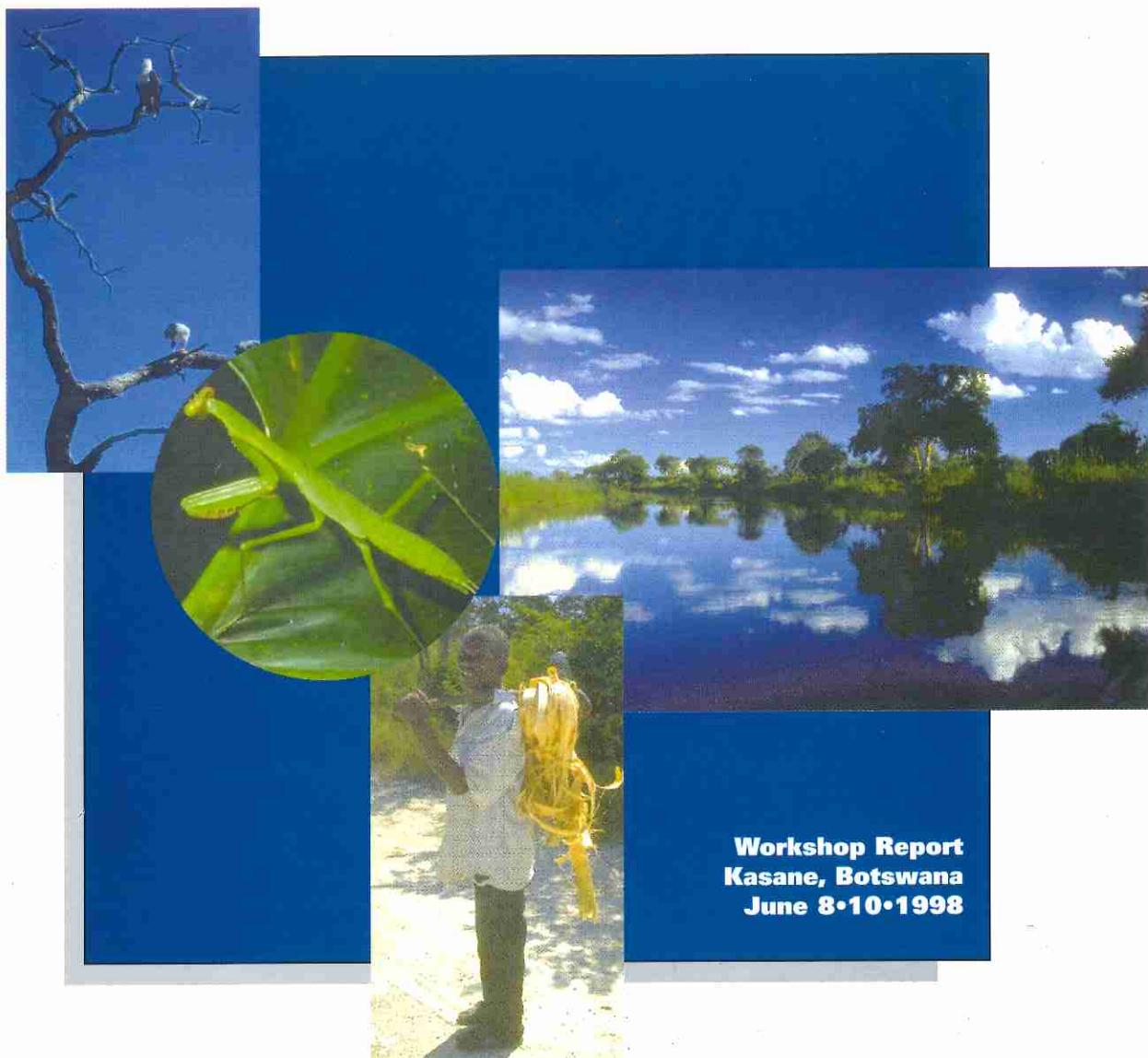


**Zambezi Basin Wetlands Conservation  
and Resource Utilisation Project**

**Transboundary approaches to the  
conservation and utilisation of  
the Chobe-Caprivi wetlands**



**Workshop Report  
Kasane, Botswana  
June 8•10•1998**

**Edited by B.Kamweneshe and R.Jansen**

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RESOURCE UTILISATION PROJECT**

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**EDITED BY R. JANSEN AND B. KAMWENESHE**

**1999**

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## **IUCN - The World Conservation Union**

Founded in 1948, IUCN brings together States, government agencies and a diverse range of non-governmental organisations in a unique world partnership: over 800 members in all, spread across some 136 countries. As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. A central secretariat co-ordinates the IUCN Programme and serves the Union membership, representing their views on the world stage and providing them with the strategies, services, scientific knowledge and technical support they need to achieve their goals. Through its six commissions, IUCN draws together over 6000 expert volunteers in project teams and action groups, focusing in particular on species and biodiversity conservation and the management of habitats and natural resources. The Union has helped many countries to prepare National Conservation Strategies, and demonstrates the application of its knowledge through the field projects that it supervises. Operations are increasingly decentralised and are carried forward by an expanding network of regional and country offices, located principally in developing countries.

## **The Zambezi Basin Wetlands Conservation & Resource Utilisation Project (ZBWCRUP)**

The Zambezi Basin Wetlands Conservation & Resource Utilisation Project (ZBWCRUP) was mounted in 1995 by IUCN - The World Conservation Union in reaction to recognition on the part of Southern African Development Community (SADC) member states, that wide spread deterioration of wetlands has occurred. The project was developed with a goal to conserve the critical wetlands of the Zambezi River Basin through funding by the Canadian International Development Agency (CIDA). Its objectives include to: 1) articulate the true value and importance of the goods and services provided by wetlands at the local, national and regional levels; 2) to effectively communicate the true value of wetlands to the region's people and key decision-makers; and 3) to help alleviate poverty in the local wetland communities and thereby assist these communities to participate fully in the conservation of the base of their own livelihoods. While there is concern for all the Zambezi Basin's wetlands, specific field locations have been chosen in which the project is being implemented, each with its own theme which characterises its main issues. In The Lower Shire in Malawi the theme is Wetlands Conservation and Food Security. In the Zambezi Delta in Mozambique, the theme is Wetlands Resource Conservation, Tenure and Utilisation. In the Barotse Flood Plain in Zambia the theme is Infrastructure Support to Wetlands. While the theme in the Chobe-Caprivi in Namibia/Botswana is Diversified Sustainable Use through Capacity Building and Resource Use Conflict Resolution.

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# ABBREVIATIONS

CBNRM	Community Based Natural Resource Management
CBO	Community Based Organisation
CIDA	The Canadian International Development Agency
IUCN	The International Union for the Conservation of Nature and Natural Resources (also called The World Conservation Union)
IUCN ROSA	IUCN Regional Office for Southern Africa
MET	Ministry of Environment and Tourism (Namibia)
NCS	National Conservation Strategy
NCSA	National Conservation Strategy (Co-ordinating) Agency (Botswana)
NGO	Non-governmental organisation
SADC	Southern Africa Development Community
WMA	Wildlife Management Area
ZBWCRUP	Zambezi Basin Wetlands Conservation and Utilisation Project

# FOREWORD

IUCN – The World Conservation Union embarked on the Zambezi Basin Wetlands Conservation and Resource Utilisation Project (ZBWCRUP) in 1995 with a view to enhance the understanding and appreciation of the value and role of wetlands.

The Chobe – Caprivi Sub-Project area not only provides an interesting case for the study of land utilisation in a wetland ecosystem, it also provides a challenge to look into transboundary natural resource management, harmonising current resource utilisation practices, and making the most of the enormous tourism potential in the area. Many of the activities, IUCN feel, need to be pursued with active involvement of the local communities. The natural resources of the Chobe – Caprivi wetland ecosystem need to benefit the local communities directly. In order for this to happen in a sustainable manner, attention needs to be paid to appropriate environmental management that takes the ecosystem as its base.

Ecosystems function across borders. Natural flows of water and migrating wildlife species tend to ignore international boundaries, unless they are forced to acknowledge them, and are not party to political decision-making. An ecosystem approach to natural resource management sees all flora and fauna within the context of their natural territory and focuses on integrated management of the system. Such management is not confined to the boundaries of nation states; to the contrary, it provides a perfect opportunity for increased cross border co-operation between countries.

It is with the above in mind that IUCN organised the Kasane Workshop on Trans-boundary Natural Resource Management in the Chobe – Caprivi Wetlands in June of 1998. By bringing together representatives of all stakeholder groups from Namibia and Botswana and by putting key natural resource utilisation issues on the agenda, IUCN intended to begin a crucial cross border dialogue as well as to pursue initial action to address incompatible land and resource uses in the area.

The report in front of you is the outcome of the first stage of addressing transboundary natural resource management in the Chobe – Caprivi, with a clear focus on the ecosystem, and with the participation of all relevant stakeholders. I trust that you find this interesting to read.

Ruud Jansen

IUCN Botswana  
Country Representative (Co-editor)



# EXECUTIVE SUMMARY

The Zambezi Basin Wetlands Conservation and Resource Utilisation Programme was mounted in recognition, on the part of Southern African Development Community states, that widespread deterioration of wetlands had occurred. Values that are being eroded include not only ecological parameters, but also socio-economic aspects in that wetlands form an important source of income generation at the local and national levels.

IUCN - The World Conservation Union has been financially supported by the Canadian International Development Agency (CIDA) to address this situation over the next three years with the goal of conserving the critical wetlands of the Zambezi River Basin. While there is concern for all the Basin's wetlands, four specific field locations were chosen in which the project is mounted. These include the Chobe - Caprivi wetlands in northern Botswana and the eastern Caprivi in northeastern Namibia. (See Map of Zambezi Basin Wetlands Sub-Project Areas in Appendix A)

In the Chobe-Caprivi sub-project area it was felt that a workshop was necessary to discuss transboundary issues such as tourism, wildlife, fire and fisheries. The objective of the workshop was to *"identify, describe and set the stage for addressing key issues relating to conservation and utilisation of the Chobe - Caprivi wetlands."*

The workshop brought together key stakeholders and resource people - private sector, non-governmental organisations (NGOs), government and communities from the eastern Caprivi and Chobe, to discuss combined natural resource management and utilisation of the wetlands area. Delegates heard key presentations on resource conservation and utilisation in the ecosystem. This information sharing and networking led to greater understanding of cross border activities and concerns, which certainly paved the way for ongoing and future dialogue.

The problem of incompatible land uses was highlighted and identified as a major contributing factor to many of the perceived conflicts. As animals roam in the Chobe

National Park they may cross the river and end up in the Caprivi, in an area mainly used for livestock rearing and arable farming. Similarly the use of fire as a means of vegetation management in Namibia and Botswana may be undertaken in areas and at times when it conflicts with land uses on the other side of the border. A land use mapping exercise across the whole ecosystem was deemed to be an essential first step in identifying and resolving these conflicts pertaining to the ecosystem's land use.

The opportunity for increased tourism in the area and the option to work on attractive packages for foreign tourists to visit sites in Chobe as well as the Caprivi was discussed. There was consensus about the fact that more information was needed about tourism potential and how communities can play their part and claim their share in this growing market.

Fire and fisheries discussions concentrated on the exchange of information between the two countries that would include such issues as early warning related to fire and data on fish catches.

It was recognised that there was a lot of scientific data stored with various consultants and government departments, which needs to be accessed. The communities resident in the ecosystem are also a great source of information and will contribute to building a clearer picture of the present status quo.

It was agreed that there definitely needs to be a more co-ordinated involvement of all the key players (communities, NGOs, tribal authorities, government departments, and private sector). The dissemination of information within the area was found to be lacking. For communities to have equity and a voice in how their resources are managed they require information and education about the value of the resources

A Chobe-Caprivi Wetlands Co-ordinating Committee was suggested and Terms of References will need to be drafted. The

Committee would amongst others, regularly discuss key issues with key stakeholders, assist in the dissemination of information and education about the value of wetland resources and pursue improved community involvement in natural resource management.

The participants recommended, and IUCN accepted, that a similar meeting would be organised in the foreseeable future so as to pursue ongoing joint activities and further dialogue.

# OFFICIAL OPENING AND WELCOME

## ***KGOSI M. M. SIMVULA***

*Kgosi of Kavimba, Botswana*

The meeting was officially opened by Chief Simvula who welcomed the participants to the Chobe Game Lodge in Kasane, Botswana.

Chief Simvula stressed the relevance of the wetland resources and the need to use them wisely. People in the Chobe and Caprivi have for generations relied on the natural resources to eke out a living. He indicated that the area is fertile and, with good rains, produces healthy crops of maize and sorghum. The fish resource has always been important even though Lake Liambezi has been dry for the last 10 years but the Chobe River provides an important source of protein for the area residents. Wildlife has been a blessing in that it attracts tourists and provides meat, as well as a menace in that many domestic animals fall prey to predators every year.

The Kgosi furthermore called for increased co-operation between the two countries and reminded workshop participants that the area residents on both sides of the border are relatives. Chiefs in the Chobe and Caprivi areas work together and he called upon the participants to set in motion a process which would take this dialogue further to involve other sectors of the society.

He wished the participants a fruitful meeting.

# INTRODUCTORY REMARKS

## **MR. J. MABUKU**

*Governor of Caprivi Region, Namibia*

It is my pleasure to stand before you all and for being accorded this chance to officiate at this very import workshop. This workshop is important in that it is a forum where our two countries can share some thoughts about the conservation of wetlands in our two countries and indeed the region. As you may be aware, wetlands systems in the past have been associated with disease. Today, a second look at swamps, marshes and floodplains gives us the occasion to learn what these systems are really about.

This workshop provides the first opportunity for representatives of water affairs, energy, environment and many more from our two countries sharing the important wetlands in the Zambezi basin, to exchange information and ideas on the future possible use of the basin's invaluable waters and all natural resources associated with it in a economically sound and environmentally friendly manner. It is essential that all future developments in the Zambezi basin ensure that the people of the region are able to share these benefits in an equitable and sustainable manner experts supported by a host of literature, attest to the fact that despite man's negative attitude towards these systems wetlands are extremely valuable in many ways. They hold potable water, which in Botswana and Namibia, like anywhere else, is essential for life support systems. It is generally also used for domestic, industrial and agricultural purpose.

I must admit that, this is one of the most important moments in the history of Namibia as this workshop marks a further step in our endeavour to strive for regional co-operation, integration and prosperity. Future events will depend to some extent on how ideas from the workshops such as this are implemented by the various stakeholders. Zambia, Namibia, Botswana, Zimbabwe, Malawi and Mozambique are situated in the Zambezi river basin and have therefore legitimate claim on its water resources. Successful co-operation of these states on the sustainable and equitable utilisation of the resources of the Zambezi river

basin will enhance success and the integration of the named states sharing the resources.

Mr. Chairman, I feel very honoured and humbled to speak at this important workshop and that Botswana has hosted it. I will ask the organisers that a workshop like this be held in Namibia in the near future, where we will be most grateful to invite you in a bid to continue discussing things of our mutual interest.

Mr. Chairman, ladies and gentlemen, I have learnt that, recognising the importance and fragility of the wetlands, the Government of Botswana recently approved the National Conservation Strategy which is geared towards conserving the country's natural resources and their development. We will be grateful to learn from your experiences in this avenue.

Mr. Chairman, I wish to make a few remarks on the regional issues as they relate to wetlands conservation. If you are to ask me whether many people of Namibia understand and appreciate wetland systems, my answer would be without hesitation, no, although these ecosystem have been of considerable social and economic importance to the inhabitants. I am sure that this could be the case everywhere in our region, if not in the world. It is my hope that your meeting here today will discuss this and find ways of making our people aware of their benefits, functions and concerns. When I looked at the list of participants, I recognised that we have in our midst people representing radio and television. It is with this background that I wish to urge those concerned to disseminate information to the general public on the deliberations that will come out of our workshop today, through their various media.

Although man has inhabited wetlands for many centuries in southern Africa and the world at large, their use has, among other things, become increasingly aesthetic. This function has taken on a very important international dimension.

Referring to our two countries, wetlands play a multi-purpose function; the Okavango, Lake Liambezi (which has now dried up), Linyanti and Chobe serve as habitats for various wildlife as well as grazing grounds for our livestock; the fisheries of the Okavango and Zambezi systems are important elements for our economies and for the diets of some communities; our budding tourism industry is blooming (this lodge where we are is a great testimony of what I am alluding to). It is indeed these wetland areas which support this young tourist industry. I am certain that a similar story about the importance of wetlands can be told by the rest of the world where wetland systems occur.

Mr. Chairman, as you may know, where creation has 'made good', misfortunes and evil invariably tend to flourish. Being blessed with vast natural resources is generally no guarantee for prosperity. Continued human suffering and declining economies prevent good management of our natural resources. We are presently trying to find ways of dealing with the problem of poaching; fire incidences just to mention a few. Important wildlife species have disappeared in some parts of the region. Over fishing in rivers, lakes and swamps has become a threat to the conservation of wetlands.

Mr. Chairman much has been said about soil erosion, and deforestation. I would like to emphasise the negative effects of deforestation on the environment. Man has a large stake in the change of global as well as local climatic changes. Drought has been pointed out as having caused misery to many. Every drought has increasing devastating effects on large sections of our population. This has resulted in the decline of food production in the region. We hope that the wetlands programme in collaboration with various agencies will help us find suitable ways of reducing the risks of crop failure and resource destruction. We will accordingly study your recommendations and promote the implementation of the programmes.

Floods this year have caused misery to some wetland communities living on the eastern Zambezi floodplains which led to loss of property and land has been left unproductive in some areas due high water levels. There is no doubt that human actions in some situations have direct or indirect bearing on these. If we were aware of the remedial options open to us, we would be able to minimise these losses. I would now like to turn to the issue of pollution.

Often, people think of air pollution as the only thing, which threatens our environment. We often believe that our region is not affected. Pollution, however, includes the contamination of our wetlands. Although these systems may appear as zones that could accommodate anything dumped in them, they are very sensitive environments. Pesticides and herbicides used in agriculture pollute these waterways when they drain into them. These and other chemicals used can cause untold damage. Wetland organisms, our knowledge of which is scanty, could be placed at risk by pollution. It can affect our health because we subsist on these systems through the consumption of fish and water.

It is my hope, ladies and gentlemen, that you will discuss these issues in this workshop and guide us in our efforts to protect our wetland systems.

Mr. Chairman, the formulation of a regional approach to the conservation of natural resources is important. Some of our major wetlands straddle international boundaries. Therefore some natural resources, such as wildlife, migrate from one country to another. It is in this regard that use and management of transboundary wetlands will require a regional approach. Namibia will study this matter with great interest.

Finally Mr. Chairman, I am concerned about the implementation of your resolutions. Conferences and workshops are often called to discuss very important and sensitive issues. But quite often no action is taken. I hope that the outcome of this workshop will not face the same fate, I am pleased that a follow-up action plan will be discussed. I consider this to be the most crucial element of this workshop as this will not only include the monitoring but the evaluation of what will have been implemented from the recommendations that will merge from this workshop.

I have no doubt in my mind that the officials present here will look at this matter seriously. Implementation, however, needs financial resources, training of staff and building the necessary institutions. I would like to invite our donor friends to study the results of the workshop, and consider active support in establishing the programme for the conservation of our wetlands in the region. Namibia is extremely pleased with the role being played by the Canadian International

Development Agency in funding the wetlands project, which is hosting this workshop. We sincerely hope that their support will be maintained until the programme is fully established on the ground. Secondly, the continued support and interest shown by the World Conservation Union in this programme provides us with comforting assurance that the Union will guide us in assisting our local communities utilising wetlands in the basin to realise the utmost benefits from the wetlands on sustainable basis.

Mr. Chairman, the success of this programme will depend on the firm commitment of the member states sharing the wetlands that we are going to discuss in this workshop. The workshop will therefore make a good starting point. As the level of representation is very high, I have no doubt that this will be the case.

This workshop takes place at a time when environmental considerations and indigenous people's rights have been placed very high on the international agenda. Success can only be guaranteed by transparency and by demonstrating that proposed uses of the river will benefit the people of the region, and be environmentally friendly and sustainable. There are, of course, great public expectations that the wetlands will solve all future water needs of the countries of the region. I am confident that in your deliberations you will be conscious of the fact that much remains to be done to develop the public understanding of the complexities and implications involved in planning the utilisation of a river such as the Zambezi and its main tributaries.

Hopefully, at the end of our deliberations, we will be able to agree on what the main problems are and how best to rationalise proposed major developments so as to achieve sustainable development in the use of the waters of the Zambezi basin.

On behalf of my fellow Namibians, I wish to extend our sincere thanks to the District Commissioner and all people of Botswana for the warm welcome extended to us, I hope you will find time in your busy schedule to savour some of our natural resource delights and find time to share them.

# ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILISATION PROJECT: AN OVERVIEW

**MR. E. HISCOCK**

*Project Manager, ZBWCUP, IUCN ROSA, Zimbabwe*

The Zambezi Basin Wetlands Conservation and Resource Utilisation Project was mounted in reaction to recognition on the part of Southern African Development Community states, including Namibia and Botswana, that widespread deterioration of wetlands has occurred. Values that are being eroded include not only ecological parameters, but also socio-economic aspects in that wetlands form an important source of income generation at the local and national levels. IUCN has been funded by the Canadian International Development Agency (CIDA) to address this situation.

The **goal** of the project is "to conserve the critical wetlands of the Zambezi River basin". While there is concern for all the Basin's wetlands, four specific field locations, each with its own theme, have been chosen in which the project is being implemented (see Appendix A). They are:

- The **Zambezi Delta** in Mozambique: Theme: Wetlands resource conservation, tenure and utilisation;
- The **Lower Shire** wetlands in Malawi and Mozambique: Theme: Wetlands conservation and food security;
- The **Barotse Flood Plain** in western Zambia: Theme: Infrastructure support to wetlands conservation and sustainable development; and
- The **Chobe - Caprivi** area in Namibia and Botswana: Theme: Diversified sustainable utilisation through capacity building and resource use conflict resolution.

**IUCN - ROSA** in Harare, from which the project is managed and regional aspects are implemented, forms the fifth sub-project area. Theme: Multi-level integration of wetlands conservation and sustainable development.

Each of the field sub-projects is managed by an IUCN Field Project Officer and Mr. B. Kamweneshe fills that role for this sub-project area.

The **objectives** of the project are:

- To articulate the true value and importance of the goods and services provided by wetlands at the local, national and regional levels;
- To effectively communicate the true value of wetlands to the region's people and key decision makers; and
- To help alleviate poverty in the local wetland communities and thereby assist these communities to participate fully in the conservation of the base of their own livelihoods.

The results expected are:

- Increased access to health care and education by some of the region's poorest communities;
- Quantification of the value of wetlands by articulating the goods and services they provide;
- Increased awareness of the value of wetlands;
- Increased attention to wetlands by decision makers resulting in increasing resource flows to wetland areas and a corresponding reduction in areas of wetlands lost each year; and
- A thorough understanding of the resource and cultural basis supporting the communities in order to foster development proposals that will be strongly founded on existing resource potentials and traditional understandings.

The priority issues to be addressed by the project are related to: agriculture, aquatic weeds, awareness, baseline data, biodiversity, capacity, climate cycles, demographic pressure, education, fire, fishing, forestry, gender, health, hydro-electric dams, indigenous knowledge, land tenure, mangrove forests, poverty, resource use conflict resolution, prawn production, tourism, transportation and wildlife.

## PLENARY DISCUSSION

It was queried as to whether the example cited of extracting wine from the palm trees was a sustainable process as it often led to the death of the trees. The presenter explained that this was not always the case and sometimes trees were not killed by the extraction of wine.

A participant asked as to when the Zambezi Basin Wetlands Conservation and Resource Utilisation Project commenced. The presenter explained that the initial proposal was accepted and signed in August 1995. In January 1996 an inception mission was undertaken and the project leader – Mr Hiscock was employed from May 1996. The project will run until 31<sup>st</sup> March 2000 and a second phase is already being advocated.

It was commented that in the case of the Chobe – Caprivi area there is a military force patrolling between the two countries – how then can the project work in Wetland areas owned by both countries? The presenter admitted this was difficult, however the people on either side of the boundary are certainly working towards the same goal and trying to overcome differences.

Were the fences that were erected in the area causing serious problems to the management of the ecosystem? It was explained that these were certainly a serious consideration. However, recently there had been a Cabinet directive from the Government of Botswana stating that 30 kms of the Northern Buffalo fence is to be dismantled. The Department of Wildlife and National Parks and the Land Board are looking at mitigating measures and the possibility of realigning other fences.

One of the community representatives stated that he felt the dissemination of information and education was seriously lacking. He felt that the onus was on Government and the

donor agencies involved with the projects to increase the information flow to the communities. It was explained that the community challenge was different in each particular focus area of the project. For example in Barotse in Zambia a great network of information dissemination was already in place. In Malawi the current field officer has worked in the area previously and has good connections and communication channels. In the Delta area there is certainly a lack of awareness at grass roots level but at NGO/Government level is it thought to be good. Various methods of information dissemination and communication are used – theatre/information brochures, radio etc. Communication in the Chobe-Caprivi area is very difficult. The community representative felt that the workshop was a good starting point and hoped that NGO interest would increase.

The presenter had highlighted the fact that large numbers of people move to wetland areas when drought has occurred as the soils there are particularly fertile – surely this was not a process to be encouraged.

The presenter explained that in the Malawi area this was most prevalent, augmented by the fact that there had been a large influx of refugees into the area and these movements were not entirely due to the local populations moving. It is obviously very hard to stop these migrations, however certain measures are being taken to minimise the movements. These include: working with farmers to develop higher lands so people feel they can move there, development of hybrid seeds which are not as susceptible to flooding, agroforestry to increase the percentage of nitrogen which in turn increases the productivity level of the soils.

The problem of aquatic plants was highlighted by one of the participants, stating that a biocontrol agent was urgently needed, with a corresponding increase in international co-operation and sharing of expertise to control the plant growth. An expert in this field stated that there was certainly sharing of regional knowledge and the bio-control agents were currently being used throughout Southern Africa.



# OVERVIEW OF THE ZAMBEZI WETLANDS CONSERVATION CHOBE – CAPRIVI SUB-PROJECT

## **MR. B. KAMWENESHE**

*Field Project Officer, ZBWCRUP, Chobe-Caprivi Sub-Project, Namibia*

The Zambezi Basin Wetlands Conservation and Resource Utilisation Project is based in East Caprivi and Chobe Enclave wetlands which are subdivided into five zones, namely:

- Upper Kwando;
- Lower Kwando and Linyanti swamp;
- Liambezi;
- Chobe; and
- Zambezi East floodplains.

The project was effectively launched in February 1997, though the Project Field Officer was recruited in September 1996. This involved setting up of the office in Katima Mulilo, acquisition of equipment and engagement of support staff.

The basic strategy of the project is to obtain conservation of the natural wetlands resources of the project areas through working with local communities on activities of natural resource management and protection for development. In co-operation with the local people, it is the project's intention to design and implement activities, which are well tailored to enhance the sustainable local benefits, derived from the natural resources of the wetlands. Through this work the project also intends to build up local capacities and management capacities that can secure the long-term development and continuation of these activities.

The Project has been funded by Canadian International Development Agency (CIDA) through IUCN - The World Conservation Union.

### **The Project Background**

Some areas in the East Caprivi and the Chobe enclave are among other areas that receive less attention in terms of developmental activities. Due to poor or lacking infrastructures and a

low esteem of the population in the remote areas, attention from policy and decision-makers has been low or lacking. This has resulted in a society where development has been almost lacking, maintenance of services and structures has been neglected and consequently poverty has increased and the welfare of the people been deteriorating to almost critical levels.

The fact that the people have access to very few community service facilities (clinics, schools, markets, transport etc.) and receive very little external support and guidance (e.g. agricultural extension, forestry activities, fishery initiatives etc.) means that people are left completely dependent on the natural resources as their sole sources of nutrition, energy and income.

It has been realised that poverty and lack of external support leads to bad resource management and some resources are threatened with over utilisation, while others yield lower benefits than they could.

In addition to the importance of the swamps in relation to the human population, these are also important in terms of being the habitat for a rich variety of plant and animal species, thus representing important bio-diversity assets as well as a great development potential for the region.

### **Project Implementation and Organisation**

The Sub-Project is implemented by the IUCN under the Ministry of Environment and Tourism in Namibia. It was also agreed during the inception phase that this could be accommodated by the National Conservation Strategy (Co-ordinating) Agency in Botswana. The Project is designed to co-ordinate its activities with the appropriate government departments, private agencies and non-governmental organisations (NGOs).

At the grass root level, the project has mobilised communities with the formation of development committees in six selected pilot areas. To give guide to the project implementation, the project is being advised on certain issues by the Advisory Committee that comprises membership from Botswana and Namibia. The committee is currently meeting twice in a year but individual members are met whenever need arises.

Concerning the community development activities the development committees are not only a forum for discussion but they are also aimed to carry out and manage activities on small scale enterprises to uplift the standard of living and conservation projects provided with initial investment, practical support and supervision from the project in conjunction with partners.

Extension work related to specific field activities is being carried out by or in close collaboration with relevant departments in order to benefit from the expertise of these authorities.

#### **Location and Extent**

The Chobe-Caprivi project covers areas along the Kwando River from Kongola on the Katima Mulilo Windhoek high way. It comes down where the river turns into the Linyanti/Mashi river system. The system is connected to the Chobe River by the Lake Liambezi, which has been dry since 1988 but has some water in some places this year due to the overflow of the Zambezi River and consequently the Chobe. On the Eastern Zambezi floodplain, the project area stretches from Katima Mulilo to Impalila, bordering with Zimbabwe. In Botswana this covers the Chobe Enclave.

Geographically the Chobe-Caprivi project area can be subdivided into four types of landscapes:

- River and lakes;
- Permanent swamps;
- Seasonally flooded floodplains; and
- Adjacent dry upland.

#### **Major issues in the Chobe-Caprivi that needed to be addressed**

##### 1. Biodiversity:

There was little biodiversity assessment of plants, fish animals and other biota to guide sustainable resource utilisation and tourism promotion. In some areas certain species of animals, fish and other biota are thought to be locally extinct.

Herbaceous plants including papyrus are disappearing due to uncontrolled resource utilisation

Results sought/activities:

- Assessment of the role of wetlands in overall biodiversity preservation;
- Communication of biodiversity values and the need to protect the same to communities, planners, politicians and opinion influencers;
- Assessment of feasibility of reintroduction; and
- Enhancement of species and ecosystem biodiversity through protection and, where necessary and feasible, re-introductions.

##### 2. Awareness:

There is strong evidence that the role of wetlands ecosystems, their ecological and economic value to local and surrounding communities are not fully appreciated by individuals making or influencing resource utilisation decisions.

3. Results sought/activities:

- Early assessment of the role of environmental education, dealing specifically with wetlands ecosystems;
- Incorporation of a specific wetlands component into all major environmental education programmes in the region;
- Improved awareness on the part of communities in terms of sustainability; planners in terms of environmental effects, politicians in terms of decision making and policy; the donor community in terms of considering ecological sustainability at the

national and regional level: media and NGO opinion influencers in terms of disseminating accurate information; and

- Inter-community and international exchange of information concerning the role of wetlands.

could not be in one ministry and so remains an inter – ministerial body. Representatives from both agencies – MET and NCSA sit on the advisory committee, however there is felt to be a need for them to meet and thrash out some ideas.

## **PLENARY DISCUSSION**

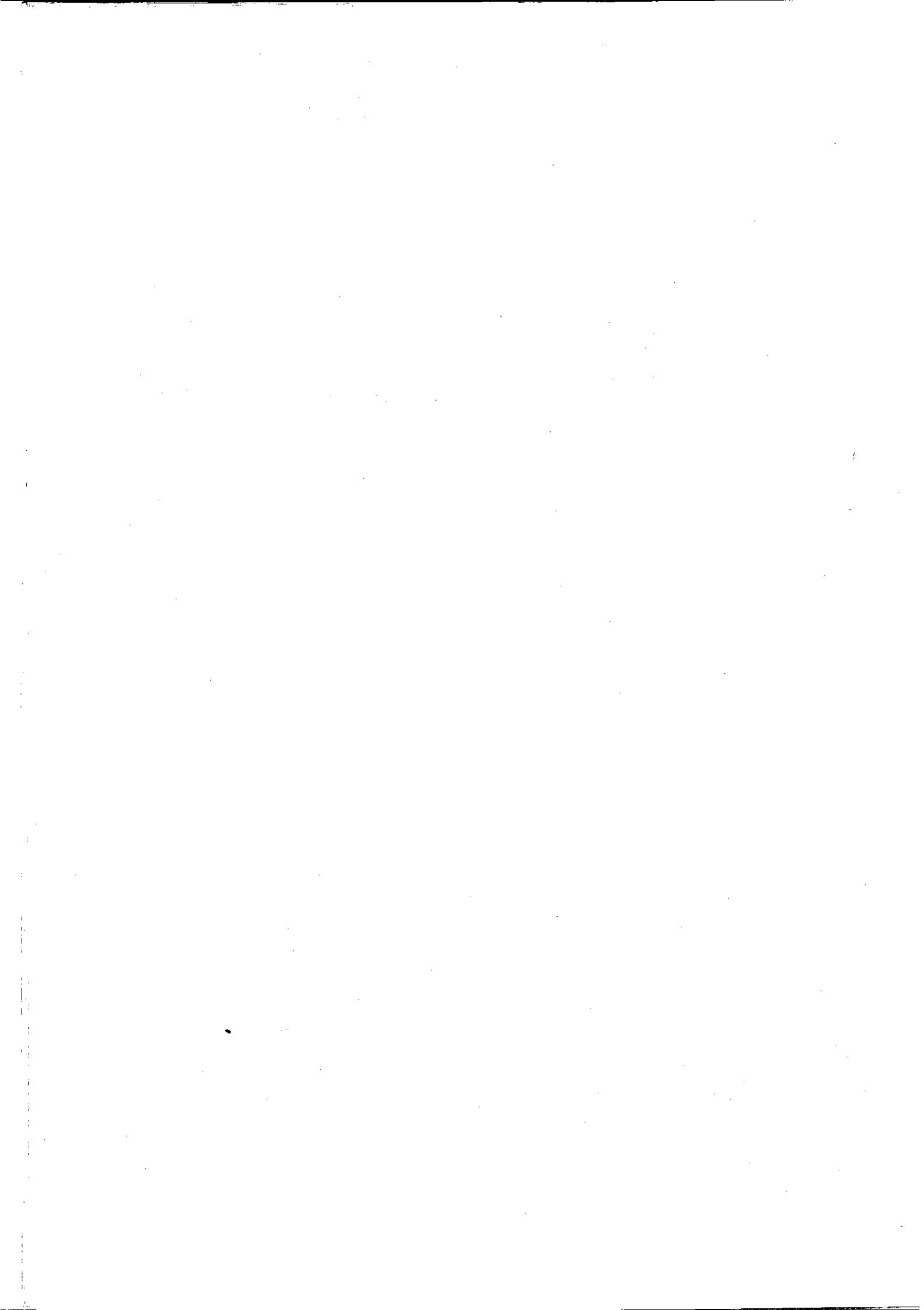
It was queried as to what IUCN's involvement was with the project – were they implementing it or just facilitating? Mr. B. Kamweneshe explained that the delivery team was certainly beyond the boundaries of IUCN, however as with any donor funded project IUCN are held accountable and must report to CIDA on the project progress.

A participant enquired as to what community work had been achieved to date. The presenter explained that there were five pilot projects underway in Namibia and one in Botswana. These include managing hunting rights, agricultural projects and an afforestation programme where tree nurseries, including fruit trees, are being developed.

It was queried as to whether the flow of information to the communities was at a high enough level to ensure that after the donor funded project was finished the community could be self sufficient. The presenter again highlighted the ways and means of information dissemination being employed. Workshops are also being held for communities.

It was thought that based on the major issues needing attention, the project scope is perhaps rather over ambitious. However the presenter explained that not all 16 issues were pertinent to every community, as each community has it's own priorities. The assistance of partners i.e. NGOs and Government departments are also key to implementing projects.

The Ministry of Environment and Tourism (MET) in Namibia is known to be the custodial ministry of the project, however the participants were not clear on the role and function of The National Conservation Strategy (Co-ord.) Agency (NCSA) in Botswana. It was explained that in the late eighties a National Conservation Strategy was put together and the implementation delegated to the NCSA. Because of the nature of conservation, being a cross – cutting issue it was felt that NCSA



# PURPOSE OF THE WORKSHOP

## **MR. R. JANSEN**

Country Representative, IUCN Botswana

### **Background**

The Zambezi Basin Wetlands Conservation and Resource Utilisation Project was mounted in reaction to recognition on the part of Southern African Development Community states, including Malawi, that widespread deterioration of wetlands has occurred. Values that are being eroded include not only ecological parameters, but also socio-economic aspects in that wetlands form an important source of income generation at the local and national levels. IUCN has been funded by the Canadian International Development Agency (CIDA) to address this situation over the next three years. While there is concern for all the Basin's wetlands, four specific field locations have been chosen in which the project will be mounted. These include the Chobe-Caprivi wetlands in Northern Botswana and Eastern Caprivi.

The Sub-project Advisory Committee Meeting held on the 11<sup>th</sup> of November 1997 advised that "*... a transboundary meeting, involving IUCN, the private sector, government and community representatives, to discuss transboundary issues such as tourism, wildlife, fisheries and fire was necessary ...*" and that "*... the more specific nature of the issues be further identified through consultation with communities and other key players prior to the meeting*".

### **Objective**

The objective of the workshop is "*... to identify, describe and set the stage for addressing key issues relating to the conservation and utilisation of the Chobe - Caprivi wetlands*".

This has entailed the bringing together of key stakeholders and resource people (private sector, NGO sector, government, and community representatives) from the Eastern Caprivi and Chobe to discuss cross border natural resource management and utilisation of the Chobe-Linyanti wetland area.

### **Sub-objectives**

1. To exchange information on the conservation and utilisation of wetlands of the Chobe-Caprivi area;
2. To identify, discuss and analyse key areas of cross-border wetlands management in relation to tourism, wildlife, fisheries and fire;
3. To seek opportunities for improved wetlands conservation and sustainable utilisation;
4. To identify and specify common actions in some of the key options that would pursue improved natural resource management and utilisation and enhance the conservation and economic value of the wetland ecosystem;
5. To identify opportunities to link wetland conservation and sustainable use to the enhancement of the well being of wetlands residents; and
6. To increase public awareness relative to the conservation and utilisation of wetlands through media attention.

### **Outputs**

- Resource conservation and utilisation situation clarified and presented in papers;
- Grounds prepared for further dialogue and improved understanding;
- Actions designed and policy changes identified for wetlands management and utilisation, and recommendations formulated;
- Workshop proceedings; and
- Press releases and articles in the media.

## **Discussions and Presentations**

The workshop discussions will be divided in three parts:

Part one will focus on introductions to the wetland ecosystems in the Chobe-Caprivi Sub-project area with discussions relating to the general situation regarding conservation and resource use.

Part two will concentrate on four specific issues of transboundary wetlands conservation and resource management: tourism, wildlife, fisheries, and fires.

The workshop discussions will end up in Part Three with recommendations and further actions.

There will be five presentations from each country (introductory presentations and four specific topic presentations). The idea is that the presenters will provide a balanced mix of government, NGO, private sector and community representatives. (See Programme and List of Participants in Appendices B and C)

# THE EASTERN CAPRIVI WETLANDS

**DR. E. TAYLOR**

*Freshwater Ecologist, Department of Water Affairs, Namibia*

## **Introduction**

The Caprivi region covers an area of approximately 20 000 km<sup>2</sup>, of which 13 000 km<sup>2</sup> forms the eastern Caprivi. This eastern part of the Caprivi Region i.e. the area east of the Kwando River is richer in wetlands than the rest of Namibia combined. The rivers, lakes and swamps in this area comprise a major series of wetlands in the subcontinent and represent the only permanent water features within the borders of Namibia. The area is topographically featureless and almost completely flat which leads, in part, to its interesting and complex hydrology. The area averages 930 m above sea level with a maximum rise and fall of about 30 m from east to west. It is almost entirely bounded by rivers, the perennial Zambezi and Kwando in the northeast and west respectively and the semi-permanent Linyanti-Chobe systems along the entire Botswana border. About 6 000 km<sup>2</sup> of the entire area can be classified as true wetland and about 1 000 km<sup>2</sup> of this is open water.

In years of high rainfall and good floods, the Kwando basically acts as a tributary of the Zambezi river, with water flowing from the Kwando into the Linyanti swamps and then through to Lake Liambezi. When full, the Lake has an outlet into the Chobe River, which subsequently joins the Zambezi at Kazangula. The Kwando-Linyanti systems are then linked directly to the Chobe-Zambezi systems forming a single, continuous wetland area. The amount of water flowing into the lake from the Kwando-Linyanti system is, however, insufficient to prevent the Lake from drying under normal conditions and it requires additional input from the Bukalo channel and the Chobe to remain full. Reduction of flow and flooding in the Kwando and Zambezi rivers, due to consecutive years of low rainfall in their catchments upstream of the Caprivi, has led to complete drying of the Lake and consequently the Linyanti Kwando and the Chobe-Zambezi systems are currently no longer connected.

The eastern Caprivi area has the highest rainfall in Namibia (averaging between 740 and 1 000 mm per annum). This, in conjunction with the rich alluvial soils associated with the floodplains, makes the area quite distinct from the arid interior of the rest of the country and thus of great importance to Namibia.

## **Current Hydrology of the Eastern Caprivi**

As already mentioned the hydrology of the area is both interesting and very complex and is due in part to its flat nature, allowing even small rises in water level to have far-reaching effects. The area can be divided into five main wetland zones, namely the upper Kwando River, the lower Kwando River and Linyanti swamp, Lake Liambezi, the Chobe Marsh and the Zambezi-Chobe floodplains. Although these will be described separately and are distinct areas, it is possible for all five to interact and form a single continuous wetland.

## **The Zambezi-Chobe Floodplain**

In November, at the end of the dry season, the Zambezi River begins to rise, partly due to local rainfall, but mostly due to water falling in its 3.34 million km<sup>2</sup> upper catchment area in Zambia and Angola. The river has a mean annual flow of 40 000 million m<sup>3</sup> per annum, over 30 times that of the Kwando and, together with the Chobe, forms the largest floodplain in the area. The flood typically lasts between 4 to 6 weeks in March and April and starts when the Zambezi reaches a level, at which it begins to break its banks along its southern shore, east of Katima Mulilo. Water spills out of the main channel and into the floodplains in Namibia; a much smaller volume also flows northward into the floodplains in Zambia. In an average year, the Zambezi will flood around 30% of the eastern area up to a depth of about 1 m, although this can be up to 3 m depending on the height and duration of the rise of water in the main channel. Water follows a network of shallow depressions, deep channels and permanent backwaters south and east across the floodplain and eventually spills out of these

and across open grassland. Eventually the flood subsides back into these channels but the far eastern area can remain inundated for very long periods and thus supports vast beds of papyrus and reeds.

Rising water levels in the Zambezi also cause water to begin to flow into the Chobe River, both directly from its junction with the Zambezi along the Kasai channel, and indirectly by water flowing across the floodplain from the north and east. The normally static or very gently eastward flow, of the river is reversed and water starts to flow upstream. In a westward direction causing flooding in the Chobe valley itself and along the southern parts of the eastern Caprivi. In years when the Zambezi rises to 5 m or more in Katima nearly the whole of the eastern part of the floodplain area can be inundated, with just a few islands left above the water e.g. Schuckmannsberg, Mbalasinte and Muzee.

#### **The Chobe Marsh and Lake Liambezi**

In addition to flooding the eastern floodplain area, water pushing up the Chobe River fills the Chobe Marsh, the area between Ngoma and Lake Liambezi. The marsh has an estimated area of approximately 300 km<sup>2</sup> but is often dry and relies on big floods to fill it, although not as large as those required to fill Lake Liambezi. This area was filled in 1989 and has been again this year. In very high floods, water can reach Lake Liambezi itself, which appears to be cyclical in its appearance. Reports dating back to those of Selous in 1879 stating "the presence of a large inundated lake" are interspersed with sightings of "a dry or burning area" in the same location. The most recent complete drying of the Lake was in 1985, although a small area of some 200 ha was wetted by a big flood in 1989 - this lasted for only 8 months before disappearing. A small section of the Lake has been inundated again this year but it remains to be seen exactly how much has been wetted and how long this will last. The Lake, when completely full for any extended period, is a very important fishery and used to produce as much as 1 ton of fish per day. Complete filling of the lake basin will not occur unless all three of its sources supply water; namely the Chobe river, the Bukalo channel and the Kwando-Linyanti system. The Bukalo channel should supply water to the lake at approximately the same time as water enters from the Chobe, as both are fed by the rising Zambezi. In the 1970s it was believed that a flood of over 6 m in

Katima would be high enough for the Bukalo channel and the Chobe to flow into the lake. Over the last decade of drier years, the Bukalo channel has completely dried out, been filled with encroaching vegetation and put to the plough. All these actions prevent and delay water from flowing easily along the channel. This year, despite a reading of 6.27 m on the gauge plate in Katima, the water that made its way into the channel failed to reach the Lake and stopped approximately 1 km north of the main Katima-Ngoma road.

#### **The Upper Kwando and Linyanti Swamp**

The third potential source of water to Lake Liambezi is from the Kwando-Linyanti system. The Kwando is a small perennial river with a catchment area of 170 000 km<sup>2</sup>, chiefly in Angola. The river meanders over a floodplain up to 5 km wide across the Caprivi Strip and forms the western boundary of the eastern Caprivi floodplain area. The floodplain in this narrow strip has numerous backwaters side-channels and, most notably, ox-bow lakes formed by the meandering process with a total surface area of two hectares. Floodwaters appear from June to August and the river has a mean annual flow of almost 1 200 million m<sup>3</sup> per annum. Water flows almost directly south through the Mudumu and Mamili parks and eventually swings north-cast along the Chobe fault (caused by frequent earthquakes) into the lower Kwando and Linyanti swamp. The level of the Kwando River rises much later than the other Caprivi rivers despite its headwaters lying directly between those of the Okavango and Zambezi. The later rise in this system is thought to be caused by the river passing through an extensive area of floodplain in Angola before entering Namibia, this slows the flow and reduces the volume of water moving downstream, thus delaying, reducing and attenuating the flood. When the river level begins to rise, between June and August, and assuming the rise is large enough, water is pushed all the way down the Kwando River, up into the Linyanti system. This uniform *Phragmites* / *Cyperus* dominated reed swamp is approximately 3 000 km<sup>2</sup> in area and was measured as less than one third open water (as compared to just over 50% for the upper Kwando) in 1985. This area has diminished, partly due to the successive years of low rainfall in Angola and perhaps also partly due to the effects of the Angolan floodplain upstream, and the area between Linyanti and Lake Liambezi is now dry. The Department of



Water Affairs in Namibia are currently running a flow gauging, and tracer project designed to assess where and how far the water from the Kwando River goes once it enters the Linyanti system. In previous measurements taken during wet years it was estimated that about 10% of the flow from the Linyanti-Kwando system made its way into Lake Liambezi.

With the Okavango and Zambezi systems both experiencing good floods this year it is expected that the Kwando River will also flood but it shows no signs of doing so at the moment.

### **Biology of the Eastern Caprivi Floodplains**

The eastern Caprivi wetlands support a wide range of plants and animals, from large mammals such as elephant to small insects such as dragonflies, from mature stands of native trees such as the water fig (*Syzygium guineense*) to mats of the alien, invasive weed the floating water fern - *Salvinia molesta*. It is impossible to cover the entire ecology of this area in detail here and so reference will only be made to some of the most salient and interesting features.

#### **Plants:**

The areas of flowing and standing water support a common assemblage of water plants. In flowing water the submerged, so called oxygenating plants, such as *Polamogeloi lzhimbergii* and *Largarosiphon* spp. dominate, with *Ceratophyllum* spp. more common in still or slow flowing water. The stationary backwaters are dominated by lilies, such as *Nymphaea* and *Nymphoides* spp., water chestnut *Trappa naluans* and the exotic *Salvinia molesta*, now controlled to a satisfactory level by the weevil beetle *Cyrtobagous salviniae*. Along the edges of flowing and still waters, papyrus (*Cyperus papyrus*) and reeds (*Phragmites mauritianus* and *australis*) dominate, as do many smaller species of sedge and Hippo grass (*Vossia cuspidata*).

Away from permanent water the vegetation changes and its make-up is dependent on the degree of flooding to which the wetland area is subjected, how often this occurs and the length of time the area remains wet. The mosaic of species occurring across the wetlands changes from area to area, is very complex and well described in the newly produced "Environmental profile and atlas of the Caprivi" by John Mendelsohn and Carole Roberts. In

General though, the wettest areas are completely devoid of any trees, or even smaller woody species e.g. in the Chobe valley, and covered with thick lawns of the most palatable grasses such as *Cynodon dactylon* which provide excellent grazing. The drier areas e.g. in the north of Mamili, are covered with less palatable grasses such as *Eragrostis* spp. and patches of woody species, such as *Combretum imberbe* and *Terminalia sericea* often restricted to small, raised island areas. At the edges of the flooded areas begin the Mop e (*Colophospermum mopane*) and *Burkea* (*Burkea africana*) woodlands e.g. in Maningimanzi and west of the Kwando River respectively.

#### **Invertebrates:**

In a study currently being carried out by the Department of Water Affairs in Katima, the freshwater invertebrate fauna of the main river channels is being assessed and used to determine water quality. Some 52 taxa have been recorded from the Zambezi river at Wenela, 47 from Kongola on the Kwando River and 37 from lhaha on the Chobe. All three sites are believed to have very good water quality with the differences between the rivers, in terms of numbers of taxa found, thought to be a reflection of habitat diversity and nutrient availability as opposed to differences in water quality. The majority of taxa come from the insect group and comprises mayflies (Ephemeroptera), with the fish-like genus Baetidae the most common and dragon and damselflies (Odonata), with the damselfly *Pseudagrion* spp. the most common. Crustacea such as freshwater shrimps (*Caradina nilolicea*) and crabs (*Polanionauies bayonianus*) are also found. The water borne vector for Bilharzia, *Bulitius* spp. snails, are also common in the Chobe and Kwando rivers but not in the Zambezi.

#### **Fish:**

My colleague Mr Simaana will talk about the fisheries in more detail later. Suffice to say the rivers and floodplains are home to a wide variety of fish species, with 82 species being recorded in the Zambezi River alone. The floodplains associated with these rivers appear to play a very important role in the life cycle of many of these fish species. Migrations, both longitudinally within the main river channels and laterally between floodplains and channels, have been recorded in 63 species here. Many fish, mostly the cichlids and clariads, move

from the main channel to flooded grassland to breed and thus regular and extensive flooding is vital to the continued survival of such species.

#### Birds:

The area holds the richest diversity of bird species anywhere in Namibia, largely due to the presence of its extensive wetlands. The area provides outstanding habitat for breeding residents as well as for migrant passerines, raptors and waders. Of the 620 bird species recorded in Namibia, 430 species have been found in the eastern Caprivi alone and of the 110 species recorded in Namibia that are rare, endangered or need to be monitored, 73 have been found in the same area. Particularly interesting and endangered species found include the African finfoot (*Podica senegalensis*), the African skimmer (*Rynchops flavirostris*), rock pratincoles (*Glareola nuchalis*) and wattled cranes (*Grus carunculata*).

#### Large Mammals:

The presence of large, wild mammals in the eastern Caprivi is restricted mainly to the areas along the Kwando River, including Mudumu and Mamili parks, southeast of the Ngoma road in the Salambala area and along the Chobe River opposite the Chobe National Park. The Caprivi used to be one of the richest areas for game in the whole of southern Africa but animal numbers dropped drastically due to unregulated poaching and wholesale killing of all kinds of species during the pre-independence years. Elephant are widespread in the areas mentioned and move as far as Bukalo and Kabbe; there have even been reports of lone animals in Katima town centre within the last 4 years - at sight that was once very common according to local people. Wetland antelope species such as Lechwe, Puku and Sitatunga are particularly rare these days, this is thought to be due to the general drying of the wetland areas as well as poaching. Buffalo are still relatively common in the Mamili area, although the population there has suffered from both bush and ground fires in the last two years, with as many as 80 animals being put down again this year having burnt their hooves in boiling mud. Hippos are still very common in the Kwando and Chobe rivers but their numbers have dropped dramatically in the Zambezi and its associated wetlands.

#### Conclusion

It is apparent from the information presented so far that the eastern Caprivi wetlands are an extremely valuable resource to a country as dry and depauperate in wetlands as Namibia. But this area should not only be seen as valuable to the country in which it exists, not only because the rivers that feed the area flow from and onto other countries but also because ecology is no respecter of international boundaries. The wetland system described here plays a vital role in the whole ecological make-up of this part of the central Kalahari basin and indeed the whole of southern Africa and, I believe, should be likened in importance to the Okavango Delta. The future of the area as it exists at the moment is, then, not only in Namibian hands, but also in those of all our southern African neighbours Botswana, Zambia, Angola and Zimbabwe and perhaps even further afield in South Africa.

The problems that threaten the area are many and varied, local and national, easily addressed and perhaps impossible to deal with. In Caprivi itself they range from poaching of game and uncontrolled lighting of fires, to overgrazing and over-fishing. On a national and international scale they include pollution of water as well as abstraction and regulation schemes, and on a global basis they include global warming and the effects of weather patterns such as El Nino. For the eastern Caprivi wetlands to remain as a source of food and goods a venue for tourism and an ecological entity in its own right into the future will require the co-operation of all southern Africans as a whole and hopefully this meeting will be a beginning step in that process.

#### PLENARY DISCUSSION

A participant emphasised the need for a balance between scientific data collected by researchers and information gleaned from the community to enable correct sustainable development decisions to be made.

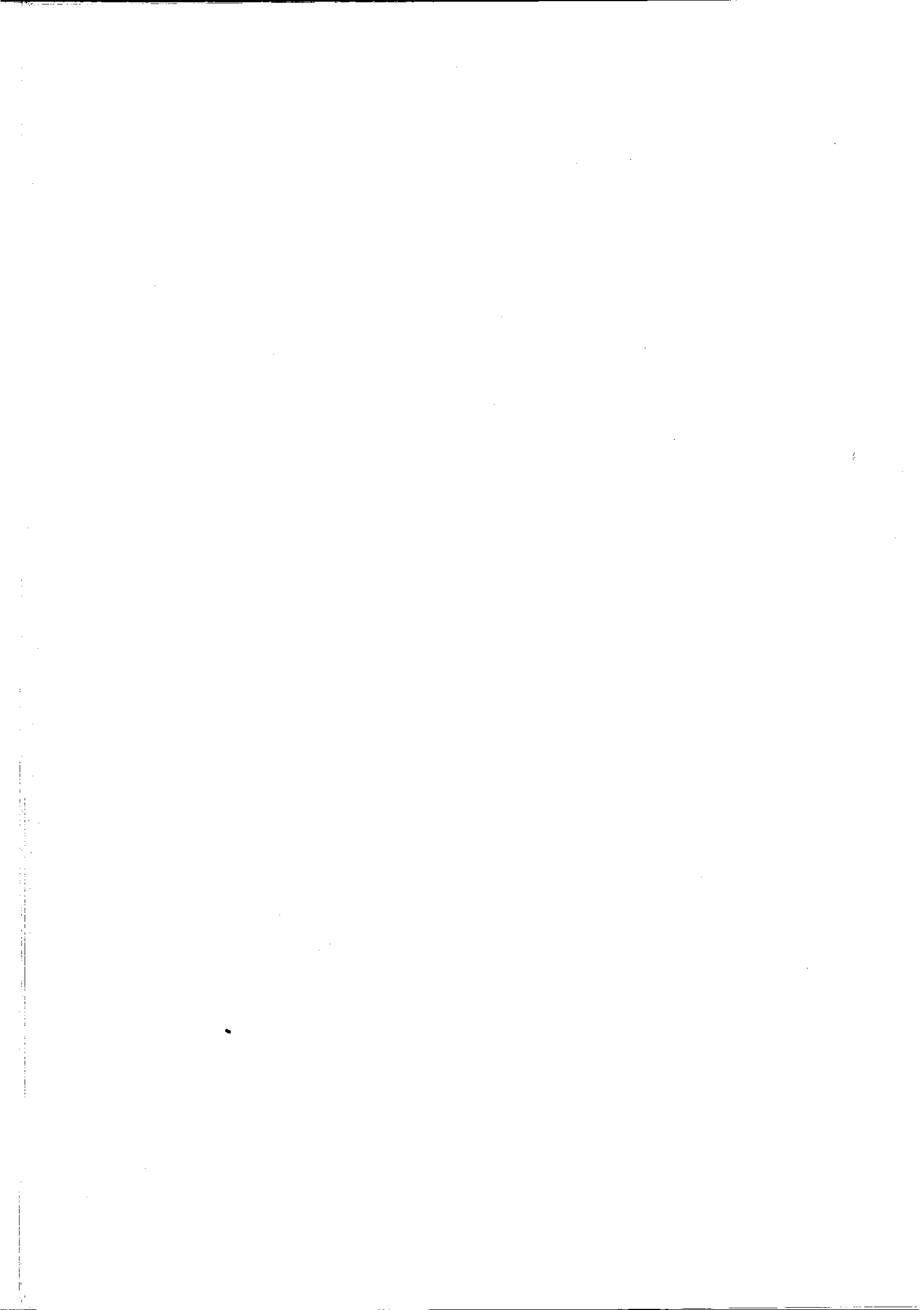
The presenter stated the water quality in the region appeared to be of a high quality, however the flows had certainly decreased. It was queried whether the sole cause of this was the drought in the region. The presenter explained that if the flow was initially low due to drought then siltation would increase, further decreasing the flows. As Hippopotamus

numbers decrease then the number of channels that are open also decrease.

The importance of forestry to the hydrology of the river was questioned. The presenter explained that in areas with few trees the recharging of the atmosphere with water (evaporation) is greatly reduced. Deforestation also reduces retention of water leading to flash floods, although it was questioned as to whether these effects were felt at a local or global level?

It was stated that the average annual rainfall in the Caprivi area was between 740 and 1 000 mm. Concern was raised about the fact that Lake Liambezi very rarely fills up with water and was there anyway to ensuring that this happened? The presenter explained that during the dry years of Lake Liambezi agriculture had been developed in the channels and lake with regular ploughing of this area contributing to inhibiting the flow channels. If Lake Liambezi was to fill up with water, agriculture would be superseded by fishing and a trade off observed.

It was stated that the flow of the Kwando River was very low this year, however lack of information from Angola, where there are a series of floodplains which flow into Namibia made it hard to deduce exactly why. It must be remembered however that rivers are constantly changing their structure and flow patterns, unlike the plains that have reached their climatic succession.



# THE CHOBE/LINYANTI/ZAMBEZI WETLANDS IN BOTSWANA: SOME KEY ISSUES ON TRANSBOUNDARY WETLANDS

**DR. H. MASUNDIRE**

*University of Botswana*

## Objectives

- To describe the location and extent of the Chobe/Linyanti wetlands in Botswana;
- To describe and discuss attributes and values of these wetlands;
- To highlight current and potential threats; and
- To discuss the wetlands as shared resources between Botswana and Namibia (to a lesser extent Zambia and Zimbabwe).

## Introduction

It should be noted that:

- Botswana is generally a dry country with rainfall ranging from less than 200 mm p.a. to about 700 mm p.a.;
- Very little surface water;
- Kasane (Chobe) is the wettest -  $\pm 700$  mm p.a.;
- Wetlands are few and therefore precious;
- The few "key" wetlands (Limpopo, Zambezi, Okavango, Chobe/Linyanti) are shared with neighbouring countries;
- While utilisation of natural resources is governed by sovereignty of state - such utilisation does not necessarily compliment across state boundaries; and
- As ecosystems, wetlands span across national boundaries.

## Location and extent of the Linyanti-Chobe-Zambezi Wetlands (in Botswana)

The Linyanti-Chobe-Zambezi wetlands in Botswana are located as follows:

17° 50' - 18° 28' and 23° 25' - 25° 05' E. They cover an area of 120 000 hectares to which may be added 3 000 hectares of the Savuti Marsh.

## Human Populations

It is difficult to get accurate data on human population living within the wetlands proper. The Chobe National Park reduces the area to human settlements.

The major centres within these wetlands in Botswana and their respective populations are:

- Kasane is the main population centre ( $\pm 7$  000 including Kazungula)
- Satau  $\pm 700$
- Parakarungu  $\pm 900$
- Kavimba  $\pm 900$
- Mabele  $\pm 850$

## Natural Resource Base

The wetlands are always recognised but relatively little information is actually known about the resource base. There are no detailed resource inventories. The following are some of the major exploited resources:

- Land - sand, and loamy clays;
- Water;
- Wilderness aura;

- Flora - hardwoods e.g. mukusi (teak), mukwa (*Pterocarpus angolensis*), musheshe, mopane, etc. also grasslands, *Papyrus*, *Phragmites*; and
- Fauna - ± 12 000 elephants, + 3 000 buffalo, lechwe, zebra, giraffe, impala, duiker, eland, roan, sable, tsessebe, steenbok, warthog, water buck, lion, leopard, cheetah, hyena, fish, crocodiles, etc.

#### Current Resource Use

Briefly, current resource uses include:

- Tourism (Chobe - the most popular park in terms of visitor statistics);
- Agriculture (subsistence molapo farming, and commercial irrigation);
- Fisheries (subsistence fishing, sport fishing, and )fishing safaris;
- Forestry Products; and
- Wildlife Exploitation (WMA's NG/a4, NG/15) (consumptive, and non-consumptive).

#### Current Threats

Some of the current threats to the sustainability of the wetlands include:

- Appropriateness of resource use;
- Levels of resource use;
- Perception of value (e.g. wild animal = food or enemy ⇒ must be killed);
- Political vs. ecosystem boundaries;
- Conflicting or non-complimentary riparian land use practices;
- Improper waste management practices;
- solid waste dumping; and
- liquid waste.

Failure by resource users and managers to recognise linkages between various components within the structure and functioning of ecosystems.

#### Potential Threats

More threats are likely in the medium - and long-term. These can be categorised as

- Natural threats for which we have little or no control (e.g., drought and climate change);
- Human induced threats for which we can attempt control;
- Population growth;
- Perception on opportunities;
- Overexploitation; and
- Conflict of interests.

#### Way Forward?

The following features were noted in Chobe District Development Plan 5:

- Importance of tourism;
- Sectoral approach; and
- Inconsistencies/conflicts

In order to fully appreciate the importance of wetlands, it may be necessary to state values of wetlands in economic terms. In order to do this, resource inventories must be carried out. However, it is not always possible to put monetary values to all resources. For example, could we say the cost of airfare, cost of camera, cost of film, cost of hotels, cost of safari etc. is this the value of a live kudu/elephant, monitor lizard, sunrise or sunset to a tourist who travels half way around the world to come to the Chobe National Park? What would be the value of such a resource to a local Motswana?

It is absolutely essential to change our approach to resource management. I advocate for an Ecosystem approach rather than a political/national approach. Training programmes at local, national, regional, international levels should be mounted by organisation such as IUCN to enlighten all resource users and managers about this ecosystem or ecosystem-based approach. With enough good will and commonality of purpose, it is possible to plan for the best use of transboundary resources. The attempt to

produce a Victoria Falls/Livingstone Development Master Plan is a case in point.

Such transboundary plans can benefit from regional and international conventions such as the Southern Africa Development Community (SADC) Treaty and protocol e.g. the Protocol on Shared Watercourse Systems, the Ramsar Convention and the Convention on Biological Diversity.

## PLENARY DISCUSSION

The value of this ecosystem has been presented and there is a need to remain focused to ensure its longevity of survival and achieve its true value. The wetlands area is an ecosystem that does not know boundaries.

We need to ascertain the actual capital value (economic value) of the natural resources. There is also a great demand for networking between organisations involved, especially as this is a shared ecosystem. The management of the ecosystem must also be transparent.

The management of waste was highlighted as being in need of immediate attention as this waste has reached a crisis state in both Kasane and Katima. A point was made that the tourists visiting this area do not normally just visit one specific site, but more often make a tour of different areas – i.e. Chobe, Caprivi, Hwange, Kariba etc. This highlights the importance of each area managing their own resources correctly as it has a knock on effect at a regional level.

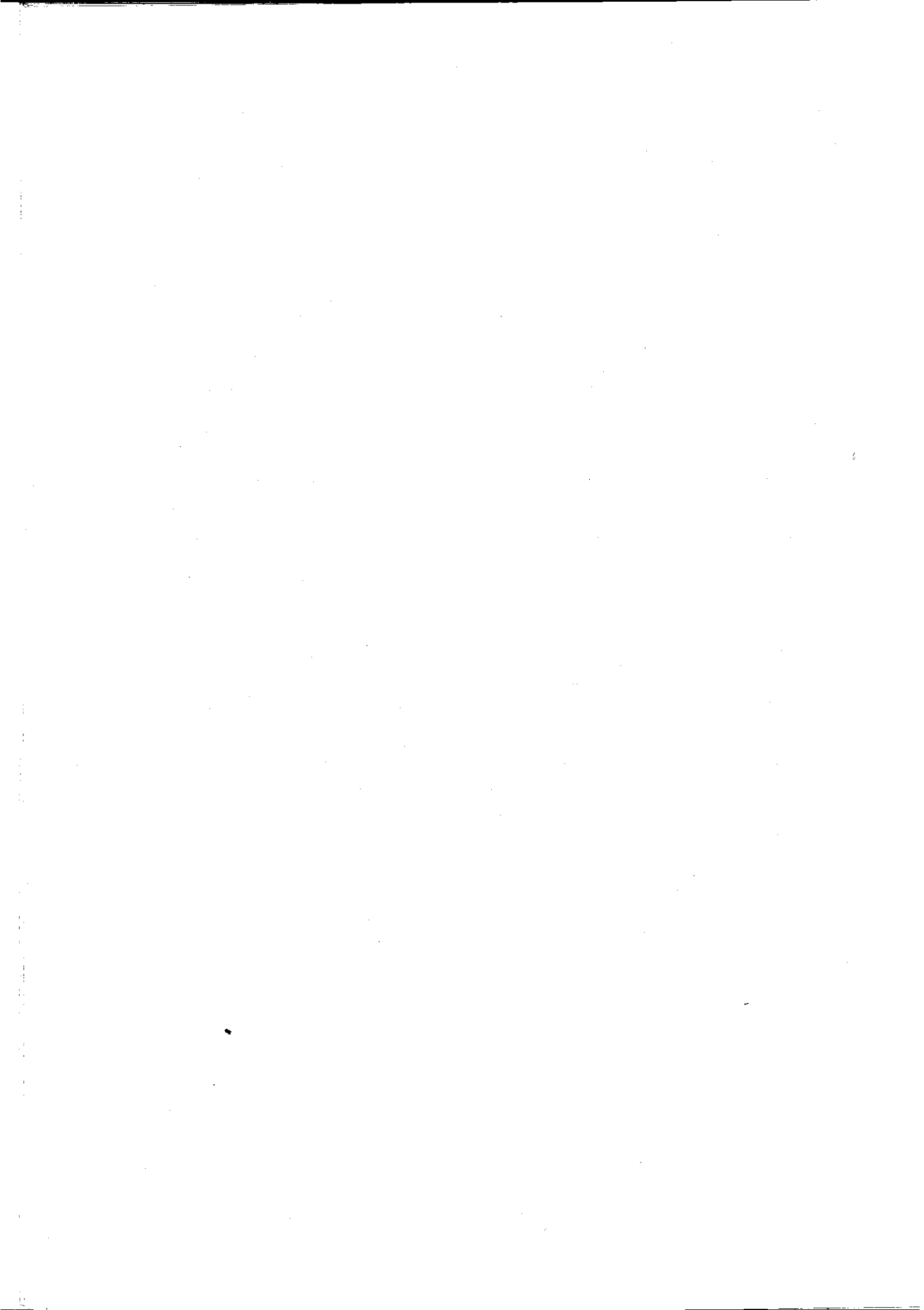
A participant stated that Wetlands are always recognised as being areas worthy of focus, but relatively little is actually known about them. There is a need for ongoing collection of scientific data. Is there information that has already been collected that is not accessible or is there a requirement for further data collection? The presenter agreed that there was a lot of information and data that needed to be made accessible. Currently funding for pure biological research is very hard to come by as most donors now fund “applied” science studies.

It was asked as to how the local communities benefit from the sustainable management of the natural resources in the ecosystem. The presenter explained that benefits were sometimes direct – an example cited was in

Zimbabwe where in some Community Based Natural Resource Management (CBNRM) programmes the community receives money directly from revenues received from hunting. Alternatively there are indirect economic benefits i.e. the improved roads in Kasane which were a direct result of increased tourism to the area.

The question of overpopulation of elephants in the ecosystems was brought up – are carrying capacities for elephants being reached? The National Park areas where elephants are more or less confined to were likened to managed farms. When farms have a surplus yield of any one crop then cropping is undertaken – why does this not happen with elephants? This brought in the question of whether you crop for financial gain or ecological reasons. A compromise much be reached between short and long term planning. The elephant debate highlights the idea of different perceptions. Political ideas are thought to influence peoples perceptions – it is questioned whether there is real evidence of conflicts and if so is this quantifiable? It was thought that the level of action is sometimes too extreme for the conflict problem in question.

In Pandamentenga in Botswana there was a problem with crops being lost – this was initially blamed on the few elephants that sometimes wandered through the area, however with proper investigation, it was found that elephants were a contributory factor with the drought, lack of seed germination and other factors playing a significant part.





# WILDLIFE IN THE CAPRIVI

**MR. C. MATEKO**

*Chief Control Warden, Ministry of Environment and Tourism, Swakopmund, Namibia*

## Background

Wild animal resources are of substantial value to the Caprivi population for several reasons:

1. They provide people with food - hunt for food;
2. Tourism - this depends mainly on the diversity and abundance of animals. Seeing game and birdlife attracts visitors. In the Caprivi region it is estimated that tourism contributes N\$ 31 million to the country's economy;
3. Some game species occurring in Caprivi have great conservation value because they are found nowhere else in Namibia, and even some species need national and international conservation efforts because they are uncommon in Africa;
4. They contribute to the health -of the environment in various ways e.g. people believe that in addition to lower rainfall, subsequent river flows, the clogging of river channels in the Kwando and Linyanti river systems is due to the declining numbers of hippos;
5. The hippos help to keep the river channels open which otherwise become overgrown with reeds and other aquatic vegetation; and
6. Wild animals are the Caprivi peoples heritage and it forms an integral part of the natural environment.

Over the past eighteen years a number of aerial counts have provided good information on the distribution of wild animals. At the moment all the game is confined to nature reserves and areas near the Okavango and Kwando rivers. In the past seventeen years there has been a great change in the number of large mammals in the Caprivi. The population of lechwes has dropped from over 11 000 in the 1980's to just a few hundred in 1995. The red lechwe used to occur

in large numbers on the eastern floodplains of Lusese, lhaha, Old Kabbe and Kabulabula areas and in the Chobe swamps, but now the species has disappeared from these areas.

The population of game species has decreased in Caprivi due to the following main factors:

- The increase in human population and the exploitation of game has led to a reduction in their numbers; and
- The lower rainfall and dropping of river levels has led to changes in their habitats, and change to climate.

The other reason, which has brought the declining number of game, is through illegal poaching by the inhabitants of the Caprivi. The population of cattle in the Caprivi has increased very fast, and grazing has been reduced, due to over stocking.

Now the greater number of predators has increased very tremendously, due to the fact that very few people eat meat of the predator like lion, cheetah, leopard and many others. All these predators need food for their stomach, but there is no game for them to feed on, the only animals which are available and easy prey, like cattle, goats and donkeys.

Now the conflicts between people and animals are experienced in the region due to the wiping out of all the game species, which was supposed to be fed on by the predators. Along the Kwando River, studies have revealed that between 80 to 100 cases of elephant problems have been reported to the Ministry of Environment and Tourism (MET) offices in Katima Mulilo between 1991 and 1995. During the same years about 70 to 80 head of cattle were killed by lions and hyenas. All the cases were reported from the villages bordering Mamili, Muduma National Park and Mahango Game Reserve. In the areas along the Chobe National Park in Botswana and on the eastern floodplains elephants causing damage to crops are being reported to the MET office. Damage to

crops usually occurs at night; the elephants go back to the Chobe National Park in Botswana in the day. The local inhabitants residing along the Chobe, Linyanti and Kwando rivers are crossing these rivers illegally to poach wild animals in Botswana. This has resulted in many people losing their lives, why it is because that there are no wild animals for them to poach in the Caprivi.

#### **Points of discussion and solutions**

- Clogging of river channels in the Kwando, Chobe and Linyanti river systems. Need to keep channels open which are overgrown with reeds and other aquatic vegetation;
- Habitat change due to the dropping of river levels, lower rainfall and climatic change;
- Poaching is another contributing factor which has brought declining numbers of game to the Caprivi;
- Conflict between wild animals and local communities, crop damage by elephants and hippos, stock losses to lions and hyenas;
- Cross border poaching by Namibians in Chobe National Park;
- The eradication of animals like Pukus in the Maningimanzi Island, and the declining number of red lechwe in the eastern floodplains; and
- Extinction of the black rhino in the Caprivi region.

#### **PLENARY DISCUSSION**

A participant stated that for a long time wildlife has been seen as either "food" or the "enemy" and in both cases the end result was to kill it. Managing wildlife correctly can certainly bring financial gain, however before this can happen the communities need to be made aware of the benefits. Additional economic returns need to be demonstrated, otherwise wildlife will continue to deteriorate. For this to be possible the communities need user rights to the land.

In the past the chiefs of areas used to have a system of watchmen who were responsible for

monitoring village activities. A good network of communication was in place and everything and every body was accountable. There is currently a lack of communication between tribal authorities, villagers and game rangers.

It was felt that there was a general lack of awareness of the benefits that can be derived from flora and fauna. In Botswana the Botswana Defence Force play an active part in safeguarding the wildlife resources by controlling poaching. As the Namibian Ministry of Defence is also not currently at war it was felt that a parallel body could be set up in Namibia to combat poaching.

It was felt that incentives of some sort are required for people to want to sustainably manage resources and run their own conservancies. When animals became a resource and not for hunting were the communities informed of the benefits? Poaching will never be stopped completely by arrests – a programme of awareness raising is crucial.

A participant explained that the Namibian Government is decentralising its powers and taking the Government to the people to enable them to work more effectively.

# WILDLIFE IN THE CHOBE ENCLAVE

**MR. R. DWYER**

Co-ordinator, Chobe Wildlife Trust, Kasane, Botswana

**Read by Mr. J. Gibson**

Chairman of Chobe Wildlife Trust, Kasane, Botswana

Animals move freely between the Chobe National Park and the Chobe Enclave.

The area is important for Chobe National Park because it forms part of the dry season refuge for large number of animals is and there are pans on the escarpment which enable mainly elephant and buffalo to utilise the teak forests.

Hunting forms the basis of a natural resource management project in Chobe Enclave but there is scope for other tourism ventures.

There is concern over the declining stocks of wildlife occurring in Northern Botswana and this will limit the opportunities for sustainable development.

Almost all these large animal species in Northern Botswana, except elephant, have declining populations; this has resulted in the reductions of hunting:

## Number of animals hunted per annum

This impacts not only on hunting but also on the potential for photographic tourism

opportunities and to gain the full benefit of the wildlife there should also be photo tourism lodges

The causes of the declines are varied :

- *Over-hunting and poaching*; these are mostly under control at this stage;
- *Changing water status in the region*; in recent years the Selinda spillway has not flowed, the Savuti Marsh and Channel have dried up, Lake Liambezi has held very little or no water and the Floodplains of the Chobe Enclave held no water from 1992 until this year; and
- *Reduction in the area available to wild animals due to men's encroachment*; the animals of the Caprivi Strip have almost been eliminated, before 1981 the floodplains of Chobe Enclave had large populations of lechwe, puku, sitatunga and reedbeek. Following the 1981-87 drought period only a few reedbeek remained and with the growing human populations living in the area are unlikely ever to return.

Communities now forming conservancies in the Caprivi Strip are finding that it is extremely costly and difficult to re-establish animal populations. The Chobe Enclave is fortunate in being adjacent to a conserved area like Chobe National Park which means that the wildlife is part of a larger more stable population than were they isolated. Even so it would be foolish to allow numbers to drop further without doing everything possible to stimulate population growth as the wildlife is providing the means for economic development.

The management of wildlife is likely to become more and more the responsibility of the citizens of CE and there is a need for members of the community to be trained in wildlife

management to advise the community in decision-making on an informed basis.

The management of the various areas must be co-ordinated and this co-ordination should not be limited to Botswana but include wilderness areas reclaimed as conservancies across the border in Namibia.

The people of Chobe Enclave must ensure that this opportunity is not lost by safeguarding the wildlife and the areas needed to support them.

If rhinoceros can ever live in the Chobe Enclave again then a great achievement will have been made for conservation.

## **PLENARY DISCUSSION**

The Chobe National Park should not be seen as a reservoir for species. Although it is bordered by the Linyanti, Kwando regions, private conservancies and the Chobe Enclave it does not support water related species in the dry season. During the dry season these animals move into wildlife management areas and the Chobe Enclave to search for water, which unfortunately coincides with the hunting season.

The declines highlighted in the paper are attributable to various reasons. The Buffalo declines, for example, are due primarily to the issuing of subsistence hunting licenses for citizens. This has now been phased out and Buffalo can only be hunted under a trophy license. Declines are also influenced by the decrease in space and rangeland available, increasing conflicts, ecological changes and the lack of refuges for animals when ecological disasters occur.

In the ecosystem there is increased usage of wildlife. Communities have traditionally used wildlife as a food resource. In the past this was done in a sustainable manner, as the human population was low enough. With increasing human populations the demand on the animals has increased to lead to an unsustainable level of usage. An increase in population of 3% is equated with a 5-6 % increase in domestic stock. The increase in domestic stock means in turn an increase of demand for land and encroachment into wildlife land. It was debated whether this increase in cattle numbers meant the population was generally getting richer or was this just certain individuals purchasing

lots more cattle. As this situation becomes unsustainable there is a need for the communities to reduce their level of consumptive usage of wildlife but other viable options must be presented before this can happen.

There must be co-ordination of management of wildlife – it has been shown at a national level the importance of wildlife to the economy. Wildlife is going to sustain local populations in the long term.

In general it was noted that there is an increase in human and cattle encroachment into wildlife areas. This brings in the question of land tenure – the Chobe National Park for example used to be crown land and the people do not own the land there. In Namibia the national park areas are controlled by the Ministry of Environment and Tourism and communities can only manage conservancies outside the park. On top of this many of the parks in Namibia are relatively new and there is no surplus of animals for the communities to manage.

The question of incompatible land use was highlighted. On the Botswana side there is a national park with extensive river frontage and a system of total preservation applied to the area. In Namibia in the Caprivi area there are many cattle areas and the system is not one of total preservation. If these land uses were made more compatible it would perhaps lead to more positive political relationships. At present there is a real "possessiveness of resource".

# FACTORS THAT WILL INFLUENCE A POTENTIAL OR EXISTING TOURISM OPERATOR OR INVESTOR IN THE CAPRIVI

**MR. A. VAN AARDT**

*Tourism Operator, Katima Mulilo, Namibia*

(see statistics in Appendix D)

On the east flood plain, Sable, Kudu, Reed Buck, Waterbuck and Lechwe occurred and have disappeared. Fires contribute to the greenhouse effect, which is thought to be changing the Earth's climate. While tourism can be the only sustainable industry in the Caprivi, government officials, local authority, traditional leaders and tribal authorities show a complete lack of interest or understanding of the tourism potential in the Caprivi. In some case there are even resistance to tourism development.

The Caprivi cannot compete internationally just on wildlife. Diversifying and developing our own product means emphasising wetlands, wilderness, cultural and traditional assets and appealing more to the "eco-tourist" who wants environmentally and socially responsible tourism.

It is the habitat and diversity as much as density of wildlife and pristine beauty of wide-open unspoilt landscapes and traditional life styles that attract tourists.

Community involvement has also become an important request on the modern tourist's itinerary. The Caprivi has all above qualities and potential, but its tourism potential and resource base lies in communal land. The broader participation in the industry and its profits is essential if the industry and wildlife base is going to get the support they need. Both from investor/developer and traditional leaders point of view.

Our destiny lies much in the hands of the tribal authorities, who own the land and rule the people. Communities are important to private operators (developers) not because of their wildlife right, but because of their de-facto control of land-use, potential threat to

conservation and specifically their right to practice agriculture anywhere on communal land, which can undermine a tourist venture. While anti-poaching may be the initial target, it is land use planning that will eventually determine whether wildlife (and tourism) survives. It is important to note that our (Namibians) national responsibility is enshrined in art. 95 (1) of the constitution of Namibia which aims at "the maintenance of ecosystems, essential ecological processes and biological diversity".

It is therefore, more important than ever, for traditional authorities, private developers and non-governmental organisations (NGOs) to get together and assist to define a traditional authority land use plan that can strictly be enforced. Communities must be encouraged and assisted to form conservation and core conservancy areas. NGOs must train and employ community game guards. Regular workshops on conservation should be held for communities and traditional authorities alike.

It is for instance necessary to look at the formation of a conservancy area along the Chobe river where we have a natural supply of game crossing from Chobe park. A conservancy here will also diffuse any possible border conflict as has been in the past. Existing tourist developers/investors should flow more of their profits back into community tourism projects.

Traditional authorities should be assisted and advised to screen new projects to include a bigger community participation and sharing. Traditional authorities must be assisted to be financially capable to exercise their rights and policies more effectively.

Caprivi is surrounded by Angola, Zambia Zimbabwe and Botswana. Many animals move across these borders, leaders of today need to

give immediate attention to declaring a conservation zone to encompass these areas.

This zone is worth a great deal of money because it holds several valuable tourist destinations. The value of these destinations depends to a large extent on the successful conservation of both wildlife and attractive unspoilt habitats.

Botswana's most lucrative destinations are here (the Okavango Delta and Chobe) as is Zimbabwe (Victoria Falls, Kariba and Hwange) while Kafue and Victoria Falls are popular destinations for visitors to Zambia.

Tourism and tourist revenues from each country would have added value because of the status and prominence of the whole region that could be raised. The beauty of the region, its wildlife, people and water resources would indeed face a far more secure future.

Government and NGOs officials still seem to concentrate on unpractical unimportant issues instead of tackling the basic requirements first. This needs to be rectified urgently.

## **PLENARY DISCUSSION**

It was agreed that certain laws and acts are required to regulate the industry as well as more co-operation and integration between Government/traditional authorities and NGOs.

It is widely accepted that tourism has great potential but the Caprivians do not realise that real value of the land. The land in many parts of Caprivi is as valuable as a gold mine. This land is owned by the people in Caprivi however the government and tribal authorities seem to be giving the land away to private investors without thinking about the long term benefits. The communities are not always aware of the potential of the land and it's associated benefits so it is very important that practical advice is given to ensure communities have a fair deal. The traditional authorities must scrutinise investors and see what, apart from the promise of jobs, they can offer.

It was commented that despite all the problems with decreasing wildlife numbers and non-compatible land uses there was a marked increase in tourism. The presenter explained that the growth is certainly there but there is a real need to diversify the type of tourism

product and ensure that the communities are the end beneficiaries.

# TOURISM IN THE CHOBE – LINYANTI WETLANDS

**MR. J. GIBSON**

*General Manager, Chobe Game Lodge, Kasane, Botswana*

I had been asked to speak on tourism in the Chobe-Linyanti Wetlands with reference to numbers, economic value, constraints and opportunities.

Shortly thereafter, I read an article in the Star newspaper which, I think, made telling reference to the components we are looking for in this discussion and I quote:

*“With the growing trend for people living in the unnatural confinement of cities to escape, even briefly, to wilderness areas, there is a huge financial incentive to structure a viable nature tourism industry to the benefit of both developers of eco-tourist sites and the local inhabitants, usually among the poorest segment of the population.*

*The socio-economic benefits of eco-tourism include the generation of foreign exchange, the creation of jobs, stimulation of rural economy with added demand for agricultural produce, a boost for domestic industries such as hotels, restaurants, handicrafts and guide services and the promotion of conservation as authorities and the general public become more aware of the benefits of caring for the environment.*

*However, with the financial incentives come obligations. The dangers of exploiting pristine areas and misusing them and of exploiting the local inhabitants are very real.*

*It is far too easy to smother the real benefits of eco-tourism with bunny-hugging sentiment, local-culture kitsch and “green-wash”.*”

I believe in the sentiments expressed, and in particular the reference to “bunny-hugging sentiments” so far as the benefits are concerned.

I think we have today to be very clear in determining our benefits, to get back to good business sense and accounting which include the doing of cost-benefit analysis’. And per chance I received a very nice definition of cost benefit analysis, it is as follows:-

*“Cost-benefit analysis:- The analytical technique to appraise projects with quantifiable benefits and costs over a finite planning horizon. In project analysis, costs are goods or services used in a project that reduce the benefits of the project; benefits are any goods and services produced by a project that advance the projects objective. In economic analysis, benefits increase the national income of the society while the costs reduce the national income of the society. A benefit forgone is a cost, just as much as a cost avoided is a benefit. Costs and benefits may be either tangible - land, labour, materials, equipment are tangible costs, and increased production of goods or services is a tangible benefit - or intangible, which by definition cannot be directly valued, though they may be quantified in some form.”*

The Chobe-Linyanti Wetlands cross the national boundaries of Botswana and Namibia. Whilst we in Botswana have been deriving benefit from tourism by the utilisation of these wetlands, development in Namibia has been much slower. National objectives and criteria are also different in Botswana, the generation of foreign exchange is not really that important, we have lots of that, what really is important to us here is the development of sustainable rural activities which offer alternative, non-traditional activities to rural dwellers that keep them on the land instead of them leaving for urban areas where they will contribute to the unemployment statistics, social & housing problems, etc.

So successful have we been here in Northern Botswana that it is extremely difficult now to find labour, both Caprivians and Zambians been brought in to supplement labour in the unskilled categories.

The development of tourism in Botswana is relatively new and at present not adequately studied. Parts of South Africa have however developed similarly and have been studied in great detail, the results are telling, in the publication “Environmental Potential Atlas for South Africa” (published by J.L. van Schaik for

the Department of Environmental Affairs and Tourism in conjunction with the Geographic Information Systems Laboratory CC and the University of Pretoria) we find that the Eastern Transvaal, now Northern Province and Mpumalanga, is an area of relatively low Biological Productivity (Map 4.1), low Mining Potential (Map 3.5) yet in the whole of South Africa it enjoys one of the highest remuneration of Employees per Capita (Map 5.4).

Those are the ideals I believe we should be pursuing, from an area of relatively low potential we should be seeking enhanced values to the individual inhabitant.

In much of Ngamiland and the Chobe District we are, I believe, achieving those levels of success. How are we doing it and how can it be replicated in the other side of the Chobe - Linyanti, i.e., Caprivi?

In Botswana we have a policy of low volume, high quality tourism. Tourist rights are now granted by local or central government on a very simple basis, on the basis of a rental plus a resource royalty, these fees payable, normally, to the local authority. In addition the government receives revenues from gate fees, if in a National Park or Game Reserve, plus Sales Tax and, if the venture is successful, from the generation of Corporate taxes.

Based on the Botswana experience the following approximate figures apply when considering the funds flow, this of a camp once established i.e. after three years.

On the above basis the funds flow from a guest on a daily basis is approximately as follows:

From the above model it becomes relatively easy to calculate the economic benefits from a given number of beds/camps in a given area.

### Constraints

These are the numbers for the type of industry we are involved in, there are however of course a number of constraints:

- 1) Prime tourist sites are limited, it is the task of the environmentalists to determine the maxim potential carrying capacity in an area before over-utilisation begins to ultimately translate into a decrease in earning power;
- 2) Local communities often have to be prepared to make sacrifices in terms of traditional grazing/hunting rights and have to exercise considerable forbearance in the area of problem animals and their control. They must understand the need, this can only be done if they feel the benefit;
- 3) As most of this category of tourist is foreign, central governments must be in good international standing. On a local level good governance is a prerequisite,



this from the wildlife authorities and all other levels of local government on the ground;

- 4) Wildlife Departments must have the ability to protect the resource as well as the ability to protect local communities from the wildlife, resource;
- 5) The infrastructure must be able to support the relatively sophisticated needs of the industry i.e.:
  - roads
  - airport
  - communications
  - medical facilities
  - customs & immigration facilities
- 6) Fires must be controlled;
- 7) Training facilities must be established for local communities to be able to provide the skills required by the industry and further to later enable indigenous citizens to own and manage their own tourist undertakings;
- 8) Not all tourist development can be of a high cost nature aimed at foreign tourists, provision must be created for lower ends of the market, this especially to create a strong domestic industry;
- 9) Water flows of our key rivers must be maintained;
- 10) Marketing strategies must be developed;
- 11) We must maintain a clean environment;
- 12) Wildlife populations must be at a level that sustains quality tourism;
- 13) We must be able to regionally integrate; and
- 14) The industry is intensely competitive, we must ensure that we are able to deliver the highest standards to a very discerning public.

### **Opportunities**

By our current reckoning we on our side are reaching our maximum tourist carrying

capacities, we have about 700 beds in operation. Namibia has probably less than 20% of that figure on the same river system. If they were prepared to make the necessary sacrifices and look after the constraints they could almost certainly accrue similar benefits.

The Caprivi as a whole could, by developing a vibrant tourist industry:

- 1) Become a major regional foreign exchange earner,
- 2) Become a major revenue earner at central and local government levels,
- 3) Create quality employment options for their people,
- 4) Create opportunities for their people and institutions to become owners and shareholders in this industry,
- 5) Become participants in as many of the "other inputs" as possible i.e.:
  - provision of agricultural produce
  - provision of transport
  - provision of curios
  - provision of guiding services
  - provision of building services
  - provision of maintenance services, etc. etc.

Ladies and gentlemen I hope I have, from my own experience, been able to illustrate the meaningful economic value that can flow from the sustainable tourist utilisation of our wetland resources on the Chobe Linyanti.

### **PLENARY DISCUSSION**

Botswana's tourism policy was queried – is it low volume/high quality? It was felt that yes it was low volume to minimise environmental degradation to the ecosystem and high cost to ensure returns high enough to continue ecosystem management in a sustainable manner.

The Namibian side of the ecosystem is much more densely populated and hence tourism is harder to set up. The communities have to realise that there are certainly short-term gains

that will be lost but in the long term the benefits will be greater.

The revenue example shown was based on state land, however this equation can be applied to community land. The figures for rent and residency royalties would instead be returns to the community. Again the onus is on the communities to insist to the investors that they want equity.

It would be interesting to be able to articulate the economic value of wetlands and specifically their increased value over uplands.

Chobe Enclave Conservation Trust have recently set up campsite area for photographic tourism but they feel they need help with setting rates and training staff for management of the campsite. The Chobe Wildlife Trust indicated that they were happy to assist. Chobe Enclave Conservation Trust was set up in 1993 when the community got together to see how they could best manage the hunting quota and photographic royalties for the area. The communities take collective decisions and benefits are distributed equally over the five (5) Enclave villages.

# FISHING IN THE CHOBE – CAPRIVI WETLANDS

## ***A PLENARY DISCUSSION BASED ON KEY POINTS RAISED BY MR. P. O'SHAUGHESSEY***

*Director, Mantis Safaris / Nkwazi Fishing, Kasane, Botswana*

Wetlands are a multipurpose resource and need the correct balance of agriculture, fishing and wildlife. As the animal numbers decline there is bound to be a change in this balance. When governments allocate conservancies they must define boundaries and insist that communities undertake specific monitoring actions. During the past few years the bream and catfish stocks have been seriously depleted. Fish stocks are not protected and fishing is often undertaken using sand nets that catch all the eggs as well as fish.

There is little or no control of fisheries resources in Namibia. It was pointed out that although there is a fisheries department the focus is much more on salt-water fishing. There is no office in Caprivi and the nearest one is at Hardkop Dam. The fisheries research centre is situated in the driest part of Namibia and there are no set quotas and no guidelines.

There was a call for the ban of use of Gill Nets (Nets that trap all fish stocks and eggs). Recently communities have been seen to be using mosquito nets to fish, which were provided by the Department of Health and Social Security.

People do seem concerned about the loss of fish stocks from the area but it is very difficult to obtain statistics on the magnitude of the decline – a question was raised whether the fisheries department did store such data. It was thought to collate information on fish catches was a difficult task as there were so many communities fishing in the area and no requirements that the communities must declare their fishing catch. Fisheries plan to decentralise their control soon and it is hoped that this will lead to increased monitoring.

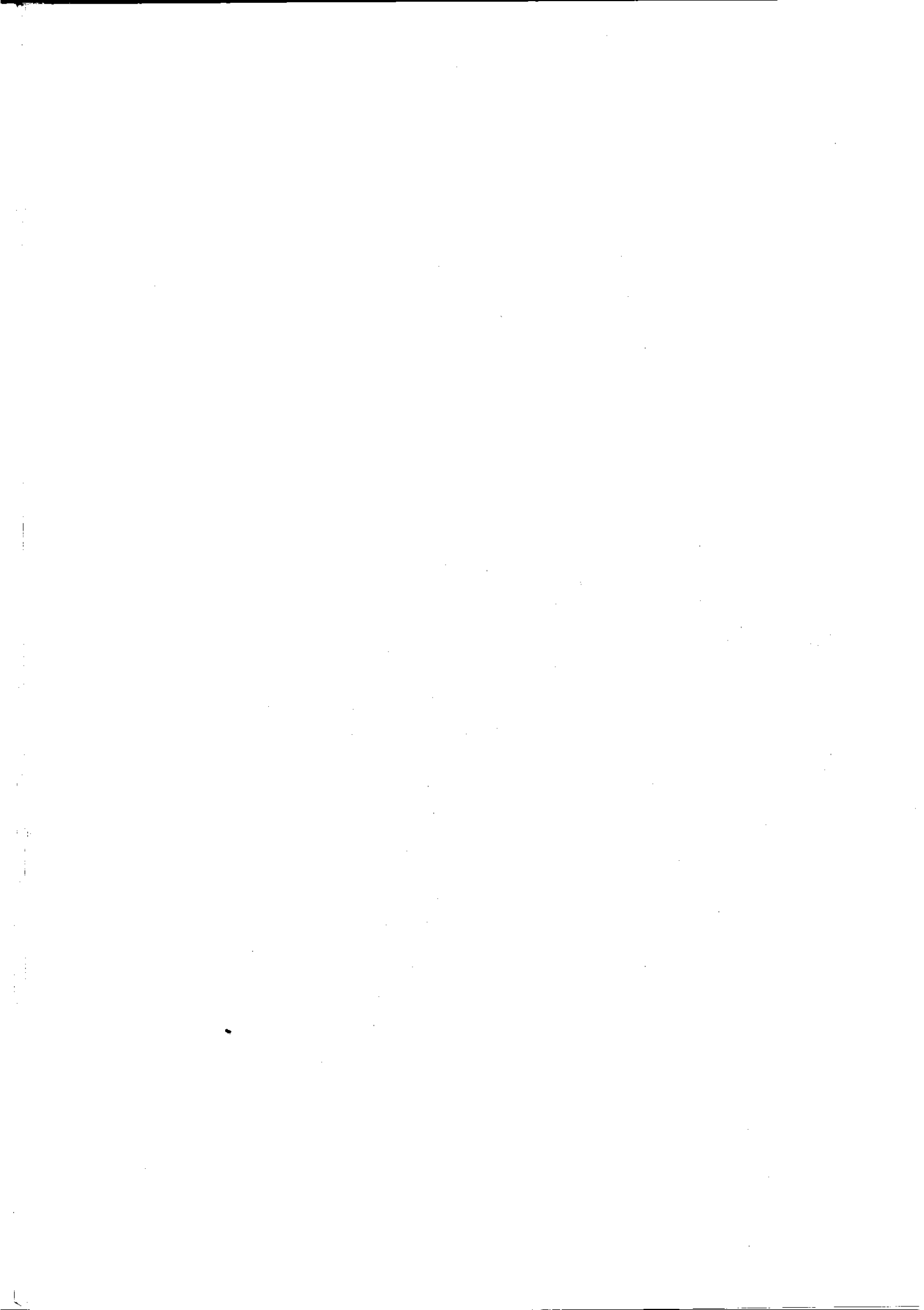
The tribal authorities in Namibia feel that support and assistance from central government is severely lacking. Within their own tribal authorities they have an elected

group of people who work with game guards and wildlife departments to stop over-fishing. As a tribal authority they also issue permits to communities, however the Government does not sanction this practice. They also monitor the size of Gill Nets that are used (currently only size 4 and 5 is permitted). A fine system is in place – i.e. if a fisherman is seen utilising the wrong size Gill Net he can be fined up to 5 cattle. The tribal authorities cannot continue this work alone and implore government to support their project. Perhaps with the forthcoming programme of decentralisation planned this might occur.

It was commented that whilst netting is always being blamed for over-fishing and depletion of fish stocks, was there any solid evidence to back this up? In the Kwando/Linyanti system no nets are used but fish stocks here have depleted greatly. Perhaps the lack of floodwaters is more to blame and not over-fishing due to net usage.

Fishing was cited as a good example of a "transboundary activity". In the Chobe system there is little scope for fishing as in the west there is the National Park and in the east there are the rapids. Therefore Kasane based fishermen are employing Namibians and fishing on the Namibia side of the river. No licence fees are paid, as there is no regulatory body controlling the system. This is seen as a missed opportunity for the Namibians as the Kasane fishermen are more than happy to pay a license fee.

The fish that are caught in the river system are generally not consumed but are sold on, thus creating a commercial industry. There is great demand from the hotels and lodges in the area for larger fish and therefore there needs to be an incentive for the fisherman to wait for an increase in size of fish to be able to receive a premium price.



# FIRE MANAGEMENT IN THE EASTERN CAPRIVI

**MR. F. BAINGA**

*Acting District Forest Officer, Directorate of Forestry, Namibia*

## **History of fires**

From the birth of the world and the end of time, fire has played and will continue to play an important role. Our lives have been shaped by fire, and we use it to shape the world that we live in.

People depend heavily on fire and have done so far thousands and thousands of years. Natural fires were probably used long before people even knew how to light fires of their own. As our use of fire has grown more sophisticated, so has our civilisation. From the first use of fire to provide warmth and protection to today's use of it to power complicated machinery, fire has been with people every step of the way on their journey through time. Fires that people make are a tool, and as such are used both for bad and good. Not only has fire given us heat, safety and light throughout the centuries, but it has also been used in guns, bombs and other weapons of great destruction. Some of its uses are two sided. For example, the combustion engine, which carefully controls the burning of fuel to make the wheels of the car turn, has been of great use in the transport of people and things. It has also contributed on a large scale to the pollution of our planet.

Traditionally fire has been used in east Caprivi in many ways. In most cases fire has been used in hunting, mainly to increase the visibility. Fire has also been used in homestead for heating and cooking. In east Caprivi fire is of significant to the livelihood of the local communities were the name "Katima Mulilo" originated, which simply means putting-out fire.

## **Fire and veld management**

Reasons for burning:

1. To remove dead grass material for animals etc.;
2. To remove unacceptable grass material; and

3. To destroy encroaching and undesirable plant materials.

The wrong seasons for burning:

Some farmers burn the velds in order to stimulate the growth of green grass out of the normal growing seasons. This is normally bad in the sense that:

1. It reduces the health and the vigour of the grass;
2. It reduces the canopy and ground cover;
3. It increase the water runoff; and
4. It results in greater soil erosion.

## **Background on management aspects of wildfires**

The vast majority of today's global wild fires are human-caused. The destruction of major habitats are result of the increased human population pressure, in the areas where fire is used extensively as a land treatment tool, such as the conversion of grassland into agricultural, lands in lie wetlands.

In the evolutionary history of the natural resources of wetlands in Caprivi, fire has significantly contributed to shape of the ecosystems. In addition, fire influence through traditional burning practices over millennia, has strongly favoured and selected plant species that are considered to be sustainable in a long term fire regime. The contemporary changing of fire regimes and the alteration of the previously sustainable ecosystems such as changing land use practices, has however, resulted in natural resources and site degradation.

The natural resources in the wetlands are severely affected by fires in most cases the communities or farmers by practising traditional agricultural methods were they burn the grasslands in or to stimulate growth of

green grass or they tend to clear their agricultural fields without a preventive measures result in increasing occurrence of escaping wild fires which in turn strongly affect the bio-diversity negatively.

Fire-induced loss of soil cover negatively affects hydrological regimes and soil properties leading to severe erosion and loss of productive topsoil. Repeatedly fires also damage the standing trees, eventually leading to their death. Also repeated fires destroy natural regeneration of indigenous tree species.

Fires result in strong impacts on the regional and global environment. At times, the smoke plume carries vast amounts of trace gases and aerosols which leads to photochemical smog concentrations comparable with those found in industrialised countries, in turn will increase the anthropogenic green house gases.

Fires also cause loss of human lives especially in cases where the Homesteads, Houses and other settlement are burnt, burning of grazing lands, leads to starvation and death of live stock. Statistically it was reported that hundreds of cattle died in the early 1990s due to lack of grass for grazing.

#### **Traditional systems of fire management**

Before 1905, wild fires were in most cases controlled by the local communities. The traditional tribal courts used to charge four heads of cattle to any one found lighting fires in the grazing lands. This was mainly because the land used to belong to the traditional chiefs and all the management aspects of the natural resources was the prerogative of the traditional leaders. As time past by, after the country was colonised, the approach to management of the natural resources changed. The government at that time ignored the participation of the local communities in the management of these natural resources and thus the communities had no access to utilisation and benefits of these resources within their vicinity. In other words the government became the "watchdogs" and the communities had no accountability over the natural resources. This trend continued and resulted in depletion of the natural resources by wild fires and indiscriminating cutting of the most valuable tree species.

#### **Effects of wild fire**

- Most of the valuable natural resources are negatively affected due to fires reducing their economic values;
- The vast carbon dioxide produced as a result of wild fires contributes to global warming and climate change;
- In 1996 there was loss of 150 buffaloes and several others wounded in the ground fire;
- In a similar incident 18 cattle died and over 100 of them sustained burns after being trapped in ground fire;
- In East Caprivi, most families cultivate in the lake Liambezi, occasionally this open grassland lake is burnt annually and in most cases destroying the harvest of the local communities; and
- Fires also destroy grazing land for both wildlife and domesticated animals resulting in starvation.

#### **Current government policies on management of natural resources**

During the colonial era all natural resources were seen as the property of the government hence the rural people had little or no say in the management of these resources. However, modern conservation approaches recognised the need to involve local communities in conservation and use of the natural resources. Thus, the Namibian Ministry of Environment and Tourism created the Community Based Natural Resources Management Programme (CBNM)<sup>1</sup> under the Directorate of Resource Management<sup>2</sup> to address the involvement of

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<sup>1</sup> What is CBNM? It is a conservation programme that promotes biodiversity conservation by creating the necessary conditions for sustainable use. It is a rural development programme that enables communities to derive tangible and non-tangible benefit from wildlife and tourism activities on their land.

<sup>2</sup> Directorate of Forest Mission Statement: To practise and promote the sustainable management of forests and other woody vegetation with the involvement of local communities, in order to supply products and services to enhance socio-economic development of Namibians, while

rural people in the management of wild life and deliver benefits from it. Likewise, the forestry strategic plan under the Directorate of Forestry as a national policy adopted the involvement the rural people.

These two separate fora put into place the controlled management of all the natural resources close to the local communities and bring about training of the local communities on the use of fire as a controlled tool under specific circumstances, while the major focus of the government is to empower the rural communities and shift the responsibilities of resource management for their benefits in future. This process of devolving government responsibilities of managing natural resources should take place gradually and be subjected to monitoring.

#### **Current fire management approach**

Following the Namibia forestry strategic plan, which was put in place after vast consultation from various professionals and stake holders, the Directorate of Forestry, the involvement of the rural people in management of fires in the East Caprivi was initiated with the assistance of the government of Finland. The community based forest fire control is just a component in the Namibia-Finland Forestry Programme.

#### **Community based fire management**

The community based fire management was initiated in the first phase as a component in Namibia-Finland Forestry Programmes, to reduce the occurrence of fire in East Caprivi with the involvement of the local communities.

#### **Establishment of community fire unit**

To begin with, local leaders were mobilised and included in the planning phase. The local leaders, together with the communities, establish a fire unit of about 10-20 people. After the fire unit has been established, a contractor is chosen who is a representative of the community and accountable for all the activities. The Fire Specialists then train the contractor. The training is thereafter extended to the rest of the community fire unit by the

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maintaining and enhancing the other environmental and conservation function of the resources.

contractor and a fire extensionist placed in each community.

#### **Training of the communities**

The training mainly constitute of making of firebreak 10 m wide, and suppression of any occurrence of fire. After the training tools are distributed to the communities. These include:

- Locally designed swatters for fire suppression;
- Protective clothing, overalls, boots, helmets and gloves;
- Slashers;
- Rakes;
- Axes;
- Hoes; and
- Bow saws.

#### **Follow-ups**

After the fire control unit in each community constructs fire lines around its area. Inspection and follow-ups are normally carried out by the Directorate of Forestry fire crew, which comprise of the District Fire Chief, two Extensionist and a Stores Man. These follow-ups are mainly to inspect the quality of work and determine burnt areas on the ground so as to compare with the satellite image.

#### **Objective of fire management component**

The main objective of the component is more protective than suppression of fires in East Caprivi. Thus the component is more emphasising training of the local communities on measures to protect and conserve the natural resources against wild fire by establishing community based fire control unit.

#### **Justification of the fire component**

- To ensure adequate protection and sustained beneficial use of the natural resources in East Caprivi, it was decided to incorporate rural communities;
- By controlling fires the woody biomass resource can be improved both quantitatively and qualitatively, thus encourages bio-diversity and regeneration of forests;

- Fire control will also directly benefit the animal husbandry, by raising fodder and woody biomass; and
- The possibility of establishing small-scale processing facilities in the rural centres, will lead to the market expansion of the demand side opportunities for both quality and a variety of natural resources such as wood and non woody raw materials.

### **Implementation phase**

The East Caprivi pilot project has in its inception phase (second year) expanded its fire prevention and suppression activities to 23 communities and its fire campaign to 46 local schools covering 20 000 people. In 1997, about 515 people from the rural communities were actively involved in the construction of 1 217 km of firebreak which costed N\$ 12 1 700.00 and together with the fire campaigns contributed to the protection of 202 000 ha in 1997.

### **Methods of fire campaign**

The following methods of fire campaigns were used in selected areas and schools:

- *Drama shows.* Plays on the role of fire prevention were staged in 46 schools and in the communities involved in fire control;
- *Billboards.* Four billboards were mounted in strategic areas one at Ngoma border post bordering with Botswana the other at Wenela border post bordering Zambia one on the high-road to Windhoek near Katima Mulilo and the last one in west Caprivi at Kongola. The people targeted are the travellers;
- *Radio programmes.* Interviews and panel discussion programmes on fire control and management were carried out on the local radio in the national newspaper;
- *National Newspaper.* Articles on fire destruction such as the death of 150 buffaloes in 1996 and the loss of other properties because of wild fire were published; and
- *Others.* A total of 880 fire posters and 3 500 fire newsletters were produced and distributed. 1 800 fire stickers were produced and attached to vehicles the

target group being the general public. Meetings were also held in different areas.

### **Monitoring of Fire Management component**

Satellite imagery pictures are depicted to determine the frequency of fire occurrences in East Caprivi.

In 1997 a number of fires occurred in the 23 communities. Some of these fires which were recorded by them were suppressed by the local communities involved in the programme.

*At least 38 cases of arsonists were reported in the pilot communities and the arsonists were charged by the traditional authorities.*

### **Future plans**

1. Research activities in fire management and silvi-cultural aspects in relation to fire should be intensified;
2. The National Fire Policy and Guidelines is under-way;
3. Establish a conservation and management unit in the communities for sustainable use in the joint venture with other agencies;
4. To maintain a strong authority among the local leaders to deal with cases of people found guilty of lighting fires; and
5. Gender balance in terms of natural utilisation and conservation should be promoted.



# VELD FIRE MANAGEMENT IN THE CHOBE

**MR. D. MABAKA**

*District Agricultural Officer, Agricultural Resources Board, Kasane, Botswana*

## Introduction

The district occupies an area of about 22 559 square kilometres making it one of the smallest and the least populated of Botswana's ten districts. However, about 49% of the total area of the district is the Chobe National Park. The remainder is divided between the forest reserves (about 20%), tribal land and the state land.

Ladies and gentlemen, veld/forest fires are fires that destroys vegetation which includes the grazing resources which is fodder for both livestock and wildlife, wildlife habitat, forests which provide valuable timber, shelter and human properties.

From the past Chobe District has been experiencing high incidences of veld fires which occur every year particularly during the dry season.

Tons and tons of valuable fodder for both livestock and wildlife and forest resources have been destroyed by uncontrolled bush fires while on the other hand human properties such as farm houses, huts, fences and cattle kraals have also been eaten up by these fires. Fires from the flat plains of Caprivi Strip also disturb the aquatic life such as fish from the Chobe River.

On the whole about 61% of the District was affected by veld fires in 1994, 20% in 1995, 5.8% in 1996 and almost 6% in 1997. A large number of areas are being left bare of vegetation because of these fires.

Approximately 1.5 million Pula is being lost in the suppression exercise, which includes the expenses, incurred on transportation, fuel and labour each year. What is most alarming is the damage that the fires do to the regeneration of the large trees of tomorrow. There is an obvious absence of juvenile trees to replace the mature trees that are destroyed by elephants. It is on this basis that one could deduce that the damages incurred by veld fires are many fold.

The table below shows the number of fires and hectareage recorded between 1994 and 1997 respectively.

Year	No. of fires	Area affected (ha)
1994	12	138 457.12
1995	2	41 000.00
1996	10	15 100.00
1997	10	15 100.00
Total No. of fires		42 657.12

*Bush Fire Record 1994-97*

On the basis of the above it is very clear that veld fires have some detrimental effects on the environment and that the effects are ecological, social and economical.

Ladies and gentlemen, Chobe is well known for its beauty and the Tourism Industry and therefore the national revenue derived from this Industry will be greatly reduced if veld fires continued to ravage our natural resource particularly forests and wildlife since these are our resource-base.

## Government programmes to combat veld fires within the Chobe District

### Bush Fire Management:

Having realised that veld fires cause a great concern to the Nation and indeed a serious threat to the environment, particularly our Natural Resources, the government established a bush fire project within the Ministry of Agriculture and under the Division of Agricultural Resources Board to deal with veld fire issues throughout the country.

The project is responsible for the construction and maintenance of firebreaks along both the international and district boundaries as well as around agriculturally fenced areas including Forestry Reserves and National Parks.

The main purpose/objective of the project is to control and prevent the spread of fires within the District to ensure that the beauty of this area as well as the grazing resources are protected and conserved for the present and future generation of this country.

The stakeholders in this regard are the division of Agricultural Resources Board, Department of Wildlife and National Parks and Forestry Division.

### **Fire Protection and Management**

#### **Fire Break Clearing:**

Mr. Chairman, a total distance of 781km have been constructed throughout the District equalling 75% of the total distance planned for (1 130) km and this of course includes all lines within the National Park, Forest Reserves and International boundaries. Maintenance of fire breaks is a continuous process on the constructed lines however it should be noted that the work is not satisfactorily done due to insufficient machinery coupled with regular breakdowns taking into account the geographical condition under which the machinery operates and delay in attending to these breakdowns.

The other constraint that we encountered as you may be aware is that most of our machinery if not all, particularly dozers, were taken to Cattle Lung Disease (CBPP) in Ngamiland where most of them suffered serious breakdowns and are now in bad shape while some of them had not been returned back yet.

The need for co-ordinated effort among the key stake holders and Local Authorities support are key elements to effectively carry out this work and sufficiently manage veld fires within the District. Mind you veld fire is a natural disaster just like any disaster so it should be taken as a national issue that effects us all and not a specific body or organisation.

#### **Causes of Fires**

Ladies and gentlemen, there are many causes of fires. However in Chobe District veld fires are caused by Bee Harvesters, Herdsmen, Campers, Grass Cutters and Poachers to mention a few. Some fires emerge from across the border within the neighbouring countries like Namibia Caprivi-Strip and Zimbabwe in the eastern side of the District. Of all the fires that

occurred in the year 1994, one fire emerged from Namibia while the other one came from Zimbabwe from the eastern side. In 1995 3 fires emerged from Namibia while in 1997 3 came from Namibia as well.

Normal entry points are Linyanti, Shaile, Mabosu, Parakarungu, Satau, Liyambezi, Kavimba and Mabele from the low-lying flat plains of the Chobe and Linyanti rivers.

Efforts have always been made to make our neighbouring countries aware of the situation, which is now deteriorating because fires continue to cross into our country. Forums such as cross border security meeting between Botswana and Namibian authorities have been created to discuss some of these issues and the discussions have been quite fruitful since our Namibian counter parts have promised to guard against these fires and that efforts were being made to come up with a national legislation which will control the situation after the engagement of a consultant in the country.

Since some fires emanate from Zimbabwe, arrangements are also being made to organise a forum of discussion between Botswana and Zimbabwean authorities as well.

#### **Fire Suppression in Chobe:**

Fire suppression is mainly done by Civil Servants since the Local Communities are reluctant to participate and want to be paid or given some form of allowances since they argue that government employees are paid subsistence allowance for sleeping away from their duty station during the suppression exercise. For this reason we would like our counterparts to tell us exactly how the exercise is carried in their respective countries and whether they encounter any problems or not.

We are hoping that the recent proposal to demarcate 6 000 ha of forest reserve boundary, which is Ngoma and Kachikau, will promote community involvement in the protection of this area from veld fires.

One of the limiting factors in fire fighting is that of lack of equipment such as water jackets or pumps, sprayers limited funds to pay fire fighters overtimes and subsistence allowance which often goes out before the fire season.

The other constraint is the lack of fire watchtowers.

Our detection system is not timeously done and as a result fire outbreaks are often prolonged because they are not attended to in time because of lack of transport and communication facilities.

Fires are reported by the Local Communities who do not have access to the existing radio communication equipment used by the council staff and NGOs in the Rural Areas.

Ladies and gentlemen, let me now focus your attention to the legislation aspects of the management programme in this country.

Ladies and gentlemen, an act of parliament was passed in 1997 to put more emphasis on the prevention and control of bush fires as provided for under the Herbage Preservation Act (Prevention of Bush and other fires act).

The law also provides for the prohibition of burning vegetation on any land of which one is not the owner or in lawful occupation without permission in writing from the Secretary of the District Subherbage Preservation Committee. The law also requires anyone to render assistance in putting out fires failing which penalties are imposed.

#### **Educational Programmes**

In addition to the above, educational endeavours on the preservation and wise use of Natural Resources are being continued to the general public, schools and now governmental organisations. This important assignment is being carried out by the Ministry of Agriculture Information Campaigns Section, and through seminars, workshops and public Kgotla meetings conducted by the District Conservation/Herbage Preservation Committees. It is intended that these efforts be continued to create awareness and sensitise the general public on the dangers caused by veld fires and the felt need to prevent these fires as much as possible.

#### **Community Involvement**

Lastly ladies and gentlemen the intention is to continue encouraging people not only to participate in the suppression activities but also in the preventative activities like reporting fire outbreaks, mobilising their resources for suppression activities, undertaking community/groups/individual bush fire

projects but with increased government support.

It is again very important to understand the common causes of forest fires in the country as earlier mentioned and I finally appealing to you that we should join hands and discourage causes of fires that emanate mainly from human beings.

#### **PLENARY DISCUSSION**

There is again a need for collaboration and co-operation here - the tribal leaders, government and communities must work together. Currently communities are being paid a subsistence allowance whilst they are fighting fires. It was pointed out that this was only in place because government officials received subsistence allowance whilst on duty, although there is a move to curtail this. Surely if land is a national resource everyone should want to work for the good of it and fight fires without receiving remuneration and everyone should be charged with the responsibility of fire management. Also if you pay people money to fight fires there is the temptation that fires might be started in order to receive money. The fire fighting policy currently in place was found to be sound; however a fire prevention policy needs to be implemented.

It was noted that sometimes the impact of fires on a savannah ecosystem is positive, however fires are burning far too regularly (every year) and the timing of the fires is currently far too early in the dry season. If fires burn too regularly there is a definite loss of nutrients from the soil. Kalahari sand is known for being nutrient poor and as fire rushes through, the nutrients from the plants move into the sand and are then washed lower down during the rainy season leading to a nutrient deficient soil which consequently supports fewer flora and fauna.

The Government has found that they alone cannot control fires. Community education on the benefits of burning breaks and de-bushing have been undertaken, as well as contracting out some of the Geographical Information System/Satellite Imagery monitoring and research into fires. The Department of Wildlife and National Parks in Botswana are trying to eliminate man made fires (which are generally the majority of fires raging annually in Botswana). Man-made fires can arise from

motor vehicle accidents, hitchhikers lighting fires, burning fire breaks, tourists leaving fires smouldering, etc. This elimination of man made fires is a not a view shared by all and some fire experts insist that man made fires have always burnt in this region with minimal negative impact. Infrequent fires can also be beneficial, as fire is a natural phenomenon, which contributes to regeneration if managed in a controlled way.

An analogy was drawn – fire damage looks unsightly initially so people are not keen on it, however the process of copping (chopping trees to encourage re-growth) which looks unsightly is widely undertaken in the United Kingdom for the long term good of the tree stocks.

What is this natural state we are aiming for? Is a constructed ecosystem natural? Surely no ecosystem is natural. Man has touched every ecosystem and currently pollution is affecting every ecosystem. We are surely managing ecosystems for the good/well being of the community and not for nature.

# RECOMMENDATIONS FOR ACTION

The following recommendations for action arose from various group discussions and plenary report back sessions.

## WILDLIFE

### Co-ordination

Wildlife conservation and utilisation take different forms in the Chobe – Caprivi wetlands. It ranges from the Chobe National Park, Forest Areas and Wildlife Management Areas (WMAs incl. CBNRM) in Botswana to community-based wildlife conservancies and multiple use areas in Namibia. Improved and co-ordinated wildlife management would certainly lead to enhanced (joint) benefits notably in the areas of conservation of the wetlands ecosystem and tourism development. The potential for tourism development in the area is high.

The following are currently perceived as conflict subjects and the workshop recommended that these issues be subject to further study and discussion between the two countries:

- Poaching;
- Problem animal control;
- Veterinary policies and practices;
- Problem domestic animals;
- Abuse of the river;
- Aquatic management; and
- Incompatible land utilisation.

For all of the above mentioned conflict areas there is a need to improve data and data analysis, increase cross-border information sharing and communication, and further develop different means of transboundary co-ordination. As with other recommendations mentioned in the above, the integrated nature of the ecosystem and its utilisation calls for the involvement of all stakeholders in both countries.

## Land Use Analysis

In order to realise the benefits of improved ecosystem management and tourism development there is a need to review present land use practices and identify and map present (and potential) land use conflicts. This would then lead to recommendations pursuing increased compatibility of land uses within the shared ecosystem but on both sides of the border. A cartographic exercise would be required and this was seen to be the crucial first step, which would facilitate much research, planning and action. The workshop noted that various other actions proposed as mentioned in the fire, fisheries and tourism discussions (notably those relating to harmonisation of practices, policies and regulations) would also benefit greatly from such a mapping exercise.

## TOURISM

### Community-based Tourism

The Chobe – Caprivi wetland ecosystem provides an enormous potential for tourism development. Local communities need to be informed and empowered to make full use of the opportunities as they exist and develop. Activities need not be solely community run but communities could offer services of interest to the private sector and enter into agreements / sub-contracts with the private sector. Multiple destination packages and varied tourism attraction packages could pursue these on both sides of the border. Community involvement and interest need to be actively pursued. The workshop suggested that this process of community participation and the accessing of much-needed tourism development funds be facilitated by employing a community-based tourism officer as facilitator.

### Co-ordination

In addition to the above, there is a need to improve cross border communication between tour operators and between local communities (and tour operators). Tourism can be developed in a variety of forms – cultural, mobile operations, lodges, tented camps etc.

Knowledge is available in the area and through exchange visits experiences could be shared. For example, the Chobe Enclave Conservation Trust (CECT) could offer valuable advice about their experience in establishing a community-run camp site in Kavimba to a community from Namibia who are interested in pursuing a community-based tourism activity.

### **Improved Access and Monitoring**

The above-mentioned activities in pursuit of cross border tourism development would have to be supported by measures to improve accessibility. In the area of transport for instance, more border crossings and the introduction of multiple-country visas were suggested as possible improvements. In order to avoid over-touristing to the detriment of the environment, the workshop suggested that some kind of tourism development plan for the area be developed between the two countries and that regulations about tourist numbers, density of lodges and other facilities etc. be included.

## **FISHERIES**

### **Collate Scientific Data**

Conflict often arises from fear i.e. what we do not know, which relates to a data gap. Once we fill these scientific gaps will we then be able to see if the conflicts are perceived or real? In the fisheries industry there is a lack of data on the following: fish size, fish populations, size of nets, number of fishermen, size of catch, number of operators fishing. However, a lot of data has already been amassed over the years; this needs to be accessible by both countries. The Departments of Water Affairs / Services in both countries are a good source of information. The data would need to be shared between the two countries for a proper assessment. An option would be to utilise a private organisation to assess stocks and present scientific data. IUCN, through its project in the Chobe - Caprivi, could investigate the fishing industry. Fishing experts on both sides would need to be approached to contribute to, and share, existing data in order to establish data gaps and requirements for further research.

## **Market Evaluation**

The potential markets both for commercial selling of fish and sport fishing needs to be defined and evaluated. What is the demand and where is it coming from? Communities are advised to work very closely with the tour operators, lodges in the area and private investors to ensure that mutually beneficial agreements are put into place. Market research would also facilitate reconciling current fish stock use and future requirements taking note of subsistence and commercial sport fishing needs.

## **Regulation**

There needs to be regulation / harmonisation of fishing practises and policies. Co-ordination requires an input from Botswana and Namibia through involving all the stakeholders - relevant ministries / tribal authorities / district councils / communities / tour operators / NGOs. There could well be a need for arbitration and discussion at different hierarchical levels. A system of licenses and quotas should be considered and, consequently, illegal fishing be outlawed. Zambia should also be included in the network.

## **Awareness**

A programme of awareness needs to be created to ensure that everyone is aware of the threats to fish stocks. NGOs and community-based organisations (CBOs) have an important role to play.

## **FIRE**

### **Collate Scientific Data**

The general objective of fire management is to reduce fires. However, there is some debate about the occurrence of "natural" and "human-made" fires and the different ways of responding to these fires. Such management actions need to be quantifiably defined based on scientific data of fire occurrences. Data needs to be accessed from experts and the institutions responsible for veld / bush fire control in each country need to meet to share information on fire occurrences and fire control practises. Information on veld / bush fires needs to be shared on a regular basis.

## **Co-ordination**

Regular cross border communication would improve fire management in both Namibia and Botswana. The establishment of a common monitoring system and early warning system is recommended. Information into the system need not only be supplied through official government channels. There is a need to ensure that all stakeholders are involved – tribal authorities, communities, NGOs, private sector etc. Government institutions responsible for fire management from each country present at the meeting agreed to meet to discuss the way forward.

## **Awareness**

There must be increased information dissemination about veld / bush fires and more strict control and law enforcement. With reference to the above, all stakeholders have a role to play in improved monitoring and fire management practices.

## **CO-ORDINATING COMMITTEE**

The workshop expressed the need to pursue joint management of the ecosystem through some formal arrangement. The existing Botswana – Namibia Security Committee looks at cross border incidents of poaching and problems with livestock movements and arable agriculture. However, this committee does not really look at overall land utilisation, the socio-economic aspects of land use and land use conflicts, their ecological effects and wetland ecosystem conservation and biodiversity issues. The meeting proposed the establishment of a Chobe - Caprivi Wetlands Co-ordinating Committee.

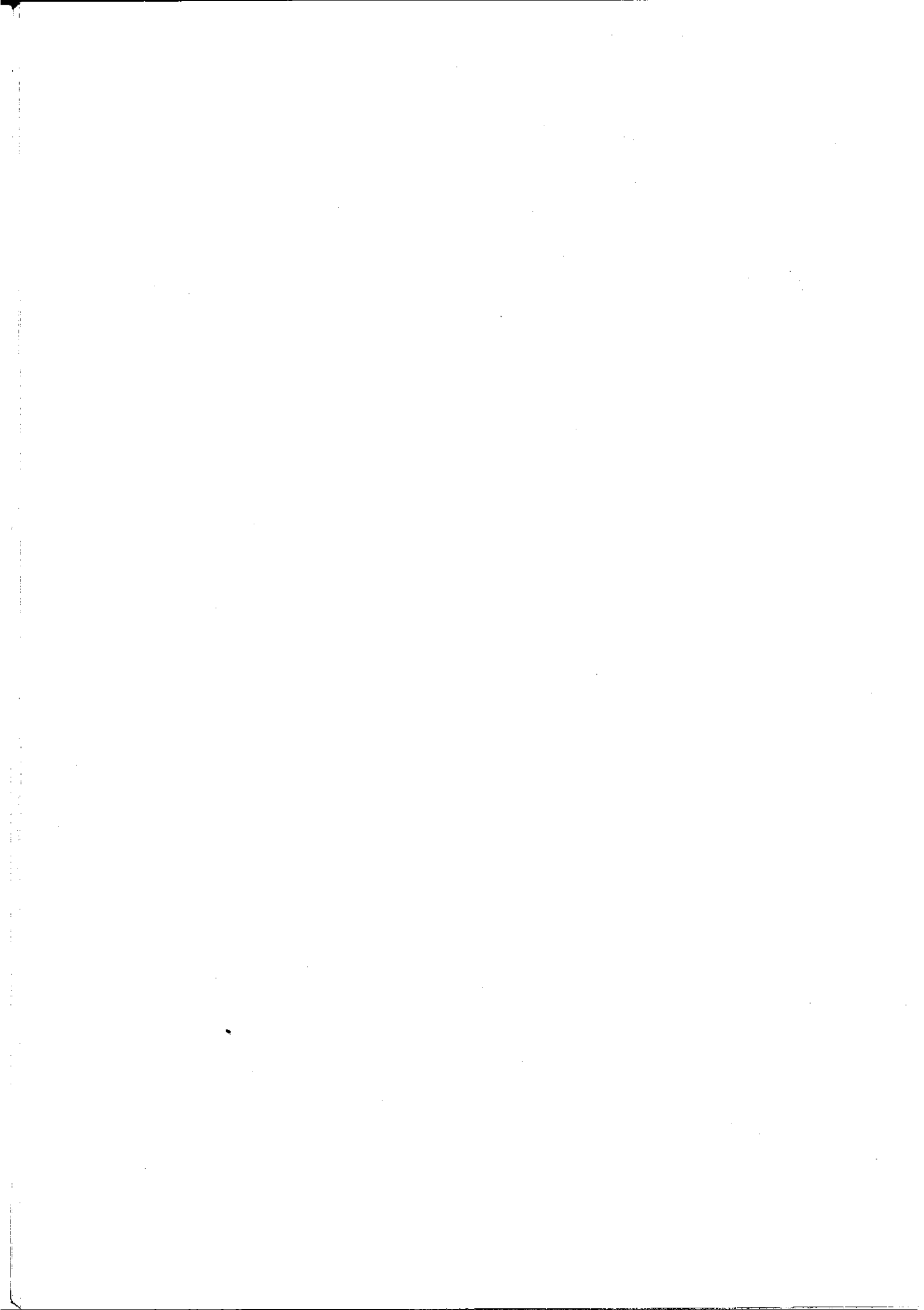
Terms of Reference of the proposed committee could include the following:

- Identify problems / conflicts;
- Facilitate analysis;
- Guide and co-ordinate action; and
- Monitor short and long term effects of action.

IUCN and the ZBWCRUP project were seen as facilitators of the transboundary dialogue and IUCN were requested to draft Terms of

Reference for a Chobe – Caprivi Wetlands Co-ordinating Committee using issues raised at this workshop and through soliciting input from relevant stakeholders. Once a committee is set up there must be information dissemination within the region, advising communities that there is a forum where transboundary issues related to ecosystem management may be presented and discussed.

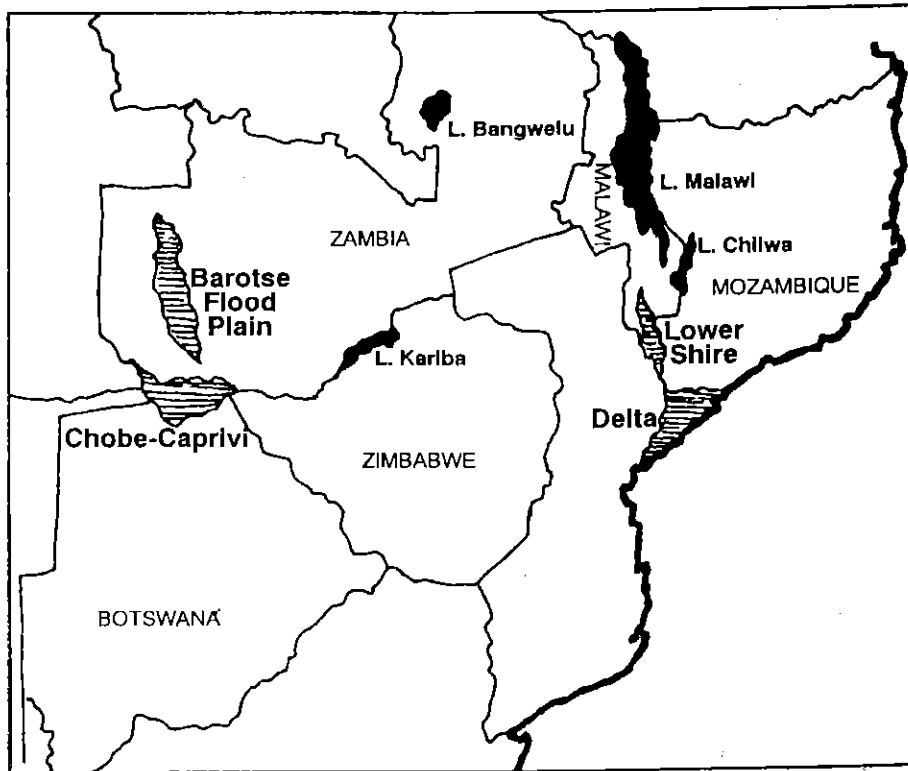
The meeting recognised that a new committee was not required to implement the Chobe-Caprivi sub-project of the ZBWCRUP as IUCN has put a small advisory group in place to guide the implementation of the programme in the Chobe – Caprivi area. IUCN undertook to modify the Chobe - Caprivi workplan within the ZBWCRUP project so as to focus on some of the issues and conflicts that were raised at the workshop. The workshop stressed that long-term commitment, going beyond the current ZBWCRUP programme, is an absolute necessity for the successful pursuit of integrated ecosystem management in the Chobe – Caprivi wetlands of Botswana and Namibia.

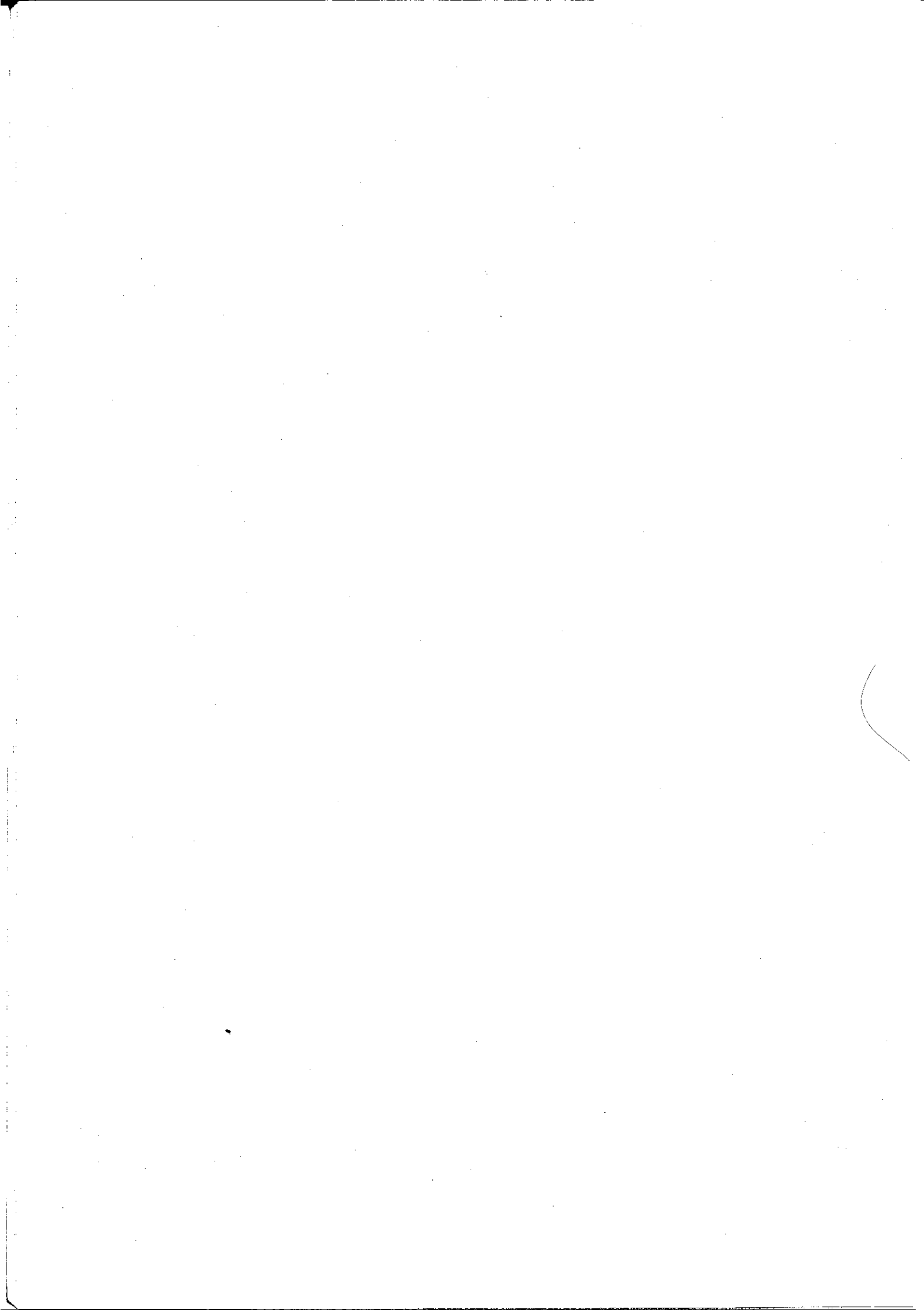




# APPENDICES

## A. THE ZAMBEZI BASIN WETLANDS SUB-PROJECT AREAS





## **B. WORKSHOP PROGRAMME**

### **Sunday afternoon / Monday morning:**

Arrival of participants / meeting of organisers

### **Day 1 – Monday 8 June 1998**

07.30–10.00 Field trip for participants (for Sunday arrivals)

09:45-10.15 *Tea / Coffee (for Monday morning arrivals + field trip participants)*

10:00-10.30 Registration

Official opening and welcome – *Kgosi Simvula*

Introductory remarks - *Governor John Mabuku*

10:30-12:30 Overview of the ZBWCRUP- *Mr. Eric Hiscock*

Overview of the Chobe-Linyanti Project – *Mr. Bernard Kamweneshe*

Purpose of workshop – *Mr. Ruud Jansen*

12:30-14:00 *Lunch*

14:00-15:30 Wetlands introductory paper, Caprivi incl. discussions - *Mr. Elliot Taylor*

15:30-16:00 *Tea / Coffee*

16:00-17:30 Wetlands introductory paper, Chobe incl. discussions - *Dr. Hillary Masundire*

### **Day 2 – Tuesday 9 June 1998**

08:00-10:00 Tourism and Wildlife papers incl. discussions - *Mr. Cletius Maketo, Mr. Ross Dwyer, Mr. Andrea van Aardt, and Mr. Jonathan Gibson*

10:00-10:30 *Coffee / tea*

10:30-12:30 Group discussions on Tourism and Wildlife topics

12:30-14:00 *Lunch*

14:00-15:30 Fisheries and Fire papers incl. discussions - *Mr. Phillip O'Shaughnessy, Mr. Felix Bainga, Mr. D. Mabaka*

16:30-18:00 Boat trip / game drive

**Day 3 – Wednesday 10 June 1998**

08:00-09:00 Report back from group discussions

09:00-10:00 General discussion

*10:00-10:30 Coffee/tea*

10:30-12:15 Discussion of recommendation and further actions

12:15-12:30 Closing of the workshop

*12:30-14:00 Lunch*

from 14:00 Departure of participants

**(Advisory Committee Meeting (Wednesday 14:00 – 17:00))**

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APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D	APPENDIX E
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APPENDIX A	APPENDIX B	APPENDIX C	APPENDIX D	APPENDIX E

## In the Caprivi (Namibia)

Caprivi has become the gateway to central Africa	
Foreign night tourist spend in the Caprivi	1
% of all tourists to Namibia who visit Caprivi	5%
Amount of tourist who visited Caprivi by 1996	50 000
Caprivi's tourist growth rate estimated 7 year	20%
Government in Caprivi (tourist spend)	10%
% of all houses constructed from wood	80%
% of households that used fire wood for cooking	90%
% of the Caprivi that was burnt by Oct 1996	50%
Total amount of Caprivi in 1996	100 000
Total amount of Caprivi in 1996	1 000
Total amount of Caprivi in 1996	1 000
Caprivi carrying capacity	1.1 million/yr
Area cleared for cultivation by 1996	171 000 ha
% of total surface area	5%
% of total amount of water used in Caprivi	2.7%
Total number of people in Caprivi by 1996	100 000
% of all houses constructed from wood	80%
% growth rate over 30 years	5%
Volume of ammunition used in Katima Mulilo	100 000 000 gms
This amounts to 1000 gun cartridges of	210 000 gms
How many other industries in Caprivi	10
Amount of livestock in each food plan in early 1990	50 000
Amount of livestock in each	100
Amount of livestock in Caprivi	500 000
% of total livestock	50%
Structure, culture, class & form were found in large numbers in the forest reserve in 1970	There are many more







Zambezi Basin Wetlands Conservation and  
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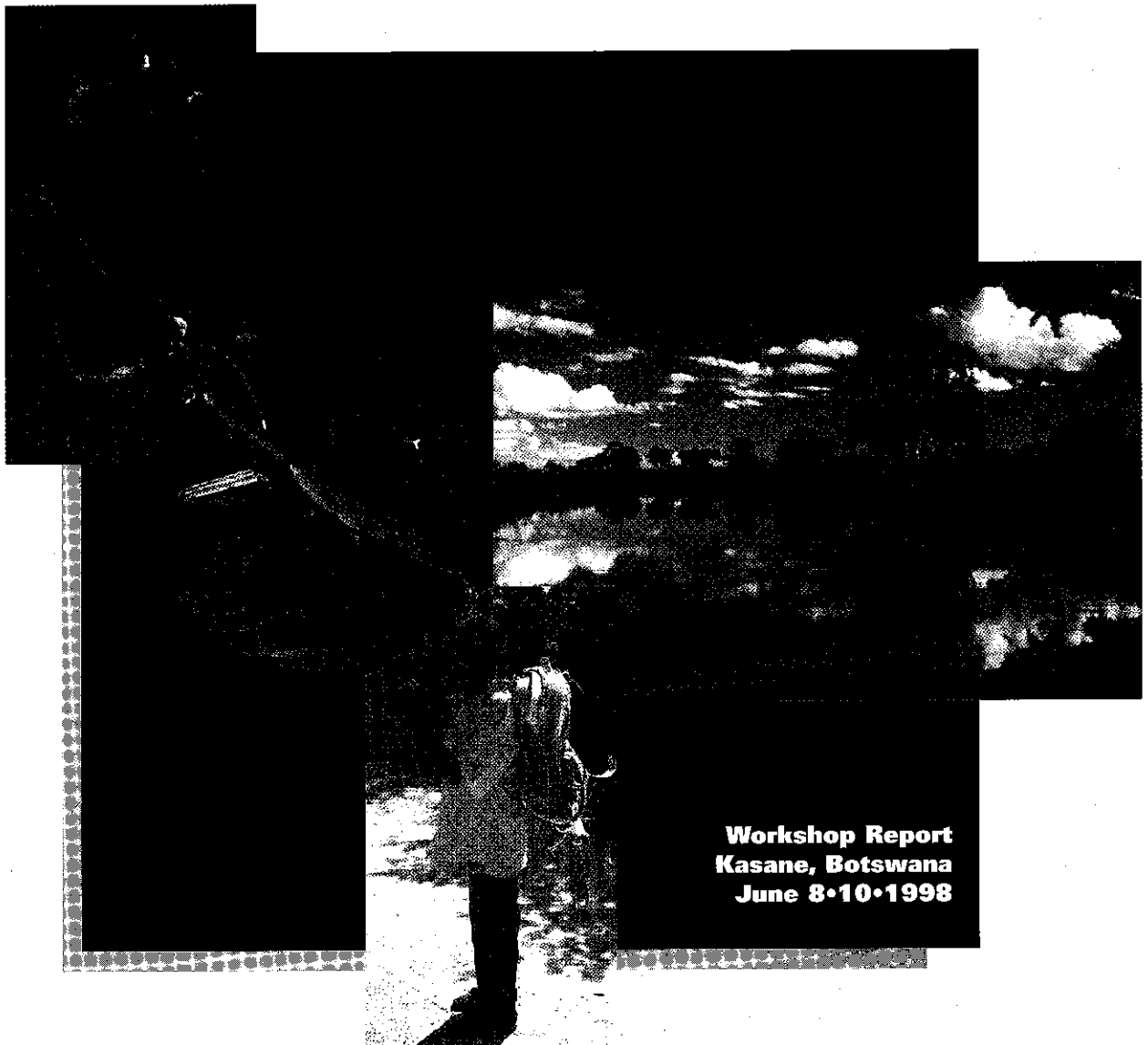
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**Transboundary approaches to the  
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**Workshop Report  
Kasane, Botswana  
June 8•10•1998**

**Edited by B.Kamweneshe and R.Jansen**