



Republic of Botswana

Botswana National Action Programme to Combat Desertification 2006



National Action Programme to
Combat Desertification and Drought



Botswana National Action Programme To Combat Desertification

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**Department of Environmental Affairs
Ministry of Environment Wildlife & Tourism**

**Private Bag 0068
Gaborone
Botswana
Tel: (267) 3902050
Fax: (267) 3902051
www.envirobotswana.gov.bw**

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FOREWORD

The National Action Programme (NAP) is a tool for operationalizing the implementation of the objectives of the Convention to Combat Drought and Desertification. This NAP addresses issues of combating desertification and drought through nine objectives which are to be undertaken by various stakeholders as outlined in the plan. The UNCCD emphasizes involvement of communities as key stakeholders that are mostly affected by effects and impacts of desertification and drought.

Botswana signed and ratified the United Nations Convention to Combat Desertification (UNCCD) in 1995 and 1996 respectively. Following the ratification, the Ministry of Agriculture was designated the National Focal Point. A multi-sectoral National Task Force was formed to spearhead and direct the Convention's implementation process.

Botswana started the development of a National Action Programme (NAP) in 1997. The preparation of the NAP involved extensive consultations and awareness raising activities aimed at ensuring that stakeholders including communities, understood the importance of the Convention and its obligations as well as to solicit their support at both planning and implementation stages.

Upon realizing that the draft plan had been in existence for a while, it became apparent that it had to be reviewed to take into consideration any changes that may have occurred and also to refocus its objectives and activities to current situations. The review started in 2005 culminating in the current revised NAP. The review process was done in a participatory manner involving mini-workshops with key stakeholders within government and Non Governmental Organizations and eventually a national consultative workshop in November 2005 with representation from Local Authorities, Central Government, Non Governmental Organizations and Community Based Organizations.

The involvement of stakeholders afforded the communities an opportunity for them to own the document and its contents. By involving the stakeholders and committing them to the actions outlined in the NAP, it is hoped that they will be able to fully drive the objectives of the plan and feel committed to achieving the goals of the NAP.

As citizens and residents we should all take interest in issues of the environment as they have a bearing on our livelihoods and existence, now and in the future. Individuals and the whole nation should collectively commit to playing a part in the implementation of environmental policies, plans, programmes and strategies for sustainable management and utilization of natural resources to ensure that future generations' livelihood sources are secured.

The Ministry of Environment, Wildlife and Tourism sincerely thanks all those who contributed to the NAP review process in various ways including, attendance of meetings, workshops and provision of information and related activities that helped in coming up with the revised National Action Programme.



Onkokame Kitso Mokaila
Minister of Environment, Wildlife and Tourism

ABBREVIATIONS / ACRONYMS

ABS	Access and Benefit Sharing
ADF	African Development Foundation
AIDS	Acquired Immune Deficiency Syndrome
ALDEP	Arable Lands Development Programme
BCA	Botswana College of Agriculture
BDF	Botswana Defence Force
BNLS	Botswana National Library Services
BOTEC	Botswana Technology Centre
CBD	Convention on Biological Diversity
CEDA	Citizen Entrepreneurial Development Agency
CERES	Crop Estimation through Resource and Environment System
CBNRM	Community Based Natural Resources Management
CBSRD	Community Based Strategy for Rural Development
CCF	Community Conservation Fund
COPs	Conference of Parties
DEA	Department of Environmental Affairs
DFRR	Department of Forestry and Range Resources
DMS	Department of Meteorological Services
DRST	Department of Research, Science and Technology
DWNP	Department of Wildlife and National Parks
EAD	Energy Affairs Division
ENSO	El Nino/Southern Oscillation
ESP	Environment Support Programme
FAP	Financial Assistance Policy
GEF	Global Environment Facility
HIV	Human Immuno Deficiency Virus
HOORC	Harry Oppenheimer Okavango Research Centre
IKS	Indigenous Knowledge Systems
IPCC	Intergovernmental Panel on Climate Change
LIWP	Labour Intensive Works Programme
LLCI	Local Level Community Initiatives
MEA	Multilateral Environmental Agreements
MEWT	Ministry of Environment, Wildlife and Tourism
MFDP	Ministry of Finance and Development Planning
MLG	Ministry of Local Government
MLH	Ministry of Lands and Housing
MMEWR	Ministry of Minerals, Energy and Water Resources
MoA	Ministry of Agriculture
MSK	Modern Scientific Knowledge
NACA	National Aids Coordinating Agency
NAP	National Action Programme
NAPCD	National Action Programme to Combat Desertification
NDF	National Desertification Fund
NDP	National Development Plan
NFP	National Focal Point
NGOs	Non Governmental Organizations
NPAD	National Policy on Agricultural Development
NSPR	National Strategy for Rural Development
ODMP	Okavango Delta Management Plan
PDL	Poverty Datum Line
RIIC	Rural Industries Innovation Centre
RDCD	Rural Development Coordination Division
SRAP	Sub-Regional Action Plan
TGLP	Tribal Grazing Land Policy

UB	University of Botswana
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

ACKNOWLEDGEMENTS

The product of National Action Programme (NAP) review process is a result of many stakeholders who had their input in one way or the other including various communities through out the country. The review included mini-workshops with key stakeholders that culminated in a national workshop to which all key stakeholders were invited and contributed to the shaping of the NAP. Our sincere thanks go to all those who contributed to the review in one way or the other as we cannot mention everybody by name.

The Ministry of Agriculture through the Department of Crop Production and Forestry as the National Focal Point for the Convention starting from the time the country ratified the Convention to the time the focal point changed to the Ministry of Environment, Wildlife and Tourism (Department of Environmental Affairs), played a significant role in advancing the implementation of the convention in Botswana. The current NAP document is a product of their efforts together with the task groups that were engaged to come up with a working document which was eventually finalized into the current NAP document. Their efforts are highly acknowledged.

Special thanks go to the bellow listed members of the UNCCD National Task Force who guided and directed the review process and ensured that the output is to an acceptable standard.

UNCCD National Taskforce Members:

Ms. A. Kanego – Department of Environmental Affairs, Ms. T. Matlhape – Department of Environmental Affairs, Ms. P. Lobelo – Department of Environmental Affairs, Mr. K. Chigodora – Department of Environmental Affairs, Mr. E. Otsogile – Department of Environmental Affairs. Mr. H. Gabaitse – Department of Crop Production, Mr. P. Mutshewa – Department of Animal Health and Production, Mr. G. Keforilwe, - Department of Forestry and Range Resources, Mr. D. Dambe – Department of Meteorological Services, Ms. O. Kgathi – Department of Wildlife and National Parks, Ms. B. Matlhaga – Rural Development Coordination Division, Ms. S. Makgosa – Department of Lands, Mr. M. Mzuku – Botswana College of Agriculture, Ms. N. Wright – Botswana Technology Centre, Mr. F. Monggae – Kalahari Conservation Society, Prof. M.B. Darkoh – University of Botswana, Ms. N. Sebele – Department of Forestry and Range Resources, Mr. R. Kwerepe – Department of Forestry and Range Resources.

1 CHAPTER ONE: INTRODUCTION

1.1 An overview of the convention

The United Nations Convention to Combat Desertification (UNCCD) is a product of a World summit that took place in Rio de Janeiro in 1992. Botswana fully participated in the negotiations that led to this Convention. Eventually, the Convention to Combat Desertification was adopted on 17 June 1994 and opened for signature the same year in October. Botswana signed the Convention in October 1995 and ratified it in September of 1996. Following signature by 115 countries, the Convention entered into force in December 1996.

The main objective of the Convention is *“to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of the integrated approach which is consistent with Agenda 21 with a view to contributing to the achievement of sustainable development in affected areas”*(UN, 1995). This objective requires holistic strategies that focus on improved productivity of land, the rehabilitation, conservation and sustainable management of land resources, leading to improved living conditions of communities.

The Convention emphasizes a bottom-up approach in its implementation to promote increased participation of local communities, community based organizations and marginalized groups like youth and women. The emphasis on bottom up approach is premised on the fact that people at grassroots level are utilizing the resources on daily basis for their survival and would therefore be the first to bare the brunt of land degradation. In that regard it is important to empower communities through involving them in decision making processes right from the start to enhance and promote sense of ownership of resources and resource management decisions taken. For successful implementation, all other stakeholders including Non-governmental Organizations and the Private Sector should actively participate in implementing the Convention. The donor community are also a very important stakeholder as they can enhance the national implementation efforts especially that most of the affected countries have limited capacity to address the problem of desertification on their own. The Convention recognises that partnership between and amongst all these stakeholders in combating desertification, mitigating the effects of drought and alleviating poverty is essential to ensure sustainable development.

In addition to the UNCCD, the other agreements that are a result of the Rio Earth Summit include the Convention on Biological Diversity (CBD) and UN Framework Convention on Climate Change (UNFCCC). These three Conventions are inter-related and their implementation should therefore be coordinated to avoid duplication of efforts and to promote sustainable resource utilization. Promotion of synergies amongst the three Conventions is highly critical considering the similarities, overlaps and interrelatedness of issues and to better utilize the limited financial and human resources available.

1.2 Definitions

The Convention defines desertification as a process of ‘*land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities*’

“Drought means the naturally occurring phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect land resources production systems”

“Land degradation means reduction or loss, in arid, semi-arid and dry sub-humid areas of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities” (UN, 1995).

1.3 Rationale for the national action programme

The National Action Programme (NAP) outlines strategies and activities to be undertaken to meet the objectives of the United Nations Convention to Combat Desertification (UNCCD). It is prepared pursuant to Article 10 of the UNCCD which calls for NAP as the Convention implementation tool. This National Action Programme is preceded by a number of national documents that address national development issues. It is therefore not expected to be a stand alone document but rather to take into consideration already existing plans, programmes and strategies that have relevance to desertification combat and drought effects mitigation. Integration of NAP activities into existing national development efforts is critical considering resource limitation constraints.

At Sub-regional level SADC has produced an Action Plan (SRAP) to Combat Desertification. The Sub-regional Action Program is important in promoting joint actions on issues that cut across member states such as management of trans-boundary natural resources, transfer of technology, research and development, capacity building and public awareness. SRAP is expected to greatly boost the national efforts in addressing some of these pertinent issues that member countries are grappling with.

This National Action Programme is a product of stakeholder consultations and therefore articulates their contributions as captured through the different stakeholder consultation fora. The NAP expands on priority issues as outlined during consultations and outlines a plan of how to address them. The priority issues are poverty alleviation and community empowerment, *inter alia* by promoting viable and sustainable alternative livelihood projects; partnership building and networking between various stakeholders; capacity building of the various stakeholders; development of mechanisms for mobilizing and channelling financial resources for combating desertification; technology development and dissemination of desertification information through various means of education; strengthening capacity for research, information collection, analysis and dissemination; sustainable use and management of natural resources; coordination of activities among stakeholders in all efforts to combat desertification and drought; development and implementation of strategies to rehabilitate degraded areas and conservation of agricultural resources.

1.4 Background to the development of the national action programme to combat desertification

The National Action Programme is prepared in line with other development initiatives already in place. It is in line with the government's National Development Planning process, National Vision 2016 document and the Millennium Development Goals that have been customized to blend well with the national vision and development planning processes to meet national aspirations for an educated, informed and prosperous society with sustainable livelihoods and development.

Subsequent to Botswana's ratification of the UN Convention to Combat Desertification in 1996, the Ministry of Agriculture was designated the National Focal Point (NFP) for the implementation of the Convention. With the financial assistance from the United Nations Development Programme in Botswana, the Ministry of Agriculture started the development of a National Action Programme to Combat Desertification in January 1997. As a first step in the NAP development process, emphasis was put on consultations and awareness raising seminars for various stakeholders comprising District Extension Teams, Non Government Organizations, District Authorities, Youth, Media, Women Organizations, Members of the House of Chiefs and the communities at large. These consultations and awareness seminars were aimed at raising awareness on the convention, building partnerships and identifying the roles that different stakeholders can play in the NAP development and implementation process.

The key achievements of the NAP consultation process so far have been awareness creation amongst stakeholders and consolidation of ideas on how to deal with desertification, drought and poverty in Botswana. Other achievements include the production of education and publicity materials comprised of a brochure of actions "DOs and DON'Ts" of combating desertification, a video showing how people in Botswana understand desertification, Desertification Education Kit for schools, the NAP Logo, translation of ten UNCCD "Facts Sheets" into Setswana, and the annual commemorations of the World Day to Combat Desertification through keynote addresses, drama, artwork competitions. The education and publicity materials were distributed to different stakeholders particularly those responsible for public awareness creation. The National Focal Point continues to attend the Conferences of the Parties (COPs) to give progress on the implementation of the Convention.

The UNDP funding also assisted in establishing community pilot projects aimed at addressing land degradation directly and through alternative livelihood projects aimed at tackling the issue of poverty. The following community pilot projects were established; tree planting in Rakops and Lehututu, agro-forestry in Mokobeng and land reclamation in Matsiloje. The main concern regarding the performance of these pilot projects is the support they have received in terms of technical advice and monitoring. This has led to poor performance of majority of them. The other major problem has been lack of support and participation by members of the community leaving everything to the management committee.

The main constraints of the NAP development so far have been inadequate capacity among stakeholders, including the National Focal Point, that has resulted in inadequate consultation at village level, inadequate coordination among stakeholders; inadequate facilitation at the village

level and inadequate research information on desertification and drought issues in Botswana.

Through the consultative process, stakeholders identified the following seven priority areas which need to be addressed if the nation is to succeed in combating desertification:

(i) Poverty alleviation and community empowerment, *inter alia* by promoting viable and sustainable alternative livelihood projects.

Poverty threatens continued existence of natural resources on which the majority of the rural communities are dependent. Unless this problem is tackled head on the country's efforts and aspirations for sustainable management of natural resources would never be realised. Further more without empowering the communities to effectively manage the resources around them, the aspirations would remain pipe dreams. The empowerment entails giving them opportunity to effectively participate in decision making processes, promoting awareness and education on issues that affect their livelihoods. Individuals and Communities are tied to poverty-degradation cycle by the limited choices for livelihood activities. While agriculture is the main activity amongst majority of communities, it is important to explore other alternative livelihoods projects to reduce pressure on land due to agriculture. It is very important that the alternative choices are affordable to entice communities to adopt them.

(ii) Partnership building and networking amongst various stakeholders

For the nation to achieve the objective of desertification combat, it is important that they work as a team. All institutions that are involved in activities that address the issue of desertification must work as partners. Resources available to various organisations are limited hence the need for partnership and collaboration amongst them to promote effective and efficient resource utilization. The partnership would also reduce duplication of efforts and promote complimentary planning and use of resources where possible. In today's world, networking is crucial as it opens up unlimited possibilities of information sharing which can in turn promote partnerships and collaborative activities aimed at achieving common objectives by the various stakeholders involved.

(iii) Capacity building of the various stakeholders including NGOs.

Availability of capacity to execute planned activities is very crucial for success. In its absence, no matter how good a plan or program may be, its implementation is bound to fail in the absence of capacity both in terms of human and financial. It is imperative that the issue of capacity at different levels such as government, community and other stakeholders like NGOs are looked into. As the Convention stresses, UNCCD is grassroots people focused, therefore for them to understand and appreciate the impact of land degradation and participate fully in combating it, the communities need to be capacitated so as to enable them to make informed decisions that can help address desertification problem.

Promoting public education especially on issues that directly affect one's livelihood can be a mammoth task that government can not manage on its own. Therefore building of capacity outside government would help in boosting the capacity and ability of the nation to reach out to communities and assist them effectively in addressing problems of land degradation and livelihoods choices. A capacitated community would also have the capability to address their problems with out too much reliance on external forces.

(iv) Development of mechanisms for mobilizing and channelling financial resources to combating desertification

As emphasised in the convention, success in combating desertification hinges on community participation and the whole process needs financial resources to drive. This is particularly important in Botswana where access to external funding mechanisms has been limited by the upgrading of the country's economic status to middle income. Many donor organizations that supported financially especially support to NGOs have pulled out to concentrate on more needy countries. It is quite critical that emphasis is put on resources mobilization from both national and international funding sources. Not only should there be emphasis on resources mobilization but also an effective and accountable way of channelling the resources to where they are most needed.

(v) Education and Technology Transfer

Education and awareness are the first line of defence against the problems that bedevil the earth. It should however be emphasised that unless it is education for sustainability the nation and the world would still experience the same environmental problems even with an educated population. For the local communities where the threat of desertification is very real, they need to be educated on environmental issues around and beyond them so as to be able to actively participate in finding local solutions to local problems, hence the call for particular emphasis to be put on education and awareness. In today's world technological advancement has assisted in finding solutions to some of the problems we are faced with. Technology development needs both human and financial resources which may be out of reach for some countries especially in the developing world.

Despite all resource limitations there is need to develop technologies that can help in addressing the prevailing problems. In some cases the problems we are facing may have already existing technologies to address them, hence no need to reinvent the wheel. In this case there is need to collaborate and partner with those who already have the technology to transfer it to where it is most needed. This would mean adapting it to the conditions that prevail locally. The transfer of technology should go as far down as community level to help in solving their problems. The technology has to be simple enough and affordable if it is to be easily accepted.

(vi) Strengthening capacity for research, information collection, analysis and dissemination

For the nation to effectively address development needs and be able to solve problems they face, there is need for strong research capacity. Through research, new technologies and products can be developed to answer some of the questions we may have as a nation. The research obviously generates data that can be processed into valuable information. It is only when people have access to such information that they can be able to know what answers are available to some of the questions they may have had, hence the need for information dissemination.

(vii) Sustainable use and management of natural resources

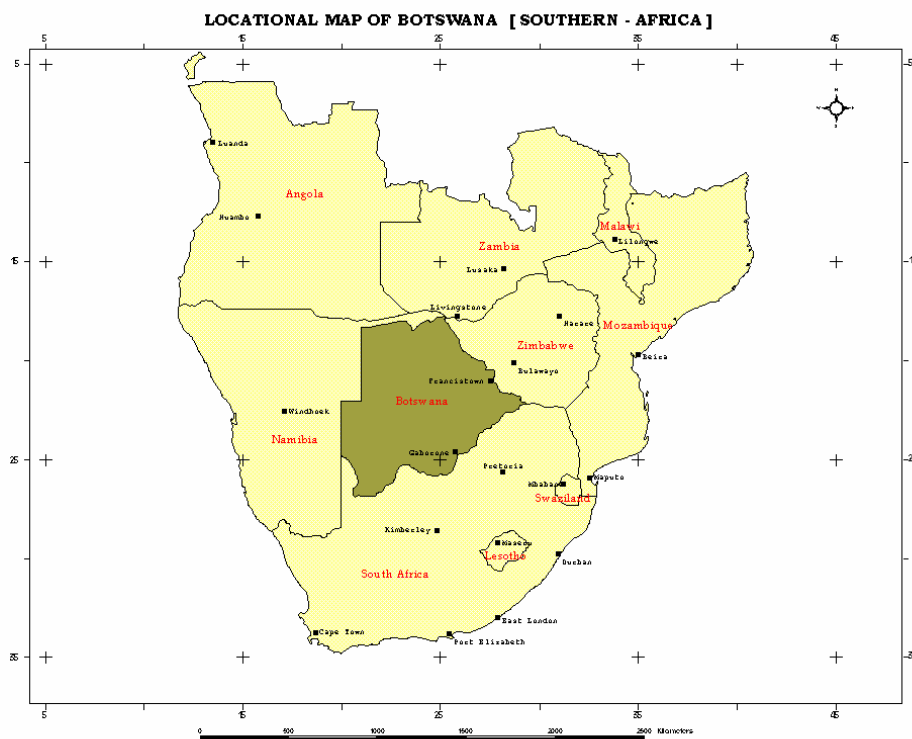
This priority area is key to continued existence and dependence of local communities on natural resources. Promotion of sustainable management of resources especially renewable once is very critical. At the moment some resources are already under stress of over-utilization and solutions have to be found to relieve pressure off such resources. Some of the issues that have a bearing on the extent to which resources are used which need to be addressed are, high poverty levels and limited choices on alternative livelihoods activities. Public awareness on sustainable management of resources is still limited and needs to be stepped up especially amongst rural communities living within and utilizing the resources on daily basis.

2 CHAPTER TWO: SITUATION ANALYSIS

2.1 Location

Botswana is a landlocked country situated in the central plateau of southern Africa. It shares borders with Namibia in the west and northwest, Zambia in the north, Zimbabwe in the northeast and South Africa in the east and south. It lies between longitudes 20 and 30 degrees east of Greenwich and between the latitudes 18 and 27 degrees south of the Equator. Much of the country lies north of the Tropic of Capricorn within the sub-tropical zone. It has a total land area of 582 000 km² that is the size of Kenya, France or Texas. The map below shows the approximate location of Botswana within Southern Africa.

Figure 2.1 Location Map of Botswana [Southern Africa]



Source: National Development Plan 8

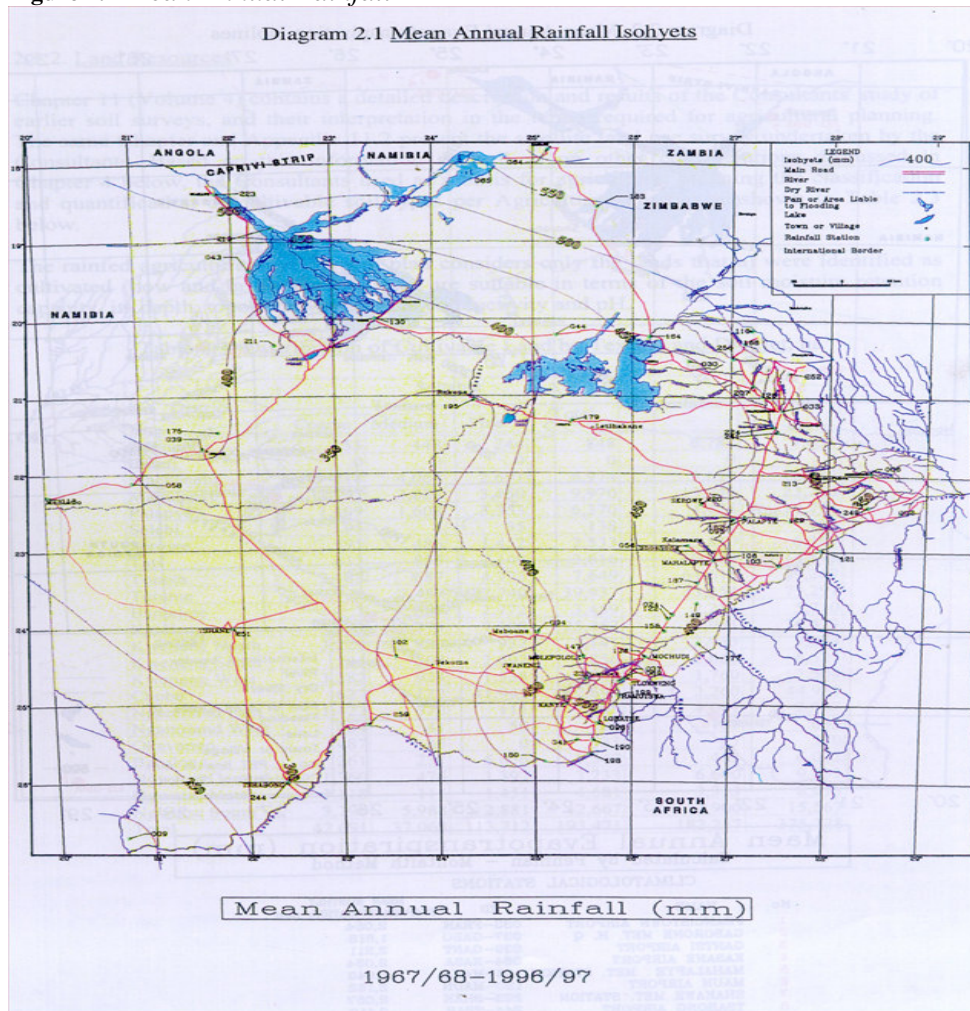
2.2 Relief

Botswana is generally flat with gentle undulations and occasional outcrops. The eastern side is very diverse in altitude and this is where water erosion is rampant. A number of hills, valleys and rock outcrops are found in this area. The country has a mean altitude of 1000m above sea level. About 78% of Botswana is dominated by slopes of between 1- 8% and 21% by slopes of 8-30% while 1.2% is slopes of 30% and above. As the relief is generally low, soil erosion is mainly caused by water and wind.

2.3 Climate

Botswana's climate falls within the semiarid zone with the extreme southwestern part falling under the arid zone. However these boundaries are subject to fluctuations due to inter-annual variability of seasonal rainfall, especially after periods of several years of continuous droughts. In these aforementioned zones, the change in vegetation cover is strongly related to the inter-seasonal fluctuations of rainfall. The main rainy season occurs between November and March, with October and April being transitional months. The mean annual rainfall ranges from 250 mm in the extreme southwest to 650 mm in the extreme northeast. Most of the rainfall occurs in localized showers and thunderstorms, which are highly variable in time and space. Rainfall intensities of more than 100mm in 24 hours are common throughout the country. In extreme cases intensities of more than 60mm an hour rainfall are often recorded. Such high rainfall intensities are conducive to soil erosion especially in sparsely vegetated areas. The coefficient of variation of annual rainfall ranges from >45% in the extreme southwest (Kgalagadi South Sub-district) and extreme eastern parts (Bobirwa Sub-district), to <30% in the extreme northeast (Chobe District).

Figure 2.2 Mean Annual Rainfall



Source: Department of Meteorological Services

The country is also prone to drought, which according to Bhalotra (1987) recurs in cyclical patterns of 10 to 16 years. However, since the mid 1980s the frequency of drought has not followed any particular identifiable pattern that can be useful for prediction. The El Nino/Southern Oscillation (ENSO) is the interaction of sea surface temperature and atmospheric pressure across the Pacific basin. This affects climate patterns around the world, including our southern African sub-continent. The El Nino, which is the warm phase of the ENSO, is frequently associated with the suppressed rainfall in most parts of Southern Africa. The La-Nina is simply the opposite of El-Nino. The ENSO phenomenon only influences about 30% of the rainfall patterns, hence there are other meteorological phenomena that are responsible for wet and dry years.

Since most of the country falls under the semi arid zone, its ecosystem is mainly marginal, hence vulnerable to frequency of droughts, particularly the long continuous droughts (3 to 4 years). Although drought is a natural phenomenon that human beings have no control over, there is clear evidence that human activities such as over harvesting of natural resources exacerbate the effects of drought on rangelands. Some human activities lead to global warming, thus, inducing more droughts. Drought is therefore a global problem that needs countries to cooperate in minimising its effects. Botswana has annual open water evaporation rate of 2000mm which far exceed the annual precipitation range of 250 – 650mm (Jay and Gould 1993). The high evaporation rate leads to high water losses from surface and sub-surface water resources.

Despite this situation it is further expected that within the next 100 years the earth's temperature will have gone up by between 1 and 3.5 degrees (Setshwaelo, 2001). Setshwaelo also indicated that the predicted impacts of these temperature ranges on the quantity and distribution of rainfall have shown an increase in the length and frequency of the severity of droughts in regions that are drought prone like Botswana. The expected rise in temperatures will have implications on meteorological elements and water balance, as they are expected to increase evapotranspiration rates, changes in relative humidity and radiation (Setshwaelo 2001). As a result of climate change, it is expected that moisture retention of sandy soils will drop and thereby negatively affecting their productive capacity.

Figure 2.3 Mean Annual Evapotranspiration Isolines

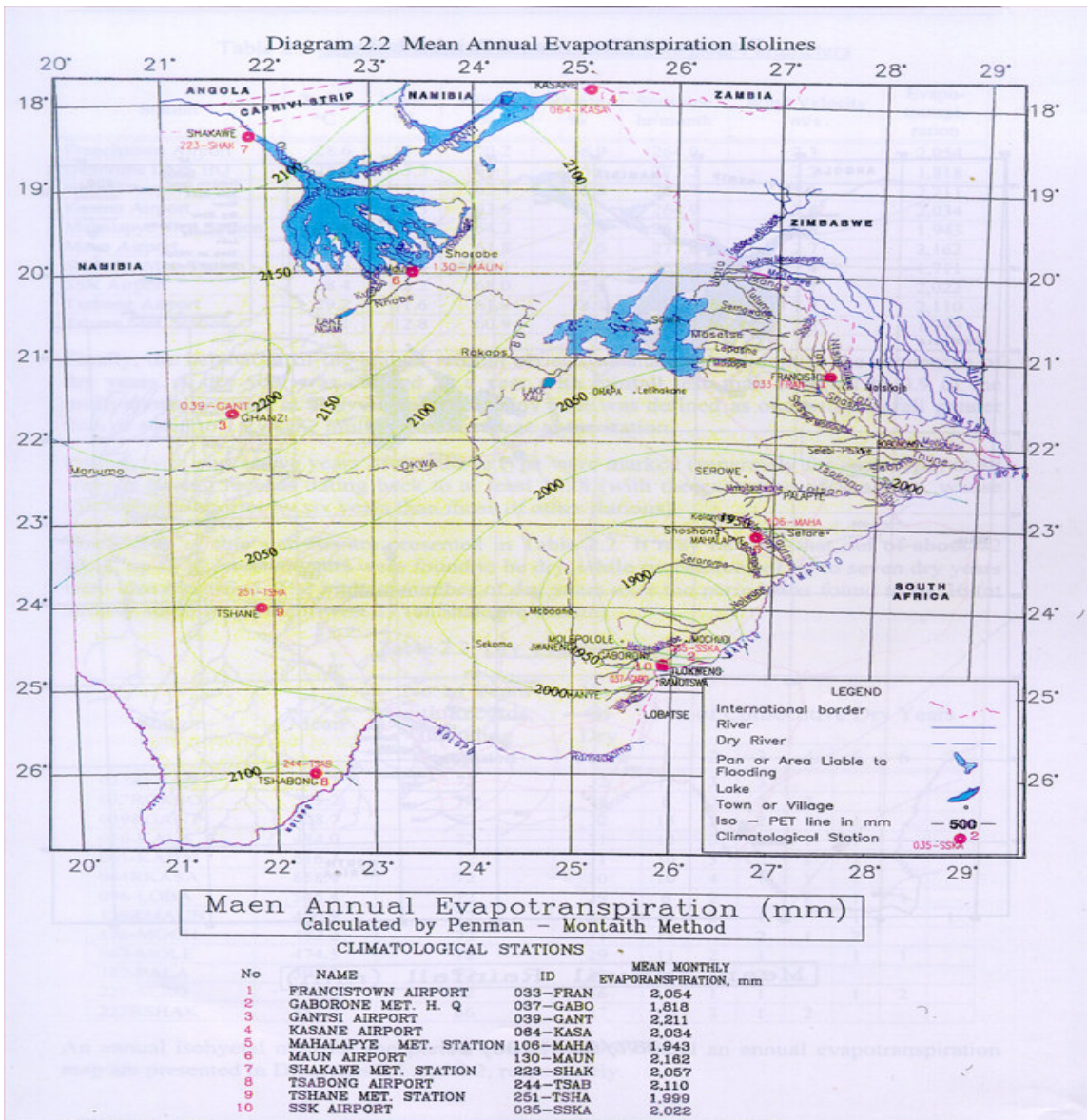
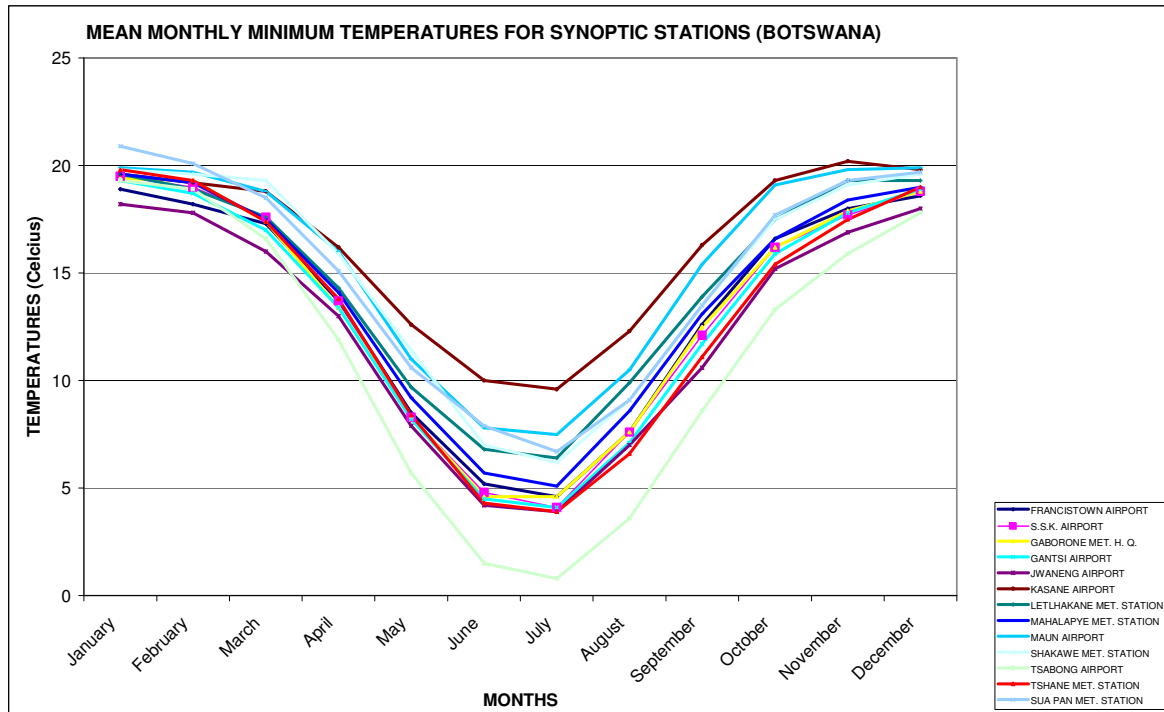


Figure 2.4 Mean Monthly Temperatures for Synoptic Stations (Botswana)



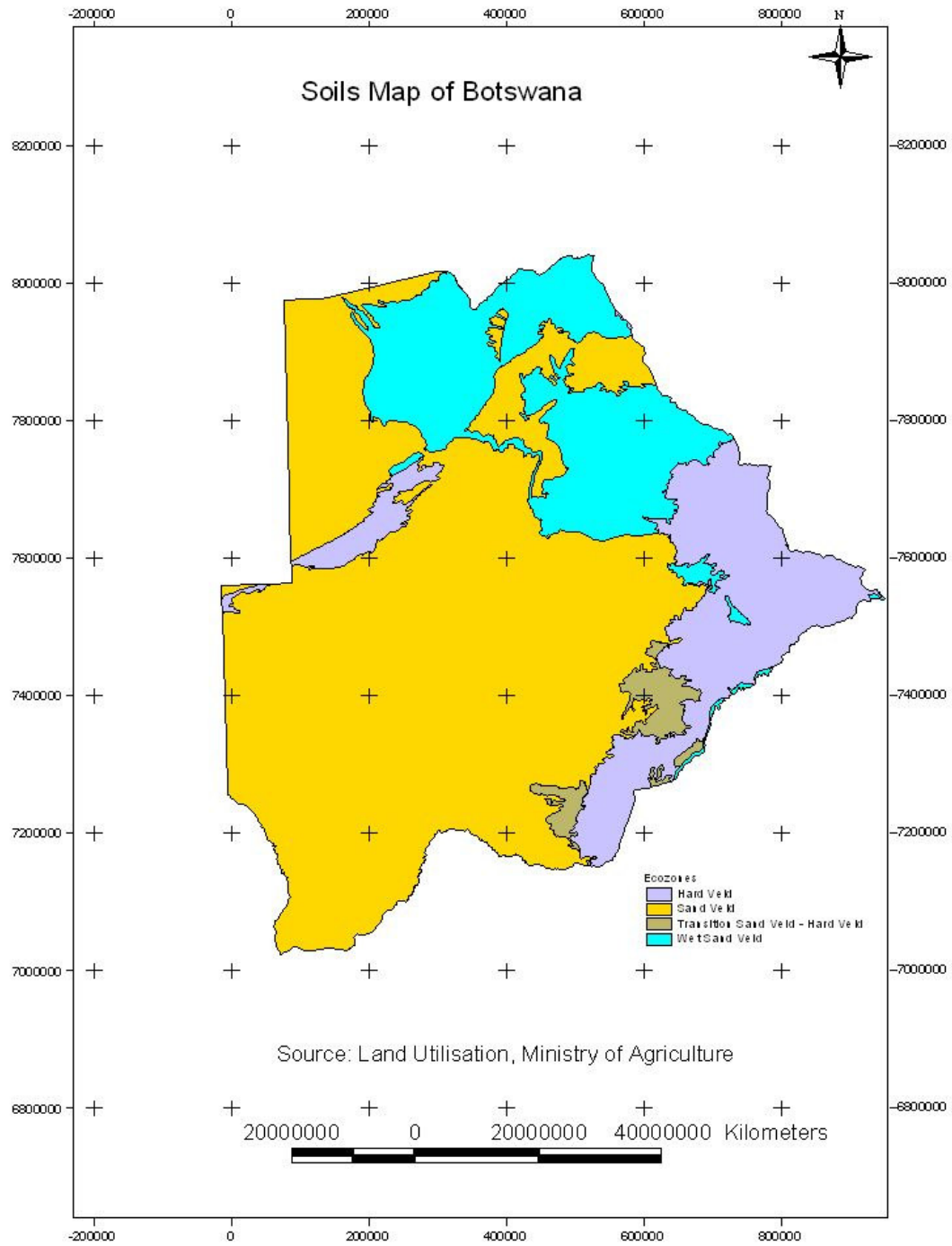
Source: Department of Meteorological Services

2.4 Natural resources

2.4.1 Soils

Botswana can be broadly divided into four (4) major zones, the Hardveld, the Sandveld, the Lacustrine (Makgadikgadi pans etc) and the Alluvial (the Okavango delta etc). Of the four zones, only the Hardveld and Sandveld are mainly used for farming; the Hardveld being heavily used for mixed farming while the Sandveld is extensively used for livestock production. Generally, Botswana soils are marginal for arable production because they are shallow, crusty limited in fertility and soil moisture due to low and unreliable rainfall. The characteristics of soils in Botswana are said to be as follows; about 50% of the country is dominated by soils with low moisture content, 44% by soils with low Cation Exchange Capacity, 15.4% by soils with low potassium reserves, 11.4% by soils with basic ions, 11.2% by saline soils, 11% by soils which are permanently dry, 8.1% by vertisols, 6.6% by acid soils, 5.2% by gleyey soils, 4.7% by soils prone to erosion, 2.5% by shallow soils, 1.5% by natric soils and 0.5% by soils with aluminium toxicity.

Figure 2.5 Soil Map of Botswana



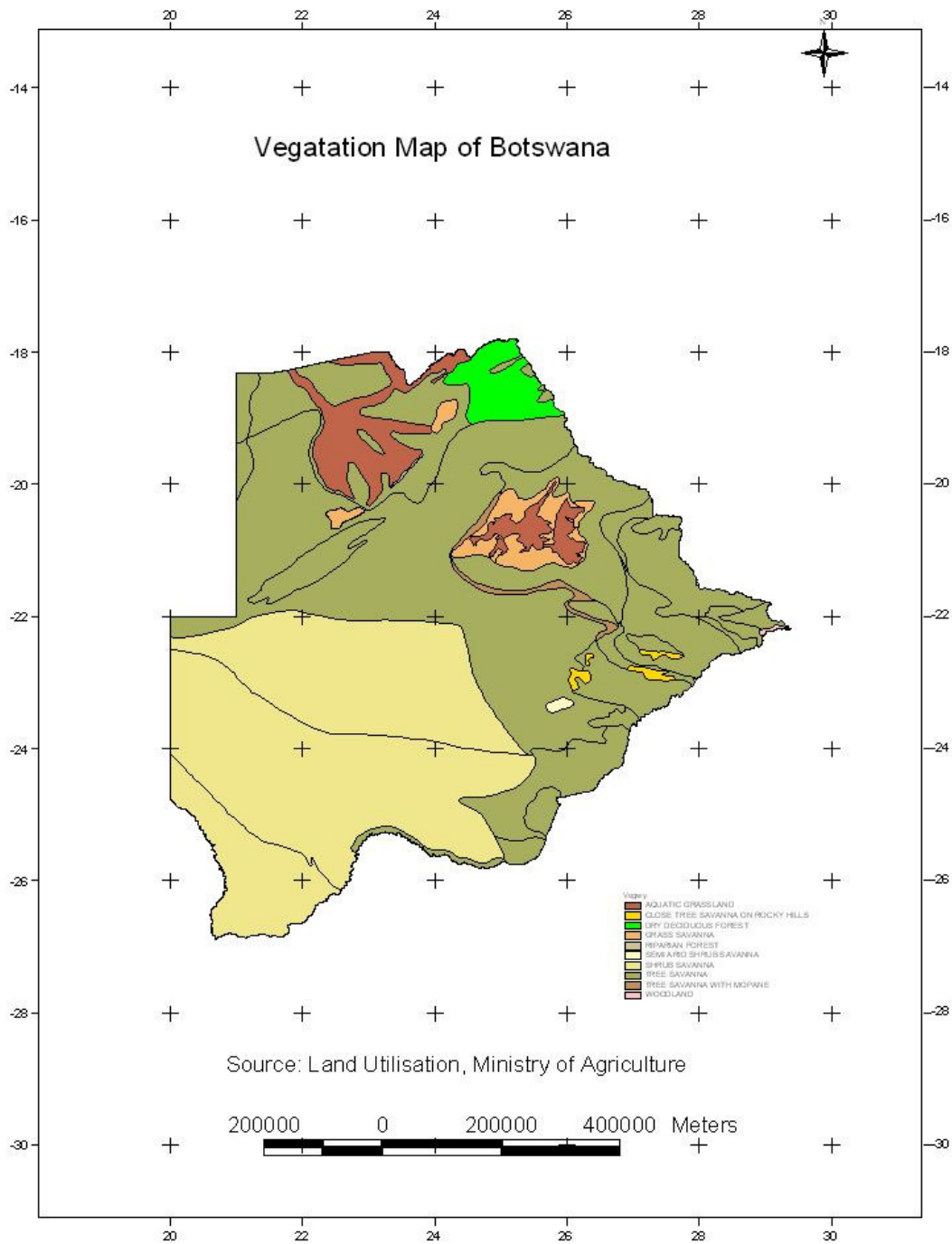
A range of soils dominates the Hardveld, the dominant being Luvisols, Lixisols, Regosols and Arenosols. Most of these soils are light-textured and therefore become easily eroded especially when there is no vegetation cover. Some of these soils are prone to crusting that can drastically reduce infiltration and thus increase runoff and sheet erosion, flooding rivers and reservoirs rather than seeping slowly into the soil to recharge groundwater. Soil particles detached by surface runoff are deposited at the foot slopes silting natural waterways and reservoirs thus raising the level of riverbeds and reservoir beds. Within the catchments of Mababe, Mogobane and Shashe dams, denudation rates of 0.22mm/year, 0.05mm/year and 0.08mm/year respectively have been reported.

Kgalagadi sands or Arenosols cover the Sandveld. These soils are low in water holding capacity, organic matter content, plant nutrients and have high rate of water evaporation. These sandy soils are predominant in the Kgalagadi south where sand dunes have developed due to winds blowing over exposed surface of poor vegetative cover. The types of soils described are vulnerable to erosion and desertification. It is therefore of utmost importance that good soil management practices are employed to ensure the protection and sustainability of soil resources.

2.4.2 Vegetation

The major plant communities found in Botswana include shrub savannah, tree savannah, closed tree savannah on rocky hills, semi-arid shrub savannah, grass savannah, aquatic grassland, dry deciduous forest, mopane veld tree savannah and woodland. The land cover is dominated by savannah (mixed tree and grass systems) of various forms.

Figure 2.6 Vegetation Map of Botswana



The level of floral endemism in Botswana is said to be the lowest in the southern region with only 2600 to 2800 plant species. The southern part of the country is characterised by shrub savannah. The extreme south west is the driest region with sparse vegetation and rolling sand dunes. The vegetation becomes denser towards north and east, changing to open tree savannah, then woodlands and dry forest. This vegetation is a function of mainly climate, geology and soils.

It is expected that long term climatic changes may lead to changes in plant species and other biological diversity as a way of ecosystem's response to the climatic changes. Further more climate changes may be manifested through reduced plant density and diversity, plant cover as well as species replacement (Chanda et al 1999). The authors made a comparison of biomass production over a number of sites through out Botswana during the wet period (1970-1980) and dry period (1981-1987), the results showed a significant reduction of biomass production of 30% in all the sites studied. The vegetation changes may also have negative impacts on agriculture especially livestock production as well as other biodiversity which would in turn affect tourism industry. The stated reduction in biomass production would severely affect the livestock industry especially that a lot of crossbreeding has occurred thereby seriously diluting the local bloodlines that are adapted to the harsh climate and would probably withstand the changes much better than the introduced heavy breeds that need high quantities of biomass to survive and reproduce. The biomass reduction would also have negative impacts on the herbivorous wildlife. The problem may be accelerated by the combined effects of drought, veldt fires, over-utilization and mismanagement of natural resources.

The draft National Forestry Policy emphasizes the application of community based natural resources management strategy so as to empower communities with the management of resources in their vicinity. In that way it is hoped that they would devote themselves to managing the resources as long as they see the benefits from such an undertaking. This has the potential of promoting alternative use of land resources other than just for agriculture and would promote diversification of livelihood activities which would be beneficial especially for the poor who may be affected severely by a drop in agricultural productivity due to changes in climate.

There has been a drastic succession change in the Chobe forests due to disturbance by both wildlife and veld-fires. The large elephant herds are a major threat to both the country's biodiversity and natural vegetation. Older trees mostly dominate the forest because younger trees are annually destroyed by veldfires.

In the Central Kalahari and Makgadikgadi pans, it has been reported that about 4.25 million trees and shrubs died due to the effects of the 1981-87 drought. In the Ngamiland alone, reports from the Botswana Rangeland Inventory and Monitoring Project indicate that fires burnt 70% of the area north of the Okavango delta and 50% of the core delta itself in 1997. In the Southern district, at least 30 veld-fires outbreaks were recorded between June and December 1999 destroying a total area of 3 662 hectares. In the Kgalagadi district, a total of 22 veld-fire outbreaks were also reported between June and May 1999 destroying an area of 18 213 hectares. Although fire is useful as a management tool, the frequency at which the veldt fires occur in most parts of the country is detrimental to the continued existence of biological diversity.

Botswana has a wealth of veld products which if effectively and sustainably exploited could

contribute significantly contribute to household and national income. The rural population has largely exploited these veld products for medicinal purposes and supplementary consumption. However, in recent years the economic value of these veld products has been realized. Nevertheless, it is encouraging to realize that both the Government and the NGOs are collaborating with the rural populations to foster sustainable methods of exploiting these resources.

2.4.3 *Wildlife*

Botswana is known for its abundance and variety of wild animals. The country has vast wilderness areas with varying wildlife species include lions, leopards, cheetah, elephants, giraffe, zebra, hippopotamus, rhinoceros, African buffalo, hyena and some twenty-two species of antelopes. According to NDP 8, there has been a significant increase in the populations of some wildlife such as elephant, impala, gemsbok, and giraffe. Though non-significant, the populations of buffalo, wildebeest and zebra are reported to have shown an upward trend. Most other populations are reported to be stable and at the same level as in the mid-eighties. These include eland, hartebeest, kudu, roan, sable, sitatunga and ostrich (MFDP 1997).

Notwithstanding these trends, land use conflict between wildlife and agriculture continue to be a major source of controversy between those who suffer damage and Government. Most of the conflicts are due to the fact that livestock areas have encroached into the wildlife areas resulting in heavy losses to livestock owners. In other parts, arable agriculture has encroached into the wildlife area resulting in crop damages by wildlife. In a study on resource utilization and conflicts in the Okavango Delta by Darkoh and Mbaiwa (2005), wildlife was found to be the key source of conflict. Elephants destroy crops while predators like lions and leopards kill livestock.

These conflicts are a serious concern as they relate to destruction of rural livelihoods of small holder farmers mainly as well as having negative impacts on the species concerned as some are eventually killed. The economic impacts of these conflicts are reflected below in terms of how much has been paid out as compensation to farmers as well as monetary terms of the number of animals killed. For example, in Pandamatenga, records from the Department of Wildlife and National Parks indicate that, between 1994 and 1997, a total of P99 958 was paid out as compensation to farmers for wildlife damage to crops. During the same period, a total of 143 wild animals of different species were shot dead in the area, a loss to the economy of about P1.8 million, or P500 000 annually, if the animals were to be professionally hunted. It is possible that more animals have been killed but were not reported. It is important to maintain a balance between the wildlife and other ecological species.

The number of elephants in the northern part of the country especially along the Okavango delta by far exceeds the area's carrying capacity. This scenario has had negative impacts on other biological diversity especially the forests which have been destroyed. The density of elephants per 1000 hactres is considered to be 5-10 times larger than the lower threshold for impacting woodlands (Perkins as quoted by Darkoh and Mbaiwa (2005). The elephants destroy fruit trees and palm trees used for basket weaving. This has detrimental impacts on the livelihoods of the rural populations who are dependent on these resources for subsistence. The destruction of vegetation by the elephants provides a conducive environment for desertification to set in.

Wildlife and tourism are inextricably linked, hence the need to come up with sustainable management systems to ensure that they continue to contribute towards the tourism industry which is proving to be one of the main foreign exchange earners for the country. However it is important to ensure that the growth of the industry is not at the expenses of the environment.

In the North West District the development of the Okavango Delta Management Plan (ODMP) is expected to address some of these conflicts. The ODMP is an integrated approach towards planning and implementation of development activities within the area around the delta. The ODMP should therefore serve as pilot for replication to other areas because the integrated approach has the potential of diffusing conflicts and minimizing duplications that are a common phenomenon almost through out the country.

2.4.4 Water

Botswana's harsh climatic conditions coupled with increasing demands for consumptive water uses from all sectors of the economy makes water a very valuable commodity that requires careful planning for sustainable utilization and conservation (MEWT 2002). Permanent surface water can only be found in the Okavango delta and Chobe river systems. In the northern and eastern parts of the country, surface water is fairly widespread during the rainy season, mostly in dams and shallow wells. In the western part of the country, which is generally dry except ephemeral pools in pans and fossil rivers, water is obtained from hand-dug wells or deep boreholes.

Elsewhere, water for livestock is restricted to boreholes during the dry period. Due to high costs of developing water sources, a large number of livestock are usually concentrated around the few available water sources hence causing extensive overgrazing especially within the vicinity of the water source. Considering the fragility of the sandy soils that most of Botswana comprises of, it is inevitable that the limited water sources and concentration of animals at one point provide a conducive environment for land degradation and desertification to occur. Already extensive sand dunes are formed around the watering points and this is visible in many parts of the country, especially in Southern Kgalagadi.

Water catchment from roof tops as well as underground water tanks to collect rain water as in the case of Arable Lands Development Programme (ALDEP) should be encouraged and promoted to ease pressure on the limited water sources in Botswana. There are some schools, clinics and residential premises with water tanks, however the opportunity presented through rain water harvesting to supplement conventional water supplies is not exploited to the maximum. It is evidently clear that the cost of collecting larger quantities of rain water is high. This therefore calls for research into cost effective technologies to enable harnessing as much water as possible at affordable costs. The other problem that has been observed by Botswana Technology Centre is the low quality of storage materials/tanks used in some cases resulting in water wastage through leaks.

Semi-arid as Botswana is, water is one of the most precious and scarce commodities. Its conservation and sustainable use should therefore be top priority which currently doesn't seem to be the case. There is need to develop varying rain water harvesting techniques as the water may be used on other activities that currently can not be undertaken due to limited water availability.

This could even promote development of other water based income generating activities at community level such as irrigated agriculture which would reduce dependence on rain fed arable agriculture.

2.4.5 *Fuel-wood*

Fuel wood is a major source of energy in Botswana accounting for 92% of rural households energy needs and is also used by 43% of the urban household but is reported to be increasingly becoming scarce hence the need for sustainable fuel wood management practices.

Being mainly situated in the semi-arid and arid environments, Botswana has vegetation that has a limited capacity to provide fuel wood. Most parts of the country have savannah type of vegetation with the largest type being the sand-veld vegetation covering 65% of the country. The demand for fire wood far exceeds the natural regeneration process.

The average wood-stocks in Botswana's typical savannas and woodlands in the hardveld and sandveld areas estimated at 10-15 tonnes of air-dry wood per hectare while the fuel wood productivity is reported to be higher for Mophane woodlands at 30-40 tonnes/ha. Estimates for the annual fuel wood resource increment ranges from 0.33/ha to 2t/ha. However, both over-exploitation of woodlands for timber and fuel wood, clearing land for agriculture, overstocking and overgrazing have continued to put pressure on the available fuel wood resources resulting in its scarcity, especially around village settlements and urban centres.

There is need for increased access to affordable coal for home use to reduce pressure on fuel wood. In this regard, the draft energy policy emphasizes the importance of coal utilization as well as public awareness to potential coal users to show them the advantages of using coal as opposed to firewood. It also seeks to address issues of quality and safety of coal use by ensuring that existing coal burning equipment standards and code of practice are adhered to. The development of new technologies aimed at improving the utilization of coal and equipment for burning of coal which would not expose the users to dangers of carbon monoxide and sulphur emissions therefore need impetus. The accessibility and affordability of quality coal would help in addressing the problem of too much time spent on firewood collection especially by women who in the traditional societies are the ones dealing with issues of family care and management. Their role in the upkeep of the family has exposed them and the children to indoor air pollution.

The promotion of coal utilization would not have serious detrimental effects for sometime to come considering the level of carbon emissions currently generated. In 1994 the energy-related carbon dioxide emissions in Botswana were low in absolute terms (3014 Gg CO₂ per year) and on a per capita basis (2.68 Mg CO₂ person/year). This is because Botswana and the economy have industrially low energy intensity and the overwhelming majority of household energy needs are provided by a renewable source, fuel-wood (IPCC 2000). The carbon dioxide emitted when fuel-wood is burned is not considered to add much to the atmospheric burden, provided that the wood is sustainably harvested.

Botswana was estimated to be a major net sink for carbon dioxide emissions in 1994 due to the large uptake of carbon by trees. The amount of carbon estimated to be taken up by the natural

vegetation in Botswana in 1994 constitutes about one percent of the total net uptake by land ecosystems throughout the world (IPCC 2000).

It is hoped that once the energy policy comes into being, it will in the long run help in addressing some if not most of these problems. The issue of fuel wood depletion will obviously affect the low income sectors more than the other consumer groups. Therefore any efforts to address the problem of alternative energy sources must deliberately target the poor to ensure that they do not find themselves in a predicament that would find them in a situation worse than they currently are in. The need for public awareness on sustainable use of resources, and the advantages of using coal will have to be emphasized.

Although awareness on the use of coal is being promoted, its uptake is constrained by several issues including, unavailability of suitable and affordable coal stoves especially for household use, high prices of these when available, low quality of coal as it has impurities hence a health hazard, limited supply as it is not readily available to consumers through out the country. The government has for some time now embarked on provision of alternative energy sources especially solar energy. Considering Botswana's climatic conditions, solar energy has great potential however its growth and adoption is hampered by high installation costs and issues of maintenance of equipment. The other alternative is the use of stoves that use ethanol gel, however the problem encountered is that the stoves are not readily available and so is the gel.

2.5 Land

The land in Botswana is divided into the following three categories; state-owned, freehold and tribal land. According to the Ministry of Land and Housing's final report on the review of Botswana National Land Policy (2003), state-owned land constitutes **24.9%** of the total land area and is devoted mainly for National Parks and Forests Reserves while, the freehold accounts for about **4.2%** and is privately owned and is mostly used for commercial farming. The remaining **70.9%** of the total land area is communally owned and this is where subsistence farming is practised. Land degradation occurs mostly in communal land where management of the resources is not vested on any particular individual but open access which kills the spirit of responsible utilization.

The majority of the resource poor smallholder farmers are in the communal areas where they are into small scale rain-fed arable agriculture and livestock production. The harsh climatic conditions coupled with poor soils have severe impacts on the arable sub-sector and with anticipated changes in climate agriculture is going to be even riskier than it currently is especially for the smallholder farmers. The combined pressure of human activities and the changing climate continue to accelerate land degradation and desertification.

The results from a report prepared by Chanda et al. in 1999 where there were simulations of potential yields under a range of climate change scenarios using Crop Estimation through Resource and Environment System (CERES) models showed reductions in yields of staple crops of sorghum and maize to maximums of **31%** and **36%** respectively. In the simulation exercise, growing season shortened by 5 and 8 days in Maun in the north of the country for maize and sorghum while Barolong area in the south of the country the season shortened by 3 and 4 days for maize and sorghum respectively. These changes would affect the smallholder farmer more than

any other group considering that they do not have enough resources to cushion the negative impacts. The failure of the agricultural sector would mean complete switch of dependence to other natural resources by the most affected group which would most likely lead to over-exploitation which would in turn result in land degradation and acceleration of desertification process.

The results from this simulation clearly show that reduction in length of cropping season would spell doom for the traditional farmers. This would further exacerbate poverty especially amongst the already resource limited poor segment of the society and act as a catalyst for further natural resources degradation in the absence of any alternative livelihood source. To avert catastrophe there would be need for intensive research efforts to develop crop varieties that can mature in a shorter time and are able to withstand nutritional stress as well as development of soil and moisture management techniques.

The State of the environment report of 2002 identifies three classes of degraded land in Botswana, these being; bare soils degraded areas (28 592 km²); partially degraded areas (35 159 km²) and bush encroached areas (37 141 km²) (MEWT 2002). This is roughly 1/6th of the country's total area. Should the problem of land degradation go unabated, Botswana would soon be a total desert. The report also concludes that incidences of degradation are mainly confined to areas with high population concentrations and those that have been opened for human settlement and cattle grazing.

There are currently national and regional initiatives like the indigenous vegetation project that encourages local solutions to land and range management problems, these should be supported, promoted and best practices replicated to other areas and adapted to the prevailing conditions within those new areas. Botswana is amongst nine African Countries participating in the desert margins programme which aims at addressing problems of degradation of drylands, biodiversity loss by developing and sharing sustainable practices and strengthening human capacities. Solutions to current problems within communities can not only be found from outside but through involvement of the communities and application of indigenous knowledge as well. It therefore calls for research on application of indigenous knowledge in addressing community problems.

The Ministry of Agriculture had for some time in the past pursued the strategy of food self-sufficiency but realized along the way that it was unachievable considering Botswana's climate. It has now switched to food security which aims at diversifying sources of income to enable households to have permanent access to food and other basic needs. Food security promotes sustainable agriculture as well as non-agricultural activities. It takes into consideration issues of comparative advantage in terms of resource use. The food security strategy is in line with economic diversification efforts that the country is pursuing and is complementary to efforts meant to address over-utilization of natural resources like land for agriculture even where the output is very minimal and uneconomical.

2.6 Environmental legislation and policies of relevance to the National Action Programme to combat desertification

2.6.1 Legislation

There is generally a fairly large body of legislation in Botswana concerned with the environmental protection. These include but are not limited to the Aquatic Weeds Control Act, Fish Protection Act, Forest Protection Act, Herbage Preservation Act, Agricultural Resources Conservation Act, Tribal Land Act, Water Act, Wildlife Conservation and National Parks Act, Minerals Act, Waste Management Act and lately the Environmental Impact Assessment Act. The legislation have been apportioned to different Ministries and different authorities for implementation. Many of these laws are not fully implemented because of many factors, some of which are fragmentation both in substance and in terms of implementation, inadequate coordination between authorities and capacity limitations.

2.6.2 Policies, Plans, Strategies and Programmes

As stated in the National Development Plan 8, sustainable use of natural resources for sustainable economic diversification has been and continues to be a national development objective. It is to this end that even before the Rio summit of 1992, Botswana had policies, plans and strategies to combat desertification. These plans and strategies are found in the Government sectoral ministries. Some of these policies, plans and strategies are National Conservation Strategy, Community Based Strategy for Rural Development, Community Based Natural Resources Management Programme, Tribal Grazing Land Policy, Arable Lands Development Programme, Education Policy, National Settlement Policy, Rural Development Policy and Wildlife Conservation Policy. The national action programme for combating desertification seeks to complement all these previous efforts to fight land degradation by promoting environmental conservation for sustainable economic development. Some of these policies, plans and strategies are described briefly as follows:

- **National Policy on Natural Resources Conservation and Development:** The National Conservation Strategy was approved by parliament in 1990. The policy calls for a comprehensive evaluation of all the economic, social and environmental implications of policies, programmes and projects at formulation and implementation stages to foster sustainable development. It requires that all programmes and projects undertaken should show due regard for the conservation and enhancement of the environment in the interest of achieving sustainable development. Due to limited implementation capacity, both human and financial as well as absence of legal backing in the form of Environmental Impact Assessment Act which came into force in May 2005, the Department of Environmental Affairs has been able to implement the above-mentioned policy to a limited extent and as such many projects have been implemented without having due regard to environmental conservation.
- **Community Based Strategy for Rural Development (CBSRD):** The purpose of the CBSRD is to expand rural economic activities and reduce poverty. In doing so, the strategy seeks to introduce a more effective and sustainable approach to

rural development by substantially increasing the role of community participation and community leadership structures in identifying their own economic needs and aspirations and formulating and implementing their own actions to address these.

- **Revised National Policy for Rural Development:** Rural development is a cross cutting issue that spans across all sectors of the economy. The policy need arises from the fact that there is need to guide and help coordinate the cross-sectoral rural development issues and various programs in place. It also aims for a more integrated and diversified approach to rural development, incorporating other sectoral areas of comparative advantage besides agriculture.

The primary goal of the policy is to enhance the quality of life of all people who live in Botswana's rural areas. It seeks to achieve this through the implementation of policies and strategies that will optimise people's social and economic well being and strengthen their ability to live in dignity and food security.

- **Community Based Natural Resources Management (CBNRM):** The CBNRM is a development approach that fosters the sustainable use and conservation of natural resources and promotes rural development through community participation and the creation of economic incentives. It aims to alleviate rural poverty and advance conservation by strengthening rural economies and empowering them to manage resources for their long-term social, economic, and ecological benefits.
- **National Policy on Agricultural Development (NPAD):** The National Policy for Agricultural Development was formulated or developed in 1991 following the poor performance of the sub-sector to ensure sustainable development. The main objectives of the policy is to improve food security at the household level; diversify the agricultural production base; increase employment opportunities; provide a secure and productive environment for the agricultural producers and conserve the scarce agricultural land resources for future generations.
- **Tribal Grazing Land Policy (TGLP):** The Tribal Grazing Land Policy was introduced in 1975 to reduce overgrazing in the tribal land areas by demarcating and leasing ranches to either individuals or groups. The idea behind the policy was to reduce pressure from the communal areas by relocating large cattle owners to the demarcated ranches leaving smallholder farmers in the communal areas.
- **Arable Lands Development Programme (ALDEP):** Arable Lands Development Programme was conceived in 1977 to increase arable production with a view to reducing the food grain deficit and achieving food security in the long run; enhance rural development and welfare by raising arable incomes through improved agricultural productivity and to improve income distribution by concentrating on small holder farmers and create productive and remunerative employment in the rural areas in order to absorb the rural-under-employment and reduce migration to urban areas.

- **Revised National Policy on Education:** In line with the Convention on the Rights of the Child, the government of Botswana undertook a process in 1993 to review the education system. The process takes note of the environmental problems defined in the National Policy on Natural Resources Conservation and Development. The educational review among other things recommended the enhancement of the environment component of the school syllabi through infusion of environmental education into school curricula. The National Environmental Education Strategy and Action Plan whose main aim is to promote public awareness and education on the environment acknowledges that young people represent an important target group and should be regarded as a distinct and influential force in promoting environmental awareness.
- **Poverty Eradication:** The Government of Botswana has put in place many programmes aimed at poverty alleviation. These programmes are implemented by different sectors at the national and district level. The National Strategy for Poverty Reduction (NSPR) of 2003 provides a framework for dealing with poverty reduction issues across all sectors. In line with the NSPR, poverty reduction is addressed through specific programmes aimed at enabling the poor to achieve sustainable livelihoods by improving access to resources and provision of social safety nets to protect their welfare.
- **National Settlement Policy:** The National Settlement Policy (1998) is a long-term comprehensive spatial development plan setup to achieve balanced development. The policy seeks to integrate both the physical environment and economic planning as a way of achieving balanced and sustainable development of human settlement throughout the country. The objectives of the policy are to provide guidelines and long-term strategy for sustainable development of human settlements; to rationalize and promote the optimal use of land and the preservation of best arable land; to promote conservation of natural resources for the benefit of existing and future generations; and to provide guidelines for transportation and utility networks in order to strengthen the fundamental linkages and to reduce the rate of migration to urban areas.
- **National Biodiversity Strategy and Action Plan:** Botswana has committed itself and its citizens to actively ensure that its biodiversity resource is maintained for generations to come. The goal of the Biodiversity Strategy and Action Plan is therefore to contribute to the long-term health of Botswana's ecosystems and related species, and to encourage sustainable and wise use of resources through the provision of a framework of specific activities designed to improve the way biodiversity is perceived, utilised and conserved. The Strategy builds on and complements the National Conservation Strategy, and forms part of the Government's effort to achieve its national Vision 2016. Fair access to biological resources and equitable sharing of benefits derived there-from is one of the three key components of the Convention on Biological Diversity. There is an urgent need for Botswana to develop a specific Biodiversity Access and Benefit Sharing (ABS) strategy, which will address access to

the actual resources as well as to related indigenous knowledge. The strategy should also identify means of encouraging fair benefit distribution. The right to utilize components of biodiversity is often taken for granted, but with that right comes a responsibility to ensure that the resources are used in a sustainable manner.

2.7 Research and information collection

There are knowledge gaps in the causes and effects of desertification, state of land degradation in Botswana. This is crucial information which could inform intervention strategies in addressing the problems of land degradation and desertification. It therefore calls for strengthening of capacity of research institutions so that information that is essential for formulating strategies to combat desertification can be generated. The information generated must be packaged in a user-friendly manner to also benefit communities afflicted by drought and desertification.

The causes of drought and floods (El - Nino and La - Nina) are relatively well understood but there is need to predict the weather more accurately. This calls for more synoptic weather stations and more fully equipped independent Meteorological Services Offices as indicated in the National Development Plan 9. The Department of Meteorological Services must make seasonal and inter-annual weather forecasts in order to warn all stakeholders on the impending drought or floods. There is also need to improve the capacity of the Department of Meteorological Services and facilitate its collaboration with regional and international research Organisations on meteorological issues.

Global warming and climate change are a threat to the environment. The global community has in its quest to address the problems agreed on several international agreements to which Botswana is signatory. These include the Vienna Convention, Montreal Protocol and the UN Framework Convention on Climate Change. In order to monitor the situation, it is important that data on the emission of substances that deplete the ozone layer and greenhouse gases are collected. Though the Air Pollution Division is collecting data on the emission of greenhouse gases, there is still need to generate more data for future predictions.

According to the Botswana Rangelands Inventory and Monitoring Project, about 17% of the rangelands in Botswana are degraded. Though useful, this information says very little on changes in vegetation species composition and thus may have underestimated the extent of range degradation in Botswana. The range degradation is mostly due to depletion of palatable grass species and in some cases severe soil erosion due to poor vegetative cover. There is therefore need to monitor the state of rangelands not only through remote sensing but also through observation at various sites. The monitoring of rangelands should indicate the degree of degradation, most affected areas and areas under threat.

The Department of Agricultural Research has concentrated on estimating the carrying capacity of various ecological areas but studies have been restricted to government ranches. There has been limited research on rangeland reclamation. This research is very important as it stands to yield tree and grass species that can survive in marginal areas (deserts). The Department of

Agricultural Research in collaboration with the University of Botswana and environmental NGOs should be assisted to carry out this research.

Investigations on the development of veldt products based industries in Botswana need to be undertaken to harness their potential as sources of income and economic diversification for communities and the country as well. Efforts of institutions like Veld Products Research and Development and Thusano le Fatsheng who are promoting product development from veld products to increase their value and to benefit communities more than they do at the moment need support.

Due to changing climatic conditions, the current arable crops may fail the farmers. It is therefore necessary that better crop production methodologies to keep pace with the changing climate/weather patterns are developed including development of drought resistant crops.

Other issues that need to be addressed through research include the impact of veldt fires on biological diversity, regeneration rate of tree species that are commonly used for fire wood. This is crucial because the demand for firewood has increased tremendously with negative impacts on the tree species being utilized. Further more research should concentrate on developing alternative energy sources that can be affordable to community members.

One major huddle that institutions need to overcome is unwillingness to share available information. The reluctance to share information in the end promotes duplication of efforts and makes reporting processes cumbersome and difficult as there is limited information made available for preparation of country reports and any other reporting process for local consumption. There is need for coming up with information sharing structure to ease access to information.

There are a number of environmental policies and legislation in Botswana, how ever the extent of their implementation and results are rarely known as their impact has never been evaluated. To develop effective policies, there is need for research and follow up studies on the performance of the current policies. From the results of such studies, the country would be in a position to develop appropriate policies and strategies that would address current problems and issues which may not be covered in the current policies.

2.8 Economy

In 1966, Botswana was one of the poorest countries in Africa and heavily dependent on agriculture which contributed approximately 43% to the Gross Domestic Product (MFDP, 1997). More than eighty percent (80%) of the rural population depended on agriculture. The economy of the country has since improved with the discovery of mineral wealth especially diamonds. The mining sector is now dominating the economy and contributed 36.5 % while agricultural sector contributed as little as 2.6% to the gross domestic product in 2000/2001 (MFDP, 2003). Agriculture continues to be affected by drought, which affect Botswana frequently. During drought periods, there are usually great losses of livestock and this was experienced in drought years of 1992/93. The arable sector also fails during years of drought because crops' growth depends to a large extend on the availability of moisture. Even though agriculture is always affected during drought years, many rural people depend on agriculture as a means of livelihood.

It has been proven that natural resources exploitation offer an alternative source of income for the country as realized through tourism. Exploits to promote diversification of the economy should also consider the development of natural resources like value addition to veldt products. This is one area that has potential if seriously exploited. One particular interesting aspect about promoting diversification avenues of natural resources is that it can also address the problem of rural poverty through community based enterprises. While this would promote natural resources accountability within communities, it would also help create employment in the rural communities and curb the problem of rural urban migration. Currently the value of most natural resources is not known and their contribution to the national economy grossly underestimated except for wildlife whose contribution is well documented. There should be emphasis on valuation of the different natural resources within the country to ascertain their true value and contribution to the national economy. The process of creating natural resources counts for various natural resources which has already been started should be supported and speeded up.

2.9 Human resources and poverty

Over the last 30 years, Botswana has made remarkable progress in establishing a network of basic social services. Botswana's success in building an effective social infrastructure is reflected in improvements in all major indicators of low infant mortality, increased life expectancy, literacy and major improvements in schools, clinics, road network and communications. Notwithstanding the success, there is persistent poverty, which is concentrated in the rural areas, where there is high degree of dependency on government programmes such as drought relief. The HIV/AIDS pandemic also contributes to high poverty levels as the productive capacity of those affected is reduced both in terms of the sick and the care givers. Poverty leads to dependence on natural resources for survival and since it is a matter of survival, in the absence of any alternative source of livelihood, the dependence in most cases results in resource degradation. Finding solutions to the problem of poverty would have positive bearing on the fight against desertification, however coming up with effective strategies to address the problem is the greatest challenge the developing world is currently faced with.

2.10 Population

The defacto population of Botswana as determined by the 2001 Census is 1 680 863 compared with 1 326 796 in 1991. It grew at an average annual rate of 2.4% during the inter-census period (CSO 2002). The population is concentrated in the eastern part of Botswana. The Youth who account for 43% of the population are likely to create population momentum since the group of child bearing age will be increasing. High rates of population growth as indicated here and under the situation outlined where majority of the population are concentrated in the eastern part of the country due to land suitability for arable agriculture and availability of water, pose a threat to sustainable management of the natural resources. The pressure is likely to result in over-utilization of water resources, fuel wood resources, veldt products and other land resources. Increased requirement for agricultural land would mean continued land clearance contributing to wind and water erosion that affect the productive capacity of land and exacerbate desertification problem.

This situation coupled with other factors like the proportion of people living in urban areas, will entail an increasing energy demand especially at the household level. It is an established fact that the main cause of land degradation is from human activities.

This population concentration in 20% of the country creates a localized stress on the natural resources, particularly for water, fuel wood and agricultural land.

Over 75% of the total farm-land (traditional and commercial) is also situated within this area

2.11 HIV/AIDS

Botswana like many other countries in Africa is heavily affected by the HIV/AIDS pandemic. “HIV/AIDS has made the battle against poverty considerably more difficult. At the household and individual levels, it erodes capacity to work, destroys accumulated wealth and creates groups of vulnerable people. At the macro level, it erodes state capacity, the very foundation for poverty reduction. It also distorts public sector priorities and shifts resources from investment in incremental capacity towards capacity replenishment and maintenance,” (Ministry of Finance and Development Planning 2004). An analysis of economic impact of HIV/AIDS in Botswana predicted a fall in national household level per capita income of 8% as well as an increase of 5% in the number of people living in poor households. A likelihood of 7% and 18% increase in government expenditure in ten years as well as 12% decline in revenue ((NACA 2001).

This is a tragic situation especially when related to high levels of poverty. Generally poverty predisposes people to varying environmental disasters including diseases like AIDS. The issue of land degradation and poor health due to HIV/AIDS related illnesses has negative implications in the efforts to fight desertification. As more people fall ill, the ability to produce food and undertake activities related to addressing land degradation is reduced. In the end food production is negatively affected and poverty level rises. Government resources are diverted to propping up the health system to cope with the situation which also has negative impact on other sectors.

A number of measures have been put in place to address the situation including public awareness campaigns. Some of the programmes include prevention of mother to child transmission, whose aim is to reduce child infection at birth, free antiretroviral drugs to the citizens as well as free HIV testing. It is hoped that as more people know their status, they will be able to plan and enroll for antiretroviral drugs well in time when need arises.

3. CHAPTER 3: OBJECTIVES, OUTPUTS AND ACTIVITIES OF THE NATIONAL ACTION PROGRAMME TO COMBAT DESERTIFICATION

This chapter discusses the mission statement, objectives, activities and outputs that form the basis of the National Action Programme to Combat Desertification. The objectives are formulated to address the most pressing issues identified as priority areas by stakeholder workshops during the awareness and consultation process, constraints and issues presented in the situation analysis. However, some assumptions have been made in formulating these objectives, and these are:

- i. **Coordination:** There are presently a lot of ongoing activities to combat desertification, however, there is limited success of these activities because they are poorly coordinated. Unless a framework to coordinate these activities is developed, it is unlikely that the proposed NAP initiatives will result in any significant changes.
- ii. **Participation:** The participation of stakeholders including government agencies and in particular communities, private sector and non-governmental organizations in national programmes and initiatives must be treated as a process that allows all stakeholders to initiate, decide, act and evaluate together. Project ownership is key to the success of NAP projects.
- iii. **Flexibility in policies:** Some of the existing policies are rigid and thus fail to address concerns of communities living in peculiar circumstances. These policies fail to accommodate innovative ways of solving problems. In order for the NAP to be successful there should be flexibility in programmes and policies.
- iv. **Capacity:** It is assumed that efforts will be made to assist stakeholders with limited capacity to enable those stakeholders to carry out their roles. This particularly refers to community-based organizations. In addition, capacity of various stakeholders will be enhanced to facilitate both project implementation and monitoring.
- v. **Priorities:** It must be noted that some activities need to be carried out soon to assist the implementation of NAP, for example, the creation of a national coordinating body that will oversee the implementation of the NAP. It is however assumed that priorities will be set on the basis of detailed information indicating severely affected areas and areas under threat.

3.1 The Mission Statement

- To combat desertification, prepare for and mitigate the effects of drought through community action.

3.2 Goal

- To combat desertification and mitigate the effects of drought through participation and partnership with the various stakeholders including communities.”

3.3 Specific objectives

- To address issues raised as priority areas at stakeholder workshops during the awareness creation, constraints and issues identified in the situation analysis. For each objective, outputs, activities, indicators with time frames and responsibilities were developed as indicated in Table 1 below.

Table 1 *Action Plan of the National Action Programme to Combat Desertification*

Objective	Activity	Output	Indicators	Lead Agency	Partners
1. To mobilize resources to implement the National Action Program	1.1. Identify and seek sources of funding from international organizations and the private sector.	Sources of funding identified and sought	At least 6 projects funded by 2009	Department of Environmental Affairs (DEA)	Department of Forestry and Range Resources (DFFR)
	1.2 Establish national desertification fund for the specific needs not catered for by existing funding mechanisms.	Established funding scheme for all desertification projects	National Desertification Fund established by September 2009	DEA	1. Ministry of Finance and Development Planning (MFDP) 2. DFRR
	1.3 Promote the utilization of existing national funding mechanisms through the dissemination of information.	Improved access and knowledge of funding sources.	At least 30% of existing funds accessed / distributed by 2009	DEA	1. DFFR 2. Ministry of Agriculture (MoA) 3. Civil Society Organizations

2. To undertake research on processes of drought and desertification	2.1 Develop collaboration and partnership mechanisms between national, regional and international research institutions.	Joint research programs developed	At least 5 joint research programs undertaken by 2009	DEA	<ol style="list-style-type: none"> 1. DFRR 2. Botswana Technology Centre (BOTECH), Rural 3. Industries Innovation Centre (RIIC) 4. University of Botswana / Harry Oppenheimer Okavango Research Centre (HOORC) / Botswana College of Agriculture (BCA) 5. Department of Research, Science and Technology (DRST) 6. Energy Affairs Division (EAD)
	<ol style="list-style-type: none"> 2.2 Promote stakeholder participation. 2.3 Conduct studies on areas vulnerable to desertification and identify appropriate methods of combating desertification. 2.4 Identify needs and problems of local populations, and document best practices on indigenous knowledge systems (IKS) as well modern scientific knowledge. 2.5 Promote research on issues/problems exacerbating land degradation and develop tool kit. 	<p>Stakeholder participation in research increased</p> <p>Information on desertification produced</p> <p>Needs, indigenous knowledge systems (IKS) and modern scientific knowledge (MSK) documented</p> <p>Causes identified and tool kit developed</p>	<p>At least 3 research projects undertaken in collaboration with stakeholders by 2009.</p> <p>Four studies conducted by 2008</p> <p>IKS incorporated in pamphlets / manuals for combating desertification</p> <p>Tool kit developed by 2009</p>	<p>DFRR</p> <p>DFRR</p>	<ol style="list-style-type: none"> 1. DFRR 2. BOTECH, RIIC 3. University of Botswana / HOORC / BCA 4. DRST 5. EAD 6. Civil society organisations <ol style="list-style-type: none"> 1. DEA 2. Civil society organisations

3. To facilitate capacity building for stakeholders involved in combating desertification and mitigating effects of drought	3.1 Train stakeholders on participatory approaches for the conservation and sustainable utilization of natural resources.	Stakeholders trained in participatory approaches	At least 50% of stakeholders identified (Table 4), trained in participatory approaches throughout the country by 2009.	DEA	<ol style="list-style-type: none"> 1. DFRR 2. EAD 3. Civil society organizations BOTEC 4. MoA 5. Dept. Wildlife and National Parks 6. Dept. Meteorological Services
	3.2 Develop and support training programmes to facilitate the participation of the youth, women and disadvantaged groups.	Increased participation of women, youth and disadvantaged groups.	Women, youth and disadvantaged groups undertaking NAP projects in all the districts by 2009.	DEA	<ol style="list-style-type: none"> 1. Women's Affairs Dept. 2. Dept. Culture and Youth 3. DFRR 4. Civil society organisations
	3.3 Build capacity of communities to help combat desertification	Communities trained	6 desertification projects implemented by 2009	DFRR	<ol style="list-style-type: none"> 1. Women's Affairs Dept. 2. Dept. Culture and Youth 3. DFRR 4. Civil society organisations

	<p>3.4 Build capacity of local authorities and policy makers</p> <p>3.5 Provide information on desertification and drought to formal, non-formal and informal sectors of education</p>	<p>Local authorities and policy makers trained</p> <p>Information provided to all sectors of education</p>	<p>Desertification incorporated in local authority and policy makers' agenda by 2009</p> <p>Number of awareness workshops / seminars on desertification and drought conducted by 2009</p> <p>Number of visits by extension workers by 2009</p> <p>Number of toolkits, and other material disseminated by 2009</p>	DFRR	<p>Ministry of Education (MoE)</p> <p>DEA</p> <p>Ministry of Agriculture (MoA)</p>
4. To facilitate establishment of alternative livelihoods projects particularly for people living in marginal and degraded areas	4.1 Identify alternative livelihood projects	Alternative livelihoods projects identified	Six alternative livelihoods projects implemented by 2009	DFRR	<p>1. MoA</p> <p>2. Youth and Culture</p> <p>3. Women's Affairs</p> <p>4. Civil society organisations</p>
	4.2 Disseminate information on alternative livelihoods projects/programmes	Increased awareness on alternative livelihoods projects	40% of the rural population made aware of alternative livelihoods projects by 2009	DFRR	<p>1. DEA</p> <p>2. Department of Wildlife and National Parks (DWNP)</p> <p>3. Civil society organizations</p> <p>4. BCA</p> <p>5. MoA</p> <p>6. Rural Development Coordination Division (RD CD)</p> <p>7. EAD</p>
5. To create awareness on the causes and effects of desertification and drought	5.1 Undertake desertification awareness campaigns	Increased awareness on causes and effects of desertification and drought	Percentage of population that is aware of causes and effects of desertification increased by 10% in 2009	DFRR	<p>1. MoA</p> <p>2. Dept. of Meteorological Services (DMS)</p> <p>3. DEA</p> <p>4. EAD</p>

	5.2 Develop educational and public awareness material.	Public awareness material available for distribution to the public.	All targeted awareness material produced and distributed to the public by 2009.	DEA	1. MoE 2. EAD 3. DFRR 4. MoA 5. Civil society organisations
	5.3 Provide resource centres with information on desertification and drought to ensure public access to relevant information.	Resource centres provided with information on drought and desertification	All resource centres supplied with information by 2009.	DEA	1. MoE 2. EAD 3. DFRR 4. MoA 5. Civil society organizations 6. BNLS 7. UB
6. To coordinate interventions and approaches on desertification and drought among different stakeholders	6.1 Establish national committee for co-ordinating Multilateral Environmental Agreements (MEAs)	MEAs Committee established	MEAs Committee operational by 2007	DEA	All stakeholders
	6.2 Establish UNCCD implementation steering committee	UNCCD steering committee established	UNCCD implementation steering committee operational by end 2006.	DEA	All stakeholders
	6.3 Promote integration of CCD related activities into existing national programs and projects	CCD related activities integrated into existing programs and projects	Integration done by 2009	DEA	All stakeholders
7. To improve drought preparedness and management at local and national levels	7.1 Incorporate drought preparedness strategies in local and national planning instruments.	Drought preparedness strategies incorporated in local and national planning instruments	Drought preparedness strategies incorporated in all local and national planning instruments by 2009.	MFDP	1. MoA 2. Ministry of Environment, Wildlife and Tourism (MEWT)

	7.2 Strengthen early warning systems facilities and ensure that the information reaches all stakeholders in a user-friendly format.	User friendly drought information provided to stakeholders	Timely dissemination of early warning drought information to stakeholders	MFDP	<ol style="list-style-type: none"> 1. Early warning technical committee 2. Inter-ministerial drought committee 3. MEWT 4. MoA 5. Ministry of Local Government (MLG) 6. Ministry of Minerals, Energy and Water Resources (MMEWR) 7. Civil society organisations
8. To ensure effective participation of all stakeholders particularly women, in decision making processes and implementation of the National Action Programme	8.1 Create effective partnerships with all stakeholders, particularly women.	Stakeholder partnerships created for implementing NAP	Five stakeholder partnerships created for implementing NAP by 2009.	DEA	All stakeholders
	8.2 Review roles / functions of stakeholders regularly and incorporate emerging issues in the consultative framework	Roles / functions of stakeholders reviewed and emerging issues included in the consultative framework	Roles / functions of stakeholders reviewed and emerging issues incorporated by 2009	DEA	UNCCD Steering Committee
	8.3 Provide information to all stakeholders to facilitate their effective participation in national action programmes	Information provided to all stakeholders.	Workshops / seminars conducted and publications distributed by 2009	DEA	<ol style="list-style-type: none"> 1. DFRR 2. MoA 3. Civil society organisations
9. To control and prevent land degradation	9.1 Lobby to develop legislation to regulate dual grazing rights.	Legislation that regulates dual grazing rights formulated.	Legislation to regulate dual grazing rights approved by 2009.	Civil society organisations	<ol style="list-style-type: none"> 1. UNCCD Steering Committee 2. Livestock producers 3. Attorney General's Chambers
	9.2 Facilitate enforcement of all environmental legislation aimed at minimizing land degradation.	Environmental legislation enforced	Defaulters complying with environmental legislation by 2009	DFRR	<ol style="list-style-type: none"> 1. DEA 2. Civil Society organisations

9.3 Promote appropriate cultivation practices.	Sustainable cultivation practices adopted.	At least 30 farmers in each district practicing appropriate cultivation by 2009.	MoA	1. Land Boards 2. DFRR
9.4 Rehabilitate degraded land areas.	Degraded land rehabilitated	At least 2 rehabilitation projects implemented by 2009.	DFRR	1. MoA 2. Dept of Mines 3. Landboards
9.5 Promote participatory land use planning.	Communities participating in land use planning.	Five community driven land use plans produced by 2009.	ML&H	1. MoA 2. MEWT 3. Communities
9.6 Empower local communities to manage natural resources in their areas.	Communities empowered to effectively manage natural resources	Five community driven natural resources management plans produced by 2009.	DFRR	1. DWNP 2. Civil society organisations
9.7 Promote efficient management of livestock production.	Improved livestock production management systems	10% of farmers practicing efficient livestock management by 2009.	MoA	1. Civil society organizations 2. Landboards 3. Botswana Agricultural Union 4. DFRR
9.8 Promote use of alternative energy sources particularly in Government institutions.	Increased use of alternative energy sources.	75% of government institutions using fuelwood switch to alternative energy sources by 2009.	Energy Affairs Division	1. DFRR 2. MoE 3. MEWT 4. Ministry of Labour and Home Affairs (MLHA) 5. Botswana Defence Force (BDF) 6. Civil society organisations
9.9 Promote research to develop affordable alternative energy sources	Affordable alternative energy technologies developed	Acceptable products developed by 2009	Energy Affairs Division	1. BOTEC 2. RIIC 3. DFRR

4. CHAPTER 4: THE ROLE OF STAKEHOLDERS

Since the early 1990's development agencies and practitioners have advocated for participatory development, recognizing the problems caused by non-participatory development. Debates on the causes and ways of addressing desertification and drought, have concluded that, unless all stakeholders are involved in programmes and projects to address the problem, it is unlikely that they will succeed.

The challenge therefore, is in designing programmes and projects in a way that allows all stakeholders to be “heard, listened to and acted upon”. This presents a major challenge to institutions that have a highly centralized decision making system. It also requires new skills (participatory approaches), and a change of attitude among all stakeholders.

This chapter discusses issues related to stakeholder involvement in the National Action Programme to Combat Desertification, and answers the following questions: Why is participation of stakeholders important for the implementation of National Action Programme to Combat Desertification (NAPCD)? Who are the stakeholders in the implementation of NAPCD? What level of participation is appropriate and acceptable?

4.1 Definitions

It is important to start off by defining the operative terms in this chapter, which are; stakeholders, partnership, participation and capacity building.

- i. **Stakeholders** - *“are people who may directly or indirectly, positively or negatively affect or be affected by the outcomes of projects or programmes (Inter-American Development Bank, 1994). It is not unusual for stakeholders to outnumber the project users, but they both have to be given a chance to make an input in a participatory process.*
- ii. **Partnership** - *When a number of different interests come together formally or informally to achieve some common purpose. The partners do not have to be equal in skills, funds or power, but they have to trust each other, have mutual respect and share some commitment [David Wilcox, 1994].*
- iii. **Participation** - *The process through which people with legitimate interest (stakeholders), influence and share control over development initiatives, and the decisions and resources, which affect them [World Bank, 1994]. If participation is to be more than superficial consultation, the power relations between the participating parties must be understood.*
- iv. **Capacity Building** - *Institution building, training and development of relevant local and national capacities (United Nations, 1994).*
- v. **Consultation** - *Two-way communication, where stakeholders have the opportunity to make an input in a participatory process.*

4.2 Promoting Participation

In Botswana, stakeholder consultation has been the basis of all development initiatives. However, we cannot conclude that this commitment to consultation has resulted in the effective participation of all stakeholders in the development process. Development initiatives have in general been top down and dominated by government agencies. The factors that militate against the creation of a conducive environment for effective participation of all stakeholders in the development process are:

- i. Declining role of traditional institutions: The kgotla, which has been the major forum where Batswana can make contributions to policy making and development in general, is not as effective as in the past. Most chiefs (Dikgosi) lament the lack of attendance of kgotla meetings.
- ii. Centralization: The high degree of centralization in government and its associated negative impacts prompted the promulgation of a decentralization policy. The centralization has negatively affected the growth of civil society and turned communities into passive recipients of government services. Communities very rarely own and take responsibility for community projects because they are perceived as government projects, classic examples being communal dams, dip tanks/spray races, gravel roads done under drought relief and community secondary schools.
- iii. Dependency: The fatherly attitude to development has turned communities into fatalistic dependents who believe government must do everything for them. A lot of government policies like ALDEP and FAP bare testimony to this observation, which has also been made in technical reports.
- iv. Capacity of stakeholders: Even where there is an attempt to involve communities in the development process, their participation is stifled by their inadequate managerial, technical, financial and organizational capacity. It is unfortunate that, a lot of development programmes, do not have capacity building components for beneficiaries. Almost all capacity building resources benefit government officials only.
- v. Low development of civil society: All the above problems have resulted in the slow development of civil society, which can agitate for a more meaningful role of communities in the development process. In the absence of civil society, even well intended initiatives may not achieve the best results.

These in essence are the problems that the proposed strategy for promoting community participation in the UNCCD-NAP process must contend with. Article 3 (a) of the Convention states that, “*the parties should ensure that decisions on the design and implementation of programmes to combat desertification and /or mitigate the effects of drought are taken with the participation of populations and local communities and that an enabling environment is created at higher levels to facilitate action at national and local levels*”.

Likewise, Regional Implementation Annex 1 for Africa (Article 4) further obligates African countries to “*sustain and strengthen reforms currently in progress toward greater decentralization and resource tenure as well as reinforce participation of local populations and communities*”.

All these call for more than a simple declaration of commitment to participation. They propose the formulation of strategies, which would guide stakeholder participation within projects and programmes. The following sections will suggest one of the models that could be used in the implementation of the National Action Programme.

4.3 Participation Model

Participation model that was formulated by Sherry Arnstien identifies eight (8) levels of participation and these are:

- i. Manipulation and Therapy: Both are non-participative. The aim of the consultative process at this level is to educate the participants. The objective for participation is to achieve public support by public relations.
- ii. Informing: The emphasis is on one-way flow of information. There is no channel for feedback.
- iii. Consultation: Allowing stakeholders to make an input through attitude surveys, meetings and public enquiries. Sometimes consultation does not facilitate effective partnerships as in most cases, there is no assurance that stakeholders input will be used at all or as they intended.
- iv. Placation: This entails the co-option of hand picked or nominated representatives into committees. It allows power holders the right to judge the legitimacy or feasibility of the advice.
- v. Partnerships: Power is in fact redistributed through negotiation between citizens and power holders. Planning and decision-making responsibilities are shared through joint committees.
- vi. Delegated power: Citizens holding a clear majority of seats on committees with delegated powers to make decisions. Public now has the power to assure accountability of the programme to them.
- vii. Citizen control: Project beneficiaries handle the entire job of planning, policymaking and managing a programme with no intermediaries.

The table below illustrates the steps that could be followed in an effective participation process. This is the recommended participatory process for National Action Program process.

Table 2 *Steps in a Participatory Process*

Step	Key activities
1. Information	<ul style="list-style-type: none"> (viii) Information dissemination, to ensure that stakeholders make informed decisions. (ix) Thinking through the process and outlining the agenda. The participatory process should be planned and monitored to ensure that it achieves the desired impact. (x) Identifying stakeholders.
2. Consultation	<ul style="list-style-type: none"> (xi) Developing a strategy for the project or programme. (xii) Offering different options and listening to the feedback from stakeholders. (xiii) Select appropriate participatory method (Participatory Assessment, Monitoring and Evaluation; Participatory Rural Appraisal; Stakeholder Analysis).
3. Deciding together	a. Reviewing the results of the consultative process together in order to make decisions on the most appropriate strategies and the best way forward.
4. Acting together	a. Forming partnerships to carry out the project or programme together.
5. Supporting	a. Providing support to community projects.

Each participatory process has a specific end, which determines the approach and activities necessary to achieve it. The following table illustrates some of the desired ends of a participatory process and the possible activities that are required to achieve that end. The purpose of the table is to avoid the generalisation often made about participatory processes and highlights the importance of outlining the agenda for participation, and planning the process.

Table 3 *Different Objectives of a Participatory Process*

Desired end of a participatory process	Ways of achieving that end
Empowerment	<ol style="list-style-type: none"> 1. Capacity Building 2. Strengthening of financial and legal status 3. Handover and self management 4. Support for locally driven initiatives.
Collaboration	<ol style="list-style-type: none"> 5. Formation of joint committees. 6. Formation of joint task forces. 7. Joint implementation. 8. Increased stakeholder responsibility in project implementation
Shared decision-making	<ol style="list-style-type: none"> 9. Participatory planning techniques. 10. Workshops and retreats to discuss positions, priorities and roles. 11. Public review and revision of draft documents.
Joint Evaluation	<ol style="list-style-type: none"> 12. Participatory assessments and evaluation. 13. Local stakeholder assessment
Information Sharing	<ol style="list-style-type: none"> 14. Translation and dissemination of materials. 15. Information seminars. 16. Public meetings 17. Media

4.4 Stakeholder Analysis

A stakeholder analysis is an exercise to determine how an activity or programme will affect different groups in a community or project area (positively or negatively). This exercise helps planners to ensure that no group is marginalized in the development process, and also helps identify unforeseen potential conflicts. For the National Action Programme, the stakeholder analysis will concentrate on the interest and roles of the stakeholders, rather than impact of the plan. Table 5 illustrates the categories, interests and roles of stakeholders in the implementation of the NAP. While this is not comprehensive it provides a starting point for determining stakeholders for effective development and implementation of the NAP Strategy.

Table 4 Stakeholder Analysis

Class of stakeholder	Stakeholder	Interests	Role in national action program
Politicians	Cabinet Ministers	Implementation of policy; Resolution of conflicts among different interest groups; Serving electorate	Formulate Policies, allocate resources, and enforce laws.-
	Members of Parliament.	Influence allocation of resources to respective constituencies; serve electorates.	Allocate resources; formulate policies and legislation; represent interests of electorates
	Councilors	Influence allocation of resources to respective ward; serve electorate	Allocate resources at council level; represent the interests of electorates; formulate council development programmes.
Tribal Authority	Dikgosi	Cultural interest and welfare of tribal groupings;	Protect interests of the tribe; facilitate information flow on combating desertification and drought; promote natural resources management.
Decision Makers	Civil Service Managers	Implement policies; develop and implement programs; influence allocation of resources to ministry/sector;	Approving policies, programs and selling those policies and programs to Politicians and communities
	Technical Experts	Providing technically sound advise to resource users and resource custodians; Addressing challenges;	Formulate Policies and programs; Sell policies and programs to Politician, Civil Service Managers and Extension Workers.
	Extension Service	To improve livelihoods of the clientele	Promote farming methods and development projects that are environment friendly, Facilitate projects that will improve communities' living standards without damaging the environment.
	Land Board	Efficient use of land resources, without conflicts.	Formulate land allocation system that promotes efficient utilization of land resources; allocate land to applicants and settle disputes
	District Council	Development of the district	Formulate and implement Council development Programs including combating desertification, preparing for drought and mitigating effects of drought;
Activists	Non-governmental organisations	Development of local communities	Provide communities with information to develop and implement projects.
	International Organisations	Assist developing countries	Provide funds and technical expertise to implement projects in developing countries.
	Media	Disseminate information; make profit	Disseminate information on desertification and drought; promote village reporting on desertification and drought.

Support Organizations	Research Institutions	Avail information for planning purposes.	Carry out research and analyze information for use by communities and decision makers; provide appropriate technologies.
	Donor Agencies	Bi-lateral relations; Development of developing countries	Fund community efforts to combat desertification; support training of facilitators
	Civil Society	Welfare of the society;	Lobby government and other institutions to address issues negatively affecting society. Lobby Agencies to better manage the environment.
Resource Holders and users	Farmers	Securing their rights to land; Generate income to improve livelihoods; utilize natural resources.	Produce food, ensuring the sustainable use of the resource; management of the environment; develop and implement projects to combat desertification.
	Resource marketeers	Marketing of natural resources; Reducing barriers to access resources;	Ensures sustainable use of the resource;
	Private sector	Generate income; Marketing of natural resources	Financial support to natural resources conservation projects/programs.
	Private Land Owners	Securing their rights to land; Ensuring the sustainable use of the resources.	Management of land and natural resources
	Communal Land Rights Holders	Securing their rights to land; Ensuring the sustainable use of the resources.	Management of land and natural resources and managing conflict

5. CHAPTER 5: MONITORING AND EVALUATION

5.1 The Approach

The National Action Programme is a ‘people’s action plan’. It focuses on local participation and empowerment of communities to plan, manage and implement their own development to improve their living standard. Different stakeholders who have specific roles to play would carry out this monitoring and evaluation process. In the NAP process, every stakeholder has a specific role.

5.2 The Monitoring and Evaluation Process.

Monitoring means checking if the activities that were planned are carried out while evaluation checks if the activities carried out did have the desired impact. The NAP has suggested activities to be carried out, expected outputs, performance indicators and allocated roles to various stakeholders for plan implementation over the plan period which is aligned to NDP 9. These are the basic essentials for the development of a monitoring and evaluation plan. The monitoring and evaluation exercise has to be carried out at the national level and the project level and shall be the responsibility of all the stakeholders with overall coordination by the secretariat

The National Focal Point and the National Steering Committee of the UNCCD would develop a national monitoring and evaluation plan with indicators agreed upon by all stakeholders. The national monitoring and evaluation plan would be formulated through a participatory method. It is proposed that the first evaluation be carried out after the first year of implementation of the plan and this must focus on basic issues such as the setting up of essential institutions. The subsequent evaluation will review all activities carried out and also check if the initial proposed activities and assumptions are still relevant. An external evaluator may carry out the biennial evaluation. The evaluation report would be presented to all stakeholders at local, district and national level. The National Steering Committee will also have input in the final evaluation report before the Multilateral Environmental Agreement Coordinating Body adopts and acts on it.

As proposed in the NAP, the communities or some institutions will carry out some projects. All the projects approved under the NAP will have a monitoring and evaluation plan, which shall be submitted on a quarterly basis to the national Coordinating Body. This means that project management committees are expected to hold regular meetings to review the progress of the project. The implementing institutions will undertake follow up visits particularly to projects that are reporting problems in order to assist them to overcome the problems. For projects funded through the National Desertification Funds (NDF), the funds will be released in tranches depending on the progress made by the project in terms of completing scheduled activities on time.

6. CHAPTER 6: FINANCING NATIONAL ACTION PROGRAMME

6.1 Investigation of the Need of National Desertification Fund

The interventions, programmes and projects to combat desertification, mitigate effects of drought and alleviate poverty will all require financial resources to be carried out. Financial resources would therefore have to be mobilised to meet the requirements of all those interventions, programmes and projects. The Convention itself recognises this requirement in Articles 20 and 21. As an affected party, Botswana is expected among other things to establish the National Desertification Fund (NDF) to facilitate channelling of financial resources to the local level. However, each affected developing country is at liberty to assess its own situation of the need of establishing the NDF. It is for this reason that the Task Force investigated the need and justification for establishing the NDF.

During the investigation of the need of the establishment of the NDF in Botswana, the Task Force identified existing programmes and projects that fund initiatives similar to those that could be funded through the NDF. Table 5 indicates some of these programmes, their relationships with combating desertification and the financial allocations during NDP 9.

It became evident from table 5 that there are funds within Government and other Donors that support programmes and projects that address issues of combating desertification, mitigating the effects of drought and alleviating poverty. Therefore these funding sources should be utilized fully to address areas of combating desertification, drought and poverty. However, where there are shortfalls and shortcomings, there would be need for strategies to address those shortfalls and shortcomings to supplement the existing programmes and projects.

6.2 Shortcomings of Existing Funding Programs

The Task Force also identified a number of shortcomings of the existing programmes. These shortcomings affect the effectiveness of addressing areas of combating desertification, mitigating the effects of drought and alleviating poverty. Among those identified shortcomings are:

- (xiv) the management and coordination of existing sectoral programmes at national and local level,
- (xv) inadequate implementation capacity,
- (xvi) lack of awareness by the public concerning the availability and sources of funds,
- (xvii) very little participation in decision making by communities.

6.3 Addressing the Shortfalls of Existing Programs

Following the preceding analysis, the urgent intervention would be to redress the identified shortcomings, in order to improve the effectiveness and efficiency of existing programmes in addressing desertification, drought and poverty. Because local problems are addressed more effectively through locally generated solutions, the Community-Based Strategy for Rural Development (CBSRD) would be most suitable for redressing the identified shortcomings. The

CBSRD, an equivalence of Local Level Community Initiatives (LLCI) is expected to assist in empowering the rural communities by:

- (xviii) shifting control of rural development activities and priorities from central and district level to community level;
- (xix) enabling communities to plan and implement their programmes and projects based on “their own economic needs and aspirations”;
- (xx) strengthening the ability of communities to budget at local level and seek financial and technical support from government, NGOs, Donors and the private sector or any other source;
- (xxi) re-orientation of extension messages to reflect community needs and actions at local level;
- (xxii) employing participatory methods to facilitate development efforts of the choice of communities;
- (xxiii) promoting coordination between different facilitating organizations, including government and NGOs.

The most important issue is to have a situation where the communities are able to source funds from any interested and cooperating partners, including government, donors, etc. The task of any facilitator would be to help identify those organizations that would be willing to help the community achieve what they intend to do. A project memorandum would be required to sell the community idea to the interested donor. The facilitators would require training on how to prepare projects memoranda based on the community’s economic or social needs and the requirements by the prospective donor.

The welfare and a better living standard of a nation is the responsibility of any Government. Following this argument, the Government would be expected to play a major role in financing projects to combat desertification, mitigate the effects of drought and alleviate poverty through existing programs. However, communities should be free to approach individuals and organizations outside government for financial support without restrictions. This would enable individuals and organizations to directly finance community projects in accordance with their own arrangements.

6.4 Option to Existing Funding Programs

There are many existing funding programs that could fund projects to combat desertification, mitigate effects of drought and alleviate poverty. However, these programs have certain requirements and guidelines that might not cover all the issues of combating desertification. They might be limited in a way that has been elaborated earlier under section 6.2. The issues or activities aimed at combating desertification, mitigating effects of drought and alleviating poverty that could not be funded by existing programs should not be abandoned. The National Desertification Fund could therefore be created to cover such activities.

Table 5 *Some existing programmes and their relations with combating desertification*

Project/ Program	Provision on NDP 9 (2003-2009) Pula	Purpose	Contribution to the NAP Process	Main Donor/ Promoter	Participation of Other Donors	Accessibility of Funds to Communities	Remarks
Livestock Development	102.0 m	Improve livestock management and land husbandry	Potential to reduce land degradation, improved input and marketing services, farmer training	Govt./Ministry of Agriculture	No other donor	Through Govt. Extension Services. Easy to access for designated beneficiaries.	Has a potential to increase livestock off- take and relief land of grazing pressure.
Tourism Development	24.5 m	To enhance Government initiatives of diversifying the economic base through tourism development promotion as well as ensuring local communities involvement where tourism attractions exist	Employment creation to reduce poverty as well as community empowerment	Govt./Ministry of Environment, Wildlife and Tourism	No other donor	Most funds for Government projects	Has a potential to sustain livestock production.
Land Resources Management	96.7 m	Promote good land husbandry and rehabilitation of degraded areas	Reduces the impact of land degradation and desertification	Govt./Ministry of Agriculture	No other donor	Most of the funds are for Govt. initiated projects.	Has a potential to sustain crop and livestock production in the long term.
Natural Resources Management	17.4 m	Improve implementation of existing policies and legislation to enhance wise use of natural resources through community participation	Prevention of vegetation loss through wild fires and reduction of land degradation	Govt./Ministry of Environment, Wildlife and Tourism	No other donor	Mainly for government initiated projects.	Sustains livestock production by making grazing available.
Environmental Management Activities	40.0 m	To promote environmental management and governance through mainstreaming of	Improving environmental management and utilisation of natural resources.	Govt./Ministry of Environment, Wildlife and Tourism	Participation through government	Most funds for govt. led projects.	Has a potential to sustain natural woodlands and reduce deforestation around settlements.

		environment into development planning processes					
Community Private /Sector Support	9.3 m	To promote community based natural resources management	Enhancement of management of natural resources through community participation	Govt./Ministry of Environment, Wildlife and Tourism	Non	Direct funding of community initiated projects	Has a potential to sustain existing and potential livelihoods for rural people
Labour Intensive Public Works Programme (LIPWP)	69.8 m	Mitigate effects of drought, employment creation	Relief and Poverty alleviation	Min. of Finance & Development Planning	Various donors participate on an adhoc basis	Some funds are allocated for community initiated projects	Benefits are mainly short term. Can create dependency syndrome
Citizen Entrepreneurial Development Agency (CEDA)		Economic diversification and employment creation	Promotion of alternative livelihoods, job creation and community empowerment	Min. of Finance and Development Planning	No other donor	Funds are accessible to qualifying applicants	Relief pressure on the land, when people convert to non-land based livelihoods.
Community Conservation Fund (CCF) a follow-up to PACT	4.5 m	Sustainable utilization and management of natural resources	Empower communities to manage their natural resources in an environmentally and economically sustainable manner. Introduction of alternative livelihoods.	Govt./Min. of Commerce and Industry (DWNP)	Donors participate through Government	Through extension and NGOs assistance	Creation of long term and sustainable employment in rural areas, which contributes to poverty reduction and community empowerment
African Development Foundation (ADF)		Broad-based sustainable development and Poverty reduction	Technology transfer through PRAs and community empowerment through improved capacity of NGOs and communities, employment creation and poverty alleviation	African Development Foundation	Not sure how other donors and Government participates	Funds available as loans to support viable projects	Poverty reduction and community empowerment
Women Finance House		Offers micro-credit and training to women entrepreneurs	Small business for women aimed at empowering them, alleviating poverty and provides alternative	Non Governmental Organisation	Various donors		Has a potential to reduce poverty and empower the most

			livelihoods				affected members of the community women.
Global Environmental Facility (GEF)		Provides grants for community based activities that seek to: reduce greenhouse gas emissions, protect biodiversity, protect international waters, and combat desertification as it relates to the other thematic areas.	Can provide funds for community initiatives that address desertification	Global Environmental Facility	United Nations Development Programme	Funds accessible to qualifying applicants.	Can directly support projects that address desertification
Indigenous Vegetation Project	15.768 Million	To develop models for community driven management and rehabilitation of degraded rangelands	Biodiversity conservation and dryland ecosystems restoration	Global Environment Facility and Botswana Government	None	Pilot projects undertaken in three districts in the country	It great potential to address issues of land degradation through active involvement of communities
Environmental Support Programme (ESP)	4.7 million US\$	To enhance the effective protection and management of Botswana's environment and natural resources.	Strengthening of management systems for conservation and sustainable use of natural resources as well as promotion of public awareness and education on environmental issues	United Nations Development Programme and Botswana Government	None	Has potential to address land degradation through strengthening management systems and sustainable use of natural resources as well as support and promotion of awareness on environmental issues	It promotes sustainable use of natural resources

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