reason. The reason was simply a change in law in the 1960s and the implementation of that law. Wildlife ceased to be a "common resource" with nobody in particular being responsible for its welfare and conservation. Rather, game animals became the property of those who owned the land. After the law was passed, game suddenly had a value to the landowner; it could be traded, hunted and photographed against a fee. Conserving game and using it in a sustainable way became good business, since game values outcompeted cattle values. The difference becomes obvious if one takes 20.25% growth in turnover per annum at game auctions during the period 1991-2005 as a representative indicator of the growth in the South African wildlife ranching sector. Compared to this, the agricultural crop sector grew on average by 10.38%, the horticulture sector by 12.13% and the domestic animal production sector by 9.46% per annum. Over the 15 year period under review, the agricultural sector showed an overall growth of 9.76% per annum (NAMC, 2006).

It is high time to point out that the decline of nature is not a law of nature, but that it is to a great extent the consequence of human activities, of good or bad conservation policies, and of good and bad governance. There are highly industrialized and densely populated countries like Germany boasting of large and increasing wildlife populations. In Germany, hunters annually harvest 1.4 million large mammals like roe- and red-deer and wild pigs. They pay dearly to the landowner for the privilege of hunting and, as a result, wildlife is on the increase. South Africa, albeit somewhat different in its system and immensely larger and less densely populated than Germany, had almost exterminated large ungulates before the passing of the new law, since wildlife competed with domestic livestock. After the value of game soared above that of livestock, savvy cattle or sheep ranch owners restructured their activities and became game

[1] *President, CIC Tropical Game Commission, International Council for Game and Wildlife Conservation (CIC) Email: nc-baldusba2@netcologne.de*
[2] *Vice-President, CIC Tropical Game Commission, CIC Sustainable Use Commission*
[3] *Director General, CIC - International Council for Game and Wildlife Conservation Administrative Office, P.O. Box 82, H -2092 Budakeszi, Hungary*
Tel.: + 36 23 453 830, Fax: +36 23 453 832; Web: www.cic -wildlife.org

ranchers. Around 8 500 highly paying hunting tourists shoot almost 54 000 game animals per year (Lindsey, Roulet & Romañach, 2006), and the more than 200 000 local hunters (Damm, 2005) shoot probably another half a million. In spite of this, areas under conservation as well as game numbers increase year by year. On the other hand, there are countries in Africa where hunting has been banned for many years and, yet, this was accompanied by a steep decline of wildlife numbers.

It is just not true that wildlife management is failing everywhere in Africa. Box 1 gives an idea about such potentially misleading messages.

BOX 1
Some misleading myths on wild animal populations and the counter facts in favour of sustainable use of wildlife including hunting

A video clip has been produced (**http://www.youtube.com/watch?v=gg3NbcTtICE**) which is scheduled as in-flight-movie ahead of the football world cup in South Africa. The short movie won a number of international prizes for creativity and communication. In the clip, after an apparently funny story of tourists on a safari in Africa who were shown wooden giraffes, a pig dressed as rhino and a goat disguised as lion, the cruel truth comes out at the end of the video clip, which notes: "Africa's wildlife is dying out. And this is not funny." The morale of this video clip is that the economic use of wildlife leads to extinction.

But is it true that wildlife has disappeared or is disappearing in Africa? Yes and no: For many areas this is true and for many it isn't. And is the reason for extinction in those areas where it happens trade and wildlife use? Yes and no. Illegal and non-sustainable uses of wildlife are one reason for extinction. Other more important factors are population growth, expansion of agriculture and other land uses and bad wildlife management. Buying ivory items and other illegal wildlife objects by tourists is a contributing factor in some places, but it is not a major issue. On the other hand there are many places where wildlife continues to exist or has even greatly increased in numbers due to good wildlife policies and well managed protected areas. In most of these cases wildlife is not just protected. Instead is has been given a value for the land-owners and the rural population by allowing sustainable use including hunting and trade.

South Africa, the host country of the next World Cup, for example, is actually a very good example of a country, which was tremendously successful in increasing the populations of wildlife. Degraded farmland has been returned to wildlife and game numbers have rocketed. Formerly endangered species like the white rhinoceros and the black wildebeest staged spectacular recoveries from points of near extinction. This was not achieved by merely protecting it or by outlawing wildlife use. Quite the opposite is true.

Of all wildlife uses, hunting tourism is of particular economic and conservation relevance. Managed hunting has the potential to generate extraordinarily high revenues with a minimal off take of individual animals, and can therefore develop into an economic and social force of considerable impact in underdeveloped rural areas. Even though a significant potential for abuse and malpractices is inherent in hunting tourism, many "best practices" bear witness to the positive impact of sustainable hunting on wildlife, habitats and the people who live with wildlife and manage it. Communicating these best practice examples will help to ensure that hunting and hunting tourism can be practiced in a proper and sustainable way, and will fulfil their role as positive management tool and a powerful incentive for conservation.

The lessons learned proof the in-flight video's message "Africa's wildlife is dying out" wrong! A "hands off" approach alone does not help holding the decline in species. To the contrary – it is often sustainable use that provides the basis for the survival of wildlife. Sustainable use and long term protection of wildlife do not contradict, but rather complement each other! This is the message that should be told to visiting tourists.

Against all odds, countries like South Africa, Botswana, Namibia, and despite all the turmoil of the past decade, even Zimbabwe to a certain extent, have managed to increase wildlife numbers and use this natural heritage sustainably.

FAO and CIC are working together towards generating knowledge and collecting information on how sustainable use of wildlife, in particular hunting, can contribute to conservation. There is the need to concentrate on positive and proven methods of conservation which at the same time benefit local populations.

References

Baldus, R.D., Damm, G. and Wollscheid, K-W.2008. Best Practices in Sustainable Hunting. A Guide to Best Practices from around the World. CIC Technical Series No.1. CIC and FAO. Budapest. See: www.cic-wildlife.org/uploads/media/Best_Practice_Book_EN_final.pdf; www.fao.org/docrep/010/aj114e/aj114e00.htm

Damm, G.R.2005. Hunting in South Africa: Facts – Risks – Opportunities
African Indaba Vol 3, Nos 4 and 5

Lindsey, P.A., Roulet, P.A. and Romañach, S.S. 2006. Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. Biological Conservation 134: 455-469

The National Agricultural Marketing Council (NAMC), 2006 Report on the Investigation to Identify Problems for Sustainable Growth and Development in South African Wildlife Ranching, Report No 2006-03, Pretoria

Reconciliation of resource value differences of stakeholders in sustainable landscape management: The case of a Tri-National Landscape in Central Africa subrgion

CHI Augustine MUAM[1]

Summary:
International boundaries sometimes cut across intact ecosystem which can have serious management implications. This is because conservation of biological resources beyond national borders is generally motivated by multiple interest involving multiple actors or stakeholders with differing interest and priorities. This is what obtains in the Tri-National Dja-Odzala Minkebe (TRIDOM) landscape which is one of 12 identified and targeted 'Landscapes' of the Congo Basin Forest in Central Africa. The interaction between these stakeholders highlights varying resource values at international, national and local levels. These values are usually focused respectively on ecological, economic and socio-cultural benefits which, if not reconciled, can be inimical to the sustainability of the Landscape. Efforts to reconcile these differences are outlined in the 2005 TRIDOM Cooperation Accord signed by the 3 countries concerned (Cameroon, Republic of Congo and Gabon). The sustainable management of the TRIDOM Landscape is contingent on full implementation and enforcement of the 2005 TRIDOM Accord, irrespective of individual national challenges that may emerge in due course.

Introduction:
International borders especially those located in remote and inhospitable areas usually have ecosystems which today have remained largely intact. These ecosystems are dissected by political and not ecological boundaries and ecological considerations were not at the forefront. These ecosystems are subject to different management practices especially where migratory wildlife species are involved. To help remedy or improve this situation, management has moved over the last few decades from a site-level focus towards landscape approaches. This has been accompanied by growing interest and involvement of different stakeholders since the concept of landscape means different things to different people.

This is what obtains in the tripartite trans-border conservation initiative of Dja-Odzala-Minkébé (TRIDOM) which is one of 12 identified and targeted Landscapes[2] of the Congo Basin Forest in Central Africa. TRIDOM is a zone of about 14.6 million hectares spanning territories in Cameroon, Gabon and Congo, and represents 7.5% of the Congo Basin Rainforest already under protection nationally. The TRIDOM Landscape can be viewed as a collection of enormous blocks of forest that are demarcated by a few public roads, and contain portions of interconnected and intact forests void of human activities (COMIFAC, 2006:153). A majority of the Landscape is covered with forest which is home to the largest population of forest elephants in Central Africa. Inventories carried out in Minkébé within the framework of the Monitoring Illegal Killing of Elephants (MIKE) program, revealed a population density of three elephants per km² in an area of 10,000 km² (one third of the Minkébé forest), equal to the presence of a total of 30.000 elephants.

The 2005 TRIDOM Cooperation Accord, signed by the three host countries under review (Cameroon, Gabon and Republic of Congo), is similar to other formal agreements for the management of trans-boundary Protected Areas, such as the 1999 Declaration of the Kgaligadi Trans-frontier Park between Botswana and South Africa; or regional processes such as the 2005 Central African Forest Commission (COMIFAC) Treaty, signed by 10 Central African States for the conservation of the Congo Basin Forest. As mentioned earlier, conservation of biological resources beyond national borders is generally motivated by multiple interests, involving multiple actors or stakeholders with differing interests and

[1] *LLB, MPA, Ph.D, Senior Lecturer, Faculty of Law and Political Science, University of Douala, Box 4982 Douala. Cameroun. Email: chimuam@yahoo.com*

[2] *Each landscape corresponds to a vast 'ecosystem' consisting of intact core zones comprised of priority areas for conservation, with extraction and human impact zones increasing towards the edge (COMIFAC, 2006)*

priorities. Even if the difficulty of taking into consideration the diverse interests or values of acknowledged stakeholders is acknowledged, the actions of these are not always coordinated and are sometimes conflicting, thus not favouring sustainable resource management. This paper identifies the stakeholders in TRIDOM, distinguishes their differing values and reviews opportunities offered by the Accord to reconcile these.

Justification of the establishment of the TRIDOM Landscape

TRIDOM was recognised since 1996 as offering unique possibilities for establishing a network of existing and proposed protected areas by means of corridors of intact and very sparsely populated forest areas(COMIFAC, 2006:153). As depicted in Table 1, existing Protected Areas date back to 1935 and 1950. Those proposed to be included were later either upgraded from Forest/Fauna Reserves to National Parks in 1999, 2002 or created/designated National Parks in 2002 and 2005. All these areas constitute the landscape approach, that is, large scale protection of entire ecosystems through trans-boundary conservation initiatives.

Table 1: National Protected Areas in TRIDOM

Country	Name of Protected Area	Surface Area	Year of creation
Cameroon	Dja Fauna Reserve	526.000 hectares	1950
	Nki National Park	238.300 "	2005
	Boumba-Bek National Park	309.300 "	2005
Gabon	__	756.700 hectares	1997/2002
	__	300.274 "	1971/2002
	__	166.500 "	2002
Rep. of Congo	Odzala-Koukoua National Park	1,250.000 hectares	1935/1999

Legally, early and formal evidence in Africa of the need for trans-boundary collaboration lies in the African Convention on the Conservation of Nature and Natural Resources (Algiers) signed in 1968. This Convention calls for consultation between upstream and downstream states on water issues. Following the Algiers Convention is the 1971 Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitats which requires inter-State consultation on matters affecting shared wetland areas. The Ramsar Convention was followed by the general recognition of the usefulness and need for international identification and stewardship of natural resources in the 1972 World Heritage Convention (Convention Concerning the Protection of the World Cultural and Natural Heritage). Finally, the 1973 Convention on International Trade in Endangered Species (CITES), requires participatory States to conform to specified inter-State practices for trade in identified and listed threatened plant and animal species.

The above four conventions foreshadowed the broader use of trans-boundary principles in treaties to come. For example, the late 1970s saw the emergence of the Convention on the Conservation of Migratory Species (Bonn Convention, 1979), calling for the prevention of obstacles to migration, coordination of anti-poaching efforts and exchange of information on such species. In the mid-1990s the full application of trans-boundary principles started to be implemented on an inter-State scale. The 1992 Convention on Biological Diversity (CBD) established an ecosystem approach to managing natural renewable resources, acknowledged the need to consider joint resource management in adjacent countries, and called for the involvement of all relevant sectors of society and science. The 1992 United Nations Framework Convention on Climate Change and 1994 Convention to Combat Desertification express similar principles in the fields they cover. Respectively, they call for efforts to address climate change carried out cooperatively by interested Parties (Article 3(3) and for international solidarity and partnership at sub-regional, regional and international levels to combat desertification (Article 3(b). Most recently, Article 1 of the 2005 COMIFAC Treaty, requiring States to speed up the process of creating trans-border protected areas between Central African States, was signed by countries concerned (Central African Republic, Republic of Congo, Burundi, Cameroon, Chad, Democratic republic of Congo, Equatorial Guinea, Gabon, Rwanda, Sao Tome and Principe).

[1] Henceforth to be called the Accord

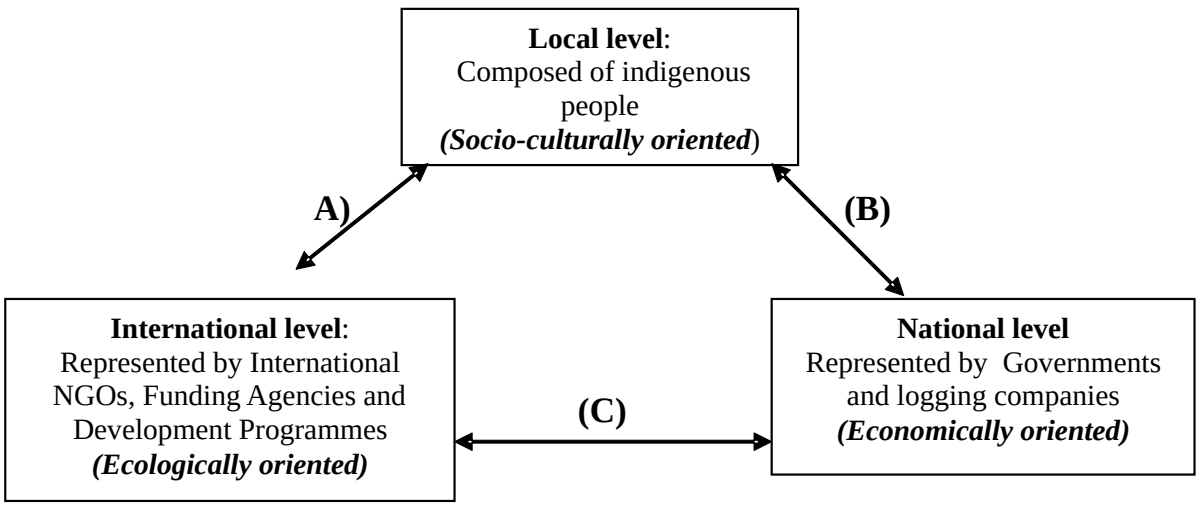
Key Stakeholders with differing resource values

COMIFAC (2006:151-155) reports that TRIDOM is composed of human population (made up of ethnic groups or indigenous populations), Government players represented by Government Ministerial Departments, Development Programmes that support national institutions, International NGOs working in the landscapes concerned and logging companies which can contribute to the management of resources in the TRIDOM Landscape. In this article these stakeholders are classified according to values they commonly express within the context of biological resource use at the international, national and local levels (see Fig 1 below). For example, conservation of biodiversity is directly relevant to local communities, for whom biological resources often represent a primary source of livelihood, medicine, and provide spiritual values. At the national or state level, values related to biological resources are often considered in relation to economic benefits brought about through both their tangible use (timber harvesting, hunting) and intangible (tourism) use. Biodiversity conservation has become an international or regional issue as well, based on a global concern for maintaining and managing the existing species richness on Earth, commonly referred to as "the common heritage of humankind". The biodiversity of the forest is of worldwide importance because the fauna and flora in the forests of the Congo Basin does not exist anywhere else on earth (COMIFAC, 2006:11).

The TRIDOM Accord's objectives and reconciliation of stakeholders' values

Differences in conceived values among different stakeholders are shown in Figure 1 below. Efforts to reconcile these differences are outlined in the Cooperation Accord. It is strongly argued that in the absence this Accord, TRIDOM would be managed to satisfy international values to the detriment of national and local values, as will be elucidated below.

Fig. 1: Interface between stakeholders and their values



A : International and Local values

The indigenous populations at local level are represented by ethnic groups such as the Fang, Badjoué, Bulu, Kwélé, Kota, Nzime, Ndjem, Mboko, Bonguili and Sangha-Sangha. These populations are forest dwellers who have been living in the forest and its immediate surroundings for more than 1000 years (COMIFAC, 2006:14). Biological resources represent the primary source of livelihood or subsistence to these groups, as manifested in the type of activities they undertake. As farmers, they are involved in activities such as agriculture, reported to currently practised on an area of the order of 7,000 ha, dedicated to the industrial production of pineapples; and 15.000 ha dedicated to the growing of rubber trees (primarily in the southwest of the area) (COMIFAC, 2006:152). Hunting, for trade in bush-meat, is primarily in the hands of women, commonly known as '*buyam-sellam women'* - which in Pidgin English for 'buy-and-sell-them (bush-meat) women'. Traditional mining activities, with panning for gold adversely affect several rivers in the basin of the Upper Ivindo in Gabon and the Republic of Congo. These latter activities according to COMIFAC (2006:156) seriously threaten the TRIDOM Landscape by disturbing related aquatic ecosystems and leading to the immigration of people who also hunt into the

earlier intact forests.. Indirectly, there is the danger that some gold panning or hunting camps will one day be recognized as permanent villages, thus reducing the essential character and value of the TRIDOM Landscape as an area with significant connectivity between protected areas and vast continuous uninhabited areas.

From the foregoing, it is arguable that local (socio-cultural oriented) values and activities differ markedly from the ecologically oriented values expressed at the international level. The latter are disproportionately represented by resourceful international NGOs, such as World Wide Fund for Nature (WWF) and Wildlife Conservation Society (WCS); Financial institutions such as the USAID, UNDP-GEF and Regional Programmes such as *Programme de Conservation et utilization rationnelle des écosystem forestieres d'Afrique Centrale* (ECOFAC) and Central African Regional Programme for the Environment (CARPE) all working to maintain species richness in the landscape, invariably satisfying international (ecological) values. Conservation organisations such as WWF, IUCN and WCS implement their programmes often through financial support from the donor community and inter-governmental political organizations such as the European Union. WWF has been active in the southeast of Cameroon, the northeast of Gabon and the northwest of the Republic of Congo. According to COMIFAC, WCS is active in Ivindo National Park in Gabon and in the *Industrielle Forestiere de Ouesso* (IFO) concession to the east of Odzala-Koukoua National Park in the Republic of Congo (COMIFAC, 2006:155). Many of these organizations are members of the Congo Basin Forest Partnership (CBPF) launched at the 2002 World Summit on Sustainable Development in Johannesburg, South Africa. The aim of CBPF is to promote the sustainable management of the forests of the Congo Basin and to improve the quality of life of the region's inhabitants (COMIFAC 2006:2).

To reconcile these resource-value differences Article 6 of the TRIDOM Accord calls for the involvement of local communities in the management of the TRIDOM Landscape. Article 13 makes provision for a representative of local collectivities to be a member of *Comité Tri-National de Suvie* (CTS) - which is charged with the implementation of the Accord (Article 14). Involvement of local communities in participatory resource management is sanctioned by Article 1 of the COMIFAC Treaty. It calls on States to step up efforts to increase the rapid participation of rural populations in the planning and sustainable management of ecosystems and allot adequate areas for socio-economic development. The process of management in partnership with local communities should encourage populations to structure themselves into organized groups which can be made officially responsible for the management of biological resources. When structured and organised, these groups can contribute towards the regulation of land use for subsistence and commercial exploitation purposes and the establishment of controls on outside populations involved in commercial exploitation (hunting, gathering, agriculture, etc.). This is put into practice through the creation of Community Forests.

For instance in Cameroon, an upper limit of 5,000 ha has been placed on the size (area) of community forests and these forests must have a simple management plan validated by the national forest administration. In Gabon, the government envisages establishing community forests, within the framework of pilot projects (OIBT, 2005). Management Plans in Gabon and Cameroon explicitly recognise the right of local populations to use forest resources and tax redistribution systems have been introduced in these countries which benefit local populations (COMIFAC, 2006:30). In Cameroon, Equatorial Guinea, Gabon and Democratic of Congo, the forestry laws also provide for the creation of areas managed and logged by village communities – community forests – but so far these have only been implemented in Cameroon and Equatorial Guinea (COMIFAC, 2006:30).

B: Local Communities and National values

The value Nation-States attribute to biological resources are often economically-oriented, and based on resource use, both tangible (timber harvesting or logging, hunting) and non-tangible (tourism). In this regard, Governments grant hunting and logging permits to logging companies. In Cameroon this right is executed by the Ministry of Forestry and Wildlife, in the Republic of Congo by the Ministry of Forest Economy and the Environment and in Gabon by the Ministry of Forest Economy, Water, Fishing, the Environment and the Protection of Nature (MEFEPCEPN). It is often argued that eco-tourism does not constitute an alternative to the development of conventional tourism and

generally can only be successful developed on a sustainable basis in conjunction with conventional tourism (King & Stuart, 1996). However, tourism is a complex economic activity that involves several types of know-how and professions and which is subject to commercial rules and constraints that only professionals in the sector can competently handle. This is feasible through establishment of tourism companies as is the case in Gabon.

To reconcile national with local values Article 1 of the TRIDOM Accord calls for the equitable sharing of benefits. This is linked to one main objective of the CBD "the fair and equitable sharing of the benefits arising out of the utilization of genetic resources". Benefit Sharing Arrangements (BSA) are aimed at facilitating the agreed-upon distribution of monetary (e.g. royalties) and non-monetary benefits (e.g. contributions to local economy and at the village level in the form of livelihoods improvement such as infrastructure and food security). In Cameroon the local populations adjacent to concessions receive 10% of the annual forestry fee (RFA), which is based on the total area of the forest concession and determined by an award mechanism (COMIFAC, 2006:68). The funds are paid by the municipality to a management committee set up within each beneficiary community. A recent study by Ngoumou (2005) gives an account of the difficulties that the beneficiary villages have in receiving the resource due to them from the municipalities. This is due to a series of administrative problems which must be solved soonest. Conversely in Gabon (COMIFAC, 2006:69), given logging contracts with large forest concessions provide for the payment of 1,000 FCFA per m of felled timber to the resident local populations. And in the Republic of Congo, 50% of the surface area tax goes into a special fund created at the National Treasury for regional development (COMIFAC 2006:69).

C: National and international values

To satisfy both national and international needs and obligations, Article 1 of the TRIDOM Accord calls for the involvement of economic operators (e.g. logging companies) who can generate income for the Government through industrial-scale logging and, at the same time are obliged to contribute towards the sustainability of forest management. This is endorsed by the COMIFAC Treaty, which calls on Parties to involve business operators in the sustainable management and conservation of forest ecosystems (Article 1). It is interesting to note that several logging companies that hold permits for industrial-scale logging are implementing plans and certification for sustainable resource use while a number of others have only a short term vision and do not consider sustainability. For example, in Cameroon, the Decolvenaere, Pallisco and TTS-SCFS groups are in the process of certifying timber in accordance with the Forest Stewardship Council (FSC) certification scheme (COMIFAC, 2006:157). A number of major companies grouped together within the Inter-African Forest Industries Association (IFIA), in partnership with the World Resources Institute's (WRI) Global Forest Watch (GFW) programme, Governments and groups in the civil society, have initiated the development of an independent and voluntary monitoring system – the Forest Concession Monitoring System (FORCOMS). Certification criteria have been identified in this initiative in an attempt to identify measurable indicators of sustainability. In this context, sustainability emphasizes production that is less harmful to the environment, that benefits harvesters and producers as well as the local community and that makes good economical sense.

Conclusions

The Dja-Odzala-Minkébé (TRIDOM) Landscape which extends over areas of the Republic of Congo, Gabon and Cameroon, is one of the 12 Landscapes of the Congo Basin Forest in Central Africa. As a trans-boundary conservation initiative, TRIDOM is supported by multiple stakeholders whose interests and actions highlight varying resource values at international, national and local levels. These values are usually focused on ecological, economic and socio-cultural benefits which, if not reconciled, can threaten the sustainability of natural renewable resource management. The objective of the 2005 TRIDOM Cooperation Accord signed by the countries concerned aims to reconcile these different values, by calling for the involvement of local communities, commercial operators and equitable sharing of benefits from the conservation of the resources found in the TRIDOM Landscape. The conservation of biological resources is one of the core objectives of the 1992 CBD and is at the heart of the political agreement upon which the CBD was founded. The

[4] See Article 1 of 1992 of CBD, CDB 2002, CBD: Convention Text. retrieved 17 April 2002 from CBD website: http://www.biodiv.org/convention/articles.asp.

underlying process calls for the management of natural resources allowing partial or total exploitation for individual, community or commercial use, without jeopardizing the long-term viability of the resource base or inflicting undue or excessive environmental damage to the landscape (Crump, 1993). This is feasible in the TRIDOM Landscape. Despite the fact that it is too early to assess effectiveness of the 2005 TRIDOM Accord, sustainable management of the Landscape can be guaranteed if the Accord could be fully implemented and enforced by the Parties concerned. This could be in spite of unresolved problems and challenges such as that experienced in Cameroon regarding difficulties of beneficiary villages receiving resources due to them from their municipalities.

References:

COMIFAC et al (2006), The Forest of the Congo Basin, State of the Forest 2000, COMIFAC, Yaoundé.

Crump, A. (1993), Dictionary of Environment and Development, People, Places, Ideas and Organisations, The MIT Press Cambridge, Massachusetts.

King, D.A. & W.P. Stuart, (1996), Ecotourism and commodification: protecting people and places. *Biodiversity and Conservation* 5: 293-305.

Ngoumou Mbarga H, (2005), *Etude empirique de la fiscalité forestière décentralisée au Cameroun: un levier de développement local*, Mémoire Master en agronomie et agroalimentaires, ENGREF-CERAD-CIRAD, Montpellier

OIBT (2005), Mission technique de diagnostic de la gestion durable des forêts en vue d'atteindre l'objectif 2000 de l'OIBT en appui au gouvernement de la République Gabonaise (G, Buttoud, Coordinateur), Libreville/Yokohama.

Reflections on the Integrated Management of Plants and Animal wildlife in Jebel Marra Forest in western Darfur, Sudan

Mohamed Adam Khamis[1]

Summary

This paper presents the successful contribution of the coordinated project between the National Forest Corporation (NFC) of Sudan and German agency for technical cooperation (GTZ) to the sustainable management of the forests and conservation of wildlife and biodiversity in Jebel Marra Forest in Western Darfur, Sudan, as well as the lessons learned thereof. It also highlights generally accepted principles of sustainable natural resource management, which take cognizance of multi-stakeholders in conservation. The local communities around Jebel Marra forest are key stakeholders whose livelihood is dependent to a large extent on its forest and who also suffer significantly from the impact of animal activities.

Jebel Marra Forests Circle (JMFC) is a division of the Sudanese Forests National Corporation (FNC) which was established in the 1950s and charged with the responsibilities for the management and conservation of forest resources in the area. Faced with a myriad of constraints however, significant improvements were only achieved after JMFC established cooperation with GTZ in 1987. The collaborative efforts aimed to introduce sustainable management of the forest resources, conservation and protection of wildlife habitat, management of water catchments and watershed, preservation of biodiversity, improvements of recreation and tourism and improvement of the livelihood of the local inhabitants of the JMFC.

Evidence of successful management and conservation of JMFC were based on first hand observations, experiences of local people, reports, project documents and relevant literature. In the face of the prevailing conflicts, insecurity and political instability in Darfur, the project was terminated in 1997. A wider stakeholder approach has generally been found very useful in natural resource management activities, it is therefore recommended that attention be paid by all parties involved (the local communities, traditional and local authorities as well as international organizations) to the preparation of a conservation and management plan for the Wildlife and Protected Area in the Jebel Marra massif and adjacent areas to protect the rare wild animals and endangered wild plants found there before they completely disappear.

Introduction

Jebel Marra Forests (JMF) is located in Western Darfur State in Sudan. It was established in the 1950s as a division of the Forests National Corporation (FNC), with the responsibilities of managing and conserving the forest resources in the area. The most interesting feature of Jebel Marra is its Island-like position amidst the lowlands of the Sahelo-Sudanian transition zone, in the very heart of the African continent, in the low rainfall savanna zone (Wickens 1976). The average annual rainfall in the area ranges between 600-900 mm, with a recorded maximum of 1066 mm and minimum of 294 mm. The forests and woodland savanna in the Jebel Marra area cover an area of approximately 19 6000 hectares (Khamis 2001). The area constitutes a very important element of the Sudan's natural heritage and biological diversity, hosting about 400 species of plants, 112 animal species and 290 species of birds, amongst which are certain endemic animals(e.g. *Cercopithecus aethiops marrensis)* and plants (e.g. *Plectranthus jebel marrae)* (Happold 1966a, Wickens 1976, Miehe 1988 and Ernst1995). Interesting examples of wild species of flora and fauna which deserve protection in the Jebel Marra area are the wild

[1] *Mohamed Adam Khamis, Assistant professor, Department of Forestry and Range Sciences, University of Al Fashir, P.O. Box 1 25 Al Fashir, Northern Darfur, Sudan. Email: mohed41@hotmail.com*

date palm, *Phoenix reclinata;* and the Greater Kudu, *Tragelaphus strepsiceros*. The gallery forest vegetation along the stream valleys add to the beauty of the area and is a tourist attraction in Darfur (Figures1& 2).

Figure 1: A view of a waterfall and gallery forest in Jebel Marra, Darfur, Sudan
Source: Ata El Mannan (2002)

The capacity of FNC and JMFC to conserve the Jebel Marra environment and sustainably manage the forest resources is limited due to lack of funds and technical expertise. Consequent upon this, a cooperation project between the Sudanese FNC and the German Agency for Technical Cooperation (GTZ) was established in 1987 with the objectives to arrest the degradation of the environment; sustainably manage its forest resources; and conserve the wildlife and the biodiversity in Jebel Marra. The project provided the needed funds and technical expertise for drawing up appropriate plans for the various components of the project, including: the establishment of plantations of *Cupressus* and *Eucalyptus* species; the management of indigenous natural forests and wildlife habitats, water catchment and watershed, tourism; and securing and improving the livelihood of the local inhabitants. These plans were successfully developed.

This paper highlights the ecological and economic importance of Jebel Marra area, the successful improvements achieved at the time, as well as the lessons which can be learned and used for future improvements and sustainable management of the natural resources in this important region.

Figure 2: view of the waterfall and gallery forests in Jebel Marra, Darfur, Sudan
Source: Ata El Mannan (2002)

Due to the political instabilities in Sudan and particularly the armed conflicts in Darfur, the GTZ- project was terminated in 1997. Given the importance of Darfur to Sudan and to the world at large, it is therefore recommended that more attention be paid by the local communities and authorities and the international organizations still present, towards proper use, management and conservation of the Jebel Marra massif and adjacent areas. In spite of the poverty and widespread insecurity the human communities living in Darfur could contribute, through targeted intervention, to preserving the rare wild animals and endangered wild plants and to implement integrated sustainable management of valuable resources of fauna and flora before they are lost permanently.

Management Status
Since the establishment of the JMFC, emphasis has been placed on development and management of the plantation forestry sector. Preference was given to exotic species such as *Cupressus lusitanica*, for the production of softwood timber, and *Eucalyptus spp.*, for the production of poles. However, little success was realized due to lack of funds and proper plans for utilization and marketing of the products. Plantation forests established to date cover only about 3% of the total area of the natural woodland and tree savanna in Jebel Marra.

After the establishment of FNC/GTZ project, the necessary funds, equipment and technical training were provided to allow for proper planning and implementation of various forestry activities such as: nurseries, land preparation, planting, tending operations, harvesting, transportation of wood products, sawmilling, and marketing of forest products. Concerning the conservation of natural forests and wildlife, a division for management of natural forests and woodland savanna was established in Jebel Marra in1995, and the author was the head of department of this section. The executed activities in this context included: Preparation of a vegetation map of Jebel Marra, establishment of a herbarium including collections of all plant species in the area and, social survey on the preferred uses of the different indigenous tree species by the local population. Selected pilot areas for forest management programmes were inventoried.

Three useful species were identified in the social survey, namely: *Anogeisus leicarpus, Cordia africana and Khaya senegalensis.* Enrichment planting of the two preferred indigenous tree species (*Khaya senegalensis* and *Cordia africana*) was conducted, noting that *Anogeisus leicarpus,* is the most dominant species in the area. Also, a plan was made for protection of all vegetation of the gallery forests, with special emphasis on the wild date palm, which is a rare species in the Sudan.

Concerning wildlife conservation and management, a number of proposals and studies were prepared. Also, some regulations controlling the entry of outsiders and prohibiting hunting of the Greater Kudu were introduced. Furthermore, monitoring towers were erected, and fire lines cleared or established. Equipment, such as backpack water sprayers for firefighting, and mobile radios to facilitate communication, were also provided to the guards and the staff.

Concerning the livelihood of the local inhabitants, improvements were successfully achieved through provision of employment, schools, medical services, encouragement to establish private nurseries and forest plantation plots, and training in bee keeping and honey production. Crop growing was allowed in the forest area (in agroforestry systems), as was the collection of wood and non-wood forest products (e.g. grasses), and trading in forests products was facilitated. These incentives created a positive relationship between the local inhabitants and the JMFC project, and led to active local participation in the protection, conservation and sustainable management of the forest and non-forest resources in the area.

Also, according to evaluation teams, the ecological impacts of the project were predominantly positive, in terms of protection of the natural tree vegetation, soil, micro-climate, water husbandry, wildlife, the expansion of tree plantations and reduction in the deterioration of the surrounding natural savanna stands.

Future Management proposals and recommendations

Ernst (1995) proposed that the Jebel Marra massif, or at least parts of it, should be protected as a natural conservation area and declared a protected area as soon as possible. In line with this, it is recommended that a National Park be created to protect the major vegetation types of the area and its characteristic wildlife. This area should be protected and managed by the highest competent authority in the country for economic, scientific, and educational purposes. No cultivation, cutting of trees, hunting and settlements should be allowed in the National Park and other activities should also be restricted, except for research and educational purposes. A buffer zone surrounding the park should be reserved for agriculture and management of natural forests, including harvesting of wood and non-wood products.

Given that poverty is a challenge in the region, it may seem that it is a distortion to favour conservation over economic utilization. But this is only in the short term and other accompanying and stop-gap measures (such as food aid) are already in place to mitigate harsh impact.

The above may appear to be a highly conservationist approach, which is a fundamental shift from the generally accepted principles of sustainable natural resource management, which takes cognizance of multi-stakeholders' engagement and benefit thereof, in conservation. Granted the local communities around this forest are key stakeholders whose livelihood is dependent to a large extent on this forest, who also suffer significantly from the impact of animal activities. The article recommends for creation of a national park because Sudan is well endowed with land area (Sudan is the largest African country) and lots of other land-use options abound. It is also recognized that a wider stakeholder approach has generally been found very useful in natural resource management activities. Therefore, the recommendation for more attention from local authorities and international organizations for this type of work is only justified to the extent that it strengthens and supports local communities in the rational management and use of these resources.

The objectives of the proposed National Park in the Jebel Marra massif should include the following:

- Preservation of the natural, physical and environmental values of the Jebel Marra massif from degradation and destruction;
- Conservation of biodiversity for scientific and educational purposes;
- Encouragement of research and training of students in the fields of ecology, forestry, agriculture, geology and geography etc. ;
- Protection of important water catchment areas to ensure stability of the hydrological conditions to conserve the water supply for villages and agricultural schemes on the lower slopes of the Jebel Marra area, and for conservation of soil, as well as to minimize flooding;
- Development of recreational and tourist facilities and encouragement of local, national and international tourism in an effort to promote local and global appreciation and enjoyment of the cultural and historical diversity as well as the natural endowments of the region. Surely tourism is the one industry that is most easily dislocated when insecurity prevails, therefore this economic opportunity is relevant for promoting peace to ensure its own survival;
- Economic development of the region through tourism, employment for local people and investment opportunities in tourist facilities and infrastructure.

The lessons that can be learned from this project are that proper planning, the involvement and active participation of the local inhabitants in the management of the natural resources, as well as addressing of their needs, are the key to success, on which future improvements can be built for further success. Local inhabitants have participated as permanent and daily paid labor in forestry project activities (nursery, tree planting and tending operations, logging, sawmilling,…etc), and in the protection against fire, un-managed grazing and illicit felling and hunting. They continue to cooperate in these activities since the establishment of the JMFC, but with less motivation compared to the project period during which more incentives and motivation were provided. It is therefore recommended that more attention be paid, by the local authorities and the international organizations present, to the management, conservation and sustainable use of the Jebel Marra massif and adjacent areas.

References

Ata El Mannan, M. E. 2002: Guideline to the Knowledge of forestry, (Arabic), Khartoum, Sudan (Unpublished)

El Amin, H. M. 1990: Trees and Shrubs of the Sudan. Ithaca press, Exeter. Sudan

Ernst, D. 1995: Reconnaissance Mission to Southern Darfur. Report prepared for the GTZ- Project, Jebel Marra Forests Circle, Khartoum, Sudan.

Happold, D. C. D. 1966a: The mammals of Jebel Marra, Sudan. J. Zool., London149: 126-136.

Khamis, M. A. 2001: Management of *Boswellia papyrifera* stands for resin production in Jebel Marra area, W-Sudan, present situation and future prospects. TU-Dresden-Germany. (M.Sc. Diss)

Miehe, S. 1988: Vegetation Ecology of the Jebel Marra Massif in the semiarid Sudan. Dissertations botanicae. Band 113, 171 Pp. plus photo app.

Wickens, G. E. 1976: The flora of Jebel Marra (Sudan Republic) and its geographical affinities.-Kew Bull. A dd. Ser.5.-London.

The lagoon crab, an emerging fishery in the Assomlan community in the South-East region of Côte d'Ivoire

Seraphin Dedi Nadje[1]

1. Introduction

The Assomlan Community originates from the Assomlan village located in the South-East region of Côte d'Ivoire, near the Aby lagoon, 13 km from Adiaké (the main Department) and 113km from Abidjan, the Capital city of Côte d'Ivoire.

This community benefits from an important natural asset; being the 56km-long lagoon complex - Aby-Tendo-Ehy (Figure 1) from West to East, a 25km-long North-South extension and a total surface area of 424 km². However, this community also experiences natural constraints related to lack of land for other agricultural activities.

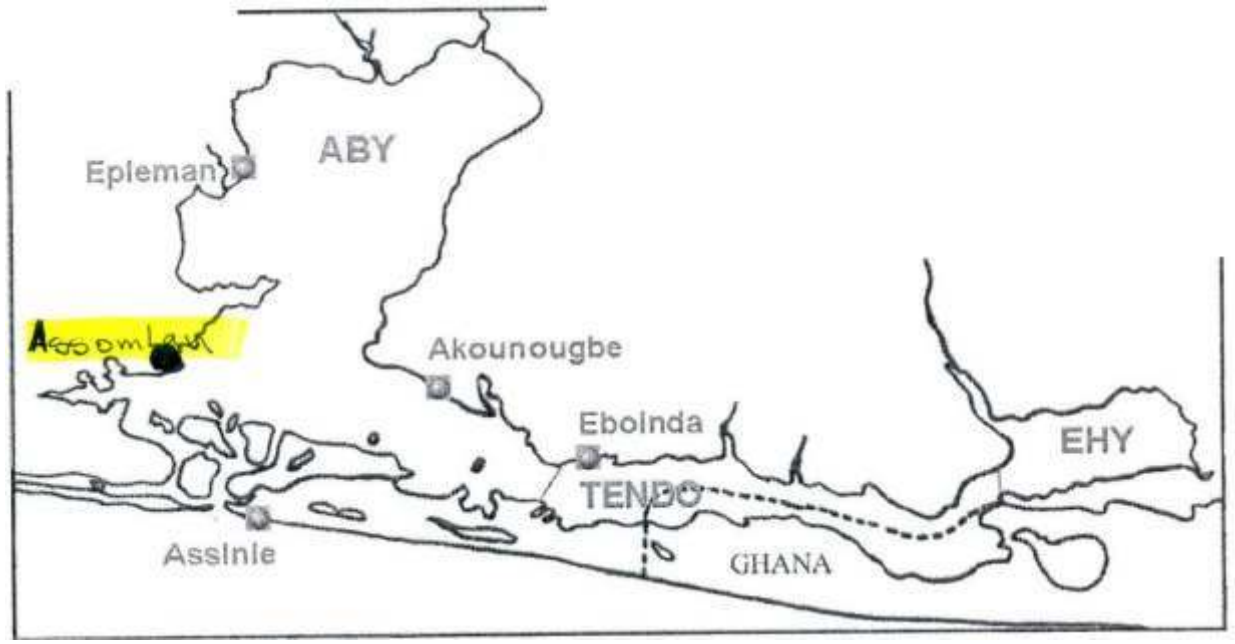


Figure 1. The Aby-Tendo-Ehy Lagoon complex

The community is currently striving to provide its village with infrastructure (schools, dispensaries, roads, etc.), as well as coping with the numerous youth, mostly literate, coming back to the village because of lack of available jobs in the city.

The village is organized around social and development structures: Village chief, notables, youth and women organizations, village development associations and a local funding agency.

The vulnerable background of this community is characterized by a significant increase of school drop outs among young girls and boys who turn to fisheries, with the associated risks of being a seasonal activity and fragile resource exposed to overexploitation. The demographic density trends appear to threaten the social balance of the village. The youths want to play an ever increasing role in the management of the village and are faced with the old elite. There is a risk of aggravation of the clash between generations in natural resources management.

[1]*Secretary General of the Fisheries Committee for the West Central Gulf of Guinea (FCWC), P.O. Box BT 62 Tema, Ghana, tel./fax +233 21 81 54 99, mobile +233 20 75 86 321, e-mail: sdedi.nadje@yahoo.fr*

One of the strategies to suppress these crises remains the diversification of activities through the development of small trades (shops, phone booths, husbandry) as well as the sustainability of the lagoon crab fishery.

It is in this context that the Assomlan community benefited from two community projects identified by the National Coordination Unit (NCU) of the Sustainable Fisheries Livelihoods Programme (SFLP) between 2001 and 2003.

This paper aims at sharing the growing interest for crab fishing in the fishing communities of Assomlan and its contribution to the improvement of their livelihoods, following the intervention of two community projects executed in the framework of the SFLP..

The paper presents a synopsis of the initial objectives of these community projects, the main outputs and their impact as well as the way forward for this sector.

2. Institutional framework and characterization of Assomlan community projects

These community projects were put in place in the framework of the Sustainable Fisheries Livelihoods Programme (SFLP) which covered 25 countries in West Africa (from Mauritania to Angola and 5 landlocked countries: Burkina Faso, Central African Republic, Mali, Niger and Chad).

The programme aimed at alleviating poverty and vulnerability of fishing communities through the strengthening of the communities' human and social resources for better involvement in policy making and natural resources management. .

The Assomlan community projects were approved following the training of the Côte d'Ivoire NCU members in Participatory Rapid Appraisal (PRA) organized in March 2000 and February 2001 in Adiaké. The participatory diagnosis enabled fishing communities to identify priority activities for the sustainability of their livelihood..

2.1. The Community project 'Strengthening Self organization capacity of the Assomlan community' aimed at strengthening the participation capacity of fishing communities in the management of the lagoon by improving the social set up and living conditions of the population.

Thus, the project, among other activities, trained the youth in crab fishing; introduced members to simplified accounting; promoted savings and loans; set up an economic interest group, and strengthened the village fisheries committee.

2.2. The Community project 'Support to the Lagoon crab fisheries in the Aby Lagoon' constituted the extension of the previous community project implemented in Assomlan and aimed at examining the dynamics of catches, biology and ecology, and the socio-economic aspects of swimming crabs in the Aby Lagoon and formulated sustainable resource management measures for this fishery.

In effect, for a long time, the lagoon crab was of little interest to Ivorian consumers. During the past years, it constituted a non-negligible part of shellfish landings. In the Ebrié Lagoon, the landings were estimated at 1,000 tons (1991) while in the Aby Lagoon, preliminary observations indicated 1,500 tons/year (1998). Unfortunately, this fishery is not well known and is not addressed in management measures for the Aby Lagoon. Its contribution to the local economy has also not been assessed.

Thus, the successive implementation of these two community projects in the area of operation of the Assomlan fishing community was an opportunity to consider a wider vision of the contribution of this fishery to the livelihood of the community and to the management of this emerging fishery.

3. Main outputs

The outputs of these projects are highly valuable.

The Assomlan community project has contributed to strengthening social facilities and development of the village through the various trainings organized. This awareness of the responsibility of the community actors resulted in the establishment of a development fund for the village called *Fonds de Solidarité et de Développement (FONSDEV)* (Solidarity and Development Fund).

This fund stems from the initiative of the community itself and constitutes an instrument for the mobilization of financial resources for the benefit of the community. It thus facilitates mutual aid and enables the implementation of small projects for the development and equipping of fishermen.

At the launching in 2001, 60 individuals subscribed to the various products of FONSDEV and mobilized about 1,800,000 FCFA worth of savings.

The project 'Support to the Lagoon crab fisheries in the Aby Lagoon' enabled an initial description of the lagoon crab fishery in Côte d'Ivoire. Actually, in West Africa, there are three species (*C. amnicola* ; *C. pallidus* et *C.marginatus) while Côte d'Ivoire counts only two of them namely Callinectes amnicola (Picture 1) formerly known as Callinectes latimanus and Callinectes pallidus formerly known as Callinectes gladiator.*

Picture 1: Callinectes amnicola, De Rochebrune, 1883 (Decapode – Portunidae)

Callinectes amnicola was retained for the study in view of its economic importance over *Callinectes pallidus*. Thus, a network of data collectors around the lagoon was set up during the project.

The results of the surveys facilitated a description of the crab fishing tackle (Picture 2), and identification of 283 fishermen using 18,936 fishing tackles, including the hand net, the pot and the fixed net, to determine the highly variable duration of fishing in the area (Table 1), assessment of the average annual production at 1,500 tons/year and 9 tons/year variable in Epleman to 197 tons/year in Assomlan (Table 2)

Table 1. Monthly duration of minimal and maximal fishing observed in the Aby Lagoon

	Minimum	**Maximum**
Aby	16,2 (October)	21,2 (March)
Adiake	7,6 (October)	25 (January)
Assomlan	2,8 (June)	18,2 (May)
Assinie-Mafia	15,4 (September)	26,6 (April)
Man-Man	2,8 (May)	19,2 (March)
M'Bratty	1 (July)	12,2 (March)

Picture 2: Pot used for crab fishing in the Aby Lagoon

Table 2. Scoopnet fishing : Monthly variation and total crab catches in the various villages along the Aby Lagoon

Villages	Number of fishermen	Number of fishing days/month	Scoopnets Average catches (Number of baskets)			Average catches (Kg)		
			Day	Month	Year	Day	Month	Year
Aby	20	15	1.27	381	4,572	20	7,620	91,440
Adiake	34	15	1.27	681	8,172	20	13,620	163,440
Adjouan	16	15	1.27	305	3,660	20	6,100	73,200
Assomlan	43	15	1.27	819	9,828	20	16,380	196,560
Eboindo1	21	15	1.27	400	4,800	20	8,000	96,000
Eboindo 2	7	15	1.27	133	1,596	20	2,660	31,920
Eboue	13	15	1.27	248	2,976	20	4,960	59,520
Egbei	6	15	1.27	114	1,368	20	2,280	27,360
Ehoumankro		15	1.27	210	2,520	20	4,200	50,400
Elima	IS	15	1.27	286	3,432	20	5,720	68,540
Epleman	2	15	1.27	38	456	20	760	9,120
Sagbadou	9	15	1.27	171	2,052	20	3,420	41,040
Ep1ema*	20	15	1.27	381	4,572	20	7,620	91,440
TOTAL		-		**4167**	**54,576**	-	-	**100,080**

The socio-economic characterization of fishermen indicated that 87.3% of registered fishermen were Ivorian and were mostly young (between 15 and 40 years old) that is 94.9% of total fishermen. Only 5,98% of fishermen indicated that they saved in a financial institution.

The production of crabs enabled them to create a global income level for the lagoon of about FCFA 300 million for 1,500 tons production per year. The internal rate of profit ranged between 552 and 2,076%. The monthly income of crab fishermen ranged between FCFA50,000 and 150,000 and exceeds the index-linked guaranteed minimum wage (FCFA37,600) and the Agricultural guaranteed minimum wage (FCFA16,000).

Incomes vary greatly depending on location and period. At marketing channels level, two channels have been identified for the marketing of crabs outside their zone of production. The first one supplies markets in Abidjan and the second supplies markets in neighboring Ghanaian towns.

The survey reported constraints related to capital and vulnerability elements. In effect, fishermen lack the necessary technical skills of their trade and their level of education is relatively low. **Moreover, they do not have access to credit facilities (except for the Assomlan village in the context of the current programme) and are barely structured in professional organizations, thus restricting the efficiency of their operations as compared to other economic operators.**

The fish tanks used by fishermen to preserve the crabs are unsuited as they do not allow for free circulation of oxygen, increasing the mortality rate of crabs. For some time, fishermen have noticed evidence of overexploitation of the resource which translated into a decrease of the size of captured crabs. The differential distribution of crabs according to seasons and lagoon hydrology, are a vulnerability aspect for some fishermen. In fact, during the rainy seasons, only male crabs are captured in the northern region of the lagoon and this is not economically profitable for them. Since male crabs do not carry eggs, they are deemed of lesser value by consumers.

4. Impacts of Assomlan community projects

The training and equipment of crab fishermen and a better knowledge of this fishery have opened the way for the development of the following aspects:

- Improved organization

There exist groups or associations better organized and managed, with the participation of most of the community members. For example, fishermen stopped fishing and selling crabs to protest against current prices imposed by traders (wholesalers), causing them to negotiate an increase of the usual prices. The community has understood the necessity to organize itself to sort out a number of issues related to its existence.

- Savings mobilization

The establishment of the FONSDEV was an opportunity to mobilize endogenous savings, in particular among young girls, fishermen or even retired community members. Development of a savings-loan culture within the community was also noted. .

- Improved livelihoods

Socio-economic conditions of fishermen of the Aby Lagoon have improved through the community project as indicated by some of the beneficiaries. To that effect, Mr. Edmond Ahesan Bosson narrates: 'I used to make between FCFA5,000 and 7,000 a day but I misused the money as I did not have any management skills; now I better manage my income and it has enabled me to complete my house, pay my children's school fees and save for the future'.

- Diversified activities

Income generated by the fishery contributed to financing other income generating activities within the community, for example: livestock husbandry, hair saloons, and sewing workshops.

- **Management measures for resource sustainability**

Following a restoration workshop of the project, the Department in charge of fisheries and fishermen, firmly adopted the following measures: observance of a biological rest period covering the months of March and April which corresponds to the reproduction period of crabs; the formal ban on catching female crabs carrying eggs in their thorax and small crabs. Any small and/or female crab with eggs should be systematically thrown back to the Lagoon; the respect of passage areas in channels (areas for setting up fixed nets) to facilitate the migration of female crabs to the delta zone where the level of salinity is higher and promotes sexual maturity and the laying of eggs.

5. Discussion and conclusion

The work done in the context of these lagoon crab fisheries support projects for the benefit of the Assomlan community provided results and lessons learned for the management of natural resources involving coastal communities:

- Community authorities are the moral guarantors of all activities in the village. Based on the operation of village institutions, it is important for the authorities to endorse activities that promote active participation of the community.
- It is now common for Communities to mention access to credit or to equipment as a determining factor to improve their livelihoods. Unfortunately, loans are often considered as gifts. They are not properly used or are not refunded even though the activities they funded are thriving. It appears important to cultivate a sense of savings and of accountability among the community members prior to granting loans or even putting in place funding mechanisms by the communities themselves.
- The need to develop a partnership between the main actors for the development of the fishery sector. Indeed the smooth collaboration between the Fisheries Administration, Scientific research (CRO) and NGO (INADES-Formation- COTE D'IVOIRE) has been a guarantee of success for these community projects.
- Crab fisheries are experiencing new dynamics, both at the production and marketing levels. Crab is one of the fisheries products that is increasingly being traded in the sub-region. This growing interest and signs of overexploitation call for the recorded in crab fishery to be taken into account in fisheries resources management in our region.

References

1. Rapport final du Projet Communautaire N°14 : renforcement des capacités d'AUTO-organisation de la communauté d'ASSOMLAN, décembre 2005

2. Rapport final, projet d'appui à la gestion de la pêcherie des crabes des lagunes en lagune Aby (Côte d'Ivoire), juin 2003

3. Rapport de l'atelier de restitution du projet communautaire d'appui a la gestion de la pêcherie de crabe des lagunes (C*allinectes amnicola*)°en lagune Aby, juin 2003

Dom, a tiny village in the Bamenda highlands of Cameroon swings into prominence

Paul N. Mzeka[1]

Summary
Defined by World Wildlife Fund as one of the 200 world wide ecoregions, the Western Highlands of Cameroon stretch from the Atlantic archipelago in the Gulf of Guinea to the hart lands along Cameroon's western boarder region. The Highlands are rich in endemic species, particularly on the Bamenda Highlands. Unfortunately, most of the wildlife has been lost. However, the remaining forest patches still contain remnants of the endemic species of both flora and fauna. One of these is the bio rich patch at Dom, a mountain village in the northern flanks of the Kilum Mountain.

Early 2008, after completing a project to save a similar rich, forest patch in the village of Mbiame, the Apiculture and Nature Conservation Organization (ANCO) a conservation NGO founded in 1992 and her partner NGOs launched another to save the Dom patch (452.7 hectares). The objective is to relieve the intense pressure on the fragile submontane ecosystem arising from human encroachment. Also, bush fires, particularly during the dry spell, damage the fragile ecosystem.

The ongoing project has 4 components: biodiversity conservation, income generation, sustainable land management and school environmental studies. Ten sensitization sessions, spread out at different levels for a duration of 3 months, outside the project schedule were used to thoroughly sensitize the community members about the possible project activities, their outcome and the role of the community in the project implementation.

On the basis of rich experience in community based conservation, it is argued that five principal pillars are essential for success in this field, namely: significant community involvement, good governance, income generation, community-based leadership and equitable gender representation.

Background
The World Wildlife Fund defines the Western Cameroon Highlands range that stretches from the Atlantic Ocean archipelago of Soa Tome, Principe and Bioko (Equatorial Guinea) and continues on the mainland through Mount Cameroon (4095m), the Rumpi Hills, the Bakossi Mountains, Mount Nlonako, the Kupe Manengouba, the Bamboutos, the Bamenda Highlands and beyond as an ecoregion (Ingram et al, 2007). The flora of this region "constitute one of the most unique and threatened ecosystems in Africa (and) are home to a number of endemic species of bird, amphibian, reptile, mammal and insect" (Bamenda Highlands 2002). However, the ecosystems of the region particularly those of the Bamenda Highlands are under intense threat from human activities. This has caused the fast disappearance of forests and as they disappear, the benefits and services they provide also disappear. The reduced forest cover in the Bamenda Highlands has left behind isolated fragments of forest ecosystems. It is estimated that 93% of the original forest cover of these Highlands, above 1500m altitude has been lost (Harvey et al, 2004).

The race to save the remaining 7% started as far back as 1987 when Birdlife International launched a project to conserve the biodiversity of the Kilum Mountain Forest, the highest point in the Bamenda Highlands. In 2000 conservation efforts were intensified by the now defunct Bamenda Highlands Forest Project (BHFP), still a Birdlife initiative that aimed at conserving all the important forest patches in the Highlands. Following the demise of the BHFP in 2004, the local NGOs that were collaborating with the project, took over the conservation initiative and shared the responsibility for action in the Region on the basis of divisions, among themselves. ANCO took over the Bui Division which had communal forests at Mbiame, Dom and Mbinon. The Mbiame montane forest conservation project was effectively completed in 2005 when the necessary local structures were put in place, their capacities built and the

[1] *Mzeka N. Paul, Coordinator ANCO, P.O Box 5150, Bamenda. Cameroon. Tel: 237 77 71 56 51*
Email: mzeka.anco@yahoo.com *Website: www.anco-cameroon.org*

application file for the acquisition of the community forest status submitted to the Ministry of Forests, Wildlife and Fisheries. All over the Bamenda Highlands, the bottom line conservation problem is the excessive pressure exerted on the ecosystems by growing human and domestic animal populations, manifested in various forms of threats, the leading ones being:

- Encroachment for various purposes including crop farming, cattle rearing, planting of exotic species which often become invasive, with the purpose of converting portions of the forest from public utility to private (use of public land for private purposes, over an extended period of years could result in the land becoming private).
- Frequent bush fires, lit by humans either to hunt, clear farm land, or hasten the growth of fresh grass for cattle.
- Unsustainable management of the forest ecosystems for the harvesting of fuelwood, building poles, bush meat, medicinal plants in particular, in the case of the last-mentioned use, *Prunus africana.*

The intensive pressure on the ecosystems is caused principally by poverty. It is stated that in poverty ranking, people living in the Bamenda Highlands Region, commonly known as the North West Region, come second after those in the Eastern Region, with 52.5% of its population living below the poverty line (Ingram *et al*, 2007). If people in the North West are poor, those who live in enclaved rural areas like Dom, are the poorest of the poor.

The village of Dom

Among the many important forest patches still surviving in the Bamenda Highlands, there is one which is now known to be impressively rich in flora and fauna near the sleepy village of Dom that nestles on the western slopes of Kejodzam range, the northern extension of the Kilum Mountain in Oku. To conserve as well as expand this small forest remnant (452.7 hectares) which has been declared to contain **"**numerous Red Data species that are new to science and restricted to the Cameroon Highlands" (Cheek *et al*, 2006) ANCO, the Apiculture and Nature Conservation Organization, and her NGO partners launched early 2008, a replica of the Mbiame Project entitled, *"Integrating biodiversity conservation with income generation for improved livelihood in the Bamenda Highlands of Cameroon"*. The objective of the project, like that of Mbiame village before it, is two fold: to reduce the pressure on the fragile submontane ecosystem of Dom in order to ensure its continued existence and fight rural poverty through improving the skills of the Dom people in sustainable farming systems and income generating activities, the so called survival skills.

The Project

The Dom Project like its counterpart executed in Mbiame between 2000 and 2005, has four components:

- biodiversity conservation, which is the focus of all activities being undertaken
- income generation for livelihood, which targets the building of capacities in activities that generate income and are either supportive of conservation or which are not in direct contradiction to it.
- implementation of sustainable farming systems that are either complementary to conservation or that induce permanent or longer cultivation of the same piece of land, thus reducing demand for more farmland.
- development of an environmental studies programme for schools in and around Dom village.

Biodiversity conservation component

The activities being executed under this component are the provision of fire breaks, the eradication of the invasive species and the reforestation of the degraded forest areas. Fire breaks along areas from which fire can reach the forest are cleared in November by the community. In the Mbiame case, the project reinforced the efficiency of cleared trails by planting sisal hemp *(Agave sisalana)* along them but in Dom, bananas were preferred because while they are as effective as sisal hemp in stopping fires, they also provide food for some wildlife.

The exotic invasive species stealthily planted in the communal forest of Dom in order to convert portions

of it to private ownership is a species of the *Eucalyptus* known as *Eucalyptus kamerunica*. These will be destroyed by cutting the trunks very close to the ground followed by working mounts over the short stumps to suffocate and destroy them. Vigilance will have to be exercised to ensure that germinated seeds are destroyed as soon as possible. The destruction of the Eucalyptus is subsequently followed by planting native tree species in the empty spaces.

Some areas in the former forest are abandoned farm land. Such degraded spaces are being planted with native tree species. The seedlings for planting in the degraded areas are either wildings collected from the forest or seedlings raised by villagers from locally collected seed and sold to the project. In the latter case, the supplier is paid for both the seedlings and the labour to transplant them.

Income generating component

This component targets capacity building of Dom community members in three specific areas: apiculture, cane rat rearing and market gardening. In the apicultural sector which ANCO prefers to call beefarming in order to communicate well with our target group – the rural poor, the organization carries out capacity building in beefarming for any body who so wishes. From among the very many so trained a few serious ones are selected and retrained as trainers for further work back in their villages. ANCO also produces and distributes apicultural materials such as beesuits, smokers, beehives and honey harvesting containers. Assistance with such materials is limited to women and youths who for generations untold, have been kept out of apiculture by local taboos. It was not until 1992 when ANCO, then called the North West Beefarmers' Association (NOWEBA), introduced training in beefarming for everyone that women and youths in the Region, after a long period of sensitization, began timidly to participate in such activities. Now, women and youth participation has increased to the extent that of the over 6 000 persons *ANCO* has trained since 1994, over 2 000 are women and around 1 200 are youths. The organization has also produced and distributed 3 575 beehives, 2 500 smokers, 2 680 beesuits and 4 500 honey harvesting and storage 20-litre plastic containers. Thanks to these material inputs, honey production has jumped from a few kilogrammes in 1992 to over 200 tons in 2008, and by the close of the 1990s, had raised household income of those concerned by an average of 11.3% (Anye *et al*, 1997).

In order to dissuade village hunters from hunting in the village community forest, they are provided an alternative in training to rear and sell cane rats. During training, the trainees participate in constructing the structure to house the cane rats. In Dom, ANCO began with 10 females and 2 males in the supply center and are subsequently supplying the trainees with 3 cane rats each (1 male, 2 females). It is hoped that action will eventually produce the impact ANCO anticipates – to relieve pressure on the now scanty fauna of the community forest.

The market gardening sector targets mostly women and youths who often in the past encroached into the community forests to have access to the fertile forest land for the cultivation of vegetables for sale. Those who are invited for training are those who show proof of having suitable land for cultivating the vegetables. After the training, only those women who have prepared their gardens are assisted with seeds of their choice, for example huckleberry, cabbage, tomato, carrot, spinach, onions, garlic, *etc*. A pool of garden tools has been supplied to assist those who wish to operate their gardens all the year around. A first follow up review showed that three out of the first lot of 21 trainees were successfully harvesting vegetables and spices from their gardens and selling them in the Lasin market, the biggest sub-divisional market near the village of Dom. The others did not completely fail, 12 successfully produced their vegetables and species but sold or ate everything without preserving seeds. Now, they are stuck. They will be assisted if they will provide at least a quarter of the cost for the seeds.

Sustainable farming systems component

Among the many forms of sustainable farming systems, ANCO has selected 4 which seem suitable in its area of intervention. These are *night paddock manuring system (NPMS), agroforestry, erosion control cultivation, improved fallow, and improved pasture.* Of these systems, the NPMS attracts a lot of attention from the trainees for it tries to create mutually beneficial cross cultural linkages between two races that have for long stayed aloof of each other. Briefly, neighbouring graziers usually from an immigrant race locally called Fulani or Mbororos and the native men or women crop farmers are

selected for training which includes an exchange visit to places already practicing NPMS type of farming. Part of the training involves the construction of a fence to enclose a selected farm plot and a *gainako* or cowboy's hut near by. This will be used as a demonstration plot. The next stage is to lead the trainees to negotiate conditions for hiring cattle to stay on the enclosed farm for an agreed duration so as to fertilize it with urine and dung. In some cases, the two parties agree to share the crops to be harvested in a given proportion or may settle for payment in cash. The next element to be agreed on is how the *gainako* would be fed. Usually, it is the farmer who takes responsibility for the feeding. When the negotiation is successful, and both parties fulfill their own parts of the bargain, the system does not only lead to economic benefits to both parties but also to a social fallout which in our context of sometimes bloody rivalry between the two races, seems much more beneficial than the obvious economic one.

The feeling that trees and crops are “strange bed fellows” is deep rooted in most rural communities of the North West Region. Although ANCO trained 30 farmers and set up a model alley cropping plot and assisted the trained farmers with suitable seedlings in order to encourage them practice the system, follow up studies indicates silent unwillingness to practice the system. It is hoped that when the demonstration plot will eventually start to show the benefits that some of the trainees will be convinced to continue to practise the methods learned.

For erosion control, cultivation farmers are trained to use the A-frame to plot out contours and work their ridges across the slopes. They also learn to reinforce these ridges or terraces where the slope is steep through contour bunding, and using the bunds to grow fruits. For the improved fallow system, *Sesbania* or *Tephrosia vogilii* are used on fallow farms for two consecutive years before the farm is worked again for crops. For improved pasture, graziers are trained to plant and tend on their individual grazing land *Quatamala* and *Bracharia* species, which will provide cattle feed during the season of fodder scarcity.

Environmental Studies programme for schools

There are two secondary schools in the vicinity of Dom village. These are the Government High School and the Government Technical School both at Nkor, the capital of the Noni Subdivision. Dom is hardly 5km away from Nkor. The environmental studies (ES) programme contains 5 broad types of activities that were planned to be carried out in 24 months as follows:

- Workshops with volunteer staff of both schools to build up an environmental studies programme that fits into the overall programme of the schools. During the workshops ANCO and the teachers select topics and programme them as an environmental study programme for both schools.
- Formulation of a plan to create clubs in both schools. The plan should assign a project technician to a club to work hand in hand with the volunteer staff of the school.
- Incorporation of periodic environmental study activities in clubs; consisting of:
    - Six study visits to the community forest per year
    - School yard decoration by planting ornamental trees and shrubs, wind breaks and shade trees
    - Guest speakers on environmental issues
    - Observation of International Environment Day

Implementation strategy

The first activity undertaken after receiving a request for help, whether written or verbal, is to visit the community and try to understand properly what it is they want. Since most of ANCO's projects deal with community forest conservation or watershed protection, the organization also visits the site of the intended project. The next step is to carry out a brief survey of the community during which 10 to 15 persons are selected to work with ANCO to draw up a plan for sensitization.

Sensitization and raising of awareness (education, information provision) is usually spread over 3 months of periodic visits to the community and entails detailed description of the project activities and the part to be played by the members of the community. Sensitization should start at least, at the level of the neighbourhood. In the case of Dom, a comparatively small village (2,500 people) we visited each household, discussed the project with the family and invited them to the neigbourhood meeting at which

further sensitization was provided. Neighbourhood meetings select at least 10 persons that will represent them at the village assembly. If the project is subsequently funded, this body will meet to elect the Forest Management Institution (FMI) the body that will work with the technicians to implement the project. Also, at the end of each year, the village assembly meets to debate the report presented to it by the FMI. At the end of all this, it could be that the project is not funded. Since this activity costs between $ 1250 and $ 2500 U.S to realize, it is necessary to be cautious in venturing into the process. If seen as a good project, selected ANCO technicians work with the sensitization team to draft the outlines of the project proposal. In the proposal, the cost of the sensitization process is budgeted as ANCO's and the community's contribution to the realization of the project.

The Dom Community Forestry Project has made provisions for 12 workshops spread over 24 months. Each of the workshops ends with the construction of a demonstration plot, the *rationale* being that what technical trainers cannot accomplish practically, the workshop organizers have no moral right to expect the local people to succeed in it.

Also, seven of the demonstration plots out of the total that have been established so far are spread all over the village so as to entrench the feeling of ownership of the project which is essential for total commitment. That feeling is further strengthened during the two monthly review and planning meetings which hold under the chair of the President of the FMI. Technicians with their FMI partners present their reports. The subsequent debate may recommend corrections or complete repeat of an activity or a vote of thanks to the executing team. Then follows the planning for the next 2 months when priority is given to activities carried over from the preceding two months. It has already been mentioned that this two monthly meetings are rotative, from one neighbourhood to another.

Conclusion and Recommendations

From her experience in carrying out several community based conservation projects, ANCO finds that such projects rest on five principal pillars: significant community involvement, good governance, income generation, community based leadership in decision making and project execution, and equitable gender representation.

1. Significant community involvement is the first among equals and is the product of intense sensitization. Such involvement entails the participation of the community at large, the local institutions whether administrative or traditional and any other stakeholder whether supporting or opposing. Failure of a good community based project is an indicator that the sensitization aspect was either absent or poorly done.

2. Adherence to the principle of good governance, namely: democracy, transparency accountability and equity is the second pillar. Structures set up such as the quarter meeting, village assembly and the FMI should be organized in a democratic manner, preferably through moderated elections to ensure that the resultant structures are all inclusive so that marginalized groups in the community are equitably represented. Democracy here also means bottom-up decision taking and shared responsibilities. To be fully transparent, the owners of the project should actively participate in the proposal preparation including budgeting. Being accountable in this context implies periodic reporting by the FMI to the village assembly at least once a year and thus providing the community the opportunity for full participation and inputs into the project execution process. During such participation, villagers often amply demonstrate that poverty does not deprive them of the ability to make useful contributions to issues they fully understand. Finally, equity is imperative in the distribution of the community forest benefits to community members and in representation at various structures. Good governance is essential for proactive engagement by the whole community.

3. The third pillar is income generation made possible through capacity building. This will ensure that the livelihood needs of the community improve, and will act as an incentive for local people to contribute to the success of the project and ensure its sustainability. As

indicated earlier, ANCO does not stop at workshops in the capacity building activity. The new knowledge, concepts and techniques acquired during the workshop must be put into practice to generate a product of high quality.

4. The fourth pillar is community based leadership in decision making and project execution. It is acknowledged that at all stages of the project, the community should be seen to be on the driver's seat. At neighbourhood meetings, village assemblies, FMI meetings, planning and review meetings a community leader should be in the chair. At the start, the elected leader may be shy and reluctant given that in most villages, an elected leader is never the type of person to preside over meetings. However, he/she should be persuaded to chair all the meetings of the project. This will help to emphasize the village's ownership of the project, for when ownership is blurred or seen to be external, support for the project suffers.

5. The fifth and last pillar is gender equity. To ensure such equity, the project may advise the village assembly to conduct elections at three levels: for men, women and the youths after agreeing on representation quota. This of course should be done when direct voting cannot produce the required results.

It is obvious that the weakness of one pillar, and worst of all absence of related considerations, will render the project unstable or unsustainable, and could easily result in its failure. Projects administered by the Apiculture and Nature Conservation Organization (ANCO), have succeeded in several places because it has stringently adhered to these, above-mentioned five pillars. In the course of this process, ANCO has improved its skills in designing and implementation of projects in community natural resources management.

Acknowledgement
ANCO and partners are profoundly obliged to the Netherlands International Union for the Conservation of Nature (NL-IUCN) for the financial and technical support which enabled them carry out conservation projects first in the villages of Mbiame and currently in that of Dom. For further information, please visit ANCO's website at: www.anco-cameroon.org.

References
1. ANCO, Report on Baseline Study of Dom Village, 2007

2. Anye, Marcus et al: Sustainable Beefarming Project, Expost Evaluation, 1997

3. Arbonnier, Michel: Trees, Shrubs and Lianas of West African dry zones, 2004

4. Bamenda Highlands Forest Project: The Community Based Conservation in the Bamenda Highlands, Cameroon. Annual Report 2002 and 2003

5. Cheek, Martin et al: The plants of Mount Oku and the Ijim Ridge Cameroon, 2005

6. GoC/UNOPS: National Action Plan for the Fight Against Desertification (concise version) nd.

7. Harvey, Yvette et al: The plants of Bali-Ngemba Forest Reserve Cameroon, 2004

8. Ingram, Verina et al: Networks and Networking in the Cameroon (Western) Highlands, 2007

9. Pollard, Benedict John: Report on the Royal Botanic Gardens, Kew-Herbier National Camerounais Expedition to Dom Forest, North West Province, 2005

10. Western Highlands Nature Conservation Network: Report on the Illegal Harvesting of *Prunus africana* in the Kilum Mountain Forest in Oku, 2005

Networking for Forest Health in Sub-Saharan Africa: the Forest Invasive Species Network for Africa (FISNA) fights against invasive species

Paul P. Bosu[1] *and Clement Z. Chilima* [2]

Forest invasive species may be defined generally as biotic agents, not native to a specific forest ecosystem, whose introduction does, or is likely, to cause harm to the forest ecosystem. They include plants (herbaceous or woody), insects and diseases. The impact of forest invasive species on the forestry sector and associated ecosystems is of serious global concern not least of all in Africa. Marcus Robbins presented brief and balanced information in the section, "Introduction of Species: alien invasives" of his work on *Forest Reproductive Material* (Robbins, Marcus (2002).

The present article provides brief factual information about forest invasive species in Africa. It presents an aspect of nature that is often neglected - invasive species. The article also highlights the importance of FISNA in managing incursions of forest invasive species in Africa and provides a snapshot of the activities of the network since its creation. It also aims at informing experts in forest invasive species and other stakeholders of the opportunity to join or support the network.

Invasive plants such as siam weed (*Chromolaena odorata*) *Prosopis*, and Lantana are already well established in Africa. The inadvertent spread of invasive species through international trade and at times, the planned distribution and establishment of species which subsequently become invasive, are rapidly increasing, further compounded by changing climate scenarios. Africa with its porous boundaries and inadequate border quarantine services remains vulnerable to pests which could move rapidly across the continent. There have been many recent examples of the spread of invasive species, with dire consequences. Examples include the neem scale insect (*Aonidiella orientalis*) and the Cypress aphid (*Cinara cupressivora*) outbreaks of the 1980s which occurred respectively in western and eastern Africa. Another important invasive insect which is receiving serious attention is the European Woodwasp (*Sirex noctilio*). This pest is of Eurasian origin but is now established in South Africa and other countries around the world. It was discovered in South Africa in the early 1990's and is now listed as a major threat to pine plantations, with the potential to spread northwards to the rest of the continent given appropriate climatic conditions. A more recent example includes the blue gum chalcid, *Leptocybe invasa*, a serious pest of young Eucalyptus that is rapidly spreading across countries wherever eucalypts are grown.

The importance of forest invasive species in Africa was recognised by a group of concerned experts at a meeting of the International Union of Forest Research Organizations (IUFRO) held in Kumasi, Ghana, in August 2004. They mooted the idea to form an African network on forest invasive species to help ensure that technical know-how, human and financial resources and information are freely shared across the continent. As a result, a meeting sponsored by the FAO to launch the Forest Invasive Species Network for Africa (FISNA) was held in Malawi in December 2004. During the meeting the Forestry Research Institute of Malawi (FRIM) was nominated as the Secretariat and an Executive Committee was established of founder member institutions.

FISNA currently has membership of ten countries: Benin, Ghana, Kenya, Malawi, South Africa, Tanzania, Togo, Uganda, Zambia and Zimbabwe. FAO, the African Forest Research Network (AFORNET), the USDA-Forest Service and Commonwealth Agricultural Bureaux (CAB) International (Africa section) have variously provided technical and financial support in the functional role of partners and/or sponsors. Since its launch in 2004, FISNA has held three Executive Committee meetings as follows; August 2005 in Morogoro, Tanzania; May 2007 in Pietermaritzburg, South Africa and in February 2009 in Kumasi, Ghana.

[1]*Paul P. Bosu, PhD, West Africa Node Coordinator, FISNA. Forestry Research Institute of Ghana, Council for Scientific & Industrial Research, University PO Box 63 Kumasi – GHANA*
Email: pbosu@csir-forig.org.gh or paul_bosu@yahoo.com

[2]*Clement Z. Chilima, PhD, Coordinator, FISNA, Forestry Research Institute of Malawi*
P.O. Box 270, Zomba, MALAWI
Email: cchilima@frim.org.mw

The overall objective of FISNA is to coordinate the generation, collation and sharing of information relating to forest invasive species in Sub-Saharan Africa in support of sustainable forest management and conservation of biodiversity. These objectives have been pursued vigorously by member countries and the achievements over the relatively short period have been noteworthy.

As in almost every networking initiative, communication and information flow is paramount for achieving established objectives. Among FISNA's earliest achievements was the establishment and maintenance of an active website hosted by FAO www.fao.org/forestry/site/26951/en. In addition, FISNA maintains a dynamic listserver hosted by the University of Pretoria which serves as the forum for discussion and information exchange on all kinds of issues relating to invasive species on the continent.

Barely five years old, FISNA's strides to achieve all its objectives have been remarkable. Through a series of meetings members have effectively disseminated information on a number of invasive species of significance in Africa. For example, members are currently collaborating in the management of the blue gum chalcid (*Leptocybe invasa*) which is a major problem of Eucalyptus plantations in East Africa. Ongoing research, funded by the African Forestry Research Network (AFORNET) to develop integrated pest management strategies for the pest, is being implemented in three East African countries (Kenya, Malawi and Uganda). As part of the efforts to manage the blue gum chalcid, a member of the research team was selected to participate in a biological control training programme in Israel with support from the USDA Forest Service. The skills and techniques acquired will be shared with all members of the network through a proposed training course on biological control. Regarding the European Woodwasp (*Sirex noctilio*), intense collaboration is on-going to provide a region-wide monitoring system to detect early incursions of the pest in earlier pest-free areas. In 2007, an international workshop was held specifically about the *Sirex* wasp and FISNA was fully represented in the meeting. Participants received first hand information on the taxonomy, biology and ecology of the insect. Members also received short training on trapping methodologies and management strategies which were being evaluated for the control of this pest(visit http://www.fao.org/forestry/aliens/en/ for useful references and additional links to "*invasive species: impacts on forests and forestry*".

While the idea for the network originated in Ghana, West Africa, most of the activities of the network which was subsequently established have concentrated in the southern and eastern African regions. This does not, however, suggest that West Africa and other parts of the continent are not vulnerable to invasive species. In order to increase awareness of the network in other parts of Africa FISNA held its second Executive Committee workshop in Kumasi, Ghana. The meeting was very timely as it occurred about the time that a major insect *Achaea catocaloides* (caterpillar stage) outbreak occurred in Liberia and neighbouring countries. A serious outbreak of *Achaea catocaloides*, originally thought to be army worm, received international attention as it led to the evacuation of several tens and thousands of people from their homes due to the infestation of drinking water wells by the faeces of the insects. In order to better understand the outbreak and possible implications for West Africa and neighbouring countries, FAO and CAB International (CABI) worked with the International Institute of Tropical Agriculture (IITA) to identify the insect which is an essential first step in managing a new pest problem. Following correct identification it was possible to determine the life cycle and to find a vulnerable stage to manage or combat the insect. This proved to be the pupae stages, found in leaf litter which can be destroyed physically. While this pest is currently a problem also for agricultural crops, it is primarily a tree pest and a defoliator of trees. This recent example of international and national cooperation was presented to FISNA by IITA as an example of the importance of diagnostics and correct identification of insect pests for their effective management.

In addition to actively supporting institutions in Africa, FISNA is also involved in various activities on the global scene. For example, the FISNA Coordinator participated in a special event on invasive species at Committee on Forestry (COFO) 2007 on the podium with the Coordinator of the Asia-Pacific Forest Invasive Species Network (APFISN). FISNA also assisted in the creation of the Near East Forest Health and Invasive Species Network on the invitation of FAO

(see ftp://ftp.fao.org/docrep/fao/meeting/012/k1505e.pdf and http://www.fao.org/forestry/media/13681/1/0/). It is anticipated that FISNA will be represented at the Thirteenth World Forestry Congress to be held in Argentina in October 2009. In this meeting FISNA will be participating in a side event co-organised by FAO and the USDA Forest Service. The special side event is dedicated to establishing links among the regional networks on invasive species which have been created within the framework of the various FAO Regional Forestry Commissions.

All FISNA members work on a purely voluntary basis with the support and permission of their institutes. Membership is open to individuals in the forestry sector in sub-Saharan Africa. Experts in forest invasive species and other stakeholders who wish to join or support the network can obtain further information from the FISNA website: www.fao.org/forestry/site/26951/en.

Reference

Robbins, Marcus (2002). Forest Reproductive Material. In: Forest Genetic Resources No.30. Forest Resources Division, Forestry Department, FAO Rome (Italy).
http://www.fao.org/DOCREP/005/Y4341E/Y4341E03.htm#P270_15329

Country Focus: GHANA

Ghana celebrated its 100 years of organized forestry management in 2008, highlighting many aspects of a well served forestry sector in the country. In this interview, Professor Kwabena Tufuor, former Chief Administrator of the Ghana Forestry Commission, and Mr. Fredua Agyeman, the Technical Director (Forestry) at the Ministry of Lands, Forestry and Mines, take us through key organizational, administrative and policy measures that led to the great success recently celebrated. Mr. Alexander Asare, Manager of the Collaborative Resource Management Unit of the Forestry Commission also revealed the incentives and methods used at the ground level where actual actions occur to galvanize the participation of all stakeholders in the Ghanaian forest sector.

Nature & Faune: Professor Kwabena Tufuor, Ghana celebrated its 100 years of organized forest management in 2008, as the former Chief Administrator of the Ghana Forestry Commission, the institution in charge of the actual implementation and management of the country's forest policy and legislation, could you share with managers of natural resources world wide, some highlights of this epoch in terms of successes garnered in forestry?

Professor Tufuor: The Forestry Department was established in 1909, with three principal objectives: (i) to provide a permanent forest estate to protect the environment, and ensure climatic stability; (ii) to ensure successful agricultural development; and (iii) to sustain forest revenues for the landowners.

The first half century was pioneered by British colonial foresters and locally trained technical foresters who pursued a rigorous forest reservation target of 20% of the high forest.

The second half of the century brought in a proliferation of forest institutions - Forest Research Institute in 1964, a short-lived Ministry of Forestry (1965), Wildlife Division in 1965, Timber Marketing Board in 1974, Timber Millers Association, Loggers Association, Furniture Organisation, Institute of Renewable Natural Resources at the Kwame Nkrumah University (1982). They had the collective objective of fulfilling their mandates for sustainable development of the forest sector under the coordination of the Forestry Commission and Ministry of Lands, Forestry and Mines. The period 1970s-1990s witnessed erosion of the capability of the forest sector to follow its programme of management and development due to severe economic difficulties in Ghana at the time. That notwithstanding the epoch brought with it a wealth of accumulated knowledge about Ghana's forests through resource assessment initiatives, participatory management of forest resources involving local communities; and eco-tourism.

Nature & Faune: What, from your vintage standpoint, are the strongest points that contributed to the success Ghana has achieved so far in terms of the actual institutional and management arrangements for the implementation of forest, wildlife and natural resources policies and legislative measures taken at the Ministerial level?

Professor Tufuor: First, establishing appropriate institutional arrangement for forest, wildlife and natural resources management was made a priority. Secondly, forest management planning was emphasized because sustainable forest management is about how to organize in time and space the various actors consistent with forest sustainability. Following several studies, it became apparent that Ghana's forest governance needed to undergo transition from governmental dominance to a multi-stakeholder decision making process. Over the past three decades policy and legislative measures have been articulated to achieve this transition. For example, community based natural resource management is now recognized as a rural development and poverty reduction strategy in Ghana. This is in line with the fact that wildlife contributes to poverty reduction in at least five key areas (Food security, Health improvements, income generation, reduced vulnerability and Ecosystem services).

One of the strongest points that contributed to the success Ghana has achieved so far in the implementation of forest, wildlife and natural resources policies, is that the forest sector's contribution to the Ghanaian economy is relatively high. It can be measured in terms of the following facts: the timber sector currently contributes 6% of GDP or 11% of Ghana's foreign exchange earnings; and potential poverty alleviation through employment of many Ghanaians.

Nature & Faune: Mr. Fredua Agyeman could you talk about the policy processes and how they have been set up and thought through in order to allow such successful implementation and outcomes? Provide concrete illustrations at the different levels of resources management.

Mr. Agyeman: The Policy formulation process are initiated with the establishment of multi-stakeholder technical Committees with representation from various public sector institutions to initially identify policy challenges, constraints and problems facing the forestry sector in the course of implementing various programmes and activities at the local, regional and national levels.

The issues identified by the technical committees are then synthesised and subjected to stakeholder consultations. In view of the important role stakeholder groups have to play in the successful implementation of the policy on a more permanent basis, their consultations are exhaustive and comprehensive at the local, district, regional and national levels. Relevant stakeholder groups such as Traditional Authorities, District Assemblies, Farmers Associations, development partners, Environmental NGOs, Civil Society, Timber Trade Associations and the Parliament were and are still actively involved in the consultation processes.

After the consultative processes the Ministry assembles all relevant comments made by the various stakeholders and incorporate them into the draft Policy document. Independent Consultants are then commissioned to review the draft policy document based on the experiences from elsewhere and also local conditions.
The draft policy also identifies roles to be played by the various stakeholders in the policy implementation.

The draft final document is again subjected to another round of stakeholder consultation before it is submitted to Cabinet for consideration and final approval by the President. After approval the document is formally launched at the national, regional and district levels. Preparations for addressing various areas of the policy which require legislative revisions or enactment of new laws are then initiated for subsequent Parliamentary approval to ensure effective implementation of the policy by all stakeholders.

Nature & Faune: Mr. Fredua Agyeman please discuss some of the challenges Ghana encountered, regarding forestry and wildlife policies and regulations including provisions for their adoption and successful implementation by most stakeholders.

Mr. Agyeman: The major challenge encountered regarding policy, regulations and provisions for their adoption and implementation by stakeholders, is how to reconcile the various divergent, vested and often inconsistent interests of the stakeholders during the process of consultations. This is particularly exemplified in issues such as ensuring equity in benefit sharing in forest resources among the various stakeholders. Resolving the conflicting interests of the public sector, private sector and civil society as well as between public institutions responsible for implementation of programmes and communities who are beneficiaries of such programmes has often proved daunting.

The other major challenge is the huge costs involved in the extensive consultative processes. Even though the results from these consultative processes are extremely valuable, finding enough resources to undertake these exercises at times was scary.

Lastly, it is essential to recognise that getting political commitment from the government to undertake the consultative exercises is extremely necessary for approval of final policy document and to ensure

that the necessary resources are released by government for implementation of the associated programmes and activities related to the policy document.

Nature & Faune: Mr. Fredua Agyeman, Ghana has been making considerable strides in plantation establishment in the past 10 years. Why has Ghana succeeded where other countries have faced huge challenges? How has Ghana been able to be so successful when the same is not true for many of our countries in Africa?

Mr. Agyeman: It is worthy of note that Ghana unlike most countries in West and central Africa did not experience food crises and associated riots in 2008. This in part is because of the innovative forest tree plantation development programme the government has been implementing over the last decade. The successes are hinged on the fundamental principles of the 2001 forest plantation programme, which I will talk about a little later.

To backtrack a little bit, analysis of the status of plantation development in Ghana before 2001 revealed that the existing government plantations were capable of supplying installed timber industry capacity of 5.7 million m^3 for only 4 years, while the existing private sector plantations were capable of supplying fully the installed timber industry capacity for only 2-3 years due to poor quality

On the basis of the foregoing the government reviewed the situation and the underlying causes for the unimpressive past performance of Ghana in the plantation development programme. Prominent among the reasons identified for poor past performance was lack of appropriate governance structure for effective plantation development programme. This was particularly evident on the emphasis in past, on target driven focus and attempts to mainly fill the timber supply and demand, and also to restore degraded forest reserve areas.

In addition, there were issues related to uncertainty over property rights in terms of planted timber, land tenure issues related to benefit sharing arrangements, as well as lack of incentives necessary for community, small holder and private sector plantation development.

Faced with the above challenges but armed with the lessons learned, the government of Ghana embarked on a new plantation development programme in 2001 with major changes in the fundamental principles. The goal of the 2001 plantation development programme was to encourage the development of a sustainable forest resource base for poverty alleviation; to satisfy future demand for industrial timber; and enhance environmental quality. The strategic objectives include: Promoting poverty reduction in rural communities through ensuring greater access to and benefits from plantation resources; promoting private sector investment in plantations; improving governance in the regulation and management of Ghana's forest plantations; improving financial support for plantation investment.

Plantation development strategies adopted under the programme include: modified taungya system; farm forestry; co-operative and community plantation development scheme; urban forestry; commercial plantation development; water harvesting, and nursery management; s u p p l y o f seedlings to schools and public institutions free for planting.

In recognition of the fact that past plantation development in Ghana failed mainly due to lack of appropriate incentive and benefit sharing frameworks for the various relevant stakeholders that were involved in the programme, the government approved a new benefit-sharing scheme, which guaranteed the following sharing formula for the plantations developed under the Modified Taungya System: farmers 40%, Forestry Commission 40% Traditional Authorities/Stool Land Owners 15% and Local Forest Fringe Communities in the plantation area 5% (for Community Projects). The basis of the benefit sharing scheme as described above is predicated on final crop of timber that will be produced in the forest plantation established.
Similarly the benefit sharing for commercial plantation development in Ghana is as follows: Investor 90%, Forestry Commission 2%, Traditional Authority/Stool land owner 6%+ ground rent of $2.0 per annum, Local community 2%.

The above benefit sharing arrangements were arrived on the basis of the principle that access to a share of revenue derived from the sale of harvested plantation timber is based on the proportionate contribution of each party to the total cost of investment, the Ministry has subsequently identified all the relevant establishment and recurrent costs that are incidental to plantation development such as costs for Pre-Contract Signing Activities, Post Contract signing Activities, Monitoring and annual assessment and technical audit. The identified costs were subsequently subjected to financial and commercial analysis to determine viability of commercial forest plantation development in Ghana.

Other factors that were taken into consideration in determining the benefit sharing for commercial plantation development were high risk involved in a forest tree plantation development investment due to effects of natural disasters such as wildfires, packaging an investment product that will be attractive to investors due to high competition for limited capital and financial resources for such ventures both at the local and international levels as well as long gestation period of forest plantation development.

The revision increased benefits flow to stool land owners and communities and further enhanced the government's poverty reduction initiatives being implemented to improve upon the socio-economic wellbeing of the citizenry. The arrangement enhanced the commitment of land owners and communities to release lands for commercial forest plantation development. It also ensured that land values in Ghana were rationalised to reflect the potential rental values of the resource and also brought in line with other countries implementing similar programmes and therefore make Ghana competitive as well as an attractive destination for commercial plantation by both local and foreign investors.

The achievement of Ghana's community modified Taungya plantation development programme since 2001 to-date indicates that the total area planted up is 133,408 ha with full-time employment to 199,752 people and creation of 5,641,566 part-time jobs.

In addition to the above achievements, the programme has also increased food production leading to poverty alleviation. The Modified Taungya System has made available fertile and productive agricultural lands within degraded forest reserves to farmers to boost food production. Food production annually from the plantation areas to-date is estimated to be at 160,000 metric tons of maize, 100,000 metric tons of cocoyam, 100,000 metric tons of yams and 2,200,749.36 metric tons of plantain. Institutional and legal arrangements have also been put in place for investors to invest in large scale commercial plantations development for bio-fuels production, climate change mitigation and adaptation as well as for timber for the sawmills for processing. This is expected to begin in 2009.

The main challenges encountered during programme implementation were the fact that approved funds were not sufficient to meet the required capital costs, including tractors and nursery equipment as the programme became more attractive to communities. In addition to this financial challenge is the inadequacy of logistical and technical support staff to service the expanded programme.

Nature & Faune: Has Ghana scored any positive note in the interface between forestry (including wildlife) and related land-based sectors such as energy, agriculture and water? As you know interface is a boundary across which two independent systems meet and act on or communicate with each other. I would like each one of you to share your views on this important issue of interface.

Mr. Asare: Yes, there is ample evidence of the three sectors sharing common means in contributing to national development goals. From studies, fuelwood consumption is about 14 million cubic metres, that is, 75% of the energy consumption in the country. One of the main objectives of establishing forest reserves and their continuous management, especially, in the northern savannah zone is to protect the watersheds of important rivers such as the Volta which provides us with hydro-electric energy. Forestry in Ghana is therefore as much

about providing goods as well as environmental services which contribute to enhancing the quality of life for all segments of society.

Professor Tufuor: In terms of the forestry-agriculture interface, it is widely acknowledged that forestry heals the wounds of agriculture. This is evidenced in the power of forestry to rehabilitate degraded lands and restore soil fertility. Moreover, the correlation between forest plantation development and increased food crops productivity has been argued, by Mr. Agyeman, in this discussion. He drew attention to the fact that forest plantation development was the instrument which saved Ghana from food riots that engulfed many countries during the crisis unleashed by the 2008 soaring food prices. Another good example in Ghana is the forest – aquaculture interface. In this interface the mangrove forest and the fisheries sector enter into complex interactions in the production (spawning grounds and nursery) of fish, crabs and shrimps. Harvesting of high quality firewood from mangrove trees and the cultivation of rice by coastal populations are also basic activities in this interface. Ghana has scored positive notes in enshrining sustainable management and utilization of mangroves in the strategic plan for development of its coastal woodlands.

Mr Agyeman: Striking positive note and balance between forestry and related land-based sectors such as energy, agriculture and water in the past has been challenging. These challenges have manifested themselves in problems of deforestation in agricultural or farming areas, land and soil degradation, depletion of traditional energy (wood fuel) sources, destruction of riverside ecosystems and water catchment areas. The cumulative effects of these challenges have been unsustainable management and development of these sectors and thus seriously affecting natural resource as well as national development efforts. In response to these challenges, Ghana has taken pragmatic measures to ensure effective interface between forestry and related land based sectors such as energy, agriculture and water. The Ministry of Lands, Forestry and Mines through effective collaboration with the relevant agencies of the Ministries of Food & Agriculture has undertaken aforestation and reforestation programmes in degraded forest reserves and outside forest reserves/ agricultural areas with considerable success within this decade. Establishment of woodlots through agroforestry practices has been given considerable attention as part of the plantation development programme. It needs to be emphasized that river banks, RAMSAR sites, special ecological areas and spots with considerable land degradation problems such as mined out areas and exposed lands that are prone to soil erosion have been mapped out for conservation and land management improvement under the Ministry's environmental quality improvement programmes. Although considerable progress has been made in recent years as already indicated, more work needs to be done in the domain of effective governance, law enforcement and active involvement of communities as well as civil society, in order to achieve optimum results. The Government of Ghana has therefore initiated in 2008 and is implementing Natural Resource and Environment Governance Programme (NREG) to ensure that challenges relating to active involvement of all stakeholders and effective governance measures implementation are addressed in the environment and natural resource sector. The NREG thus provides a common platform for land-based sectors such as energy, agriculture, water and forestry to effectively interface and deal with cross -sectoral issues.

Nature & Faune: Mr. Alex Asare, you are the Manager of the Collaborative Resource Management and in charge of Ghana National Forest Forum. You work close to the field level, where the action is really taking place. Tell us, who are the non-state stakeholders in Ghana's forest/wildlife/natural resources sector? How are they motivated to participate fully in the sector policy implementation?

Mr. Asare: Ghana Forestry is peculiar in that a large section of the forest estate is owned by communities whereas the state manages it on their behalf. The business of harvesting, adding value, marketing and exporting is left to the private sector but regulated by the state. In this wise, the two main groups of non-state stakeholders are firstly, the landowning communities headed by traditional authorities and secondly, the private commercial sector made up of timber concessionaires, wildlife exporters, Non Timber Forest Products (NTFP) gatherers/traders and the tertiary product users such as furniture makers, and charcoal producers. Numerous community and non-governmental bodies abound

while the general public is regarded as the main stakeholder in whose interest forests and wildlife should be managed.

On the ground, our stakeholders are motivated by concrete tangible benefits such as a proportion of forest royalties, access to NTFPs and non-tangible considerations such as involvement in policy formulation discourses, forest plan preparation processes and implementation thereof at all levels. In effect, the stakeholders are motivated by both tangible and intrinsic values in forests.

Nature & Faune: Mr. Alex Asare, please give us specific examples of the measures, incentives and methods your office employs to get the participation of all stakeholders in the crafting of programs.

Mr. Asare: In terms of economic incentives, 50% of royalties accruing from forest reserves are passed on to landowning communities. In addition, timber operators provide infrastructure to the tune of 5% of stumpage value of harvested timber trees. Where new plantations are established in partnership with rural farmers, through what is termed as 'Modified Taungya', they are entitled to 40% of all proceeds in addition to 100% of the harvested food crops. The Forestry Commission routinely funds alternative livelihood schemes to engender community interest in forest protection and to contribute to poverty alleviation efforts of the government.

Various legislation, agreements, contracts and instruments are entered into to legitimize the incentives. Besides, the Forestry Commission has adopted a Collaborative Resource Management policy which lays the ground for stakeholder engagement and interest considerations in project implementation and establishment of community institutional structures. We currently have over one thousand Community Resource Management Committees (CRMCs), reserve planning teams, a forestry forum network from the local district to the national level and fire volunteer squads (FVS). It is now common to include stakeholder representatives on project steering committees such as the Multi-Stakeholder Steering Group (MSSG) which provides direction on the implementation of the national forest programme. Quite recently such a joint stakeholder body was fully involved in the negotiation process of the Ghana/European Union Voluntary Partnership Agreement.

Nature & Faune: Mr. Asare, what are the prevailing reactions in the field? Share with Nature & Faune readers the reactions of stakeholders regarding their participation in the sector?

Mr. Asare: Response from stakeholders, especially forest fringe communities, has mainly been positive and we are marveled by the extent of cooperation from our collaborators. In few instances of skepticism, regular interaction and intensive education and other concrete measures such as documentary assurances have worked to remove doubts and suspicion. Admittedly, we are far from succeeding in achieving consensus in sustainable forest resource management, especially, from illegal timber operators but the problem is largely due to the wider socio-economic difficulty of lack of job avenues coupled with poverty amongst the rural populace. We, however, believe that with continuous dialogue and sharing of ideas on challenges facing the sector, success would ultimately be achieved.

Nature & Faune: Mr. Asare, there is this African adage that wisdom does not reside in one head and that one hand cannot tie a bundle; does Ghana go it alone or has she received a helping hand externally contributing to the active participation of non-state stakeholder groups in the process?

Mr. Asare: Stakeholder engagement has formed the cornerstone of most forest and wildlife projects sponsored by the international community in Ghana. On this, we owe immense gratitude to agencies such as the World Bank, DFID, GTZ, JICA and the Netherlands Government, amongst others for the contribution in helping to inculcate stakeholder confidence in the forestry sector. Other organisations such as the FAO, IUCN, GEF, etc. have all contributed to the positive reputation of stakeholder involvement in forest management in Ghana. The important lessons from the foreign institutions are the impartial support of equitable programmes and of course, the additional funds and technical expertise infused into the forestry sector.

In effect, we would wish that the international community continues to support Ghana in the nation's efforts at surmounting the dilemma of striving to eradicate poverty through the use of its forest and wildlife resources and at the same time determined to preserve the life-sustaining environmental services for posterity.

Nature & Faune: Thank you Messrs Tufuor, Agyeman and Asare, for talking to *Nature & Faune* on this interview.

FAO Activities

Major FAO activities in Africa in 2008

Region-Wide Events and Developments

- Joint meeting of the 16th Session of the African Forestry Wildlife Commission and the 18th Session of the Near East Forestry Commission in Khartoum, Sudan in February 2008 – promoting inter-Commission cooperation.
- A significant increase in the number of National Forestry Programme Facility partner countries (NFP Facility partner countries stand at 35).
- Significant progress by the African Union towards the realization of the Green Wall for the Sahara and Sahel Initiative – Programme of Implementation endorsed has important forest and tree implications;
- African Forest Forum established and consolidated its activities through support provided by Sida;
- Region engages in the FRA 2010 process.

Sub-Regional Events and Developments:

In Eastern Africa:

- Promising forestry opportunities arising from post conflict efforts to invest in medium term development;
- National Forestry Programme Facility (nfp-Facility) consolidated in Rwanda, Kenya, Uganda and Sudan, with start-up in Ethiopia;
- Start up of Technical Corporation Programs (TCPs) on plantation and energy in Rwanda and Burundi
- FAO/Subregional Office for Eastern Africa is in the process of translating its forestry Strategy into practical priority actions and establishing cooperation with existing Centres of Excellence in the region

In West Africa:

- An ECOWAS Forest Policy document developed through extensive consultations
- Forest Dialogue framework endorsed in 2008 by ECOWAS Ministers of Environment;
- Forest dialogue to be held in January 2009 and preparation of a sub-regional convergence plan on management of forest and wildlife is envisaged;
- All 15 countries to become partners in the nfp-Facility
- FAO Sub-Regional Office for West Africa actively engaging partners such as ICRAF (Bulletin “Sahel Agroforestrie”);
- Imminent implementation of the Fouta Djallon Highlands programme.

In Central Africa:

- Plan for Action for 2009-2010 adopted in 2008, including:
  - Road map for policy harmonization
  - Sub-regional agreement on forest control
  - Sub-regional guidelines for sustainable management of Non Wood Forest Products
- An implementation text for forest code, prepared with support of FAO, approved by Democratic Republic of Congo
- Several FAO and other partner assisted projects covering:
  - Forest and physical policy harmonization; Ecosystem development; Bio-diversity conservation; Research and development.
- REDD Initiatives (Democratic Republic of Congo)

In Southern Africa:

- SADC and COMESA preparing their Forestry Strategies and Climate Change Programmes with FAO involvement.
- Several countries continued to consolidate activities in the framework of nfp-Facility, and Zimbabwe joins.
- Several projects being implemented e.g., National Forest Resources Assessment (Angola); Forest Policy and Action Plan (Comoros); capacity development and fire management (Zimbabwe).
- Work in progress on Human-wild Life conflict mitigation – a tool kit developed will be tested in the near future.
- Study on “Legal empowerment of the poor and sustainable wildlife management” being finalized.
- FAO expanded the functions of the Forest Conservation Officer Position to include wildlife.

Interested in details? Please visit the Websites:
www.fao.org/world/regional/raf/workprog/forestry; www.fao.org/forestry/home/en/ and contact relevant country office(s).

Links

The Committee on Forestry (COFO)
The Committee on Forestry is the highest FAO Forestry statutory body. The biennial sessions of COFO bring together heads of forest services and other senior government officials to identify emerging policy and technical issues, to seek solutions and to advise FAO and others on appropriate action. Other international organizations and non-governmental groups participate in COFO. Participation in COFO is open to all FAO member countries. COFO holds at FAO headquarters in Rome, Italy. For easy reference the links to information on Committee on Forestry (COFO) March 2009 are in English: http://www.fao.org/forestry/cofo/en/ and in French: http://www.fao.org/forestry/cofo/fr/

Researchers point to African wildlife successes, showing that wildlife and people can both win
in African Indaba e-Newsletter Volume 7, Number1/2 African Indaba: www.africanindaba.co.za
The success stories appeared in the proceedings of a conference held in March 2008 organized by Bio-Hub initiative. The aim of Bio-Hub initiative is to promote wildlife conservation and sound management as a development opportunity and share information between projects in Eastern and Southern Africa. For a copy of the report in English or French visit: http://www.biohub-africa.org/

More diverse bird populations can help to buffer people against infection
North American scientists studying West Nile virus have shown that more diverse bird populations can help to buffer people against infection. The study, by biologist John Swaddle and then undergraduate student, Stavros Calos '08, at William and Mary University, found that areas which have a more diverse bird populations show much lower incidences of West Nile virus infection in the human population. The authors highlighted the increasing evidence for economically valuable ecosystem services provided by biodiversity.
http://www.ens-newswire.com/ens/feb2009/2009-02-19-01.asp

The CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) secretariat and Environment Canada organise workshop on wildlife e-trade and cyber-crime
A workshop on wildlife e-trade and cyber-crime by the CITES Secretariat and Environment Canada, from 24-26 February 2009, in Vancouver, Canada. Focus is on addressing the way in which wildlife and wildlife products are advertised via the Internet, as well as wildlife-related cyber-crimes that take place via email and the use of specialized “chat rooms” where collectors may arrange sales of protected species. (http://www.cites.org/eng/news/press_release.shtml http://www.cites.org/common/docs/misc/E-Internet%20trade.pdf).

Biofuels from dedicated tropical plantation forests
A. Gabus & A. Hawthorne, in **International Forestry Review**, Volume 10, Issue 4, December 2008, pp 563-572. See graph and pictures: http://homepage.bluewin.ch/agabus/352.html
For access to the review and this paper: http://www.cfa-international.org/IFR.html
http://www.atypon-link.com/CFA/toc/ifor/10/4

Theme and deadlines for Next Issue

The theme for the next issue of Nature & Faune is "**The relevance of Mangrove forest to African fisheries, wildlife and water resources**".

Mangroves are part of coastal ecosystems in tropical and sub-tropical regions and are among the world's richest storehouses of biological diversity. Many fish harvested depend on mangrove ecosystems for various stages in their life cycle. In Africa, human communities living around mangrove forests resort to them for fuelwood, charcoal, timber, and other non-timber products. Mangroves are also a source of fishery resources and have the potential to protect coastlines from flooding and erosion, safeguarding the lives and livelihoods of coastal communities. However, mangrove ecosystems have also been damaged by human activities including urban development, agriculture, development of shrimp aquaculture and pollution. Drastic loss of mangrove forests has been observed in African countries. Moreover, the conservation of mangroves is essential for the continued existence of two other major coastal ecosystems in the tropical and sub-tropical regions, namely coral reefs and seagrass beds. Now there are deep concerns regarding these mangroves. They have been damaged by human activities including urban development, agriculture (rice cultivation in particular), development of shrimp aquaculture and pollution as well as climate variability. In many African countries over exploitation of mangrove trees for firewood has degraded many mangrove ecosystems.

The aim of the next edition of Nature & Faune is to capture the scope of the issue of mangrove very concisely and effectively within the context of its management in Africa. The magazine is therefore inviting those who are working in or are interested in this field to submit manuscripts on the value of mangroves. What is the relevance of mangrove ecosystems to agriculture, fishery, wildlife, water and forestry resources in Africa? How is this influenced by climate variability and change? The next edition is also looking for manuscripts on innovative ideas and/or best practices that have been used to address challenges in conservation of mangroves.

Considering that mangrove ecosystems play key roles in the interface between forests, water and fishery resources and agriculture; and indeed in the whole economy of coastal areas, *Nature & Faune* magazine is calling on experts in diverse relevant disciplines to contribute to this edition. Water resource practitioners, watershed management specialists, aquacultures/capture fisheries experts, agriculturists, wildlife and forest managers are all welcome to submit articles and news stories. Link to Mangrove information at FAO: http://www.fao.org/forestry/mangrove/en/

In order to facilitate contributions from potential authors, we have created guidelines for the preparation of manuscripts for Nature & Faune. Please visit our website or send us an email to receive a copy of the 'Guidelines for Authors'. Email: nature-faune@fao.org or Ada.Ndesoatanga@fao.org
Website: http://www.fao.org/africa/publications/nature-and-faune-magazine/

Deadline for submission of articles, announcements and other contributions is 30th June 2009

Guideline for authors, Subscription and Correspondence

In order to facilitate contributions from potential authors, we have created guidelines for the preparation of manuscripts for Nature & Faune. Please visit our website or send us an email to receive a copy of the 'Guidelines for Authors'.

To subscribe or unsubscribe from future mailings, please send an email, our contact details are below.

Please send us your articles, news and reports because your experiences are worth sharing and have the potential of inspiring others. We would love to hear from you!

Contact Details:
Nature & Faune
FAO Regional Office for Africa
P.O. Box GP 1628 Accra
Ghana

Tel.: (+233-21) 675000 or (+233-21) 7010930
Fax: (+233-21) 7010943 or (+233-21) 668 427

E-mail : nature-faune@fao.org
Website: http://www.fao.org/africa/publications/nature-and-faune-magazine/