



Forest management and use in Botswana: brief situation analysis and options for the Forest Conservation Strategy

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Abbreviations

CBNRM	Community Based Natural Resources Management
CHA	Controlled Hunting Area
CITES	Convention on Trade in Endangered Species
DFRR	Department of Forest and Range Resources
DWNP	Department of Wildlife & National Parks
FCB	Forest Conservation Board
FCS	Forest Conservation Strategy
FMD	Foot and Mouth Disease
FR	Forest Reserve
GR	Game Reserve
HIV/AIDS	Human Immunodeficiency Virus- Acquired Immune Deficiency Syndrome
HWC	Human Wildlife Conflict
IDP	Integrated Development Plan
JICA	Japan International Cooperation Agency
KAZA	Kavango Zambezi Transfrontier Conservation Area
M&E	Monitoring & Evaluation
MEA	Multilateral Environmental Agreement
MEWT	Ministry of Environment, Wildlife & Tourism
MT	Metric Ton
NBDSAP	National Biodiversity Strategy and Action Plan
NDP	National Development Plan
NGO	Non-Government Organisation
NP	National Parks
NRM	Natural Resources Management
PPP	Purchasing Power Parity
REDD	Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
SADC	Southern African Development Community
SAREP	Southern African Regional Environmental Programme (SAREP)
SEA	Strategic Environmental Assessment
SMART	Specific, Measurable, Attainable, Relevant & Time bound).
SWOT	Strength-Weakness-Opportunity and Threat analysis
TFCA	Tropical Forest Conservation Act
TFCF	Tropical Forest Conservation Fund
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNCBD	UN Convention on Biodiversity
UNCCD	UN Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change
USAID	United States Agency for International Development
WAVES	Wealth Accounting and valuation of Ecosystem Services
WMA	Wildlife Management Areas

1 Introduction

This paper describes the situation of Botswana's forests (section 2) as well as their policy and legislative environment (section 3). A brief analysis is given in section 4, based on the analytical framework developed in the inception report. The analysis leads to forest issues which are guiding the options for the Forest Conservation Strategy (section 5). The analysis and options are meant to be the primary focus of discussions at a workshop (see ToR). Therefore, readers with little reading time are advised to focus on sections 4 and 5.

The study is mostly desk top based with additional insights provided by interviewed stakeholders (listed in appendix 1).

2 Situation analysis of national forest resources

2.1 Available forest resources

Botswana is endowed with the diversity of both the herbaceous and woody vegetation that provides a wide range of goods and services that satisfies the needs of the nation at large. This includes fuelwood, timber, edible and medicinal plants. In addition, forests perform ecosystem services such as groundwater recharge, wildlife refuge, biodiversity maintenance and carbon sequestration. Forests are classified according to the type of land tenure system in which they are located, hence there are forests in State land / protected areas, which include most Forest Reserves, National Parks, Game Reserves and Wildlife Management Areas], communal/tribal land, and freehold/private land. Table 1 presents the types/names of forest areas, their size and level of protection, mostly found within State land¹.

Botswana has six gazetted Forest Reserves (FRs), namely Kasane, Kasane Extension, Chobe, Kazuma, Maikaelelo and Sibuyu. These FRs make about 1% of the total land area of the country (Central Statistics Office, 2004); they were created primarily to safeguard valuable timber resources.

The literature (e.g. Environmental Statistics 2000 and 2006, Miller and FAO) shows different sizes for the FRs, but the total estimated size is 4 000 to 4 500 km². Table 3 shows that Chobe Forest Reserve is the largest (1 740.3 km²) followed by Sibuyu FR (1 175 km²). Kasane FR is the smallest (131.9 km²). The combined size of all the six FRs amounts to 4 372.6 km².

Small parts of the Kasane and Kazuma FR have been degazetted to accommodate settlement expansion. In total 42 km² has been de-gazetted or around 1% of the total FR area.

¹ No map with forest resources has been obtained (DFRR has promised such a map).

Table 1: Forest areas in protected areas, including WMAs

Type of forest area	Name of Forest area	Size (Km ²)	% of Botswana	Level of protection
Forest Reserves (FR)	Kasane FR + Extension	750	1%	II - Protection of trees
	Chobe	1 485		
	Maikaelelo	543		
	Sibuyu	1 161		
	Kazuma	156		
National Parks (NP)	Chobe NP	10 589	8%	Ib, No hunting
	Makgadikgadi/Nxai NP	7 400		
	Gemsbok NP	28 000		
Game Reserves	Central Kalahari	52 800	10%	Ib, No hunting
	Khutse	2 500		
	Moremi GR (Okavango)	4 800		
Wildlife Management Areas (WMAs)		138 110	24%	V, Controlled hunting
FR + NP + GR + WMAs		248 294	43%	

Source: MEWT, 2013 (Draft Inception Report: Project for enhancing national forest monitoring system)

While the Chobe Forests Inventory and Management Plan were only prepared in 1993 by the Norwegian Forestry Society for the Ministry of Agriculture, Botswana has never had a nationwide forest and range resources inventory study. Therefore no details are available about the country's forest resources, especially outside protected areas. However, a project for enhancing national forest monitoring system for the promotion of sustainable natural resources management (development of forest inventories is the core) is being undertaken by MEWT, through DFRR with technical and financial assistance from the Japan International Cooperation Agency (JICA).

The Food and Agriculture Organisation (FAO, 2010) data based on the Botswana Country Report indicate that there has been a decline in the land area occupied by forests, with an indication that 23 670 km² of forest land was lost between 1990 and 2010 (or 17.3%). However, this loss has occurred countrywide because the main reasons given, besides the forest fires, are that there is overuse of forest resources by the local communities (especially those near urban centres) and depredation due to the increase of wild animal population. An interview with an official of DFRR revealed that forest loss within PAs were the result of die-back and failure of natural regeneration, which is aggravated by the effects of climate change, damage from increased elephants population, fires and germ plasma (lack of natural inheritance).

Table 2: Total land area under different forest resources assessment categories

Forest Resource Assessment 2010 categories	Area (000 km ²)			
	1990	2000	2005	2010
Forest	137 180	125 350	119 430	113 510
Other wooded land	347 910	347 910	347 910	347 910
Other land	81 640	93 470	99 390	105 310
Inland water bodies	15 000	15 000	15 000	15 000

Source: FAO, 2010.

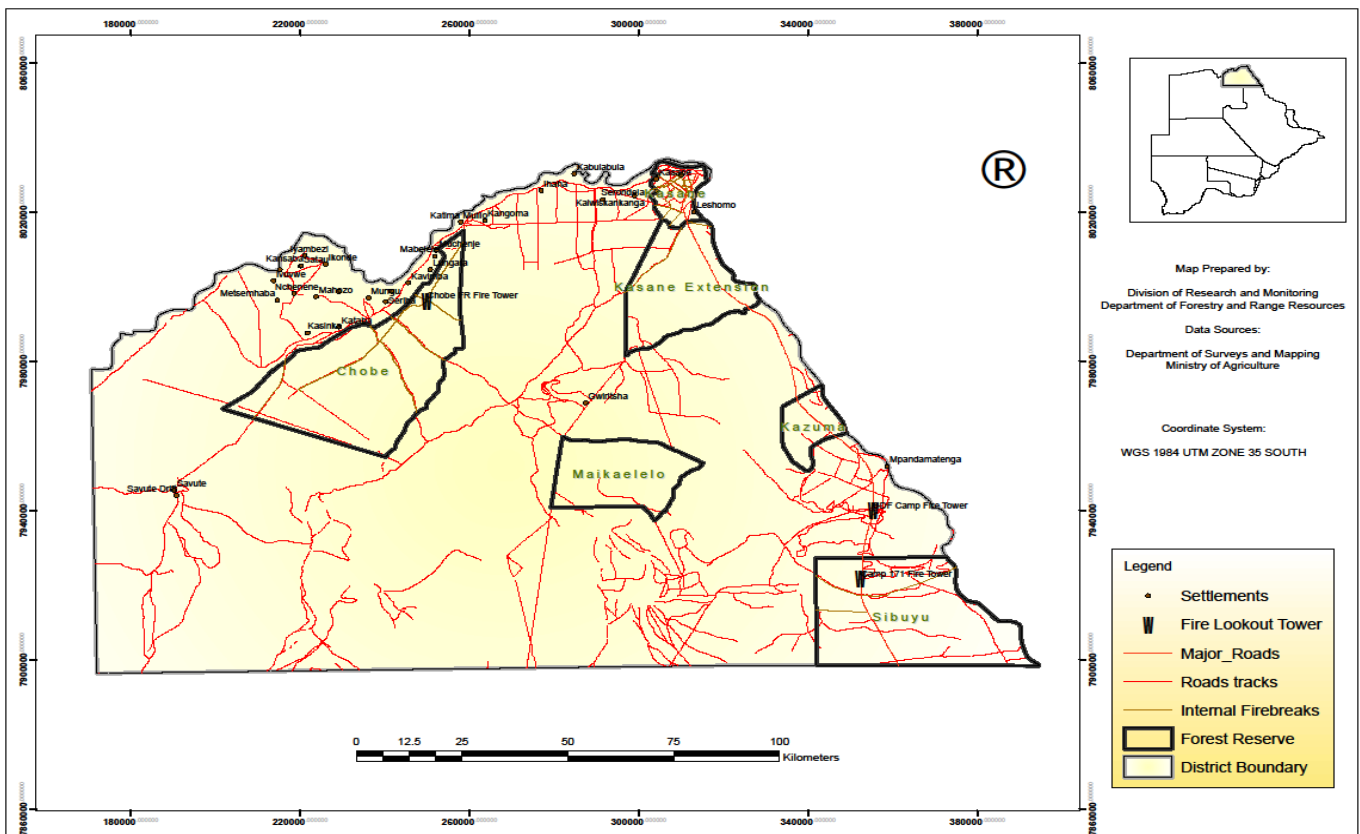
Other wooded land covers 60% of the country's land area, and is mostly located in communal areas. They are mostly part of communal rangelands. Bush encroachment is widespread in communal rangelands, leading to a reduction in tree species variety and an increase in woody (shrub) biomass.

2.2 Use of forest resources

Forests have direct and indirect uses. Direct use refers to the use of forest resources for human activities. The indirect uses refer to ecosystem functions such as carbon sequestration, ground water recharge, wildlife refuge, etc.

Forest resources have a direct use value in terms of jobs and income generation to society as well as the provision of goods and services, namely: wood and non-wood products; food and medicinal plants; and opportunities for recreation, education, cultural and spiritual activities. Indirect uses of forests are often forgotten, until these functions are threatened and result in reduced direct uses or have to be taken over by human activities. Valuation studies of the Okavango Delta and Makgadikgadi wetlands have shown that the indirect use values are significant.

Map 1: showing the Forest Reserves in Botswana (source: DFRR)



Direct uses of the Forest Reserves are minimal since the 1992 suspension of timber logging and only limited use by surrounding communities is permitted for activities such as firewood collection and fruits gathering. Plans exist to encourage ecotourism in the FRs. Ecotourism and forest guidelines are currently being developed. At present, ecotourism is not yet promoted in the FRs. Local communities currently benefit little from FRs, but this could change when ecotourism (and possibly other uses such as thatching grass collection) are promoted. The resources are therefore not open to any exploitation without prior permission from the Department of Forestry and Range Resources.

Forests in National Parks and Game Reserves are exclusively used for ecotourism. The revenues mostly accrue to government, tour operators and some surrounding communities.

Access and utilisation of forests within communal areas is freely open to all community members and these can be harvested for use or trade within and between settlements (CSO, 2004). However, some parts of the communal areas are privatised to people who eventually have a de facto control of those woodlands within the surrounding areas.

The indigenous trees that are commonly preferred for fuelwood, construction and provision of food on community woodlots are provided at Table 3.

Table 3: Tree species preferences for fuelwood, construction and provision of fruit/food

Species used for fuelwood		Community members	
Common name	Botanical name	Frequency	Percent
Mongana	<i>Acacia mellifera</i>	95	29.7
Mogotlho	<i>Acacia erioloba</i>	71	22.2
Mokha	<i>Acacia karoo</i>	39	12.2
Mogono	<i>Terminalia sericea</i>	31	9.7
Mophane	<i>Colophospermum mopane</i>	16	5.0
Species used for construction		Community members	
Common name	Botanical name	Frequency	Percent
Mogonono	<i>Terminalia sericea</i>	112	35.0
Mokala	<i>Acacia galpinii</i>	60	18.8
Mongana	<i>Acacia mellifera</i>	41	12.8
Mophane	<i>Colophospermum mopane</i>	21	6.6
Moselesele	<i>Dichrostachys cineria</i>	9	2.8
Mokgalo	<i>Ziziphus mucronata</i>	9	2.8
Indigenous fruit plants commonly used		Community members	
Common name	Botanical name	Frequency	Percent
Moretlwa	<i>Grewia flava</i>	205	64.1
Mokolwane	<i>Hyphaene petersiana</i>	25	7.8
Motlopi	<i>Boscia albitrunca</i>	15	4.7
Moretologa	<i>Ximenia caffra</i>	10	3.1
Motsentsela	<i>Berchemia discolor</i>	8	2.5

Source: CSO, 2004

Table 3 shows that the most preferred fuelwood species are *Acacia erioloba* and *Acacia mellifera*. *Acacia mellifera* is the most preferred species in the Southern part of the country while *Colophospermum mopane* is preferred in the northern part of the country where it is predominant. *Acacia galpinii* is the most preferred species for construction purposes and *Terminalia sericea* is also highly rated by the community members because the species are durable and highly tolerant to termite attack.

The most commonly used indigenous fruit/food plants are *Grewia flava* (64%) and *Hyphaene petersiana* (8%). The most important economic features of these species are the fruit/berries that can be used for brewing beer.

2.3 Threats to forests and other woodlands

Major threats (direct and indirect) are:

- a. Encroachment into forests by settlements, infrastructure and agriculture
- b. Elephant expansion and damage
- c. Fires
- d. Over utilisation of forest products (mostly communal)
- e. Climate change
- f. Inadequate, state led forest management
- g. Undervaluation of the importance of forests
- h. Lack of forestry research and data

Each threat is briefly discussed below.

2.4.1 Forest encroachment

Over the years, forests in Botswana have been subjected to depletion due to sustained pressure arising from inter alia; land use pressure and other uses that are not matched by compensatory afforestation and essential environmental safeguards (Forest Policy, 2011). Encroachment occurs into forest areas, mostly due to settlement and infrastructure expansion as well as other woodlands due to agricultural expansion. "The dominant land uses in communal areas include arable agriculture, livestock farming and settlements" (Botswana National Action Plan for OKACOM, 2011).

Managing forest encroachment requires effective land use planning. Land use planning entails balancing socio-economic and environmental considerations for optimal utilisation of land. This is in tandem with both Vision 2016 and the Millennium Development Goal of ensuring environmental sustainability and natural resource conservation (NDP10; p.257). Lin Cassidy (2000) contend that defining land use in Botswana is a process of study, planning and consultation which culminate in the development of District Land Use Plans (DLUP), which unfortunately are not effectively enforced unless such land use plans or parts thereof have been made law, as was the case with 3 Wildlife Management Areas in Ghanzi District which were gazetted under the Wildlife Conservation and National Parks Act of 1992.

2.4.2 Elephant damage to forests

Aerial survey estimates show that Botswana's elephant population is currently around 120 000 (from 40.000 in 1980) and is growing at a rate of 5.7% (at present 6000 animals) per annum. As the population increases in number, localised densities are increasing and the population is expanding into new ranges. Over the last 10 years, much of this expansion has been to the north-west and south into community areas, increasing the competition over space with mankind (CBNRM Support Programme, 2002). Uncontrolled elephants' numbers exceed the carrying capacity and lead to destruction of forest ecosystems. This will have a negative impact on other smaller animals using the same forests.

2.4.3 Fire damage to forests

Naturally-occurring and anthropogenic fires can also disrupt the flow of goods and services from forests by affecting tree growth and survival, water quality and yield, and biodiversity. Table 4 provides an indication of the average number of fires and the area affected per year in the country. The number of fires affecting forests and other wooded land increased from 81 in 2006 to 148 in 2008, signalling

an increase of 67 fires over a 3-year period. The total land area affected by fire also increased significantly by 5555 hectares from 6236 hectares in 2006 to 11791 hectares in 2008.

Table 4: Land area affected by fire (2006-2008).

FRA 2010 category	Annual					
	2006		2007		2008	
	Km ²	number of fires	Km ²	number of fires	Km ²	number of fires
Total land area affected by fire	62 360	81	68 110	84	117 910	148
... of which on forest	4 460	-	2 170	-	5 340	-
... of which on other wooded land	43 820	-	46 640	-	62 710	-
... of which on other land	14 080	-	1 9 300	-	49 860	-

Source: FAO, 2010.

2.4.4 Over-utilisation of forest products

Uncontrolled use and over-exploitation of forest resources for various reasons such as wood harvesting for fuel, plants for medicinal and religious purposes, and grass for thatching are some of the causes of forest degradation. Excessive harvesting of fuel wood is starting to emerge in the eastern corridor of the country; settlements and ranches compete with natural ecosystems for grazing and water in many parts of the Kalahari, threatening certain species and ecological processes (MEWT, 2007). As a result, there has been a decline in the volume of forest growing stock in forests. The stock in other wooded land remained constant, presumably because of bush encroachment (fewer tall trees but more shrubs).

Table 5: Volume of growing stock in forest and wooded land in Botswana

FRA 2005 Categories	Volume (Mm ³ over bark)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Growing stock	226	207	197	573	573	573
Commercial growing stock	-	-	-	-	-	-

Source: FAO, 2005.

2.4.5 Climate change

Just like the rest of the globe, Botswana is faced with the effects of climate change on her natural resources including forests. "Botswana has a semi-arid climate, characterized by warm winters, hot summers, low rainfall, and high evapo-transpiration. The country is prone to frequent droughts, lately occurring every two years rather than once every four years, as in the previous decade" (Zhou *et. al.*, 2012). It is likely that changing temperature and precipitation pattern will impact on both natural and modified forests (Kirilenko and Sedjo, 2007). (Sohngen, 1998) outlines a number of scenarios that may arise as a result of the impact of climate change on forests. Where a drier climate ensued, existing forests would give way to ones more suited to the new conditions, or even to other vegetation altogether such as grasses or shrubs. In extreme conditions the vegetative transition reverses course and forests are displaced by grassland, thus a forest may cease to exist altogether.

2.4.6 Forest management inadequacies

Forest management is done by the state in protected areas and management of wood resources in other wooded areas is largely absent. The Land Boards, District Land Use Planning units and the Agricultural Conservation Board and DFRR are all involved, but there is no holistic, coordinated management approach. Forest areas are not identified and gazetted in communal area land use planning.

2.4.7 Undervaluation of forests

Forest resources have a direct use value in terms of job and income generation as well as the provision of goods such as fuel wood, medicinal plants and vegetables. Forests also have an indirect use value, which is related to ecosystem services such as watershed protection, groundwater recharge, wildlife refuge, and carbon storage among others. However, the value of forests is often not fully appreciated, which has led to ineffective utilisation and management. The appreciation of indigenous plant species for landscaping purposes is currently limited, even though these species are often much better suited to the climate, requiring less water (BSAP, 2007).

Furthermore, the lack of community access and benefit from forest resources, especially within the FRs discourage a sense of community ownership and commitment to sustainable use. The situation defeats the sole purpose of the Community Based Natural Resources Management (CBNRM) Programme which rests on the recognition that local communities must exercise direct control over the utilisation and benefits of natural resources - wildlife, veld products - in order to value them in a sustainable manner.

2.4.8 Limited forestry research and data

The understanding of ecosystems functioning is currently fairly limited and more research, data collection and inventories are needed to help promote conservation and sustainable use. National inventories of flora and micro-organisms are currently not available and fauna inventories are incomplete. Biodiversity records are not computerised and this presents challenges in terms of accessing biodiversity data, and duplication of data collected, and excluding important biodiversity data in analysis. Inventories are essential to determine conservation status and should form the basis for biodiversity planning and setting of conservation priorities (MEWT, 2007).

The Forest policy recognises the importance of undertaking accelerated research to support development of more efficient forest management practices and higher productivity from the forest resource base. Research has to take into account biological, physical, social, economic variables and technological development and its application in the field of conservation and production forestry. Biotechnology is identified as one area that is least explored in Botswana (Biodiversity Strategy and Action Plan, 2007). The country has very limited capacity to undertake so called modern gene manipulation techniques. There is limited modern biotechnology activity especially in the use of new recombinant nucleic acid or cell fusion techniques. However, expertise exists in areas such as vaccine production, plant breeding and artificial insemination. Although fairly untapped and unexplored, Botswana is likely to have genetic resources with potential value for the biotechnology industry. For example, Botswana is a genetic centre for the cucurbit family (melons and cucumbers) and for vigna species (cowpeas), and harbour a potentially valuable gene pool.

However, the setting up of biotechnology-based enterprises often requires major start-up investments in equipment and facilities. These will not normally be funded under the Tropical Forest Conservation Fund. Few companies in Botswana have the capacity and capital to establish

biotechnology-based production or to compete with the large international pharmaceutical companies. This is because biotechnology requires human, financial and technological resources to conduct research and develop the necessary technology.

3 The forestry sector policy and legal environment

3.1 Introduction

The forestry sector is governed and guided by national and international policy and legislative instruments, which seek to promote conservation and sustainable utilisation of forest resources. This chapter reviews first the national policy environment but also covers commitments and opportunities under relevant Southern African Development Community (SADC) protocols and international conventions.

3.2 The national environment

Botswana's aspiration to sustainably manage forests is underpinned by the Forest Act of 1968 and the Forest Policy of 2011. The Act provides for better regulation and protection of forests and forest produce but it only focuses on areas designated as forest reserves and state land. Therefore, the Act is constrained to address sustainable management of forests outside protected areas and how communities could effectively participate in the decision-making process and sustainable management of forests. The Act is too old and is still being reviewed to address some of the above issues by merging the Forest Act (1968), the Agricultural Resources Conservation Act (1974) and the Herbage Preservation (Fire Prevention) Act of 1977. There is also a need to then develop regulations to enforce the new Act.

The forest policy is more holistic in approach, and seeks to optimise the contribution of the forest and range resources to the long-term socio-economic development of Botswana by ensuring equitable and sustainable flow of benefits to present and future generations. The Department of Forestry and Range Resources is the lead government entity in forest issues, and aspires to collaborate with other stakeholders in the development of plans, strategies, techniques, policies and programmes regarding management and conservation of forests. The Forest Conservation Botswana (FCB) promotes sustainable use and conservation of forests by offering grants to support eligible activities aimed at conserving, maintaining and restoring the forests of Botswana in accordance with the terms of the Tropical Forest Agreement, Forest Act, National Forest Policy and the Tropical Forest Conservation Order.

3.2.1 Policies and plans

This sub-section presents the review of policies relevant and related to the forestry sector. The Land Policy is still being reviewed and it was difficult to review it. The Ecotourism and Forestry Guidelines were still in draft form and it has not been possible to utilise them. Hence, the following policies and plans were reviewed.

National Development Plan 10

The importance of the forestry sub-sector is captured in the National Development Plan 10 (NDP 10), with the sub-sector's main thrust being to "foster conservation, sustainable management and utilisation of forest resources to ensure a continuous flow of products and services from the forests

without irreversibly damaging their capacity to recover" (NDP 10; p.273). Key forestry actions flowing from the Plan include:

- a. Developing nation-wide forest inventories to provide the base for resources information;
- b. Promoting indigenous tree planting; and
- c. Intensifying education and awareness of the communities.

Reference is also made to the Community Based Natural Resource Management (CBNRM) programme which is implemented as a rural development and conservation strategy to promote the sustainable use of resources.

Some of the challenges that were identified during NDP 9 but still remain pertinent in NDP 10 entail the use of fuel wood as an energy source, mostly by the population in the rural areas; over-exploitation of forest and range resources, mainly due to commercialisation; expansion of agricultural activities into forest land; urbanisation; and uncontrolled wild land fires/bush fires.

Forest Policy of 2011

The policy defines basic principles, objectives, strategies and action plans which provide guidance and facilitation in the management of forests and range resources through conservation, development and sustainable use to meet social, cultural, economic, environmental and ecological needs of present and future generations. The objectives and strategies relate to the broader areas of forest resources management:

- i. Wildland fire management;
- ii. Public participation, education and awareness;
- iii. Production forestry;
- iv. Research and development;
- v. Ecotourism and other socio-economic opportunities;
- vi. Non-wood forest products development;
- vii. Forestry training and capacity building; and
- viii. Multilateral environmental agreements.

Forestry-based programmes, projects, policies and strategies need to be financed to enable forest resources to benefit communities. Finance could be provided as government revenues, grants, fee charges for forest goods and services, and user fees for tourism, ecotourism facilities, or incentives for forest industries and commercialisation of forest products.

The policy recognises the need for the involvement and participation of all stakeholders in forest management and decision making. These include government agencies, non-governmental organisations, community based organisations, the private sector, political and traditional leadership, and the international community.

Wildlife Conservation Policy of 1986

The Wildlife Conservation Policy aims to balance economic and environmental sustainability of wildlife resources by increasing the economic benefits from wildlife, ensuring adequate wildlife areas and improving wildlife management. The policy promotes wildlife preservation through protected areas (Game Reserves, National Parks and Sanctuaries) and conservation and utilisation of wildlife resources through gazetting of Wildlife Management Areas (WMAs). WMAs are particularly meant to protect migratory routes and to act as buffer zones between Protected Areas and communal agricultural areas. The policy regulates hunting through a system of hunting quota and licences in Controlled Hunting Areas (CHAs) in order to reduce illegal hunting and protect species from excessive hunting.

In spite of the above provisions, “human wildlife conflicts (HWC) occur outside protected areas where human activities are expanding and wildlife can freely roam around” (DWNP, 2012). In particular, the conflicts involve crop raiding and livestock depredation, property damage and injuries. Furthermore, they involve collisions, poaching and disease transfers such as Foot and Mouth Disease (FMD) and rabies. Poor land use planning, expansion of human population and activities, low input agricultural practices, and the expansion of elephant numbers and range, are cited as the major causes of HWC (DWNP, 2012).

National Policy on Agricultural Development of 1991

The policy aims to accelerate agricultural growth and to improve food security with no or minimal adverse environmental impacts. The specific objectives of the Policy are to: improve food security; diversify production base; increase output and productivity; increase employment; provide secure and productive environment for producers; and conserve of scarce agricultural and land resources for future generations. The policy facilitates increased commercial livestock ranches in suitable areas.

Support will also be channelled for enhancing the contribution of emerging crops and livestock activities such as *Hoodia gordonii*, sengaparile (*Harpogoehtum procubens*), kgengwe (*Citrullus lunatus*), mahupu (*Kalaharituber pfeilli*) and moretlwa (*Grewia spp*), *Jatropha carcus*, cotton, castor bean and game (guinea fowls, ostriches, antelopes, donkeys, fish, bees, etc).

Tribal Grazing Land Policy 1975

The objectives of the Tribal Grazing Land Policy were to improve management of the rangelands and facilitate commercialization of cattle ranching. The policy advocated for division of tribal land into three land use categories, namely: communal, leasehold and reserve land. The concern was that the three categories did not take into account protection of the wildlife resource. Wildlife management areas were then created as a land use mainly to provide wildlife corridors and buffer zones between commercial (ranches) and communal land areas.

National Policy on Land Tenure (1985)

The policy covers existing land tenure systems (State land, Tribal land and Freehold land) and their administration in urban and rural areas. It also seeks to ensure the sustainable use of land and to address constraints related to its acquisition. The policy provided for the amendment of the Tribal Land Act, extension of common law leases to residential plots in respect of citizens and modification of common Law leases for businesses. It also endorsed the operations of the State land Allocation Advisory Committees for urban land and dealt with issues of land accessibility and affordability to citizens.

Tourism Policy of 1990

The objectives of the Tourism policy are to: increase foreign exchange earnings and government revenues; generate employment in rural areas; raise incomes in rural areas in order to reduce urban drift; promote rural development and the provision of services in remote areas; improve the quality of life by providing recreational opportunities; and to establish a favourable national image to the outside world.

The policy provides for utilisation of tourism concessions for exclusive tourism rights (with limited existing traditional use rights) – done through a competitive tendering system, thus allowing for more (citizen) benefits from tourism: employment foreign exchange, income and support industries; licensing and grading system for tourism facilities; establishment of tourism concession areas, where operators or communities receive exclusive rights for tourism in designated areas.

Tourism Master Plan of 2000

The Tourism Master Plan identifies comparative advantages and disadvantages of the tourism sector in Botswana. The plan identifies four core areas: product diversification; citizen and community empowerment; support to Community Based Natural Resources Management; and ecological and economic sustainability. The "high value-low volume" strategy avoids having an excessive number of tourists in a given tourist area by the judicious use of price (through park entry and camping fees and the high price of concessions) and the assurance of quality, offering a unique nature experience, but without compromising the integrity of the resource. It has however been found to be restrictive.

Botswana National Ecotourism Strategy of 2002

The strategy exist objectively to create an environment in which all elements of tourism development, planning and management facilitate, promote and reward adherence to the key principles of ecotourism by tourism businesses.

The Botswana Ecotourism Certification System which is built on the foundation of the Strategy is used to promote sustainable tourism development by encouraging and supporting responsible environmental, social and cultural behaviour by tourism businesses and make sure they provide a quality eco-friendly product to consumers. This is consistent with the five guiding principles of the Strategy, which entail: minimising negative social, cultural and environmental impacts; maximising the involvement in, and the equitable distribution of economic benefits to host communities; maximising revenues for re-investment in conservation; educating both visitors and local people as to the importance of conserving natural and cultural resources; and delivering a quality experience for tourists.

Revised National Biodiversity Strategy and Action Plan 2007

The goal of the National Biodiversity Strategy and Action Plan (NBSAP) is to contribute to the long-term health of Botswana's ecosystems and related species, and to encourage sustainable and wise use of natural resources (including forests) through the provision of a framework of specific activities designed to improve the way biodiversity is perceived, utilized and conserved.

The Strategy identifies the following threats to biodiversity, which are also relevant to forests: habitat destruction and degradation caused by a variety of factors ranging from direct destruction through construction of buildings and infrastructure, to damage caused by pollution, unsustainable land and resource use, over-harvesting and excessive water abstraction. The Strategy also acknowledges climate change as a global threat, whose long term implications on the country's biodiversity will affect the distribution of species and habitats.

Revised National Policy for Rural Development of 2002

The Policy provides a framework to facilitate coordination of the various sectoral policies, and to engender a common vision in pursuit of rural development. Its objectives are to: reduce poverty; provide opportunities for income generation and economic activities; create employment; and increase popular participation in the development planning and implementation. The policy provides the necessary enabling environment for balancing conservation and development and CBNRM – community based rural development. The Policy advocates for popular participation of Botswana in the development planning and implementation processes as a basis for broad based, balanced and sustainable development. The policy recommends that government and local authorities procure goods and services from local suppliers.

Revised National Settlement Policy of 2004

The aim of the National Settlement Policy is to provide a comprehensive set of guidelines for national physical planning and to provide a framework for guiding the distribution of investment in a way that

reflects the settlements' population, size, economic potential, level of infrastructure and settlements' role as service centres. One of the objectives of the policy is to promote the conservation of natural resources for the benefit of the present and future generations, and it is based on the identification of the following:

- a. Areas that need to be preserved and zoned as preservation areas;
- b. Fragile and environmentally sensitive areas;
- c. Compatible land use zones; and
- d. Measures that can ameliorate existing and potential harmful development effects on the environment.

National Strategy for Poverty Reduction of 2003

The strategy seeks to link and harmonize the various sectoral initiatives relating to poverty reduction and put in place a systematic monitoring mechanism and processes to track poverty and overall progress towards its reduction on an on-going basis. The key areas covered by the strategy involve: expanding employment opportunities through broad-based growth; addressing the effects of the HIV/AIDS; strengthening the organizational and delivery capacity of the poor; enhancing the accessibility of the poor to social investments that enhance human capabilities; safety nets to protect the poor and vulnerable, whilst avoiding entrenchment of the dependency syndrome; strengthening the capacity of individuals, families, communities and local institutions to enhance their absorptive capacity for assistance schemes; strengthening National Development Management Capacity, particularly in the context of enhancing the effectiveness of poverty reduction initiatives.

Some of the opportunities that would be realised through this strategy involve: employment creation and pro-poor activities priorities ; reducing dependency on government & carefully used social safety networks; reduce livelihood dependency on safety nets; encourage development of CAPs/ CBNRM plans; and MWS resources should be used to better the livelihoods of communities in its vicinities.

Community Based Natural Resources Management Policy 2007

Community Based Natural Resources Management (CBNRM) is an approach to conservation and development that recognises the rights of local people to manage and benefit from the management and use of natural resources around them. It entails transferring access and resource use rights back to communities, empowering them with legislation and devolved management responsibility, building their capacity and creating partnerships with the public and private sector actors to develop programmes for the sustainable use of a variety of natural resources (Ministry of Environment, Wildlife and Tourism, 2010).

CBNRM in Botswana generates income, create employment, reduce poverty, and facilitates the establishment of local institutions meant to ensure local participation in natural resources management and ecotourism development. Table 6 provides a list of CBOs/community projects in the forestry sector that were funded by the FCB. Nurseries, land reclamation, tree planting, studies related to medicinal plants and forest management were most common among the successful grant applications. Surprisingly, no project deals with forests in protected areas. Beneficiaries were communities, academia and NGOs. Government institutions do not (directly) benefit from FCB projects.

Table 6: List of community projects funded by the FCB

Project Name	Location
Otse VDC; community indigenous trees nursery	Otse
University of Botswana; study on uses, distribution and conservation status of medicinal plants in Botswana	Gaborone
Botswana College of Agriculture; study on land cover change and climate dynamics around manyelannong Hill	Otse
Botswana College of Agriculture; identification of medicinal uses and phyto chemicals from plants used by traditional healers to address health problems	Seolwane
Moselewapula Community Development Trust; cultivation and value addition medicinal plants	Pilikwe
Mapoka VDC; land reclamation	Mapoka
University of Botswana; study on evaluation and conservation of indigenous plants for their diabetic, anti-hypertensive and anti-oxidant potential	Gaborone
Mosu VDC; land reclamation	Mosu
Changate Conservation and Development Trust; community forestry nursery	Changate
Tlhare Segolo Foundation; regeneration of mokolwane	Maun
Letloa Trust; feasibility study on establishment of community forest reserve	Shaikarawe
Permaculture Trust; township tree planting project	Ghanzi
Ithuseng Community Development Trust; community forestry nursery	Tsetseng
Somarelang Tikologo; tree planting and support of community livelihoods project	Makomoto
Matsheng Community Development Trust; conservation and management of Thotayamarula forest	Sojwe
Virginia Tech; assessment of threats to hardwood forestry and regeneration management in Chobe	Kasane
Somarelang Tikologo; tree planting and support of community livelihoods projects	Khakhea
Elephants Without Borders; study to determine status of wildlife population and land degradation in Botswana's forest reserves	Kasane
Lapologang Support Group; community forestry nursery	Maun
Ngamiland Basket Weavers' Trust; community forestry nursery	Etsha 6
Nlapkhwana Lingilila Environment Community Conservation Trust; land reclamation	Nlapkhwane
Veld Products Research and Development; community forestry nursery	Gabane
Ditshwanelo; The Botswana Centre for Human Rights Community Based Natural Resource mapping	Molapo
UB Okavango Research Institute; study on diversity, population structure and regeneration status of riparian woody species growing naturally along Thamalakane river	Maun

Source: Forest Conservation Botswana; www.forestconservation.co.bw

CBNRM has also raised the value of natural resources in community areas for the local population. This has resulted in the development of more positive attitudes of rural communities towards natural resources conservation particularly wildlife (Ministry of Environment, Wildlife and Tourism, 2010).

Non-wildlife based CBNRM has remained weak and is less attractive to most communities compared to those areas with rich wild animals. Therefore, the TFCF should seek to support conservation efforts within non-wildlife areas. Sustainable harvesting and use of the veld products will ensure sustained livelihoods which in most cases depends on income generated by selling these resources

3.2.2 Legislative Instruments

Forest Act of 1968

The Forest Act provides for the better regulation and protection of forests and forest produce in Botswana and matters incidental there to. The Act is aimed at the protection of areas designated as forest reserves, and calls for the protection of trees declared as 'protected timber trees' that fall within areas designated as state land. These trees are listed in Table 7.

Table 7: List of protected timber trees

Botanical name	Vernacular name
<i>Afzelia quanzensis</i> Welw	Pod mahogany, mwande, ikonkamukota
<i>Baikia plurijuga</i> Harms	Rhodesian teak, mukusi
<i>Brachystegia</i> spp	Mowombo
<i>Guibourtia coleosperma</i> (Benth) J. Leon	Rhodesian copal wood, tsaudi, isibi
<i>Pterocarpus angolensis</i> D.C	Blood wood, muninga, mukwa, ilombe
<i>Entandrophragma caudatum</i> Sprague	Brown mahogany, mopomena
<i>Sprirostachys africana</i>	Morukuru, tamboti
<i>Adansonia digitata</i> L.	Baobab, moana, ibozu, mubuyu
<i>Berchemia discolor</i> (Klotzsch) Mensley	Motsintila, Mozinzila, inzi
<i>Diospyros mespiliformis</i> Hochst ex A.D.C	African ebony, Mochenje, isuma, mokochong

Source: Forest Act, 1968

The Act provides for control of over-harvesting of trees for commercial purposes, and regulates the use of certain tree species such as Baobab which exists within Makgadikgadi as heritage sites (e.g. the Baines Baobab in Nxai Pan National Park). People are required to obtain licences for the use of forest resources within the reserves, except for the residents of Kasane, Kazungula and Lesoma who are allowed to gather: firewood from dead trees provided that collection is made by donkey or head-load and not by motor vehicle; poles of the species of trees specified in Part I of the Schedule hereto for the purposes of erecting huts and cattle kraals; fruits of the species of trees specified in Part II of the Schedule; leaves of the species trees referred to in Part III of the Schedule; and the underground stem of the species referred to in Part IV of the Schedule (see Table 8).

Table 8: Parts I to IV of Schedule of Protected trees

Part	Botanical name	Vernacular name
I	<i>Terminalia sericeae</i> Burch ex D.C <i>Croton gratissimus</i> Burch <i>Colophospermum mopane</i> (Kirk ex Benth)	Mogonono, Moguba Mologa, Monoka Mophane, lhane
II	<i>Adansonia digitata</i> L. <i>Dialium englerianum</i> Henriques <i>Guibourtia coleosperma</i> (Benth) J. Leon <i>Riconodendron rautanenii</i> Schinz <i>Berchemia discolor</i> (Klotzsch) Hemsley <i>Amblygonocarpus andogenisis</i> <i>Bauhinia macrantha</i> <i>Bauhinia urbaniana</i> <i>Parinari curatellifolia</i>	Baobab, Moana, Ibozu, Mubuyu Mohamani, Usimba Motsaudi, Tsaudi, Isibi Mugongo Motsintila, Mozinsilz, Izizi Mbaimbai Mopondopondo, Motoope Mupondopondo, Moshanja, Kuji

	<p><i>Parinari capensis</i></p> <p><i>Popowia oborata</i></p> <p><i>Annona senegalensis</i> Pers.</p> <p><i>Annona stenophylla</i></p> <p><i>Ximenia</i> spp.</p> <p><i>Xylopia odoratissima</i></p> <p><i>Grewia</i> spp.</p> <p><i>Sclerocarya caffra</i> Sond</p> <p><i>Strychnos spinosa</i> Lam</p> <p><i>Strychnos innocua</i> Del.</p> <p><i>Strychnos cucculoides</i> Baker</p> <p><i>Vangueria</i> spp.</p> <p><i>Abrus precatorius</i> L.</p>	<p>Mobola</p> <p>Mmola, Mola hatshe, Mobola hatshe</p> <p>Mochinga, Mochings chinga</p> <p>Mokamanawe, Matakwabolim, Moosomoso</p> <p>Moboroo</p> <p>Morotologana, Morotologa, Moroto,</p> <p>Morotonoga</p> <p>Ure, Situnduwanga</p> <p>Birobiro, Mogwana, Notuu, Chiriza</p> <p>Morula</p> <p>Mogorogoro</p> <p>Muteni</p> <p>Mokorukoru</p> <p>Mmilo, Mopiti</p> <p>Mopiti, Musasasati, Gum caragi</p>
III	<i>Grewia</i> spp.	Mogwana, Muhwana
IV	<i>Bothriochloa glabra</i>	Morama, Xcam, Xije

Source: Forest Act, 1968

Herbage Preservation (Fire Prevention) Act of 1977

The purpose of the Act is to prevent and control bush and other fires. The Act defines "vegetation" as growing or standing vegetation, and includes any tree or part thereof and any shrub, brushwood, undergrowth, grass, crops or stubble. A written permit should be sought by anyone who wishes to burn bush/vegetation on land that they occupy.

The Act calls for the development and maintenance of firebreaks to aid in the management of forest/wild land fires. The Department of Forestry and Range Resources has developed a Fire Management Strategy to guide the management of fires which includes efficient construction of firebreaks to protect natural resources, biodiversity and its habitat, and agricultural holdings (ranches and fields).

Agricultural Resources Conservation Act of 1974

The Act addresses access to and management of resources and empowered the then Agricultural Resources Board (ARB) to manage all resources on and below the soils of Botswana. Apart from the traditional subsistence use of resources, there is increased commercial use of forest resources/ veld products such as wood for fuel, grass, mopane worm, moretlwa, sengaparile and morula. Therefore, people are required to apply for a licence to harvest, trade and export these products on a commercial basis. However, enforcement of the conditions of the licences has to be given more attention so as to prevent non-compliance to such requirements. The enforcement of the Veld Products regulations of 2006 (which are used to implement the Agricultural Resources Conservation Act) provides a good opportunity to regulate the harvesting, trade and export of the veld products.

Tribal Land Act of 1970 & 1993

The Act provides for the establishment of tribal Land Boards to manage tribal land. It also defines the powers and duties of such land boards. The Tribal Land Act administers customary forms of land tenure and common law rules, and provides for the allocation of land for customary use under the three main traditional uses of residential, ploughing and grazing. The amended Tribal Land Act of 1993

grants Land Boards the powers to change use of land and transfer, collect royalties, and develop management plans.

Wildlife Conservation and National Parks Act of 1992

The Act covers the conservation and utilisation of wildlife throughout the country through the establishment of national parks, game reserves, sanctuaries, Wildlife Management Areas, game farms and ranches, and Controlled Hunting Areas. The Act details the hunting system and conditions, trade in animal and animal products as well as killing of elephants and rhinoceros and trade in their products. A review of the Act, together with the WCP recommended² the following:

- a. The need to separate wildlife areas from human inhabited areas primarily through land use planning and wildlife proof fences around agricultural areas, so as to promote co-existence;
- b. The CBNRM programme should be used to increase local benefits from wildlife and offset the costs of living with wildlife;
- c. The need for effective participation of farmers and communities to encourage co-existence; and
- d. Compensate affected households in WMAs through wildlife returns or insurance schemes funded through wildlife revenues; while in agricultural areas insurance schemes should be utilised as well as compensation from government funds or wildlife funds.

Tourism Act of 2009

The Act provides for licensing and regulating the tourist industry with a view to promoting its development and well-being through the following: establishment of the Tourism Industry Licensing Committee; licensing and classification of tourist enterprises; reservation of certain tourism licenses for citizens; and safety and sanitation.

Environmental Impact Assessment Act of 2011

The Environmental Impact Assessment (EIA) Act seeks to provide the decision makers with an indication of the likely consequences of their developmental activities. Decision makers should consider environmental impact as one of the issues to be addressed in decision making in order to balance the competing demands of development and environmental protection and to provide for environmentally sound policies, programmes and projects. Furthermore, environmental impact assessment allows government to consult the interested public on particular planned policies, programmes or projects.

The Act provides for the establishment and strengthening of the environmental impact assessment in the decision making process to ensure that the environmental implications of policies, programmes or development projects, are evaluated before approval.

EIA applies to policies, programmes, projects or activities that are likely to have a significant effect on the environment. Its scope goes beyond the physical impact to include other developmental effects such as economic, social, human health, aesthetic, cultural and institutional. By this *legislation*, the Government has initiated a reform process *that must be guided* by institutional, planning and administrative arrangements to ensure that the implementation of EIAs is institutionalised as a formal government policy.

Monument and Relics Act of 2001

The Act provides for the preservation and protection from interference on any national monument, and protected heritage area, which also covers forests. This is linked to the Environmental Impact

² The Review was undertaken by the Centre for Applied Research in 2007 for the DWNP. The recommendations have not yet been approved and enacted.

Assessment (EIA) process which requires that an archaeological impact assessment should be undertaken to accompany the results of any EIA study.

Water Act, 1968

The Act controls water resources use and presents an institutional framework for water allocation; allows ownership of public water by the state; and enables everyone to have the right to water for drinking, washing, cooking, and livestock. A water right is required to extract water, either through: diverting the water, dam construction, water storage, use and effluent discharge into public water. However, possession of water rights does not necessarily mean that the amount of water is always available. The Act has a provision for cancellation of the water quota if the available water resources do not meet current demand, if the right is not used within 3 years. Due to lack of monitoring it is possible that users abstract more than they are legally entitled to and beyond the rate of recharge, particularly for groundwater resources. The water right may also exceed actual abstraction.

Water Works Act, 1962

The Act provides for a declaration by the Minister of any area in which an undertaking exists or in which he considers that a public water supply should be established to be a water works area. These areas should have a designated water authority, e.g. WUC who has the right to take water, construct, make, purchase or take over all water works within the boundaries of the water works area and is also responsible for water supply. The Water Authority has to recover the costs of supplying water and installing meters on consumer's premises.

Boreholes Act, 1956

A permission to develop a borehole should be sought from the Geological Surveys authority who keeps a registry of boreholes in the country. The department can at any point, access any borehole for inspection, water sampling, pump tests and is expected to keep records of these.

3.3 Regional instruments

SADC Protocol on Forestry 2002

The objectives of this protocol are to:

- a. Promote the development, conservation and sustainable management and utilization of all types of forests and trees;
- b. Promote trade in forest products in order to alleviate poverty and generate economic opportunities; and
- c. Achieve effective protection of the environment, and safeguard the interests of both the present and future generations.

The protocol recognizes that many people in the region forests sustain the livelihoods of a majority of the region's rural communities. Communities use building material, firewood and charcoal from the forests. Besides, these forests are threatened by population growth and infrastructure development, among others. Currently, the deforestation rate in the SADC region is the highest across Africa and annual fire storms are additional threats to these unique eco-systems (German Federal Ministry of Economic Cooperation and Development, 2012).

Against the backdrop of the current threats on national and regional eco-systems, implementation of the SADC policy is key to ensuring the sustainable protection and use of these natural resources.

The SADC Sustainable Forestry Management programme that was implemented jointly with GIZ between 1996 and 2012, has agreed upon three components:

- i. Implementation of the SADC Regional Programme for Transfrontier Conservation Areas (TFCAs);
- ii. Support to the regional SADC programmes for cross-border fire-management and Reducing Emission from Deforestation and Degradation (REDD); and
- iii. Integration of climate change and biodiversity conservation into regional and national programmes.

SADC Protocol on Tourism Development

The objectives of the protocol are to:

- a. Use tourism as a vehicle to achieve sustainable social and economic development through the full realisation of its potential for the Region;
- b. Ensure equitable, balanced and complimentary development of the tourism industry region-wide;
- c. Optimise resource usage and increase competitive advantage in the Region vis-a-vis other destinations through collective efforts and cooperation in an environmentally sustainable manner;
- d. Ensure the involvement of small and macro-enterprises, local communities, women and youth in the development of tourism throughout the Region;
- e. Contribute towards the human resource development of the Region through job creation and development of skills at all levels in the tourism industry;
- f. Create a favourable investment climate for tourism within the region for both the public and the private sectors, including small and medium scale tourist establishments;
- g. Improve the quality, competitiveness and standards of service of the tourism industry in the Region;
- h. Improve the standards of safety and security for tourists in the territories of member states to make appropriate provision for disabled, handicapped and senior citizens in their respective countries;
- i. Aggressively promote the Region as a single but multifaceted tourism destination capitalising on its common strengths and highlighting individual Member States unique tourist attractions;
- j. Facilitate intra-regional travel for the development of tourism through the easing or removal of travel and visa restrictions and harmonisation of immigration procedures; and
- k. Improve tourism services and infrastructure in order to foster a vibrant tourism industry.

SADC Protocol on Wildlife Conservation and Law Enforcement 2003

The primary objective of the protocol is to establish common approaches to the conservation and sustainable use of wildlife resources in the region, and to assist with the effective enforcement of laws governing those resources.

Parties to the protocol undertake to, inter alia, adopt and enforce legal instruments necessary to ensure the conservation and sustainable use of wildlife resources; endeavour to harmonise their legal instruments governing wildlife use and conservation (article 6); integrate management and conservation programmes into national development plans, and assess and control activities which may be detrimental to such resources (article 7).

Measures for the conservation and sustainable use of wildlife resources are to be effectively enforced (articles 4 and 9) and a regional database on the status and management of wildlife is to be established to facilitate sharing of information (article 8). Capacity-building for effective wildlife management is to be promoted through, for example, training programmes (articles 4 and 10). Trans-frontier measures such as the establishment of conservation areas are to be promoted (article 4), and education and research are to be developed (article 7).

SADC Protocol on Mining

The protocol focuses on the contribution of the mining sector to economic development, poverty alleviation; adherence to internationally accepted standards of health, mining safety and environmental protection. As far as environmental protection is concerned, Article 8 of the protocol stipulates that Member States shall:

- i. Promote sustainable development by ensuring that a balance between mineral development and environmental protection is attained;
- ii. Encourage a regional approach in conducting environmental impact assessments especially in relation to shared systems and cross boarder environmental effects;
- iii. Collaborate in the development of programmes to train environmental scientists in fields related to the mining sector; and
- iv. Undertake to share information on environmental protection and environmental rehabilitation.

2012 Gaborone Declaration on Sustainability in Africa

The Gaborone Declaration recognised that watersheds, forests, fisheries, coral reefs, soils, and all natural resources, ecosystems and biodiversity constitute a vital natural capital and are central to long-term human well-being, and therefore must be protected from over-use and degradation and, where necessary, must be restored and enhanced. Some of the outlined actions to achieve this endeavour involve the following:

- a. Building social capital and reducing poverty by transitioning agriculture, extractive industries, fisheries and other natural capital uses to practices that promote sustainable employment, food security, sustainable energy and the protection of natural capital through protected areas and other mechanisms;
- b. Ecosystem restoration measures, as well as actions that mitigate stresses on natural capital;
- c. Building the knowledge, data, capacity and policy networks to promote leadership and new models in the field of sustainable development, and to increase momentum for positive change; and
- d. Effective communication and public education.

3.4 International instruments

United Nations Convention on Biological Diversity (UNCBD)

The Convention on Biological Diversity (CBD) addresses the conservation and sustainable use of forest biodiversity through a comprehensive programme of work, adopted in 2002 and revised in 2008. Many of the activities of the programme of work promote poverty reduction and creation of sustainable livelihoods. The objectives of the work programme can and should be incorporated into national and regional forest policies and strategies, for the benefit of present and future generations (Secretariat of the Convention on Biological Diversity, 2009).

The convergence of the poor and forests is a result of many factors. Forests tend to be located in remote areas where the reach of the market economy and technological progress are inhibited or slowed. Often, investments by national governments in rural areas are low. Furthermore, poverty often exists among traditional/indigenous peoples whose dependence on forests is deeply rooted in history and long predates modern social change. Forests are also often a refuge for poor rural people fleeing war. Additionally, forests can be a magnet for the poor where they are open access to resources, since they provide new agricultural lands and economic opportunities for people with limited options. Commonly, forest-dependent people who live in or near forests tend to be politically weak or powerless (PROFOR 2008). The poor rely on forests for a range of basic needs: food, shelter, clothing and heating.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The aim of the Convention is to ensure that international trade in species of wild animals and plants does not threaten their survival. Annually, international wildlife trade is estimated to be worth billions of dollars and to include hundreds of millions of plant and animal specimens. The trade is diverse, ranging from live animals and plants to a vast array of wildlife products derived from them, including food products, exotic leather goods, wooden musical instruments, timber, tourist curios and medicines. Levels of exploitation of some animal and plant species are high and the trade in them, together with other factors, such as habitat loss, is capable of heavily depleting their populations and even bringing some species close to extinction. Many wildlife species in trade are not endangered, but the existence of an agreement to ensure the sustainability of the trade is important in order to safeguard these resources for the future³. Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation. The species covered by CITES are listed in three Appendices, according to the degree of protection they need:

- i. Appendix I include species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
- ii. Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.
- iii. Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

United Nations Convention on Combating Desertification (UNCCD)

The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found⁴.

In the 10-Year Strategy of the UNCCD (2008-2018) that was adopted in 2007, Parties to the Convention further specified their goals: *"to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability"*. The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation. The UNCCD secretariat facilitates cooperation between developed and developing countries, particularly around knowledge and technology transfer for sustainable land management. It flags effective action at all levels through implementation of National Action Programmes (NAP) aligned to the UNCCD 10 year Strategic Plan. The National Action Programme outlines national objectives and activities implemented towards reducing land degradation, and promote local participation in the implementation of the NAP. Opportunities exist for funding community projects towards sustainable land management under the TFCF.

United Nations Framework for Convention on Climate Change (UNFCCC)

The ultimate objective of the Convention is to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner⁵.

³ <http://www.cites.org>; accessed on 20/6/2013 at 1140hrs

⁴ <http://www.unccd.int>; accessed on 20/06/2013 at 1206hrs

⁵ <http://unfccc.int>; accessed 20/06/2013 at 1230hrs

The Convention facilitates cooperation and support between developed and developing nations. Developed nations agreed under the Convention to support climate change activities in developing countries by providing financial support for action on climate change, above and beyond any financial assistance they already provide to these countries. A system of grants and loans has been set up through the Convention and is managed by the Global Environment Facility. Industrialized countries also made a commitment to share technology with less industrialised nations.

Parties to the Convention must submit national reports on implementation of the Convention to the Conference of the Parties. This is in accordance with the principle of "common but differentiated responsibilities" enshrined in the Convention. The core elements of the national communications for both Annex I and non-Annex I Parties are information on emissions and removals of greenhouse gases and details of the activities a Party has undertaken to implement the Convention. National communications usually contain information on national circumstances, vulnerability assessment, financial resources and transfer of technology, and education, training and public awareness; but the ones from Annex I Parties additionally contain information on policies and measures.

The Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which **commits** its Parties by setting internationally binding emission reduction targets. The Protocol, like the Convention, is also designed to assist countries in adapting to the adverse effects of climate change. It facilitates the development and deployment of technologies that can help increase resilience to the impacts of climate change. The Adaptation Fund was established to finance adaptation projects and programmes in developing countries which are Parties to the Kyoto Protocol.

Millennium Development Goals

"Botswana committed herself to the MDGs because the country recognizes that to make meaningful and lasting progress against poverty, quantum gains are required in education, health, sustainable use of environmental resources with which it is renowned, investment, technology and equitable South-South cooperation to promote flows of trade"(www.undp.org/bw/mdg.html).

Progress and achievement of the MDGs is driven through National Development Plans (currently NDP10) so as to achieve the country's long-term development aspirations as contained in the National Vision 2016. Substantial progress has been made with respect to policies and programs supporting environmental sustainability, and directed at specific sectors such as water, wildlife conservation, waste management, tourism, forestry and land management. Table 9 gives the status of achievement of the MDG goal of "ensuring environmental sustainability" because it is relevant to the forestry sector. The percentage of total forest land area reduced by 3% over a thirteen year period from 24% in 1990 to 21% in 2003, and has remained constant for 4 years until 2007.

Table 9: Status of Botswana progress with the MDG of 'ensuring environmental sustainability'

Target	Indicator	1990	2003	2007
Halve the proportion of people without access to safe drinking water and basic sanitation	Access to improved water source (% of population)	93.0		95.8
	Access to improved sanitation (% of population)	38.0		79.8
Integrate the principles of Sustainable Development in country policies and programmes and reverse the loss of environmental resources	- Forest area (% of total land area)	24.0	21.0	21.0
	- National protected area (% of total land area)	2.0	2.0	30.9
	- CO ₂ emissions (MT per capita)	7.3		2.4
	- GDP per Unit of energy use (constant 2005 PPP \$ per kg of oil equivalent)			11.7

Source: Botswana MDG Status Report, 2010

Botswana has ratified 10 Multilateral Environmental Agreements (MEAs) dealing with the key issues of climate change, drought and desertification, biological diversity and waste management. These are presented in Table 10. Botswana has also adopted three strategic plans: a National Action Plan under the United Nations Convention on Biological Diversity, the Okavango Delta Management Plan and the Makgadikgadi Framework Management Plan. The Okavango Delta is a Ramsar site (Botswana Millennium Development Goals Status Report, 2010).

Table 10: Multilateral Environmental Agreements ratified by Botswana

Priority/Key area	Multilateral Environmental Agreement (MEA)
Climate Change	<ul style="list-style-type: none"> - Vienna Convention for the protection of the Ozone Layer, 1985 - Montreal Protocol on substances that deplete the ozone layer, 1987 - United Nations Framework Convention on Climate Change, 1992 - Kyoto Protocol, 1997
Drought and Desertification	<ul style="list-style-type: none"> - United Nations Convention to Combat Desertification and drought, 1994
Biological diversity	<ul style="list-style-type: none"> - Convention on Wetlands of international importance, especially in Waterfowl Habitat (Ramsar Convention), 1971 - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973 - United Nations Convention on Biological Diversity, 1992
Waste Management and Pollution Control	<ul style="list-style-type: none"> - Basel Convention on the control of trans-boundary Movement of hazardous wastes and their disposal, 1989 - Convention on PERSISTENT Organic Pollutants, 2001

Source: Botswana MDG Status Report, 2010

Furthermore, a number of strategies and programmes relevant and also related to the forestry sector have been developed; and these are the Management of Indigenous Vegetation for the Rehabilitation of Degraded Rangelands, Sustainable Land Management, and Capacity Building for Conservation of the Okavango Delta (Botswana Wetland).

While acknowledging the progress made in the regulatory environment, environmental challenges of climate change, land management and natural resources conservation, and water and sanitation still remain. With the ever increasing effects of climate change, the country has become highly susceptible to seasonal variations in climate that contribute to drought and reduced water supply, deforestation and reduced productivity of the land, thus affecting community survival and livelihoods. Even though the 2010 Botswana Millennium Development Goals Status Report does not specifically discuss

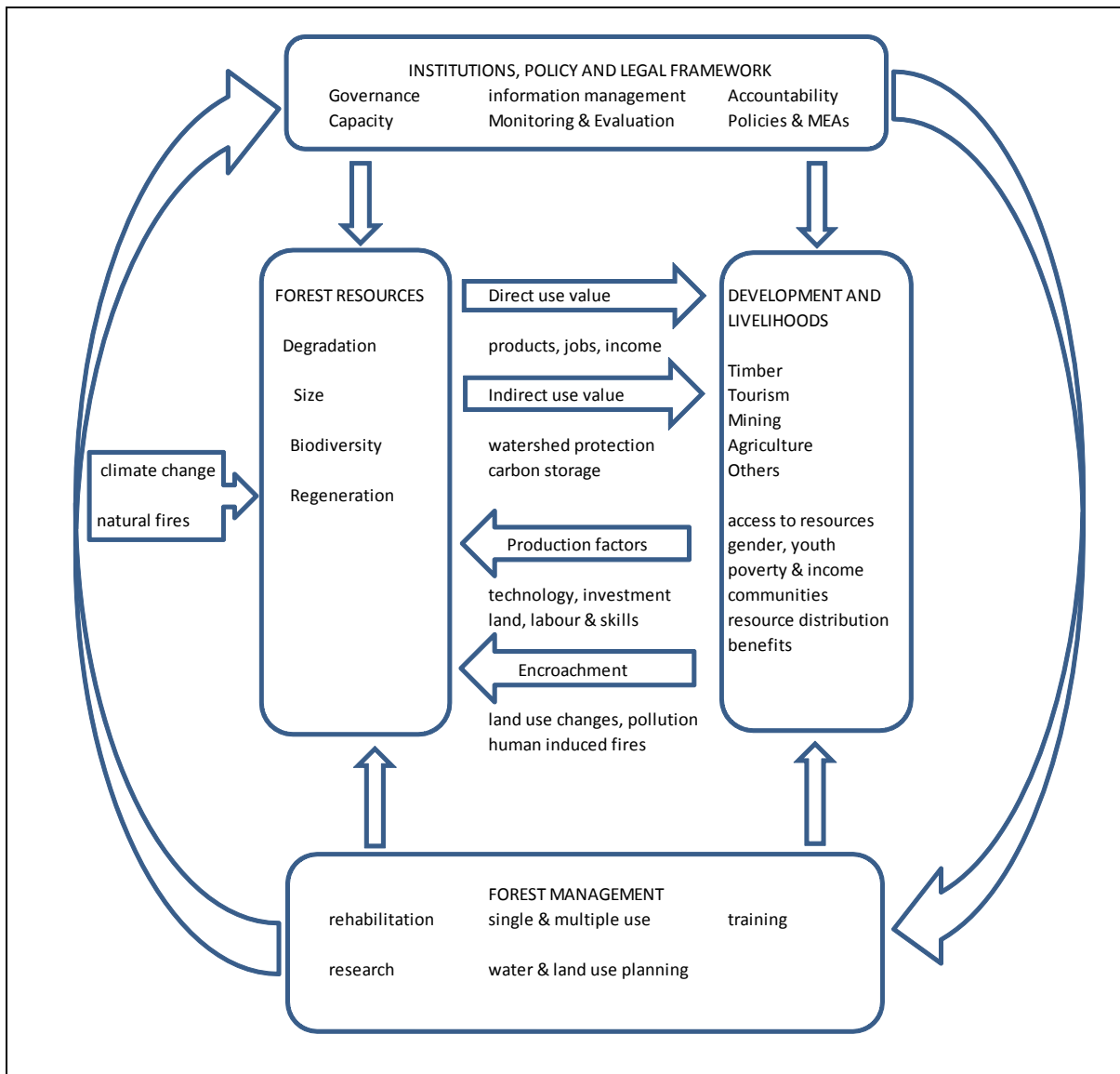
challenges on forest areas, rangeland degradation is acknowledged. High livestock population in excess of sustainable stocking levels, low off-take rates, bush fires, and land encroachment are identified as some of the causes of rangeland degradation.

4 Forest conservation and use issues

This section start with a review of the findings (section 2 & 3) in terms of the analytical framework (Figure 1) and a rapid SWOT analysis of FCB thematic areas, which leads to the identification of the main issues related to forest management and use in Botswana. The issues are addressed in the various options identified and explained in section 5.

FCB's thematic areas can easily be located in Figure 1. They mostly deal with the interface of forest resources and (sustainable) development, including the use and management of forest resources.

Figure 1: Analytical framework



Natural resource management (NRM) is located at the bottom of the figure. Protected Areas, including the Forests Reserves and national Parks, are part of the forest resources block. Training refers to improving skills and technologies for forest management (production factors), while livelihood improvements are integral part of the development block. Species conservation and increasing knowledge about medicinal plants refer to optimisation of the linkages between forests and development (edible plants do not appear as a thematic area but are considered to be part of the same thematic area). The time and spatial dimensions are not reflected in Figure 1 and need to be incorporated in the analysis. Moreover, special attention is needed for the cross cutting factors, identified above. For example, it is well known that the poor are more dependent than the better off on collection of fuelwood, edible plants and medicinal plants. Women are mostly collecting fuel wood and veld products.

Starting on the left (resource) side of Figure 1, Botswana's forest resources are limited and most are categorised as other wooded land, mostly rangelands (60% of country). Forests only cover 20% of the country, mostly located on State Land. While the area of other wooded land is stable, the size of forests is shrinking fairly rapidly (17% in period 1990 – 2005). Resource degradation occurs in significant parts of the other wooded areas with a hard core of almost permanent degraded land (around 10% of the rangelands) and a degraded part that extends during droughts (to as much as 25% and shrinks during wet periods (CAR, 2006). Bush encroachment reduces species variety, grass cover and tall trees. Valuable wood resources are damaged by fires and elephants in the Forest Reserves and the northern National Parks. The impact of climate change on forest resources is not well researched, but likely to exist through changes in rainfall patterns, temperatures and CO₂ levels, which could stimulate growth of woody biomass.

In terms of development and livelihoods, other wooded land is most important for rural livelihoods, especially through subsistence agriculture, fuel wood and collection of veld products. Particularly the lower income group heavily relies on fuelwood and gathering of veld products. Resource over utilisation is common, especially close to settlements. Commercial timber logging is negligible. Ecotourism is the most important use in Parks, and probably soon in Forest Reserves. Community based organisations can obtain exclusive user rights in their areas. While these rights are still mostly used for tourism and hunting, examples of CBOs using and conserving species trees exist. The women's CBO Kgetsi ya Tsie uses and manages morula tree resources and products in the Tswapong hills. In terms of use, the FRs currently provide few direct uses, but they probably have significant indirect use value. Indirect use values are likely to be significant but insufficiently recognised in development planning and resource management.

Given the prevailing uses, it is clear that forest resources mostly attract subsistence production factors to support livelihoods. Skills, investments and technology levels are low, and very few commercial activities currently occur (other than tourism in NP and GR).

In terms of forest management, little work is done on rehabilitation. Current projects, including FCB reclamation projects, are mostly small isolated projects that do not make much impact as yet. For example, unlike in Namibia no programme exists to combat bush encroachment. Management emphasis is on single use in Protected Areas (with their emphasis on resource preservation), but a shift towards conservation and multiple use is on the cards for the FRs. Fire management is perhaps the most active management component. The country has limited forestry capacity and training is limited.

In terms of institutional and policy framework, forest management is led by Government in Botswana, mostly through the DFRR. Other institutions involved include the Land Boards, the Agricultural

Resources Conservation Board and the Department of Wildlife and National Park, as managers of the National Parks and Game Reserves. The Land Policy is not yet approved and there is no sustainable land management programme/ strategy in place⁶. The role of the private sector is very small (game ranches). Similarly, the roles of communities and NGOs are small, even though the CBNRM policy provides for community user rights for forest resources. This array of institution involved show that forest management is fragmented, largely uncoordinated and government dominated.

In terms of legislation, the Forest Act is dated and does not cover tribal and freehold land. There is other (dated) relevant legislation and fire management and other forest products (agricultural resources). Efforts are under way to merge and up-date these bills to form a comprehensive forest/ rangeland resources legislation. The discussion of the regional and international treaties shows that SADC, UN and other (e.g. CITES) conventions need to be incorporated into national policies and legislation. A major governance constraint is the lack of monitoring and data which should guide policy implementation. For example, timber logging in the FRs was halted in the early 1990s, but it is unclear whether resource recovery has taken place. Fires and elephants continue to damage forest resources. Once the forest inventory has been concluded, DFRR needs to consider the preparation of forest accounts (FA) as a Monitoring and Evaluation tool. FAs treat forest resources as natural capital (in line with the 2012 Gaborone Declaration) and regularly records stocks, flows and their use as natural capital. The FA results inform forest management and contribute to the full integration of forest management in national development planning and accounting. The most important policies and legislation are indicated in Table 11.

Table 11: Summary of the key policies and legislation governing forest management

	Forests	Other wooded land	Both categories
National – Botswana			
Key policies		TGLP 1975 CBNRM 2007 Agricultural policies Revised National Settlement Policy 2004	Forest Policy 2011 Wildlife Conservation Policy 1986 Ecotourism Strategy Revised NBDSAP 2007
Key legislation	Forest Act 1968 Forest Reserves & State Land	Tribal Land Act 1968 and amendments Agricultural Resources Conservation Act 1974 Herbage Preservation Act	NP&WC Act 1990 for Parks and Game Reserves Herbage Preservation Act EIA Act 2011 & 2012 Regulations
Regional – SADC			
Key protocols, treaties etc.			SADC Protocol of Forestry 2002 SADC wildlife conservation & law enforcement protocol 2003
International			
Conventions & Protocols			UNCBD UNFCCC UNCCD CITES

A rapid SWOT analysis was carried out for FCB’s thematic areas. The results are summarised in Table 12. This SWOT needs to be discussed and up-dated at the workshop. Generally, significant opportunities exist to develop projects in all thematic areas.

⁶ CAR did not get access to the draft land policy (nor to the Ecotourism guidelines for FRs) for this project.

Table 12: SWOT framework of FCB thematic areas

FCB thematic areas	Threats – weaknesses	Opportunities - strengths
Protected areas	Government management of Forest Reserves Inadequate coordinated management between northern NPs and FRs	Multiple use of Forest reserves Participatory management of FRs (with partnerships with private sector and communities) Accelerated ecotourism development in suitable areas after hunting ban
Natural resources management	Dated and inadequate Forest Act Fragmented legislation Lack of holistic and coordinated forest management Little documented positive impacts on forest resources (also due to lack of monitoring data)	Community Forests establishment under CBNRM policy Development of production forestry Support for 'tree based' CBOs such as Kgetsi ya Tsie. Promotion of multiple forest uses
Increasing capacities and skills	Limited forestry expertise & capacity No private sector capacity Limited community skills & capacity	Forest resources training for communities Searching for private sector interest and investment
Restoration & sustainable use of diverse plant & animal species		Bush control & re-use of removed bush (e.g. charcoal & energy)
Research on medical plants		Production forestry Research to support use edible & other forest resources (e.g. thatching grass)
Support of livelihoods of people living in or near forests	No or limited access at present	Controlled use of subsistence resource resources from FRs & NP Community participation in management of FRs and NPs (e.g. community use zones) Pro poor ecotourism & CBNRM
Other areas: Climate change	Unknown impacts on forests resources	Development of national REDD+ programme and use of funding mechanisms (e.g. World Bank Forest Carbon Partnership and UN REDD programme) to protect carbon sequestration services of forests

From the analysis above, a number of issues arise for each FCB thematic area (Table 13). Two additional areas are suggested: climate change and appreciation/ valuation of forest resources/ education. Most issues relate to the thematic areas of forest resource management and livelihood improvements. These issues need to be discussed and finalised at the workshop.

Table 13: Identified Issues for thematic areas

FCB thematic areas	Key forest conservation & management Issues
Protected areas	Coordinated management of FRs and northern NP Multiple use of FRs
Natural resources management	Holistic & comprehensive forest/ rangeland resources Act Policy development: land policy approval and implementation, sustainable land management and bush control programmes/ strategies. Review feasibility of production forestry Support for forest based CBOs (e.g. KyT & in FRs) Developing monitoring tools and data base Integration of forest resources and use in (multiple) land use planning (e.g. Chobe) Control of over utilisation of forest resources
Increasing capacities and skills	Increasing forest management capacity Partnership development (communities- private sector-government)
Restoration & sustainable use of diverse plant & animal species	Bush control and re-use of products Use & conservation of veldproducts
Research on medical plants	Production forestry, including forest resources processing industries Research to support use edible & other forest resources (e.g. thatching grass)
Support of livelihoods of people living in or near forests	Increasing local community benefits from protected areas/ Controlled use of subsistence resource resources from FRs & NP Community participation in management of FRs and NPs (e.g. community use zones) Pro poor ecotourism & CBNRM
Other areas: Climate change	Research impacts of CC on forest resources Activity and Funding opportunities for forest management (e.g. REDD+ ⁷)
Awareness raising & education	Appreciation of the value of forest resources Use of traditional knowledge

5 Options for the Forest Conservation Strategy

The forestry sector in Botswana has a very low profile, in part because of the limited forest resources but also because of limited capacity and interest and limited involvement of the private sector and communities. Forest resources in Botswana cover forest in the more traditional sense (20% of the country) and other wooded land (basically rangelands), which constitute 60% of the country. The sector needs to clearly choose where it will focus on: forests alone or forests and other woodlands. Focus on forests only leads to a narrower focus and scope than inclusion of other wooded areas/ rangelands.

The Strategic Plan of FCB seeks to increase the positive impact of FCB activities on forest conservation and utilisation but also more generally to: raise the visibility and profile of the forestry sector in Botswana and to conserve and utilise the available forest resources better for the benefit of the country's development and rural livelihoods.

Impact enhancing strategies include:

- a. Prioritisation of short term, high impact projects. This is difficult as most forest projects yields results in the medium term, especially where communities are involved:

⁷ DRC, Tanzania and Zambia have national REDD programmes.

- b. Focus on 2 to 3 of the FCB thematic areas instead of covering all areas. The latter dilutes the visibility and impact of the FCB projects;
- c. Focus on a few larger projects instead of spreading limited funding over more projects; if additional funding partners / existing projects can be identified, the impacts could be enlarged. For example, FCB could link up with SAREP for forest projects in the Okavango river basin and with WAVES for forest and ecosystems accounting;
- d. Offer technical support to grant project to improve their performance and enhance their impacts; for example, FCB could form an expert support group for mentoring of projects;
- e. Focus on output-oriented projects in terms of conservation applications and sustainable development benefits; and
- f. Review of results of past and current projects in terms of impacts on use and management of forest resources.

It is worth considering focusing on a certain forest category (forests only and omission of other wooded land) and/or specific spatial areas. While these choices would focus the activities, they would reduce the impacts and visibility in other parts of Botswana.

FCB needs to review the following options:

1. Business as usual offering grants for relatively small projects under all thematic areas. Twenty four projects have been funded by Sept. 2012 with a total of BWP 7.2 million spent and a budget range of roughly BWP 100 000 to 500 000. The average budget of grants was around BWP 300 000. This option is probably not favoured because it has failed to make a visible and measurable impact and many projects have struggled to perform well;
2. Diversification of FCB activities beyond grants. FCB could offer technical assistance and support to grant projects and to the forestry sector in general. This would require the formation of a forestry expert network in Botswana and the region. A forest network for Botswana could be considered. This would increase the chance of satisfactory performance of projects and mobilise and increase the forest expertise in the county. A limit needs to be set for TA and network building to avoid that most funds go to TA instead of projects;
3. Focusing of FCB grants on two to three thematic areas to increase the impacts and ease the technical support to be offered. Once satisfactory progress has been achieved in a thematic area, another area could be selected by the Board (rolling thematic areas). Prior to grant invitations, an expert would prepare a thematic area note to outline the issues and challenges and the options for projects. It is recommended that there will be a permanent option to support innovative and creative project proposals that are linked to one of the six thematic areas. In this way, the Board maintains flexibility to support deserving projects outside the selected thematic areas;
4. Initiation of projects by FCB. FCB could have a provision for projects that it initiates itself with a partner (e.g. CBO) and which are implemented by the partner. For example, a CBO that utilises and conserves trees resources could be approached to jointly develop a project to support its activities. In this way, *FCB becomes less re-active (dependent on submitted proposals) and more pro-active.* This also require a special sub-fund to make sure that sufficient funds are left for grants. When there is underspending on the grant vote, more projects could be initiated by FCB.

Thematic areas options

If the FCB decide to focus on particular thematic areas, it needs to select the most deserving ones. The suggested criteria for selection are:

1. Must include forest category (e.g. Forest Reserves or NP). This is Botswana's hard core of forests;
2. Cover resource conservation and livelihood improvements. This is entrenched in the FCB' overall goal;
3. Have a community component to assist the implementation of the CBNRM policy. This will support livelihoods, increase the chance of maintenance of biodiversity and is already linked with existing policies;
4. Build capacity, expertise and partnerships. This will help to overcome current constraints and partnerships, especially with the private sector will offer additional expertise and investments sources.

These criteria will be discussed and finalised at the workshop and the thematic areas will be subsequently be prioritised (in time). Within the thematic areas, sub themes need to be developed based on criteria such as sustainability (ecology, economics, social and institutional), impact timing (short, medium and long term) and available implementation capacity. Other criteria could be added to select major sub themes for each area. Finally, targets need to be agreed upon for each sub theme. For example, FCB would prioritise community forest management, how many communities would it target for support? Would FCB specify a target for the livelihood impact? Another example, if FCB prioritises development of ecotourism in FRs, how many projects should be targeted and with which partnerships (e.g. community-private sector and government/ BTO)?

Technical assistance options

Given the limited available forestry expertise and capacity, it is important to start a registry of persons with technical support expertise in the FCB thematic areas. This can be done by the FCB secretariat by mail, advertisement etc.). Selected expertise in neighbouring countries and internationally can also be included (technical assistance can also be offered by email, correspondence etc.). The inventory should lead to a FCB forestry network with quarterly up-dates and exchanges among members.

To focus grant proposals, an option is to invite an expert to write a review paper on a prioritised thematic area. This would assist the direction and quality of the grant proposals.

Finally, technical assistance can be used to initiate projects from the FCB side together with stakeholders (pro-active approach). Such projects would become a tri-partite venture between FCB secretariat, the technical expert and the stakeholder (e.g. community, company or institution).

Pro-active option for project development and partnerships

Getting relevant and good quality grant proposals has proven to be difficult and the submitted proposals do not necessarily address key FCB priorities. Therefore, FCB should consider a pro-active approach where it develops with technical assistance and a stakeholder an important project.

In addition, FCB can associate with new projects to assess which forestry projects can be (jointly) developed under that particular programme. Examples of projects include Southern African Regional Environmental Programme (SAREP), which focuses on the Okavango river basin, and Wealth Accounting and valuation of Ecosystem Services (WAVES), which focuses on the development of natural capital accounting, and may include ecosystems accounts in future⁸. Other examples include the development of the KAZA Master Integrated Development Plan and the OKACOM Strategic Action Plan, where FCB projects could assist in their implementation.

⁸ During the first year, water accounts were prioritised; WAVES has also started on sustainability and macro-economic indicators (net genuine savings index), particularly in relations to mineral accounts.

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Appendix 1 List of interviewed stakeholders

The following persons were interviewed to solicit ideas towards the development of the Strategy.

Name	Organisation	Date of meeting/ contact
Mrs R. Mojaphoko	FCB Board Chairperson & DPS MEWT	21 st August 2013
Prof. W Mojeremane	FCB Board member & Botswana College of Agriculture	6 th August 2013
Mr S. Horn	FCB Board Member & USAID	2 nd August 2013
Dr D. Saulys	FCB Board Member & USAID	2 nd August 2013
Mr B. Lesolame	FCB Board Member & Action for Economic Empowerment Trust	6 th August 2013
Mr S. W Mokgwathi	Department of Forestry and Range Resources	4 th September 2013

Three members of the FCB Board and Southern Africa Regional Environment Programme (SAREP) could not be interviewed (despite efforts for the consultants).