











IUCN Regional Office for Southern Africa

# Zambezi Basin Wetlands Conservation and Resource Utilisation Project

Inception Mission Report  
June 1996

Prepared by  
Eric H J Hiscock, Tabeth Matiza-Chiuta, IUCN-ROSA  
and Timothy J F Lash, IUCN-Montreal

SPONSORED BY: THE CANADIAN INTERNATIONAL DEVELOPMENT AGENCY (CIDA)



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IUCN Regional Office for Southern

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BIOS

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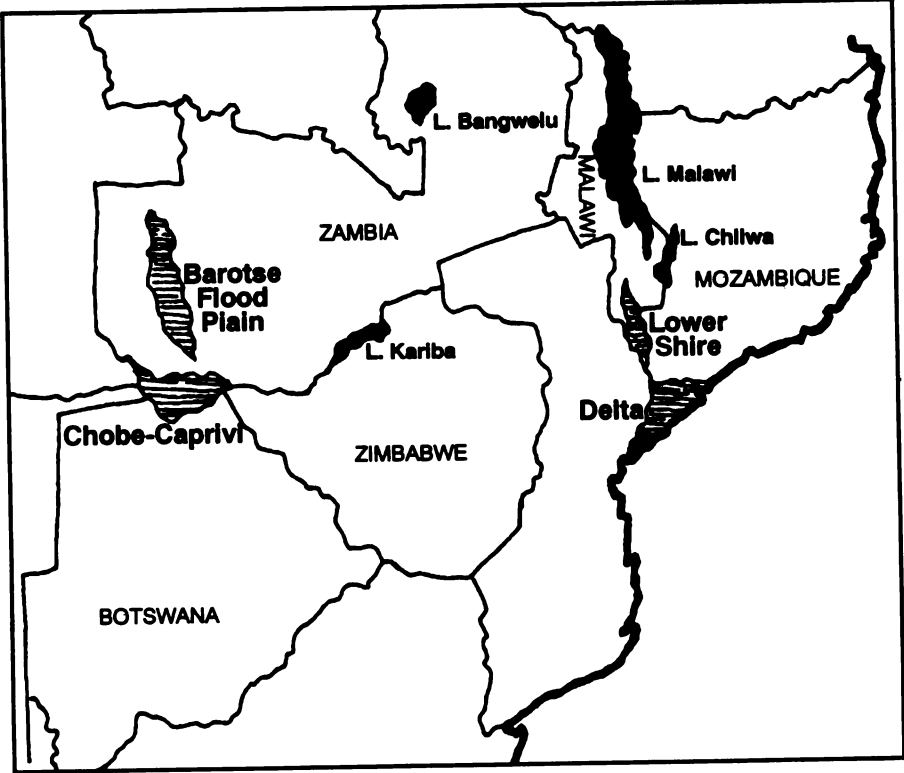
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**FIGURE 1 : Zambezi Basin wetlands sub-project areas**



# Preface

The Zambezi River, and its dense network of tributaries and associated wetland ecosystems (Figure 1), constitutes one of Southern Africa's most important natural resources. The wetlands represent some of the most productive ecosystems in the drainage basin in that they provide the most wanted fresh water for human consumption and economic development, forage for livestock and fertile soils for crop production. They also yield a critically important harvest of fish protein and support some of the largest contiguous wildlife populations and habitats on the African continent. At the same time, the Zambezi Basin provides for the majority of the region's present power generation, represents a key asset in the region's tourism and recreation industry and supports the subsistence economies of some of the most unique communities of Southern Africa.

However, despite its outstanding natural resource values, the Zambezi drainage basin also provides numerous examples of unsustainable and destructive use patterns which in due course will threaten the very "life line" it currently represents in the region.

The need for integrated, multi-national management of the Zambezi Basin was recognised by the riparian states in the early 1980s and this led to the establishment of the Zambezi River Basin Action Plan (ZACPLAN). However, ZACPLAN and other related activities focus on single resources or sectors rather than adopting an ecosystems approach to the understanding and utilisation of the Zambezi Basin resources.

IUCN members in Southern Africa asked IUCN to be involved in addressing the environmental problems of the basin. In response to the members' concerns, IUCN's Regional Office for Southern Africa, (ROSA), in collaboration with the Southern Africa Development Community's Environmental and Land Management Sector,

(SADC - ELMS), organised a regional workshop on the Zambezi Basin water projects at Kasane, Botswana, in April 1993. From the workshop deliberations, it was apparent that the wetland ecosystems of the Zambezi Basin were not being accorded the attention they warrant.

The Canadian International Development Agency (CIDA) has recognised that the Zambezi Basin represents the most important natural resource of the Southern African region. In its programme proposal for sustainable natural resource management for the basin, CIDA has maintained that an appropriate balance of conservation and development can ensure that this resource will remain a productive development base. CIDA's specific interest in contributing to the sustainable development of the basin's resources involves facilitating a series of strategic interventions combining Canadian expertise and technology with that already available in the Southern African community.

In August 1995, the interests in conservation and wise use of the Zambezi Basin's natural resources commonly held by CIDA, SADC and IUCN culminated in the signing of a Contribution Agreement between CIDA and IUCN for implementation of the Zambezi Basin Wetlands Conservation and Resource Utilisation Project. This agreement specified a time limit for the project of 31 March 1998. On 12 December 1995, CIDA and IUCN formally agreed that the termination date of the project would be extended to 31 March 1999.

Apart from the primary value of the project in addressing Zambezi Basin wetlands issues in the context of an ecosystem focus, the authors trust that it will provide a framework for addressing other transboundary situations involving multi-disciplinary approaches to natural resource conservation and utilisation.





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# Executive Summary

The Inception Mission for the Zambezi Basin Wetlands Conservation and Resource Utilisation Project consisted of three major phases:

- consultation with stakeholders in a variety of locations
- a regional workshop involving selected experts
- report production.

The first two phases were entirely successful in that excellent cooperation from stakeholders, potential partners and other cooperants was experienced throughout the mission.

The mission confirms that the requirements of the project, as articulated in Annex A of the *Contribution Agreement between the Government of Canada and the World Conservation Union (IUCN)*, are achievable with two caveats. Firstly, considerable expert advice from socially oriented agencies will be required to facilitate optimum implementation of the community rehabilitation component of the project. Secondly, in order to be in a creditable position relative to articulation and communication of the value and importance of wetlands, the project will need to have significant involvement in "hands on" operational aspects of wetlands conservation and utilisation. This should include socio-economic and biophysical assessments as well as demonstration projects. Both these conditions can be met.

The assumption that gender-related issues require special attention is confirmed by the mission and a number of opportunities to address these issues are identified.

It is also confirmed that many activities are currently underway which can complement the objectives and activities of the project and that coordination with existing programmes, including several which are sponsored by donors other than CIDA, will enhance project delivery.

The approach taken to consultation and project planning throughout the mission involved utilisation of an ecological planning framework to provide an ecosystem focus. Steps in this process consist of identification and description of:

- wetlands - related issues
- integrated results
- products and services
- activities
- requisite skills and functions
- implementation mechanisms.

Owing to the complexity of the project and the need to confirm that its resources are being well directed, strong emphasis was placed on the issued identification and description component during all phases of the mission. The resultant list of priority items to be addressed includes issues related to: agriculture, aquatic weeds, awareness, base-line data, biodiversity, capacity, climate cycles, demographic pressure, education, fire, fishing (other than prawns), forestry, gender, health, hydro-electric dams, indigenous knowledge, land tenure, mangrove forests, poverty, resource use conflicts resolution, prawn production, tourism, transport and wildlife.

The major activities identified for addressing these issues during the first year of the project have been assigned the rubrics of:

- awareness
- information and communication
- community well-being
- inventory, monitoring and evaluation
- management of wetlands resources.

Implementation of these activities will require strong linkages between site, national and regional levels within Southern Africa, as well as with IUCN and CIDA in Canada. In the interest of expediency, six distinct sub-projects have been identified for planning, operational and accounting purposes. These are the Delta in Mozambique, the Lower Shire in Malawi, the Barotse Flood Plain in Zambia, the Chobe - Caprivi area in Namibia and Botswana, IUCN-ROSA and IUCN-Montreal. A Field Project Officer will be responsible for project delivery at each of the field sites.

Each Southern Africa sub-project is assigned a theme which attempts to characterise the main issues to be addressed and the activities required to achieve same. They are:

- Delta: wetlands resource conservation, tenure and utilisation
- Lower Shire: wetlands conservation and food security
- Barotse Flood Plain: infrastructure support to wetlands conservation and sustainable development
- Chobe - Caprivi: diversified sustainable utilisation through capacity building and resource use conflict resolution
- IUCN-ROSA: multi-level integration of wetlands conservation and sustainable development.

Total expenditure during the first year of the project is anticipated to be Canadian \$1,456,300, made up of sub-project budgets as follows:

- Delta - \$352,100
- Lower Shire - \$200,300
- Barotse Flood Plain - \$242,800
- Chobe - Caprivi - \$214,900
- IUCN-ROSA - \$278,700
- IUCN-Montreal - \$167,500.

In terms of the budget lines contained in Annex A of the Contribution Agreement this anticipated expenditure equates to:

- \$153,800 for community rehabilitation
- \$96,800 for public awareness and communications
- \$603,915 for field teams including the Project Manager
- \$167,500 for project direction and short-term Canadian consultants
- \$341,300 for equipment
- \$35,385 for the Inception Mission
- \$57,600 for training.

It is further anticipated that the total project expenditure of \$7,610,000 will represent a cash flow of :

- \$231,988 in 1995-96
- \$1,456,300 in 1996-97
- \$2,650,000 in 1997-98
- \$ 3,271,712 in 1998-99.

The Director, IUCN-ROSA, is responsible for implementation of the project within Southern Africa. To achieve this he will delegate accountability to the Project Manager and to IUCN Country Offices as appropriate. Additionally, he will coordinate his participation with the Project Director at IUCN-Montreal, which office has legal responsibility for discharging IUCN's obligations to CIDA under the Contribution Agreement.

Advice on project direction, content and implementation will be provided to IUCN and CIDA by an Advisory Committee chaired by a person from the region.

## CHAPTER 1

# Introduction

### 1.1 THE SETTING

The Southern Africa Development Community (SADC) countries, along with many other countries in Africa, have pledged a strong commitment to regional cooperation and a sustainable natural resource management strategy which seeks to balance human demands with the carrying capacity of ecosystems through sustainable integrated natural resource management. This commitment is in line with CIDA's Africa 21 vision of a more united, more democratic and more entrepreneurial Africa ready to participate in the world economy.

While still in its early stages of existence, (SADC) represents one of Africa's most promising coalitions in terms of regional integration and, eventually, transboundary management of natural resources such as the Zambezi River Basin. However, much of the current momentum still focuses on sectoral approaches to strengthening development capacities and potentials while practical integrated approaches to sustainable natural resource management remain poorly developed. This is primarily the result of a sectoral focus both conceptually and institutionally, and, as yet, weak inter-sectoral and transboundary coordination mechanisms and structures. The situation is exacerbated by absence of legislative frameworks as well as limited human resources sufficiently trained and qualified to study and demonstrate the environmental impacts of manipulating and using a large dynamic and complex resource such as the Zambezi River Basin.

Because water is basic to economic development and survival in this generally arid region, it is clear that the Zambezi Basin wetlands will play a major role in facilitating such development. In most cases demands for additional water are currently being made unilaterally by riparian states which are experiencing a population doubling time of less than 25 years. Ensuring the long-term balance between demands and the resource base's ability to meet these demands requires an integrated, coordinated and long-term management perspective of whole ecosystems, not just their component parts.

One of the reasons why wetlands have been singled out for special attention is that they provide unique goods and services to local communities and to others further away. At the local level the culture of many of these communities has become

inextricably entwined with the wetlands ecosystem and associated natural processes. Wetlands generally have higher biological diversity and productivity than their surroundings and thus have given rise to a wider range of cultural practices.

In many ways wetlands are the most important and productive components of river systems supporting activities such as subsistence and commercial fishing, livestock grazing, crop production, mat weaving and the consumptive and non-consumptive use of wildlife, including ecotourism. Wetlands of the Zambezi Basin, apart from providing products to the people of the basin, perform invaluable hydrological functions that maintain the status quo of the basin ecosystems. These include flood storage and conveyance, erosion control through watercourse stabilisation and sediment trapping, and pollution control through retention and absorption of toxic substances and effluent. There is also evidence to suggest that the Barotse and Chobe - Linyanti wetlands play a critical water storage role in ensuring the year-round flow of the Zambezi River, thus indirectly providing a continuous supply of hydro power in Zimbabwe, Zambia and Mozambique.

The importance of wetlands, though not receiving as much international attention as biomes such as tropical forests, has been increasingly recognised in recent years. Unfortunately, however, the region's wetlands have undergone, and are continuing to undergo, serious ecological degradation through encroachment, non-sustainable utilisation of resources and the development of hydro-electric schemes. Factors contributing to this situation include generally inadequate planning, poor land use policies, ineffective management and law enforcement, and a lack of understanding of the role and socio-economic value of wetlands. Additionally, residents of wetlands often lack the benefits that accrue from well designed and maintained health, education, transportation and marketing infrastructure.

To date, with few exceptions, the donor community has provided little assistance to rural populations in and around the wetland ecosystems of the Zambezi Basin. The surrounding villages and towns operate at a subsistence level while out-migration of young people and able-bodied young men is characteristic of those communities, with the exception of the Lower Shire wetlands. Schools, clinics, marketing facilities and communications are generally poor.

In his paper entitled: *A Transboundary Programme: From Ecology to Policy*, Mersie Ejigu, considers the natural resources that cross boundaries and how their needs for joint management could be addressed. He recognises that almost every country in Africa has a river as part of its boundary or a boundary that passes through a lake, a wetland or a river, and that, consequently, few countries have the luxury of being able to manage all their wetland resources in isolation. He concludes that transboundary wetlands, including those that cross boundaries within countries, require joint management agreements and joint management plans.

The Panel of Experts on Environmental Management for Vector Control (PEEM) which includes representatives of the World Health Organisation, the Food and Agriculture Organisation of the United Nations, the United Nations Environment Programme and the United Nations Centre for Human Settlement/Habitat, points out that little is known about the specific links between wetland ecosystems and the health of their human inhabitants. The panel attributes this to the fact that the collection of health data, if at all carried out on a routine basis, follows administrative boundaries which do not usually coincide with ecosystem boundaries. It goes on to indicate that the impression that people living in wetlands are generally better off, both in terms of the immediate health risks and in terms of economic buying power, is largely anecdotal.

## 1.2 PROJECT RATIONALE, EVOLUTION AND APPROVAL

### 1.2.1 RATIONALE

In a region characterised by widespread environmental degradation, periodic droughts and food shortages, the Zambezi River constitutes one of Southern Africa's most important natural resources. Its basin, with a total area of 1,300,000 km<sup>2</sup> touching on all SADC member states with the exception of Lesotho, South Africa and Swaziland, is the largest continuous drainage basin and most extensively shared common resource in the region.

The Zambezi Basin plays a key role in the development of the region and, therefore, the effective management of sustainable use of the basin's natural resources is of prime importance. Wetlands represent some of the most productive ecosystems in the drainage basin and are also major supporters of the basin's economy. The livelihood of approximately 20 million people is directly dependant on the Zambezi Basin.

Being a transboundary resource which is subject to management and use by various sectoral and independent national interests and entities, the basin's wetlands component manifests many of the environmental concerns which are associated with

development planning that lacks an ecosystems perspective. Urgent action is required to reverse this situation.

All the countries of Southern Africa have natural resource based economies. Two-thirds of exports from Southern Africa are natural resource products, and over three-quarters of the region's people depend directly on the natural resource base for their livelihoods. CIDA's Regional Policy Framework, approved in February 1992, recognised these facts and included sustainable natural resource management as one of its four areas of concentration, under the guiding principle of regional cooperation.

CIDA gives the following reasons for focusing its Southern Africa programme on the Zambezi Basin.

- Benefits to the people of the region include: maintenance of the productive base of the basin's rural communities and livelihoods; maintenance of the hydro potential for energy generation, irrigation, industry and urban supply; and maintenance of the biophysical potential for tourism.
- From a perspective of tackling the region's natural resource management problems, the Zambezi Basin is the focal point in Southern Africa in terms of energy, wildlife, re-settlement models, biodiversity, wetlands, water resources, conservation, pollution concerns, tourism, and a host of other issues. Many countries stand to lose a great deal if it is not well managed.
- From an ecosystem viewpoint, river basins are natural units connected by ecological, social and economic ties, including infrastructure. River basins are thus natural ecosystems that demand regional management across national boundaries and integrated management across sectors.
- From a regional cooperation standpoint, the nations that are part of a river basin system are in every sense stakeholders in its continued well-being. The effective management of all major river basins requires cooperation and the development of numerous links between neighbouring, and even more distant countries.

The fact that, as Dean & Chabwela (1995) point out, the extensive wetlands in the Upper Zambezi are critical to the sustainable flow of the river, is a further point of rationale for focussing attention on wetlands ecosystems. The importance of the wetlands to the sustainable functioning of the Zambezi River, and the local communities, is not well understood among the SADC nations. Accordingly, national governments devote little attention, or resources, to understanding wetlands ecosystems or the value of the goods and services provided to the communities or national accounts.



More specifically the following factors point to a need for a comprehensive, well-funded awareness and support programme focused on wetlands ecosystems:

- None of the national governments has a clear policy or programme for managing or coordinating management activities impacting wetland ecosystems.
- The ecological, hydrological and cultural significance of wetland ecosystems is not well understood or appreciated in the SADC region.
- Cyclical or long-term change in the weather patterns over Southern Africa may have a significant influence on wetland ecosystems and their contribution to local populations, national resources, and the regional management of the Zambezi River.
- Water provided by the Zambezi is a critical resource for the future of the riparian states of the SADC region.
- In general, wetland ecosystems, and communities dependent on them, have received inadequate attention from donor agencies and often suffer from poor social services and out-migration of young people.

Along with wetlands conservation issues, the project will address basic human needs by assisting poor communities to meet some of their basic requirements such as education and health care. CIDA has seen this as a direct interpretation of "Southern Africa Policy Framework's emphasis on sustainable natural resource management and its later refinement to emphasis on the Zambezi River Basin as approved by CIDA's Program Review Committee in May 1994."

There exists a daunting array of issues that need urgent attention if real progress is to be made in conserving and utilising wetlands and their resources on a sustainable basis. Concerted actions are required, including inventory, assessment, development of legislation, and other administrative mechanisms to control and monitor the utilisation of the wetlands. Further, there is an urgent need for a re-orientation of policy towards the region's wetlands that involves incorporating 'state-of-the-art' management and training procedures, particularly those that address the social and economic forces driving wetlands mismanagement, over-exploitation and degradation. The Zambezi Basin Wetlands Conservation and Resource Utilisation Project cannot, itself, address all these issues. However, with its broad, multi-level base of acceptance, support and partnerships, it can be directly involved in the solutions to some problems while acting as a catalyst to ensure that others are addressed.

Finally, the regional approach taken to the project is readily rationalised when one considers that all major categories of wetlands are found in at least four SADC countries.

## 1.2.2 EVOLUTION

The need for integrated, multi-national management of the Zambezi Basin was recognised by the riparian states in the early 1980s and this led to the establishment of the Zambezi River Basin Action Plan (ZACPLAN). However, ZACPLAN and other related activities focus on single resource sectors rather than adopting an ecosystems approach to the understanding and utilisation of the Zambezi Basin resources.

In 1990 SADC implemented a Regional Wetlands Conservation Programme in collaboration with IUCN, and funded by NORAD. The first phase consisted of a survey of all SADC wetlands, a SADC wetlands conference, and the production of a report by IUCN. The latter described the wetlands of the region and their value, and drew up action plans for their conservation and utilisation.

The Regional Policy Framework for CIDA's Southern Africa Programme identified the sustainable management of natural resources as one of the programming themes. Specifically, management of the wetlands of the Zambezi watershed was selected because of the growing awareness of the critical importance of wetland ecosystems in managing a watershed.

The report entitled *Southern Africa Wetland Conservation & Management Support Programme* prepared for CIDA by P.B. Dean & Dr. H. Chabwela in February 1995 was based on a mission in Southern Africa from 6 November to 8 December 1994. It examines the need for assistance in regard to wetlands activities in Zambia, Namibia, Zimbabwe, Malawi and Mozambique and recommends a three year programme to provide that assistance.

The project was also fostered by requests from Southern African states for IUCN involvement in environmental considerations in development projects in general, and specifically to consider wetlands.

## 1.2.3 APPROVAL

In August 1995, the interests in conservation and wise use of the Zambezi Basin's natural resources commonly held by CIDA, SADC and IUCN culminated in the signing of a Contribution Agreement between CIDA and IUCN for implementation of the Zambezi Basin Wetlands Conservation and Resource Utilisation Project. This

agreement specified a time limit for the project of 31 March 1998. On 12 December 1995, CIDA and IUCN formally agreed that the termination date of the project would be extended to 31 March 1999.

In the Contribution Agreement, CIDA appointed IUCN as administrator of a contribution of funds for the purpose of the project described in an amount not to exceed seven million six hundred and ten thousand Canadian dollars.

### 1.3 THE INCEPTION MISSION

The Inception Mission of which this report is a component, constituted the third phase of the project's development. One of its main purposes was to further assess key issues and assumptions contained in the programme concept document and the feasibility study. Particularly, the continuing appropriateness of the stated goals and objectives was to be evaluated, intended project inputs and outputs were to be amplified and anticipated sustainable results were to be refined. A realistic work plan for the project was to be developed.

Widely based consultation was carried out with the following objectives:

- To establish contacts with the governments of the riparian states, institutions and persons working in the field.
- To brief representatives of wetlands residents, the riparian states, IUCN members and partners, and other stakeholders about the project and what it aims to achieve.
- To discuss wetland issues as perceived by the resident communities and those working in the field.
- To determine what complementary projects and mechanisms already exist and explore opportunities for integration.
- To make a comprehensive assessment of original perceptions and subsequent amendments thereto, as a result of consultation and through a regional workshop involving selected experts.

#### 1.3.1 TERMS OF REFERENCE

Terms of Reference for the Inception Mission were formulated by IUCN-Montreal and IUCN-ROSA in consultation with CIDA. These are presented in their entirety as Appendix 4.

#### 1.3.2 METHODOLOGY

The Inception Mission team met several times in Harare starting on 6 January 1996. Purposes of these meetings included familiarisation with the project and its evolution, finalisation of the Inception Mission Terms of Reference, development of contract specifics for contractual members, initial assessment of regional wetlands issues and organisation of field trips. The contracts under which non-IUCN staff were retained stated duration of the assignment, tasks to be performed, remuneration, travel regulations, reporting requirements, contractual conditions, special conditions and correspondence requirements. While in Harare, the team also took advantage of opportunities to meet with locally based stakeholders and potential partners, including IUCN, Zimbabwe, members.

Inception Mission participants were split into two teams in order to facilitate visits to all project areas in the time available.

Team A went to Lusaka and the Barotse Flood Plain in Zambia, Katima Mulilo and Caprivi Strip wetlands in Namibia, and Kasane and the Chobe-Linyanti wetlands in Botswana. For consultations in the Barotse Flood Plain area, Team A was expanded from its original membership of Tabeth Matiza-Chiuta, Francis Mkanda and Eric Hiscock to include the invaluable participation of Mubita Maimbolwa and Michael Isimwaa. These individuals are IUCN Country Representative for Zambia and IUCN, Zambia, Projects Officer respectively. Additionally, the IUCN, Zambia, office provided vehicles and the capable services of driver Osman Shatontola for the duration of the field trip.

Team B consisted of Timothy Lash, Dr. Harry Chabwela, Evelyne Zador and, for the Malawi segment, Carmel Mbizvo. They visited Beira and the Zambezi Delta in Mozambique as well as Lilongwe and the Elephant and Ndinde marshes in Malawi.

Itineraries were established for Teams A and B prior to departure from Harare but changes were required to accommodate the availability of stakeholders, etc. The itineraries actually pursued are detailed in Appendices 6 and 7 respectively.

Team members were given specific guidelines (see Appendix 5) and copies of the following, to which they were encouraged to refer during the field and office consultation sessions:

- Terms of Reference for the Inception Mission: Zambezi Basin Wetlands Conservation and Resource Utilisation Programme (ZBWCURP)
- Zambezi Basin Wetlands Conservation and Resource Utilisation Programme Concept

- CIDA's Logical Framework Analysis
- Annex A: *Zambezi Basin Wetlands Conservation And Development* from the Contribution Agreement
- A preliminary list of wetlands-related issues established by the team
- A set of "quick notes" covering the entire scope of the project.

To expedite the development of a written record, the team leaders began recording information electronically immediately after it was obtained. This was done on portable computers with information collected by the respective teams being entered by designated rapporteurs on a daily basis. It was thus necessary for other team members to provide their notes at the end of each day's consultations or as soon as possible thereafter.

The regional workshop was convened to review the Inception Mission draft report and exchange information and expertise on the various wetlands-related projects and programmes in the Zambezi Basin. A further purpose was to obtain a broader view on which wetland-related initiatives need to be undertaken in the Zambezi Basin. Advice was sought from stakeholders concerning the most effective implementation strategies for the project. Of particular importance was the objective of obtaining a regional synthesis of the issues, priorities and potential activities for the Zambezi Basin Wetlands Conservation and Resource Utilisation Project. The workshop was also seen as an ideal opportunity to discuss and establish mechanisms for coordination of regional and transboundary approaches to wetlands issues in the Zambezi Basin and to obtain suggestions on partnerships for the implementation of the project. The report on this workshop constitutes Appendix 10.

### 1.3.3 RESULTS

The Inception Mission was entirely successful in achieving its goals. Excellent cooperation from stakeholders, potential partners and other cooperants was experienced throughout the mission and the degree of enthusiasm for, and confidence in, the project, encountered in all quarters, was heartening to team members.

A particularly noteworthy aspect of the consultation component is that it involved an exceptionally wide range of contacts. Some communications took place with villagers under the shade of a tree, others with local committees, through to meetings with high ranking traditional leaders and government officials.

Additionally, the breadth of concerns heard was rather exceptional in that it covered a spectrum ranging from issues relating to specific components of individual wetlands to region-wide considerations.

Detailed results of the mission constitute other components of the report and will not be dealt with here. In summary, an in-depth understanding of regional issues was generated and expert advice was received as to how they should be addressed.



# An Ecological Planning Framework

## 2.1 ECOSYSTEM FOCUS

Odum (1971) describes the ecosystem as follows:

“Living organisms and their nonliving (abiotic) environment are inseparably inter-related and interact upon each other. Any unit that includes all of the organisms ... in a given area interacting with the physical environment so that a flow of energy leads to a clearly defined trophic structure, biotic diversity, and material cycles ... is an ecological system or ecosystem.

The ecosystem is the basic functional unit in ecology, since it includes both organisms ... and abiotic environment, each influencing the properties of the other and both necessary for maintenance of life as we have it on the earth.”

In its *Programme Proposal: Sustainable Natural Resource Management for the Zambezi Basin*, CIDA writes:

“The critical assumption for the ultimate success of this programme is the concept of the ecosystem approach. This includes not only cooperation and coordination between nations, but also at numerous lower levels such as between water or agriculture departments. In short, a web-like linking of networks, institutions and individuals both within and among countries. That this level of coordination and cooperation will be achieved is ambitious. Indeed, there are hopeful signs on the horizon in the disciplines of wildlife management, agroforestry and fisheries that the approach is gaining ground in the region. The specific interventions implemented under the strategy will foster and encourage this emerging trend.”

The philosophy portrayed therein is very much in keeping with that of the Inception Mission team. While such an ambitious approach is somewhat difficult to visualise and articulate, a yet greater challenge arises when a framework is sought within which the requisite interactions can be achieved.

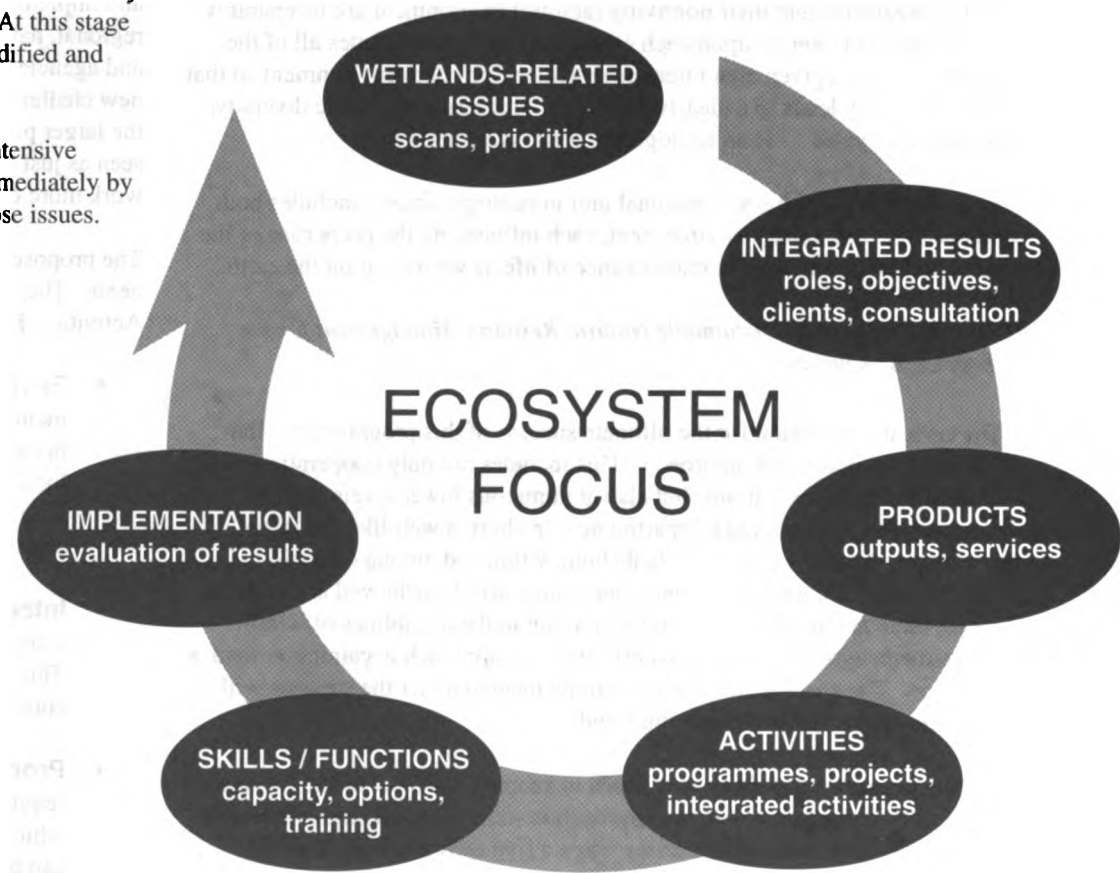
The approach chosen for this project is an integrated ecological planning framework, although not all of its elements could be applied at the Inception Mission stage. An ecologically based planning framework is a systematised process for the planning and implementation of programmes and projects at a variety of scales (e.g. local, regional, national, international and global). To be relevant, it must afford individuals and agencies the ability to establish programme priorities, the flexibility to respond to new challenges and the opportunity to see where their activities and functions fit into the larger picture. The ecological planning framework will not be accepted if it is seen as just another planning exercise and does not help individuals to perform their work more effectively.

The proposed framework is designed around the development of six major components. These are: Environmental Issues, Integrated Results, Products and Services, Activities, Required Skills and Functions, and Implementation.

- **Environmental Issues:** Provides a top level view of the major environmental problems, or resource management concerns, which should be given priority action. Issue identification can be at a variety of scales from global to local but should ultimately be linked. This step requires a comprehensive scan of the current and emerging issues, development of evaluation criteria and the setting of priorities.
- **Integrated Results:** Requires a management objective which will provide a clear direction and focus for programme development and implementation. This stage includes the investigation of roles and responsibilities and requires considerable client consultation.
- **Products and Services:** Identifies a series of products and services required to achieve the stated results. Priorities can be established to indicate which products are of prime importance. Organisational units and individuals can begin to make rational decisions on workload and the setting of work priorities. From a programme planning perspective, it is at this level that programme and project elements can be integrated to ensure the development of more comprehensive products.

- **Activities:** Requires identification of all activities or programme elements needed to develop the stated products. Activities could be ranked on the basis of need e.g. essential, integrated or optional.
- **Skills-Functions:** Considers the functions and skills needed to complete the identified task. This exercise shows gaps in capability which must be resolved through mechanisms such as training, contracting for service, development of external partnerships, etc.
- **Implementation:** Priority areas of focus are established based on an appropriate ecological boundary system. These priority boundary areas provide a geographic focus to the issue and will serve to concentrate a variety of programme and project activities into a more cohesive form. At this stage achievement of results can be evaluated, issues revisited and modified and new products and activities implemented.

Figure 2 shows the essential planning sequence, which includes early intensive concentration on the identification of issues or “stressors”, followed immediately by consideration of the ecosystem oriented results sought in addressing those issues.

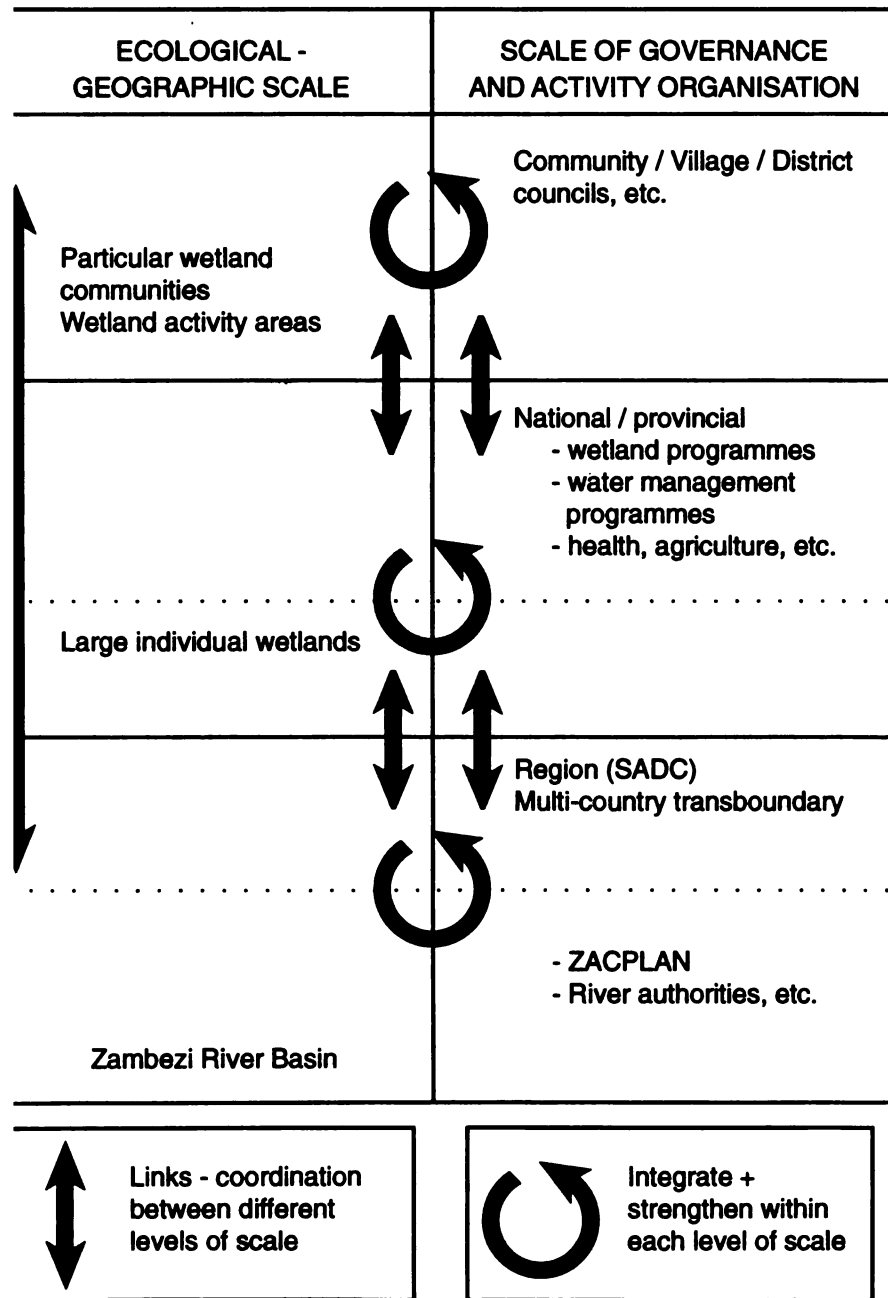


**FIGURE 2 : An Ecological Planning Framework**

The following key concepts for practical application characterise an integrated ecological planning approach.

<b>What makes it an “ecological” approach?</b>	<b>What makes it an “integrated” approach?</b>
<b>The answer lies in the following key ideas:</b>	<b>Here the key ideas are:</b>
<ul style="list-style-type: none"> <li>• <b>People live in ecosystems, and are part of those ecosystems.</b> The issue definition and the results sought recognise that:               <ol style="list-style-type: none"> <li>(i) people depend on ecosystems’ functioning, are affected by ecological conditions, and have to address ecological limitations. For example, people depend on healthy ecosystems for water supply, nutrient uptake and recycling of wastes, natural biological productivity, interspecies balance among wild populations, cultural richness based on interactions with particular ecosystems, etc.</li> <li>(ii) people affect ecosystems, and through them affect other people. For example upstream water users can seriously affect downstream ecological conditions, and hence significantly impact on downstream populations; also, people can affect wild life habitats and water regimes with effects that significantly alter potential for ecosystems to support other functions and users.</li> </ol> </li> <li>• <b>Understanding the particular characteristics of specific ecosystems is key to the comprehension of the origin of issues in them, and critical to sustainable solutions.</b></li> <li>• <b>Management of ecological issues, including assembling and interpreting information, decision-making, and implementation, needs to be organised according to ecosystems.</b> For example, the Zambezi Basin is itself an ecosystem, with different communities and countries connected by the river and its wetland and upland hydrology. At a different scale, each of the four major wetlands addressed by this project is an ecosystem defined by its biophysical characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Combine human well-being with sustained ecological health and diversity.</b></li> <li>• <b>Combine short- to medium-term solutions and benefits with long-term sustainability of benefits and the ecosystems that support them.</b></li> <li>• <b>Combine various disciplines and sectors of knowledge, capability, and programmes, such as social, economic, health, ecological and hydrological; such as conventional science and traditional knowledge; such as government and NGO and private sectors.</b></li> <li>• <b>Link and coordinate among different ecological and social scales for issue analysis and decisions.</b> For example, among community, national, and regional levels of governance, and among activity areas within a wetland component ecosystems, wetlands, and the river basin levels of ecosystem.</li> </ul> <p>One cannot generalise as to what particular links will be critical to make in every specific case. That will vary with the dominant issues and needs in each area, and existing conditions there. However, issues can often be analysed in terms of fragmentation or barriers in the understanding of them or the ability to implement effective approaches to them. Projects and activities will be undertaken with these kinds of integration in view. The business plans while initially focused on specific issues, over time are expected to focus on a variety of such linkages.</p>

**FIGURE 3. Integrated links needed for Zambezi Basin wetlands systems management**



## 2.2 ZAMBEZI BASIN WETLANDS ISSUES

An in-depth understanding of wetlands issues is essential to the optimal implementation of activities and enhancement of capabilities to ensure that both socio-economic and environmental considerations are addressed.

### 2.2.1 ISSUE IDENTIFICATION

The identification of priority wetlands-related issues is key to an understanding of where both project and allied energies and resources need to be directed. The Inception Mission team placed considerable emphasis on this aspect of consultation with a full range of clientele from the community level to regional representation.

Accordingly, the priority issues listed in Table 1 are considered to be an appropriate reference point for the determination of project direction and for the generation of both short- and long-term business plans.

A further advantage of the issue identification and description process is that it ensures consideration of the full range of stakeholders concerns and avoids concentration on a few wetlands problems that might be perceived as major issues only in certain quarters.

The issue identification and description process considered a wider range of issues than reported herein and only those that were deemed to be of high priority are included in the interest of expediency. An attempt has been made to identify the level or levels at which each of the priority issues are of concern using site specific, national and regional categories.

Also, the appropriate project reaction to each issue has been designated in keeping with project objectives and mandate. The strongest reaction calls for directly addressing the issue while the alternate approaches include influencing other agencies to address the issue or simply responding to ambient situations.



**TABLE 1. Identification of high priority wetlands-related issues**

KEY	
<b>LEVEL OF CONCERN (IN ORDER OF SIGNIFICANCE)</b>	
N - National	PROJECT INTEREST
R - Regional	A - Address
S - Site specific	I - Influence
	R - Respond

ISSUE IDENTIFIER	LEVEL OF CONCERN	PROJECT INTEREST
Agriculture	S	I
Aquatic weeds	SN	AI
Awareness	RNS	AAA
Baseline data	S	A
Biodiversity	RNS	IIA
Capacity	RNS	AAA
Climate cycles	SRN	ARR
Demographic pressure	NS	RI
Education	SN	AI
Fire	S	I
Fishing (other than prawns)	SN	AI
Forestry	S	A
Gender	RNS	AAA
Health	S	A
Hydro-electric dams	RNS	IIA
Indigenous knowledge	S	A
Land tenure	NS	RI
Mangrove forests	SN	AI
Poverty	RNS	RRA
Resource use conflicts and resolution	RNS	AAA
Prawn production	N	I
Tourism	NS	IA
Transportation	S	I
Wildlife	NS	IA

## 2.2.2 ISSUE DESCRIPTION

In Table 2, each high priority wetlands issue has been described in a series of problem statements. These statements were generated by performing a key-word search of all documentation of stakeholder consultation during the mission and subsequent phrasing of discrete statements describing, as precisely as possible, the concerns that need to be considered by the project.

Understandably, not all problem statements are applicable throughout the range of project sites and, indeed, some such as those associated with prawn production, are quite site specific.

Owing to the interdependent nature of wetlands ecosystem issues, a number of problem statements are repetitious because they relate to more than one identified issue. Examples occur between the agricultural productivity, resource use conflict and wildlife issues. In such cases the problem is included under each in the interest of providing a complete picture. However, in general, little attempt has been made to relate specific problems to particular sites.

The “results sought” given in Table 2 apply to the composite issue rather than to individual problem statements. They are preliminary statements at this time.

**ABLE 2. Description of high priority issues and initial identification of results sought**

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<p><b>Agriculture</b></p>	<p>Traditional agriculture, including crop production and livestock raising, does not elevate wetlands residents above the subsistence level. This situation is worsened by declining productivity due to climatic cycles, such as the recent prolonged drought, and by disruption to normal agricultural practices caused by civil war, influx of refugees and other migrants, etc.</p> <p>The old, work-intensive techniques are probably not the most effective on larger areas and there is insufficient guidance to farmers as to the appropriate mix of techniques.</p> <p>Competition between different agriculture and other land uses causes degradation of wetlands ecosystems.</p> <p>Competition between forms of agriculture, e.g., crop production and grazing, leads to over-exploitation of resources.</p> <p>Conflicts between agriculture and wildlife are of particular concern because of the subsistence and commercial value of agricultural production and the biodiversity and tourism support aspects of healthy wildlife populations.</p> <p>Intensive cultivation of temporarily arable wetlands has attracted much wildlife, leading to the destruction of crops. The fencing of fields in such cases is impractical because they are scattered.</p> <p>Hippo damage to crops often has a seasonal aspect in that the hippos move from one area to another depending on water level. Fertile wetlands are farmed for only part of the year. Without the establishment of adequate fenced borders, this form of agricultural productivity reduction will continue.</p> <p>Lions and hyenas kill cattle and goats in at least one wetland area.</p> <p>Maximal use of wetlands for crops such as rice can only be achieved if the receding of flood waters is artificially controlled, but this will have an ecological impact on local and downstream wetlands as well as a possible socio-economic impact on downstream water users.</p> <p>New land laws bias delta agriculture towards relatively small areas of use and this may lead to production inefficiencies.</p> <p>In areas where rice was formerly cultivated, with the prolonged drought, there has been a shift to maize and cassava. When a wet cycle occurs, people will probably have to switch back to rice, with commensurate adjustments in cultivation technology, marketing, etc.</p>	<p>Introduction of combinations of traditional and more technical agricultural practices in consideration of the productivity of wetlands soils and of the requirement to ensure sustainability through the protection of ecosystem integrity.</p> <p>Generation and implementation of multi-sectoral land and resource use plans which foster the most appropriate agricultural uses of wetlands from both socio-economic and ecological perspectives.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Agriculture (cont.)</b>	<p>While the potential for rice production is high, marketing problems and the lack of expertise in cropping methods constrain farmers from growing it in large quantities.</p> <p>Cassava and fruit production are limited by the absence of processing facilities.</p> <p>In one area, crop export is said to be prohibited by national unrest.</p> <p>There is a danger of people who practice wetland agriculture during dry periods and upland agriculture during floods, becoming nomads, with accompanying social problems.</p> <p>Financial constraints to the improvement of ecologically sound farming include the unavailability of loans for machinery, poor prices for cattle and general lack of marketing facilities and transportation infrastructure.</p> <p>Diseases, including anthrax, contagious bovine pleuro pneumonia and black quinta are a major constraint to increased cattle productivity. Veterinarian medicines are not widely affordable.</p> <p>Drought leads to more reliance on cattle but prices are low.</p> <p>Reduced flooding leads to lower soil productivity.</p> <p>During floods, cattle have to be moved to upland grazing areas where the range is poorer. Therefore, the overall carrying capacity is determined by that of the surrounding uplands rather than that of the wetlands themselves.</p> <p>In general, the potential for suitable use of wetlands for agriculture has not been realised.</p> <p>Lack of knowledge of the relationship between wetlands ecosystems and sustainable agriculture is an inhibitor to both productivity and conservation.</p> <p>There is a need for accurate base-line information if ecologically-sound sustainable agriculture is to flourish.</p>	
<b>Aquatic weeds</b>	<p>Proliferation of the Kariba weed is reducing water flow.</p> <p>Proliferation of the water hyacinth is causing deterioration of fish habitat by reducing oxygen levels and overall water quality.</p>	<p>Implementation of programmes that will hold aquatic weeds in check and, where necessary, reduce their abundance.</p>
<b>Awareness</b>	<p>There is evidence that the role of wetlands ecosystems, their ecological and economic value to local and distant communities and associated sustainability limits, are not fully appreciated by individuals making or influencing resource utilisation decisions. These decision-makers include</p>	<p>Early assessment of the role of environmental education, dealing specifically with wetlands ecosystems.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Awareness (cont.)</b>	<p>community leaders, planners, government officials, politicians, donors, the media, and NGOs.</p> <p>While existing perceptions concerning values are implied through the actions of decision-makers and influencers, there has been no formal assessment of such perceptions.</p> <p>The socio-economic limitations of wetlands, such as limits to soil productivity, are often not known. This is due largely to lack of understanding of ecological linkages and how they affect carrying capacity.</p> <p>The value of wetlands as contributors to species and ecosystem biodiversity is neither assessed nor understood in rural communities.</p> <p>Environmental education curricula do not contain substantial components on wetlands ecosystems and their values.</p> <p>The importance of flood plains is not known at the local and national levels.</p> <p>Data on specific components of wetlands ecosystems are either absent or out of date.</p>	<p>Incorporation of a specific wetlands component into all major environmental education programmes in the region.</p> <p>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.</p> <p>Intercommunity and international exchange of information concerning the role and values of wetlands ecosystems.</p>
<b>Base-line data</b>	<p>There is an urgent requirement for ecological and socio-economic research and monitoring of wetlands and adjacent ecosystems to facilitate understanding of those ecosystems and monitoring of changes to which they are subject.</p> <p>In a number of natural resource sectors, including wildlife, forestry, botany and fisheries, the best available data bases are so out of date that they are of little value in describing current conditions. Some such data bases were produced in the 1960s!</p> <p>The absence of modern inventories is particularly problematic in relation to specially designated areas such as national parks and forest reserves for which management plans are required if the purposes for which they were designated are to be realised.</p> <p>In some cases, if newly generated data bases are to be meaningful, the monitoring system must be transboundary. This is particularly true of migratory wildlife populations and overall biodiversity assessment. However, non-ecological factors such as political unrest, can prohibit inter-state cooperation.</p> <p>Wildlife population censuses need to be accompanied by comprehensive assessments of habitats.</p>	<p>Assessment of currently available ecological and socio-economic data and their accessibility.</p> <p>Generation of ecological and socio-economic data bases that are adequate for use by planners at the local, national and regional levels and for project design and evaluation.</p> <p>Integration of empirical ecological and socio-economic data bases, derived from point-specific observations, with spatial information contained in geographic information systems.</p>

WETLANDS ISSUE IDENTIFIER	PROBLEMS	RESULTS SOUGHT
<p><b>Base-line data (cont.)</b></p>	<p>Knowledge gained through a combination of wildlife population and habitat inventories is critical in assessing the feasibility of re-introducing extirpated species or rebuilding decimated populations. This is not always appreciated by individuals or communities who are requesting such enhancements.</p> <p>Contentions that certain species of fish, plants and mammals are declining in numbers or area of distribution must be accompanied by supporting data if they are to be addressed on a scientific basis.</p> <p>Data collected in a variety of natural resource sectors need to be aggregated into multi-sectoral data bases that are useful in describing wetlands ecosystems and the pressures to which they are subject. To achieve this, there is a need to develop and employ not only combined empirical data sets, but also geographic information systems.</p> <p>Given the magnitude of the project, there will be a particular challenge in designing and setting up national and regional wetlands-related data bases that are available to all decision-makers whose actions affect wetlands ecosystems.</p> <p>Wetlands information, currently described as being publicly available, must be rendered truly so if decision-makers who are in a position to influence wetlands are to be expected to give them due consideration. Currently, there is a long, arduous task involved in obtaining, for example, wetlands maps that are purported to be readily available.</p>	<p>Rendering currently available, newly integrated and newly generated information sets more readily available to potential users than they currently are.</p>
<p><b>Biodiversity</b></p>	<p>There is no biodiversity assessment of plants, fish, animals, and other biota to guide sustainable resource utilisation.</p> <p>In some areas, certain species of fish are thought to be extirpated and species such as <i>njinji talapia</i> are seriously depleted. Reasons could include over-fishing and reduced flooding of breeding areas.</p> <p>Herbaceous plants, including papyrus, are disappearing due to uncontrolled burning.</p> <p>A number of mammal species, including red lechwe, water buck, brindled gnu, hippopotamus, serval cat, and hare have disappeared from some wetland areas.</p> <p>There has been a breakdown of indigenous knowledge systems that were formally the basis of conservation oriented use of wetlands and maintenance of biodiversity.</p> <p>Land use competition, e.g., between cultivation, grazing and fishing.</p>	<p>Assessment of the role of wetlands in overall biodiversity preservation in the Zambezi Basin.</p> <p>Communication of biodiversity values, and the need to protect same, to communities, planners, politicians and opinion influencers.</p> <p>Assessment of feasibility of re-introductions.</p> <p>Enhancement of species and ecosystem biodiversity through protection and, where necessary and feasible, re-introductions.</p>

WETLANDS ISSUE IDENTIFIER	PROBLEMS	RESULTS SOUGHT
<p><b>Capacity</b></p>	<p>Natural resource and environmental management capacity in wetlands and surrounding biomes is lacking due mainly to inadequate funding and coordinating mechanisms.</p> <p>New land laws, which will profoundly affect the conservation and utilisation of delta wetlands, need to be accompanied by strengthening of courts for administering the law in land disputes, enforcement capability, communications tailored to local situations, public works, land registration mechanisms and facilities.</p> <p>There are few non-government organisations functioning in wetland areas with the capacity to ensure that the conservation and wise use perspective is adequately delivered. They need to be strengthened in both the ecological and socio-economic areas including information, education and communication.</p> <p>There are gaps in the understanding and use of participatory approaches within communities and additional capacity needs to be developed to ensure adequate public participation. There is a specific lack of capacity to apply a "bottom up" approach to community-based issues as opposed to a "top down" one.</p> <p>There is a lack of technology for wetlands agriculture, including cultivation (e.g., of rice) and fire control. This is accompanied by inadequate financial capacity including access to loans for machinery.</p> <p>Technology for secondary stages of resource utilisation, such as cassava processing, is inadequate or absent.</p> <p>Little capacity exists for wetlands assessment, management and monitoring. Of particular significance is the lack of capacity to develop multidisciplinary integrated wetlands management plans.</p> <p>There is a need to increase knowledge of biodiversity and the value of wetlands as well as the national capacity to evaluate, inventory, monitor and manage them.</p> <p>Ecotourism, supported by wetland ecosystems, is currently a major earner of foreign exchange in some Southern African states and has additional untapped potential. There is a need to enhance community capacity to capitalise on this potential utilising both traditional and expanded forms of tourist attraction.</p> <p>Environmental and land use laws either have gaps, have not been passed or are not planned.</p> <p>Generally strengthened law enforcement capabilities are required for the protection of wetland resources, particularly wildlife.</p>	<p>Increased capacity for wetlands residents to take advantage of all profits accruing from sustainable use of wetlands resources and the establishment of permanent training mechanisms to ensure that this end is met on an ongoing basis. This will involve enhancement of public participation, technical and entrepreneurial skills.</p> <p>Development of national and regional capacities to generate wetlands policies that complement policies developed for other natural resource sectors.</p> <p>Production of national wetlands policies to guide state management of wetlands and to form a basis for a regional policy. As background, use will be made of existing national policies such as the Canadian policy on wetland conservation, Uganda's national wetlands policy and the Zambian initiative currently underway.</p> <p>Articulation of a SADC-wide wetlands policy.</p> <p>Strengthened Non Government Organisation capacity to guide, and assist decision-makers and to undertake specific projects to ensure conservation and wise use of wetland resources.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Capacity (cont.)</b>	<p>A void has been left in the management of wetlands because traditional rules are no longer in effect and there is no adequate replacement for them.</p> <p>A SADC-wide wetlands policy is required to ensure that all member states recognise the need for regional considerations in planning the conservation and sustainable use of wetlands. As a first step, the capacity to develop such a policy needs to be established.</p> <p>National wetlands policies are required to amplify the SADC policy and to guide legislators and decision-makers in state-specific wetlands initiatives.</p> <p>Operational level policies are required as a basis for decision-making on site-specific wetlands conservation and utilisation issues. A case in point is the need for a policy on the burning of wetlands vegetation.</p>	
<b>Climate cycles</b>	<p>Cyclical changes in climate, recently involving prolonged drought, reduce the agricultural productivity of many wetlands areas.</p> <p>Drought in upland areas surrounding wetlands has the effect of increasing demographic pressure on the wetlands themselves since they remain arable after upland soils have become too dry to cultivate.</p> <p>Drought increases the seriousness of uncontrolled fire.</p> <p>When the flooding cycle is earlier or later than expected, wetland agriculture and other activities are negatively affected.</p> <p>The absence of flooding, in at least one area, prohibits the performance of traditional ceremonies which give wetlands residents a sense of unity with their environment.</p>	<p>Awareness on the part of wetland communities, planners and decision-makers of the inherent cyclical nature of climatic regimes. Provision of information required to take these cycles into consideration when making decisions on future approaches to wetland utilisation and conservation.</p> <p>Communication of alternative technologies to residents of wetlands and adjacent biomes to allow them to cope with climate change.</p>
<b>Demographic pressure</b>	<p>Increasing populations, and accompanying resource utilisation, have resulted in degradation of wetlands ecosystems.</p> <p>Apart from population growth at the local level, influxes of refugees have exerted additional pressure on wetlands.</p> <p>There have been influxes of people, usually from other tribes, into wetlands areas traditionally occupied by specific tribes. Often, the newcomers occupy fragile marginal land, considered to be of less value by the traditional wetlands residents.</p>	<p>Articulation and promotion of community roles and responsibilities for determining and influencing appropriate settlement patterns.</p>

WETLANDS ISSUE IDENTIFIER	PROBLEMS	RESULTS SOUGHT
<p><b>Demographic pressure (cont.)</b></p>	<p>Some settlements are established in areas, such as mangrove forests, where there is considerable potential for environmental degradation.</p> <p>The rights of communities to use resources traditionally considered communal property have become unclear. There are also questions as to the rights of residents of one biome, e.g., a forest, to utilise the resources of that biome at the expense of adjacent communities occupying another biome, e.g., a wetland.</p> <p>Lower water levels, due to drought and dams, have facilitated the settlement and utilisation of wetland areas which were previously uninhabited. This creates further stress on wetlands ecosystems.</p>	
<p><b>Education</b></p>	<p>Education facilities in remote wetland communities are often below the standard enjoyed elsewhere.</p> <p>There is a need to foster enhancement of the overall education system in order to provide a framework in which to educate communities concerning wetlands conservation and sustainable use.</p> <p>In many wetland areas, education facilities and systems are so badly in need of maintenance that they are virtually non-functional. Requirements include school buildings, teacher housing, textbooks, salaries for teachers and teacher training.</p> <p>Inadequate transportation, particularly during rainy seasons, results in inferior social services including education.</p> <p>Although the need for environmental education has been recognised for decades, its integrated application has yet to be realised.</p> <p>Sectoral education facilities, such as wildlife training centres, need to be rejuvenated and maintained. Wetlands conservation and management modules need to be incorporated into the curricula.</p> <p>In villages, traditional means of education and communication, including singing, dancing and story-telling, are still practised but they have not been used to good advantage to instill the concepts of wetlands conservation and wise use.</p> <p>Where national environmental education programmes exist, there is no substantial specific curriculum content dealing with wetlands.</p> <p>Natural resource education is not delivered on an ecosystem basis, but, rather, in a single sector approach.</p>	<p>Improvement of academic and ancillary education infrastructure including general and speciality education facilities, health facilities and transportation.</p> <p>Description and assessment of current environmental education activities.</p> <p>Determination of the role of environmental education in the sustainable use of wetlands and intervention to ensure that role is delivered.</p> <p>Incorporation of wetlands conservation and management modules into the curricula of speciality education institutions such as wildlife training centres.</p>



<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Education (cont.)</b>	Education on the important wetlands issues, such as uncontrolled fire, while advancing in some areas, is unknown in other communities where it is a major concern.	
<b>Fire</b>	<p>Bush fires are destroying bird habitat, e.g., roosting areas for pigmy geese, as well as breeding sites for crocodiles.</p> <p>Fire is a significant factor in forest deterioration.</p> <p>Vegetation destruction, due to uncontrolled burning, reduces the supply of: papyrus for mat making, fodder for cattle and wildlife, and thatching material.</p> <p>Traditional rules, whereby fire was managed in the past, are no longer in effect. Prescribed burning periods are not adhered to.</p> <p>There is a shortage of grass on flood plains due to the recent absence of flooding. This situation is exacerbated by wild fires.</p> <p>Ground fires smouldering in organic soil for years are causing loss of human life, cattle and wildlife. Both people and cattle fall into burning areas.</p>	<p>Establishment and implementation of burning policies and regulations with strong community input.</p> <p>Implementation, and extension into other areas with similar problems, of the community based information campaign currently being developed for the Barotse Flood Plain.</p>
<b>Fishing (other than prawns)</b>	<p>Fish is an important source of food and income in wetland areas and reductions in size and numbers are widely reported. In some areas, fishermen claim that there are no large fish left.</p> <p>Changes in fishing methods are resulting in over-fishing. The most serious of these is seen to be the use of nets with smaller mesh, but the use of lights and spears at night is also reported to be resulting in excessive catches.</p> <p>The reduction in flooding in recent years, due to prolonged drought, is limiting the availability of breeding habitat.</p> <p>Some fish species are reported to have been extirpated from wetlands.</p> <p>Fishing and tourism are clashing in that unauthorised removal of nets from traditional fishing sites is said to be occurring. Also, traditional access to water bodies is alleged to be lost with the establishment of tourist facilities.</p> <p>While wetlands residents are concerned about deterioration of fish stocks, some of them are unwilling to contribute to their protection.</p> <p>The ability of fishermen to carry on their traditional activities is, in some locations, being jeopardised by conflicts with intruders from nearby areas. This allegedly includes theft of canoes, use of</p>	<p>Establishment of data base on trends in the fishery using both empirical and anecdotal information.</p> <p>Determination of the importance of fish in the diet, culture and economy of flood plain residents. Special attention will be paid to the role of women.</p> <p>Render fishing sustainable by bringing it into ecological balance, through a variety of mechanisms such as increased production, use of appropriate gear, control of equipment used and establishment of fishing seasons.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Fishing (other than prawns) (cont.)</b>	<p>small mesh nets and breakdown of traditional systems.</p> <p>Traditional private ownership of lagoons can restrict access to the fish resource.</p> <p>Migrant fishermen and fish vendors are occupying space traditionally available for other purposes such as cultivation and grazing.</p> <p>While reductions in fish stocks in terms of numbers and size of individual fish are widely reported, there is little stock assessment data available.</p> <p>In at least one area, the sale of large numbers of fishing licences is said to have resulted in stock depletion.</p> <p>The introduction of non-indigenous species has a negative impact on indigenous varieties.</p> <p>Fish habitat is deteriorating because of the proliferation of aquatic weeds.</p> <p>The reduction of fish stocks is leading to attacks by crocodiles on humans as an alternate source of food.</p>	
<b>Forestry</b>	<p>Sources of fuel wood are being severely reduced adjacent to wetlands with the result that increasing effort must be applied to obtaining firewood, or other less efficient fuels, such as cow-dung, must be burned.</p> <p>While reforestation is technically feasible, wetlands communities lack the resources to mount significant programmes.</p> <p>In the delta, there is wastage of forest resources because knowledgeable experienced forest workers are unwilling to carry out harvest operations due to the existence of land mines. As an alternative, inexperienced workers, who are willing to take risks, fell trees of varying quality for future selection and partial utilisation.</p> <p>Certain practices, such as tapping palm trees for wine, are destructive and methods need to be sought to permit this use while preventing mortality.</p> <p>Specialty species and uses such as ebony for carving or trees supporting ecotourism, e.g., bird watching, are being reduced unnecessarily.</p> <p>Mangrove forests are said to be receding and this could have economic consequences along with the ecological impact.</p>	<p>Assurance of continuing wood supply for wetlands communities through establishment of woodlots, improved forestry practices and introduction of more conservation oriented harvest methods.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Forestry (cont.)</b>	<p>Rural electrification, as an alternative to wood, has a variety of impediments including its cost to families living at the subsistence level, and the scattered patterns of settlements which would add further cost to the supply infrastructure.</p>	
<b>Gender</b>	<p>Women have traditionally had to combine domestic duties with a wide variety of resource harvesting tasks including fuel wood collection (walking up to 30 km), cultivation, water procurement, some types of fishing, etc. Particularly in the case of large families, this leaves women with little time for planning and participating in initiatives that will contribute to their well-being.</p> <p>The inordinately onerous nature of the wood collection activity represents a significant diversion of women's energy and resources that could be used for more productive activities.</p> <p>Some women are responsible for all aspects of the maintenance and management of households because men have left to seek employment elsewhere, or due to civil war. This creates an unfair burden on both the women themselves and their children.</p> <p>In the delta area, women who have borne children as a result of rape during the civil war are often abandoned by their husbands. Given that the women normally keep and care for such children, there is an inequitable distribution of responsibility for ensuring subsistence within the community.</p> <p>While women are often well-positioned to contribute to community planning and development, in some wetland societies their ideas go unheard because they traditionally have not been expected to express their opinions. In other instances, their opinions may be sought only with the approval of men who sometimes articulate the women's responses.</p> <p>In instances where women "choose" not to participate in community planning and development, underlying reasons include their being overburdened with their responsibilities and being restricted by their husbands.</p>	<p>As an initial step, recording of existing socio-economic baseline data and information by gender, to the degree possible.</p> <p>Collection of gender information on who the resource users are, who has access to those resources, who controls access, and who benefits the most and why.</p> <p>Implementation of programmes that recognise and are tailored to the role played by and special needs of women.</p>
<b>Health</b>	<p>Health care standards in wetland areas are often below those of the regional population at large. The consequence is that residents are less capable of benefiting from the sustainable use of wetlands.</p> <p>Normal health problems have been magnified by prolonged drought which has reduced food supplies, as well as the quality of water used for human consumption.</p> <p>Poor water quality is a site-specific and high priority issue relative to human health.</p> <p>Malaria, bilharzia and glaucoma are specifically associated with wetland environments.</p> <p>Although, in some areas, health facilities are maintained at a high level by missionaries, many rural clinics serving wetlands residents need upgrading.</p>	<p>Improved health facilities, the design and location of which are based on expert advice from PEEM.</p> <p>Assessment of the inter-relationship between wetlands ecosystems and public health including an evaluation of the degree to which wetlands can be managed in the interest of improved health without compromising their</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Health (cont.)</b>	<p>Inadequate transportation infrastructure contributes to the lack of well-maintained health care facilities.</p> <p>Specific initiatives, such as the protection of wildlife and parks, are jeopardised by the unavailability of health care, including clinical treatment and first aid supplies, to enforcement staff.</p> <p>In delta wetlands areas, the health support system has broken down due to civil war.</p> <p>Specific potential health problems in wetlands include: vector-borne diseases such as malaria and schistosomiasis; water supply and sanitation; malnutrition and respiratory diseases.</p> <p>DDT use is still permitted although it has environmental problems.</p>	<p>ecological or socio-economic values.</p>
<b>Hydro-electric dams</b>	<p>Hydro-electric dams alter flow regimes and the ecological, social and economic effects of these alterations are unknown. The Zambezi delta has been shrinking inward from the sea and along inland edges. This is postulated to be due to dam construction.</p> <p>Loss of siltation, due to reduced downstream flow and accompanying shoreline erosion, causes mangrove forests to recede.</p> <p>There are insufficient data available to satisfy the environmental impact assessment process relative to new hydro-electric dam construction.</p> <p>Impact assessment of existing dams has been unable to consider all potential effects on wetlands ecosystems, or has not been carried out.</p> <p>Simulation of natural downstream flood conditions can be periodically achieved by releases from hydro-electric dams but the degree to which such simulation can be achieved is unknown. Downstream wetlands users have differing requirements for flow releases from dams, some of which may be in conflict.</p>	<p>SADC-accepted guidelines for the assessment of environmental impact of existing and proposed hydro-electric dams.</p> <p>Description of impacts to date on wetlands of hydro-electric dams and development of a monitoring system to assess ongoing impacts.</p> <p>Simulation of natural flood conditions based on an assessment of downstream ecosystem and user needs.</p>
<b>Indigenous knowledge</b>	<p>Breakdown in traditional knowledge systems has contributed to a drift away from sustainable and ecologically sound use of wetland resources toward kinds and intensities of activities that are jeopardising wetlands ecosystems.</p> <p>Wetlands residents are being placed in a disadvantageous position by the breakdown of indigenous systems. For example, the indigenous grain "nuana", a type of sorghum, has been replaced by maize which is not tolerant to flooding.</p> <p>The importance of the traditional system of natural resource management has been eroded by new licensing systems.</p>	<p>Publication and circulation of indigenous knowledge studies that are currently underway.</p> <p>Further assessment of the status of indigenous knowledge in wetland areas.</p> <p>Communication of the results of the above at community, national</p>

WETLANDS ISSUE IDENTIFIER	PROBLEMS	RESULTS SOUGHT
<p><b>Indigenous knowledge (cont.)</b></p>	<p>Investigation into indigenous methods of cattle disease control have been inconclusive.</p> <p>During prolonged excessively dry periods, there may be a need for anthropogenic manipulations such as retention of flood waters to enable application of indigenous knowledge which is applicable to "normal" conditions.</p> <p>As the availability of new technologies accelerates, it is unclear as to what combination of indigenous and non-indigenous knowledge is most appropriate.</p>	<p>and regional levels, including exchange of information between project areas.</p> <p>Application of indigenous knowledge to specific wetlands utilisation and conservation issues.</p> <p>Combination of indigenous information with non-indigenous information into combined data bases. Determination of the best mix of indigenous and non-indigenous information for application to wetlands issues.</p>
<p><b>Land tenure</b></p>	<p>Land ownership or access to land utilisation is critical when cash is unavailable, yet not all wetlands residents enjoy such opportunities.</p> <p>In some communities, people are disillusioned with the fact that, going back to the colonial era, and since, they have struggled to get control of the land and yet that control has eluded them. This fosters a less than co-operative attitude with regard to the introduction of sustainable land use practices.</p> <p>Land tenure related to community well-being and to economic development is a key issue. Questions arise as to who owns and controls wetland resources and who has the right to benefit from them.</p> <p>In the delta, people have to register their land rights in a titles office at a cost which is significant to them.</p> <p>Protected areas within the delta will have land use defined by site-specific management plans and existing uses will be integrated into those plans. For other areas, the process of land allocation requires further delineation.</p> <p>The influence of immigrants from other SADC states is of concern to some wetlands residents who feel their access to resources may be jeopardised.</p> <p>Concern has been expressed to the effect that, with new, more formalised land tenure regulations, traditional "common use" of certain land and water bodies will be compromised.</p>	<p>Official encouragement to Zambezi Basin states to develop land tenure policies that are in keeping with the transboundary requirement for consideration of wetlands values.</p> <p>Promulgation and implementation of land tenure laws that foster sustainable use of wetlands and the safeguarding of ecosystem integrity.</p> <p>At a local level influence land tenure traditions and practices toward optimal utilisation of shared wetlands resources with minimal environmental impact.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Land tenure (cont.)</b>	<p>As a result of prolonged drought, people have moved into wetland areas that were previously unoccupied thus creating the potential for additional stress on wetlands ecosystems.</p> <p>Private ownership, e.g., of lagoons, by individuals with status prevents access by others for activities such as fishing.</p>	
<b>Mangrove forests</b>	<p>Loss of siltation, due to reduced downstream flow and accompanying shoreline erosion, causes mangrove forests to recede.</p>	<p>Assessment of extent of mangrove loss and investigation of causal agents.</p> <p>In the event that losses prove to be significant and causal agents are determined, instigation of programmes to reverse the degradation process.</p>
<b>Poverty</b>	<p>Poverty, exacerbated by prolonged drought, affects many wetlands residents.</p> <p>Environmental degradation initiates poverty and this leads to a vicious cycle involving further degradation.</p> <p>Supporting infrastructure required to overcome poverty, including health and education facilities, as well as water supplies, markets and transportation systems, are often absent or inadequate.</p> <p>Children orphaned as a result of war are a further contributor to the poverty issue.</p>	<p>Determination of means to increase the well-being of wetlands communities.</p> <p>Introduction of mechanisms to ensure that wealth produced in wetlands communities is retained there for the benefit of residents.</p>
<b>Resource use conflicts and resolution</b>	<p>Land use conflicts are common in both wetlands themselves and adjacent uplands. These emanate from a combination of breakdown of traditional controls and practices and the absence of replacement land use plans and/or the capacity to implement same.</p> <p>Competing land uses, involving cultivation, grazing, forestry, fishing, tourism and wildlife use are over-taxing the resource base and degrading wetlands ecosystems.</p> <p>Lack of clarity concerning natural resource ownership, tied to the aforementioned breakdown of traditional controls, is a further contributor to resource use conflicts. Concepts of resource use ownership in the project areas vary from that of comprehensive state ownership through exclusive tribal rights to ownership by individuals.</p> <p>Over-exploitation of forests in adjacent uplands is impacting on wetlands residents in that supplies of fuel wood and canoe building materials are dwindling.</p>	<p>Development of capacity for identification and resolution of resource use conflicts.</p> <p>Generation and implementation of integrated resource use plans which foster the most appropriate mix of wetlands uses from both ecological and socio-economic perspectives.</p> <p>Development, maintenance and communication of resource use conflict resolution expertise at</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Resource use conflicts and resolution (cont.)</b>	<p>Increases in human populations are automatically a cause of resource use conflicts in wetlands having populations at or near the sustainable carrying capacity.</p> <p>Canal construction has the potential to negatively impact on pools and lagoons.</p> <p>Some statutes are biased toward certain types of resource use at the expense of others.</p> <p>Wetland-based tourism, which is largely controlled by entrepreneurs from outside the wetlands, has particular potential for conflicting with other resource uses. Irritants include construction of accommodation facilities which prevent traditional access to water, interference with fishing and restriction of use of wildlife resources and their habitats by wetland residents.</p> <p>Excessive grazing by livestock causes soil compaction with resultant increased run-off and siltation which reduces water quality.</p> <p>A variety of specific resource use conflicts involving wildlife occur and these are detailed in the "wildlife - human conflicts" issue description.</p> <p>Conflict resolution skills are not well developed at the regional, national and local levels nor are there adequate opportunities for the acquisition of those skills.</p> <p>There is a specific lack of capacity to apply a "bottom up" approach to resource use conflict resolution as opposed to a "top down" one.</p> <p>As resource use conflicts escalate, the integrity of wetlands ecosystems and biodiversity are threatened to increasing degrees.</p>	<p>the community, provincial, national and regional levels.</p> <p>Emphasis to be placed not only on conflicts occurring within wetlands, but also between wetlands and adjacent areas.</p>
<b>Prawn production</b>	<p>The prawn fishery, a significant earner of foreign exchange for Mozambique, has deteriorated. In recent years, the catch per unit effort has increased but the total catch has declined as has the total allowable catch.</p> <p>While ocean temperature and salinity are suspected to have a bearing on the reduction in total availability of prawn, it is also possible that deterioration of delta wetlands, which provide spawning and rearing habitat, is a contributing factor.</p>	<p>Contribution of wetlands aspects to the Norwegian model of the future of the prawn fishery.</p> <p>Encouragement to the Institute of Fisheries in its research of non-wetlands aspects such as the impacts of marine temperature and salinity.</p>
<b>Tourism</b>	<p>The full tourism potential of wetlands is not being realised, largely due to lack of infrastructure, including transportation and accommodation.</p> <p>Tourism is highly wildlife-dependent and in some areas population reduction and extirpation of species reduces tourism appeal.</p>	<p>Production and implementation of tourism development plans which are integrated with other current and potential wetlands</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Tourism (cont.)</b>	<p>Tourism can be overly dependent on wildlife and diversification to include local cultural aspects is required.</p> <p>Inadequacy of tourism-related information and agency capacity prohibits the realisation of the full potential.</p> <p>Tourism is sometimes seen to be in conflict with other resource uses, particularly fishing, agriculture and general access to land adjacent to rivers.</p> <p>Communities only support tourism when they are able to recognise locally accruing benefits. In some areas, the tourist industry does not enjoy a good reputation because of its failure to employ local residents.</p> <p>Wetlands residents sometimes lack the skills required to take advantage of tourism-related employment and ancillary benefits.</p> <p>Skills for the resolution of conflicts between tourism and other resource uses are either absent or poorly developed.</p>	<p>uses and with conservation requirements.</p> <p>Development of national tourism policies that contain specific insurance that wetlands residents enjoy maximum benefit from tourism, through local employment practices and diversification of the tourism base.</p>
<b>Transportation</b>	<p>Water transportation needs to be designed in reaction to a wide variety of conditions including stagnant, slow moving and fast moving water, fluctuating water levels, inconsistent canal maintenance and obstructions such as dams.</p> <p>Water transportation characteristics described above, render it a high risk undertaking for entrepreneurs.</p> <p>In general, wetlands transportation infrastructure is poor and deteriorating. This includes transportation links within the wetlands themselves as well as connections to outside areas.</p> <p>Roads and canals are often of poor standard due largely to lack of maintenance.</p> <p>While inadequate transportation is seen to be an impediment to social progress there has been no comprehensive assessment of requirements followed by a quest for requisite funding.</p> <p>The marketing of wetland produce, including fish, crops and cattle, is inhibited by the absence of adequate transportation infrastructure, including canals and roads.</p> <p>Fuel wood scarcity is becoming acute in some wetland areas and the absence of adequate transportation infrastructure exacerbates this situation.</p> <p>Inadequate transportation results in inferior socio-economic services, particularly during rainy</p>	<p>Assessment of wetlands transportation needs in terms of economic and social activities currently supported, new initiatives that would be feasible with improved transportation, the optimal mix of transportation modes, and ecological acceptability.</p> <p>Generation of transportation plans for wetlands.</p> <p>Encouragement to donors to support implementation of transportation plans.</p>



<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Transportation (cont.)</b>	<p>seasons. Included are education, human health, marketing and veterinarian services.</p> <p>In the Barotse Flood Plain, traditional cultural practices and ceremonies are more difficult to sustain because of deterioration of a previously well-maintained canal system.</p> <p>Grass growth helps to stabilise canal walls and its removal during maintenance operations would lead to scouring. This would increase the sediment load of the flood waters with a potential negative impact on aquatic life downstream. Additionally, structural stability of the canals would be compromised when scouring occurs.</p> <p>Natural resource planning and management suffers from an inability of professional and technical staff to gain access to all wetland areas.</p> <p>The tourism potential of wetlands is not realised because of poor transportation infrastructure and there could be further declines in this source of revenue unless the issue is addressed.</p> <p>Ecological ramifications of transportation improvements, including canal, embankment and road construction and maintenance, have not often been given due consideration, nor are they always predictable.</p>	
<b>Wildlife</b>	<p>Wildlife populations have been seriously reduced in some wetland areas due to a variety of factors, including lack of control during civil war, subsistence and commercial poaching, elimination of habitat and general over-use of wildlife resources.</p> <p>Wetland farming competes with wildlife foraging and breeding and wildlife is declining because of encroachment on natural habitats.</p> <p>Humans and hippos conflict seriously in a number of ways including overturning of boats and damage to crops. This conflict often has a seasonal aspect since the hippos move from one area to another depending on water level and inhabit farm fertile wetlands for only part of the year. Destroying the animals is not the solution and people need help in finding other methods of conflict resolution.</p> <p>Human-crocodile conflicts occur, due in part to lower fish populations in the wetlands. Hungry crocodiles look for another source of food e.g., goats and people.</p> <p>In some wetland areas, there is competition for land between agriculture and wildlife. For example, intensive cultivation of dried up wetlands has attracted much wildlife, leading to the destruction of crops. The fencing of fields in such cases is impractical because they are scattered.</p> <p>Lions and hyenas kill cattle and goats in at least one wetland area.</p>	<p>Generation of adequate data bases including information on species and habitats.</p> <p>International cooperation on inventories.</p> <p>Production of wildlife management plans that are integrated with plans for conservation and use of other resources.</p> <p>Rebuilding or re-introduction of decimated populations or extirpated species.</p> <p>Demonstration of workable shared use of wetlands by humans and wildlife.</p>

<b>WETLANDS ISSUE IDENTIFIER</b>	<b>PROBLEMS</b>	<b>RESULTS SOUGHT</b>
<b>Wildlife (cont.)</b>	<p>Wildlife-human conflicts are exacerbated by the absence of management plans. This, in turn, is due to the lack of base-line data on animal populations and their habitats. In many cases, where census data does exist, it is badly out of date. Without up-to-date inventories, it is difficult to formulate meaningful management plans. In some instances, authorities have to rely on data provided by outfitters.</p> <p>Habitat deterioration prohibits the successful re-introduction of wildlife, although wetland residents advocate such re-introductions.</p> <p>Transboundary problems occur in that livestock from one country, where grazing is paramount, can cross into another state and interfere with wildlife on which the economy in that country is significantly dependent.</p> <p>Uncontrolled fires are destroying habitat for birds and other forms of wildlife.</p> <p>The breakdown of traditional knowledge systems and traditional resource management methods is also contributing to wildlife-human conflicts.</p> <p>Biota not normally included in the connotation of "wildlife", such as locusts and army worms, are a problem in some wetlands areas.</p> <p>There is a need in the communities for education and communications concerning conservation of wetlands as wildlife habitats.</p>	

### **2.2.3 PRIORITIES**

Although individual issues have been chosen as the logical starting points or building blocks at this stage of the project, the consideration of both impacts on wetlands values and approaches to their amelioration, will become highly integrated as the project progresses.

As indicated in 2.2.1, only those issues which were given a "high priority" ranking are being considered herein. However it is still not feasible to approach all identified issues in the early stages of the project. For example, priority issues which require complex interactions between a number of partners and those which require assemblages of information from a variety of sources are best addressed later in the project. It is also important to note that the rating is a generalised one and that not all issues pertain to all sub-project areas or cause the same level of concern. As an example, wetlands concerns related to prawn production and mangrove forests are confined strictly to the delta. It is, therefore, useful to consider each sub-project in terms of the major issues pertaining to it. The result of this approach is the emergence of a theme or story-line for each sub-project which is of considerable value in the development of business plans.

#### **DELTA SUB-PROJECT**

Major issues include:

- land tenure and settlement patterns
- gender inequity
- decline of the prawn fishery
- receding mangroves
- wildlife population reduction
- education
- health infrastructure
- impacts of hydro-electric dams
- information availability and awareness

#### **LOWER SHIRE SUB-PROJECT**

Major issues include:

- health
- gender inequity
- wildlife-human conflicts
- wildlife population declines
- awareness of wetlands values
- lack of base-line data
- fish reductions
- settlement patterns resulting in localised crowding and degradation
- threats from dam and irrigation projects
- reduction of biodiversity

#### **BAROTSE FLOOD PLAIN SUB-PROJECT**

Major issues include:

- gender inequity
- reduced biodiversity
- uncontrolled and excessive fishing
- upland deforestation
- uncontrolled burning of flood plain vegetation
- transportation system
- unrealised tourism potential
- education infrastructure
- breakdown of indigenous knowledge systems

#### **CHOBE-CAPRIVI SUB-PROJECT**

Major issues include:

- gender inequity
- drought which reduces wetlands
- lack of ownership and responsibility
- over-fishing and transboundary fishers
- resource use conflicts
- ineffective use of wetland resources
- water supply
- legal land tenure systems not well developed
- capacity to access cash economy
- development of wetland resources
- lack of diversity in education infrastructure

#### **IUCN-ROSA SUB-PROJECT**

Major issues include:

- awareness of wetlands values
- capacity building
- resource use conflict resolution

## 2.3 RESULTS SOUGHT

In general the issue oriented "results sought" given in Table 2 may be summarised to equate to the Expected Results component of the Contribution Agreement as follows:

1. Improved health care, education, marketing, transportation and other infrastructure support for wetlands communities.
2. Quantification of the value of wetlands by articulating the goods and services they provide.
3. Increased awareness of the value of wetlands.
4. 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.
5. A thorough understanding of the resource and cultural basis supporting the communities in generating development proposals that are strongly founded on existing resource potentials and traditional understandings.

### 2.3.1 GOAL

The overall goal of the project is:

- To conserve the wetlands ecosystems of the Zambezi Basin while facilitating their sustainable use.

### 2.3.2 OBJECTIVES

Objectives to be pursued in achieving the project's goal may be assigned at a variety of levels ranging from site-specific to regional. In the interest of brevity and clarity, relatively few major objectives have been articulated, followed by a slightly more detailed set of sub-objectives.

#### 2.3.2.1 Major Objectives

The major objectives of the project are:

- To articulate the true value and importance of the functions, products and attributes of wetland ecosystems at the local, national and regional levels.
- To effectively communicate the true value of wetlands to the region's people including key decision-makers.

- 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.
- To address environmental health problems in wetlands management.

#### 2.3.2.2 Sub-objectives

The above noted major objectives may be broken down into the following sub-objectives which are not necessarily related exclusively to one of the major objectives:

- To promote an awareness of the role, value and appropriate use of wetlands amongst policy-makers, resource planners, resource managers, extension workers and users of wetlands.
- To define training needs for personnel in wetlands planning and management, and articulate these needs to relevant institutions and initiatives.
- To provide national governments, on the basis of specific requests, with the resources to undertake inventories of wetlands, to formulate management plans and to prepare project proposals for the implementation of management plans.
- To improve and expand public awareness of the ecosystem concept and the need for an integrated approach in drainage basin management.
- To improve institutional capacity in wetlands economic valuations and impact assessment.
- To investigate, develop and establish community-based integrated wetlands conservation and wise use approaches and techniques.
- To help local wetland communities realise their potential in sustainable wetlands management and assist these communities to participate fully in the conservation of the base of their own livelihoods.
- To develop a transboundary approach to wetlands conservation in view of the shared river and wetland resources.
- To evaluate resources in wetlands as economic producers.
- To develop and promote an integrated ecosystems perspective to the conserva-

tion and sustainable utilisation of the Zambezi Basin's wetlands and associated natural resources.

- To bring together agencies of different backgrounds to consider combined environmental and health management in wetlands.
- To study effects of wetlands on health and disease transmission.

### 2.3.3 CLIENTS

The relevance of an initiative such as the Zambezi Basin Wetlands Conservation and Resource Utilisation Project depends in large part, on the successful identification of its clientele.

Clearly, a multi-national project which addresses issues ranging from localised utilisation and conservation concerns to region-wide policy concerns, will have a host of clients. These include, but are not limited to, community residents, traditional leaders, planners, resource managers, government officials at a variety of levels, politicians, entrepreneurs, the media and other opinion influencers: in short, all stakeholders in the conservation and wise use of wetlands. The specific clientele associated with any one sub-project will, of course, be dependant on its theme and major focus.

In recognition of the central role women play in the management of natural resources, this client group will be given special attention. An evaluation of the project's specific impacts on women will be carried out.

### 2.3.4 PARTNERSHIPS

Partnerships are essential to the delivery of any initiative which incorporates an integrated approach to natural resource conservation and sustainable use. The ecological, geographical, political and cultural diversity to be addressed in this project makes partnerships especially important in programme design and delivery.

One of the fortunate aspects of the Inception Mission is that it has generated a particularly high level of partnership interest. In fact, one of the early challenges to project management will be the timely incorporation of the wide variety of expertise that exists among stakeholders who are anxious to participate. The distinction between clients and partners is often rather subtle. In many cases the users of the project's products and achievements will, indeed, be those who helped generate them. While it is not possible at this stage to generate a complete list of partners, or even potential partners, a number of examples can be given for the regional level.

### THE PROJECT WILL FUNCTION IN PARTNERSHIP WITH:

- other CIDA sponsored projects
- existing initiatives being undertaken by IUCN in Southern Africa and East Africa
- the Southern Africa Development Community, Environment and Land Management Sector ZACPRO 6 Project
- the Zambezi River Authority
- the Wetlands Management Training Programme for Southern Africa: International Waterfowl and Wetlands Research Bureau of South Africa and South Africa's Department of Environmental Affairs and Tourism
- the SADC Regional Wetlands Conservation Programme
- the proposed SADC Water Sector
- the Panel of Experts on Environmental Management for Vector Control, contributed to by WHO, FAO, UNEP, and UNCHS
- relevant IUCN members
- the Institute for Water and Sanitation Development, University of Zimbabwe
- the Norwegian Agency for Development Cooperation
- a variety of government agencies with an interest in wetlands management in Mozambique, Malawi, Namibia and Zambia.

Additional local partnerships and clientele are suggested in each of the sub-project business plans described in Chapter 3.

### 2.3.5 NETWORKS

To distinguish networks from partnerships and clientele, networks are described as linked sources of information, expertise and support not readily available within the project management team and its participating partners. For wetlands-related expertise the Project Manager will rely on contacts with Wetlands International.

A second important network of experts comprises the global family of IUCN members and staff specialists, particularly those who participate in Expert Commissions.

Other IUCN wetlands conservation projects, e.g., in Cameroon and Tanzania are a source of valuable guidance particularly with regard to the practicalities of activity implementation. Existing and proposed wetlands management plans produced under the RAMSAR convention, while more site-specific than the Zambezi project, constitute applicable background.

A sound network of available expertise also exists relative to social aspects of the project and includes international support agencies such as PEEM, CARE, World Vision and Food for the Hungry International.

## 2.4 PRODUCTS

### 2.4.1 OUTPUTS

Project and allied outputs will be tailored to achieve the ecologically, institutionally and regionally integrated results specified in 2.3 which, in turn, are designed to address the priority wetlands issues. Hence, the outputs will constitute reactions to originally perceived wetlands-related issues as modified through broadly based consultation at the community, provincial, national and regional levels.

#### OUTPUTS RELATED TO RESULT 1

- Improved environmental and academic education centres
- Human resources, infrastructure and community needs assessment including transportation and marketing requirements
- Improved health centres and services.

#### OUTPUTS RELATED TO RESULT 2

- Socio-economic valuation of natural resources in selected wetland ecosystems
- Articulation of the cultural values of wetlands
- Community based assessments of wetlands values including current and potential uses
- Assessment of the role of wetlands biodiversity in biodiversity conservation and information on its potential use.

#### OUTPUTS RELATED TO RESULT 3

- Pilot demonstration projects for the conservation and sustainable use of wetlands and associated resources
- Awareness of the hydrological functions, dynamics and economic value of the Zambezi Basin wetlands and their utilisation and conservation by the local people
- A multi-faceted public awareness strategy to deliver the message of the importance of wetlands conservation
- Appreciation of the biological diversity of wetlands and their contribution to the overall species and ecosystem diversity in the basin
- Communication plan for ensuring maximum enhancement of awareness.

#### OUTPUTS RELATED TO RESULT 4

- Identification of partner institutions in which to build capacity
- Enhanced institutional capacity through human resources development programmes featuring training in wetlands conservation and utilisation
- Improved regional cooperation on transboundary issues relating to wetlands management and conservation
- Cross-boundary interactions between policy-makers, planners, managers, researchers, educators and resource users

- Improved management of wetlands resources, based on identified priorities, and on research results
- Strategies for the sustainable management of wetlands
- Higher priority given to wetland conservation.

#### OUTPUTS RELATED TO RESULT 5

- Information on traditional use and conservation of wetland ecosystems and identification of situations wherein a return to traditional practices is desirable
- Integrated community-based approaches and techniques to wetlands conservation and wise use
- Information bases which combine traditional and non-traditional knowledge
- Demonstrated mechanisms for sustainability
- Better management of wetlands resources based on an optimal mix of traditional and non-traditional practices.

### 2.4.2 SERVICES

The services component of products attributable to the project and allied initiatives is made up of ongoing, somewhat intangible, benefits rather than readily identifiable products. They include:

- Improved health care, particularly related to vector borne diseases
- Incorporation of human health considerations into the integrated sustainable use and conservation of wetlands ecosystems
- Employment in infrastructure rehabilitation
- Better marketing of wetlands produce
- Support for sustainable economic development
- Improved water supply
- Access to a cash economy
- Improved transboundary capacity relative to wetlands policy
- A model for the conservation and sustainable use of other biomes such as forests, drylands, nearshore marine waters, etc.

**TABLE 3. Preliminary Identification of activities by sub-project. From regional workshop recommendations for a first year workplan.**

ACTIVITIES	BAROTSE	CHOBE-CAPRIVI	LOWER SHIRE	ZAMBEZI DELTA	REGIONAL	POTENTIAL PARTNERS
Collection of base-line data on biophysical, socio-economic and indigenous knowledge systems	✓	✓	✓	✓	✓	ZERO, ECZ, METN, WSM, DNFFB & IUCN-ROSA EP
Environmental information and awareness problem analysis	✓	✓	✓	✓	✓	Zambezi Society, CURE, ZEEP, CWT & MICOA
Designing of environmental information, education and communications strategies	✓	✓	✓	✓	✓	SADC-ELMS, IUCN-ROSA EICP
Identification of specific and strong partners for implementation of the information and awareness strategies	✓	✓	✓	✓	✓	IUCN-ROSA EP & EICP
Socio-economic surveys of wetlands to assess pilot possibilities	✓	✓	✓	✓		IUCN-UZP, RE, METN, CURE, LA & DNFFB
Negotiation with wetland communities on project objectives and field activities	✓	✓	✓	✓		PA & LA
Resource assessment for biological diversity base-line data	✓	✓	✓	✓	✓	SADC-IFFW & SCFEE
Drafting of a plan to initiate long-term training on Zambezi Basin biodiversity management					✓	SADC-IFFW & SADC-ELMS
Assessment and identification of natural resource conflicts	✓	✓	✓	✓		IUCN-ROSA RIDP & ZERO
Assessment of site specific ecological and socio-economic importance to the region	✓	✓	✓	✓		IUCN-ROSA EP & IUCN-ROSA RIDP
Review of existing development plans, policies and data bases					✓	IUCN-ROSA EP, ZRA & SADC-IFFW
Specific project on combined agricultural and wetlands rehabilitation			✓			CURE & LA
Wetlands awareness: curriculum development	✓			✓		ZEEP & MICOA
Wetlands awareness: environmental awareness and extension in communities		✓				METN & DLDA
Wetlands awareness: wetland communication capacity			✓		✓	Zambezi Society & WSOM
Establishment of central contact with ZACPRO 6					✓	SADC-ELMS & ZRA.
Wetland extension kitbags				✓		LA

ACTIVITIES	BAROTSE	CHOBE-CAPRIVI	LOWER SHIRE	ZAMBEZI DELTA	REGIONAL	POTENTIAL PARTNERS
Research on the value of Elephant Marsh as a fish supplier			✓			DNPWM.
Rejuvenation and use of traditional knowledge for the conservation and wise use of wetlands	✓					IUCN-ROSA RIDP, IUCN-UZP & RE
Health impact assessment for wetland communities	✓	✓	✓	✓		PEEM
Regional exchanges and study tours	✓	✓	✓	✓		IUCN-ROSA EP
Development of criteria for selecting environmental health management options					✓	WHO-PEEM
Research on the value of hippos as wetland managers			✓			MOREA
Wetland training needs assessment					✓	SADC-IFFW & IUCN-ROSA EP
Community described wetland uses and values				✓		DNFFB & LA

## 5 ACTIVITIES

### 2.5.1. RECOMMENDED PROJECT ACTIVITIES

The entire scope of activities required to achieve the above noted results over the life of the project cannot be specified at this time. Throughout the mission's consultations, recommendations were received concerning activities to be undertaken. However, the most succinct listing of recommended activities originated at the regional workshop for consideration in a first year workplan. They are presented here as Table 3 and also form part of the workshop report in Appendix 10.

### 2.5.2 INTEGRATION WITH EXISTING ACTIVITIES

The wetlands issues described in 2.2.2 have not gone unnoticed to date. Indeed, any well-designed programmes, projects and organisational initiatives have already been undertaken to address these issues, some of which have a long history. The Zambezi Basin Wetlands Conservation and Resource Utilisation Project will be implemented in recognition of the fact that integration with appropriate existing mechanisms is absolutely essential if meaningful achievements are to be realised. This philosophy applies to all levels of activity and represents a major challenge in terms of determining the optimal linkages and sharing of responsibility.

## 2.6 CAPACITY BUILDING

One of the most common threads of the entire Inception Mission consultation process was a genuine willingness at all stakeholder levels to contribute to the conservation and sustainable use of wetlands ecosystems. Unfortunately, an equally common thread was a lack of capacity to make these contributions, again at all levels of participation.

There is a compelling need for increased capacity on the part of communities to take advantage of existing opportunities to utilise the wetlands ecosystems wisely as a means of improving their living standards. In order for this to happen, vertical integration of capacity enhancement is required all the way through from the national institution level to the regional policy level. While only the Chobe-Caprivi first year business plan makes specific mention of the "capacity building" theme, this activity will permeate the entire project.

### 2.6.1 REQUISITE SKILLS AND FUNCTIONS

The levels at which new skills are required parallel those at which current capacity is inadequate. As wetlands populations have increased with commensurate demands on ecosystem resources, the long standing traditional resource use skills have proven to be inadequate. Upgrading of those skills is essential.



Equally, at the institutional level existing resource management skills, which are largely single sector oriented, must be enhanced to facilitate integration that will lead to more holistic ecosystem considerations. Accompanying this need for integration is a requirement for skill acquisition to facilitate the addressing of each of the issues identified and described in Tables 1 and 2 respectively. While many of these skills are urgently required, perhaps highest priority is for enhanced abilities in the area of conflict resolution at the site, national and regional levels.

## 2.6.2 TRAINING REQUIREMENTS

If training is to address the range of requisite skill enhancement, it too must relate to all identified priority issues. Throughout the project, training will be considered in its broadest sense to include a variety of mechanisms ranging from on-site communication and demonstration to support for formal education at the university level.

Areas of training support identified for the first year of the project are those in which enhanced capacity is required prior to moving on to address training needs relative to more complex issues. For example, a sound understanding of wetlands values and stresses affecting them is required prior to initiating training in resource use conflict resolution.

## 2.6.3 INSTITUTIONAL CAPACITY

The institutional capacity, within Zambezi Basin states, to initially support and contribute to the project's objectives, and later to carry on in project-determined directions, can be described as rather dichotomous. When one considers the institutional capacity available to deal with the individual components of wetlands ecosystems and associated socio-economic situations, it can appear impressive. As illustrations, there are a number of countries within the Zambezi Basin that have considerable institutional capacity to manage natural resource components of wetlands ecosystems such as fisheries, agriculture, wildlife, etc. Equally, in the socio-economic sphere, there exists significant institutional expertise in sectors such as education, health, gender equity, community relations, etc. However, a considerably different picture emerges when one looks at institutional capacity to deal with wetlands as ecosystems and to plan and implement initiatives that incorporate conservation of those ecosystems with the requirements of local human populations. Of particular note is the lack of institutional capacity to carry out comprehensive scientific and socio-economic assessments of wetlands values. One manifestation of the above described situation is that there is little overall institutional capacity to manage wetlands and to formulate national and regional policies. It must be stressed, however, that there is no one standard description that can be applied to national institutions through the geographic scope of the project. Some countries have

considerably more institutional capacity to address the conservation and sustainable use of wetlands than others.

## 2.7 IMPLEMENTATION

### 2.7.1 OPERATIONS

Project delivery will be managed by IUCN country offices as follows:

Delta – IUCN Mozambique  
Barotse Flood Plain – IUCN Zambia  
Chobe component of Chobe-Capriivi – IUCN Botswana

For field sub-projects in countries without an IUCN country office, delivery will occur directly through the Project Manager in Harare. These are the Lower Shire in Malawi and the Capriivi Strip component of the Chobe-Capriivi sub-project. Field teams will be established in the Delta, Lower Shire, Barotse Flood Plain and Chobe-Capriivi areas. Initial hiring will be limited to a Field Project Officer and Driver for each location. The Field Project Officers will have university education in either the biophysical or social sciences. Each field team will be provided with four-wheel-drive vehicle as well as boats, motors and scientific field equipment as required.

Given the opportunity for integration with existing programmes, it is not yet clear as to how many additional field staff will be required. The principal task of field teams will be to work with the local wetland communities to clearly document and quantify the goods and services provided by the wetlands to the local communities and to the Zambezi Basin as a whole. These teams will also assist the communities to articulate their priorities for assistance in rehabilitating, or providing, social services such as schools, clinics and marketing infrastructure. This component of the project will be sub-contracted to Canadian or local grassroots NGOs. The unique cultural aspects of the communities' relationship with the wetlands will also be documented by the field teams. A third requirement will be to design and implement demonstration projects that will portray wetlands conservation and sustainable development based on ecosystem values.

As Howard (1996) points out, the solution to the lack of integration is more likely to be achieved by a consortium of interested parties – rather than an authority that takes the decision-making away from the existing agencies of government and local communities. Accordingly, IUCN will enter into specific project agreements with national authorities and NGOs in the respective countries. The implementation of the projects will be supported by short-term consultancy inputs as well as some long-term expertise. Long-term institutional collaboration and backstopping arrangements

for individual components of the programme will be established with suitable institutions in the region and Canada.

### 2.7.2 RISKS

Significant risks are associated with the implementation of innovative multi-national projects which rely heavily on partnerships and integration with existing mechanisms. This was recognised from the outset of the project planning phase and, indeed, CIDA's Logical Framework Analysis associates risks with hypotheses or assumptions that:

- multi-national cooperation re: the management of the Zambezi River is formalised under international protocol
- the goods and services are quantifiable which hinges on the emerging science of environmental economics
- the information provided turns into action
- staying in these rural communities can "compete" with immigration and that a number of years of successive bad drought does not happen
- communities want rehabilitated infrastructure.

Given that most of the planned outputs of the project are urgently required, there is a risk associated with the temptation to react positively to requests for small "stopgap" projects before the overall shape of the programme is rationalised.

Improved healthcare facilities have the potential to attract settlers from outside areas with commensurate over-burdening of wetland resources.

The establishment of new wetlands management regimes under the authority of local and central governments carries an associated risk in that local communities may reject authority from the outside. Authority must be placed at the local level through empowerment of communities.

Enhancement of institutional capacity alone will not guarantee results as long as current budgetary problems and the possibility of further cut-backs persist.

Projects with a conservation background and orientation are often seen as "anti development" with the unfortunate result of polarisation of conservation and development camps. In the case of the Zambezi Basin Wetlands Conservation and Resource Utilisation Project this risk must be counteracted through a balanced approach which recognises the resource utilisation component as being as significant as the conservation component. Perhaps the greatest risk to which the project is prone is associated with its magnitude and scope. So many issues and opportunities exist that

there is a danger of attempting to undertake more than is achievable in a three year time frame and within the limits of available resources.

### 2.7.3 EVALUATION OF RESULTS

In a project of this nature the ongoing evaluation of results is essential, not only to assess achievements against resources utilised, but also to give direction to subsequent stages of the project. Evaluation upon completion of the project will compare integrated results with expenditures and provide valuable direction for other initiatives involving transboundary conservation and utilisation of natural resources.

While the project will be able to draw upon the lessons learned in implementing ZACPLAN, it will break new ground in ecological, institutional and managerial approaches to transboundary basin management in the region. Both in terms of its orientation and its multi-disciplinary approach it is thus without precedent. Accordingly, there will be continuous monitoring and periodic evaluation as instruments for managerial and conceptual review of the implementation process. While monitoring procedures will be built into each component, there will be a mid-term evaluation of the project as a whole, the results of which will be assessed in a review workshop attended by key staff partners and clients. A second major evaluation will take place at the end of the project.

Indicators of success of the project will include:

- improved access to health care and education
- rehabilitated infrastructure
- wetlands remain intact and functional
- acceptance of inherent value of wetlands
- number of publications, scientific articles, books, TV or radio programmes, workshops, mention in development plans and EIAs for projects
- people remain in their communities and do not emigrate to urban areas
- documentation of the value of wetlands
- fewer instances of wetlands being converted to other uses.

## CHAPTER 3

# Business Plan for Year One

Business plans for the first year of the project, extending from 1 April 1996 to 31 March 1997, have been generated for each of the four primary wetlands areas, the IUCN Region of Southern Africa office and the Montreal responsibility centre. These entities are referred to as sub-projects for accounting, administrative and operational purposes.

Although the Inception Mission included in-depth fact finding and consultation relative to appropriate activities for each of the Southern Africa sub-projects, the business plans presented here remain subject to review and revision. This will take place upon mobilisation of the Project Manager to Harare and in close consultation with IUCN country representatives and potential partners.

On the basis of identified priority issues, a theme has been generated, or perhaps more appropriately stated, has “emerged” for each of the Southern Africa sub-projects. These themes were used as a guide to the determination of appropriate activities. They are:

- Delta sub-project: wetlands resource conservation, tenure and utilisation
- Lower Shire sub-project: wetlands conservation and food security
- Barotse Flood Plain sub-project: infrastructure support to wetlands conservation, rehabilitation and sustainable development
- Chobe - Caprivi sub-project: diversified, sustainable use through awareness, capacity building and conflict resolution.
- IUCN-ROSA: multi-level integration of wetlands conservation and sustainable development

## **3.1 ZAMBEZI DELTA SUB-PROJECT**

### **3.1.1 STAFFING**

A Field Project Officer and Driver will be retained in July 1996. In staffing the Field Project Officer's position, preference will be given to a Mozambican candidate. Appendix 14 gives particulars of the requisite qualifications, duties and other requirements of this position. The Driver will be recruited in Mozambique and preference will be given to applicants who speak both Portuguese and one or more delta tribal languages.

### **3.1.2 ACTIVITIES**

Major issues identified for the sub-project include land tenure and settlement patterns, gender inequity, decline of the prawn fishery, receding mangroves, wildlife population reduction, education and health infrastructure, impacts of hydro-electric dams and information availability and awareness.

The business plan for the first year will concentrate on establishing a base-line of empirical data and other information that will form a basis for addressing priority issues.

The sub-project theme of "wetlands resource conservation, tenure and utilisation" will be recognised in designing and implementing activities in the area of management of wetland resources.

**TABLE 4. Business Plan for Year 1: Delta sub-project**

**Major Theme: Wetlands resource conservation, tenure and utilisation**

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<p><b>1. Awareness, Information and communication</b></p> <p>1.1 Communications and awareness Development of a wetland communications strategy. Implementation of a communications and awareness programme.</p> <p>1.2 Networking National and regional information exchanges on wetland management.</p> <p>1.3 Training in wetlands research and management Wetlands management training modules in proposed Gorongosa Wildlife School. Training in wetlands inventory, monitoring. Wetland resource economics training. Regional study tours.</p>	<p>Awareness Capacity Education</p>	<p>MICOA DNFFB GERFFA IUCN Moc Action Magazine Provincial Authorities GTZ/FHI</p>
<p><b>2. Community well-being</b></p> <p>2.1 Communities needs assessment Assessment of communities current status, needs and options (eg via PRA/PLA tools)</p> <p>2.2 Community infrastructure Two pilot projects initiated. Input of development funds for social infrastructure (schools and clinics).</p>	<p>Education Health Poverty</p>	<p>Provincial/District authorities FHI World Vision Africare</p>
<p><b>3. Inventory, monitoring and evaluation</b></p> <p>3.1 Wetlands inventory Base-line data from Delta to Shire River confluence.</p> <p>3.2 Monitoring Establishment of monitoring systems for impacts of changes and management actions to be assessed.</p> <p>3.3 Evaluation Collation of data (e.g., social, economic, biological, hydrological etc.) to permit assessments of impacts of development projects such as dams or climatic change on Zambezi Delta wetlands and resources including the prawn fishery, mangroves and flood plains.</p>	<p>Base-line Data Awareness Prawn production Fisheries Mangrove forests Impacts of hydro-electric dams</p>	<p>MICOA DNFFB/SPFFB UEM GERFFA Provincial DPAP etc.</p>
<p><b>4. Management of wetlands resources</b></p> <p>4.1 Resource use assessment Assessment of communities past and current use of resources such as fisheries, wildlife and forestry. Resource status, options for future use in consideration of social, economic, ecological and legal factors.</p> <p>4.2 Wetlands resource tenure assessment Studies of communities and wetland resource tenure issues and identification of tenure rights options, demarcation of resource use.</p>	<p>Land tenure Base-line data Gender</p>	<p>DNFFB Provincial/District authorities Land Commission FHI/GTZ etc. WWF</p>

### 3.1.3 BUDGET

TABLE 5. Delta Sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars

BUDGET LINE	DESCRIPTION	GENERAL	AWARENESS INFORMATION & COMMUNICATION	COMMUNITY WELL-BEING	INVENTORY, MONITORING & EVALUATION	WETLANDS MANAGEMENT	TOTAL
251	Salary: Field Project Officer	26,600					26,600
251	Salary: Driver	1,600					1,600
251	Salary: Supervision	14,000					14,000
	<b>Capital Purchases</b>						
300	Vehicle	32,000					32,000
303	Boat and motor				6,600		6,600
306	Geo-positioning system	1,500					1,500
302	Computer and printer	5,000					5,000
303	Office furniture	1,300					1,300
303	Office equipment: copier & fax	8,000					8,000
304	Scientific field equipment	1,300		4,000		2,700	8,000
	<b>Operating Costs</b>						
328	Vehicle	6,000			1,300		7,300
308	Boat and motor	1,300					1,300
395	Photos and maps	700			700	700	2,100
330	Office rental	4,300					4,300
359	Office running cost	2,000	500	500	500		3,500
352	Stationery and supplies	1,300	500		1,300		3,100
750	Field subsistence allowance	3,000					3,000
291	Travel	4,000		5,300	13,000		22,300
295	Per diems	3,000			5,300		8,300
267	Temporary services	2,700	5,300				8,000
351	Local miscellaneous costs	1,300	1,300	700	1,300		4,600
	<b>Activities</b>						
720	Training grants		8,000	1,300	1,300	2,000	12,600
890	Workshops	6,500	5,300	7,000	2,000	1,000	21,800
720	Field contract: monitoring				19,000		19,000
720	Field contract: evaluation				19,000		19,000
720	Field contract: needs assessment			20,000			20,000
720	Field contract: resource use			40,000			40,000
720	Field contract: tenure			20,000			20,000
720	Consultants		1,300	13,000	13,000		27,300
	<b>Total</b>	127,400	22,200	111,800	84,300	6,400	352,100

## **3.2 LOWER SHIRE SUB-PROJECT**

### **3.2.1 STAFFING**

A Field Project Officer reporting to the Project Manager in Harare, and a Driver, will be retained in June 1996. Details of the duties and requisite qualifications of the Field Project Officer are contained in Appendix 14.

### **3.2.2 ACTIVITIES**

Threats to Lower Shire wetlands include impacts of irrigation and dam construction, conflicting interests in water use, food insecurity, wildlife-human conflicts, localised over population and water shortages, reduction of fish and other wildlife populations.

The first year's business plan has been formulated with a view to addressing the most serious of these problems.

Current programmes and initiatives with which the project's activities can potentially be coordinated include: environmental education and extension work by the Parks and Wildlife Department, a component of a national wetlands programme, environmental awareness programmes sponsored by other donors, informal environmental networks maintained by NGOs and refugee relief programmes.

**TABLE 6. Business Plan for Year 1: Lower Shire sub-project**

**Major Theme: Wetlands conservation and food security**

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<p><b>1. Awareness, information and communication</b>  <b>1.1 Information</b>                      Propose, design and begin implementation of socio-economic assessment of local and regional values of the Elephant and Ndinde marshes.                      Community identification and monitoring of key biophysical and socio-economic wetland resources.</p>	<p>Awareness                      Base-line data</p>	<p>Rural District Council Authorities;                      National Wetlands Committee; MOREA;                      Information Department; SUCOMA;                      Water Department; Irrigation Department; Shire Valley Agriculture; Development Division; Centre for Social Research; Ministry of Women and Children's Affairs</p>
<p><b>2. Community well-being</b>  <b>2.1 Community infrastructure</b>                      PEEM rapid assessment of health status and risk including assessment of existing health infrastructure</p>	<p>Health                      Gender</p>	<p>PEEM; IDRC; Rural District Council Authorities; NGO's; Ministry of Health; Ministry of Women and Children's Affairs</p>
<p><b>3. Inventory, monitoring and evaluation</b>  <b>3.1</b> Produce a summary of existing relevant socio-economic and biophysical data  <b>3.2 Monitoring</b>                      Identify and evaluate the critical biodiversity sites in the Lower Shire area and evaluate the needs for protection and monitoring. Breeding sites and critical habitat for fish, birds, hippos, crocodiles, plant species and cover patterns will be considered.</p>	<p>Biodiversity                      Base-line Data</p>	<p>National Museum of Malawi; DDCs; Parks and Wildlife Department; Environment Department; Wildlife Society of Malawi; World Wildlife Fund; Fisheries Department; National Herbarium and Botanic Gardens; Agriculture (SVADD); Meteorological Department University of Malawi</p>
<p><b>4. Management of wetlands resources</b>  <b>4.1 Demonstration projects</b>                      Design and begin implementing demonstration projects to reduce human-wildlife conflicts and to form a basis for sustainable simultaneous use of wetlands by people and wildlife.</p>	<p>Wildlife                      Awareness</p>	<p>Agriculture (SVADD); District Development Committees                      District Executive Committee                      Wildlife Society of Malawi                      CURE; SUCOMA; MOREA                      Fisheries Department                      Irrigation Department</p>



### 3.2.3 BUDGET

TABLE 7. Lower Shire sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars

BUDGET LINE	DESCRIPTION	GENERAL	AWARENESS INFORMATION & COMMUNICATION	COMMUNITY WELL- BEING	INVENTORY, MONITORING & EVALUATION	WETLANDS MANAGEMENT	TOTAL
251	Salary: Field Project Officer	26,600					26,600
251	Salary: Driver	1,600					1,600
	<b>Capital Purchases</b>						
300	Vehicle	35,000					35,000
303	Boat and motor	10,000					10,000
306	Geo-positioning system	1,500					1,500
302	Computer and printer	5,000					5,000
303	Office furniture	900					900
303	Office equipment: copier and fax	13,000					13,000
304	Scientific field equipment				2,000	4,000	6,000
	<b>Operating Costs</b>						
328	Vehicle	8,000		2,000			10,000
308	Boat and motor						
395	Photos and maps		1,000		500	500	2,000
330	Office rental	3,200					3,200
359	Office running cost	3,000					3,000
352	Stationery and supplies	3,000					3,000
750	Field subsistence allowance	3,000					3,000
291	Travel	3,000					3,000
295	Per diems	3,000					3,000
267	Temporary services	1,500	3,000		1,000	2,000	7,500
351	Local miscellaneous costs	1,000					1,000
	<b>Activities</b>						
720	Training grants		7,000	10,000	3,000	3,000	23,000
890	Workshops	2,000	5,000	10,000	2,000	3,000	22,000
720	Consultants		7,000		5,000	5,000	17,000
	<b>Total</b>	124,300	23,000	22,000	13,500	17,500	200,300

## **3.3 BAROTSE FLOOD PLAIN SUB-PROJECT**

### **3.3.1 STAFFING**

Two individuals will be hired to work on this sub-project during the first year, a Field Project Officer and a Driver. Owing to the close proximity of the sub-project areas and a number of commonly shared wetlands issues, staffing for the Barotse Flood Plain will be closely coordinated with that of the Chobe-Caprivi position. For example, consideration will be given to selecting incumbents who, together, provide a combination of ecological and socio-economic expertise. A Position Vacancy Advice (Appendix 14) has been issued relative to the Field Project Officer's position and interviews will take place soon after the Project Manager arrives in Harare. Mobilisation of the Field Project Officer to the sub-project area, and retention of the Driver, are anticipated for late June.

### **3.3.2 ACTIVITIES**

The high priority issue identifiers for the Barotse Flood Plain are biodiversity, fire, fishing, forestry, gender, tourism and transportation. Other major issues are associated with awareness, base-line data, demographic pressure, education, indigenous knowledge, and resource use conflicts.

Because of the strong cultural ties between the Lozi people and wetlands ecosystems, the plain has tremendous potential for demonstration of integrated utilisation and conservation of wetlands values based on a combination of traditional and non-traditional knowledge. However, advantage can only be taken of this opportunity if adequate infrastructure exists to support sustainable, ecologically sound, developments.

Accordingly, the theme adopted as a background for work plan development is: "Infrastructure support to wetlands conservation and sustainable development."

**TABLE 8. Business Plan for Year 1: Barotse Flood Plain sub-project**  
**Major Theme: Infrastructure support to wetlands conservation and sustainable development**

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<p><b>1. Awareness, information and communication</b>  <b>1.1 Information</b>  Widespread distribution of educational material on fire produced by the Livestock Management Project including export to other areas experiencing problems with fire. Assisting, as required, other donor agencies and other IUCN projects.</p>	<p>Awareness  Fire  Resource use conflict and resolution</p>	<p>Upper Zambezi Wetlands and Natural Resources Project  Livestock Management Project  Barotse Royal Establishment</p>
<p><b>2. Community well-being</b>  <b>2.1 Community infrastructure</b>  PEEM rapid assessment of health status and risk including assessment of existing health infrastructure.  Description of current education facilities and preliminary identification of infrastructure needs.  Initial assessment of the adequacy of environmental education and attention paid to wetlands.  Summation of current information on existing transportation system and needs.</p>	<p>Education  Health  Transportation</p>	<p>PEEM  IRDC  Zambezi Wetlands Development Agency  Provincial Planning Unit  Ministry of Education</p>
<p><b>3. Inventory, monitoring and evaluation</b>  <b>3.1 Inventory</b>  Develop a framework for recording species and ecosystem diversity, with a view to eventual application in the identification of potential RAMSAR sites, as one application.</p>	<p>Base-line Data  Biodiversity</p>	<p>Environmental Council of Zambia  Barotse Royal Establishment  Provincial Planning Unit  District Natural Resources Committees</p>
<p><b>4. Management of wetlands resources</b>  <b>4.1 Community-based assessment</b>  Assessment of currently available information on fishing including a survey of fishers re-trends in catches, methods used, and the role of women.  A data base on ecological and socio-economic aspects of fishing including the role of women.  Assessment of community needs for forest products and current shortfall, emphasising gender aspects.  Initial assessment of tourism potential based on the wetlands ecosystem and related cultural activities including ceremonies. Evaluation of local interest, capacity and potential economic value of tourism including opportunities for women.</p>	<p>Fishing  Base-line data  Gender  Forestry  Tourism</p>	<p>Land and Water Management Project  Barotse Royal Establishment  Provincial Planning Unit  Upper Zambezi Wetlands and Natural Resources Project  Upper Zambezi Development Agency</p>

### 3.3.3 BUDGET

**TABLE 9. Barotse Flood Plain sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars**

BUDGET LINE	DESCRIPTION	GENERAL	AWARENESS INFORMATION & COMMUNICATION	COMMUNITY WELL-BEING	INVENTORY, MONITORING & EVALUATION	WETLANDS MANAGEMENT	TOTAL
251	Salary: Field Project Officer	26,600					26,600
251	Salary: Driver	1,600					1,600
251	Salary: Supervision	18,500					18,500
	<b>Capital Purchases</b>						
300	Vehicle	42,000					42,000
303	Boat and motor	10,000					10,000
306	Geo-positioning system	1,500					1,500
302	Computer and printer	5,000					5,000
303	Office furniture	900					900
303	Office equipment: copier and fax	13,000					13,000
304	Scientific field equipment				4,000	3,000	7,000
	<b>Operating Costs</b>						
328	Vehicle	12,000					12,000
308	Boat and motor			600	600	1,500	2,700
395	Photos and maps	400	600	700	600	700	3,000
330	Office rental	3,200					3,200
359	Office running cost	4,000					4,000
352	Stationery and supplies	4,000					4,000
750	Field subsistence allowance	3,300					3,300
291	Travel	5,000					5,000
295	Per diems	4,000					4,000
267	Temporary services	1,000		2,500	1,500		5,000
351	Local miscellaneous costs	1,000				3,500	4,500
	<b>Activities</b>						
720	Training grants		2,000	2,000	1,000	2,000	7,000
890	Workshops		6,000	3,500	1,500	3,000	14,000
720	Consultants		19,000	23,000	3,000		45,000
	<b>Total</b>	157,000	27,600	32,300	12,200	13,700	242,800

## 3.4 CHOBE-CAPRIVI SUB-PROJECT

### 3.4.1 STAFFING

Two staff members will be hired to work on this sub-project during the first year, a Field Project Officer and a Driver. Owing to the close proximity of the sub-project areas and a number of commonly shared wetlands issues, staffing for the Chobe-Caprivi will be closely coordinated with that of the Barotse Flood Plain position. For example, consideration will be given to selecting Field Project Officers who, together, provide a combination of ecological and socio-economic expertise. A Position Vacancy Advice (Appendix 14) has been issued relative to the Field Project Officer's position and staffing will take place soon after the Project Manager arrives in Harare. Mobilisation of the Field Project Officer to the sub-project area, and retention of the Driver, are anticipated for late June.

### 3.4.2 ACTIVITIES

The Chobe-Caprivi area currently supports, or should support, a wide range of flora and fauna. Additionally, a resource base exists upon which residents of the area should enjoy a higher standard of living than is currently the case. However, a number of factors are prohibiting wetlands communities from realising their full potential, either in an economic sense or in the context of ecosystems integrity.

The high priority issue identifiers for the Chobe-Caprivi sub-project are, in alphabetical order, awareness, biodiversity, capacity limitations, education, fire, fishing, gender, resource use conflict resolution and tourism. This listing may be amplified as follows.

Biodiversity is being threatened by uncontrolled burning of floodplain habitat and by over-utilisation for grazing. This situation has been exaggerated by prolonged drought. Education facilities are inadequate, particularly in the Caprivi Strip. The fishing picture is similar to that of the Barotse Flood Plain with reduced catches and sizes of individual fish being reported. Capacity limitations exist in that residents appear unable to take advantage of all potential sustainable uses of the wetlands ecosystem. Specifics include the absence of financing for agricultural machinery, a lack of understanding of how fire may be controlled and an inability to take advantage of tourism diversification opportunities. Women, in particular, suffer from lost opportunities in that they appear not to have adequate fora to express their aspirations concerning socio-economic development. The area has exceptional potential for tourism, much of which is already being realised. However, additional capacity exists particularly when diversification to include attractants other than wildlife is considered. Resource use conflict is the central inhibitor to realisation of both conservation and utilisation of wetlands resources. Included are transboundary

conflicts between cattle and wildlife, predation on live-stock by lions and hyenas, interruptions to traditional fishing by an influx of non-resident fishers, and by some tourism establishments, reduction of the supply of papyrus, with which women weave mats, and fire-caused reduction of biodiversity. In summary, a picture is presented of unrealised potential with additional capacity for residents need to benefit from sustainable, ecologically sound diversification of wetlands-related development.

While implementing activities to address these issues the project will coordinate its efforts with existing proposed related initiatives including a proposal for the establishment of an international wildlife sanctuary, an environmental profile project and a proposed fisheries institute for the area. In selecting wetlands issues to be addressed during the first year of the project consideration was given to the fact that several Chobe-Caprivi issues also pertain to other sub-projects and are being addressed there.

**TABLE 10. Business Plan for Year 1: Chobe-Caprivi sub-project**  
**Major Theme: Diversified sustainable utilisation through capacity building and resource use conflict resolution**

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<p><b>1. Awareness, information and communication</b>            1.1 Communication            Support communication efforts of NGOs with an interest in wetlands conservation.</p>	<p>Awareness            Capacity</p>	<p>Nature trusts            The Kalahari Society</p>
<p><b>2. Inventory, monitoring and evaluation</b>            2.1 Inventory            Produce summary of existing relevant socio-economic and ecological data and the degree to which these data contribute to the project's objectives.            2.2 Evaluation            Evaluate the extent to which project objective's objectives are being met by other initiatives currently being carried out.</p>	<p>Base-line Data            Biodiversity            Awareness            Gender</p>	<p>Botswana National Conservation Strategy Agency            Botswana Department of Water Affairs            Chobe District Land Use Planning Unit            Namibia Ministry of Environment and Tourism            Namibia Department of Water Affairs            Namibia Ministry of Fisheries and Marine Resources</p>
<p><b>3. Management of wetlands resources</b>            3.1 Community participation            Community identification of conflicting resource uses and recommendation for conflict resolution. Workshops attended by representatives of both Namibia and Botswana wetlands communities.            Assessment of capacity of wetlands communities to take advantage of wetlands - related economic opportunities with a specific component dealing with the role of women.            3.2 Resource use assessment            Workshops on the impacts of fire and methods for its control. Translation and distribution of fire-related educational material produced for the Barotse Flood Plain.            Framework for assessment of tourism values related specifically to wetlands.            Identification of role of tourism in relation to other wetlands users.</p>	<p>Gender            Awareness            Agriculture            Wildlife            Resource use conflicts and resolution</p>	<p>Namibia Ministry of Environment and Tourism            Chobe District Land Use Planning Unit            Botswana National Conservation Strategy Agency            Chobe Wildlife Trust</p>

### 3.4.3 BUDGET

**TABLE 11. Chobe - Caprivi sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars**

BUDGET LINE	DESCRIPTION	GENERAL	AWARENESS INFORMATION & COMMUNICATION	INVENTORY, MONITORING & EVALUATION	WETLANDS MANAGEMENT	TOTAL
251	Salary: Field Project Officer	26,600				26,600
251	Salary: Driver	1,600				1,600
251	Salary: Supervision	6,500				6,500
	<b>Capital Purchases</b>					
300	Vehicle	42,000				42,000
306	Geo-positioning system	1,500				1,500
302	Computer and printer	5,000				5,000
303	Office furniture	900				900
303	Office equipment: copier and fax	13,000				13,000
	<b>Operating Costs</b>					
328	Vehicle	12,000				12,000
395	Photos and maps	500		500	600	1,600
330	Office rental	3,200				3,200
359	Office running cost	4,000				4,000
352	Stationery and supplies	4,000				4,000
750	Field subsistence allowance	2,000				2,000
291	Travel	5,000				5,000
295	Per diems	4,000				4,000
267	Temporary services	1,000		1,500	4,500	7,000
351	Local miscellaneous costs	1,000		1,000		2,000
	<b>Activities</b>					
720	Training grants		10,000		5,000	15,000
890	Workshops	4,000	10,000	5,000	6,000	25,000
720	Consultants		10,000	5,000	18,000	33,000
	<b>Total</b>	137,800	30,000	13,000	34,100	214,900

### 3.5 IUCN REGION OF SOUTHERN AFRICA HEAD-QUARTERS SUB-PROJECT

#### 3.5.1 STAFFING

The Project Manager will take up his position in Harare in early June. Upon his arrival he will recruit a Project Officer who will also be stationed in Harare. The functions of this team member are described in Appendix 13. Of particular importance is the intention to have the incumbent assume increasing levels of responsibility for all aspects of project management as time progresses. The philosophy being pursued is that a Southern African national should be given the opportunity to develop management skills. Consideration will also be given to the retention of a Secretary and a Driver either to work specifically for the project, or to be shared with other IUCN-ROSA projects.

#### 3.5.2 ACTIVITIES

Activities carried out by the Project Manager will fall into the categories of project management and regional initiatives. The project management roles and responsibilities are described in Chapter 5. The regional initiatives component will be aimed at ensuring that there is two-way vertical integration between the three "levels of concern" referred to in Table 1. That is to say, efforts will be made to see that the addressing of wetlands conservation and utilisation issues is facilitated at all levels at which action is required, including transboundary. Strong emphasis will be placed on catalysing and facilitating SADC-wide coordination and cooperation.

TABLE 12. Business Plan for Year 1: IUCN ROSA sub-project

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<b>1. Awareness, information and communication</b> 1.1 Awareness Identify the most important needs for enhanced wetlands awareness at the regional level. 1.2 Communications Establish clear contact points with ZACPLAN. 1.3 Training Initiate preliminary determination of training and communications requirements.	Awareness Capacity	ZACPLAN Regional IUCN membership
<b>2. Inventory, monitoring and evaluation</b> 2.1 Evaluation Initiate description of the role of wetlands in the overall preservation of biodiversity in the Zambezi Basin.	Biodiversity Base-line data	SADC states environmental and natural resources agencies Biodiversity Foundation for Africa The Zambezi Society
<b>3. Management of wetlands resources</b> 3.1 Wetlands policy Encourage SADC states to develop national wetlands policies with a view to the eventual generation of a cohesive SADC policy. Explore the most promising opportunities for policy development at the SADC level. 3.2 Integrated resource management Identify the critical skills required for conflict resolution. Review ZACPLAN sector studies and ensure inclusion of wetlands conservation and sustainable use considerations. 3.3 Environmental assessment Consider transboundary impacts of existing and proposed hydro-electric dams.	Capacity Resource use conflict and resolution Hydro-electric dams	SADC States environmental and natural resources agencies Regional IUCN membership



### 3.5.3 BUDGET

TABLE 13. IUCN-ROSA sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars

BUDGET LINE	DESCRIPTION	GENERAL	AWARENESS INFORMATION & COMMUNICATION	INVENTORY, MONITORING & EVALUATION	WETLANDS MANAGEMENT	TOTAL
251	Salary: Project Manager	95,000				95,000
251	Salary: Driver	1,600				1,600
251	Salary: Project Officer	25,000				25,000
	<b>Capital Purchases</b>					
300	Vehicle	32,000				32,000
302	Computers and software	9,000				9,000
302	Scanner	1,700				1,700
302	Printer	1,000				1,000
303	Office furniture	2,500				2,500
304	Office equipment: photocopier	6,500				6,500
	<b>Operating Costs</b>					
328	Vehicle	5,000				5,000
395	Photos and maps	300				300
330	Office rental	3,600				3,600
359	Office running cost	2,000				2,000
352	Stationery and supplies	3,000				3,000
763	Staff moving costs	22,500				22,500
291	Travel	10,000				10,000
295	Per diems	10,000				10,000
267	Temporary services	1,000				1,000
351	Local miscellaneous costs	2,000				2,000
	<b>Activities</b>					
890	Workshops		7,000		2,000	9,000
720	Consultants		14,000	6,000	16,000	36,000
	<b>Total</b>	233,700	21,000	6,000	18,000	278,700

## 3.6 IUCN-MONTREAL SUB-PROJECT

### 3.6.1 STAFFING

### 3.6.2 ACTIVITIES

The IUCN-Montreal sub-project will provide project direction in accordance with the Contribution Agreement between the Government of Canada and the World Conservation Union. In cooperation with IUCN-ROSA, it will ensure completion of the Inception Mission report and submit it to CIDA for review, comment and acceptance. Liaising with IUCN-ROSA, and with CIDA in Canada, IUCN-Montreal will participate in further formulation and review of the strategic directions, and of evaluation plans for the project. Quarterly progress, financial and projected expenditure reports will be prepared for the Montreal component of the project and provided to IUCN-

ROSA for review, and for inclusion in project rollups. Quarterly progress reports, financial reports, projected expenditure and requests for funding advances according to the Contribution Agreement will be received from IUCN-ROSA, discussed as required, and submitted to CIDA.

IUCN-Montreal will also manage short-term contracts and initial needs and opportunities for appropriate partnerships, services and goods to be supplied through short-term Canadian contracts will be identified in cooperation with IUCN-ROSA. With IUCN-ROSA, IUCN-Montreal will develop and implement a method to obtain and make use of information about potential Canadian and international partners, and potential suppliers of relevant services and goods. As required during the year, the sub-project will undertake and coordinate contract solicitation and management in Canada and with IUCN-ROSA.

**TABLE 14: Business Plan for Year 1: IUCN-Montreal sub-project**

ACTIVITY AND SUB-ACTIVITY	ISSUES ADDRESSED	POTENTIAL PARTNERS
<b>1. Project direction</b> 1.1 Inception Mission report Participate in report writing. Submit the report to CIDA for review, comment and acceptance.	All	IUCN-ROSA CIDA
<b>2. Liaison</b> Liaising with CIDA, IUCN-ROSA and IUCN Headquarters, participate in development and review of strategic directions and evaluation.	All	IUCN-ROSA IUCN Headquarters CIDA
<b>3. Progress reporting</b> Report financial and operational aspects of project progress for the Montreal sub-project and deliver collated reports to CIDA.	All	IUCN-ROSA IUCN Headquarters CIDA
<b>4. Management of short-term contracts</b> Identify needs and opportunities, in consultation with the Project Manager. Develop an information base on appropriate contractors. Coordinate contract solicitation and management	All	Canadian consultants IUCN-ROSA IUCN Headquarters CIDA

### 3.6.3 BUDGET

**TABLE 15. IUCN-Montreal sub-project budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars**

CODE	DESCRIPTION	GENERAL	PROJECT DIRECTION	LIASON WITH CIDA & IUCN	CANADIAN CONTRACTS	TOTAL
251	Salary: Administrative Assistant	28,000				28,000
	<b>Operating Costs</b>					
330	Office rental	1,500				1,500
359	Office running cost	2,000				2,000
291	Travel		15,000	5,000		20,000
355	Communication: telephone	1,500				1,500
356	Communication: fax, etc	1,500				1,500
273	Overhead on accountable total	13,000				13,000
	<b>Activities</b>					
720	Consultants				100,000	100,000
	<b>Total</b>	47,500	15,000	5,000	100,000	167,500

### 3.7 BUSINESS PLAN AND BUDGET SUMMARY: YEAR 1

The first year Business Plan has been summarised in Table 16 in the form of an activity timetable for all sub-projects.

A composite project budget by major activity for all sub-projects is presented in Table 17.

Table 18 provides a breakdown of planned expenditures by budget lines contained in Annex A of the Contribution Agreement.

### 3.7.1 TIMETABLE

TABLE 16. Timetable for 1996-97

FUNCTION/MONTH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR
Inception Mission report	■	■	■									
Project Manager to Harare		■										
Hire Project Officer			■									
Hire Field Project Officers			■									
<b>Sub-projects: main activities</b>												
♦ Delta sub-project												
Awareness, information & communication			■	■	■	■	■	■	■	■	■	■
Community well-being					■	■	■	■	■	■	■	■
Inventory, monitoring and evaluation					■	■	■	■	■	■	■	■
Management of wetlands resources					■	■	■	■	■	■	■	■
♦ Lower Shire sub-project												
Awareness, information & communication					■	■	■	■	■	■	■	■
Community well-being			■	■	■	■	■	■	■	■	■	■
Inventory, monitoring and evaluation							■	■	■	■	■	■
Management of wetlands resources							■	■	■	■	■	■
♦ Barotse Flood Plain sub-project												
Awareness, information & communication					■	■	■	■	■	■	■	■
Community well-being			■	■	■	■	■	■	■	■	■	■
Inventory, monitoring and evaluation											■	■
Management of wetlands resources					■	■	■	■	■	■	■	■
♦ Chobe-Caprivi sub-project												
Awareness, information & communication					■	■	■	■	■	■	■	■
Inventory, monitoring and evaluation						■	■	■	■	■	■	■
Management of wetlands resources					■	■	■	■	■	■	■	■
♦ IUCN-ROSA sub-project												
Awareness, information & communication			■	■	■	■	■	■	■	■	■	■
Inventory, monitoring and evaluation									■	■	■	■
Management of wetlands resources					■	■	■	■	■	■	■	■
♦ IUCN-Montreal sub-project												
Project direction	■	■	■	■	■	■	■	■	■	■	■	■
Liaison	■	■	■	■	■	■	■	■	■	■	■	■
Progress reporting	■	■	■	■	■	■	■	■	■	■	■	■
Management of short-term contracts							■	■	■	■	■	■

### 3.7.2 BUDGET SUMMARIES

**TABLE 17. Composite Budget: Year 1 (1 April 1996 to 31 March 1997) in Canadian dollars**

SUB-PROJECT/ACTIVITY	GENERAL	AWARENESS, INFORMATION & COMMUNICATION	COMMUNITY WELL- BEING	INVENTORY MONITORING EVALUATION	WETLANDS MANAGEMENT	PROJECT DIRECTION	LIAISON	CANADIAN CONTRACTS	TOTAL
Delta	127,400	22,200	111,800	84,300	6,400				352,100
Lower Shire	124,300	23,000	22,000	13,500	17,500				200,300
Barotse	157,000	27,600	32,300	12,200	13,700				242,800
Chobe-Caprivi	137,800	30,000		13,000	34,100				214,900
IUCN-ROSA	233,700	21,000		6,000	18,000				278,700
IUCN-Montreal	47,500					15,000	5,000	100,000	167,500
Total	827,700	123,800	166,100	129,000	89,700	15,000	5,000	100,00	1,456,300

**TABLE 18. Planned expenditures by Contribution Agreement budget lines in Canadian dollars**

COMMUNITY REHABILITATION OF SCHOOLS, CLINICS	\$153,800
PUBLIC AWARENESS AND COMMUNICATIONS PROGRAMME	\$96,800
FIELD TEAMS, INCLUDING CANADIAN PROJECT MANAGER	\$603,915
PROJECT DIRECTOR AND SHORT-TERM CANADIAN CONSULTANTS	\$167,500
EQUIPMENT	\$341,300
INCEPTION MISSION AND REPORT	\$35,385
TRAINING	\$57,600
<b>TOTAL</b>	<b>\$1,456,300</b>



## CHAPTER 4

# Business Plan for Years Two and Three

The scope and complexity of the project is such that considerable periodic assessment of business plans is prudent. The determination of outputs and activities for the first year was based largely on assumed "themes" for five sub-project centres. The appropriateness of these themes will need to be assessed on the basis of experience gained in the first year, and adjustments made as required. If all entries in the "issues addressed" column of the business plans for the Southern Africa sub-projects are compared to the list of priority wetlands-related issues presented in Table 1, the following remain to be addressed: aquatic weeds, climate cycles, demographic pressure and indigenous knowledge. Additionally, issues associated with agriculture, fire, forestry, land tenure, mangrove forests, poverty, tourism and transportation are being addressed rather lightly in the first year of the project. This is due to a number of factors including time constraints and the need for further assessment of the most appropriate approach. These issues will, however, all be considered in one or more of the sub-projects during the second and/or third year, unless adjustments to the themes are deemed necessary.

Second and third year activities recommended by the regional workshop include: evaluation and monitoring, training, refinement and implementation of management plans, input to policy, entry of wetlands data into existing data bases, facilitation of multiple use of information tasks.

### 4.1. ACTIVITIES

It is anticipated that all requisite staffing will be completed during the first year but should unforeseen circumstances dictate, flexibility will be exercised.

#### 4.1.1 ZAMBEZI DELTA SUB-PROJECT

In years 2 and 3 of this sub-project concentration will be on continuing the work begun in the first year on awareness of wetlands values, base-line data, capacity, education, fishing, gender, health, hydro-electric dam impacts, land tenure, prawn production and mangrove forests. Additionally, particular attention will be paid to gender issues, education, health and poverty. Special emphasis will be placed on influencing the application of new land tenure legislation so that a balance is struck between wetlands utilisation and conservation.

The potential for inclusion of a wetland management training course for use at a re-established wildlife school will be explored. Apart from supporting conservation and sustainable use of delta wetlands, an ancillary benefit of such a curriculum could be support to wetland managers from Angola because of language uniformity. A specific wetlands course module would be required.

Additional potential initiatives for the second and third years are linkages to Malawi for Ruo River flood prediction and land use planning of shared marshes along the Lower Shire, and to Zimbabwe and Zambia for Zambezi River flow regime related to downstream effects and Zambezi Basin water agreements.

Regional study tours and exchanges will be linked with training on how to use newly gained knowledge. In selecting participants, consideration will be given to including a mix of men and women; influential wetland residents; decision-makers, planners and graduate students.

#### 4.1.2 LOWER SHIRE SUB-PROJECT

In addition to continuation of initiatives begun under the first year's business plan, work in the second and third years will include consideration of demographic pressure, aquatic weeds and indigenous knowledge. Emphasis will be placed on integration of wetlands ecosystem preservation with economic ventures such as sugar production, dam construction and irrigation. That is to say, sustainability of wetlands use will be sought. In this context the ability to quantify the economic value of wetlands will be important.

#### 4.1.3 BAROTSE FLOOD PLAIN SUB-PROJECT

Consolidating second and third year business plans for the Barotse Flood Plain will be particularly challenging due to the scope of priorities that can reasonably be addressed and to the currently perceived high potential for success. An essential addition to ongoing activity will be the incorporation of indigenous knowledge considerations and the establishment of resource use demonstration projects.

#### 4.1.4 CHOBE-CAPRIVI SUB-PROJECT

A particular challenge for the second and third years of the sub-project will be the initiation of mechanisms to ensure that opportunities for wetlands conservation and wise use are not compromised by international border disputes. International exchange, e.g., related to demonstration projects, will be encouraged. Strong emphasis will be placed on assessing requirements for health and education support and on enhancing the capacity of area residents, including women, to profit from diversified sustainable use of wetlands resources.

#### 4.1.5 IUCN-REGION OF SOUTHERN AFRICA HEAD-QUARTERS SUB-PROJECT

A comparison of the Table 1 issues described as being of regional concern with those to be addressed in the sub-project's business plan for year 1 shows that the following high priority issues remain to be addressed at the regional level: climate, demographic pressure, gender and poverty. Of these only gender is identified as an issue to be directly addressed at the regional level by the project. It is intended that the

others be merely responded to at the regional level. The sub-project business plan for the second and third years will attend to these issues accordingly while building on the initiatives undertaken in year 1.

#### 4.1.6 IUCN-MONTREAL SUB-PROJECT

During the second and third years the Montreal sub-project will concentrate on enhancement of the role of Canadian consultants and on forging stronger links with CIDA and with IUCN headquarters in Switzerland.

### 4.2 BUDGET

Table 19 gives the anticipated cash flow for the life of the project in terms of the budget lines contained in Annex A of the Contribution Agreement. A more detailed estimate of second and third year expenditures will only be possible after experience has been gained through implementation of the first year programme.

**TABLE 19. Estimated cash flow in Canadian dollars by fiscal year and Contribution Agreement budget lines**

BUDGET LINE/YEAR	1995-96	1996-97	1997-98	1998-99	TOTAL
Community rehabilitation	0	153,800	700,000	1,146,200	2,000,000
Public awareness & communications	0	96,800	200,00	203,200	500,000
Field teams including Project Manager	0	603,915	1,200,000	1,496,085	3,30,00
Project direction & short-term consultants	17,373	167,500	300,000	325,127	810,000
Equipment	0	341,300	150,000	8,700	500,000
Inception mission	214,615	35,385	0	0	250,000
Training	0	57,600	100,000	92,400	250,000
<b>TOTAL</b>	<b>231,988</b>	<b>1,456,300</b>	<b>2,650,000</b>	<b>3,271,712</b>	<b>7,610,000</b>



## CHAPTER 5

# Project Management

### 5.1 ORGANISATIONAL STRUCTURE

The Zambezi Basin wetlands project is being delivered by IUCN and funded by the Canadian International Development Agency. IUCN-Montreal is legally responsible to CIDA for IUCN's management of the funds and overall delivery of the project results. Accordingly, it requires continuous interactions between IUCN and CIDA and between IUCN-Montreal and IUCN-ROSA which manages the implementation of the project in Southern Africa. The Project Manager will report to the IUCN Regional Director for Southern Africa who will be responsible for the overall management of the project in terms of the IUCN-CIDA Contribution Agreement. The Regional Director, Field Programme Director and Project Manager will utilise the services of IUCN's regional and global thematic programmes, commissions and networks of expertise to assist the project where necessary. This management arrangement represents an evolution from traditional practice for both CIDA and IUCN. Additionally, project communications will be designed to enable IUCN global networks and theme programmes to learn from the project as it progresses.

CIDA has described its objectives for this management arrangement as clear, accessible and effective accountability to CIDA from IUCN-Canada on the management requirements described in the CIDA-IUCN Agreement for the project. Specifically, the structure should contribute to interactive, iterative planning guided by local knowledge and conditions and to the enhancement of local capacity development and responsibility in the Southern Africa region.

Schematic depiction of the project's organisational structure is presented in Figure 4 and additional details are given in Appendix 11.

### 5.2 INSTITUTIONAL ROLES AND RESPONSIBILITIES

#### 5.2.1 CIDA HEADQUARTERS

CIDA Headquarters is responsible for CIDA's contributions to the project including review and approval of the project business plans and quarterly reports and for making payments to IUCN. It will also perform a monitoring and evaluation func-

tion and will provide general advice based on its extensive experience in development support in the region of Southern Africa and elsewhere.

#### 5.2.2 CIDA, HARARE

In Harare, CIDA will perform a liaison function with other CIDA sponsored initiatives in Southern Africa. To this end it will chair a coordinating committee consisting of representatives of all such programmes. CIDA, Harare, will also participate in the Project Advisory Committee. A functional role of CIDA in Harare will be logistical support and advice to the project, and particularly to Canadian project employees and consultants through the Field Support Unit.

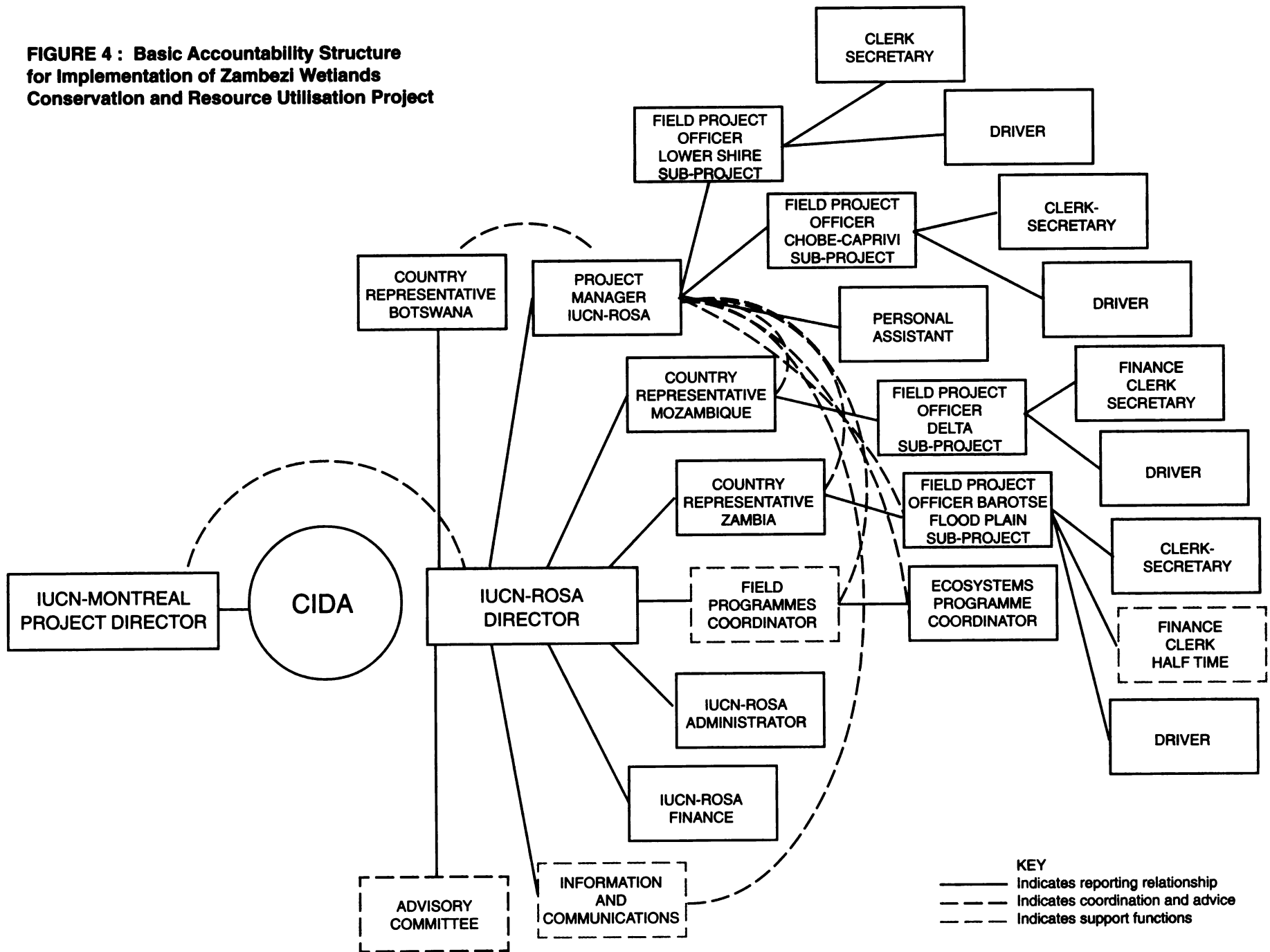
#### 5.2.3. IUCN-ROSA

IUCN-ROSA will house all regional aspects of project management, the staff pertaining to which will include the Director of IUCN-ROSA, the Project Manager, the Project Officer, and various support staff, including secretaries and drivers who will be retained as required. It will also act as a coordinator of the IUCN's Country Representatives who will contribute to the implementation of the project in their respective states. IUCN-ROSA also leads the overall SADC Regional Wetlands Conservation Programme and will facilitate integration of the Zambezi Basin project into this initiative.

#### 5.2.4. IUCN COUNTRY OFFICES

IUCN offices in Mozambique and Zambia will manage the Delta sub-project and the Barotse Flood Plain sub-project respectively. This responsibility will be discharged under a memorandum of understanding between the Country Representative and the Director. The Botswana office will provide advice and direction for all project functions relating to the Botswana component of the Chobe-Capri sub-project.

**FIGURE 4 : Basic Accountability Structure for Implementation of Zambezi Wetlands Conservation and Resource Utilisation Project**



### **5.2.5 IUCN-MONTREAL**

Annex A to the Contribution Agreement states that "The World Conservation Union's (IUCN) office in Montreal is the executing agency for this project."

IUCN-Montreal will manage IUCN's accountability to CIDA for project delivery of the contents of the Contribution Agreement. It will be the point of contact with CIDA in IUCN's discharge of this responsibility. IUCN-Montreal will also perform a liaison function with IUCN Headquarters and take the lead in preparation and conclusion of Canadian consultant contracts.

### **5.2.6 IUCN MEMBERS**

IUCN members will not have formal accountability for implementation of the project except as may be agreed to in future arrangements for delivery of specific project components. They will be considered a front line of expertise for such delivery and for advice to IUCN-ROSA on a wide spectrum of matters related to wetlands conservation and sustainable utilisation including transboundary considerations.

### **5.2.7 PROJECT ADVISORY COMMITTEE**

A Project Advisory Committee, chaired by a person from the region will be formed. It will meet twice a year in the region throughout the period of project implementation and will render advice to both IUCN and CIDA. Its purpose is to ensure and facilitate effective exchange of information and to guide overall project direction.

## **5.3 STAFF ROLES AND RESPONSIBILITIES**

### **5.3.1 DIRECTOR, IUCN-ROSA**

The Director of IUCN-ROSA is responsible for all aspects of project implementation that pertain to Southern Africa. He also has a strong coordinating role relative to IUCN Headquarters and to other IUCN regions such as Eastern Africa. Thirdly, he liaises with IUCN's Project Director in Montreal concerning ROSA's component of IUCN's obligations to CIDA.

### **5.3.2 PROJECT DIRECTOR, IUCN-MONTREAL**

The Project Director, IUCN-Montreal is CIDA's formal point of contact with the project, representing IUCN's responsibility to CIDA for overall project direction. He is also responsible for liaison with IUCN Headquarters and for the Canadian consultants budget line.

### **5.3.3 PROJECT MANAGER, CIDA**

CIDA's Project Manager is IUCN's formal point of contact with the project, representing CIDA's responsibility for overall project direction. Included in her responsibilities are: Inception Mission report review, comment and acceptance, quarterly/annual progress report vetting and disbursement of project funds against IUCN's justified requests.

### **5.3.4 PROJECT MANAGER, IUCN-ROSA**

The Project Manager reporting to the Director IUCN-ROSA produces the Inception Mission report, updates strategies, plans and budgets, manages the project units in Harare, Malawi, Namibia and Botswana, gives guidance to IUCN offices in Mozambique and Zambia concerning sub-project implementation, administers project funds, other than those assigned to IUCN-Montreal, and reports on progress.

### **5.3.5 PROJECT OFFICER, IUCN-ROSA**

The Project Officer, reporting to the Project Manager in Harare, assists in initiating, managing, controlling and evaluating and reporting on all components of the project. He or she will take progressively more responsibility for the day-to-day management of the project including decision-making, particularly in the absence of the Project Manager, who will spend considerable time in field locations.

### **5.3.6 FIELD PROGRAMME COORDINATOR**

The IUCN-ROSA Field Programme Coordinator, reporting to the Director of IUCN-ROSA, gives overall guidance to the project in its context as a component of the Ecosystems programme.

### **5.3.7 ECOSYSTEMS PROGRAMME COORDINATOR, IUCN-ROSA**

The Ecosystems Programme Coordinator, IUCN-ROSA, while not an employee of the project itself, plays a vital role in coordinating the project's objectives and activities with those of other wetlands initiatives underway, or proposed, throughout the region of Southern Africa. He adds a specific SADC-wide dimension to the project, but also offers advice at all operations levels including site, national and regional.

### **5.3.8 IUCN COUNTRY REPRESENTATIVES**

The IUCN Country Representatives for Mozambique and Zambia, reporting to the Director of IUCN-ROSA, are responsible for all aspects of project management within their respective states. In discharging this responsibility, they will liaise closely with the Project Manager who will provide them with functional guidance.

### **5.3.9 FIELD PROJECT OFFICERS**

The Field Project Officers will collect and synthesise information on wetlands values, communicate those values, design and oversee implementation of demonstration projects, guide, evaluate and report on contractors' activities, recommend and oversee implementation of measures to improve the well-being of area residents, organise and convene workshops and present written and oral reports to the Project Manager. Additional details concerning these positions are given in Appendix 15.

## APPENDIX 1

# PROGRAMME PROPOSAL: CIDA'S SUSTAINABLE NATURAL RESOURCE MANAGEMENT OF THE ZAMBEZI RIVER BASIN

### Summary

The Zambezi River Basin represents the single most important natural resource of the Southern Africa region. An appropriate balance of conservation and development would insure that this resource remains a productive base for development for decades to come. CIDA can assist our local partners in achieving this balance with a series of strategic interventions offering the best of Canadian expertise and technology.

### Background

All the countries of Southern Africa have natural resources-based economies. Two-thirds of exports from Southern Africa are natural resource products, and over three quarters of the region's people depend directly on the natural resources base for their livelihoods. Therefore, management and stewardship of the natural resources base is of utmost importance for the development of these countries. CIDA's Regional Policy Framework (RPF) for Southern Africa, approved in February 1992, recognised this fact and included sustainable natural resource management as one of its four areas of concentration, under the guiding principle of regional cooperation.

The management of the Zambezi River Basin has been accepted as our focus as it is the single most important natural resource in the region in terms of:

- **Water:** It is the largest source of water in this arid and drought prone region. The Zambezi River is the largest of the African rivers draining into the Indian Ocean and traverses eight countries on its 2600 km trip to the sea. In addition Lake Malawi, Africa's third largest lake, is also in the basin as is Lake Kariba.
- **Land:** It has the largest expanses of presently under-utilised land in the region which provides the livelihoods for the 18 million rural people living in the basin and increasing at a rate greater than three percent per annum.
- **Energy:** The river presently provides about half the electricity demands of Zimbabwe, Zambia and Mozambique.

- **Biodiversity and tourism:** The basin also contains Africa's finest collection of National Parks and World Heritage Sites (Victoria Falls, Mana Pools, Okavango Delta) as well as, arguably, wildlife herds.

The management of the Zambezi Basin also presents a distinct challenge – management of a resource at the regional and national levels simultaneously. This provides a range of investment opportunities from which to select the best fit between local requirements and Canadian capacities.

### Objectives

The goal of the Southern Africa sustainable natural resource management programme is:

the maintenance of the Zambezi River Basin as a viable regional resource for development.

The objective of such a programme is:

to enhance the management capacity of the core resource managers and institutions, with emphasis on the ecosystem approach.

The expected long term results of this programme include:

improved local, national, and regional natural resource management capacity and therefore reduced rates of deforestation, land degradation, water pollution and water wastage; the establishment of effective and empowered national and regional institutions and/or authorities and, improved regional cooperation in the management of the Zambezi River.

### Description

It is not possible to manage a river basin on a single sector basis. For example, managing water alone will not resolve pollution issues or high silt loads from deforestation. Hence the emphasis on the "ecosystem" approach. A good working definition is supplied by the Great Lakes Fishery Commission which has adopted the ecosystem approach as its fundamental management concept.

“The ecosystem approach to decision making recognizes the interconnection of air, land, and water of the basin and its inhabitants. All components of the ecosystem (such as nutrients, primary production, fish, habitat, chemical contaminants, climate and human use) interact with each other and therefore must be considered in terms of their system-level effects.”

The World Bank has also adopted a similar approach for water resource management in their new *Water Resources Management Policy* (1993).

A range of projects will be developed and implemented to realise the ecosystem approach through an incremental process. The process starts with specific building blocks. At the start these components may be only single sector and entirely in a single country. The key word here is incremental. This is a long-term undertaking, with each level building on what has gone before. For example, at present it would not be reasonable to expect Mozambique to be a full partner in the management of the Zambezi River say, in terms of data sharing with Zimbabwe and Zambia, as no data has been collected in Mozambique for fifteen years and the national hydrology department consists of only two engineers. Therefore capacity building in hydrology in Mozambique would be a useful “building block” laying the foundation for the management of the river basin as a whole.

### **Selection criteria**

Projects under this programme will be considered according to the following criteria:

- interventions should be primarily those focusing on improving or facilitating the “management” of the natural resources of the basin;
- the ecosystem approach should be fostered and encouraged; and
- interventions should foster, encourage or otherwise lead to increased cooperation between nations, institutions, NGOs, or individual resource managers.

At present we envisage several components. Some will be combined under a single project. These will be verified at the field level by appropriate technical missions. The components include:

- information technology, development of a data base, technology transfer;
- assistance in the development of necessary legislation and regulations for resource management on country and regional basis;

- assistance to the World Meteorological Organization’s Pan African programme to enhance national and regional networks in hydrology and meteorology;
- assistance to regional centres of excellence working on wetlands issues and inland waters issues including fisheries, limnology and hydro-biology;
- assistance to regional and national initiatives in the conservation of biodiversity;
- assistance to those countries of the Basin that do not have national water master plans, such as Mozambique, to develop them and thus narrow the capacity gap with those countries that already have plans in place;
- assistance in the development of a competent regional body to coordinate national and sectoral activities.

The emphasis on water as a starting point is intentional. Regional “interest” (some would say “conflict”) in regard to water has been heightened by the recent drought and the countries themselves have recognised that cooperation is a prerequisite for the management of the Zambezi’s water. It is from this basis that we hope to move to the comprehensive management of resources other than water, and ultimately to the basin as a whole.

### **Programme rationale**

There are a number of disturbing trends, processes and activities underway now in the Zambezi Basin which, if not rectified soon, will seriously jeopardize the basin’s potential as a resource for development. These activities and processes range from the macro to the micro.

For example, at the macro end of the scale, Botswana, Namibia and Zimbabwe have each promulgated their own, unilateral, plans for the use of Zambezi water. A case in point is Zimbabwe’s plan to supply the City of Bulawayo from the Zambezi. This has led to both formal and informal objections from other riparian states and clearly calls for the establishment, at the very least, of some type of international negotiation forum and possibly even a dispute resolution mechanism. (NOTE: All global climate change models to date predict a drier Southern Africa and thus an intensification of water rights and ownership issues).

At the micro end of the scale, Zambia permits unrestricted commercial fishing on its side of Lake Kariba while Zimbabwe does not. It is simply impossible to manage a

lake fishery under these conditions. Other examples include differing effluent standards in Zimbabwe and Zambia resulting in improperly treated wastes entering Victoria Falls on the Zambian side. Uncontrolled settlement of the Zambezi Valley on the Zimbabwe side following the eradication of the tsetse fly has resulted in deforestation and land degradation in critical watershed areas. The only long-term solution to these types of problems is the application of the ecosystem approach.

In summary, this programme focusing on the Zambezi River Basin is proposed for the following reasons:

- Benefits to the people of the region include: maintenance of the productive base (land and water) of the basin's rural people and therefore the maintenance of their rural communities and livelihoods (including the region's poorest people in the Zambezi, Luangwa, and Kafue Valleys); irrigation, industry and urban supply; and maintenance of the potential (bio-physical) for tourism.
- From a perspective of tackling the region's natural resource management problems, the Zambezi Basin is the focal point in Southern Africa in terms of energy, wildlife, re-settlement models, biodiversity, wetlands, water resources conservation, pollution concerns, tourism, and a host of other issues. Many countries stand to lose a great deal if it is not well managed.
- From an ecosystem approach standpoint, river basins are natural units connected by ecological, social and economic ties, including infrastructure. River basins are thus natural ecosystems that demand regional management across sectors.
- From a regional cooperation standpoint, the nations that are part of a river basin system are in every sense stakeholders in its continued well-being. The effective management of all major river basins requires cooperation and the development of numerous links between neighbouring, and even more distant, countries.

### Management issues

**Approach:** An iterative and incremental approach will be adopted under this programme. The intention is to start modestly. Early initiatives will concentrate on building our knowledge base thereby insuring the appropriateness of our interventions. We do not propose to present "blueprint" projects but rather for each project we, CIDA, will identify the desired results and then, incrementally, move towards achieving them over the lifetime of the programme. This will be achieved by

maintaining the flexibility to deliver the required skills and tools as the projects evolve, not as determined *a priori* before a project starts.

**Scope:** As presently envisaged this proposed programme would comprise approximately five projects with a total value in the order of \$40 million over five years. Most projects would be by Canadian universities and colleges. One or two projects may be delivered by our international partners such as the World Bank and the World Conservation Union (IUCN). The present natural resources team in the Southern Africa Programme has both the capacity and technical capability (Environment and Forestry Specialists) to deliver and manage this programme.

**Role of women:** The role of women in any strategy involving natural resources management cannot be underestimated. Therefore, the programme will include specific components targeting women's participation in the planning, decision-making, and management of natural resources. There will also be identification of the steps required to provide both training (to allow for the full participation of women) and analyses of the differential needs of women and men in regard to the natural resources base. This could include reviewing the gender capability of our potential partners in the region, including SADC's Environment and Land Management Sector Unit, the Zambezi River Authority, SACCAR, etc, and support in developing their gender related expertise and knowledge.

**Evaluation:** The required evaluation will be determined at the PAM (project) level. Due to the incremental and additive nature of this programme an evaluation would not be worthwhile until at least year three or four of implementation. At this time it would be appropriate to review the pertinency of the programme objectives.

### Considerations

In terms of Canadian capacity, Canada has, at many levels, substantial experience in the management of multi-jurisdictional waters, ranging from the International Joint Commission and Fisheries Commission (Great Lakes), to Canada/US rivers and the joint Federal-Provincial management of river catchments. In addition, some provinces manage natural resources as a whole, based on river catchments i.e. Ontario's Conservation Authorities. Specific areas of world class Canadian expertise in this realm include: multi-jurisdiction environmental legislation; standards and enforcement; natural resource data collection (by remote sensing) analysis (by geographic information systems); and "environmentally friendly" technology, a growth industry in Canada that is now estimated to employ 70,000 Canadians. It is estimated that the implementation of this strategy would comprise a high level of Canadian content. The Canadian inputs envisaged at this time include: technical expertise in environmental management and legislation as well as multi-jurisdictional management;

information technology, both hardware and software; clean technology such as waste water treatment; and providing an enabling environment for cooperation to take place.

The crucial assumption for the ultimate success of this programme is the concept of the ecosystem approach. This includes not only cooperation and coordination between nations, but also at numerous lower levels such as between water or agriculture departments. In short, a web-like linking of networks, institutions and individuals both within and among countries. That this level of coordination and cooperation will be achieved is ambitious. Indeed, there are hopeful signs on the horizon in the disciplines of wildlife management, agroforestry and fisheries that the approach is gaining ground in the region. The specific interventions implemented under the strategy will foster and encourage this emerging trend.

### **Schedule**

It is envisaged that two PAMs will be put forward in 1994/95 with implementation of these projects starting early in 1995/96. Two or possibly three PAMs will be prepared in 1995/96 with implementation starting from six to twelve months after PAM approval. A full complement of four to five projects should be operational by the end of 1996.



## APPENDIX 2

# ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILISATION PROGRAMME: PROJECT CONCEPT DOCUMENT

### Background

#### Introduction

The Southern Africa Development Community (SADC) countries, along with many other countries in Africa have pledged a strong commitment to regional cooperation and sustainable natural resource management strategies which seek to balance human demands and the natural resource base, and to achieve integrated natural resource management. This commitment is in line with CIDA's Africa 21 vision of a more united, more democratic and more entrepreneurial Africa ready to participate in the world economy and Regional Policy Framework for Southern Africa.

Most natural resources in Southern Africa are shared and achieving sustainable natural resource management requires regional cooperation, an integrated ecosystem approach and a common understanding of the natural resource base. The rationale for sustainable natural resource management is to achieve a balance between human demands on natural resources and the natural environment's ability to meet these demands. As stated in Agenda 21, integrated management of natural resources is the key to maintaining ecosystems and the essential services that they provide.

With a mission of linking conservation and economic development, species conservation and ecosystem management, environmental legislation, managing protected areas, and monitoring of conservation issues, IUCN, The World Conservation Union, through its Regional Office for Southern Africa is encouraging and assisting the SADC member states to use their natural resources in an equitable and ecologically sustainable manner.

#### Rationale and justification

In a region characterized by widespread environmental degradation, periodic droughts and food shortages, the Zambezi River, with its dense network of tributaries and associated wetland systems, constitutes one of Southern Africa's most important natural resources. The basin, touching all SADC member states with the exception of Lesotho, South Africa and Swaziland is the largest (area = 1,300,000 km<sup>2</sup>) continuous drainage basin and extensively shared common resource in the region (the length of the Zambezi from source to mouth is in the magnitude of 3,000 km).

The Zambezi Basin plays a key role in the development of the region. The effective management and sustainable use of the basin's natural resources are of prime importance. Among the diverse sub-ecosystems of the Zambezi Basin, wetlands and their related natural resources represent some of the most productive ecosystems in the drainage basin. They provide the most wanted fresh water for human consumption and economic development, pasture for livestock and wildlife, fertile soils for agriculture, yield a major harvest of fish protein and support some of the largest contiguous wildlife populations and habitats on the African continent. At the same time, the Zambezi Basin provides for the majority of the region's present power generation, represents a key asset in the region's tourism and recreation industry and supports the subsistence economies of some of the poorest and most unique local communities of Southern Africa (the livelihood of approximately 20 million people is directly dependent on the Zambezi Basin).

Wetlands of the Zambezi Basin, apart from providing products to the people of the basin, perform invaluable hydrological functions that maintain the status quo of the basin ecosystem. The wetlands ecosystems and their associated riparian habitats perform important functions such as flood storage and conveyance, erosion control through river/stream bank stabilisation and sediment trapping, and pollution control by retaining and absorbing toxic substances and effluent.

However, beyond its outstanding value as an ecosystem and natural resource, the Zambezi drainage basin also provides numerous examples of unsustainable and destructive use patterns which in due course will threaten the very "life line" it currently represents in the region. Being a transboundary resource which is subject to management and use by various sectoral and independent national interests and entities it illustrates many of the environmental concerns which are associated with development planning that lacks an ecosystems perspective. Land degradation, poor watershed management, construction of dams, sewage and industrial pollution, draining of wetlands, water extraction and general infrastructural development have reached a magnitude which calls for urgent action in terms of environmentally sound management and ecosystem approach.

Southern Africa has begun to embark upon a path of regional integration and coordinated development planning. While still in its early stages the Southern African Development Community represents one of Africa's most promising initiatives in terms of regional integration and eventually transboundary management of natural resources such as the Zambezi River Basin. However, much of the current momentum still focuses on sectoral approaches towards strengthening development capacities and potentials (e.g. transport, water, tourism, power, agricultural production) while integrated approaches to sustainable natural resource management remain weak. This is primarily the result of a sectoral focus both conceptually and institutionally, and as yet weak inter-sectoral and transboundary coordination mechanisms and structures which do not allow for sound management of transboundary resources, a lack of knowledge and information on the dynamics and functions of ecosystems, the absence of legislative frameworks as well as limited human resources sufficiently trained and qualified to study and demonstrate the hydrological and more general environmental impacts of "manipulating and using" dynamic and complex resources such as those of the Zambezi River Basin ecosystem.

Water being the key resource to economic development and survival in this generally arid region, it is clear that the Zambezi Basin wetlands will be looked towards for satisfying these growing demands. In most cases these demands are currently being made unilaterally by riparian states which, given current demographic data, are facing a population doubling time of less than 25 years. Ensuring the long-term balance between demands and the resource base's ability to meet these demands thus requires an integrated, coordinated and long-term management perspective of ecosystems, not just their component parts.

## **Objectives**

### **Goal of the programme**

**To conserve the wetlands ecosystems and associated natural resources of the Zambezi River Basin.**

### **Main objective**

**To develop and promote an integrated ecosystems perspective to the conservation and sustainable utilisation of the Zambezi basin's wetlands and associated natural resources.**

### **Specific objectives**

**To improve and expand public awareness of the ecosystem concept and the need for an integrated approach in drainage basin management.**

**To articulate the true value and importance of the functions, products and**

**attributes of wetlands ecosystems at the local, national and regional levels.**

**To improve institutional capacity in environmental economic valuations and impact assessment.**

**To communicate effectively the true value of wetlands to the region's people and decision-makers.**

**To investigate, develop and establish community-based integrated wetlands conservation and wise approaches and techniques.**

**To help local wetland communities realise their potential in wetlands management and wise use, and to assist these communities to participate fully in the conservation of the base of their own livelihoods.**

## **Scope**

This programme aims to build upon activities and programmes already initiated with respect to managing and utilising the basin's wetlands and related resources. The programmatic approach outlined in this project is primarily intended to strengthen institutions and initiatives within the drainage basin and the region. Of particular importance here are the Zambezi River Basin Action Plan (ZACPLAN), the World Bank's Southern Africa Regional Water Management Programme as well as SADC/FFW's Southern Africa Wetlands Support Programme Phase II which has been developed in close collaboration with IUCN's Regional Office for Southern Africa. The proposed wetland ecosystems management approach to addressing some of the key issues with respect to the Zambezi River Basin will focus on strengthening the understanding and capacity of the IUCN's members and partners in the region to conserve and practice equitable and ecologically sustainable utilisation of the fragile wetland and related ecosystems that are central to the livelihood of most rural and urban communities in the region.

Within the conceptual framework the programme will address what are considered to be the key constraints to sustainable management and conservation of the Zambezi Basin wetland ecosystem, namely knowledge and awareness. Lack of practical experience in managing resources from an ecosystems perspective, insufficient information on the basin's biodiversity and its potential use values, a detrimental focus on sectoral "national" strategies to manage a complex, transboundary natural resource, as well as limited institutional experience and human resources in ecosystems management which in itself will require pioneering work in the region. In line with IUCN's overall approach, the programme will work with IUCN members and support IUCN partners such as inter-regional structures (SADC), national govern-

ment departments, non-governmental organisations and community based organisations through the provision of technical expertise, backstopping support, training and funding for research and field projects and programmes to achieve the above mentioned objectives.

### **Expected outputs and activities**

To achieve the above objectives the following outputs are envisaged:

1. Knowledge, information and awareness on the hydrological functions, dynamics and economic value of the Zambezi Basin's wetland ecosystems and their utilisation and conservation by the local people.
2. Pilot field projects for the conservation and sustainable use of wetlands and associated resources in the upper and lower Zambezi Basin.
3. Approaches for the conservation of wetlands biodiversity and information on its potential use.
4. Institutional capacity building and human resources development programmes implemented through training.
5. Improvement of conservation and health improvement centres in the upper and lower Zambezi Basin.

#### **ACTIVITIES UNDER OUTPUT 1**

Hydrological survey in and around wetlands, linking into the SADC-ELMS ZACPRO 6 project which covers the whole basin.

Upper and lower Zambezi Basin wetlands resources inventory and assessment to provide an understanding of the physical and biological characteristics of these ecosystems.

Economic valuation of natural resources in selected wetland ecosystems in the upper and lower Zambezi Basin.

Public awareness to sensitise policy-makers, developers, politicians, etc., on the value of wetland functions, products and attributes.

#### **ACTIVITIES UNDER OUTPUT 2**

Wetlands resource assessment and management programme for the Zambezi Basin to include two community-based field projects in the upper and lower Zambezi Basin.

#### **ACTIVITIES UNDER OUTPUT 3**

Drainage Basin biodiversity support programme to undertake surveys and produce an inventory of biodiversity in the upper and lower Zambezi Basin.

#### **ACTIVITIES UNDER OUTPUT 4**

Environmental impact assessment and environmental economic valuation capacity building programme to promote and establish regional EIA/EEV capacities and institutional procedures for the management of the current and future impacts of Zambezi Basin developments on wetland ecosystems.

Institutional capacity building/human resources development programme through training (including regional seminars, PhD/MSC scholarships).

Consultancy fund for short-term support and backstopping of all activities implemented under outputs 1-6.

#### **ACTIVITIES UNDER OUTPUT 5**

Upgrading and establishment of conservation education centres (in collaboration with relevant NGOs e.g. CARE International) to educate the local communities on environmental and wider issues affecting wetland ecosystems.

Support to the rehabilitation of community health improvement centres in specific wetland ecosystems, in collaboration with the Panel of Experts on Environmental Management for Vector Control (PEEM) of the World Health Organization.

### **Organisation and management**

In order for IUCN to implement the overall programme it will establish a programme management unit at IUCN-ROSA. This unit will consist of a programme manager and support staff (secretarial, finance etc.). The unit will be responsible for the planning, initiation and management of the programme activities. It will monitor overall implementation and provide progress/financial reports.

In accordance with more detailed plans of operation the programme management unit will commission the projects and activities listed above. It will further manage the various funds included in the programme budget (e.g. consultancy fund, training fund etc.).

The Programme Manager will report to the IUCN Regional Director for Southern Africa who will be responsible for the overall management of the programme in terms of the IUCN/CIDA Contribution Agreement. The Regional Director and Programme Manager will utilise the services of IUCN's regional and global thematic programmes, commissions and networks of expertise to assist the programme where necessary.

For specific projects such as the two pilot field projects in the upper and lower Zambezi, IUCN will enter into specific project agreements with national authorities

and NGOs in the respective countries. The implementation of the projects will be supported by extensive short-term consultancy inputs as well as some long-term expertise. Long-term institutional collaboration and backstopping arrangements for individual components of the programme will be established with suitable institutions in the region and Canada.

While the programme outputs will be developed concurrently the various field specific activities will be implemented in a phased approach. Financial estimates provided below are indicative figures. Individual programme components will be developed in greater detail prior to the implementation of these components.

### Precedents and evaluations

The need for integrated, multi-national management of the Zambezi Basin recognised by the riparian states, lead to the establishment of Zambezi River Basin Action Plan (ZACPLAN). However, ZACPLAN and other related activities focus on water resources rather than adopting an ecosystems approach to understanding and utilising the Zambezi Basin. Lessons on integrated river basin management with an emphasis on sustainable natural resource management are limited in Southern Africa.

While the proposed programme will be able to draw upon the lessons learnt in implementing ZACPLAN, it will break new ground in ecological, institutional and managerial approaches to transboundary basin management in the region. Both in terms of its orientation as well as its multiple oriented approach it is thus without precedent.

The programme thus envisages continuous monitoring and periodic evaluations as instruments for managerial and conceptual review of the implementation process. While monitoring procedures will be built into each sub-component of the programme, it is proposed that a mid-term evaluation of the programme as a whole take place, the results of which should be assessed in a review workshop of staff and key partners in the programme. A second evaluation of the programme should be commissioned at the end of the first phase (i.e. year 3).

### Long-term commitment for IUCN

The programme time schedule is three years. The programme is the first concrete step towards implementing CIDA's Regional Policy for Southern Africa and is part of CIDA's overall support to the Southern Africa region. The programme could be extended for five to ten years based on results of the first three years. Based on the experiences for the first three years, the programme could also forge a permanent complementary (advisory) partnership with SADC-ELMS on ZACPLAN and SADC-FFW wetland initiatives.

### Budget summary

The total estimated cost of the programme amounts to C\$7,61 million over three years. The estimated summarised breakdown of the budget is shown in Table 1. IUCN-ROSA management and administrative costs will be charged on those activities directly managed by ROSA (i.e. on C\$6,800,000.00).

**TABLE 1 Budget Summary**

ITEM/ACTIVITY	ESTIMATED COST (Canadian dollars)
Community-based field projects (Pilot conservation and sustainable use projects, conservation and health improvement centres, etc.)	2 000 000.00
Public awareness, information and communication	500 000.00
Programme administration and management (IUCN-Montreal component)	3 300 000.00
Programme administration and short-term consultancies (IUCN-Montreal component)	810 000.00
Equipment: vehicles, boats, field offices and sampling	500 000.00
Capacity building and human resources development	250 000.00
Inception report	250.000.00
<b>TOTAL BUDGET</b>	<b>7 610 000.00</b>

### APPENDIX 3

## ANALYSE DU CADRE LOGIQUE

Pays - Country	Projet de l'ACDI n° -CIDA Project No.
Southern Africa	050-19335
Projet - Project	
Zambezi Wetlands Conservation and Development	

## LOGICAL FRAMEWORK ANALYSIS

<p><b>But du projet</b> <b>Project Goal</b></p> <p>to conserve the critical wetlands of the Zambezi Basin</p>	<p><b>Incidences à long terme</b> <b>Long-Term, Effect / Impact</b></p> <p>ecological integrity of the Zambezi River Basin and ability to sustain local communities</p>	<p><b>Indicateurs vérifiables / But</b> <b>V.I. to Goal</b></p> <p>wetlands remain intact and functional</p>	<p>SADC ZACPLAN, Zambezi River basin Environmental Monitoring Programme</p>	<p><b>Hypothèses-clés / But</b> <b>Critical Assumptions Re: Goal</b></p> <p>Multi-national cooperation re the management of the Zambezi River formalised under international protocol</p>
<p><b>Objet du projet</b> <b>Project Purpose</b></p> <p>1) to articulate the true value of and importance of the goods and services provided by wetlands</p> <p>2) to communicate the true value of wetlands to the region's people and key decision-makers</p> <p>3) to help alleviate poverty in the local wetlands communities</p>	<p><b>Incidences à court terme</b> <b>Short-Term Effect / Impact</b></p> <p>awareness that wetlands are not equivalent of wastelands</p> <p>increased appreciation of the value of wetlands</p> <p>jobs in infrastructure rehabilitation</p>	<p><b>Indicateurs vérifiables / Objet</b> <b>V. I. to Purpose</b></p> <p>acceptance of inherent value of wetlands</p> <p>number of publications, scientific articles, books, TV/radio programmes, workshops, mention in development plans and EIA's for projects</p> <p>improved access to health care and education and people remain in their communities and do not emigrate to urban areas</p>	<p>fewer instances of wetlands being converted to 'useful' purposes i.e. dredged and filled for farmland project reporting and monitor's reports and evaluation</p> <p>on site studies and monitoring and reporting</p>	<p><b>Hypothèses-clés / Objet</b> <b>Critical Assumptions Re: Purpose</b></p> <p>the goods and services are quantifiable which hinges on the emerging science of environmental economics</p> <p>the information provided turns into action</p> <p>that staying in these rural communities can "compete" with emigration and that a number of years of successive bad drought does not happen.</p>
<p><b>Résultats du Projet</b> <b>Project Outputs</b></p> <p>documentation of the value of wetlands communication product and plan rehabilitated infrastructure</p>	<p><b>Résultats</b> <b>Outcome</b></p> <p>defined strategy for the sustainable management of wetlands</p> <p>higher priority given to wetland conservation</p> <p>increased access to health care and education</p>	<p><b>Indicateurs vérifiables / Résultats</b> <b>V.I. to Output / Outcome</b></p> <p>as per column one</p>	<p>as above</p>	<p><b>Hypothèses- clés / Résultats</b> <b>Critical Assumptions Re: Outputs</b></p> <p>communities want rehabilitated infrastructure</p>
<p><b>Données relatives au projet</b> <b>Project Inputs</b></p> <p>social and physical scientist, research financial resources logistical support (offices, vehicles)</p>	<p><b>Prévisions de trésorerie</b> <b>Cash Flow Projections</b></p> <p>fy 1995/96 - \$ 500,000</p> <p>fy 1996/97 - \$ 2,800,000</p> <p>fy 1997/98 - \$ 5,000,000</p>			<p><b>Membres de l'équipe du projet</b> <b>Project Team Members</b></p> <p>PM/PRO Steve Blais</p> <p>FR Chris George</p> <p>A/FMA Peter Hyland</p>



## APPENDIX 4

6 JANUARY 1996

### TERMS OF REFERENCE FOR INCEPTION MISSION: ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILIZATION PROJECT (ZBWCRUP)

#### Overall goals

The overall goals of the Inception Mission are:

- (i) to establish liaison with the principal partners and participants in the project;
- (ii) to further identify and assess the wetland-related issues to be addressed by the project for the field sites and at the regional level;
- (iii) to develop and confirm the concept and planning for the project in consultation with partners and participants, based on the Logical Framework Analysis (CIDA) and the programme concept document (IUCN); and
- (iv) to produce revised project documents and practical plans, specifically a revised Framework/Concept document, a workplan and budget for the first year, a provisional workplan for later years, and a description of the structures for project management and liaison.

A report on the Inception Mission will be provided to CIDA.

#### Tasks

**1. Liaison.** Initiate liaison with project partners and collaborators, including officials and staff of government departments, local NGOs, other relevant institutions, and staff of other development assistance projects active in the region. (This regional liaison will be complemented by other relevant liaison within IUCN, in Canada and elsewhere.)

Meet representatives of riparian states of the Zambezi River, briefing them on the project, finding out their priorities, and discussing needs and mechanisms for coordinating with other programmes.

Identify IUCN members and partners in the region who may participate, brief them, and discuss and recommend mechanisms for their involvement. Identify and recommend roles and relations with other relevant IUCN programmes, networks and commissions for this project.

Meet representatives of the district councils and communities whom project participants will be working with, as part of a preliminary assessment of the four project sites, visiting at least two of the sites.

Meet staff of other projects and institutions in the region, including environment and development initiatives of governments and local and international NGOs, to assess potential collaboration and complementary links, and to consider mechanisms for them. Additional names may be added to the following lists of examples. A schedule of contacts will be firmed up before the Inception Mission starts (see attached Itinerary).

Examples of such initiatives include:

- ZACPLAN
- Sustainable Use of Natural Resources in the Zambezi Basin (research project commissioned by the Institute of Water and Sanitation Development (UZ) and the Institute of Hydraulic Engineering (Netherlands))
- Lake Malawi Biodiversity Project (Freshwater Institute, Winnipeg/CIDA)
- Environmental Capacity Enhancement in Southern Africa (Guelph School of Rural Planning and Development/CIDA)
- Indigenous Forestry Management
- Agroforestry in the Zambezi Basin (International Centre for Research in Agroforestry, Nairobi)

Examples of potential collaborating international institutions and initiatives include:

- CARE International
- PEEM

Development assistance staff to contact include:

- Mr. Peter Frost, University of Zimbabwe, Harare
- Drs. C. Oijen and G. Bbalo, Livestock Development Project, Mongu, Zambia
- Mr. Paul Wolfe, Canadian Technical Advisor, Environmental Council of Zambia
- Mr. Dean Frank, CIDA Field Representative, Harare; and through him Government of Canada/CIDA representatives in Mozambique, Zambia, etc.

**2. Programme plan and concept.** Through these consultations, develop and confirm key assumptions of the ZBWCRUP Logical Framework Analysis (CIDA) and Programme Concept document (IUCN). The following tasks are to be included:

- confirm the rationale: the problems addressed and the envisaged solutions
- review the context of existing related programmes
- confirm continuing appropriateness of the stated goals and objectives
- elaborate on the intended programme inputs, activities, budgets, and outputs
- further develop anticipated sustainable results
- establish base-line indicators of performance for internal programme management and direction, and for external project monitoring and evaluation; this should include means of verifying progress toward project goals
- identify methods and manner in which the project is to be undertaken, recognising that the success of the project depends not only on acceptance and commitment by the communities, but on their active participation as well
- prepare initial assessment of the availability of ecological and socio-economic knowledge that will be needed in achieving the goals and objectives of the programme
- prepare background on the proposed public awareness and communications programme for the overall programme and its four areas of concentration
- prepare background for assessing and establishing the training needs for wetlands conservation and wise use in the basin
- develop terms of reference and work plan for effective functioning of the proposed Programme Advisory Committee
- prepare initial concept of what IUCN and others may expect to learn through this programme about community-based and ecosystem-based conservation and sustainable development projects.

**3. (For IUCN staff only) Management structure and organisation.** Establish appropriate workplace set-up, and further define or confirm relationships among IUCN-Montreal, IUCN-ROSA, and the Canadian field manager and project staff, including:

- elaborate the decision-making process and division of responsibilities between IUCN-ROSA and IUCN-Montreal
- develop a final organisation chart for the project, showing lines of responsibility and reporting
- arrange appropriate work-space and administrative/technical support for the Canadian field manager and project staff as required, negotiating rates for office space, overhead, administrative support, etc., to be charged to the project
- identify job packages for which local professionals are to be engaged, prepare preliminary position descriptions, and solicit indications of interest in the region

- establish framework for a data base on potential sources of technical assistance, cooperation, and other resources that may be needed for the programme.

**4. Work and budget plans.** Prepare the following specific work and budget plans:

- a draft work plan for the period 1 January 96 to 31 December 96, to include all activities to be undertaken, associated timelines, input requirements and cost estimates; the work plans should be detailed on a semi-annual basis, but allowing for quarterly reports on progress and budget
- a provisional work plan for future years for ongoing activities and activities planned to commence later in the project, such as infrastructure rehabilitation in the communities
- a preliminary list of the staffing, management, and equipment needs of the project, proposed sources, and a cost estimate for these items
- for CIDA budgeting purposes, prepare a schedule of anticipated advance funds requests by quarter, by fiscal years running from 1 April to 31 March
- prepare logistics and background documents required for a regional workshop to consult and involve the riparian states in further planning of the programme work plan and outputs.

### **Inception Mission Report**

IUCN will provide five copies of a report on the Inception Mission to CIDA within four weeks of its completion. The report will describe the results of the mission, and will include the specified programme documents as annexes.

### **Team members**

The inception team members are:

- Mrs. Tabeth Matiza-Chiuta, IUCN-ROSA
- Mr. Tim Lash, IUCN-Montreal
- Mr. Eric Hiscock, Project Manager designate
- Mr. Dean Frank, CIDA Field Representative, will be involved as appropriate
- Ms. Carmel Mbizvo, IUCN-ROSA Social Policy Programme\*
- Dr. Harry Chabwela, University of Zambia\* (Prof. Geof Howard, IUCN-EARO, Kenya\*)
- Mr. Francis Mkanda, SADC-IFFW, Lilongwe, Malawi
- Mr. Eduardo Coelho, SADC-ELMS (or another communications-environmental awareness expert)

\* These team members will not be involved for the whole duration of the mission.



## APPENDIX 5

### INSTRUCTIONS TO INCEPTION MISSION FIELD TEAM MEMBERS

IUCN The World Conservation Union  
Regional Office for Southern Africa  
P.O. Box 745, 6 Lanark Road,  
Belgravia, Harare, Zimbabwe  
Tel: (263-4) 728266 / 7, Fax: (263-4) 720738

**To:** Inception Team Members  
Zambezi Basin Wetlands Conservation and Resource Utilisation Project

**From:** Eric Hiscock  
Project Manager Designate  
Zambezi Basin Wetlands Conservation and Resource Utilisation Project

**Subject:** YOUR INVOLVEMENT IN THE INCEPTION MISSION

Thank you for agreeing to participate in the Zambezi Basin Wetlands project Inception Mission. Your contribution is greatly appreciated.

On 8 January you received copies of the following:

1. **TERMS OF REFERENCE for THE INCEPTION MISSION: Zambezi Basin Wetlands Conservation and Resource Utilisation Project (ZBWCRUP)**
2. **ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILISATION PROGRAMME: PROGRAMME CONCEPT**
3. **CIDA's Logical Framework Analysis**
4. **ANNEX A: ZAMBEZI BASIN WETLANDS CONSERVATION AND DEVELOPMENT**

I encourage you to refer to these documents during the field and office consultation sessions we're embarking on 11- 24 January. Additionally, the following check list is offered as a more specific guide to ensuring that essential information is obtained.

1. Give as clear a picture as possible of the Zambezi Basin Wetlands Conservation and Resource Utilisation Project.
2. Explain the purpose of the inception mission focusing on the consultation aspect.

3. Know the name, affiliation and position of the stakeholder being consulted with.
4. Relate the input of the stakeholder to specific issues.
5. Attempt to obtain as clear a view as possible of what the stakeholder is proposing and of the results he or she expects.
6. Where the individual being consulted controls, or has influence over, a complementary programme, make the linkages between that programme and the Zambezi Basin Wetlands Conservation and Resource Utilisation Project as clear as possible.
7. Where applicable, record information on maps.
8. For those of you who have a contractual arrangement, the specific areas for which your participation is required are listed in ANNEX B-1 of your contract.
9. In cases where a partner with whom we intend to consult is unavailable, please let me have his or her mailing address so that we can solicit input by mail.
10. I would appreciate it if Team B members would mention to their contacts that Misael Kokwe and I will be making a follow-up visit in late April.

Given the time limitations with which we are working, we wish to ensure that as much recorded factual information as possible results from the mission.

To expedite the development of a written record, we'll begin recording information electronically as soon as possible after it is obtained. Tim and I will bring along portable computers and will enter information collected by our respective teams on a daily basis. Please help us by providing us with your notes at the end of each days discussions and observations. It is particularly important that where your discussions with stake holders are bilateral, we obtain a complete and concise record of what transpired.

Your assistance in this area will be greatly appreciated.



Eric Hiscock  
Project Manager Designate

## APPENDIX 6

### TEAM A ITINERARY: JANUARY 1996

#### Thursday 11 January

11:30 hours - Drive Harare to Lusaka

#### Friday 12 January

9:00 hours - Meeting with NORAD; Mr. Aage Krüger, First Secretary Development Co-operation, Mr. Arne Sandnes, First Secretary Agriculture, Royal Norwegian Embassy

10:00 hours - Meeting with Canadian High Commissioner, staff & advisors

11:00 hours - Meeting with IUCN, Zambia, members

14:30 hours - Depart for Mongu, vehicle problems, overnight at Mumbwa, La Hacienda Hotel

#### Saturday 13 January

11:00 hours - Drive to Mongu

#### Sunday 14 January

10:00 hours - Visit Limulunga Museum

15:00 hours - Meeting at Ngulu Hotel with: Mrs. N. Mubonda, and Mr. A.K. Kamuhuza

19:00 hours - Meeting with Mr. S.C. Mtongo

#### Monday 15 January

9:00 hours - Meeting with Honourable L.G. Subulwa, M.P., Minister for Western Province, Permanent Secretary for Western Province, Mr. Mulyokela and staff from Provincial Planning Unit at Permanent Secretary's office.

12:00 hours - Depart for Lealui

14:30 hours - Meeting with Barotseland, Royal Establishment Kumta (Ndunas)

15:30 hours - Meeting with Barotseland Litunga

#### Tuesday 16 January

8:00 hours - Travel to Kalabo

10:30 hours - Meeting with the Council Secretary District Planner, the Kalabo District, Natural Resources Committee and the Senior Economist for Western Province.

#### Wednesday 17 January

9:00 hours - Meeting with Livestock Development Project personnel in Mongu

11:30 hours - Meeting with Daniel Ball, Director, Zambezi Wetlands Development Agency at Ngulu Hotel

14:00 hours - Meeting with Senanga District Council Secretary, and the Natural Resources Committee at the District Planning Unit office.

19:00 hours - Meeting with Mr. Leo van den Brand, Hydrologist, Department of Agriculture, Mongu, and Mr. Chiyala Kana, Agricultural Specialist, Irrigation.

### **Thursday 18 January**

- Depart for Katima Mulilo, arrive 18:00 hours

### **Friday 19 January**

- 9:00 hours - Meeting with Victor Simana

- 14:30 hours - Meeting with L.W. Sitwala

### **Saturday 20 January**

- Report consolidation
- Eric & Osman; Katima Mulilo to Mongu and return

### **Sunday 21 January**

- 10:00 hours - Meeting with Nasisangani Village

- 14:00 hours - Kalimbeza Village

- 15:00 hours - To Lake Liambezi

### **Monday 22 January**

- 8:30 hours - Drive from Katima Mulilo to Kasane

- 14:30 hours - Meeting with Chobe Wildlife Trust

### **Tuesday 23 January**

- 9:00 hours - Meeting with Chobe District Land Use Planning Unit

- 13:00 hours - Drive to Chobe Enclave; brief informal meetings with a trust member & a councillor.

Team A consisted of Eric Hiscock, Tabeth Matiza-Chiuta, Francis Makanda and the Barotse Flood Plain Portion, Mubita Maimbolwa and Michael Isimwaa

## APPENDIX 7

### TEAM B ITINERARY: JANUARY 1996

#### Thursday 11 January

- 15:15 hours - Fly Harare-Blantyre-Lilongwe; arrive 17:50 met by driver Patrick Ng'ombe, to Lilongwe Hotel

#### Friday 12 January

- 9:00 hours - Meet IUCN members:  
Matthew Matemba, Dept National Parks, also SADC-Wildlife  
Goodson Sakanda, Dept Forestry, also SADC-Forestry  
Boniface Mkoko, Dept Fisheries, also SADC-Fisheries  
Daulos Mauambeta, Wildlife Society of Malawi
- afternoon - Meet Dr. Clement Mzembe, Dept of Irrigation, Lilongwe
- Meet Osborne Shera, Dept of Water Devpt, Lilongwe

#### Saturday 13 January

- Drive to Blantyre-Limbe

#### Sunday 14 January

- Meet Coordinating Unit for Rehabilitation of the Environment (CURE), PO Box 1429, Limbe: Tadeyo Shaba (Projects Officer), Linga Mahone (Gender & Environment), Tony Rogge (Advisor).
- Drive to Chikwawa District. Exploratory visit into Elephant Marsh. Stay one night at Lengwe Park.

#### Monday 15 January

- Meet Mr. Mpanyula, (District Commissioner, Chikwawa), and Macpherson Mkamanga (District Forestry Office, Chikwawa).
- Meet Ralph Mulders (Consultant Social Anthropologist, Wildlife Society of Malawi)
- Meet Paramount Chief Lundu, (Paramount Chief in Lower Shire)

#### Tuesday 16 January

- Meet SUCOMA managers (Sugar Company of Malawi), Private Bag 50, Blantyre, Malawi: Jacques DeRosney, Andy Stewart, Bouke Bijl (Assistant agronomist).
- Drive south to Chiromo-Bangula, talk with fishers at bridge where Elephant Marsh meets the Ndinde Marsh. Talk with 2 sisters from the Kalemba Health Centre.
- Drive to Nsanje, meet with T.T.Kang'ombe (Nsanje District Commissioner, Box 1 Nsanje), and C. Makanga (District Development Officer, Nsanje).
- Return to Chikwawa, SUCOMA Rest House. Further evening discussions with Leonard Sefu, Patricio, Bouke Bijl.

#### Wednesday 17 January

- morning - Drive to Blantyre
- Meet ESCOM, (Electricity Supply Company of Malawi): Mr. D.G. Bauleni (Environment Officer), Mr G. Katole-Milner (Environment Officer for Kapuchira dam project).

### **Thursday 18 January**

morning - Fly Blantyre-Lilongwe-Harare

### **Friday 19 January**

morning - Briefing on Mozambique trip from Simon Anstey

afternoon - Fly Harare to Beira, Embaixador Hotel.

### **Saturday 20 January**

morning - Preparatory briefings with DNFFB staff for meeting on Monday afternoon: driving tour with Roberto Zolho to one of two Beira mangrove depots, market, surrounding flooded fields and settlements, Makonde carvers of wildlife products from Marromeu.

### **Sunday 21 January**

afternoon - Overflight of delta (I): along shore from Beira to river mouth, up river to Marromeu, return inland (over Cuncue et al).

### **Monday 22 January**

morning - All day meeting with IUCN members and government, NGO and safari representatives, including Dr. Soto, (Director, DNFFB, Maputo) and Dr. Abilio Inguane (Director, Lands Commission, Maputo).

### **Tuesday 23 January**

morning - Meet national Minister of Justice, Mr. Abdul Abudo, representing the Governor of Sofala Province, Mr. Felis Temer.

afternoon - Overflight (II): from Beira up Pungwe River to Gorongosa park and mountain, along valley to junction of Shire River with Zambezi and view of Lower Shire in Mozambique, return along Pungwe-Zambezi watershed and transportation corridor.

### **Wednesday 24 January**

- EZ, TL, JO meet Alves Manuel (Head of Pedagogical Services, Sofala Province)

- HC, RZ meet Assistant Director, Water Resources, Sofala Province.

- Meet Reiner Droste, GTZ (German parastatal development agency)

- Brief meeting with Dr. Helena Motta, MICOA.

- Meet with Food for the Hungry International

### **Thursday 25 January**

- Return drive Beira to Harare

The Team consisted of Dr. Harry Chabwela, Evelyn Zador and Tim Lash, and in Malawi, Carmel Mbizvo. In that country Leonard Sefu was, in effect, also a part of the team. In Mozambique, we had particularly close advice and support from Judy Oglethorpe, Roberto Zolho, Baldeu Chande, Samuel dos Santos and Simon Anstey.

## APPENDIX 8

### INCEPTION MISSION TEAM A FIELD REPORT

#### **Meeting With NORAD: Agency for Development Cooperation Royal Norwegian Embassy, Lusaka: 96.01.12**

Participants: Mubita Maimbolwa, E.H., F.M. T.M.C., Arne Sandnes,  
1st. Secretary, Agriculture, Aage Krhger

#### **From Eric Hiscock**

- Background: T.M.C.
- Outline of Project & Mission: EH
- Arne Sandnes lot of sectors including environmental protection
- strong focus on environmental protection, South Luangwa Integrated Rural Development Project where management plan being facilitated by IUCN & to be implemented by Rural Development: slimmed down to wildlife conservation
- While the project is focused on the South Luangwa National Park, it is integrated with fisheries, agriculture etc.
- Guidance, support to Environmental Council
- Francis > Aage Krhger: Understand that ZACPRO 6 geared toward sectoral studies, e.g. for wildlife. Are there any TOR's?
- ZACPRO 6 phase 1 has 2 components  
data base for river management; Zambezi Basin Authority is holder  
original 9 sector studies being done by DENCONSULT including river management, irrigation, forestry, transport, etc., now merged into 6 studies
- conflict between SADC-ELMS and donors
- water to be upgraded to sector status
- on line data base can be available to us

- Zambezi Basin Commission to be established
- GIS system plus data base with wide variety of parameters
- Talk to ZRA - training required
- TMC > Aage Krhger: coordination of sector efforts
- Aage Krhger: with World Bank, funding water & sewage in 6 towns (which)
- NORAD asked to coordinate & fund a study of Kafue River; has large wetlands areas downstream of KNP
- We offered to contribute to TOR's
- Mubita Maimbolwa pointed out the importance of getting on with the study

#### **From Tabeth Matiza-Chiuta**

The Nordic countries, i.e. Norway, Sweden and Denmark, have been supporting the ZACPLAN activities for the past five years or so. This Nordic support to the Zambezi Basin is channeled through the SADC - Environment and Land Management sector (SADC - ELMS). Potential collaboration and synergy exist between the ZBWCRUP and Zacpro 6 project to be supported by the Nordic countries. The objectives of the meeting with NORAD (the designated coordinator of Nordic support to Zacpro 6) are:

1. To inform and brief NORAD on the ZBWCRUP
2. To find out about progress of Zacpro 6
3. To investigate areas of collaboration and complementary programming with Zacpro 6
4. To meet with the NORAD unit responsible for Zacpro 6 and establish liaison

### **Issues raised**

The NORAD Lusaka office does appreciate the efforts of the ZBWCRUP although the office has very little contribution to wetlands work in Zambia. The current focus of the NORAD support to Zambia is on environmental protection, i.e. the South Luangwa Project. The office also provided support to the Environmental Council of Zambia (ECZ) for Information Systems and Industrial Pollution Prevention. The office has recently joined hands with the World Bank and are planning to support an urban restructuring and water supply project of which the focus is on an environmental management and rehabilitation study of the Kafue River.

The office is also keen on supporting wetland projects with focus on the Zambian wetlands. With the restructuring of the implementation of Zacpro 6, the NORAD Lusaka office has assumed the responsibility for coordinating Nordic support to Zacpro 6. Mr. A. Krhger, the First Secretary for Development Cooperation has been given the responsibility of coordinating the ZACPLAN activities.

In his brief, Mr. Krhger highlighted that parts of Phase I of Zacpro 6 have been completed. Component I of Phase I, i.e. the development of Zambezi Basin Data Base (ZACBASE), has been completed. The Zambezi River Authority (ZRA), an institution based in Lusaka, has been identified as the appropriate institution to host the implementation unit of Zacpro 6. The movement of ZACBASE from Masere to Lusaka is underway.

Component II of Phase I, i.e. Sector Studies funded by Danida (sic), has been halted due to the requirements to move the data base to ZRA and the setting up of the proposed water sector by SADC.

Interested persons and institutions can access interpreted data from ZACBASE once the movement of the data base is completed. Other projects can also feed in data to, and obtain data from, the data base and the details can be obtained from ZRA.

### **Conclusions**

NORAD appreciated the efforts by IUCN/CIDA in establishing liaison and collaboration with other existing projects such as ZACPLAN. The office recommended that the team should have detailed discussions with ZRA on the modalities and mechanisms of collaboration.

### **From Francis X. Mkanda**

The team met with Messrs Arne Sandnes and Aage Krhger who are both First Secretaries ( Agriculture and Development Cupertino respectively). The purpose of the meeting was to explore areas of cooperation and compatibility between the NORAD funded ZACPRO 6 project and the ZBWCRUP project. According to Mr. Sandnes, the ZBWCRUP project is of relevance to NORAD's activities because the latter has little input to wetlands issues although they support environmental conservation and management programmes. Therefore, the ZBWCRUP project would complement NORAD's activities. Among the environmental programmes supported by NORAD are the Development Plan for South Luangwa National Park as part of the Luangwa Integrated Rural Development Programme. NORAD also has provided support to the Environmental Council of Zambia to prevent industrial pollution. No proposal on wetlands conservation and management has been submitted to NORAD yet. Mr. Aage Krhger gave a brief description of the ZACPRO 6 project which is coordinated by the SADC - ELMS in Lesotho. Upon being asked to identify areas of common interest for both ZACPRO 6 and ZBWCRUP, Mr. Krhger was quick to point out that the TOR's for ZACPRO 6 sector studies were not available yet. He elaborated that the sector studies had been a source of conflict between SADC - ELMS & donors as Lesotho disliked the idea of moving the ZACPRO 6 project to Lusaka. The SADC summit, however, had endorsed the idea and recommended the creation of a Water Sector Technical Coordination Unit in one of the member states. The ZACPRO 6 Sectoral Studies won't commence until the database developed in Phase I of the project has moved to Lusaka under the Zambezi River Authority (ZRA).

### **Recommendations**

Since the water sector will not be in place until possibly August 1996, it is important to obtain copies of the TOR's for sectoral studies of Phase II of ZACPRO 6 from ZRA. These will help to identify areas of potential duplication or cooperation. Once the sectoral studies are completed, the ZBWCRUP should obtain copies of the reports as they will undoubtedly be a useful resource material.

Furthermore, the ZBWCRUP should liaise with the SADC - Wildlife Sector Technical Coordination Unit which is negotiating funding with NORAD for Phase II of the SADC Wetlands Conservation Programme which primarily aims at promoting public awareness of the values of wetlands and training wetlands managers.



**Meeting With Canadian High Commission et al Lusaka:  
16 January 1996**

**In attendance:**

- Mary Isabel Mosser: Canadian High Commissioner
- Miyanda Kwambwa: Development Officer at CHC
- Michael N. Isimwaa: Projects Officer, IUCN Zambia
- Paul Wolf: Advisor to ECZ
- FM, TMC, EH

**From Eric Hiscock**

- The Canadian High Commissioner seemed to want me in Zambia for significant periods
- Community based forestry of interest to the Commissioner
- Poor cousin attitude experienced towards Zambia
- Talk to Dean Frank

**Paul Wolf indicated that**

- ECZ has overriding role in environmental matters
- Seek early meeting with Ministry of Agriculture
- ECZ is reorganising to a more proactive role
- James Phiri very dedicated
- Lloyd Thole on Harry's policy committee
- Asked for programme concept document

**From Tabeth Matiza-Chluta**

The CIDA Lusaka office is responsible for coordinating CIDA's support to Zambia and Malawi

**Objective of the meeting**

1. Courtesy call on CIDA to announce the presence of the inception mission team
2. Brief the embassy on the inception mission and the planned activities in Zambia

**Issues raised**

The CIDA office was delighted to meet the team but expressed concern on the issues of communications and involvement of other CIDA offices in the regional projects such as the ZBWCRUP. The problems they raised appear to be internal to CIDA. The office has not received the programme concept document and requested IUCN to send a copy to them.

**Conclusions**

In view of the internal communications problems within CIDA, the mission should recommend to CIDA, Ottawa that information on the project be disseminated to the CIDA field offices in the basin and CIDA, Ottawa should explain to the field offices the mechanisms of project delivery agreed upon between CIDA & IUCN.

**From Francis X. Mkanda**

The team visited the Canadian High Commission solely to brief the High Commissioner Ms. Mary Isabel Mosser and the Development Officer Ms. Miyanda Kwambwa on the purpose of the inception mission and the goal of the ZBWCRUP. It was apparent during the meeting that the High Commission had little knowledge about the project although it represents Canada's interests in Malawi; one of the riparian states and a participant in the project. The High Commissioner recommended that the team should attempt to meet with Dean Frank at the High Commission in Zimbabwe to learn about the Forestry Pilot Project that will take place in Malawi & Zimbabwe. She further suggested consultations with James Phiri and Lloyd Thole of the Environmental Council of Zambia (ECZ), who are working on a wetlands policy for Zambia. The team was able to meet to hear the views of the ECZ at the members' and partners' meeting held later in the day.

- In scoping re EIA we can utilise members to try to get harmony. SADC - ELMS could play a role here
- Ensure that investment isn't affected
- Work within policies of the four countries
- Francis held out hope for a SADC policy on wetlands

## Meeting with IUCN members Lusaka: 96.01.12

In attendance:

NAME	POSITION	ADDRESS
Francis X Mkanda	SADC Wildlife Technical Coord.	Box 30131, Lilongwe
Patrick M. Chooye	National Parks & Wildlife Service	P.B. 1 Chilanga
Lloyd S. Thole	ECZ	Box 35131, Lusaka
Michael N. Isimwaa	IUCN - Zambia Projects Officer	P.B. W356, Lusaka
Monica Chundama	World Wildlife Fund Programme Officer	Box 50551, Lusaka
Mukipe Chundama	Executive Director, WCSZ	Box 30255, Lusaka
Bwanga Dominic	Director, National Centre Env. Educ.	Box 3025, L'stone
James S. Phiri	Director, ECZ	Box 35131, Lusaka
Andrew A. Siwela	Member of RAC	U OF Z Box 32379, Lusaka
Wanga Mumba	EPC	Box 35614 Lusaka
Juliawa N. Chileshe	Zambia Env. Education Programme	Box 50551, Lusaka
Maswai Maimbolwa	IUCN Country Representative	P.B. W 365, Lusaka
Tabeth Matiza-Chiuta	Field Programmes Coordinator	6 Lanark Rd. Harare
Eric Hiscock	Project Manager Designate: IUCN	6 Lanark Rd. Harare
Peter L. Mwamfuli	Permanent Secretary, MENR	Box 34011, Lusaka
Micholas Katamekwa	NHCC	Box 60124 Livingstone
Dr. Macwani	Njowe Services Ltd.	Box 33350 Lusaka

### From Eric Hiscock

- Have studies been done before?
- ZACPLAN; ZACPRO 6 bigger: will we relate to it?
- Francis: SADC may get funding from NORAD
- May not move National Council of Environmental Research
- Important that project has institutional base
- Need a mother institution
- Diversity of interest
- Enhance role of IUCN Zambia in coordinating project
- Draw a committee rather than base in an institution
- Coordination through IUCN offices

- James Phiri: agreed with need to identify a coordinating mechanism
- Need to beef up coordinating capacity
- Should there be a wetlands capacity segregated?
- Policy for wetlands in Zambia being generated & ZBWCRUP can contribute
- Does not like IUCN centre idea
- Considerable support for IUCN coordination
- Fit project into other initiatives e.g. forestry, parks programme
- ECZ struggling to get wetlands policy done
- PS: again, if there's no institutional base, output will gather dust; should have an identification
- Other participants agreed
- Tabeth indicated that project is cross-cutting
- ECZ is natural coordinating unit
- Role for NCDP; only exists by representation
- Steering Committee to be formed; to be centred in ECZ
- Stakeholders meeting referred to; didn't think wetlands project should be housed in ECZ but it should be able to head up a committee
- What are the issues?
- After meeting the Coordinating Committee will look at our issues in a Zambia workshop prior to 19 February
- Will send outcome along on the 19th with 2 Zambia representatives
- They will need our financial support
- Mubita Maimbolwa will coordinate

### **From Tabeth Matiza-Chiuta**

The request for IUCN to be involved in water issues and Zambezi Basin came from the IUCN members in the region. The members have been kept abreast of the development of the project.

#### **Objective of the meeting**

1. To inform members on the progress and current status of the ZBWCRUP
2. Establish members' priorities with regards to the implementation of the ZBWCRUP

#### **Issues raised**

The members were very appreciative of IUCN's efforts to involve them in the ZBWCRUP. The following issues were raised:

- a. The ZBWCRUP should try all means to complement the efforts of ZACPRO 6. The Zambian component of the project should contribute to existing efforts of ZACPRO 6. The team was asked to contact the National Council for Scientific Research in this regard.
- b. The issue of an institutional base for the Zambian component of the project was extensively debated. The question asked was: who should coordinate the Zambian component? Two suggestions were made:
  - (i) IUCN-Zambia office can coordinate, supported by a committee
  - (ii) ECZ to house and coordinate the Zambian component.

The meeting agreed that ECZ and IUCN-Zambia should coordinate the Zambian component of the project.

- c) Integration of the project activities such as NEAP, Zambia Forestry Action Plan and the National Wetlands, etc. The Zambian component of the project should adopt a comprehensive approach.

#### **Conclusions**

The members expressed the need for further consultations among themselves with regards the issues affecting the Zambezi Basin Wetlands.

The members agreed to meet before the regional workshop to brainstorm on the issues and contribute to the inception report. IUCN-Zambia will facilitate the members' meeting.

### **From Francis X. Mkanda**

There were three issues that came out clearly during the above-mentioned meeting. First, it was apparent that the members and partners were not conversant with the ZBWCRU project. Hence the members were not able to present any issues that the project should address. Nor were the members/partners in a position to describe how they would be involved in the project. Consequently, the meeting agreed that members should hold a workshop to discuss the project document and come up with issues. Proceedings of the workshop would be presented at the Harare Workshop next month.

The second issue that was clear during the meeting was cooperation and relationships between the ZBWCRU project and the existing and proposed ones, e.g. ZACPRO 6, the Environmental and Forestry Action Plans, and the Upper Zambezi Basin. After lengthy debate, the members and partners were able to relate the goals, objectives, and scope of the ZBWCRU project to the others and agreed that there was no duplication.

The final and probably most important point to the Ministry of Environment was the institutional base for the ZBWCRU project in Zambia. After considerable discussion, the meeting agreed that the Environmental Council of Zambia would host the project in conjunction with the IUCN Country Office.

#### **Recommendation**

There is nothing substantial to recommend on the first two issues, i.e., the Zambia workshop and ZBWCRUP's relationship with other projects. So this section will deal with the third point. First, the ECZ has no presence in the project area. Therefore, means should be developed to create their presence in the Mongu area.

Second, the mission should solicit names of host institutions in all participating countries, if not done already. Additional to this, the role and expectations of each host institution should be clearly understood by the ZBWCRU project. This will avoid potential disappointment in the future.

**Meeting with Mrs. Ngula Mubonda, Community Development Advisor, Upper Zambezi Wetlands Project and Mr. Adrian Kamuhuza, Provincial Natural Resources Officer for Western Province; 14-01-1996.**

Also present: E. H., T.M.C., F.M. and Michael Isimwaa.

**From Eric Hiscock**

Adrian: requested clarification drawing line between this project and others.

Michael: Upper Zambezi is wide scope and will initiate certain research. Zambezi Basin Wetlands project to fill in specifics of wetlands conservation

Mrs. Ngula Mubonda gave the issues as competing land use, population growth, culture, livestock, increasing fishing pressure, wildlife ownership concept, ownership of resources in general, breakdown of traditional management, reduced soil productivity, , flooding cycle too soon or too late (change of climate), no control over availability of water, no Ku-oonboka ceremony.

- wetlands should be conserved for their original purpose
- competing needs
- wildlife is declining because of encroachment on habitat
- in Senanga elephants are a minor problem
- there is potential for tourism
- need for base-line data on natural resources
- Carmel doing indigenous knowledge; of use in historical trends; can be used in resource conflict resolution
- fire is also a problem with people burning too much
- traditional rules no longer in effect; programme under livestock project to come up with policy; discussion with local people including penalties
- transport is a problem; at times of the year there is no system of transport; reflected in teaching and medical services
- teachers don't want to work there

- temporary accommodation at schools would help
- boarding school (Lukoma) funded by Japanese and Zambian governments
- solar energy
- when water is high 90% of people move
- problem of fuel
- there used to be trade of firewood for fish
- over-exploitation in fishery
- some lagoons belong to Ndunas
- some fishermen come from outside
- Francis, referring to Malawi: responsible people and migratory fishermen break regulations. Synthesis: breakdown in traditional system is the problem
- no sharing of proceeds; they go to central government
- get people involved in managing resources
- Adrian: people don't benefit because there are no schools .
- Michael: links between government initiatives?
- Answer: local people very active
- communities voicing concern
- listed issues being addressed at various levels; Royal Establishment, donor agencies, government departments
- there may be, e.g., extension officers who do not have transport
- a lot of agricultural donor funded projects
- in fisheries government is quite restrained, as is the case with wildlife
- water management being looked at with respect to food production, e.g., rice

- Department of Energy doing work on biogas
- re: environmental education: have natural resources subjects in schools, plus native tree days, a Ministry of Education initiative, not resource departments
- no curriculum to tell how important flood plain is
- no ecosystem approach to natural resource education, but, rather a single sector approach
- people would like to see traditional system brought back
- Provincial Planning Unit has Geographic Information System and the Dutch are interested in a data bank
- there is a National Environmental Education Programme in the Ministry of Education
- Zambia Environmental Education Programme was represented at the Lusaka IUCN members meeting
- in villages story-telling is still in effect
- singing and dancing are still popular
- talk to Museum Director: need way to communicate data (information)
- Tabeth: what role can we play? is the project necessary?
- Adrian: need to remind the different actors what should be done. Our project can facilitate communication of interpreted data as feedback to communities so they are aware of status of resources
- advise on course of action and facilitate application of information into concrete actions at community, national and regional level
- Mrs. Mubonda: also helps in awareness raising, communicate regional importance
- with respect to indigenous knowledge systems, we can enhance Limulunga Museum
- with respect to infrastructure, communication is a problem

- canals need to be maintained; refer to the Dutch
- have an abattoir that is not being used
- Michael: are there, e.g., schools or clinics that could be supported by a one time investment from the project: YES
- community, including business, should be involved in projects
- reference to a study on the ecology of the flood plain by Vergoon
- ITC (Netherlands) literature search at University of Zambia
- Natural Resources Department has very little support nationally
- suggestion of shared accommodation with the Upper Zambezi Project

#### **From Tabeth Matiza-Chiuta**

##### **Objectives of the meeting**

In view of the principles of the ZBWCRUP approach, it is necessary to establish wetland related activities existing in the Barotse Flood Plain. The objectives of meeting the aforementioned persons are as follows:

- (i) To introduce and explain the ZBWCRUP to Natural Resources Officer and one of the key persons on the Upper Zambezi Wetlands and Natural Resources Project.
- (ii) Establish wetlands issues of the Barotse Flood Plain as perceived by those mostly involved in wetland conservation and management in the area.

##### **Issues raised**

Before the two experts briefed the team about wetland issues, they posed a question on the differences between the Upper Zambezi Wetlands project and what the ZBWCRUP is planning to undertake. Both the team and the IUCN - Zambia office explained the differences and approaches the two projects will take.

The following is the list of projects that already exist in Western Province.

- (i) Upper Zambezi Wetlands and Natural Resources Project (IUCN Zambia). The focus of the project has shifted from wetlands to cover all natural resources in Western Province. The Dutch have agreed to fund a one year planning phase

US\$540,000.00, leading to a five year programme (This is dependent on the outputs of the planning phase).

- (ii) Land and Water Management Project, funded and implemented by the Dutch
- (iii) Livestock Project, funded by the Dutch
- (iv) Rice Project, funded by the Japanese. The Dutch are also funding a small rice project in the Lui Valley.
- (v) Teak Forestry Management Project. This is a proposal that has been submitted to GTZ (German)
- (vi) Agricultural projects
- (vii) Establishment and management of the Limulunga Museum, funded by NORAD. The financial support from NORAD has since stopped.

The following were identified as wetland issues affecting the Barotse Flood Plain.

1. Competing land uses leading to the degradation of the ecosystem. Competition between agriculture (crop cultivation), livestock and fishing is leading to the over-exploitation of resources.
2. Natural resource ownership leading to conflict between central government and the traditional leadership. Resource sharing between the community and the government is a critical issue.
3. Breakdown of traditional management systems due to modernisation and politics.
4. Decline in soil productivity
5. Climate variability, especially the variability of flooding and its effect on land use and traditional ceremonies.
6. Population pressure on the wetland resources
7. Lack of base-line data on natural resources
8. Uncontrolled fires on the plain destroying pastures, sources of thatching grass and habitat for birds and other wildlife species. A programme to formulate a fire policy for Western Province has been initiated. The programme will be imple-

mented in collaboration with the communities.

9. Transport problems on the plain. The infrastructure is poor and deteriorating.
10. Due to the socio-economic situation and problems of transport, the education and health infrastructure on the plain is very poor. The quality of service on the existing infrastructure is also poor due to the conditions offered to education and health workers. The population on the plain is also extensively scattered and this is a problem as far as the provision of services is concerned. The Government of Zambia and Japanese have funded the rehabilitation of Lukoma secondary school. Fuel wood is a major problem on the plains. Most households use cow-dung for heating.
12. Decline in fish stocks and size, and wildlife. The area experiences the problem of migratory fish mongers.

Quite a number of the above issues are currently being addressed by a number of institutions.

- a) The issue of resource ownership and distribution is partly addressed by the Royal Establishment that is involved in land distribution and disputes.
- b) A number of government departments are partially addressing most of the issues but their performance is affected by limited capacity.
- c) The majority of the Dutch funded projects are addressing issues of resource exploitation and improvement. These include:
  - (i) Land and Water Management for food production in Lui Valley whose focus is on rice production.
  - (ii) Natural resources inventory in Senanga District
- d) The Japanese are addressing agricultural production on the flood plain.
- e) The Department of Energy is trying to address the energy problems on the plain and a biogas project was initiated. However, due to lack of finance and interest from the communities the project has not managed to make progress.
- f) Informal education on wetland values exists but the Zambian curriculum does not contain a substantial wetland component. Initiatives by Ministry of Education, through its National Environmental Education Programme (NEEP), in collaboration with the WWF-ZEEP, are addressing communication issues at the primary school level. Story-telling is often used as a way of communication.

In view of the issues and the various players already in the field, the following were identified as some of the issues the ZBWCRUP could address:

1. Years of research in the Barotse Flood Plain have generated a lot of data that is raw. The ZBWCRUP can assist in compiling and communicating interpreted data as a feedback to the community so that they are made aware of the status of the resources and be advised on what course of action to take.
2. Facilitate the application of the information already generated, into concrete actions at the community and other levels.
4. Impart awareness on the importance of the flood plain at the local and national levels.
5. Facilitate the compilation and utilisation of indigenous knowledge systems in collaboration with the Limulunga Museum.
6. Assist in improving transport systems on the plain, e.g., deepening and maintenance of the main transportation canals.

#### **From Francis X. Mkanda**

This meeting identified several issues. As has been elsewhere Mrs. Mubonda and Mr. Kamuhuza firstly wanted to know the distinction between the ZBWCRU project and the Upper Zambezi one. The differences between the two projects were clearly illustrated by Mrs. T. Chiuta. Thereafter Mrs. Mubonda and Mr. Kamuhuza began to describe the issues.

#### **Issues**

What appeared to be a priority issue was competing forms of land use, e.g. agriculture, fisheries, and livestock. Concomitant to this is human population increase which leads to over-exploitation of various natural resources. Some fish species are actually feared to be extirpated.

The other important issue is resource ownership. Previously, the Lozi king, locally called the Litunga, owned the natural resources in the Lozi kingdom. For example, there are bird sanctuaries established by the king. Also proclaimed Forest Reserves, Hippopotamus (*Hippopotamus ampibius L.*) was royal game. As such, the people respected the resources because they had a sense of ownership through the king. The intervention of the government in the 1970's, in the case of forests, precipitated resource abuse as the people lost the sense of resource ownership since the government had deprived them of the control over land.

The other issues were:

- (i) declining agricultural productivity
- (ii) erratic flooding pattern
- (iii) lack of resource inventory data e.g. on plants, wildlife, fish, etc.
- (iv) wild fires that destroy grass for cattle, wildlife, and thatching
- (v) transportation between Mongu and Kalabo
- (vii) receding fuelwood stocks such that the people inhabiting the plain use cattle dung
- (viii) the available data from various projects that have taken or are taking place on the plain are scattered thereby making it difficult to get a comprehensive picture of what is happening to the flood plain.

#### **Role of the project**

Mrs. Mubonda & Mr. Kamuhuza strongly felt that the project could play a role in the following areas:

- (i) communication of the interpreted data on resource status to communities. In fact, this fits well in the objectives of the ZBWCRUP, particularly articulation of the values of wetlands and their resources.
- (ii) advice on course of action
- (iii) facilitate application of information into actions
- (iv) communicate the importance of wetlands to the people

The rest of the above suggestions too merge nicely into the overall goal and objectives to the ZBWCRUP.

#### **Recommendations**

1. It is apparent that scattered data bases are available on various resources in the Barotse Flood Plain. It was also learned that the Provincial Planning Unit (PPU) has Geographic Information Systems (GIS) capabilities. Therefore it would be necessary that ZBWCRUP should facilitate in having the PPU as a repository of all the data bases. Using the GIS, the data could be manipulated or synthesised in order to present a lucid picture of the resource status on the plain.

In addition, the GIS-generated information could assist in formulation of a fire policy for the flood plain.

2. While the plain has tremendous potential for ecotourism, e.g., the Royal Establishment, bird life on the plain, the Limulunga Museum, etc. the poor infrastructure is a deterrent to tourism development. Therefore, within the plain, the ZBWCRUP could endeavour to influence the maintenance of the canals and embankments. Outside of the plain, the project could explore the possibility of encouraging the government to speed up the Lusaka - Mongu Road rehabilitation and maintenance of the Katima Mulilo - Senanga Road.
3. The seasonal access to schools and clinics on the plain also needs attention. Actually, this is one of the project's areas of concern. Therefore, the project should explore the possibility of resuscitating the boarding schools and clinics that broke down because of economic hardships.
4. Through the government and the Royal Establishment, the project should enhance the current efforts to introduce an ADMADE (Administrative Management Design) Programme that will promote conservation of forest, fish water and wildlife resources in the area. The ADMADE has been successful in the Luangwa Valley, but that model should not be directly transposed to the Barotse Plains. Modifications will be needed. So both government and traditional leaders participation will be vital in the formulation of the programme.

#### **Meeting with Mr. S. C. Mtongo Mongu 96.01.14**

Note: This was a short and informal meeting at the Ngulu Hotel Sunday night, because he was unable to join us that afternoon. Mubita and Michael were present. Only Tabeth took notes.

#### **From Tabeth Matiza-Chluta**

The following issues were raised by Mr. Mtongo, Forestry Officer in Mongu and the Natural Resources Expert Designate for Upper Zambezi Wetlands Project.

1. The need for a biophysical/characteristic assessment of the Barotse Flood Plain.
2. The need to instil confidence in the people so that they can manage their own affairs.
3. The flood plain and the forest areas are complementary in the sense that wetland communities obtain materials for canoe building from the forest. Of late, the forest resources are being depleted affecting the sources of raw material for canoe building.

4. There are no inventories that have catalogued the quantity of the resources available in wetland areas, and if sustainable wise use of the resources is to be achieved, these inventories are a necessity.

#### **Meeting with Honourable L. G. Subulwa, M. P., Minister for Western Province; Permanent Secretary, et al Mongu: 96.01.15**

#### **From Eric Hiscock**

- Minister: Good overview response to description of the project including an expression of appreciation for donor activity.
- cautioned us concerning the need for local input
- considerable concern expressed re: staffing; need to advertise field positions locally; no local newspapers
- M. Maimbolwa: IUCN likes to build local capacity
- Idea of models or demonstration projects; my question amplified by M. Maimbolwa to concentrate on schools, clinics, forestry.
- Minister: need serious dialogue; should have local workshop
- Dutch representative of District Development Support Programme: interested in community-based support; working on natural resource management.
- People will cooperate if they are supported
- Francis: concerning Minister's point about animals eating crops, is it a problem on the plains?
- Minister: e.g. if crops being taken by hippos, destroying the animals isn't the answer; people need help
- potential for turning animals into source of revenue, e.g. small game ranches, e.g. for duikers; local communities to benefit; elands highlighted
- Mrs. Mubonda: how to link with institutions? e.g. education
- Tabeth: have to find out what already exists; build capacity, e.g. in education; we can subsidise, e.g. transport



- Question concerning delay on the Upper Zambezi Project
- M. Maimbolwa: project will assess training needs; will do management plans of natural resources for entire province; re sorting out of priorities, is there possibility of funding a workshop: YES
- Tabeth: wants to hear more about issues
- Mrs. Mubonda: have no inventory of plants and wildlife, especially grass species disappearing; how to reintroduce?
- Mr. Mtongo: drought; charcoal burning increasing; small mesh fishing nets; within educational programme
- minimal economic benefit from local crafts.
- Minister: need to review past development projects, e.g. for impacts on birds; we should put pressure on governments; emphasise need for electricity vs. charcoal burning
- Mrs. Mubonda: need infrastructure, e.g. schools, roads, clinics, market places for crops.
- Minister: emphasise implementation in support of local people; also said he wants to participate more
- Permanent Secretary needs to know accommodation requirements

**From Tabeth Matiza-Chluta**

**Objective of the meeting**

To inform and brief the Minister and Permanent Secretary about the ZBWCRUP.

**Issues raised**

After being briefed about the programme objectives of the inception mission and the programme approach, the minister expressed appreciation on the programme approach to consult the communities and other stakeholders at the outset of the programme. In addition, the following issues were raised:

1. The importance of the traditional system of natural resource management that has been eroded by the licensing system introduced by the central government.

2. The need for biodiversity assessment of the flood plain to guide sustainable resource utilisation.
3. Poverty and food insecurity are major problems on the flood plain.
4. The need for a review of the past development projects, e.g. canal construction, and their impact on the flood plain ecosystem.
5. The need to influence the Zambian Government to embark on environmentally friendly development for the plains.
6. Need for institutional support for the institutions working in the area.

Ecotourism and the marketing of crafts were identified as potential activities that could be encouraged in the area.

**From Francis X. Mkanda**

**Issues**

During the meeting held with the above-mentioned dignitaries and their staff, the issues that surfaced can be categorised as follows: administration, wildlife, tourism, ecological and infrastructure. These issues are described in detail below.

**1. Administration**

Like elsewhere, the meeting wanted to find out if:

- (a) the communities will participate in the Harare Workshop or have their own workshops in Mongu?
- (b) the ZBWCRUP would not be duplicating the initiatives of the Upper Zambezi Project?
- (c) There were means in place to implement the ZBWCRUP?

**2. Wildlife**

Two wildlife issues emerged during the meeting, i.e., reintroduction of extirpated species, and hippo-human conflicts.

**3. Tourism**

It was apparent that while the area has potential for tourism, it is not exploited.

#### 4. Other ecological issues

There was concern expressed over the potential impacts of certain projects, e.g. canal construction and maintenance on the pools, lagoons, etc. Deforestation in the upland was also another issue having a bearing on energy resources on the plain.

#### 5. Infrastructure

Again the issue of poor roads, schools, clinics, markets, etc. as incentives for economic development on the plains surfaced strongly.

### Recommendations

#### 1. Administrative issues

The ZBWCRUP should consider addressing the workshop issue at two different levels, i.e., regional and local. The programme should ensure that one of the Zambian participants to the Harare Workshop comes from Barotse Flood Plain. At a local level, there will be a need for the programme field team to hold a workshop as part of project implementation. The participants to the local workshops will have to consist of traditional leaders and government officials. Besides soliciting support to enable smooth implementation, the local workshop should clearly elaborate the similarities, differences, potential areas of cooperation, etc., between the ZBWCRUP and the Upper Zambezi Basin Project as fears of potential conflicts and duplication keep being expressed.

#### 2. Wildlife

A feasibility study would be a pre-requisite to reintroduction of wildlife species in the flood plain. The ZBWCRUP could either initiate or address the question of the feasibility study which essentially would aim at accomplishing the following:

- (i) develop an inventory of extirpated species, their distribution and seasonal movements into & out of the plain.
- (ii) identify the causes of extirpation and assess their existence, & potential threat to the species that would be reintroduced.
- (iii) identify species that could be reintroduced and areas in which they would be reintroduced
- (iv) assess the ecological impact of the reintroduced species and their potential conflict with humans
- (v) develop a reintroduction plan that would include capture and translocation logistics (or explore the potential of wildlife ranching/farming).

Regarding the hippo-human conflict, the project should address it through firstly assessing the magnitude of the problem and identifying methods that have little ecological impact. It is common knowledge that shooting of hippos is not an effective measure of reducing conflicts. Besides, it is counterproductive to conservation of the hippo.

#### 3. Tourism

Should the reintroduction of wildlife species, come about it will add to the tourism potential of the area. This in itself is not sufficient. The ZBWCRUP should therefore attempt to respond to the issues of road and canal development and maintenance on the plain.

#### 4. Infrastructure

There is no doubt of the critical nature of infrastructure on the flood plain. During the brainstorming exercise, the inception mission identified lack of infrastructure as a high priority site specific issue that the programme will have to respond to. Therefore, it is suggested that a feasibility study on infrastructural development or maintenance would be a good starting point in responding to this issue.

### Meeting With Royal Establishment Lealui: 96.01.15

(see also Royal Establishment submission)

#### From Eric Hiscock

#### Meeting with Kunta prior to meeting Litunga

- they asked whether the reintroduction of animals was within the purview of the project and I indicated it was
- Francis gave some more expert opinion on feasibility emphasising that there should be an understanding of what caused the animals to disappear in the first place
- irrigation for earlier planting; tall rice
- cut hard grass to create channels
- formerly grew an aquatic plant like sorghum; now replaced by maize which is tastier

### **Meeting with the Litunga**

- re transportation; feasibility study; embankment to serve Kalabo rice area; to one side of current one
- indigenous knowledge; what to maintain
- people have already begun making the embankment because of the need; lead by Father Brian and is to link Zambia and Angola; we should investigate it en route to Kalabo
- need to delay the flood a bit, i.e. to retain the flood waters on the plain longer than under natural conditions; it was assumed that a dam would be needed
- asked how far Mrs. Mubonda's indigenous knowledge report went; Tabeth said it is soon to be released
- schools and clinics still a priority
- Ku-oonboka ceremony needs a canal
- got the impression that the Litunga was not keen on making the ceremony a tourist spectacle; only an impression since conversation was not direct but translated through Ndumas

### **From Tabeth Matiza-Chiuta**

#### **Objective of the meeting**

- To inform the Royal Establishment of the progress on the ZBWCRUP proposal
- Solicit ideas and issues as perceived by the resident community

#### **Issues raised**

- Rehabilitation of the main transportation canals especially the seven kilometer canal that links Lealui and Limulunga. The rehabilitation of this canal could facilitate the Ku-oomboka ceremony.
- The need to reintroduce wildlife on the flood plain. However, this can only be effective if the issues that led to the disappearance of wildlife are addressed first.
- Due to climate variability, the agricultural system on the flood plain is affected. Flood control is required to enable/allow crop husbandry.

- Firewood problems, especially on the flood plain.
- Transportation problem. To address this problem, there is a need to establish an all weather embankment road linking the main population centres on the plain.
- Population pressure is increasing due to immigration of tribes other than Lozi. The wetland areas of Western Province are regarded as home by Lozi people. The name Blozi plain means home of the Lozi people and according to Lozi land classification, the wetland areas constitute class A land, while the uplands constitute class B. Only the Lozi people were allowed to own land on the plains while other tribes were free to occupy class B land.
- Breakdown of indigenous knowledge systems that contributed to the deterioration of the flood plain ecosystems, e.g. indigenous crop species that could withstand flooding are no longer grown. The preference has shifted to maize and a sorghum variety that used to be widespread on the plain, is no longer grown.
- Need for flood retention to revive the traditional way of resource utilisation and management.

### **From Francis X. Mkanda Issues**

The issues identified during the meeting with the Royal Establishment were infrastructural, agricultural, energy and wildlife in nature. The Royal Council also submitted a written presentation of the issues, which are more detailed than the verbal presentation captured during the meeting. These notes are, therefore, supplementary to the council's write-up.

#### **1. Infrastructure**

Rehabilitation of the main canal to reduce grass overgrowth is a priority issue to the Royal Establishment. In addition, the council identified the need for an embankment from Mongu to Kalabo a pressing issue. Finally, the council stated that lack of adequate schools and clinics was a priority for the well-being of the people on the plain.

#### **2. Agriculture**

Development of high yielding and flood resistant rice varieties was the first agricultural issue raised by the council. The second point was on livestock development. Areas of concern range from wet season grazing to marketing. The movement of cattle to the uplands during floods leads to mortality resulting from food shortage.

On the other hand, there is a limited cattle market within the area, and transporting cattle to outside markets was prohibitive economically and logistically difficult.

### 3. Energy

The scarcity of wood fuel in the plain is critical. The deforestation on the upland areas is compounding the problem such that the majority of the population use cowdung for cooking.

### 4. Wildlife

As demanded at the meeting with the Provincial Minister, PS and staff, the Royal Establishment considers reintroduction of wildlife into the area as an important issue. To the contrary, however, the Royal Establishment did not consider hippo-human conflict as an issue.

## Recommendations

### 1. Infrastructure

As stated elsewhere, the ZBWCRUP will have to respond to this issue as it keeps surfacing at each meeting. Ecological considerations will have to come into play, however, when addressing the two issues, i.e., canal maintenance and embankment construction. Grass growth in the canals helps to stabilise the canal walls. Removal of the grass would lead to scouring of the canal walls and an increase in the sediment load of the flood waters. This could have negative impact on the aquatic life downstream. Structural stability of the canals too would be compromised once scouring occurs.

Should an embankment be considered for construction, the ZBWCRUP should strongly advocate an environmental impact assessment. Structurally, the embankment would act as a dam (if it can withstand floods). Draining river courses creates ecological changes both upstream and downstream. The ecological consequences of such an embankment would, therefore, have to be fully known by the project.

### 2. Agriculture

Rice variety and livestock development had not been earlier on identified as issues by the inception mission. These appear to be site specific issues that the project could influence by encouraging the rice breeders and livestock experts to help find solutions.

### 3. Energy

Wood fuel scarcity is becoming acute, more especially that the nearby uplands are deforested. Worse still, the transportation system is undeveloped such that supplies cannot easily be brought in from afar. Two potential areas the project could influence, address or respond to are the development of woodlots using indigenous species, or promotion of rural electrification.

It appears from the indigenous forest at Lealui that some species could be grown at the woodlots on mounds. The project should explore the possibility of establishing pilot woodlot projects using indigenous tree species. This seems to be the pragmatic long-term solution.

Rural electrification (it could be argued) is the other long-term solution, but the implications are numerous. Therefore, the project may have to influence it only. Provision of electricity at subsidised rates would be a help, but this would possibly conflict with the removal of subsidies policies advocated by institutions such as the World Bank and International Monetary Fund.

Another setback with rural electrification is the low income level. Even if electricity were subsidised, the people lack the purchasing power for electrical gadgets such as cookers.

A point worth considering on electrification is the settlement pattern. It is randomly so scattered that provision of electricity would turn out to be costly. This being the case, therefore, the project should only influence to the point of developing a model and not a full-scale rural electrification project.

### 4. Wildlife

The earlier recommendations made apply here as well (see notes of the meeting with the Provincial Minister and PS).

## **A submission of the Barotse Royal Establishment to the Zambezi Basin Wetland Conservation and Resource Utilisation Programme Management**

These submissions are in addition to the oral submissions already made to your good selves in the Siikalo and The Royal Kashandi Halls respectively, on 15.1.96

1. For the permanent performance and enhancement of the Ku-omboka ceremony:
  - (a) Enlargement and deepening of the Mwayowamo canal all the way from Lealui to Limulunga.
  - (b) Construction of a new bridge west of Lealui Nayuma turn off of the canal.
  - (c) Broadening and deepening of the water play ground arena and harbour at Siyubo (Limulunga).
  - (d) Building of a sort of a stadium type of seating and shelter enclosing Limulunga water play-ground arena.
  - (e) Drainage of the Mwayowamo uplands feeder canals.
  - (f) Rechannelling the point of exit of Malile from the Zambezi River.

2. **Canals and agriculture:**
    - (a) Flood control to delay receding of the floods in the interests of rice crop maturity on the outer plain.
    - (b) Drainage of Wili, Katongo, Nonge, Ilalamupa, Twelufu from Salondo to Mwito, Lubita-meyi.
  
  4. **Transportation:** building of a two-lane motor cause-way from Mongu through Lealui to adjoin the road embankment already under self help process through the initiative of Father Brian on the Kalabo side of the plain.
  
  5. **Fish:** re-stocking of njinji tilapia which is seriously depleted and other tilapias in general.
  
  6. **Wild-life:** re-stocking of lechwe, water-buck, sitatunga marsh-buck, mitobo, brindled gnu, serval (twani) a major predator of mice and rats whose depletion has led to the increase of these rodents), hares, hippo.
  
  7. **Wild life: birds**
    - (1) milindeti (no-longer seen any where in Barotseland) crested crane (an officially designated ornamental bird in Barotseland)
  
  8. **International Heritage Sites**
    - (1) Prince Muliya's canoe at Mutonde, a relic of the 16th century. Lake Mutungi, site of the inception of the male monarchy revolution.
  
  9. **Clinics**
    - (1) Nangili
    - (2) Nakaywe
    - (3) Suulu self-help clinic
    - (4) \*Makuku
    - (5) upgrading of Lealui Rural Health Centre
  
  10. **Lower primary schools**
    - (1) Natwle
    - (2) \*Makuku,
    - (3) Suulu,
    - (4) \*Lealui Secondary School
    - (5) Reinforcing the sponsors of the University Barotseland.
- \* = existing schools and clinics that need reinforcing and/or upgrading
11. **Nayuma Museum to be adopted as an International Heritage Museum**

12. **Buildings, Lealui:**
  - (a) Rest House with conference hall
  - (b) Induna's houses
  - (c) seats for the office

**Reforestation and fuel wood trees:**

- (1) Eucalyptus
- (2) *Bussea massaensis*
- (3) *Acacia monticola*
- (4) *Acacia difficilis*,
- (5) *Acacia tumida*
- (6) *Lancaena leucaephala leucar.*

**Mounds and other areas to be re-afforested and stocked with wild life.**

- (1) Sanya
- (2) Lingenda
- (3) Natuya

**Local trees to be propagated**

Matoya, Milombe (*Terocarpus angolensis*), Mungongo (*Rhicimonedron rautaneori*), Mabula, Muande, Mukusi.

signed

L. M. Simataa  
BRE Representative on the project  
for THE HONOURABLE NGAMBELA

also stamped as follows:

Republic of Zambia  
Barotse Royal Establishment  
SAA-SIIKALO COUNCIL  
16 January 1996

Lealui/Limulunga  
PO Box 910284, Mongu  
Barotseland

**Meeting with Kalabo District Natural Resources Committee  
Kalabo: 96.01.16**

**From Eric Hiscock**

Participants included the Barotse version of Inception Mission Team A and the following:

NAME	POSITION	ADDRESS
S. M. Mukelabai	District Planner	Kalabo District Planning Unit P. O. Box 930021 Kalabo
G.M. Mubita	National Parks and Wildlife Service	P. O. Box 930060 Kalabo
J. C. Mwansa	District Forestry Office	Box 93004 Kalabo
Fred Chilambe	Department of Agriculture	P. O. Box 930025 Kalabo
Julias Mbewe	District Forestry Office	P. O. Box 93004 Kalabo
Charles Muuka Ufwenuka	Senior Economist	Provincial Planning Unit P. O. Box 910021 Mongu

- Francis gave lead in with wildlife concerning reintroduction of lechwe; a good idea; dependent on revenue from hunting; but there's not much business.
- would like project to support an inventory
- aerial survey carried out in 88/89 is very biased due to seasons
- would have to be done in cooperation with Angola
- under Upper Zambezi project could deal with, e.g. lechwe and ZBWCRUP could support international aspect
- transportation is an issue as is accommodation; e.g. scouts living in mud huts
- inadequate water supply
- re health; need 1st. aid boxes for staff

- back to transport; need a tractor and trailer rather than 4 wheel drive vehicle
- result of above inadequacies is that conservation is not being served
- man-wildlife conflict is an issue; there are villages within the Liuwa National Park; poachers come from outside
- relationship with Royal Establishment; it has been left out of management of natural resources
- the Royal Establishment is very influential at the grassroots level
- the Royal Establishment would like to be on the natural resources committee; there is an Nduna who is in charge of natural resources
- methods of keeping animals away; fences, scarecrows, tin cans blowing in the wind
- people rely on subsistence poaching but there are also organised poachers
- there is also a commercial quota harvest
- no donor agency is working with wildlife
- Forestry: looks at environment, soil
- supposed to have an inventory; last one conducted in 65-66
- there's a basket industry in Kalabo but they can't be advised as to where they can get raw material
- transportation is a problem
- have gazetted forests and open woodlands
- community forests could be a demonstration project; a donor was interested but the project was phased out due to Agriculture Sector Investment Programme; may want to channel through Upper Zambezi project
- Eucalyptus spp. used
- bee keeping being pursued; originally imposed; now approaching communities

- M. Maimbolwa: under the Upper Zambezi Project there'll be a forest inventory
- re woodlots; there should be a mechanism for growing and selling firewood
- control of fire is a problem; period for burning assigned; one ground fire burning since 1993; lost 50 cattle due to ground fire
- team deals with range land, legumes, grasses, etc.
- some villages have committees to control burning; Dutch contributing to burning policy; rangeland team addresses it
- re rangeland management; does the traditional system detract?
- M. Maimbolwa: should move from subsistence to commercial system; a combination
- agriculture: move toward subsistence agriculture
- in areas where rice used to grow, with drought maize has replaced it
- emphasis on sorghum, millet, cassava
- there could be crop export to Angola if there were peace
- project should look at area NW of Kalabo
- need help on processing cassava
- conservation of fisheries: not much stock assessment
- there are bird sanctuaries controlled by Royal Establishment; National Park has crowned cranes
- ASID includes agriculture, veterinarian services and fisheries
- upon conclusion of the meeting I asked that the above described issues be described geographically on maps and they undertook to do same and provide to Michael Isimwaa

#### **From Tabeth Matiza-Chiuta**

The Kalabo District Natural Resources Committee raised the following wetland issues:

##### 1. Wildlife issues:

Liuwa National Park (366 km<sup>2</sup>)

- poor infrastructure and the low turn out of professional hunters has affected the AMADE programme introduced in the area in 1988.
- lack of inventories of the wildlife resources in the area especially Liuwa National Park. Due to the migratory nature of the animals between Liuwa and eastern Angola, Angola should be involved in the wildlife surveys.
- lack of technical capacity to successfully implement the ADMADE programme
- lack of transport and accommodation for park scouts
- poor water supply to the camps
- poor health facilities in the camps and this can be resolved by the provision of first aid kits and the training of scouts to use the kits.
- human-wildlife conflicts are widespread in the park, mainly caused by outsiders.
- strained relationship between the Royal Establishment and the GRZ is affecting development in the wildlife sector in the district.

The Kalabo wildlife department is financed by the government of Zambia and have not received a lot of donor support.

##### 2. Forestry

The Kalabo forestry department depend on government support for its projects. The following were identified as major issues affecting forest management in Kalabo.

- there is an urgent need for a forestry inventory to establish the species and determine offtakes from the forests. The last inventory was carried out in 1996.
- transport problems have affected the efforts by the forestry department to establish community woodlots although the community response was very good.

- problems of bush fires. The Nyengo Plain has been affected by an underground fire that has been burning since 1993. Fifteen cattle have since been lost due to the fire. The burning is also affecting a lot of grass species.

A number of initiatives have been established to tackle some of the problems faced by the forestry sector. A community woodlot has been established to cater for the firewood problems. This project has been affected by transport problems. The Dutch funds that were earmarked for the project have been phased out due to the introduction of the Agricultural Sector Investment Programme. The Dutch funded Rangelands Programme is addressing the problem of fires through the Burning Policy Programme.

### 3. Agriculture

The focus of the agriculture department is on encouraging communities to grow sorghum, millet, cassava and rice. However, on the ground the communities are replacing rice with maize and cassava is now planted on the maize areas.

Rice potential in the district is high, especially along the Luanginga valley. Despite this high potential, marketing problems constrain farmers from growing rice in large amounts.

There is also a very high fruit harvest from the Luanginga but much of fruits not used due to lack of processing facilities.

In view of the large quantities of cassava produced by the district, cassava processing techniques are required. Attempts to learn from the Nigerian case studies have been fruitless due to financial problems.

### From Francis X. Mkanda

#### Introduction

The meetings that have been held so far reveal that the issues are the same and most often repeated at each meeting. Therefore, I was forced to concentrate more on wildlife and wildlife-based tourism issues.

1. Although it was observed that reintroduction of decimated species was feasible, the pressing issues were as follows:

- Wildlife population census in Liuwa National Park and the adjoining Game Management Areas. The last done in the early 1970's. Hence the population trend of all species is unknown.
- Both subsistence and commercial poaching have escalated as a result of an influx of automatic weapons from Angola.

- Park infrastructure, e.g. schools, houses, water supplies and clinics, are non-existent or dilapidated resulting in poor morale and law enforcement effectiveness.

- There is no reliable transport in the Liuwa National Park

- Although there is good relationship between the government employees and the Royal Establishment, the latter feel left out in natural resource management issues. Particular note should be made here that the Liuwa NP is considered as the Royal Park.

### 2. Tourism

The tourism potential is not realised mainly because of poor transportation and roads in the whole Barotse Plain.

#### Recommendations

##### Wildlife

Considering the importance of Liuwa NP and the adjacent Game Management Areas as part of the Barotse Plain catchment, its continued existence is vital. To properly manage the park, there is a need for a management plan. The project should therefore use its influence on the following issues

- population censuses
- rehabilitation and development of park infrastructure including transportation
- improved law enforcement effectiveness to avoid depletion of wildlife species.

Breakdown of IKS and traditional resource management methods has been identified as a high priority site specific issue. This is true for the feelings of the Royal Establishment on natural resources management. The ZBWCRUP could therefore address this issue by fostering a partnership between the GRZ and the Royal Establishment in managing wildlife resources.

##### Tourism

The recommendations in the preceding section will be useful in wildlife-based tourism development. Lack of wildlife population estimates, compounded by poaching pressure, renders the Liuwa NP valueless in terms of tourism. Poor road access means the tourism potential would decline further. This mission recognises that under-utilisation of tourism potential is a high priority national and site specific issue which the project could influence at the national level but address it locally. Therefore, the project should play a role in these issues.



### Meeting With Livestock Development Project Mongu: 96.01.17

M. Maimbolwa, Tabeth, Francis and Eric met with the following:

M. I. Mwangelwa	Senior Tsetse Research Biologist	LDP II Mongu
A. K. Kamuhiza	Provincial Natural Resources Officer	Mongu
Jacob Ottens	Rangeland Management Officer	LDP II Mongu
D. Dietvorst	Coordinator, Socio-economic Analysis Team	LDPII Mongu
Fabian Muneku	Sociologist	LDP II Mongu

#### From Eric Hiscock

- before meeting began: engaged in development of extension material; e.g. \$5,000 US required to print; turned out to be fire control depictions shown by Peter Frost; will be printed in English and Lozi; M. Maimbolwa seemed to indicate that IUCN would cover it.
- Tsetse Control Team; Rangeland Management Team; Disease Control Team; a project made up of teams
- in the process of changing so that teams no longer exist
- Rangeland Management Team did most of the activities concerning resources
- not many activities in Barotse Flood Plain
- carrying capacity of flood plain is determined by carrying capacity of adjacent uplands which are quite poor
- did some vegetation monitoring
- forest legume programme legumes are harvested and stored
- there's not much increase in value of livestock with increase in quality
- SEET? focusing on constraints re livestock production
- farmers identify disease as bigger problem than feed
- there is a lot of potential cattle marketing; transport; area is a quarantine area and can't market cattle for breeding outside the province
- Southern Province cattle are of better quality but generally we could market more

- looking to capitalise: two important developments; 1. dry years have led to more reliance on cattle as a source of income; 2. economic changes to pay for services means more and more people are required to pay in cash
- these two lead, hopefully, to recognition of optimal market opportunities
- Barotse breed is hardy
- very little predation by wild animals
- some investigation into traditional methods of disease control; not much came out of it; traditional medicines are charged for
- tsetse fly programme
- fire management programme aimed at control of fire; acknowledged as a problem by all residents
- fire managed better in the past
- fire management plans would be an important first step in resource management in general; involves all sectors and Royal Establishment; bring sectors together
- fish getting smaller and smaller; a very important food
- infrastructure; health and schools
- roads a problem for marketing
- contribution of IUCN important: training courses re fire management need funds.
- tsetse control confined to Senanga West; started in 1986; aerial spray; bush clearing; didn't stop advance of flies from south to north.
- tsetse from south linking with Kafue National Park
- contractors trained and provided own workers to plant screens and targets.
- feasibility study centred in Harare; multinational; just released

## **From Tabeth Matiza-Chluta**

### **Issues raised**

- Lack of communication between sectors, between GRZ and the Royal Establishment
- The need to establish the long term effects of fire on wetland ecosystems
- Over-exploitation of fishery resources leading to the depletion of fish stocks
- Infrastructure and veterinary services constraints affecting the marketing of cattle despite the improvement of marketing facilities around the Bulozhi Plain

The Rangeland Management Project funded by the Dutch is addressing the following issues:

- Pasture improvement through a legume promotion and vegetation monitoring programme
- Fire management programme to encourage better control of fire. Fire management can be used as a coordinating tool for the various sectors.

## **From Francis X. Mkanda**

This meeting came up with five issues as follows:

### **1. Ecological**

The range condition on the plain is poor hence the livestock carrying capacity is determined by the uplands during the times of high flooding. This situation is worsened by the hot fires people set during the dry season.

### **2. Administration**

It was learned that there is poor communication and relationship among the different government departments dealing with natural resources management on the plain.

### **3. Fisheries**

Although there are fish stock assessment data, there is no analysis to present any status of the fish stocks. However, there is wide speculation that fish size is declining.

### **4. Agricultural**

The agricultural issues mainly concern livestock diseases and low supply of veterinary medicines. It is feared that the situation might get worse because the supply of drugs is undergoing privatisation while the private sector is underdeveloped.

### **5. Infrastructure**

The poor road set up renders certain areas inaccessible during the rainy seasons. This inhibits delivery of essential veterinary services. Worse still, the livestock market is poorly developed such that farmers are forced to sell their cattle at low prices during the dry season, when the range-land carrying capacity is low, leading to mortality and necessitated off-take.

### **Recommendations**

#### **1. Ecological**

To enhance rangeland carrying capacity, there is a need to investigate the possibility of stall feeding of cattle during the dry season using hay made from the plain fodder. A pilot project could be set to this effect.

The GRZ, in conjunction with the Dutch Livestock Development Project, has drafted an extension handbook on the causes, dangers, and management of fire. There is, however, lack of funding to publish this manual. The ZBWCRUP could assist in soliciting funding to publish the manual to promote awareness. Additionally, the project could influence formulation of a fire policy and revision of legislation on fire.

#### **2. Administration**

Lack of an integrated approach to wetlands conservation has been recognised as a priority issue at regional, national, and site level. The ZBWCRUP could therefore address this issue by promoting an integrated approach to resolve the poor communication and relationship among the various government departments.

#### **3. Fisheries**

To disprove or prove the speculation about the diminishing fish size, the ZBWCRUP should influence the analysis of the fish stock assessment data so as to obtain a clear picture of the trend of fish sizes before any intervention could be made.

#### **4. Agricultural**

The issue of livestock diseases, poor supply of drugs, and undeveloped cattle markets deserves special attention. It is therefore, recommended that a study should be undertaken to come up with specific recommendations. The ZBWCRUP could, in this respect, respond by initiating such a study as livestock are a major component of wetlands resource use and conservation.

#### **5. Infrastructure**

This issue keeps surfacing, and pertinent recommendations have been made elsewhere. This section, therefore, merely emphasises the importance of earlier recommendations. Lack of infrastructure is a high priority site specific issue that the ZBWCRUP could address not only with regard to livestock development, but holistically.

**Meeting with Daniel Ball, Director, Zambezi Wetlands Development Agency, Mongu: 96.01.17**

**From Eric Hiscock**

- Daniel looked for clarification of linkage and distinction between the Upper Zambezi Wetlands Project and ZBWCRUP
- ZWEDA is a private sector NGO; he is primary stakeholder
- 4 employees now and have had up to 20
- river transportation; more difficult with drier years
- Dutch found that hydrology and ecology do not permit effective dredging
- much time taken up in travelling; therefore flood plain vastly under-utilised; have spent \$50,000US to position himself to address this; bought a boat and it is too deep a draft
- Zambezi River is fast moving; at Kalabo the Luanginga is slow
- land use and natural resource management; soil fertility, productivity, erosion control
- currently training 30 people in erosion control; Dutch funded
- smaller projects, e.g. indigenous remedies, cultural collection of Makisi masks (dancers); 3 or 4 museum projects
- two areas considered serious
  1. river transportation; looking at hovercraft on trial basis; a high risk endeavour
  2. basin wide issue of degradation due to human habitation; environmental degradation taking place due to modernisation.
- formerly a symbiotic relationship; subsistence skills no longer adequate and need to be upgraded
- environmental degradation initiates poverty > vicious cycle
- a resource deficient province; should not expect people to become highly productive in next 50 years

- Eric: why has no donor contribution been sought for comprehensive transportation programme?
- Mubita: this project can be the stimulus for recognition of wetlands as viable communities deserving a transportation system
- Daniel; soil fertility reduced in some areas because of less flooding and over cropping; less manure being added
- project needs a strong communications component
- demonstration projects: fodder bank; private woodlots
- Dutch spent much on dredging but nothing came of it

**From Tabeth Matiza-Chluta**

**Note:** I also attended part of this meeting and the following is what I captured from the meeting.

ZWEDA is a private sector NGO and is an important stakeholder in the development of Western Province

The organisation's focus is on river transport but in recent years the decrease in flood levels is affecting the operation of ZWEDA.

The Dutch had previously put \$20 million into the dredging of the canals. The project was stopped and this affected the marketing of resources resulting in the under-utilisation of the flood plain.

There are three different types of water bodies on the plain, i.e. canals with stagnant water, the Zambezi River with its fast flowing water and the Luanginga with slow moving water. There is need for a boat that can deal with this diversity of water bodies.

ZWEDA is also involved in the training of District Development Support Programme staff, a programme funded by the Dutch to address land use/natural resources management with a focus on soil fertility and erosion problems.

ZWEDA is also involved in the cataloguing of indigenous remedies, makisi (male initiation ceremonies), deforestation and land degradation in and around Limulunga. The priorities for the organisation are:

- river transport
- degradation problems due to human habitation and modernisation.

## From Francis X. Mkanda

### Issues

The meeting with Mr. Daniel Ball, the Director of ZWEDA (Zambezi Wetlands Development Agency) was more of a briefing session both ways. The team briefed Mr. Ball on the objectives and scope of ZBWCRUP while in turn Mr. Ball briefed the team on the activities of ZWEDA.

By way of issues, Mr. Ball confirmed that transportation was a problem in the area, and that the boat that ZWEDA had bought to alleviate problems was found to be unsuitable. Mr. Ball warned that transportation was a risky business within the Barotse Plain because of poor roads and canal maintenance.

The second issue was degradation of the environment as a result of modernisation. Mr. Ball further said that he had a project proposal that he wanted the ZBWCRUP to consider for funding. The proposal was thus submitted to the team.

### Recommendations

#### (i) Transportation

This is indeed a serious issue on the plain and recommendations have been made in the earlier reports on other meetings held within the area. This report therefore is not making any different recommendations.

#### (ii) Degradation of the environment

The mission has recognised that a breakdown of IKS and management systems is a local high priority issue. Therefore, the ZBWCRUP should address the problem by trying to amend the traditional subsistence skills.

### Meeting With Senanga District Natural Resources Committee Senanga, Zambia: 96.01.17

After meeting briefly with the District Council Secretary, the Barotse version of Team A met with:

Mwenda M. Mumbwa	District Planner	District Planning Unit
Mathew Zambara	Livestock	Veterinary
Muyanaga Muwandamena	District Agriculture Officer /Animal Production Officer	Agriculture
Ernest Pitiri	Natural Resources Officer	Natural Resources
Simbotwe Mwiya	Provincial Wildlife Biologist	National Parks & Wildlife
Davis C. Mumba	Council Secretary	Senanga

## From Eric Hiscock

- question as to how the two wetlands projects relate
- wildlife: inventory; information missing; want review through ground and aerial surveys; requested support
- land based animals, crocodiles and hippos to be surveyed; want financial support
- difficult to make a management plan without inventory
- M. Maimbolwa: is translocation necessary?
- Mashi National Park; Laulau? National Park has second largest wildebeest population in Africa
- need to inventory birds
- poaching is serious; to stop it need to involve communities
- different traditional system; proposal for provincial workshop re community based wildlife management
- water ponds, water holes; looked at highly mechanizing to construct water ponds, but rains came.
- Francis: do they have habitat maps, etc. required for wildlife management planning? No
- Forestry and Natural Resources: forestry; management of national plantations; licensing for exploitation; erosion
- District quite rich in timber and other forest products
- forest inventories date back to 1950's and 1960's
- inventory pilot project; involvement of local communities; more technical methods sought; supported by the Dutch
- fire is seen to be the most significant factor in forest deterioration; five areas where fire management could be done; not started yet

- approach is to let communities propose actions; asked to come up with units based on villages
- reforestation programmes supported by nurseries; financed by the Dutch; funding ended in December 1995
- have aerial photos at 1: 100,000; look at remote sensing & GIS potential
- Agriculture: flood plain is most productive; sorghum, maize, rice, etc.
- immigrants are given uplands to farm
- water table high in Senanga West due to pitched aquifer
- 7 bags maize per ha; 90kg per bag
- in response to question re irrigation: it would be a good thing
- no loans given to farmers
- no pesticides or commercial fertiliser applied
- livestock: Veterinary Department has been very involved in disease control.
- early 1980's Dutch Livestock Development Project; to improve production in Western Province
- diseases include contagious bovine pleuro pneumonia, anthrax and black quinta
- in ASID document it is suggested that these services be contracted; some done on tsetse fly
- re community participation: train community livestock workers; currently 11 in Senanga and plan to go to 20; targets being used for clothing
- main problem is increasing anthrax
- need to tackle problem of water resources, sources of water; effect of canals on drainage etc.
- canals blocked; sought our support
- can strengthen coordination links; have to link with Royal Establishment.

- there is a District Development Coordinating Committee; we should inform them through District Planning Unit
- Sioma-Ngwezi National Park is not purely wetlands but animals migrate onto plain

**From Tabeth Matiza-Chluta**

**Objective of the Meeting**

- i) To brief the Council and the Natural Resources Committee about the ZBWCRUP
- ii) To establish wetland issues and priorities as perceived by the Natural Resources Committee of Senanga

**1. Wildlife Department/Sector**

The wildlife sector identified the following issues:

- The urgent need for an inventory of wildlife in the National Parks and Game Management Areas, e.g.
  - inventory on crocodiles and hippos
  - establish the status quo of the habitat to enable the re-introduction of species like sitatunga
  - ecological base-line data on the wildlife resources
  - financial constraints and lack of infrastructure is hampering the efforts of the sector to establish sound management systems.

**2. Natural resources and forestry sectors**

Through the financial support from the Dutch, a forestry inventory of the Liangate area has been carried out.

The sectors are also involved in an afforestation programme funded by the Dutch and aerial photography of the whole district has been purchased.

**3. Agriculture**

In the whole of Western Province, good soils and pastures are found in the wetland areas where maize, sorghum and rice are grown. Localised draining is practised in some parts of the district. There is no large scale irrigation and the use of fertiliser and pesticides on the plain is very limited.

**4. Livestock Unit Veterinary Department**

The activities of the Livestock Unit are funded by the Dutch through the Livestock Development Programme whose main aim is to improve the livestock production in

Western Province. In the coming phases of this programme, services are to be contracted to the private sector and community participation is heavily emphasised.

**From Francis X. Mkanda:**

**Issues**

The issues that I captured could be categorised as mainly administrative and wildlife. It had become obvious by this time that the same issues surfaced at every meeting, hence decided to emphasise the above - mentioned two issues only.

**1. Administrative**

Like at any other meeting the committee wanted to know the relationship between the Upper Zambezi Basin and ZBWCRUP.

**2. Wildlife**

The wildlife issues were as follows:

- (i) lack of base-line data on animal populations and their habitats
- (ii) extirpation of wildlife species in the Sioma - Ngwezi National Park due to poaching
- (iii) shortage of water for both animals and people in Sioma - Ngwezi NP

**Recommendations**

(i) I only wish to reemphasise the need for clear information on the similarities and differences between the Upper Zambezi and ZBWCRUP. The two projects could jointly prepare clear notes for circulation to IUCN members and partners, particularly in Zambia.

**(ii) Wildlife**

There seems a dire need for development of a management plan for the Sioma - Ngwezi NP. The mission has categorised biodiversity issues as important. There seems to be an opportunity for the ZBWCRUP to influence the European Union who are funding a Tsetse Fly Control Project in Sioma - Ngwezi. To ward off pressure for alternative use of the park, there is a need to develop a plan for it. The plan could include:

- (i) collection of base-line data
- (ii) reintroduction of extirpated species
- (iii) strengthen law enforcement capabilities to avoid further decimation of reintroduced species
- (iii) provision of artificial water supplies

**Meeting With Leo van den Brand, Land and Water Management Project Hydrologist and Chiyala Kane, Agricultural Specialist (Irrigation) 96.01.17**

**From Eric Hiscock**

- Questioned relationship with the Dutch Upper Zambezi Project
- Thinks project valuable
- Leo: Canadian Government has financed a hydrological assessment of the upper catchment.
- Land and water management project; see handout
- using satellite imagery; project oriented toward wetlands use for agriculture
- if one only consults the Royal Establishment there's a risk of tribal bias
- Japanese had plans for e.g. double cropping of rice
- along the plain edge soils are particularly rich; peat development
- see Peters, 1948, A Land Usage in Barotselands
- termite mounds; same peat situation in dambos
- there's very little clay in the flood plain
- canals were dug along plain edge to drain peat; last thing Leo would advocate in edge area is digging canal; canal digging along the plain edge, for draining peat, is a useless activity
- transport canals are not that bad
- see publications; also working on model for dambos
- have had GIS consultant; physical and livelihood data; primary health care; PPU looking at ATLAS GIS

**From Tabeth Matiza-Chiuta**  
**Objectives of the meeting**

- i) To establish contact with the Dutch funded L&WMP staff
- ii) To brief the L&WMP staff about the ZBWCRUP
- iii) Establish issues and priorities as perceived by the L&WMP staff

The team was briefed on the L&WMP and the following is a summary of the brief:

- LWMP is a Dutch funded project that is implemented by the Dutch government. Its objective is to assess wetland areas for agricultural production. Fertile soils are limited on the plain and the only fertile soils are found on the plain.
- The project has developed a rainfall runoff model for the Lui Valley and is monitoring water levels on the flood plain
- The canals draining the peat areas were identified as a problem causing degradation on the plain

**Note:** I did not capture the rest of the issues discussed since I had to leave to attend to some other issues

**From Francis X. Mkanda**  
**Issues**

The meeting with Messrs Leo van den Brand, a hydrologist, and Kane Chiyala ( an Agricultural Specialist) did not bring up much by way of new issues. As usual, the question of relationship between ZBWCRUP and the Upper Zambezi Basin surfaced.

The second issue was on the construction of small canals by farmers to drain peat which oxidises and reduces soil fertility.

**Recommendations**

1. See previous recommendations on the relationship between the Upper Zambezi and ZBWCRUP.
2. The question of soil fertility loss due to canal construction by farmers could be addressed through Agricultural Dept to include message on the role of peat deposits in improving/maintaining soil fertility. This message could be part of the extension package.

**Meeting With Mr. V. Simana, Department of Water Affairs -  
Research, Ministry of Agriculture, Water & Rural Development**

**From Tabeth Matiza-Chiuta**

- The Water Affairs Research Department is carrying out research on *Salvinia molesta*, Kariba weed, in the Eastern Caprivi wetlands.
- The unit is also involved in the ZACPRO 6 Project - ZACBASE monitoring water levels on the Zambezi River and associated wetlands. There are two water gauges at Katima Mulilo and Mupalila Island and another gauge at Ngoma and the Chobe - Linyanti River.
- Problems of station accessibility are encountered by the department.
- Lack of communication with the neighbouring states is also a major hindrance.

**Note:** The mission to Windhoek should make an effort to meet Mr. Peter Hynes, Director of Water

We received very little information from Mr. Simana since he is only a technician whose job is to take records for the stations.

**From Francis X. Mkanda**  
**Issues**

The team visited the Water Affairs (Research) Department and held a meeting with Mr. Victor Simana who is the Senior Technician. The only issue that surfaced was blockage of rivers by the Kariba weed (*Salvinia* spp). The result is low flow rates.

The Research Section of the Water Affairs Department is undertaking biological control of the weed with successful results. The only snag is that the other countries have apparently made little effort to control the weed.

**Recommendation**

Water supply has been identified as a regional and national issue of high priority in which the ZBWCRUP could have some influence. The first step would be to influence the Zambian and Angolan Governments to sign the SADC Shared Water Courses Protocol. By doing so the countries would have obligations (legal and moral) to control the weed. The alternative step could be through the Zambezi River Authority which will be managing the ZACPRO 6 project. The ZBWCRUP could explore what authority the ZRA has over riparian states. If there is any, then the ZRA could use that authority to make riparian states conduct biological control of the weed.

**Meeting with Mr. L. W. Sitwala, Department of Agriculture, Ministry of Agriculture, Water & Rural Development. 96.01.19**

**From Tabeth Matiza-Chiuta**

Mr. Sitwala was briefed on the ZBWCRUP and the objective of the mission. The following are the issues he raised with regards to the Caprivi wetlands.

- About 80% of the communities in Eastern Caprivi survive on wetland cultivation although fish contribute considerably to their diet.
- There is a need for base-line information if the agriculture of the area is to improve.
- The department has limitations in human resources to carry out extension work. Training is urgently required.
- Their department is currently running a "Learning Groups Projects" whose focus is on extension for crop production.
- The Japanese are supporting a rice growing project at Kasaya in East Caprivi. The rice potential in the area is very high. The First National Development Cooperating was also involved in a rice project at Kalambezi. This has since folded up.
- Maize and sorghum are the main crops and maize occupies 90% of the cropped area. The use of fertiliser is very limited.
- 65% of the livestock in the Caprivi region found in the wetland areas and during the dry season there is overgrazing on the wetlands.
- Crop/wildlife conflicts exist in the area, especially at Kalambezi, Kabe, Schuckumansburg and Chobe, hippos are a major problem.
- Locusts and army worm are a problem in the area.
- Lack of technical capacity is a major constraint in the department. Technical support on rice technologies is most welcome.

Mr. Sitwala suggested that, when the teams are in place, it is important for the programme to inform and consult the Kunta through the regional governor. Mr. J. N. Mabuku is the Regional Governor and the two chiefs, Mamili and Moroliswane.

**From Francis X. Mkanda**

At this meeting the team consulted with Mr. Sitwala, who is the Senior Technician at the Dept of Agriculture in Katima Mulilo. Four issues were raised by Mr. Sitwala, i.e., administrative, wildlife, fisheries, and agricultural. These issues are described below.

**Issues**

**(i) Administrative**

Mr. Sitwala strongly advised the team that the best approach to introducing the ZBWCRUP in the area would be through the Regional Governor, Mr. J. Mabuku who would in turn inform the two traditional chiefs in the area.

**(ii) Wildlife**

The wildlife-human conflict was also featured during the meeting and in the Kalimbeza and Kasaya villages particularly. The damage is, however, seasonal as the hippos move down to the Zambezi as the water level recedes in the Chobe River.

**(iii) Fisheries**

Mr. Sitwala informed the team that the fishing technology in the area is poor because the people use spears and small mesh size nets.

**(iv) Agricultural**

It was learned that 65% of the livestock population around and within Katima Mulilo are on the flood plain resulting in heavy grazing pressure as the plain does not flood as much to stimulate grass growth. At a different note, Mr. Sitwala reported that rice production in the area is low, therefore, insufficient.

**Recommendations**

**(i) Administrative**

The teams tight schedule did not allow for consultations with the Regional Governor and Traditional Chiefs. Therefore, it is strongly recommended that the field team responsible for the Caprivi Strip should first meet with these leaders to introduce the programme before initiating any field activity.

**(ii) Wildlife**

Please see the earlier recommendation regarding human-wildlife conflicts.

**(iii) Fisheries**

There is a move by the Namibian Government to establish a Fisheries Unit in Katima Mulilo as part of the Ministry of Marine Resources. This report wishes to urge ZBWCRUP to influence the Namibian Govt to establish the Fisheries Unit at the earliest convenient moment so that it can regulate fishing gear in use.



(iv) Agricultural

The question of overstocking on the flood plain is a difficult one to handle. The plausible solution would be to increase livestock offtake so as to reduce pressure on the plain. The farmers, however, complain of low cattle prices. The best that the ZBWCRUP could do would be to initiate a study that would look at this issue in details and come up with practical recommendations.

There seems to be lack of expertise in rice production around the area. In conjunction with rice agronomists, the project should address the issue by setting up demonstration plots.

**Meeting in Nasisangani Village, Namibia With Cletius S. Maketo  
Information and Communications Officer: Nature Conservation,  
Namibia Ministry of Environment and Tourism and Ndunas  
96.01.21**

**From Eric Hiscock**

- are we going to employ Namibians?
- have combined junior-secondary school; need hostel; can we fund?
- referred to entrepreneur moving into area and employing mainly outsiders; locals getting short term jobs only
- owner of tented camp pulling out their nets
- use of wetlands: maize when area not flooded; cattle grazing also
- are they making full use?
- fishing: outsiders using 2 inch mesh
- problems on flood plain: no water; grass not good for cattle
- I asked if such drought was ever experienced before and the reply was No; cause unknown
- prepared to plough but don't have equipment; people need loans for tractors
- wildlife: currently no animals or fish; wanted them to be re-established but did not want to take responsibility for protection: reebok, red lechwe, zebra, wildebeest

- using canoes; being stolen by Zambians
- I asked whether any species of fish had disappeared completely and the answer was that one type of bream has.
- most species are still there but they are over fished
- no breeding place because of no flood
- using small mesh nets that take all fish and eggs; problem with outsiders; campers fishing at night with lights
- women: papyrus disappearing because of fire; no control; control is under Forestry Section; drought again noted re fire spread

**Note:** At Kalimbeza village later in the day we had a more general discussion. There were complaints about intruders, fire, cattle prices and water. In the afternoon we drove to Lake Liambezi and observed maize being cultivated on the lake bed. An underground fire is smouldering and last year five people were killed after falling into burning areas.

**From Francis X. Mkanda  
Issues**

Wide ranging issues were raised during the meeting with Induna Daniel Milinga Sikwana and his subjects. These issues can broadly be categorised as: Fisheries, Tourism, Agriculture, Ecological, Climate and Hydrological. The issues are described briefly below:

(i) Fisheries

The relevant issues were: over-fishing as a result of using small mesh sizes, loss of breeding ground due to lack of floods, use of unconventional methods by migratory fisherfolk, e.g., spearing, and scoop netting with the aid of tilley lamps, canoe theft by Zambians.

(ii) Tourism

There is apparently an influx of lodge owners along the Chobe River. The result is that the traditional rights of way to the river are lost. Furthermore, it is alleged that the lodge owners pull local fisherfolk's nets out of the river. Worse still, the lodge owners do not employ the locals. They bring their own labour force.

(iii) Agricultural

It was learned that people lack technology to cultivate on the flood plain.

(iv) Ecological

There is a shortage of grass on the flood plain due to lack of floods. This situation is aggravated by wild fires. The fires also destroy papyrus reeds that are used for mat-making.

(v) Climate

The people expressed concern about drought. The drought creates suitable conditions for wild fires that sweep across large areas.

(iv) Hydrological

With the receding of the flood plains, the water table has receded correspondingly. This has led to acute shortage of water supply. The only sources are either boreholes or wells that are also over used. Besides the quantity, poor water quality is also an issue.

**Recommendations**

(i) Fisheries

Please see earlier recommendation on this issue.

(ii) Tourism

This is a clear case of lack of skills for conflict resolution at a local level. The mission had earlier on identified this as an issue that the ZBWCRUP could address. It is therefore recommended that the project plays a role in this area.

(iii) Agricultural

Lack of technology to cultivate on the flood plain is an artifact of limited capacity, an issue that the ZBWCRUP could address as the mission identified it to be a high priority issue. It has been earlier recommended that a rice agronomist be used to conduct demonstration projects. A similar approach could be used to address the question of technology.

(iv) Ecological

A recommendation has already been made to address the issue of low carrying capacity of the flood plain. The recommendation applies in this case. The issue of wild fires could be addressed through education programmes like the one being formulated for the Barotse Plain. The other approach is to facilitate visits to the Chobe Enclave Village where fires are rare because the community does not set bush fires. Yet another approach could be to set up fire control/ management pilot projects where communities would be encouraged to construct and maintain firebreaks.

(v) Climate

Drought has been identified as a high priority issue at a local level. It has been thus suggested that the ZBWCRUP could influence such issues. This report upholds such a suggestion.

(vi) Hydrological

The issue of poor water quality has health implications and it is recognised as being a site specific high priority issue. It was suggested that the ZBWCRUP could address this issue. This report agrees with such a suggestion.

**Meeting With Chobe Wildlife Trust  
Kasane: Botswana: 96.01.22**

**From Eric Hiscock**

Participants were F. ., E. H., T.M.C. along with Trust members Pat Carr-Hartley and Heidi Allmendinger.

- difficulty with East Caprivi; no conservation; no respect for wildlife; (fire; burning for green grass) undersized gill nets;
- should be made into Conservation Area; activities continue but also conservation oriented; multi-use
- in West Caprivi Conservation Area there are tribal game guards.
- chief instigates court cases
- three conservation trusts in the enclave
- Conservation Trust assigned quotas
- thinks that animals will re-establish themselves if not harassed; large animals cross the river
- game is attracted to lodge areas where they are protected
- reason people do not spend money in East Caprivi is difficulty getting things down from Katima Mulilo
- referred to Danish person making (organising) baskets & when she left it collapsed.

- discussed yesterdays discussions re fire and employment
- dam at Ngoma: if water could be retained fishing could occur on both sides; enclave people would benefit greatly
- water blockage: have asked authorities to open up
- connection between Okavango & Chobe now dry; Selinda Spillway
- rainfall in area down from approx. 700mm. per annum to approx. 500mm. or so
- this year the Chobe River was at its lowest in 25 years
- Heidi: two little islands being destroyed; people grazing a cow there; hut constructed; trees cut; she takes bird watchers through
- at Kasane there is no more capacity for tourism; but there is in the enclave
- Eric: what can our project do?; monitoring of water system re effects
- Heidi: is Namibia damming Okavango? Not to our knowledge
- Eric: what about demonstration projects?; difficult to help East Caprivi because of border situation
- Bird watching is fantastic; 432 species identified in the area and there could be 480 in total

**From Tabeth Matiza-Chiuta**

**Objective**

The Chobe Wildlife Trust is a member of IUCN and the objective of meeting the trust was to brief the Trust about the ZBWCRUP and establish what wetland issues affect the wetlands of Botswana.

**Issues raised**

1. The Trust presented a proposal to the team. The objective of the proposed project is to create a Transboundary Wildlife Sanctuary.
2. A lot of the issues raised are concerned with natural resource utilisation in the Eastern Caprivi wetlands and these include:

- (i) Need to encourage the people in the Caprivi to conserve natural resources.
  - (ii) Need to educate the communities to conserve wetlands as wildlife habitats
  - (iii) Bush fires in the East Caprivi Wetlands are destroying bird habitats, e.g., the two islands on the confluence of the Chobe and Zambezi (in East Caprivi) are the breeding site for crocodiles and the vegetation provides roosting areas for pigmy geese. The two islands are continuously burned and deforested by the communities.
3. Water supply in the Chobe Enclave is a problem. There are suggestions that a water retention dam be built at the Ngoma bridge to store water.
  4. To sustain the tourism potential in the area, a portion of the tourism profits should be shared with the communities and reinvested in income generating activities such as crafts, etc.
  5. There is also a need for monitoring the water levels in the wetland areas.

**From Francis X. Mkanda**

**Issues**

In Kasane the team met with Mr. Pat Carr-Hartley and Ms. Heide Allmendinger who are members of the Trust. Not much came up by way of issues and one got the impression that the Trust was trying to sell its project proposal for a Southern African Wildlife Sanctuary in the wetlands associated with the source of the Zambezi system. The proposal emanates from the fact that the proposed geographical sites are major wetlands with high biodiversity. Poaching, over-fishing, and wild fires are critical issues. By setting up a conservation area, managed by the communities, the biodiversity and integrity of ecosystems could be conserved.

**Recommendations**

The issue of ecosystem diversity is of medium priority, according to the mission, unfortunately. The mission further recognises that the issue could be responded to regionally. Therefore, it is recommended that the ZBWCRUP should respond by providing information on possible sources of funds for the proposed project.

**Meeting With District Land Use Planning Unit Kasane: 96.01.23**

Tabeth, Francis and Eric met with:

NAME	ORGANISATION	TITLE
O. C. Selolwane	Chobe Land Board	Technical Officer (Lands)
E. G. Mbanga	District Administration	District Officer (Development)
T. L. Tihakanelo	Animal Health & Production	Principal Technical Officer
A. U. Lumbile	Senior Forestry Officer	(S.F.O.)
A. N. G. Tema	Forestry Officer	District Forestry Officer
N. D. Kefhiwe	District Administration	District Officer - Development
M. Khachana	Tourism	District Tourism Officer
P. Seisa	Water Affairs (Hydrology)	Technical Officer
A. B. Modo	Wildlife	Principal Game Warden
A. T. Mathumo	Wildlife	Game Warden

**From Eric Hiscock**

- the Unit deals with interdisciplinary land use planning
- not clear understanding of what a wetland is
- in enclave soils are good for farming
- lots of wildlife in same area e.g. elephants pass through
- also lots of tourism
- there is a wildlife quota for residents of the five villages; this has resulted in shift of attitude toward ownership
- Chobe River is important for farming and tourism
- government intends to have area residents benefit from tourism
- buffalo is major species (plus 4 others)
- tourism has been over-dependent on wildlife; cultural aspect under-utilised; people need skills
- grazing issue: current legislation does not allow grazing in Forest Reserves
- in future Forest Reserves will allow grazing but not settlement; grazing will reduce fire hazard; fires spread to flood plain

- Tabeth: re yesterdays point about basket weaving etc.
- project thought to be important and capable of surviving; did not consult properly locally; looking at profit making; could be revived; a German being recruited
  - for more information contact Integrated Field Services
  - there is a self help organisation in effect
- from vet: border problem; core grazing with Namibia; no barrier to stop crossings
- from wildlife point of view there is a problem; many livestock from Namibia disturbing Botswana wildlife
- law says domestic animals entering a National Park can be shot; not being implemented

**From Tabeth Matiza-Chiuta**

**Objective**

To brief the government officials about the ZBWCRUP and solicit ideas on what wetland issues affect the Chobe wetlands.

**Points Raised**

1. Competition for land between agriculture and wildlife in the Chobe enclave
2. A project to give the communities a quota to manage their own resources has been initiated in the enclave. This has resulted in a shift in attitudes towards wildlife.
3. The Chobe area is a very important ecosystem for Botswana. It provides water, wildlife, agriculture and tourism. The wetlands of the district are intensively used for wildlife-based tourism. There is therefore a need to diversify the tourism base to utilise the cultural aspects of the area.
4. Lack of capacity, especially technical skills, was identified as a major problem among the communities.
5. Conflicts between the wildlife and the communities. The community has also very limited grazing area and a project to allow the communities to graze their animals in the forest reserves has been initiated. Core grazing has also been established.

\* The brief meeting we had with a Councillor in Kachikau established the following issues:

- Lack of flooding has affected the life of the Chobe enclave people.
- Cattle loss due to crossings into Namibia
- Intensive cultivation of dried up wetlands has attracted a lot of wildlife in the area, leading to the destruction of crops. The community is contemplating the fencing of the fields but due to their scattered nature this is impossible.

**From Francis X. Mkanda  
Issues**

Three main issues came out distinctly at the meeting with the DLUPU. These are land use conflicts, tourism, and wildlife related.

**(i) Land Use Conflicts**

Molapo (flood plain) farming competes with livestock and wildlife grazing. Live-stock grazing in protected areas such as forest reserves and Chobe National Park.

**(ii) Tourism**

There is a high influx of tourists in the dry season. This has led to intensive lodge construction along the Chobe River. It is also feared that the tourism is over-depend-ent on wildlife at the expense of other kinds. Finally, lack of community skills in tourism is also an issue of concern.

**(iii) Wildlife**

Human-wildlife conflicts are an issue in the area. In fact on a field visit to Chobe enclave, the team learned that lions had killed cattle and hyenas were also harassing cattle at Kachikau.

**Recommendations**

**(i) Land Use Conflicts**

The ZBWCRUP should address this issue by providing skills for conflict resolution.

**(ii) Tourism**

The question of over-dependence on wildlife could be addressed through diversifica-tion. Ecotourism focused on cultural aspects is a means of diversification. Since the people seem to be unaware of diversification, the ZBWCRUP could address the issue through education and capacity building.

**(iii) Wildlife**

Please refer to the earlier recommendations on wildlife-human conflict resolution.

**Discussion With Michael Isimwaa Harare: 96.01.31  
Mongu**

1. Provincial Natural Resources Committee: whole province
2. District Natural Resources Committee: responsible for Mongu District

**Kalabo**

Kalabo District Natural Resources Committee

**Senanga**

Senanga District Natural Resources Committee

Provincial Planning Unit: Under Provincial Permanent Secretary and made up mainly of economists; responsible for coordinating activities.

Mrs. Mubonda: formerly a gender analyst in PPU and before that a geography teacher.

Minister of Western Province: reports directly to the President.

Re housing of ZBWCRUP; Lusaka taking a central view but there is a decentralisa-tion policy in place, which is not yet implemented, to give more autonomy to prov-inces. Provincial departmental officials answer to H. Q. Ministries. While no single Ministry can claim complete ownership of projects such as the Upper Zambezi, it is housed in ECZ.

RE; location of field teams, it should be noted that the Zambezi River starts in Zambezi Province and we need to focus farther upstream. Best location depends on TOR's.

Senanga: Need to know ecological relationship between Sioma - Ngwezi National Park and the flood plain and if not significant, work in the Park can be ruled out.

There is no formal mechanism for bringing the Royal Establishment and government officials together.

## **Upper Zambezi Wetlands and Natural Resources Management Programme**

### **Current Activities**

1. Studies; research related, looking at natural resource trends with focus on uplands. The Dutch thought there was too much bias toward conservation now.
2. Pilot projects to implement activities using community-based approach; wise use of resources; demonstrations; to be jointly planned with communities. Plans are ready for Senanga.

### **Michael's Priorities for ZBWCRUP**

1. Infrastructure  
Communications; use community approach, e.g., they work on own components, c.f. Father Brian's work on embankment. We should fill in gaps. Workers don't get paid on community-based projects; buy them implements and food. This also applies to work on canals. Require users of embankment to pay. Dutch had no community involvement when they constructed the canal. Food for work" could work here.
2. Water reservoirs and channels for irrigation, perpendicular to the river to facilitate agriculture and livestock keeping.
3. Fuel: firewood or alternative sources of energy
4. Wildlife re-establishment
5. Fisheries management: tenure and ownership; some canals are privately owned. There are less fish than there were in the past. Small mesh used for certain species catch juvenile fish. Fishermen using big mesh are complaining that there are no more big fish. There are issues of size and numbers.
6. Education facilities requirement is higher than for clinics. Personnel for clinics are not available. ZBWCRUP could help with structures. There is a District Hospital in Kalabo and one further west. These are missionary hospitals which can perform minor operations. Seventh Day Adventist?

There should be an EIA on all these activities

Daniel Ball has a good reputation with the people but professionals think he is more for commercial aspect than for the community. Overall considered worth using.

## **Discussion With Rudd Jansen, IUCN Botswana Country Representative Harare: 96.01.31**

**Note:** The enclave is tribal land with one section zoned as a wildlife management area and third area is forest reserve. The enclave boundary does not at all equate fully to the Forest Reserve. Rudd has done much work in the communal area & Nils has worked in the Forest Reserve.

### **Requirements**

1. Diversification: Economy heavily based on people working in Kasane.
2. Traditional livestock raising and agriculture does not lift one above the subsistence level.
3. Need new skills. Wildlife resource to be better tapped.
4. Fishery used to be thriving. In 1987 Lake Liambezi had some water; flooding risk was mapped as dry, medium and full floods (water almost to escarpment). Mungu was moved in the 1950s due to flood.
5. Predation: improved, lion proof, karrals needed.
6. Timber: currently only one private firm logging around Kavimba. Should make use of the entire Reserve.
7. Livestock: used to be a fattening area; cattle not marketed through Botswana Meat Commission; therefore value is local.

## APPENDIX 9

### INCEPTION MISSION TEAM B FIELD REPORT

#### Mozambique notes

Saturday 20-Sunday 21 January 1996

Preparatory briefing these two days with Judy Oglethorpe and other staff from the provincial service on Forestry and Wildlife (SPFFB).

Much material learned during these briefings was mentioned again in less detail during the 22 Jan workshop. Most of the material has been included in the notes from that workshop, to avoid repetition. Some additional notes are given here.

#### Mozambique IUCN members include:

- DNFFB, the forestry and wildlife directorate in the Ministry of Agriculture and Fisheries;
- MICOA, the Ministry for Coordination of Environmental Affairs, (state member)
- Environmental Working Group, a mostly governmental group
- South African Wildlife Trust, Maputo Branch.

To keep the IUCN Zambezi Wetlands project teams together, and encourage regional learning and exchange, there should be common training, workshops, exchanges among Malawi and Mozambique team members.

#### On tour with Roberto:

- fish for sale in markets and along road/canal past dump leading to mangrove depot. Harry thought he didn't see enough fish generally to be feeding Beira.
- at the depot, building poles selling for 1000 to 2000 mtc each, depending on size; price at source would have been about half that, maybe double that at markets right in Beira. Shorter thicker logs for firewood selling for about same price. At depot, about 8 local built wood boats in view, one under construction, a couple unloading.
- on causeway to airport, saw a relatively expensive house being built: est cost US\$20,-40,000.
- Tanzanian (Makonde) carvers in hut by street in Beira, selling carvings from ivory and hippo teeth bought in Marromeu. Also Ebony.

#### Settlements in the area:

- In Coutada 14, along northwest side of Marromeu reserve, is **Cuncue**. A new settlement. It is relatively well organized, but no clinic or school. A private concessionaire is already talking to them about cooperation in safari provision. Oddity: they have a fuelwood crisis; but they don't cut riparian woods for some reason, preferring to use palm leaves.
- In Coutada 11, Todzo. May be desirable to have it move to edge of a coutada. (TL: IUCN's use study should not precede any outside push for a community to relocate; that would associate it with unpopular recent history of failed government attempts to create new communes; people were supposed to have written permission even to just visit another settlement!)

#### Gender issues:

- many woman-headed households, partly due to the war, and partly because men migrate for paid work.
- women with children from rape generally keep and care for the kids, even if returning husbands decide to leave a family that has a child from someone else.
- who cuts and transports wood?
  - on the boats, men only
  - firewood, women
  - logging, men
- fishing, mostly men,
  - but when floods set breeding pools for barbel fish, women
  - and for small prawns, shellfish, women
- hunting, men
- wild honey collection, men
- water carrying, women
- opening fields for cultivation, men
- planting cultivating/weeding, women
- scaring pest animals, kids
- harvest wild fruit (after sura parties), men
- at meetings, to get women to talk you generally have to ask a question that only women can answer (e.g. on fuelwood), and then they may only answer with men's approval. Exceptions are Nsena women, who talk out; and Nyao, among

whom the man may go to ask a woman about woman's work and then return to give the answer himself.

- Gender analysis for effectiveness of work is practical anywhere; however a high concern for gender equity would be a donor concern, rather than a strong local concern.

FHI has a report on gender issues in the area. Evelyne has it.

#### **Food:**

- There is a protein shortage (other than fish). Tsetse fly area, so few cattle. Most goats were killed during the war. There are some pigs in villages. Also eat termites, locusts, mopane worms (in the north).

#### **Cash:**

- There is a real cash shortage. In the main it's a barter economy, with cash used only to buy "luxuries" such as cooking oil, soap, and salt.
- Cash is very important to people without land, and people whose crops have failed.
- Not much employment: only NGOs; govt in Muanza, the district capital; sugar jobs in Marromeu; safari companies employ a few cooks and skinners.
- can get income from providing building material (e.g. poles); charcoal; hunters and skinners.

#### **Traditions related to resource conservation and use:**

- experience around Chimanimani (further south) showed some interesting hunting ceremonies; also some sacred sites that are also naturally significant sites (this has been reported since the 60s).
- similarly, there are some special spots (eg no hunting or tree cutting in cemetEries) in the Pungwe-Zambezi deltas.

#### **Park boundaries and zoning:**

- people remember and accept the original NP boundaries, and even the first moves out of the bounded area. However, they do not agree to move again for newly redefined park boundaries. Some people are starting to ask "Why did we fight the Portuguese? Why did we fight FRELIMO? It was to get control of the land. But we still don't have it."
- important to go for zoning differences within the Park.
- delineate communities' areas
- training on what their rights are
- training on negotiation of tenders with private concessionaires
- refer: Mr. Mavénike, CAMPFIRE; Rob Munro, Zimbabwe Trust; EZ, John Hutton African Resources Trust, Harare. Has experience and a video on training.

#### **Notes from the Beira-Delta-Marromeu overflight:**

- Harry's initial impressions: the delta is big, and much underutilized; there should be more use of delta resources, people should not be starving in Beira; in so big a delta, some amount of sugar scheme can do little harm. The issues are overhunting during the war; lack of knowledge of systems (ecological; water; soils; farming). Surprise to see some settlements actually in the mangroves.
- there are apparently no national plans to develop the delta, other than possible reopening of the sugar scheme.

#### **Beira Workshop, Hotel Embaixador Monday 22 January 1966 0930 - 1800**

##### **1. Introductions**

The meeting began with brief introductions around the table:

Abilio Inguane	Comissão de Terras Ministerio de Agricultura e Pescos
Harry Chabwela	IUCN Inception team B
Antonia Chigogoro	SPPFS
Ricardo Duenez	Africare, Beira
Evelyne Guindon-Zador	IUCN Inception team B
Armando Noé	Geograph e Cadastro
Rosa Paula	DP Comércio e Turismo
Maria Adelaide Lobalo	SAFRIQUE
Anslmo Gaspar	MICOA, Maputo
Antonia Charrej	DP da C Accáo Social 326383/326550, Beira
Francisca J Tomo	IUCN, Beira
Dr. Bartolomeu Soto Chair	DNFFB, Maputo
Ilidio Joaquim	SPFFB, Beira
Mateus Sidomo Ribane	SPFFB, Beira
David Makhodzo	SPFFB, Beira
Alfredo Jessias	SPFFB, Beira
Estela Mause	SPPescas
Baldeu Chande	Programa Emergência Chitengo. Gorongosa/Marromeu
Roberto Zolho	GERFFA Wildlife Coordinator
Fernando Seck	Electricidade de Moz Fados
Benedito Mugabe	SPFFB, forestry
Tim Lash	IUCN Inception team B
Judy Oglethorpe	DNFFB, CP 1406, Maputo Assessora de fauna bravia
Simon Anstey	IUCN-MOZAMBIQUE
Samuel dos Santos	GERFFA social forestry coordinator



## 2. IUCN, and the proposed programme

Information about IUCN, and a description of the objectives and scope of the proposed Zambezi Basin Wetlands Conservation and Resource Use Project were provided. The objectives of the inception mission are to meet people in the project sites, and learn how the project objectives can be met according to the priorities and existing programmes in the particular sites.

## 3. Other activities in the area

Mozambique programme representatives then gave brief descriptions of current programmes in the Zambezi delta area, as follows (the details below include information provided to the inception team on Saturday January 20):

**3.1 Gorongosa/Marroneu Emergency Programme.** Chande described this programme. The National Park was abandoned by the government for 13 years during the war, during which time it became militarily occupied, and its wildlife were extremely over-utilized. The Emergency Programme, started in 1994, funded by the EU. Its objectives have been

- (i) to establish laws with teeth in the National Park area - after the peace in 1992, the NP was reoccupied by the government in 1994; it is now patrolled, and illegal hunting has been brought largely under control; the programme is also working with safari operators in managing and utilizing wildlife in the area.
- (ii) community participation - good relations have been set up with communities; there is agreed-to community management of fishing in the park; honey production has been assisted (people now wear bee suits so they can get honey without cutting down the trees where the hives are; there is marketing help for the honey producers; in Marroneu contacts have been made to help build community capacities; in the delta itself there is a small plant for processing palm wine, which may be developed further, using sustainable palm tapping techniques.
- (iii) lead into a longer term realistic management plan, the GERFFA, for the area that integrates the communities into the conservation and resource use programme.

The Emergency Programme is short of funds, and requires more trained personnel. The EU is, however, interested in continuing to fund it and has some \$2million US available for it. At the request of DNFFB, Judy Oglethorpe and Simon Anstey are doing up a proposal for a re-opened wildlife technical school at Chitengo in the NP.

**3.2 GERFFA - Management Plan for Forest and Wildlife Resources.** The Plan will involve mainly provincial Agriculture, being led by Fisheries and

Forestry and Wildlife, but involving also the Land Commission, Rural Development, Livestock, Cooperatives(?), and Geography & Mapping (Cadastraria); the programme also needs to coordinate with departments outside Agriculture, including Tourism; Physical Planning; and MICOA. This is a five-year programme, for which ADB loan funds (\$15million US) are still awaited, more than a year into the period. The overall objective is to raise the capacity of government to manage forests and wildlife. It has four components:

- (i) Native forest management, in Sofala and Cabo Delgado provinces. To establish a process for letting forestry concessions for 5 to 10 year periods, rather than the present annual concessions, so that the companies will invest in and manage the forest. The investors are mainly Mozambiquan and South African. The number of concessions allowed for cutting for firewood and charcoal in Gorongosa and , etc is now being drastically reduced (ref Benedito Mugabe), from 132 to 2.
- (ii) Social forestry, in Sofala and Manica provinces (4 districts along the Beira corridor). To raise the capacity of communities to manage and use their forests without destroying them. In places forest cover in the corridor was cleared for safety during the war. The immediate pressure is high from many residents who moved there during the war as a safe zone, with consequent fuelwood-cutting, clearing for agriculture, and fires.
- (iii) Wildlife, in Sofala province only (the Gorongosa-Marroneu area, including Gorongosa Mountain, the NP, and the Merromeu refuge (on the south bank of the Zambezi River) and the higher lands between it and the NP). \$5million is earmarked for the wildlife programme. To rebuild wildlife management infrastructure; do wildlife inventory; assess effects of Cahora Bassa on wildlife downstream in Gorongosa-Marroneu. There are two kinds of hunting issue: illegal hunting for sale of wildlife products; and subsistence hunting (which is considered "poaching" as long as it is not done under a management system). 2 of 4 coutadas(= hunting concession areas) were organized and operating in 1995. The other two are expected to be organized for operation in the 1996 hunting season. The groups operating the concessions assist in wildlife management: they are an organized presence in the area; and they make observations for data collection. Data collection matters, as quotas are currently set from Maputo without survey information by the government. A programme to increase livestock is intended to reduce subsistence dependence on wild animals.
- (iv) Institution-building. Vehicles, research, support to SPFFA enforcement, et cetera.

Land tenure related to community well being and to economic development is a key issue: who controls - owns resources and who has rights to benefit from resource uses? The general legal rule is that all resources belong to the state. The question is: what happens from that point on? There is a pilot project in Tete Province to allow some revenues from local resource use to be retained by the community, rather than all going to the state treasury.

Some possibilities for generating sustained natural resource-based income include palm wine manufacture; fish processing and storage; royalties to communities for each tree cut in their area but dynamic now is that trained people fear mines in the field, so they send untrained people out to do cutting - they can't judge quality, so they cut more than will be used, and the manager then comes out and selects, leaving waste behind. A royalty to the community for each tree will provide data on the amount cut, and will discourage waste.

**3.3 Ministeria da Coordinacion de Accáo Ambiental (MICOA).** MICOA has no programme for the Zambezi per se, but three current initiatives are relevant:

- (i) National Wetlands Programme (refer to Anselmo Gaspar). Now looking for funds. Objectives include a national inventory; a review of current status; and a determination of what's needed for management. It will involve many agencies, not just MICOA (NGO involvement would be considered later). It will focus on capacity building. A written proposal is being developed within MICOA, for possible presentation to funders (e.g. EU, WB). The Zambezi delta area will be covered in this programme. The Zambezi wetlands project could be interesting as one starting point for the national wetlands programme; need to be careful not to forget the other nine provinces, and also to be aware that the national programme has not yet determined what is needed, nor how to approach it.
- (ii) Coastal Programme (refer to Alfred Masinga, Coordinator. Also Helena Motta.
- (iii) Environmental Assessment of Cahora Bassa Dam.

**3.4 Direccáo Prov. da C. Accáo Social.** This agency is working in Marromeu with war orphans (adoption; a centre for orphans); and in Gorongosa with widowed mothers and adopted children. The agency is also promoting families' ability to manage their income; and to promote group rearing of small livestock. They are seeking funding for this programme. Antonia Charrej asked whether the wetlands programme will apply only in pro-

TECTED areas, or whether it can apply in agricultural areas as well. TL answered that the programme is wider than just protection, recognizing that social and ecological well-being are interdependent. R. Zolho noted that while the GERFFA is not directly an agriculture plan, it does look for income generation. E.g. there will be one safari company in each coutada, and they will work with the communities in the coutadas, giving examples in coutadas 11 and 14.

**3.5 SAFRIQUE (private concession holder in coutadas).** The company has had a seafront resort at Nsengo (we saw its airstrip during our flight between Beira and the mouth of the delta); it needs refurbishing. It is in a low-lying area; a road and bridges would help. The company also has interests in four hunting coutadas west of the railway line; effective economic access requires clearance of land mines.

SAFRIQUE's usual practice has been cooperation and exchange with communities in the areas it operates. For example at Nsengo, people received medicines at cost for food produced locally. In the past communities were provided with meat, and access from the sea. Dona Maria Adelaide Lobalo advised that projects are more effective when people help themselves in some way, rather than receiving handouts. It was noted that out of concern for the many people in the area, further developments in the coutadas must benefit the residents, protect their rights e.g. their livestock; in response, it was noted that in the past SAFRIQUE recognized local cotton growing, and would do the same kind of thing in future. It was also noted that people used not to be in these areas, but with lower water levels people were moving in, e.g. south along the coast at Marromeu; this must be acknowledged as an issue.

**3.6 Fisheries.** There is no fisheries programme in the Zambezi delta area at present. Something could be developed here through this programme.

In Cabora Bassa, the large number of kapenta fishing licences issued has led to overfishing. Now, the department aims to manage them, and to give priority to Mozambican fishers.

There is some fishery programme at Chinde, in Zambesia Province north of the river.

**3.7 Physical planning.** The department is doing a structural plan for Gorongosa District, to improve the minimum standard of living through infrastructure for health, education, commercial activities. So far, data

collection has been done, including information on population and their needs for education, health, maize grinding mills, etc; info on how people use natural resources; info about people in relation to the National Park. The spokesperson can show IUCN the data collection forms.

**3.8 Electricity.** There are no electricity projects now, or planned, in the delta. One priority is post-war rehabilitation of electrical power transmission lines. Another priority is developing the production and export of power from Cahora Bassa to South Africa. It was agreed that the distribution of electric power within Mozambique is better in some places than others - as a matter of funding.

Observing that the operation of Cahora Bassa will affect the flow of the river, with consequent ecological and social effects downstream, it was asked what the future flow regime will be. It was answered that the dam is now operating at only about 1% of capacity; when the connection is made to South Africa, a higher operating level will be wanted; the aim will be to stabilize the water flow.

It was noted that Mozambique, Zimbabwe and South Africa met recently on water issues; and reported that Mozambique does not now receive the previously agreed amount of water from upstream countries: this is an international issue to be addressed.

Noting that an environmental assessment of Cahora Bassa had been mentioned earlier, it was asked how the EA results would be used by the managers/operators of the Cahora Bassa dam. It was suggested that the studies might indicate, for example, that the flow of water should be increased one year in every five years to simulate the ecologically-needed flood conditions downstream.

**3.9 Tourism.** There is no plan for Gorongosa-Marromeu *per se* as yet. A national tourism plan has been completed recently. The rehabilitation of Gorongosa-Marromeu will be much appreciated.

**3.10 Other.**

On the south bank of the river near Marromeu town is Nsena Sugar company's fields and factory. It was stopped and became run down during the war, and it is questionable whether they will start up again. However, the traditional ("familiar") or artesanal producers of maize on and around the area were the top producers of maize in all of Sofala province last year.

A new national road (part of the Maputo - Cahora Delgado road) will go up the south bank of the Pungwe River, past Mount Gorongosa. The project was held up by the war, but will restart with USAID money.

There is commercial logging.

Food for the Hungry International (FHI) has a network of trained extension workers. e.g. in Vila de Gorongosa and in Marromeu.

West German overseas assistance (GTZ) is building/rehabilitating rural roads.

QUAM is supporting a clinic.

De-mining is still going on in the National Park.

Things are very centralized in Mozambique, so the going can be slow. However, it was pointed out, two important Directors from Maputo (Land Commission and DNFFB) are with us today, so we're sure to move forward quickly!

RENAMO is still an important presence in Mozambique, including especially Sofala province; thus there is a dual power structure.

**4. Implications of the new Land Policy and Law**

Dr. Abilio Inguane gave a presentation on Mozambique's new Land Policy and the upcoming new Land Law.

**4.1 General.** Up to 1994, the Land Commission was ad hoc. It was strengthened in 1994, and produced a new land policy which was approved by the government on 12 September 1995. The Policy (i) secures rights for Mozambicans in relation to land, (ii) promotes national and foreign investment, (iii) promotes sustainable development, and (iv) promotes social equitability. The new law will be based on the Policy.

Among the Land Policy principles:

- all land belongs to the state;
- it discriminates in favour of women;
- rural populations have rights to land; the determination of the rights will be according to pre-independence traditional use;
- recognizing the need for private investment, the Policy allows for certain transfers/sales of rights to use land - between Mozambicans and Mozambicans, between foreigners and Mozambicans, but not between foreigners and foreigners;

- the maximum time span of such a transfer is 50 years; this time limit may not apply to rights of occupancy or community rights exactly as it would for commercial resource use rights.

Land is to be zoned into four categories, with different approaches to transfers:

- Type A - Dense occupation; urban, dense agriculture, industrial, close to markets. Transfers will be fluid and easy.
- Type B - Family; more extensive, lower density. Transfers will be done by traditional modes, with local chiefs continuing their roles, to promote social stability.
- Type C - Protected areas; with uses defined by specific management plans.
- Type D - Inaccessible; almost empty, no roads. Want to encourage future investment, could eventually become Type A areas. The first transfer will be from the state to a private interest (e.g. to South Africans for farming in Niassa). To avoid speculation in these areas, there will be a land tax per hectare, to limit the size of passive holdings.

Implementation of the new Land Policy:

- (a) review of the law.
  - The Land Commission lawyers' draft law will be distributed publicly soon (Feb) for feedback.
- (b) institutional development.
  - an interdepartmental committee (Agriculture, Environment, State Admin, Justice, Public Works, Industry, Commerce & Tourism, and two others) (8 ministries plus INDEA);
  - the courts need to be strengthened to administer the law in land disputes;
  - registration of lands needs to be upgraded
  - capacity to address environmental land concerns
  - public works land capacity

#### 4.2 In the Zambezi delta, related to the wetlands project:

- there will be Type A, B, and C zones. Type A for companies working in the area.
- there is a study available on traditional chiefs and the lands they hold in the area
- projects here, as all over the country, should help to secure the rights of people.
- in principle, rights can be integrated into developments, or can be retained by communities.
  - (i) Communities must retain adequate lands for their own needs in the future; they may not sell all their rights;

- (ii) People will have to register their rights in the titles office; this may cost 50,000 Mtc per family.

- the wetlands project should work with the Lands Commission to help secure these rights, as an integral part of the project.

#### 4.3 Questions and answers. Mr. Inguane provided answers to a variety of questions:

- Q: Do management plans in Type C areas have to be approved by government? How will existing activities be considered? And how will a 9-department Land Committee work at the local level for such approvals?
- A: In Type C areas, existing activities will be integrated into the management plan for approval by government. For other land Types, the process needs further delineation. The national committee (8 Ministries plus INDEA) may be adapted to address local approvals, although the provincial agencies will be very involved. At present, land can (cannot?) be allocated by a specific Minister or deputy minister; this situation will end soon; there will be a single body with regional expression to make land allocation decisions. The state will always be the owner of the land, but will consult communities about the use.
- Q: Will the South Africans who are coming to Mozambique (TL: a particular arrangement already made with a particular group, I believe) be on Type D or Type B lands?
- A: The so-called Boers who are coming will come in under the old law, to unoccupied land, so they won't displace people.
- Q: Is there a process to stop the irregularities by foreigners that have been experienced; will it just wait for the new law? Q: Will there be penalties for bad land use practices?
- A: There have been some irregularities. A moratorium on land use decisions was considered, but it (would have?) led to problems; it is better to move quickly on implementing the new law. Realistically, this could take some time: the law and regulations are still under development. Schedule: new law passed in May 96, some regulations would only be ready in June 96. (This government's mandate has four years to run.) In the meantime, we are following the old law, which is good when enforced. The new law will follow the old, but for a few key areas. We do need institutional strengthening to ensure it is better enforced. The new law will cover land degradation more forcefully; however it will also work to improve environmental quality through the recognition of human rights.

- Q: What mechanisms will be used to explain peoples' rights to them, especially for people who don't speak Portuguese, and for those who don't read?
- A: In each province a plan will be made for communicating the new law, tailored to local languages and needs.
- Q: The new law seems biased towards agriculture for communities, that is, towards relatively small areas of use. But wildlife and forestry use are extensive. The Policy seems to make such lands available only through concessions. Will the law allow community management of forests and wildlife?
- A: Yes. Community rights are over the whole use area, not just over small plots.
- Q: What is a community?
- A: It can be hard to define consistently across the whole country; made difficult by war dislocations, and by regional variations. The World Bank is doing some study on this question. A community may be a regulo's area; it may be the area of people who share the same surname (family); it may be an association of several families. It is necessary to start on the ground, and ask the people themselves. (TL: In the G-M area, Chande reports that people in general quite readily accept substantiated reports of previous "regulo" boundaries as the touchstone for boundaries of community resource interests.)
- Q: How will a commonly-used lagoon be designated? It's not the same as settlement land; will it remain as common land?
- A: This is a profound issue. Traditionally it would be thought of as a community area. But it may need to be shared with other communities who have little ability or access to the kinds of thing the lagoon can provide.
- Q: If one community lives in a forest area, and another in savannah, can the forest community clear and convert the forest to agriculture for their own use, thus depriving the Savannah community of forest products in the long term?
- A: This is an important question to consider. All forests and wildlife belong to the state. We may need to work at how they need to be shared in this kind of situation.

LUNCH

## 5. Problems, issues and Needs in the Project Area

Judy Oglethorpe reviewed the preliminary identification of issues in the area made by the G-M Planning Team, noting that consultation with the communities has still to be done:

### 5.1 Political/legal

- instability due to war
- land law not yet approved
- gaps in wildlife and forestry law

### 5.2 Infrastructure/logistical

- lack of a structural plan for Sofala province
- low level of socio-economic infrastructure
- land mines
- weak communications

### 5.3 Natural Resources

- uncontrolled timber cut
- drastically low level of wildlife populations
- habitat change due to drying up of delta/water
- illegal hunting and timber cutting
- low financial capacity
- low taxes
- low income retention
- conflicts among commercial logging, sport hunting, and communities

### 5.4 Communities

- lack of resettlement policy
- lack of rights/title to land and resources

### 5.5 Tourism

- lack of infrastructure
- no localization of former infrastructure
- difficulty with visas at the border
- low hotel and tourism agency capacity
- lack of tourist information

### 5.6 Institutions

- local institutions quite weak
- few NGOs in the area

### 5.7 Lack of data

### 5.8 Wetlands

- no clear single responsibility for wetlands; requires bringing many people together

Additional issues were discussed:

- hunger: due to drought last year; yields are also jeopardized this year as the rains may be too early

- health is a problem; health networks are extending into the area
- lack of access to a cash economy
- education: in Beira school test results are poor. Weak teaching system? Weak students? Government making big effort to reestablish school system. A community can set up its own school outside the system, but then they need to hire their own teachers, and require donor support.

The issues overall were summarized as

- resettlement
- security of land tenure
- conservation and sustainable use of natural resources
- development actions

### 6. Preliminary Ideas for ZBWCRUP project/activities

Conflict resolution should be the basis of the project, e.g. people vs animals.

Need to gain title to land as an incentive to security and long term view.

References from Abilio Inguane:

- Mr. Chutumia, National Water Directorate, Maputo. Interested in EIA.
- John Hutton, U. Eduardo Mondlane, Maputo. faculty of biological sciences
- Dr. Chonguiça, PhD in environmental assessment. Previously worked on Umbolozzi River. 2-page how-to sheet for Zambezi-related impacts.

**Note:** It's said Mozambiquans are not used to using other people's data for decisions. So it's essential to involve the eventual decision-makers in the development of the data.

Must talk with communities, and must have senior levels know what you are doing. At the start, the relevant authorities and leaders must be contacted.

**Simon:** Approach for this programme is to identify specific-purpose projects/funds within a larger integrated programme.

**TL:** Yes, within the G-M area. Project may also look at links with other basin countries, e.g. Malawi; and it may look at delta shrimp/fishery production or mangrove issues; if it does, there too it should be worked in with existing programmes.

**Ricardo:** The former forum among international NGOs (on de-mining) is gone, so there's no INGO forum in Beira or Maputo. Now is the time to contact other INGOs, as they are coming to the end of their planning cycles. (Ricardo later also offered to have Margarida (Africare administrator) assist IUCN with administrative things, making contacts, etc.)

A possible role for the project would be to help Mozambique, as the furthest downstream on the Zambezi, through SADC, get a reasonable supply of water.

Its said that RENAMO likes to see early, hard, positive results for communities from projects in the area, in order to gain their support. There may be lessons to learn from the way the Emergency Programme has proceeded, since it has had no bad responses from RENAMO even though it's centred in a strong RENAMO area.

**Simon:** There are some current gaps in the Emergency Programme, and in the intended G-M Forestry and Wildlife Plan, that could be of interest to the wetlands project, as addressing them would clearly complement and enhance these other two programmes:

- Research and monitoring aimed at understanding and tracking the ecosystem as a whole, particularly its wetland components. There are baseline data from the 60s, but little has been done since then.
- Communities' rights to natural resources. What specific resources do specific communities need and use? What are their health and education needs? This could help to identify some useful infrastructure gaps as well. There is no specific "community" allocation in the EU or ADB agreements.
- Training. Training Mozambiquans (and possibly Angolans) to do wetland management.
- Communications

Evelyne asked whether there are gaps in the communications capacities and activities. Zolho said that, although neither the existing Emergency Programme and G-M Planning Programme has a specific budget for communication, they must do it. Chande noted that in the 70s and 80s environmental education was identified as a priority, but there has been a lack of funds to move on it. Yes, help is needed.

Evelyne also asked whether there are gaps in the understanding and use of participatory approaches with communities. It was suggested that there is room for more activity on the participatory front; and that more capacity for it is needed. Also that there is a question about what person-power is available to be "animadores". MICOA has produced a report on participatory information-gathering; its explicit method may be a little rigid for application everywhere, but its basic precepts can very well be used.

**Meeting with Malawi IUCN Members  
Friday 12 January 0900-1200**

CM, HC, TL

Humphrey Nzima, (representing Director of National Parks, Matthew Matemba)  
A.M.Kamperewera, Ministry of Research on Environmental Affairs, Box 30745,  
Lilongwe

H.S. Jamsana, National Parks and Wildlife, Box 30392, Lilongwe

Simon Munthali, PhD, Parks and Wildlife Dept (Area: effects of introduction of rock  
fish 20 years ago from northern parts of Lake Malawi to southern part)

Daulos Mauambeta, Wildlife Society of Malawi, PO Box 1429, Blantyre  
(Representatives of forestry and fisheries were not present?)

1. H. Nzima reported Malawi's wetlands priorities, as noted in a *summary* prepared (\*he'll provide a copy):
  - wetlands awareness and education
  - information and training
  - policy, legal, institutional
  - planning, management
2. Malawi has a National Steering Committee on Wetlands (a coordinating committee, not a management committee with authority), which has met several times. The Committee is composed of representatives from
  - Ministry of Research and Environmental Affairs
  - Fisheries Department
  - National Parks and Wildlife Department
  - Irrigation Department
  - Forestry Department
  - Lands and Valuation
  - National Herbarium and Botanic Gardens
  - Agriculture and Extension
  - Water Department
  - Physical Planning Department
  - Wildlife Society of Malawi
  - Bunda College (University of Malawi)

- Chancellor College (University of Malawi)
- Land Resources Conservation Unit
- Municipal Services of Local Government

The Committee is trying to join Ramsar in order to get guidance on wetlands issues. Lake Chirwa is proposed as a Ramsar site. The UK has committed to provide funding to assist in this endeavour.

Humphrey would like the National Wetlands Committee to have time to prepare its thoughts on priorities and potential actions for the ZBWCRUP. \*Eric should arrange to meet them in April.

3. In Simon's view the Elephant Marsh is a good one to work on; it is complex ecologically and socially. There is no wildlife plan for the marsh yet, although they are intending to do one for hippos. \*IUCN should talk to the Ministry of Agriculture to see what plan they may have for livestock and farming activities. There is no specific land use plan to date for the Elephant Marsh, there are ideas for one. It will require multi-sectoral participation (Agric, Wildlife, Fish, Forestry); the lead will be Ministry of Research and Environmental Affairs, whose mandate includes facilitating multisectoral activities.
 

The Ndinge Marsh is not yet so well known to this group.
4. Residents: The predominant tribe in the area are Nsena, especially to the south. The second in numbers are Manganja, around Chikwawa. Others include Lomwe, and Chewa. There were many refugees from Mozambique during the war in that country (some brought their cattle with them); many refugees have left, but others have stayed, and have mixed in through marriage.
5. Authority and Coordination Structures - These are described to assist the ZBWCRUP project team with protocol in finding entry points to discussions with social structures, and in identifying organizations and people who may be actors in designing and delivering the project:

SOCIOCULTURAL STRUCTURE - HIERARCHY	CORRESPONDING MULTISECTOR COORDINATION
Office of the President and Cabinet (OPC)	-
Regional Administrator	Regional Development Committee
District Commissioner (DC)	District Development Committee (DDC)
Traditional Authority (TA) (the chief)	Area Development Committee
Group Village Headman (GVH) Village Headman	Village Development Committee
Community (extended family, 1 or 2 clans)	-

HC was given a map of these structures, when he bought two 1:250,000 topo. maps at the Survey Office in Lilongwe. Participation in this structure is according to where you live, not according to tribe.

The DCs bring together traditional, political, NGO and government sectors. The District Development Committees (DDCs) are the clearing houses for all development projects in a district. They are the best and necessary starting point for liaison. The committees at different levels can form subcommittees to address particular kinds of programme; wetlands subcommittees are a possibility.

The political hierarchy is: national-regional-district-branch-area.

Government agricultural extension work is also carried out through a hierarchy (**\*check the correspondence with the levels in the sociocultural and coordinating structures**):

- Agriculture Development Division
- Rural Development Programme (RDP) (at district level, eg Chikwawa, Nsanje)
- Extension Planning Area (EPA)

Social services, particularly in health and education are provided by the churches. The prevalent religion is Roman Catholic, though "not everyone goes to church". **\*IUCN should talk to Bishop Mkhori at Chikwawa Boma.** The church may be a possible partner in this programme.

6. Local economic activities in and near the marsh (values from the marsh) include:
  - fishing (human/crocodile conflicts, due maybe in part to lower fish populations in the marsh, hence hungry crocodiles looking for other sources of food, e.g. goats, people)
  - livestock (overgrazing of grasses; compaction of mkanda clay soils, hence reduced water infiltration, hence fast hard runoff and erosion, hence pollution/siltation of waters)
  - commercial crops include maize, cotton, and (some) sorghum
  - sweet potatoes year round
7. Existing (environmental) projects in the marsh include:
  - 7.1 Water hyacinth control. Both mechanical and biological controls; prevent hyacinth reaching L Malawi; concern is fish habitat; three year project funded by Overseas Development Authority.

8. Wildlife Society of Malawi projects
  - 8.1 forestry: community-based training, e.g. in Nsanje
    - nurseries, planting, marketing; whatever gaps need filling
    - includes food (fruit?) seedlings
    - note termite damage prevention by applying boiled essence of some indigenous seeds
  - 8.2 conservation and use of indigenous resources
    - palm: 24 uses, e.g. roots like pineapple for kids; use like cabbage; strong brooms; tapped for wine (as done now, this kills the tree - are more sustainable methods possible?)
    - protection of ebony trees (*diospyros*), from vandalism for carvings; ebony threatened in Shire.
    - baobab fruit rich in vitamin C
    - mwemba (sp?), *tamarindus indicus*, for fruit
    - masau (sp?), *zizyphus macronata*,
    - encourage use of local products; start with what's important to people
  - 8.3 game farming
    - duiker (from excess around Lilongwe) - startup problems(died; dogs)
    - beekeeping: needs hive trees and flowers, so in or near national parks
    - guinea fowl
    - start by finding out what people want
  - 8.4 training at community level on project planning and management
    - \* is there a "needs assessment service"?
  - 8.5 education projects
    - uses mass media, radio, publications
    - drama, music, dance
    - videos
    - field visits, talks to schools and communities
    - school tree project (country wide)
  - 8.6 appropriate agriculture
    - some problems due to excessive or insufficient rains
    - shalouf irrigation of drier lands near marsh, allows drier season farming, avoids trying to draw water personally with crocodile danger or from difficult steep banks, may substitute for or alleviate crop use of over-fertile, wet, muddy, hence over weedy, flood lands.
    - perhaps old work-intensive techniques don't work on larger crop areas now being used, and extension work for better techniques would be useful.
    - fish farming was suggested to relieve over-fishing of wild fish, and to relieve crocodile/people conflicts, and to leave crocs more wild fish as prey; Simon cautioned: after 20 years of attempts aquaculture still hasn't taken hold, and it is not clear that overharvest is a greater factor than environmental change in causing lower wild fish populations.



9. Land tenure and management of common property resources are issues
  - some Malawians are looking at models of community ownership from Niger.
10. Humphrey suggested that the ZBWCRUP Project Advisory Committee should be scientific in basis. Simon suggested it should receive the views of the Malawi National Wetlands Committee.
11. Other NGOs active in the Chikwawa area include:
  - Concern Universal (UK): water projects, pumps, environment
  - Evangelical ....., EVARD: reforestation, building school blocks, health centres
  - Evangelical Lutheran Development Programme, ELDP: soil conservation, afforestation, relief
  - International Eye Foundation: glaucoma, water supply
12. Some priority issues for the Elephant Marsh were suggested during the meeting. The following are listed only as indications, as the Malawi National Wetlands Committee will be considering priorities more fully for discussions with ZBWCRUP staff in April:
  - water hyacinth control
  - hippo-human conflicts (overturned boats; damaged crops): in principle, could make a buffer zone along the river sufficient for the hippos' needs bordered by a hippo fence; in practice, people will continue to come onto the fertile riverside lands to farm maize for three months each year.
  - irrigation, to relieve pressure on some specific areas, by allowing farming on others.
  - ecotourism potential.
13. Priorities for capacity enhancement were briefly considered.
  - it was suggested that capacity needed is in "systems" training, not in single-sector capabilities. The main issues are land use conflicts, so training in thinking widely is needed. Such training could be provided through particular course modules; by facilitating multisectoral discussions of issues; by making use of, or establishing, multistakeholder "round tables"; etc.
  - people need to know how to put "bottom up" community-based approaches into practice, as most initiatives are now done "top down".
  - **\* get Humphrey a copy of the 1994 mission report (PEEM River Basin Series No. 2), by Chandiwana and Snellen, "Incorporating a human health component into the integrated development and management of the Zambezi Basin".**
14. In Malawi, the Ministry of National Parks and Wildlife will be the lead department for action on the ZBWCRUP; the Ministry of Research and Environmental Affairs facilitates multi-sectoral coordination.
15. Examples of effective multisectoral projects in Malawi were given:
  - Humphrey: tsetse fly reduction, Kasungu, under the Regional Tsetse & Trypanosomiasis Programme (HQ in Harare).
  - Jamsana: primary health care
  - Jamsana: Nyika-Vwasa parks and forestry
  - Jamsana: Environmental Monitoring Programme, 4 monitoring sites (Ntcheu, Nkhata Bay, Kasungu,), involving seven Ministries, supported by USAID
16. **\*The inception team should also meet reps of the Coordinating Unit for Rehabilitation of the Environment (CURE).**

**Meeting with Dr. Clement Mzembe, Department of Irrigation, Lilongwe 1415 to 1530**

HC, CM, TL

  1. Dr. Mzembe has retired at a young age after long government service; he is now on a 2 year contract up to July 96 - he may or may not renew it; his PhD is from Colorado State U.
  2. Dr. Mzembe has done a paper on "Wetland Utilization in Malawi" (which may be looking mostly at wetland activities that make calls on water, e.g. through shallow wells, boreholes, tube wells, dams in dambos, etc.). Mzembe also has it on his plate to do a study for FAO, delayed so far by other priorities. **\* get him a copy of "Water Resource Use in the Zambezi" (also perhaps a copy of Dugan's "Wetland Conservation")**

The IFAD (International Fund for Agricultural Development?) is expected to start a research programme on wetlands utilisation in May or June, 1996.

  3. Dr. Mzembe spoke of the Shire Valley Irrigation Project as if it is a certainty. He gave some water flow numbers for the Shire, by way of showing potential conflict in water demands between the irrigation project and ESCOM's Kapuchira Falls hydro dam project (downstream of the irrigation canal intake), in the low flow months of October and November:
    - normal rainfall is about 1000mm of rain annually
    - November flow of Shire is 220 (cumecs) (cubic meters per second)
    - Irrigation project input demands: phase I - 26; phase II - 71
    - ESCOM input demands: phase I - 40; phase II - 86; phase III - 172
 These numbers were given with no reference to the ecological or socio-economic needs for in-stream water flow, cycles, and patterns below the two projects.

ADB has funded an EIA for the project, which is now being reviewed by the government. Dr. Mzembe showed us the copy he is marking up, and had a copy made of a diagram from it for us.

There was also an inception report for the project done in November 1995.

4. Dr. Mzembe commented that his personal interest in wetlands is wider than the mandate of the job he is paid to do (irrigation). He noted that irrigation interests want to know about wetlands soil types and plants, since when water is taken out upstream, the plain below becomes drier, with the result that salts in solution rise to the surface and are concentrated there through evaporation. Also, water that runs back towards the stream post-irrigation has different chemistry, with effects on downstream soils.

He sketched a vision of the post-irrigation land and water regime, including a dam and impoundment with contour agriculture around the impoundment to reduce siltation in it; and a water channel downstream, bordered by fish ponds and fruit (guava) trees, with crop plots further back, rather than cultivation right to the channel edge.

Dr. Mzembe also said that a Water Authority that is independent of any particular water user, (like the Tennessee Valley Authority), is needed.

#### **Meeting with Osborne Shera, Chief Hydrologist, MIn Education and Water Development 1600 - 1650**

1. Mr. Shera is a former student of Dr. Chabwela. He was previously with SADC-ELMS in Maseru, and was responsible for developing ZACPRO 6, Phase II.
2. On his office wall: a 1989 hydrology/bathymetry map of Malawi (Dept of Surveys, PO Box 349, Blantyre).
3. Mr. Shera gave us an overview:
  - 3.1 Flow in the Shire is most affected by the levels of Lake Malawi; other factors are rainfall, and occasional backflooding from the Zambezi (e.g. the river at Nsanje was up 5' in 1957; 1989 was another backflood year; the effect is that high levels in the Zambezi can turn conditions that would otherwise result only in a light flood on the Shire into a high/long flood)
  - 3.2 About 95% of Malawi's hydroelectricity is generated in the middle Shire. For national energy security, Malawi wants to maintain and increase this supply.
  - 3.3 During Federation (c.1954) there were aspirations that the lower Shire

valley would be the breadbasket of Federation; and ideas that a port would be made there, connected to sea by a canal, as a transport route serving all Malawi. The river remained navigable to the sea. But, especially with Cahora Bassa, navigation on the Zambezi is down.

- 3.4 Now the economic importance of Lake Malawi is fishing, and internal navigation, and tourism development.
- 3.5. Some interests want high water levels (tourism, ); some want low levels or activities that produce low levels (hydro, people who get flooded). In the lower Shire, people have used residual flood moisture to grow food; the surrounding area is basically dry; local people grow maize, sweet potato.
- 3.6 Three major integrated water resource proposals under ZACPLAN are
  - Regulation of Lake Malawi, study to start in 1997
  - Automated Flood Warning System for Lower Shire (has limitations: a cyclone-prone area in Mozambique is part of the basin, but not part of the system; at this point the system only provides data, not responses)
  - Shire Valley Irrigation Project
- 3.7 Another proposal in the air is a Southern Africa Transport and Transit Canal, to provide seagoing access to two ports: Bangula (on the Shire), to serve Malawi, Mozambique and Zambia; and upstream on the Zambezi to serve more southerly countries. (TL and HC guess there is not sufficient Zambezi traffic to make this idea economically viable).
- 3.8 Osborne has an idea for a Lake Malawi flood control dam at Kolombidzo(sp?) Falls.
- 3.9 Lake levels 1995-6 were at their lowest since 1931. Osborne wanted to take dramatic illustrative video shots, e.g. crossing the Shire by foot; new sand beaches where there is normally only water; view of wilting vegetation upstream and down from the bridge at Chiromo (Bangula, junction with the Ruo), where you can normally only see water.
- 3.10 The lower Shire Area is subject to flash floods from rainfall in the bordering hills.
4. Concern for downstream environmental effects is not new. In 1965, laws for the Liwonde Barrage (whose top level is below Lake level?) said there should be no rapid drawdowns, in order to protect fish and other life in the Elephant Marsh, and to protect the banks.
5. Asked what ZBWCRUP could usefully do, Mr. Shera gave several comments:
  - 5.1 Coordination among donors is needed.
  - 5.2 SADC also needs to wake up on the coordination of the issues.
  - 5.3 ZACPLAN is run by engineers, who by training are good at proceeding even without data - they just build in safety margins; so the plan will not be held up for lack of data. There is plenty of information (on hydrology) for

Malawi. It's now an opportunity to collect data for Zimbabwe, Angola, Mozambique.

- 5.4 ZBCRUP should concentrate on getting lots of data on 4 selected sites, rather than trying also to do the regional level data. ZACPLAN has suffered a high rate of personnel turnover; although it was to have collected data, it hasn't happened as much as hoped; hence ZACPRO 6 has taken on data collection in addition to its main tasks.
6. Asked whether the Elephant Marsh might ever be all dry, Mr. Shera said that in his view it only started in 1942, with the creation of the railway bridge/embankment across the plain just above the confluence of the Ruo river; this structure allows high Ruo flood water to flow into the Elephant Marsh through the embankment before the natural confluence, and the narrower opening at the bridge prevents rapid outflow of such water (added to Shire River flows). Mr. Shera noted that Livingstone described only the Ndinde Marsh as permanent, and didn't talk about the Elephant Marsh except as seasonal wetlands. (HC and TL later, looking briefly at the river from the bridge at Chiromo, from which the entry of the Ruo is visible, didn't detect a significant difference between upstream and downstream that would support this idea - though the recent rains may be too recent to show the influx and holdback pattern described by Mr. Shera. Leonard Sefu later said he has thought the Elephant Marsh has always been there - though it's not sure that he was distinguishing between seasonal and perennial wetland.)
7. Incidental comment on deforestation: "30 years ago the drive from Lilongwe to Blantyre was all the way under a canopy of brachystygia. Now, if you see a tree, it has been planted."

## FIELD DAILY REPORTS: Team B for Malawi and Mozambique

### From Harry N. Chabwela

These reports are in addition to the daily discussions held each day after meetings or site visits. They are being reported in writing following your requests to do so.

#### 1. Malawi

##### 1.1 12-1-96 Friday

Three meetings were held at Lilongwe;

- (i) Discussions with members of IUCN
- (ii) A meeting with Dr. C. Mzembe, Department of Irrigation.
- (iii) A meeting with Mr. D. Shora, Department of Water Development.

##### 1.2 Meeting with members of IUCN

Major issues learnt and comments:

- Expressed need for Malawi to ratify the RAMSAR Convention is important for this project. Elephant Marsh has been selected to be designated a RAMSAR site, probably primarily based on wise use mainly for agriculture, fisheries, wildlife, settlements, grazing and water abstraction.
- The formation of a wetland committee in the Ministry of Research on Environmental Affairs is helping to this project for its implementation and administration.
- Ecological issues of significance as discussed in these meetings are:
  - (i) **Dam construction at Kapuchira Falls.** The impression was that the construction of the dam would have minimal environmental impact on the Elephant Marsh. However, there seems to be limited knowledge of the expected impact of the dam construction. Findings in the EIA seem not to have much influence on the Ministry.
  - (ii) **Population and settlements.** This factor was considered to be one of the major threats in marsh ecosystem because of possible limited land and potential overuse of wetland resources. Already populations of fish and wildlife have drastically declined.
  - (iii) **Agriculture and food production.** This factor is limited by lack of inputs and poor rainfall. Food production has been extremely low and inhabitants have for the most part been dependent on relief food supply. Sorghum, maize and millet are the major crops grown in the area.
  - (iv) **Deforestation** was raised as an issue but this was accepted as a national issue in the country.
  - (v) **Water abstraction and irrigation.** It seemed clear to us that most people would consider water abstraction by SUCOMA and proposed irrigation in

the area are not major environmental issues. Certainly water use is not an issue.

- (vi) The question of institutional arrangements in the country was raised, and it was suggested that:
- Capacity was still a major problem in sector ministries
  - The Ministry of Research on Environmental Affairs was still waiting for enactment of the law on environment.
  - This project should be housed in the Dept of National Parks and Wildlife to speed up implementation.
  - There is an established and elaborate link between political (government) structure and that of the traditional structure at the low level, and that possible project entry point would be at the dDistrict level.

### 1.3 Meeting with Dr.C. Mzembe at the Department of Irrigation.

The main issues learnt were:

- (i) That the irrigation project which has been a result of numerous previous studies is likely to be implemented.
- (ii) That there has been an ELA carried out on this project, but this is under review.
- (iii) That there is an initiative in the Department to carry out studies on wetlands utilisation in Malawi.
- (iv) That future plans in the Elephant Marsh should include studies on soils and vegetation and the potential effects of water diversion.
- (v) It was quite clear that if the irrigation project goes ahead as planned it would have serious consequences to the area, both on ecology and inhabitants. The impact will most show on soil salinity and destabilisation of communities' social systems as inhabitants would be required to move to areas with canal water.

### 1.4 Meeting with Osborne Shera

Mr. Shera has a good understanding of Elephant Marsh and the Shire hydrology. However, issues learnt were mainly that:

- (i) The lake Shire and the Marsh are the same system, and any disturbance of one would inevitably affect the other.
- (ii) There are some planned dams on the Shire before the Kapuchira Falls
- (iii) Future plans include the dredging of the lower Shire to allow ship navigation to Bangula
- (iv) There are plans to establish a flood control warning system as this is a national issue in the country

### 1.5 Gaps

- There is a need to hold discussions with the Department of Fisheries in the future, and these discussions should also include the Department of Agriculture.
- Limited complementary projects currently being implemented

### 1.6 Planned Projects

- i) Irrigation projects
- ii) Hydro electric dam
- iii) Extension SUCOMA

### 1.7 Projects Under Implementation

The Wildlife Society of Malawi is currently very active in the Elephant Marsh

### 1.8 Meeting with the NGO CURE (Coordination Unit for Rehabilitation of the Environment) In Blantyre 14/01/96

The team learned quite a great deal of the functions of this NGO which is about two years old. It is doing considerable amount of work in the country, but has no project in the Lower Shire. However, we learned that there is considerable conflict among NGOs in Malawi due to competition and lack of coordination. This information is important to this project for its smooth implementation.

Furthermore, gender issues were raised in the meeting, and it was learned that women is participation was still a problem in rural areas. Reasons for lack of participation included

- women being overburdened with their issues
- being restricted by husbands
- irrational structure is playing a significant role

Attendants in the meeting included

L. D. Sefu  
Linga Mihoma  
T. Rogge  
Tadeyo Shaba

### 1.9 Discussions with the District Commission for Chikwawa Mr Mphangula, at Chikwawa 15/01/96

At this meeting, several issues were raised which included;

- settlements in Shire
- population pressure
- hippo camp damaged
- deforestation in the hills around the flood plain
- poaching on the river and in the protected areas

- irrigation project (both major and minor projects)
- weed problem caused by *Eichloronia crassipes*
- fisheries declining

In addition, the meeting provided detailed discussions on major and immediate issues primarily:

- conflict between people and wildlife
- declining development projects in the area
- drying rivers within the area
- limited capacity to manage resources in the District

#### 1.10 Discussions with Paramount Chief Lundu

did not take place because the chief felt that he needed the presence of his Indunas. Therefore, future meetings have still to be arranged.

#### 1.11 Discussions with SUCOMA (Sugar Company of Malawi) 15/01/96

The meeting was led by Mr. Derony, the Agriculture manager. The company estate has about 1200 ha and diverts water for irrigation in the range of 400,000cm/day during the dry season.

SUCOMA is the largest sugar company in the country, but unfortunately the company activities have displaced many local people.

- There are chances that the company may want to respond

### Inception Mission - Team B Zambezi Basin Wetlands Community Resource Use Project IUCN-ROSA Submitted by: Evelyne Guindon Zador, Consultant

To: Tim Lash, IUCN Canada

Eric Hiscock, Project Manager (designate) ZBWCRUP

#### Malawi

##### General Issues:

- Poverty is the most serious problem in these districts;
- Coming out of an 8 year drought period;
- 400,000 people in Chikwawa district;
- pressure on Elephant Marsh - community moving closer to water's edge;
- poaching increased - hippo number decrease;
- increase in calls for crop protection;
- less room for hippo grazing;
- quality and number of fish decreasing;
- hippos and trees along river linked to food security;
- people not experienced with dangers of river (crocodiles and hippos) - need to protect their gardens and themselves;
- danger of low-land farming - flooding: causing people to become nomads - move inland during flood and move towards water during drought;
- role of river within eco-system not known by villagers or decision-makers;
- people will not leave drought without economic benefit;
- fishing industry is being destroyed, therefore so is the primary source of protein;
- there is a lack of coordination between NGOs and Government and District Development Committees are not effectively used;
- health hazard of marsh area - bilharzia and malaria (mosquitoes);
- fear of people being moved from water's edge has been expressed - any programme may be seen as suspect in this regard;
- people are aware that water is going down, that food production is going down - they do not have any solutions;
- SUCOMA shows that they are interested in providing support and services to their employees (ie. schools, clinics, sports facilities, food, etc.);
- no socio-economic survey or EIA has been done on the proposed large scale irrigation scheme;
- 1996 projected population of Nsanje is 330,000 people;
- at height of refugee crisis almost 1/2 million people in district (280,000 refugees and 200,000 Malawians)
- Shire River changing course in Nsanje district towards Malawi therefore a need exists to protect banks with reeds and trees to control the movement of water;
- Nsanje has been relying on food aid for eight years - the food crisis is endemic in this district;

- communities in both districts are not used to be consulted, - they have always been excluded from the decision making process, particularly women.
- Chikwawa community will be affected by Kapuchira Falls Dam Project - Labour setting up in town = increased demand on resources (firewood, charcoal, fish etc.)
- Project has Environmental Officer and Public Relations Officer - neither dealing with effect on community or environment of project - primarily liaison services.

#### **Actions:**

- ensure consultation with all groups working in the area;
- ensure wide consultation with community leaders, District Commissioners, traditional chiefs, extension agents, etc.;
- PRA can be used to:
  - assess problems
  - find and implement solutions;
- communities in these districts are used to getting hand-outs, (ie. Food for Work projects are common);
- encourage ownership;
- poverty issue must be addressed directly - provide alternatives for those cultivating in or close to marshes (ie. income generating activities combined with strong educational campaign) - healthy environmental cycle has got to be economically viable;
- focus on gaining political support/will;
- Marshes must be seen and understood by all within wider context of Shire River;
- link river/marsh to food security issue;
- ensure IEC component on health issues surrounding river/marsh;
- need to educate communities on protecting river banks - always focusing on methods/ideas - not only on "need" but on "how to";
- need for long term development approached in both districts - project should assist with this process or tap into ongoing plans;
- participatory rural development approaches/appraisals are essential for identifying issues and development approaches/solutions;

#### **Gender issues:**

- women must be involved from the beginning of the process;
- women in Malawi do not commonly participate in projects at the village level, they have to be brought in;
- Home craft programmes exist in the rural areas and are under the District Development Committees. These programmes are only for women and assist them in developing skills such as gardening and handicrafts, and provide information on nutrition and health issues. They could be a very good avenue for

environmental IEC initiatives.

- Women's church groups and Kitchen Gardening Groups may also exist and information on them should be obtained;
- there is a programme called Women's World Bank in Malawi, but little information was available. The World Bank may provide information on this initiative.

#### **Environmental IEC ongoing:**

- Ministry of National Parks and Wildlife has an Education Unit;
- one of their objectives is to educate communities in protected areas in order to reduce poaching problems;
- the Forestry Extension Programme has incorporated environmental IEC;
- the Ministry of Agriculture also has an Environmental Education Unit;
- the three work independently, but come together once a year to host a national environmental education workshop which gathers school leaders and assists them in setting up environment clubs;
- Wildlife Society has environmental education programme, but only 4 Field Officers in Chikwawa with many other responsibilities; they also produce educational materials although none were collected;
- two national parks in Chikwawa district as well as private game reserve at SUCOMA which can be used by student groups and for educational activities;

#### **Possibilities for environmental IEC initiatives:**

Since the following issues have been identified:

- the vital importance of food security to the people living adjacent to the wetlands;
- the role and value of wetlands to local communities are not known;
- little capacity exists in wetlands assessment, management and monitoring;
- the critical danger in which the ecosystem/wetland area finds itself (increasing demographic pressure, rapid degradation of river and its resources);
- the need to provide information on the downstream value of wetlands and the consequences of development to decision makers.

The focus of the initiative in Malawi may be on:

- assisting in providing food security to selected communities in Chikwawa and Nsanje districts, ie. demonstration projects;
- increase knowledge of biodiversity and value of wetlands, as well as the national capacity to evaluate and monitor the wetlands;
- increase the capacity of communities to use wetland resources sustainably;
- assisting in community planning process;
- obtaining information on the downstream value of wetlands and the consequences of development and passing this information on to decision makers;

Therefore, the following communications initiatives might be considered:

- demonstration sites themselves are a communications tool. They could target the following groups:
  - a. Rural communities living along the Shire River
  - b. NGOs and local associations
  - c. Decision makers (traditional chiefs, politicians)
- in order to increase the knowledge of rural communities on biodiversity issues, the value of wetlands and increase their capacity to use it sustainably, a public awareness campaign could be designed. For example:
  - the campaign could focus on "Wetlands as a Food Source";
  - focus Group discussions would be held to measure knowledge levels;
  - participatory Rural Appraisal methods would be used to appraise the communities needs surrounding the wetlands;
  - communities targeted may be only those living within 500 metres of the Shire River or all those within districts;
  - develop a core-team of self-selected community leaders (ie. Protect the Shire community groups) - These individuals would be trained on a variety of issues (e.g. link between fish, water quality and hippos and trees; improved agricultural techniques) and communication techniques enabling them to lead discussions and debates with their fellow community members
  - theatre or puppet troupes could present plays/comedies on the topic and community leaders could engage the communities in discussions following the presentation (this ensures and assesses the learning process).
- once information on the downstream value of wetlands and the consequences of development on the ecosystem has been established, a communications strategy ensuring that this information is passed to decision makers should be designed and implemented. For example:
  - NGOs such as the Wildlife Society and CURE, could be strengthened in their capacity to develop, implement and evaluate such IEC initiatives
  - a film could be made on the issue. This could be broadcast on TV (ie. MNET, since there is no broadcasting from Malawi), or organised viewings for political leaders, traditional leaders, ESCOM senior staff, as a group or separate, could be organised followed by debates/discussions.
- much of the activities of this project will be focused on, or at least rely on, strategic IEC initiatives.

Because of the important role that information, education and communication will be likely play in this project, it is recommended that IEC be integrated into programme development in Malawi at the earliest stage to ensure that it is part of the project and not simply a separate activity.

#### **Organisations to contact in Malawi:**

##### **CURE:**

- Contact: Alifeo Banda (Programme Officer)  
Tony Rogge (Communications Officer)  
Lingua (Gender Issues)
- Obtain more information on Dedze Project;
- The Dedze Project, now complete, aimed to restore the natural resource base of the Dedze District following the repatriation of Mozambican refugees;
- CURE, is a co-ordination agency which has experience/capacity in the area of training and participatory methodologies;
- has plans to start working in Chikwawa district.

##### **International Eye Foundation:**

- Contact: Chris Jones
- active in Chikwawa;
- Vitamin A project.

##### **UNDP and USAID - Nature Programme:**

- Joint funding of "Nature" programme, 5 year national project, US\$40 million (\$10 million for Environmental IEC), recently completed first round of consultations in programme development;
- USAID contact: David Himmelfier
- UNDP contact: Shawn Southey
- World Bank also involved.

##### **Wildlife Society "Garden Project" in Chikwawa district (Demonstration Project):**

- small scale irrigation project, on small plot of land, close to a National Park, run by 11 women;
- has reservoir with a low maintenance pump for fisheries, areas left for grazing, planted fence, etc.;
- Wildlife Society sees Chikwawa as a priority district;
- collect educational material from head office.

##### **CONGOMA:**

- the national NGO co-ordinating body. They should provide a list of NGOs working in Chikwawa and Nsanje Districts. Address/telephone can be obtained from CURE.

##### **Farmer's Clubs:**

- exist in every village, role is primarily seed distribution;
- potentially good structure for environmental IEC.

#### United National Volunteer Programme (through UNDP):

- have a Ugandan volunteer who has done research on the effects of wild animals on crop production with the Department of Wildlife and National Parks;
- will be conducting workshops and setting up village committees for crop protection in Nsanje district.

#### UNDP re: 5th Country Strategy 1993-97:

- Nsanje district part of Pilot Programme (6 districts);
- Funding for all development projects directed through District Development Committees;
- if successful, 6th Country Programme will replicate it in all countries;
- has also integrated environmental IEC and every project is scrutinized for environmental sustainability;
- contact Mr. Samote at UNDP in Lilongwe for more details.

### Mozambique

#### General Issues:

- delta residents have obtained more food from buffalo in the last years than from fish;
- many residents of delta, Gorongosa and Marromeu areas left for Beira and the corridor for security during the war. Some are going back but, the representative of the Land Commission believes that most will not return.
- people have moved to within park boundaries;
- education system completely broken down, being re-built (need for buildings, teacher housing, textbooks, salaries for teachers and trained teachers, etc.)
- health system completely broken down;
- Gorongosa Wildlife School destroyed and needs to be re-built. Curriculum also needs to be re-designed;
- communities feel resentment towards the park;
- people have been under the rule of many "administrators" over the years, ie: Portuguese, Frelimo, Renamo - lack of trust for authorities;
- socio-economic structure destroyed, ie: homes, families;
- collapse of livestock industry + many people trained in firearm use + easy access to firearms = dangerous poachers;
- for over 12 years, there has been no control over the use of natural resources;
- all safari companies have foreign hunter/guides;
- hunting is difficult to control, hunting licenses must be purchased in Beira - Emergency Programme feels it is now under control in the Parks, but poaching highlighted as one of the most serious problems in the coutadas (concessions);
- under a controlled programme, people are now being allowed to fish and cultivate honey within Gorongosa;

- within delta there are no organised ongoing projects;
- authorities are relying on information provided by safari operators (re: wildlife status);
- deforestation also an issue within Gorongosa, and possibly Marromeu and surrounding Coutadas;
- high rate of illiteracy (nationally), and all age groups;
- conflicts between safari operators and communities are increasing - people being placed in small areas, although some safari operators are now starting to work with communities;
- coutadas are heavily mined;
- settlement is sparse along the coast and in the mangroves between Beira and Delta;
- long-standing, organised, fishing/agricultural settlements along both sides of the Zambezi River, from the delta to Marromeu;
- several burnt out small towns/centres along north side of river, sparsely populated;
- forested areas outside Marromeu are being rapidly deforested;
- wetlands seem under-utilised;
- there is a lack of knowledge of what ecological and agricultural systems exist which limits planning;
- MICOA developing a Wetlands Management Programme and a Coastal Zone Project;
- Ministry of Social Action sees the most serious national social problem as being orphaned children, widowed mothers and abandoned elderly people;
- few communities have electricity outside Beira and the Corridor;
- new Land Policy/Laws of tremendous importance to country and to this project;
- tremendous need to strengthen institutions set to implement new Land Laws, ie. courts, public works, land registration, etc.
- many people concerned over South Africans moving into Mozambique and taking over the economy/land - one of the reasons for moving quickly on new land legislation;
- local Land Commissions to be set up throughout country, at grassroots level, some may even be courts to assist in resolving local conflicts;
- new land laws seek to promote the sustainable use of natural resources;
- building educational networks - school within a region become a group and share resources/collaborate;
- curriculum includes environmental issues, mostly in geography (nature, soil, natural and water resources) - not a specific curriculum;
- entire national curriculum revised starting 1983 - relatively new curriculum;
- families do not pay school fees, but if they can, they contribute to a school fund;
- primary school compulsory
- large SIDA grant to develop and distribute school texts (all subjects) up to form 5;



- Gorongosa is seen as a greater priority area for education than Marroneu, primarily due to the complete destruction of its school system;
- Children and Youth Literacy Programme exists in province - purpose is to provide basic literacy skills to majority of the population who have not and will not attend formal school. This same programme also exists for adults

#### **Actions:**

- ensure project focuses on returns to the communities;
- because of the need to regain people's confidence, positive achievements at the beginning of the programme are essential;
- communities should be empowered to use their new land rights and their (soon to be developed) rights over natural resources - could be integrated into project;
- need for wetlands inventory, and national capacity building in this area as well;
- need to include communities in planning process (park and conservation activities);
- the needs of local communities must be defined. Little work has been done in this area, with very few organisations doing community development other than FHI;
- many authority structures are still in place in Gorongosa (traditional, RENAMO, FRELIMO/Govt.) - collaboration/accord amongst all must be ensured.

#### **Gender Issues:**

- women are active in cultivation, firewood collection, swamp fishing, prawn and shellfish fishing, some fresh water fishing, water collection, among other activities.
- men are active in fishing, hunting, logging, honey cultivation, charcoal production, among other activities.
- many men are migrant labourers and therefore many households are lead by women;
- many women were raped during the war and have been abandoned by their husbands;
- new land policy is said to discriminate in favour of women.

#### **Environmental IEC ongoing:**

- other than FHI initiatives in agriculture (which have a partial environmental communications element), there are currently no activities in Sofala province in environmental IEC.

#### **Possibilities for Environmental IEC Initiatives:**

Since the following issues have been identified:

- the role and value of wetlands to local communities are not known;
- little capacity exists in wetlands assessment, management and monitoring;
- the need to inform communities on the new land laws.

The focus of the initiative in Mozambique may be on:

- Assessing/evaluating the role and value of wetlands to local communities (ie. resource patterns);
- developing national/provincial capacity to assess, manage, monitor wetlands;
- providing information to communities on the new land laws.

Therefore, the following communications initiatives might be considered:

- conducting focus group discussions with local communities, to assist in determining their knowledge of environmental issues, ie: the value of the surrounding wetlands. This would provide important base-line information on their current level of knowledge, providing an opportunity to measure achievements at the end of the project, as well as essential information in the development of any IEC initiative.
- the use of participatory methodologies to determine priorities and potential project interventions;
- developing a communications strategy to inform communities on the new land laws. For example:
  - using participatory methodologies, the new land laws could be explained and feedback/reactions could be provided;
  - based on the feedback provided, it is found that community members are positive towards the new land laws in general but are concerned that their rights to the land are only being covered for a maximum of 50 years.
  - a campaign could address this issue (the positive implications of the 50 years maximum) and ensure that feedback is heard at the appropriate level (Land Commission and Parliamentarians). Once this sensitive issue has been addressed - a comprehensive campaign on land rights would be designed. eg. travelling theatre followed by a debate/discussion. Sessions could be held separately for men and women, if this ensures that women participate in the discussion.
  - a campaign on land rights should integrate valuable information on environmental issues, particularly those concerning wetlands. This will allow the entire cycle/link to be exposed to those who need the information most.
- once assessments/evaluations have been conducted and information has been gathered, develop IEC component to ensure information is appropriately transferred to communities affected. For example, if it is found that mangroves are threatened by over use, a campaign could be designed to inform communities on the importance of mangroves to the ecosystem, while at the same time the project would be attempting to assist in finding alternative sources of fuel wood and income.
- the design of specific communications initiatives would likely come in the second half of this project due to the likely focus on analysis in the first half.

It is recommended that Focus Group Discussions and PRA methodologies be used at the beginning of the project to ensure community participation and provide needed information on the current knowledge level of communities.

It is also recommended that capacity in the area of IEC be built throughout the process of developing, implementing and assessing the IEC initiatives. This could be achieved by e.g. assigning one or several MICOA staff/community agents to the IEC component.

#### **Organizations to contact in Mozambique:**

**Provincial Ministry of Education (Sofala):**

- Alves Manuel, Head of Pedagogical Services
- would be useful to meet with Director to obtain a broader picture - we had tried but failed to make our appointment.

**SIDA (Swedish Aid):**

- office in Maputo (no contact name)
- re. more info on their initiative to assist in the development and distribution of school texts nationally
- Zimbabwe Publishing House in Harare are producing some of the books.

**GTZ (German Aid):**

- Dr. Droste, Beira office
- working in Sofala province, particularly in Gorongosa district;
- GTZ have experience working in the area of education - have provided training for teachers in Beira and in RENAMO areas;
- they are also planning to develop programmes in the area of health and family planning, as well as gender related issues such as working with refugee women;
- are currently working on the promotion, development and strengthening of local institutions/NGOs;
- recently conducted a Nutritional Status Baseline Study;
- will be placing a DED Volunteer (German) in Gorongosa do work on Buffer Zone Management issues;
- use Participatory Approaches in the development of their projects.

**Food for the Hungry International (FHI):**

- met with Wadzi Katsande, Communications Officer (leaving in March '96);
- Christian, international, emergency relief organization;
- operate only in Sofala province, in five districts including Gorongosa and Marromeu, reaching 17,000 farmer families;
- Agricultural Programme with two components: 1/Extension and 2/Human

**Resource Development;**

- working with small scale farmers (techniques, marketing, etc.)
- have research component, ie. testing best crop variety for each area;
- extension workers are employed by FHI; provide training to government extension workers and community members; travel on motorbikes; have diplomas in agricultural extension; and do not necessarily come from the area they work in.
- assistant extension workers are paid token honorarium; they are from the community in which they work; their home is used as a "model garden"; are provided with bicycles for transport; train peers; not formally educated; will soon no longer be part of programme.
- research programme looking at interface between traditional agriculture and wild resource use;
- have launched a goat re-stocking project in Marromeu;
- have communications specialist/training expert on staff - have developed many different methods of providing information to villagers, e.g. puppetry;
- have experience in using participatory methodologies.

**World Vision**

- Eric Schmidt - name given by GTZ's Dr. Droste as good contact in Beira

**Médecins Sans Frontières**

- no contact name - office in Maputo;
- have done national health surveys and likely have a national health data base (according to FHI).

**USAID Mozambique**

- Robin Mason, Programme Officer, Environment
- office in Maputo
- will in March be conducting a training workshop for all USAID funding recipients and prospective funding recipients (international and local NGOs) in the area of integrating environmental impact assessment in the development of all projects. This is part of new USAID regulations for all countries.

**Africare**

- Ricardo L. Duenez, Programme Administrator
- primarily involved in health issues surrounding the city of Beira
- very knowledgeable on the issues surrounding the province nonetheless.

## APPENDIX 10

### REGIONAL WORKSHOP REPORT

REPORT OF A REGIONAL CONSULTATIVE AND PRIORITY SETTING WORKSHOP FOR THE ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILISATION PROJECT, HELD AT THE CRESTA JAMESON, HARARE, 19-10TH FEBRUARY 1996

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## 1. Introduction

### 1.1 Background

Most natural resources in Southern Africa are shared and achieving sustainable natural resource management requires regional co-operation, an integrated ecosystem oriented approach and a common understanding of the natural resource base. The Zambezi River and its dense network of tributaries and associated wetland systems constitutes one of Southern Africa's most important natural resources. Among the diverse sub-ecosystems of the Zambezi Basin, wetlands and their related natural resources represent some of the most productive ecosystems in the drainage basin. They provide the most wanted fresh water for human consumption and economic development, pasture for livestock and wildlife, fertile soils for agriculture, yield a major harvest of fish protein and support some of the largest contiguous wildlife populations and habitats on the African continent. At the same time the Zambezi Basin provides for the majority of the region's present power generation, represents a key asset in the region's tourism and recreation industry and supports the subsistence economies of some of the poorest and most unique local communities of Southern Africa (the livelihood of approximately 20 million people is directly dependent on the Zambezi Basin).

Wetlands of the Zambezi Basin, apart from providing products to the people of the basin, perform invaluable hydrological functions that maintain the status quo of the basin ecosystem. The wetland ecosystems and their associated riparian habitats perform important functions such as flood storage and conveyance, erosion control through river/stream bank stabilisation and sediment trapping, and pollution control by retaining and absorbing toxic substances and effluent.

However, beyond its outstanding value as an ecosystem and natural resource base, the Zambezi drainage basin also provides numerous examples of unsustainable and destructive use patterns which in due course will threaten the very 'life line' it currently represents in the region. Being a transboundary resource which is subject to management and use by various sectoral and independent national interests and entities it illustrates many of the environmental concerns which are associated with development planning that lacks an ecosystems perspective. Land degradation, poor watershed management, construction of dams, sewage and industrial pollution, drainage of wetlands, water extraction and general infrastructural development have reached a magnitude which calls for urgent action in terms of environmentally sound management and ecosystem approach.

It is against this background that IUCN-ROSA and CIDA, in collaboration with its members and partners, formulated the Zambezi Basin Wetland Conservation and Resource Utilisation Project whose main goal is to encourage an integrated/ecosystems approach to wetland conservation and wise use.

### 1.2 Introduction and Theme of the Workshop

The Zambezi Basin Wetlands Conservation and Resource Utilisation Project (ZBWCRUP) was developed in three phases, i.e. project concept document (based on a desk study), feasibility study (based on literature and field surveys) and Inception Mission (field survey and consultation workshop). The regional consultation and priority setting workshop is an integral part of the inception mission phase.

In line with IUCN-ROSA's approach and CIDA's funding requirements, the consultation and involvement of IUCN members and partners, and other beneficiaries in the programme formulation process was seen as a very important element. This necessitated an Inception Mission to consult the various stakeholders in the basin. The Inception Mission constituted the third phase of the ZBWCRUP development. The main goal of the Inception Mission was to confirm key issues and assumptions raised in the programme concept document and the feasibility study, including: continuing appropriateness of the stated goals and objectives; elaborate on the intended project inputs and outputs; further develop anticipated sustainable results; with the aim of developing a realistic work plan for the programme.

A two day regional workshop was organised in mid-February to discuss preliminary results of the field surveys. A total of 29 participants attended the workshop. Workshop participants were drawn from the riparian states and a few international and regional experts were invited. Participants from Angola, Botswana, Malawi, Mozambique, Namibia, Zambia and Zimbabwe and representatives of international institutions such as CARE International(Canada), WHO-PEEM(Geneva) and IUCN East Africa office attended the workshop.

A brief introduction and historical background to the project objectives, what was expected from the Inception Mission and workshop was presented to the participants. The brief highlighted the work plan of the inception mission team. The workshop was informed that the Inception Mission team had visited six riparian states and four selected wetland sites to gather data on the local community perspectives on wetlands conservation and issues affecting current efforts on wise use of wetland resources. The main objective of the workshop was to give a regional perspective of the issues and provide in depth discussion on regional and transboundary issues affecting wetlands conservation and wise use.

### 1.3 Objectives of the Workshop

The Regional Consultation and Priority Setting Workshop constituted a very important component of the Inception Mission. Its main aim was to broaden the consultation on the above discussed issues. The specific objectives of the workshop were to:

- **review the inception mission field survey results and exchange information and experiences on the various projects and programmes in the Zambezi Basin**

- further consult riparian states, IUCN members and partners, and to obtain a broader view on what needs to be done in the Zambezi Basin
- initiate dialogue and liaison among the various stakeholders for the effective implementation of the Zambezi Basin Wetlands Conservation and Resource Utilisation Project
- obtain a regional synthesis on the issues, priorities and potential projects for the ZBWCRUP
- discuss and establish mechanisms for co-ordination on transboundary wetlands issues in the Zambezi Basin
- obtain suggestions on partnerships for the implementation of the programme.

## 2. Keynote Presentation

As part of the workshop proceedings, five keynote presentations were made to provide the participants with background information for working group discussions. The following are the summaries of the keynote presentations.

### 2.1 Integrated Drainage Basin Management and Transboundary Co-operation

*by Dr. G.W.Howard, Regional Wetlands Programme, IUCN Eastern Africa*

#### 2.1.1 Integrated Drainage Basin Management and Wetlands

As participants were familiar with the Zambezi drainage basin, the Pangani system which has watersheds similar to the Zambezi and drains and feeds a delta with mangroves as the Zambezi, was used as an example to illustrate the needs and possible mechanisms for integrated drainage basin management: the Pangani River Basin in northern Tanzania<sup>1</sup>. Here the issues described included:

- a watershed involving Mt. Kilimanjaro, Mt. Meru, the Pare Mountains and the Usambara Mountains;
- a natural storage lake (Lake Jipe) in the upper catchment as well as a large reservoir;
- severely reduced river flows due to numerous unlicensed offtakes of water in the upper catchment - mainly for irrigation;
- upland, middle and lowland wetlands with roles in water storage, stream flow modification, water "purification", flood amelioration and ground water recharge;
- managers of the waters of the basin in three regions, at least five districts and several ministries;
- an initial lack of appreciation of the "environmental needs" for waters from a river system - including the needs for freshwater by the mangroves at the outflow;

- limited understanding by water managers of the role and value of the wetlands in the drainage system.

These problems and issues are being addressed by a Water Basin Office and programme that is taking an integrated approach to ecosystem management (mainly through water management) using the drainage basin as the management unit. This involves the monitoring of water uses, flows and quality (including pollutants), licensing of water use and the consideration of other uses and users of water including agriculture, hydro-power generation and the environment. Other environmental issues will be addressed in future by a management system that will involve local, district and regional representation as well as national inputs from many sectors. Awareness is beginning to take root that the basin has environmental (as well as human) needs for water and that the wetlands are playing essential roles.

Using this and other precedents, the following ideas highlighted in the table below were presented as useful steps to lead towards the inclusion of wetlands in integrated drainage basin management.

Essentially this involves the raising of awareness followed by evaluation of wetland resources and functions and then the use of these in developing policies for management that regard wetlands as *de jure* ecosystems deserving serious consideration.

Note that the solution to the lack of integration (and the need for multidisciplinary action and integrated management) is likely to be better addressed by a "consortium" of interested parties - rather than an "authority" that takes the decision-making away from the existing agencies of government and local communities.

Ecosystem authorities, with powers to over-ride established management at regional and district levels, often bring about conflict and resentment when they make decisions without the involvement of local opinion and existing channels of communication. This can be overcome by a management system that works with the ecosystem as a unit, but which recognises the wealth of information and expertise already in place at sub-national and local levels.

<sup>1</sup> A description of the Pangani basin and its upper wetlands can be found in the latest *IUCN Wetlands Programme Newsletter*: No.12, pp.4-8.

### 1. AWARENESS:

- of the existence and values of wetlands at local, national and regional levels as well as essential components of water systems
- emergence of wetlands as “respectable” ecosystems requiring management and conservation as well as fulfilling functions and services for man and the environment.

### 2. INFORMATION AND DATA:

- actual roles of particular wetlands in water systems
- measurements of hydrological parameters in wetlands for water balance calculations
- resource assessment of particular wetlands to include and quantify other values.

### 3. INSTITUTIONS:

- a “home” for wetland issues and decision-making - at regional, national and local levels.

### 4. A VOICE IN PLANNING AND MANAGEMENT:

- with awareness, data, experience and capacity for wetland management developed, a voice for wetlands must be injected into the drainage basin management process - at national, district and local levels as well as (say) through ZACPLAN, SADC, ZRA, etc.

### 5. MONITORING OF WETLANDS AND RE-PLANNING:

- should be carried out for the end-users (communities at the delta and mangroves, etc.), for the lower basin, mid basin and upper basin and related to each other and the general management of the drainage basin.

The components of an integrated management system include:

- a) **Awareness creation:**  
Although the local communities are aware of the existence of and products they get from wetlands, most of them are not fully aware of the importance and thresholds of wetlands, the value of wetlands and their place in the basin ecosystem. There is a lack of awareness on the part of:
  - (i) Communities in terms of threshold and environmental interlinkages
  - (ii) Planners in terms of the environmental effects
  - (iii) Politicians in terms of decision-making and policy
  - (iv) Donor community in terms of addressing immediate priorities, without considering ecological sustainability (national and regional level)
  - (v) Media and NGOs opinion formers in terms of dissemination of accurate information.
- b) **Respectability:**  
It is important that governments recognise the values of wetlands and deliberately create institutional mechanisms to deal with wetlands. The Uganda case of an interministerial body could be considered in the Zambezi Basin case.
- c) **Information and data: Lack of data:**
  - (i) There is need to acquire data on hydrological and biodiversity aspects of wetland ecosystems. A look at the role played by wetlands in water conservation in the basin is needed.
  - (ii) It is important to assess wetland resources and determine what they are worth.
- d) **National and regional institutional capacity:**  
There is need to have mechanisms for addressing wetlands at site, national and regional levels.
- e) **Monitor and re-planning:**  
Wetlands are dynamic ecosystems, and the monitoring of the processes and offtakes from wetlands is very important. There is an urgent need to monitor what is happening in wetlands and re-plan accordingly, understand what is happening to the entire ecosystem as a result of the effects on one or more wetlands.

### 2.1.2 Transboundary wetland management

The meeting was provided with copies of a (draft) paper entitled *Transboundary Programmes: from Ecology to Policy* by Mersie Ejigu (the former Regional Director for IUCN East Africa) which considered the natural resources that cross boundaries and how their needs for joint management could be addressed. Almost every country in Africa has a river as part of its boundary or a boundary that passes through a lake, a wetland or a river. Thus few countries have the luxury of being able to manage all their wetland resources in isolation. Transboundary wetlands (even those that cross boundaries **within** countries) require joint and co-operative management agreements and joint management plans. As suggested above, these should also be integrated to consider the sectors and components of the ecosystem so that the wetland is not managed for just one purpose.

It is important to develop a transboundary approach in view of the shared river and wetland resources, evaluate resources in wetlands as economic producers and avoid putting wetlands under any traditional sector such as fisheries, wildlife etc.

Examples were given of the developing Lake Jipe transboundary wetland management programme (between Kenya and Tanzania) and the emerging Lake Victoria Environmental Management Programme (KE/TZ/UG) that is being steered by the World Bank and GEF. Both require awareness and resource assessments of the wetlands concerned and then the development of management systems relying on that information. At the same time the value of these wetlands to people and the larger ecosystem are being calculated to further strengthen their place in the developing cross-border management plans. It will be essential to involve sub-national as well as national agencies (and NGOs) in this transboundary process, and, eventually, communities as well.

There are many wetlands in the Zambezi Basin, some of which are obviously transboundary in nature and others which have effects across boundaries. Southern Africa is very fortunate in having SADC, ZACPLAN and ZRA as existing mechanisms and institutions for country-to-country agreements and cross-border management of ecosystems. The proposed project has the opportunity to build upon these mechanisms and to demonstrate that they can work for wetlands - in all the steps from initial awareness to effective management across borders. It also has the chance to bring regional considerations into the support of developing national wetland programmes in the riparian states. National wetlands programmes in Zambia, Zimbabwe, Malawi, etc., and their efforts to implement the Ramsar Convention, can be integrated with the Zambezi wetlands programme so that mutual efforts are enhanced and so that the country programmes can be linked (regionally) through the project. At the same time the project should take positive steps to build upon and support the national wetlands programmes and ensure that the site-specific activities enhance those programmes - especially where they cross borders.

## 2.2 Introduction and context of the ZBWCRUP

by T. Matiza-Chiuta, Regional Field Programme Co-ordinator, IUCN-ROSA.

### 2.2.1 Introduction

The Zambezi is one of Africa's four major rivers, with the Nile, the Congo/Zaire and the Niger being the other three. The river rises from an altitude of 1585m above sea level in North Western Province of Zambia. From its source, the river flows northwards, then west through Angola's Molwezi District. It then re-enters Zambia and flows through the Barotse Flood Plain. It flows through a stretch of rapids which **start** at Sioma Falls and end at Katima Mulilo where it forms the border between Zambia and Namibia. From Katima Mulilo, the river flows south-east through a sandy plain and its floodwaters mix with the waters of the Chobe/Cuando River system. From **the** Zambezi/Chobe confluence, the river flows east and approaches Victoria Falls where the altitude drops by over 600m. From Victoria Falls, the River forms the border between Zimbabwe and Zambia and finally flows into Mozambique and the Indian Ocean through the Zambezi Delta.

From its source to mouth, the Zambezi is joined by numerous tributaries which, together with the main river, define the Zambezi River drainage basin. Upstream, **the** Zambezi is joined by the Lungue-Bungu, Luena, Luanginga, Luete, Lueti, Lui and Chobe Rivers. In its middle level, the Kafue, Luangwa, Gwayi, Sanyati and Manyame are the main tributaries, while the Shire is the only main tributary in the lower part of the drainage basin. The Zambezi River and its dense network of tributaries and associated diverse sub-ecosystems constitute one of Southern Africa's most important natural resources.

### 2.2.2 Rationale and justification for the ZBWCRUP

The Zambezi Basin plays a key role in the economic development of the region. **The** effective management and sustainable use of the basin's natural resources, **especially** the wetland ecosystems is very important.

Beyond the outstanding value of the Zambezi as an ecosystem and natural resource, the drainage basin also provides numerous examples of unsustainable and **destructive** natural resource use patterns which in due course will threaten the very 'life line' it currently represents in the region.

Being a transboundary resource which is subject to management and use by various sectoral and independent national interests and entities, it illustrates many of the environmental concerns which are associated with development planning that **lacks** an ecosystems perspective. Land degradation, poor watershed management, **construction** of dams, sewage and industrial pollution, drainage of wetlands, water extraction and general infrastructural development have reached a magnitude which calls for

urgent action in terms of environmentally sound development, management and ecosystem approach.

The need for integrated, multi-national management of the Zambezi Basin was recognised by the riparian states in the early 1980s and this led to the establishment of the Zambezi River Basin Action Plan (ZACPLAN).

However, ZACPLAN and other related activities focus on single resource rather than adopting an ecosystems approach to understanding and utilisation of the Zambezi Basin resources. Lessons on integrated river basin management which emphasise sustainable natural resource management are limited in Southern Africa. While the proposed programme will be able to draw upon the lessons learnt in implementing ZACPLAN it will break new ground in ecological, institutional and managerial approaches to transboundary ecosystem management in the region.

Although the region has embarked upon most promising initiatives in terms of regional integration, co-ordinated development planning, and eventually transboundary management of natural resources such as the Zambezi River Basin, this is still in its early stages.

Many of the current efforts still focus on sectoral approaches towards strengthening development capacities and potentials (e.g. transport, water, tourism, power, agricultural production) while integrated approaches to sustainable natural resource management remain weak.

The environmental problems faced in the basin are primarily the result of a sectoral focus, conceptually and institutionally, weak inter-sectoral and transboundary co-ordination mechanisms and structures do not allow for sound management of transboundary resources.

There is a lack of knowledge and information on the dynamics and functions of ecosystems. This is manifested in the absence of legislative frameworks as well as limited human resources sufficiently trained and qualified to study and demonstrate the hydrological and more general environmental impacts of 'manipulating and using' a dynamic and complex resource such as those of the Zambezi River Basin ecosystem.

Wetlands represent some of the most productive and significant ecosystems in the Zambezi Basin. They perform important functions such as flood water storage and conveyance, erosion control through river/stream bank stabilisation and sediment trapping, and pollution control by retaining and absorbing toxic substances and effluent.

### 2.2.3 Process and programme development

Concern for the conservation and sound management of the Zambezi Basin's natural resources dates as far back as the early 1980s when the ZACPLAN Programme was launched by the Zambezi Basin riparian states. Various projects and activities initiated under ZACPLAN have been implemented since then.

The pressure and demands on the basin's natural resources have been increasing over the years. Concerned by this pressure and demand on the basin's natural resources and uncoordinated infrastructural development in the basin, the IUCN membership in Southern Africa asked IUCN to be involved in the environmental matters of the basin. This request was made at the Victoria Falls Regional Membership meeting in August 1992. In view of the high profiles of various actors (e.g. UNEP) that were involved in the Zambezi Basin issues at that time, IUCN did not directly and immediately respond to this request, but instead, facilitated a number of EIAs related to the developments that were planned in the basin.

The periodic droughts that are characteristic of the Southern Africa region did place a lot of pressure on the Zambezi Basin as a perennial water source. In responding to the recurrent droughts, riparian and non riparian states embarked on water development plans that were/are based on the Zambezi Basin as the main supplier of water in the region. The impacts of these developments increasingly became critical issues of concern to IUCN members who, in turn, asked IUCN to convene a regional workshop to discuss the Zambezi Basin water projects.

In response to the members' concerns, IUCN-ROSA in collaboration with SADC-ELMS, organised a regional workshop on the Zambezi Basin water projects. The workshop was held at Kasane, Botswana, in April 1993.

From the workshop deliberations, it was apparent that wetland ecosystems of the Zambezi Basin were not accorded the attention that such ecosystems should receive. Many of the current and planned developments did not seriously consider the impacts on the wetland ecosystems as a critical issue.

The Kasane workshop also revealed a limited understanding of ecosystem principles and serious lack of awareness of the impacts the current and planned developments will have on the basin's ecosystems.

As a follow up to the issues raised by the Kasane workshop, IUCN-ROSA and CIDA agreed to develop and implement a regional programme whose main focus is to encourage integrated conservation and wise use in the Zambezi Basin's wetland ecosystems.



The Zambezi Basin Wetlands Conservation and Resource Utilisation Project (ZBWCRUP) was developed in three phases, i.e. programme concept document (based on a desk study), feasibility study (1994) based on literature and field surveys and inception mission (based on field surveys and consultative meetings) and a regional workshop.

#### **2.2.4 Goal and objectives of the ZBWCRUP**

**Goal of the Project:**

**To conserve the wetlands ecosystems and associated natural resources of the Zambezi River Basin.**

**Main Objective:**

**To develop and promote an integrated ecosystems perspective to the conservation and sustainable utilisation of the Zambezi Basin's wetlands and associated natural resources.**

#### **2.2.5 Programme focus, approach and geographical coverage**

**Project focus:**

In spite of the diversity of ecosystems in the basin, the focus of this programme is on wetlands ecosystems (wetland as defined by the Ramsar Convention). The overall goal of the programme is to conserve wetlands and associated resources. The main objective of the programme is to articulate the true ecological and socio-economic value of the wetlands of the basin to the basin's population.

**Approach:**

This programme aims to build upon activities and programmes already initiated with respect to managing and utilising the basin's wetlands and related resources. The programmatic approach is primarily intended to strengthen institutions and initiatives within the drainage basin and the region in general. Of particular importance here are the Zambezi River Basin Action Plan (ZACPLAN), SADC-ELMS ZACPRO 6, SADC/IFFW's Southern Africa Wetlands Support Programme Phase II, other CIDA supported projects in the basin and other initiatives by IUCN members and partners.

The proposed wetland ecosystems approach to addressing some of the key issues with respect to the Zambezi River Basin will focus on strengthening the understanding and capacity of IUCN's members and partners in the region to practise equitable and ecologically sustainable utilisation of the fragile wetland and related ecosystems that are central to the livelihood of most rural and urban communities in the region.

Within this conceptual framework the programme will address what are considered to be the key constraints to a sustainable management and conservation of the Zambezi Basin wetland ecosystem, namely knowledge and awareness, lack of

practical experience in managing resources from an ecosystems perspective, insufficient information on the basin's biodiversity and its potential use values, a detrimental focus on sectoral 'national' strategies to manage a complex, transboundary natural resource, as well as limited institutional experience and human resources in ecosystems management (particularly resource use conflict resolution) which in itself will require pioneering work in the region.

In line with IUCN's overall approach, the programme will work with IUCN members and support IUCN partners such as inter-regional structures (SADC), national government departments, non-governmental organisations and community-based organisations.

The ZBWCRUP is a regional programme that should cover all the riparian states of the Zambezi River and its tributaries. For the purposes of this programme, seven riparian states will be considered. These are: Angola, Namibia, Botswana, Zambia, Zimbabwe, Malawi and Mozambique.

Project activities will operate at regional, national and local levels. In addition to regional activities, four wetland ecosystems have been identified and these are; the Barotse Flood Plain in Zambia, the Caprivi/Chobe wetlands in Botswana and Namibia, the Lower Shire wetlands in Malawi and the Zambezi Delta in Mozambique. Special attention, in terms of demonstration projects, will be given to these four ecosystems.

#### **2.2.6 Specific objectives and subject matter**

**Specific objectives:**

- to improve and expand public awareness on the ecosystem concept and the need for an integrated approach in drainage basin management.
- to articulate the true value and importance of the functions, products and attributes of wetland ecosystems at the local, national and regional levels.
- to improve institutional capacity in environmental economic valuations and impact assessment.
- to communicate effectively the true value of wetlands to the region's people and decision-makers.
- to investigate, develop and establish community-based integrated wetlands conservation and wise approaches and techniques.
- to help local wetland communities realise their potential in wetlands management and wise use, and assist these communities to participate fully in the conservation of the base of their own livelihoods.

**Subject matter:**

- wetlands conservation, and sustainable uses, and wetland community well-being
- articulation, quantification and communication of wetlands values and ecosystems perspectives to decision-makers at local, national and regional levels
- establishing integrated community-based approaches and techniques to wetlands conservation and wise use (ecosystem, multi-sector, and social-ecological).

**Kinds of activity:**

- supporting local definition of wetland values and issues, and local activities to improve wetlands conservation and sustainable use
- partnerships with existing programmes, and developing new partnerships
- better knowledge base (traditional and scientific) of wetlands' ecological and social values
- capacity enhancement and institution building
- public awareness and communications
- supporting wetland communities' access to health care and education.

**2.2.7 Programme structure and delivery mechanisms:**

- co-ordinating office in Harare
- two field teams (Barotse/Chobe-Linyanti; Lower Shire/Zambezi Delta).

**Delivery mechanisms and modes:**

The mechanisms and modes should have "multiplier effects" that enhance regional effectiveness, ecological-social integration, self-sustaining activities. The main delivery mechanism will be:

- through IUCN staff field teams
  - assisting local development of projects, including demonstration projects
  - providing advice and administering support to communities
  - seeking, assessing, and developing opportunities for IUCN member involvement
  - liaising with overall programme
- with IUCN members
  - enhanced co-operative planning and activities among members
  - capacity-building for members, particularly through opportunities for participation in field-based and regional activities
- with partner organisations
  - through value added to and from partner programmes, e.g. in health, education, and sustainable utilisation of wetland resources.

**2.3 Human Health Considerations in Wetlands Conservation and Resource Utilisation in the Zambezi River Basin**

*by Dr. Robert Bos, Executive Secretary, joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control.*

This paper briefly describes the objectives, structure and activities of the joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM), potential health aspects of African wetlands and which of these are likely to be real issues in Southern Africa, and in which areas PEEM may contribute to the objectives of the IUCN Programme on Zambezi Basin Wetlands Conservation and Resource Utilisation.

The joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control was established in 1981 as an inter-agency activity aimed to strengthen collaboration between the participating agencies and to promote collaboration between them and other appropriate international and national agencies, in their programmes and projects relating to the development of natural resources, agriculture and human settlements, urban water management and health promotion, and in the use of environmental management techniques for the control of disease vectors and the protection of human health and the environment.

In essence this means that PEEM addresses vector-borne diseases such as malaria, schistosomiasis, filariasis and arboviral diseases whose incidence and intensity will be affected by the ecological and demographic changes that result from the construction of dams, reservoirs, irrigation schemes and flood control works. It advocates a preventive, intersectoral approach to these problems, which considers human health from the early planning stages throughout all phases of the project cycle until the early operational phase.

Over the years PEEM has evolved from an inter-agency promotional body to a global network on environmental management for vector control, with an increasingly field-oriented programme of activities. In 1991 UNCHS joined the three founding UN agencies and this brought issues of human settlements and urban environmental management into PEEM's mandate. The global network currently consists of:

- the four aforementioned UN agencies, with a focus on the Environmental Health Programme in WHO, the Land and Water Division in FAO, the Human Health and Well-being Programme in UNEP and the Research and Development Division in UNCHS.
- forty Panel members, internationally recognised experts in a range of disciplines: epidemiology, vector ecology, tropical hygiene, irrigation, hydraulic engineering, agricultural economy, social sciences and ecology.

- twelve collaborating centres, among which (of interest to the Zambezi wetlands programme) feature the Danish Bilharziasis Laboratory, the Zurich-based Institute for Land Improvement and Water Management, the Liverpool School of tropical Medicine and the London School of Hygiene and Tropical Medicine.

The Panel's programme includes:

- promotion (the production and dissemination of PEEM technical guidelines and of the PEEM River Basin Series, the organisation of national seminars on water resources development and vector-borne diseases - see list of relevant documents at the end),
- technical cooperation (with IUCN on the health aspects of Zambezi Basin wetlands conservation and resource utilisation; with the OMVS (the Senegal River Basin Authority) on the development of rule curves for the management of reservoirs with a view to health promotion and protection and with the Mekong Secretariat on capacity building in the Lower Mekong Basin),
- research and development (characterisation of rice ecosystems in West Africa in terms of malaria and schistosomiasis risks, rice ecosystem management for disease vector control in Asia and irrigation management and disease vector control) and
- capacity building (promotion of environmental management through agricultural development and the development and testing of the training course *Health opportunities in water resources development*).

PEEM's interest in the Zambezi wetlands programme started with the organisation of the 12th PEEM meeting (Assouan, March 1994), which had on its agenda a technical discussion on the incorporation of human health into the integrated development and management of river basins. In preparation for this meeting, fact finding missions visited the three selected river basins and collected health, water use and environmental information from riparian countries. At the meeting, the Panel identified the links between wetlands conservation, increasing population pressure and the human health status as a key issue in the Zambezi Basin. This subject also fitted well with the two programmes in the Zambezi Action Plan which address vector-borne and water-based diseases. In follow-up to the meeting, contacts were established with IUCN (Gland), PEEM secretariat members participated in a number of workshops organised in Niger and Senegal on West African flood plains and information was obtained by the PEEM Secretariat on the Canadian supported programme on Zambezi wetlands conservation and resource utilisation. In the project document specific reference was made to health issues and the partnership between IUCN and PEEM to address these. Meanwhile, the London School of Hygiene and Tropical Medicine

(one of the PEEM collaborating centres) expressed a keen interest to be involved in this activity.

Little is known about the specific links between the wetland ecosystem and the health of its human inhabitants. This is largely due to the fact that the collection of health data, if at all carried out on a routine basis, follows administrative boundaries which do not usually coincide with ecosystem boundaries. There is a lingering notion that people living in wetlands are generally better off, both in terms of the immediate health risks and in terms of economic buying power (including buying power of medical services and drugs) but this is by and large anecdotal.

One can list a number of potential health issues that may be of relevance in the context of wetlands in Southern Africa:

- water associated diseases linked to the aquatic ecology, such as water associated vector-borne-diseases such as malaria; water-based diseases such as schistosomiasis linked to water supply, and diarrhoeal diseases associated with sanitation such as cholera helminth infections.
- malnutrition linked to protein or carbohydrate induced by poverty deficiencies and avitaminoses due to lack of education.
- respiratory diseases and infections of the respiratory tract linked to humidity and poor housing conditions.
- non-communicable diseases and malignant tumours linked to unknown environmental determinants.

Little as we know about human health in natural wetlands, there is a growing body of information about human health in man-made wetlands in the African context, with a focus on irrigated rice ecosystems. Most studies have focused on the water associated diseases such as malaria and schistosomiasis. While the notorious spread of schistosomiasis in African irrigation schemes has everything to do with the creation of habitats that sustain the intermediate aquatic snail hosts of the parasite causing the disease, its persistence has more to do with behavioural determinants (water contact patterns) and the lack of adequate sanitation.

Malaria, on the other hand, transmitted by anopheline mosquitoes, shows a rather more complex picture, where wetland environmental determinants may influence the factors making up vectorial capacity differently. Key factors include vector density and vector longevity. The observations made at the following sites illustrate these complexities:

- Vallée de Kou, Burkina Faso, where after the introduction of irrigation, anopheline densities increased but transmission levels of malaria declined. This was explained in part by a shift in the population dynamics, where the irrigated rice

environment favoured an *Anopheles gambiae* sibling species with a much lower vectorial capacity, and partly by the increased buying power of the local population so they could afford mosquito nets.

- Irrigated rice schemes in the Gambia, where an increase of population densities was observed with no effect on transmission, presumably again partly related to increased living standards.
- The Ruzizi Plain rice schemes in Burundi, where the original transmission peak following the rains was extended and significantly intensified after irrigation was introduced. Here it was demonstrated that the elevated relative humidity in the rice ecosystem increased vector longevity and thereby its vectorial capacity.

Some basic ecological research will be needed in the Zambezi wetlands to clarify mosquito population composition, life tables, species succession and other aspects of mosquito population dynamics, including genetics of relevance to transmission, in order to elucidate environmental and behavioural risk factors for malaria involved. Similarly, basic epidemiological work will have to clarify transmission patterns in relation to climatic variables, cropping patterns and other environmental factors.

The resource utilisation and conservation activities create opportunities for an environmental management component to be included, as soon as the above ecological and epidemiological issues have been sufficiently elucidated. In the conventional vector control context, three categories of environmental management are distinguished: environmental modifications, permanent, usually capital intensive environmental engineering works, aimed to make the environment less conducive to vector breeding; environmental manipulation, recurrent environmental interventions such as taking out aquatic weeds from water ways or intermittent irrigation, ideally implemented by local communities; and personal protection measures, such as the use of mosquito nets or putting screens in the windows of houses.

It is crucial that those working outside the health sector, including conservationists, review their perception of human health as a concept. In an ecosystems approach to community development, health must be considered a cross-cutting issue. The distinction between health services and health status must be clear: health services aim to reduce morbidity and mortality by means of a strategy that emphasises case detection and treatment (admittedly with some preventive measures, in particular hygiene oriented or where vaccines are available). The responsibility for health services lies with the Ministry of Health. Health status, on the other hand, has disease incidence and prevalence as its key indicators and follows a strategy of risk management: determining environmental, behavioural and social risk factors and mitigating them to reduce risks below acceptable levels. Health status is the respon-

sibility of all public sectors, with a co-ordinating role for the health authorities.

PEEM believes it can contribute to the IUCN programme on Zambezi wetlands in three areas to achieve an effective input into the programme's health component, which will contribute to the sustainable use of wetlands in the region. The premise is that, as proclaimed by IUCN, human health and well-being and a balanced ecosystem are the key determinants of sustainability.

#### **a) Health Impact Assessment (HIA)**

PEEM has developed a rapid assessment methodology, by and large basing itself on available data, which can be carried out by non-health professionals. This method looks at three categories of parameters: community vulnerability, environmental receptivity and the capacity of health services. It was designed to forecast vector-borne disease implications of water resources development projects, as part of a larger environmental impact assessment. Under community vulnerability, as an example questions are asked concerning disease prevalence and incidence, drug resistance, the existence of human and/or animal reservoirs, vulnerable groups, susceptibility, health status, risk behaviour, human circulation/migration and economic activities.

The method is equally suited for an assessment of the health status in a defined ecosystem, including a dynamic ecosystem such as a wetland, and will provide a tool to assess the relative health risks of wetland resource utilisation, human settlement issues and general environmental management. The challenge will be to adapt this method for use by the communities themselves rather than by outside experts or non-expert professionals.

#### **b) Providing criteria for selecting environmental management options**

In assisting communities to manage their wetland ecosystems optimally and make a wise use of its resources, choices will have to be made between different options. While health risks should not be an overriding issue, they should be included and weighted in the decision-making process. Also, once an option has been selected, there may be opportunities to add an environmental management measure that will address health without affecting the objective of the agreed activity. Such environmental management measures should not be seen exclusively as a tool to reduce health risks. In fact, any environmental intervention proposed should be evaluated for the health opportunities it may offer, so that ecosystem conservation goes hand in hand with community health improvements. Where an increase in health risks as a result of wetland management is unavoidable, a trade-off should be found in the strengthening of local health services.

### c) Capacity building

Two levels can be addressed using the approaches PEEM has developed for capacity building that will ensure a more effective consideration of health issues in water resources development projects. The training course on health opportunities in water resources development proposes a problem-based learning method, with task-oriented activities and is aimed at having participants learn the skills needed for intersectoral decision-making. The tasks envisaged by the current course include the development of a flowchart of development planning procedures, how to carry out a rapid health impact assessment, how to formulate terms of reference for an in-depth health risk assessment, how to appraise health impact assessment reports both technically and economically and how to formulate an intersectoral action plan for monitoring and intervention. This course aims at middle level staff of ministries, who are responsible for translating policy into action. Addressing the community members, a guideline and materials are under preparation to assist agricultural extension workers to carry messages related to environmental health issues. A similar approach could be followed to use this extension infrastructure to carry messages on conservation to the grassroots level.

## 2.4 SADC-IFFW and SADC-ELMS ZACPLAN Wetland Related Initiatives

### 2.4.1 SADC-IFFW Wetlands Initiatives

*by Mr. Mpande, SADC Wildlife Co-ordinating Unit, Lilongwe, Malawi.*

The importance of wetlands in Southern Africa was recognised in the early 1980s when the SADC Wildlife Sector Technical Co-ordinating Unit (WSTCU) initiated the formulation of a regional wetlands programme in 1983. A proposal for the convening of a regional conference on wetlands was developed and approved by the SADC Council of Ministers in 1987. In June 1990, SADC forged a partnership with IUCN Regional Office for Southern Africa to implement the first phase of the SADC Wetlands Conservation Project funded by NORAD.

The first phase of the project had the following main objectives:

- (i) to survey wetlands in the region from a biological, ecological, socio-economic and land use point of view;
- (ii) to develop regional policy and action programmes for the conservation and multiple uses of wetlands;
- (iii) to focus national, regional and international attention on the importance of wetlands in the SADC region;
- (iv) to build support among member states for the implementation of the SADC strategy and obtain international assistance.

The project was implemented in three stages (i.e. survey stage, conference stage and post conference stage). The survey stage included a review of the current status, uses and threats to wetlands and identified priority actions required. The activities of the first phase produced a Programme of Action whose main objective is to conserve and ensure a sustainable use of wetland resources, maintain wetland biodiversity and the essential ecological and hydrological functions of wetlands. The recommended and endorsed programme of action included awareness, education and training; planning and management; information and research; policy and legislation; and organisation and institutional arrangement components. To address the above issues, concerted strategies are required, including detailed inventory, assessment, development of legislation, and other administrative mechanisms to control and monitor the utilisation of wetlands.

There is an urgent need for a re-orientation of policy towards the region's wetlands that involves incorporating 'state-of-the-art' management and training procedures, particularly those that influence the social and economic forces driving wetlands mismanagement, over-exploitation and degradation. As part of the regional strategy and programme of action, SADC member states were encouraged to develop and implement national wetland programmes. As a follow up to phase I, SADC-IFFW has formulated a second phase which has been approved by SADC Council of Ministers and is now being considered by donors.

The second phase is set in context to the complementary activities that have been initiated since the implementation of the SADC Wetlands Conservation Project Phase I. Under the SADC-IFFW/IUCN collaborative partnership and the SADC Wetlands Conservation Strategy set out by SADC member states in 1991, national wetlands programmes were launched in Zimbabwe, Zambia, Malawi, Mozambique and Botswana. A regional project on the Zambezi Basin Wetlands Conservation and Resource Utilisation project has been developed with financial support from the Canadian International Development Agency (CIDA). As part of the ZACPLAN initiatives, SADC-ELMS has set up an Integrated Water Resources Management Plan for the Zambezi Basin (Zacpro 6). National wetlands programmes have also been established in South Africa and Namibia. A process to disseminate the information acquired during phase I has been initiated with financial support from the Norwegian Agency for Development (NORAD). The SADC Wetlands Conservation Phase II aims to collaborate and build on these wetland activities that exist in the region.

The SADC Wetlands Conservation Phase II intends to draw on and complement the above activities of both SADC and IUCN, and to foster regional co-operation in the sharing of information and management of transboundary wetland ecosystems. The present project evolved from the SADC Wetland Conservation Survey Report which was prepared to enable SADC to provide support to countries interested in imple-

menting the policy framework agreed at the SADC Wetlands Conference in Gaborone (June 1991). Through the SADC Inland Fisheries, Forestry and Wildlife Co-ordination Unit in Malawi, SADC will be able to facilitate and catalyse wetland conservation initiatives in participating member states.

The overall objective of the phase II project is to promote wetlands conservation and wise use of wetland resources in the SADC region.

**Specific objectives:**

- 1) To promote awareness on the role, value and appropriate uses of wetlands amongst policy-makers, resource planners and managers, extension workers, the general public and wetland communities.
- 2) To assess short-term and long-term training needs of wetlands managers and policy-makers, establish short-term training courses and articulate long-term training needs to the relevant institutions and initiatives.
- 3) To provide national governments, on the basis of specific requests, with the resources and technical backstopping to undertake inventories of wetlands, and to formulate and implement management plans for wetlands.

There will be stronger co-ordination between the SADC Wetlands Conservation Phase II project and the IUCN/CIDA initiated Zambezi Basin Wetlands Conservation and Resource Utilisation Programme (ZBWCRUP) which has four site specific components of integrated management of the transboundary wetland resource, an information and environmental awareness component, and a capacity building component. The long-term and some of the short-term training needs identified through this project may be built into the ZBWCRUP and/or the IWRB/South Africa Training initiative. The ZBWCRUP site specific activities may provide wetlands managers with practical experience in terms of management plans and development of approaches to the transboundary management of wetland ecosystems.

#### **2.4.2 SADC-Elms and ZACPLAN**

*by Mr. V. Kasimona, Depart. of Water Affairs, Zambia and Mr. Erduardo Coelo, SADC-ELMS, Lesotho.*

Since the early 1980s, SADC, through the Environment and Land Management Sector has been implementing the Zambezi River System Action Plan. The Zambezi River System Action Plan (ZACPLAN) is a SADC scheme intended to ensure that the shared resources of the Zambezi River Basin are utilised in a manner which guarantees maximum, long-term advantage to all the riparian states. The scheme is composed of twenty components Zacpro 1 to 20. To date, Zacpros 1 to 8 are being addressed.

#### **ZACPRO 1**

The objective of the project was to establish and maintain an inventory of past, present and future programmes and projects related to ZACPLAN.

#### **ZACPRO 2**

The objectives of Zacpro 2 are: the expansion, updating and strengthening of national legislation and regulations pertaining to the protection and development of the river basin. A protocol on shared water courses has been formulated.

#### **ZACPRO 3 & 4**

The objective is to develop human resources, administrative and institutional structures and technical capabilities within the riparian states.

#### **ZACPRO 5**

The objective is to develop a basin-wide unified monitoring system related to water quality and quantity. In view of the Sub-Saharan Africa Hydrological Assessment Study (SSAHAS) which includes reviews of current data availability, coverage and associated collection, storage and retrieval systems and facilities in the riparian states, the activities under Zacpro 5 are therefore focused on reviewing the SSAHAS and its proposals.

#### **ZACPRO 6**

The objective is to develop an integrated water management plan for the Zambezi River. This plan will provide the riparian states with recommendations for immediate and long-term development of water resources.

#### **ZACPRO 7**

The objective is to promote environmental education and public participation in ZACPLAN.

#### **ZACPRO 8**

The objective of this project is to establish minimum standards for water supply and wastewater disposal.

## **2.5 Preliminary Results of the Field Surveys of the Inception Mission**

*by Mr. Tim Lash, IUCN-Montreal, Canada.*

### **2.5.1 Objectives of the field surveys**

As part of CIDA's funding requirements and IUCN-ROSA's programmatic approach to the formulation of the ZBWCRUP, an Inception Mission was commissioned prior to the development of the project's work plan. The specific objectives of the Inception Mission field surveys were:

- to establish contacts with the governments of the riparian states, institutions and persons working in the field.
- to brief the riparian states, IUCN members and partners, and other stakeholders about the ZBWCRUP and what it aims to achieve.

- to establish and discuss wetland issues as perceived by the resident communities and those working in the field.
- to discuss and establish what projects already exist and what the ZBWCRUP can do in the area.

### 2.5.2 Environmental Issues in the Zambezi Basin

Prior to the field visit, the Inception Mission team carried out several brainstorming sessions with IUCN-ROSA staff to establish the key environmental issues affecting the Zambezi Basin (see Table 2.1).

**TABLE 2.1 ZBWCRUP Issues List**

ISSUES	AERIAL RATING			PRIORITY RATING	PROJECT RESPONSE		
	RG	NL	SS		INF	RES	ADD
Hydro-electric dams changing wetlands	RG	NL	SS	high priority	INF	INF	ADD
Decreases in fish production		NL	SS	high priority		INF	INF
Impact on prawn production		NL		high priority		INF	
Mangrove forests receding			SS	high priority			ADD
Communities are poor	RG	NL	SS	high priority	RES	RES	ADD
Water quality monitoring	RG	NL	SS	medium priority	INF	INF	INF
Climate change/micro climate variability.	RG	NL	SS	low priority	RES	RES	INF
Lack of policy	RG	NL	SS	medium priority	ADD	INF	INF
Siltation		NL	SS	medium priority		INF	ADD
Aquatic weeds			SS	high priority			ADD
Lack of awareness of wetland values and knowledge	RG	NL	SS	high priority	ADD	ADD	ADD
Lack of an integrated approach to wetland conservation	RG	NL	SS	high priority	ADD	ADD	ADD
Relations of local wetlands to regional benefits and effects		NL	SS	high priority		ADD	ADD
Under-utilisation/lack of alternative technologies		NL	SS	medium priority		INF	ADD
Wildlife/human conflicts, equitability and social sustainability		NL	SS	high priority		INF	ADD
Tourism: over-utilisation and under-utilisation		NL	SS	high priority		INF	ADD
Demographic pressure, inappropriate settlement patterns		NL	SS	medium priority		RES	INF
Water supply	RG	NL		high priority	INF	INF	
Non-resident fishing			SS	low priority			INF
Breakdown of IKS			SS	high priority			ADD
Need for good base-line biophysical and socio-economic data			SS	high priority	ADD		
Resource use conflicts and lack of skills for conflict resolution	RG	NL	SS	high priority	ADD	ADD	ADD
Health problems			SS	high priority			ADD
Lack of transport infrastructure	SS			high priority			INF
Education systems not functioning			SS	high priority			ADD
Biodiversity issues:							
Extinction of species							
Loss of potential resources							
Ecosystems diversity	RG	NL	SS	medium priority	INF	INF	INF
Impacts of mining			SS	low priority	INF		
Limited capacity							
Institutional capacity							
General wetland expertise							
Policy formulation	RG	NL	SS	high priority	ADD	ADD	ADD
Legislative issues	RG	NL		high priority	INF	INF	
Land tenure issues		NL	SS	high priority		INF	INF



### 2.5.3 Issues and priorities of the riparian states and specific areas

The Inception Mission team visited Zimbabwe, Zambia, Namibia, Botswana, Malawi and Mozambique to meet and discuss with IUCN members, riparian states and wetland communities. A number of issues were identified and priorities were set for each of the four wetland areas.

#### a) Zambezi Delta issues and priorities

The Zambezi Delta wetlands in Mozambique cover an approximate area of 130 000 hectares. These wetland areas play a very important role in the economy of Mozambique and the communities that reside in and around the delta. Sections of the Zambezi delta wetlands, especially those found on the southern bank of the main channel are protected while the area on the Northern bank is not protected. Several issues were raised during the Inception Mission consultations. These included: the receding of mangroves, post-war effects, the devastation of wildlife populations, lack of basic legal land tenure system, access to cash economy, suppressed development of wetland resources, threats to community wetland values from commercial uses, and few local environmental NGOs.

The team learnt of a number of projects/ programmes that are currently operating in the Zambezi Delta. These included: Gorongosa-Marromeu programme (IUCN/ DNFFB), land policy and Land Act programme, and a Coastal Zone Management Project (MICOA), wildlife utilisation by safari companies under the coutada system and GTZ, FHI extensionists programme.

Potential ZBWCRUP activities in the Zambezi Delta identified by the stakeholders included the following:

- community described wetland uses and values in the Marromeu area, the Delta and near National Park.
- socio-economic valuation of lower Zambezi wetland resources and base-line ecological studies
- pilot wetland inventory and base-line data collection
- institutional capacity building through wetland training courses
- facilitation of regional study tours and exchanges.

The provincial authorities of Sofala and Zambezia, DNFFB and MICOA were identified as potential partners for the ZBWCRUP field activities in the delta.

#### b) Lower Shire area

The whole territory of Malawi falls within the Zambezi Basin. Marshes/swamps, floodplains, lake systems and dambos characterise the wetland systems found in Malawi. The Lower Shire marshes (74 000 hectares) constitute a very important part of the Zambezi Basin wetlands. Notable marsh areas include Elephant and Ndinde

marshes. These two wetland ecosystems are not protected by any legislation. The Ndinde marsh is shared between Malawi and Mozambique. A number of developments are threatening the ecology of the Lower Shire wetlands. These include the potential effects of the Lower Shire irrigation scheme; the environmental impacts of the Kapuchira Falls dam; conflicting water use interests; food insecurity and pressure on wetland resources, people/ wildlife conflicts, water shortages in localised areas fishing and wildlife reductions, localised crowding, ecosystem degradation from threats from dam construction and irrigation projects, and health problems as the main issues affecting the wetlands of the Lower Shire area.

Current programmes and initiatives in the area included:

- Environmental education and extension work carried out by the Parks and Wildlife Department
- National wetlands programmes plans by MOREA
- Informal environmental networks by WSM, CURE, and other NGOs
- Environmental awareness programmes by other donor agencies
- Refugee relief programmes, although these are declining.

Potential project activities for the ZBWCRUP are: a demonstration project on the alternative agriculture/ wetland rehabilitation on Elephant Marsh; people /wildlife coexistence in Chikwawa district; water harvesting and afforestation in Nsanje district; research on the value of hippos as wetland managers, and the value of Elephant and Ndinde marshes for fish supply; and the building of institutional capacity to communicate wetlands issues.

Potential ZBWCRUP partners include, the Department of Wildlife as co-ordinator working with NGOs such as Cure, Wildlife Society of Malawi and the local Rural District Council Authorities.

#### c) Caprivi/Chobe area

The Caprivi/Chobe wetlands are formed by the flood water of the Zambezi as it meanders on a sandy plain, the mingling of floodwaters at the Zambezi/Chobe confluence. The inception mission team concluded that the effects of drought, lack of awareness and sense of ownership of wetland resources, uncontrolled transboundary fishing, uncontrolled burning, water shortages and a complex hydrological regime were the main issues affecting wetlands in this area.

Current wetland related initiatives or programmes include: a proposal for the establishment of a transboundary wildlife sanctuary, a proposal to set up a regional wetlands/fisheries institute at Katima Mlilo, and an Environmental Profile Project for the Caprivi area in Namibia. Potential ZBWCRUP activities could include:

- base-line ecological studies, wetland resources



- environmental awareness and extension in communities
- community-based fire control and extension.

Potential partners in this work are the Ministry of Environment and Tourism, local regional authorities and traditional leadership.

#### d) Barotse Flood Plain area

The wetlands of the upper Zambezi are by far the important systems for the hydrology of the Zambezi. These wetlands comprise swamps, flats and flood plains. The largest single system is the Barotse Flood Plain which covers a total area of 770 000 hectares at high flood.

A number of issues affecting the sound conservation and wise use of wetlands were identified by the Inception Mission team. These included:

- the erosion of indigenous knowledge systems through the introduction of modern systems
- extensive settlement which has created pressure on wetland resources
- recurrent droughts that have brought up the need for flood control and retention.
- deterioration of the water transport system and the requirement to rehabilitate canals.
- lack of base-line data and the need for wetland inventories
- over-fishing and uncontrolled fishing
- uncontrolled burning and underground fires
- upland deforestation and general watershed destruction
- extensive cultivation and drainage of the flood plain seepage zone edges.

Quite a number of wetland related programmes and projects exist in the Barotse Flood Plain. These include a number of Dutch funded projects on livestock improvement, land and water, district natural resources planning and fire control and extension project. In addition to these IUCN Zambia has just launched an Upper Zambezi Natural Resources Planning project funded by the Dutch. The Royal Establishment, with the support of the provincial authorities, has also developed a portfolio of activities aimed at improving the standard of living of the Lozi people.

Potential ZBWCRUP activities in the Barotse Flood Plain include:

- rejuvenation of indigenous knowledge systems, testing and implementation of traditional management systems to improve conservation and productivity of wetland ecosystems
- the rehabilitation of Nayuma Museum and the establishment of a self-sustaining programme for managing the museum
- the rehabilitation of the Ku-omboka ceremony channel, to ensure that the ceremony becomes an annual event and well as an ecotourism activity

- trials on minimum flood retention measures to improve agricultural production and facilitate the introduction of agricultural varieties (hardy to flood/drought).

### 3. Reports and issues from working groups

After listening to keynote presentations, the workshop broke into three working groups (Information and Awareness; Ecological and Economic Requirements; and Communities and Regions). Each working group was given the list of issues and asked to review and discuss the issues list. In addition, the groups were assigned a topic to discuss and made recommendations to the programme. The following are summaries of the reports from the working groups.

#### 3.1 Information and awareness systems group report

Using the issues list, the the working group identified the issues associated with information and awareness. These included the following

- Lack of awareness on wetland values
- Lack of an integrated approach in the context of an ecosystems perspective to planners, politicians, donors, and opinion formers
- Lack of alternative technology in the context of communication and knowledge at the community, planning decision-making levels
- Inappropriate settlement patterns in terms of communities and national levels
- Breakdown of IKS at national and community level
- Need for base-line data in terms of adequacy and appropriateness to the planners at the local, regional and national levels and also in terms of project design and measurement of success or failure
- Lack of skills for conflict resolution at regional, national and local levels in terms of exchange of information at a national and regional level
- Biodiversity issues in terms of providing information and increasing knowledge to communities, planners, politicians, donors and opinion formers
- Fire/uncontrolled burning in terms of extension and information on the impacts of fire
- Wetlands component missing in environmental education both formal and non-formal programmes at a regional, national and local level.

In deliberating the above issues, the group identified further issues and explained/qualified some of the issues on the list. Lack of communication was identified as a major constraint affecting the conservation and wise use of natural resources in the Zambezi Basin. There is poor communication at all levels, i.e. community to community information transfer/exchange; technical communication in terms of procedures of sharing and exchanging information; upstream and downstream communication and information sharing. In addition, the group identified poverty (in terms of lack of

cash, food insecurity, prevalence of diseases, poor shelter and infrastructure); lack of knowledge of the ecological and economic limits of wetland systems; lack of ecological, socio-economic and traditional management base-line data, lack of awareness on the dynamics of wetland communities and lack of policy as additional issues affecting the Zambezi Basin.

### 3.2 Ecological and economic requirements group report

The working group on ecological and economic requirements reviewed the issues list and the programme concept document. After reviewing the issues, the group recommended that the issue of hydro-electric dams should be given a high priority. With regard to the programme concept document, the group recommended the following additions to specific outputs:

#### OUTPUTS 1

- Socio-economic valuation of natural resources in selected wetland ecosystems in upper and lower Zambezi Basin.
- Assessment of human resources, infrastructure and community needs.

#### OUTPUT 2

- Field projects should have primary foci that are ecologically different.
- If there is need for comparison, similar secondary objectives can be included.

#### OUTPUT 3

- Selection of partner institution included in biodiversity conservation.
- Provision of technical expertise backstopping support to enhance capacity.

#### OUTPUT 4

- Identification of partner institutions in which to build capacity.
- Institution CB/Human Resource development programme through training in
  - wetland management and development
  - EIA, EEV.

Mechanisms for sustainability in this process should be considered.

### 3.3 Communities and regions group report

The working group on communities and regions also reviewed the issues list and focused its discussion on community needs versus regional needs. The group reviewed and prioritised the issues as follows:

1. Natural resource use conflicts
2. Communication needs between levels
3. Poverty in communities
4. Lack of policy
5. Demographic pressure - inappropriate settlement patterns

6. Lack of awareness of the value of wetlands
7. Water supply.

Local community needs are not always in line with regional requirements. Regional requirements and the resulting activities do not usually consider community needs thereby creating conflicting interests. In addition to the issues on the list, the group established the following new issues:

#### a) Conflicting interests and conflict resolution

The group suggested that an assessment of the relative economic/ ecological importance of each of the four wetlands be carried out. These assessments should include a review of national resources (particularly water) development plans, identify their possible impacts and the possible conflicts with the management of local wetland resources; national policies and stimulate policy reform; mechanisms; and a study at the community level the local patterns of resource use, trend (F. I. Demographic) that influence resource use, in order to develop a conflict-prediction model that will allow defusion rather than solution.

#### b) Communication needs between levels and at the same level between communities

#### c) Evaluation of existing data bases, in terms of wetland parameters, and ecology and economics.

#### d) Establishment of ecological and social indicators. This should include:

- Facilitate the construction of an ecosystems (i. e. wetlands) oriented database which reorganises data available in existing sectoral databases
- Identification of knowledge gaps and generation of geo-referenced data
- Wherever applicable enhance the capacity of agricultural extension workers to include messages on wise use of wetland resources
- Facilitate articulation of information to resource users.

## 4. Conclusions and recommendations

Based on the working groups deliberation and plenary discussions, the workshop made a detailed recommendation for year I and suggested activities for years II and III.

### 4.1 Recommendations

In addition to the year I work plan, the workshop also made recommendations for years II and III. The following table gives a summary of the recommended activities.

**TABLE 4.1 Recommended Activities for Years II and III**

ACTIVITIES	AREA/LOCATION
Initiate short term training	Regional and at the four sites
Refine management plans	For the four sites
Make an input to policy	Regional and national
Implement management plans	The four sites
Evaluation and monitoring	The whole programme
Ensure wetland data is incorporated in existing data bases	Regional
Facilitate multi-user of the information and data base	Regional and four sites
Training in wetland data collection	Four sites

**4.2 Conclusions**

The workshop fulfilled most of its set objectives. However, the issues of mechanisms for co-ordination were not established although potential partners were suggested. A number of the participating institutions felt that the workshop should establish the partners and assign them with specific roles. However, it was difficult to reach an agreement on this since it was felt that there were more stakeholders than those represented at the workshop.

The workshop commended the consultative approach taken by the project. In view of the importance of the project to the region, the participants recommended that the project should be communicated to the highest level of government in the riparian states. The workshop also reiterated the issue of collaborating with existing initiatives and resident communities.

**WORKSHOP AGENDA**

**Sunday 18 February**

afternoon - Participants arrive at Jameson Hotel.

**Monday 19 February**

Chairperson: Dr. J.Z.Z. Matowanyika, Director, ZERO.

Rapporteur: Mr. Phiri, Director, Environmental Council of Zambia.

0830 - 0900hrs - Roundtable introductions and statements of interest.

0900 - 0930hrs - Brief introduction to the workshop by Mr. Tim Lash, Project Director, IUCN-Montreal, Canada.

0930 - 1000hrs - *Integrated Drainage Basin Conservation and Management: - the Pangani Case Study* by Dr. Geof Howard, Wetlands Programme Co-ordinator, IUCN-EARO, Kenya.

1000 - 1030hrs - Tea/Coffee.

1030 - 1100hrs - *Introduction and Context of the ZBWCRUP* by Mrs T. Matiza-Chiuta, IUCN-ROSA Wetlands Programme Co-ordinator, Zimbabwe.

1100 - 1130hrs - *WHO/PEEM Health Initiatives for Wetland Projects* by Dr. Robert Bos, WHO/PEEM, Geneva, Switzerland.

1130 - 1200hrs - *SADC-ELMS ZACPLAN and SADC-IFFW Wetland Related Initiatives in the Region* by Mr. V. Kasimona, Erduado Coehlo, S. Mukono and J.N.B. Mphande.

1200 - 1230hrs - *Preliminary Results of the Field Surveys of the Inception Mission* by Mr. Tim Lash, Project Director, IUCN-Montreal, Canada.

1230 - 1330hrs - Lunch break.

1330 - 1345hrs - Break into working groups.

1345 - 1500hrs - Working groups.

1500 - 1515hrs - Tea/Coffee.

1515 - 1630hrs - Working groups.

1630 - 1700hrs - Plenary: Report from working groups.

**Tuesday 20 February**

Chairperson: Mr. J.N.B. Mphande, SADC-IFFW, Lilongwe, Malawi.

Rapporteur: Mrs T. Matiza-Chiuta, IUCN-ROSA, Harare, Zimbabwe.

0830 - 0900hrs - Brief recap on the previous day's deliberations by Dr. J.Z.Z. Matowanyika, Director, ZERO.

0900 - 1030hrs - Working groups.

1030 - 1100hrs - Tea/Coffee.

1100 - 1230hrs - Working groups continue.

1230 - 1400hrs - Lunch break.

1400 - 1500hrs - Plenary: Reports from working groups.

1500 - 1530hrs - Tea/Coffee.

1530 - 1600hrs: Plenary discussion.

1600 - 1630hrs: Closing remarks by Mrs T. Matiza-Chiuta.

## LIST OF PARTICIPANTS

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## APPENDIX 11

# MEMORANDUM OF UNDERSTANDING BETWEEN IUCN-ROSA AND IUCN-MONTREAL ON THE ZAMBEZI BASIN WETLANDS PROJECT

### Preamble

The Zambezi Basin Wetlands Project is being carried out by IUCN and funded by the Canadian International Development Agency (CIDA).

CIDA has described its objectives for this management arrangement as:

- clear, accessible and effective accountability to CIDA from IUCN-Canada on the management requirements described in the CIDA-IUCN agreement for the project
- interactive iterative planning guided by local knowledge and conditions
- to enhance local capacity development and responsibility in the Southern Africa region.

Funding for the project is governed by the Contribution Agreement between the Government of Canada and the World Conservation Union (IUCN) signed on 18 August 1995. In discussion with IUCN, CIDA has advised that:

- CIDA has a project manager and technical specialist for the project at CIDA headquarters in Hull. These people will be responsible for CIDA's input to the project (including tasks such as reviewing and approving the project work plans and quarterly reports; authorizing payments to IUCN through IUCN-Montreal; reviewing plans for staffing, procurement and contracting). This input is to be provided to the IUCN Project Director in Montreal.
- The CIDA field representative in Harare has an overall "watching brief" on the project.
- CIDA will hire a project monitor, and evaluators as required, and will carry out a full mid-term evaluation after 18 months of project implementation.
- CIDA will participate in meetings of the Project Advisory Committee as appropriate.

As a senior executive IUCN, IUCN's Director General is ultimately responsible for the programme of the Union, and the projects designed to implement it. Specific authorities have been delegated to the Directors of IUCN's regional and country offices for the components of the global programme for which they are responsible.

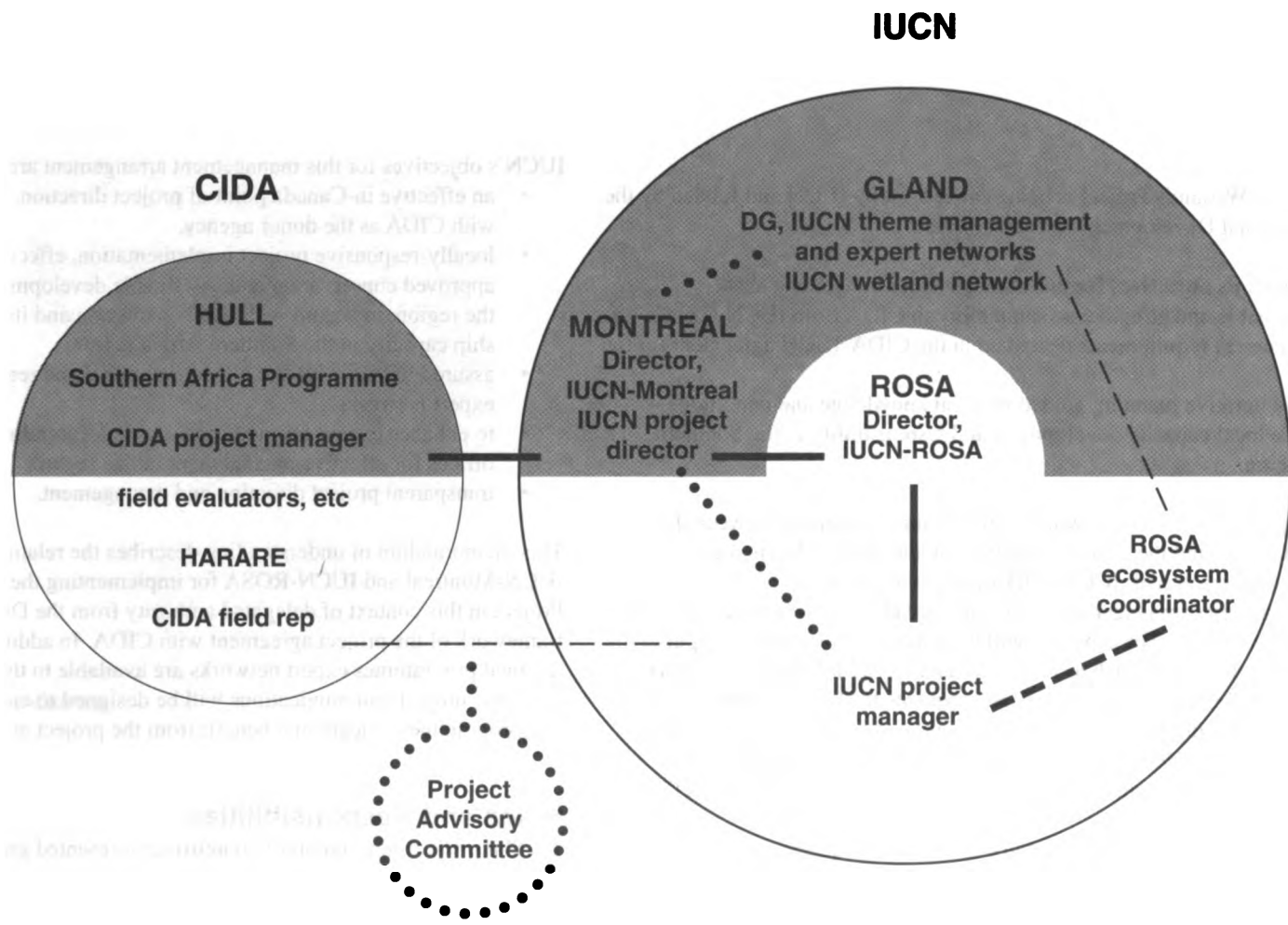
IUCN's objectives for this management arrangement are:

- an effective in-Canada point of project direction, accountability and contract with CIDA as the donor agency.
- locally-responsive project implementation, effectively coordinated with other approved conservation and sustainable development objectives and projects in the region, in accord with IUCN's mission and its focus on building membership capacity in the Southern Africa region.
- assured liaison with IUCN's international and regional programmes and expert networks.
- to enhance experience and capacity of decentralised and outposted IUCN offices for effective management in this regard.
- transparent project direction and management.

This memorandum of understanding describes the relationships and functions of IUCN-Montreal and IUCN-ROSA for implementing the Zambezi Basin Wetlands Project in this context of delegated authority from the Director General, and in the framework of the project agreement with CIDA. In addition, IUCN's global and regional programmes expert networks are available to the project and the project manager, project communications will be designed to enable IUCN global networks and programmes to learn and benefit from the project as it progresses.

### Roles and Responsibilities

- 1) **The project management structure**, represented graphically in Figure 1, includes the following components:
  - An IUCN project director at the IUCN office in Montreal who is CIDA's formal point of contact with the project, representing IUCN's responsibility to CIDA for the overall project direction; and who is responsible for implementing IUCN-Montreal's functions in this project.
  - The Director of IUCN-ROSA, who is responsible for IUCN-ROSA's implementation of the project and who accounts through the project director in IUCN-Montreal for ROSA's part of IUCN's obligations to CIDA for this project.



- KEY**
- project management accountability and reporting
  - - - -** primary functional guidance
  - expected information channels (not exclusive)
  - learning: backstopping

**FIGURE 1 : Zambezi Basin Wetlands Project Management**



- A Canadian full-time IUCN project manager in the IUCN office in Harare, responsible for management of the project. The IUCN project manager reports to the Director of IUCN-ROSA.
- A senior Project Advisory Committee (PAC), chaired by a person from the region, to meet twice a year in Southern Africa. The PAC is a senior advisory body to IUCN and CIDA during project implementation. Its purpose is to ensure and facilitate effective exchange of information and formulation of advice on overall project direction. To keep it effective, the PAC may have a maximum of about seven members. Other people may be invited to attend meetings for particular topics. Members will be selected to include representatives of SADC (2), the academic and research community, the NGO community, and if possible the private sector; the membership should represent ecological, socio-economic and communications abilities. IUCN-ROSA, IUCN-Montreal, and CIDA, are expected to attend PAC meetings from time to time. The chair of the PAC may be selected by PAC members; the selections will be reviewed and approved by IUCN-ROSA and IUCN-Montreal (in consultation with CIDA).

2) **Management of funds and overall delivery of the project.** IUCN-Montreal is legally accountable to CIDA for IUCN's management of the funds and overall delivery of the project results as set forth in the Contribution Agreement between CIDA and IUCN. Specifically, IUCN-Montreal is responsible for:

- negotiation and interpretation of the agreement, and any required CIDA approvals of project design and planning.
- receiving, disbursing and accounting for funds from CIDA for the project.
- accounting for overall project direction and results.

For these purposes, the IUCN-Montreal contact is the Assistant Director of the IUCN-Montreal office. CIDA is represented by the Southern Africa Programme, Hull, Canada.

IUCN-ROSA manages the implementation of the project in the field with the Director of IUCN-ROSA accountable for its effective operation and success.

- 3) **Contracting.** IUCN-ROSA will prepare and conclude subcontracts for delivery of goods and services for the project. In consultation and cooperation with IUCN-ROSA, IUCN-Montreal will prepare and conclude such subcontracts under the budget line for short term Canadian consultants.
- 4) **Staffing** will be done by competition processes based on explicit job descriptions. The job description will include defined reporting advisory relationship within IUCN. Staffing in Canada, including the project manager (in agreement with IUCN-ROSA), will be done by IUCN-Montreal. The rest of the staffing in IUCN-ROSA, including local professionals and other staff, will be issued according to

standard IUCN contracts. IUCN-ROSA is responsible for performance evaluations of staff in the region. Performance evaluation of the Canadian project manager is the responsibility of IUCN-ROSA, providing for review and transmittal by IUCN-Montreal to the Canadian organisation from whom the project manager is available for this project.

- 5) **Inception Mission** responsibilities are shared: IUCN-ROSA coordinates the operational activities in the region, and IUCN-Montreal coordinates the activities in Canada. The report of the inception mission will be prepared jointly, and will set out among other things, a work plan and budget for the first year.
- 6) **Annual work plans and quarterly progress reports and financial statements** as required for IUCN and for CIDA will be prepared by IUCN-ROSA. IUCN-Montreal will participate in their preparation particularly regarding overall strategic direction, the portion of the work and budget managed directly by IUCN-Montreal for review, and for submission to CIDA, as specified in the CIDA-IUCN Contribution Agreement. In the process, IUCN-ROSA and IUCN-Montreal will both ensure that discussion and communication needed and useful for project management takes place.

Under the IUCN agreement with CIDA, IUCN-Montreal will request fund disbursements from CIDA against work and expenditure plans and reporting of expenditures. Similarly, IUCN-Montreal will disburse funds to IUCN-ROSA against work and expenditure plans and reporting of expenditure to date. Acceptance of such funds constitutes agreement to deliver goods and services as set out in these plans. IUCN-Montreal and IUCN-ROSA will manage project funds they hold to optimise interest on them while they are not utilised otherwise for the project.

IUCN-ROSA will track overall budgets and expenditures for the project, using the IUCN accounting system.

- 7) **Links between IUCN-ROSA and IUCN-Montreal.** The primary link between IUCN-ROSA and IUCN-Montreal for this project is between the Director of IUCN-ROSA and the IUCN project director in Montreal. They may delegate specific tasks or functions to others in their offices.

While the IUCN project manager in Harare is responsible administratively and functionally to the Director of IUCN-ROSA, a line of communication is available between him or her and the IUCN project director in Montreal for mutual learning, emergency backstopping, discussion of the basic staffing contract, or other unusual requirements.

- 8) **Links between IUCN and CIDA.** IUCN-Montreal will arrange in Canada aspects of staffing, briefing and debriefing as agreed with CIDA, and as appropriate with the support of facilities offered by CIDA.

When the project is underway, IUCN-ROSA staff (including the IUCN project manager, the ROSA ecosystems coordinator, and the Director of IUCN-ROSA) are encouraged to have advisory and support contacts with CIDA staff in the region. CIDA contacts in the region include CIDA's Harare representative and other CIDA staff working on projects in the region or who come to the field for inspection of this project.

The project will reflect the following CIDA management priorities: make all reasonable efforts to integrate women fully into this project both as programme staff and as project beneficiaries; and carefully monitor and report on the direct benefits to local people in terms of basic human needs.

### **Updating**

The MoU may be reviewed and amended at any time by agreement of the ROSA and Montreal offices and with the advice of IUCN-Gland. In any case it will be reviewed by these three for possible updating one year after commencement of the project. IUCN-Montreal will keep CIDA informed of any significant modifications, and will consult CIDA on any that would affect the CIDA-IUCN interface.

Additional specifics may be annexed to this MoU as they are agreed to by its parties.

Signed: .....  
for IUCN-ROSA

Date: .....

Signed: .....  
for IUCN-Montreal

Date: .....

## APPENDIX 12

### REVISION OF PROJECT FRAMEWORK AND CONCEPT

In general there are few major departures from the original project concept and framework. The following exceptions are, however, worth noting.

#### **Project content and scope**

The Executive Summary articulates a caveat to the effect that considerable expert advice from socially oriented agencies will be required to facilitate optimum implementation of the community rehabilitation component of the project. Actually, the groundwork on which this advice is to be based will become a major, integral and self-funding component of the project thus significantly broadening its content and scope. In this regard the project's sponsors and implementers are extremely fortunate to have PEEM's involvement.

Apart from articulation and communication of wetlands values, and alleviation of poverty, the project will need to become significantly involved in "hands on" operational aspects of wetlands management including inventory and demonstration projects. This is essential in order to be in a creditable position relative to articulation and communication of the value and importance of wetlands.

#### **Project planning and implementation approach** **Ecological planning framework**

In the background documentation of the project's feasibility and characteristics, a descriptive approach was taken to wetlands conservation and utilisation needs and commensurate suggested actions. As indicated in the Executive Summary, the approach taken to consultation and project planning throughout the mission involved utilisation of an ecological planning framework to provide an ecosystem focus. Steps in this process consist of identification and description of: wetlands-related issues, integrated results, products and services, activities, requisite skills and functions, and implementation mechanisms. Strong emphasis was placed on identification and description of issues to be addressed. This approach will be adhered to throughout the implementation stages of the project, including monitoring and evaluation.

#### **Uniqueness of project wetlands**

It may easily be concluded, from background documentation, that many, if not all, wetlands share common conservation requirements and utilisation issues. The mission established that the four field project areas are, in fact, quite different in both these areas. Hence a unique theme, which will guide project implementation has been established for each field project area as follows:

Delta: Wetlands resource conservation, tenure and utilisation

Lower Shire: Wetlands conservation and food security

Barotse Flood Plain: Infrastructure support to wetlands conservation and sustainable development

Chobe - Caprivi: Diversified sustainable utilisation through capacity building and resource use conflict resolution

Should, throughout the life of the project, these themes be found inadequate to describe integrated conservation and community well-being concerns, they will be amended accordingly.

#### **Community well-being concept**

The Contribution Agreement describes wetlands communities as being: "among the poorest in their respective watersheds". This was not borne out by the mission. The Agreement goes on to advocate addressing this poverty in a rather narrowly defined manner as evidence by the following excerpts:

"First, the project will address basic human needs by assisting these poor communities to meet some of their requirements for education and health care."

"The estimated costs of the project, over three years, are as follows:

\* Community rehabilitation of schools and clinics 2,000,000"

The concept portrayed herein is that if something is to be done to improve the standard of living for wetlands communities, it has to be in the areas of health and education. In reality, while these are very important issues, they don't begin to describe all the range of needs that should be addressed if community well-being is to be improved. Indeed many community needs are related to issues that might be described as "ecological" in nature. As illustrations, residents talk about being disadvantaged by wildlife predation on crops and by the encroachment of aquatic weeds which prevents them from fishing. In these cases both subsistence and trade are jeopardised.

A broader concept of "community well-being" is advocated which incorporates all factors affecting living standards in wetlands communities.

### **Project delivery**

There are two major departures from the original concept of a project delivery framework.

Firstly, rather than two field teams as described in the Contribution Agreement, there will be one team in each field project area. That is to say, four Field Project Officers, each assigned to a sub-project area, will be responsible for field implementation.

Another major departure is that where IUCN has Country Offices, these offices rather than the Project Manager, will be responsible for project implementation on behalf of the Director, IUCN-ROSA. Such implementation will be undertaken in consultation with the Project Manager as stipulated in memoranda of understanding between Country Representatives and the Director.

## APPENDIX 13

### TERMS OF REFERENCE FOR THE PROJECT MANAGER, ZAMBEZI BASIN WETLANDS CONSERVATION AND RESOURCE UTILISATION PROJECT

**Note:** Terms and conditions for this project are specified in the agreement between IUCN and CIDA, and in the memorandum of understanding between IUCN-Montreal and IUCN-ROSA for this project. This position is staffed jointly by IUCN-ROSA and IUCN-Montreal, with IUCN-Montreal signing the underlying contract with the Project Manager on behalf of IUCN.

**Location:** IUCN-Regional Office for Southern Africa ROSA), Harare, Zimbabwe  
**Reports to:** Director, IUCN-ROSA  
**Duties:** Under the direction of the Director, IUCN-ROSA

The Project Manager performs the following duties:

1. Complete preparation of an inception mission report, in collaboration with IUCN-Montreal, including project strategy and design and a work plan and budget for the project. (Until the Project Manager moves to Harare, this work will be supervised by the project director in IUCN-Montreal).
2. Propose and prepare appropriate updating of project strategies, plans and budgets as the project progresses.
3. Design the project staff structure. Hire team members. Facilitate development of team members' capacities. Supervise, and evaluate performance of team members.
4. Manage the project unit that is based in Harare.
5. Manage, supervise and facilitate the operation of field teams which have both ecological and socio-economic expertise. Develop field-specific activities and budgets for each of the proposed wetland ecosystems, and also as appropriate at the regional level. Facilitate and provide or arrange for technical backstopping support for these activities.

6. Administer the programme funds, procurement procedures and sub-contracts within the IUCN administrative procedures and the framework established by IUCN in agreement with CIDA.
7. Prepare and submit quarterly progress reports on the various activities and budgets of the programme, to meet management accountability requirements and organisational learning requirements.
8. Through the duties above, achieve and contribute to approved project results and objectives.

The Project Manager will participate in IUCN-ROSA meetings and activities relevant to the project. Through activities of this project, the Project Manager is also expected to contribute to the overall capacities and functions of IUCN-ROSA. To a limited extent (up to 10 days/year), the Project Manager may expect to contribute to and participate in relevant IUCN or CIDA professional development and programme learning.



## APPENDIX 14

### POSITION VACANCY ADVICE

**Project Officer:** Zambezi Basin Wetlands Conservation and Resource Utilisation Project  
**Starting date:** June 1996  
**Location:** IUCN-Regional Office for Southern Africa, Harare, Zimbabwe

The Zambezi Basin Wetlands Conservation and Resource Utilization Project is being implemented by IUCN, supported by the Canadian International Development Agency.

The Zambezi Basin wetlands provide water, food and livelihood for local communities, support important wildlife populations and biodiversity, and sustain the hydrology of the basins ecosystems. Environmental degradation threatens those functions. This project will strengthen existing institutions in the region, helping to address constraints to conservation and sustainable management of wetlands.

The project focuses on four key wetlands in Zambia, Namibia, Malawi and Mozambique. The goal is to conserve critical wetlands. The objectives are: (1) to articulate the local, national and regional values and importance of wetlands, (2) to communicate these values to the regions residents and decision-making agencies, (3) to help alleviate poverty in wetland communities.

The Programme Assistant, reporting to the Project Manager, who is stationed in Harare, will:

- ◆ in cooperation with other IUCN Harare staff, assist in setting up, managing, controlling and evaluating and reporting on all components of the project. Included are field operations, administrative and financial aspects, written and electronic correspondence, liaison with IUCN Headquarters and Montreal Office, the Canadian International Development Agency and with Canadian Consultants, and material management.
- ◆ take progressively more responsibility for the day-to-day management of the project including decision-making, particularly in the absence of the Project Manager, who will spend considerable time in field locations.

#### Qualifications

- University graduation in a natural or social science, administrative or managerial field;
- Experience in administration and management;
- Strong interpersonal relations skills;
- Ability to deal with a wide variety of subject matter, often with multiple concurrent deadlines;
- Ability to assume increasing levels of responsibility as the project progresses, including decision-making involving increasingly complex situations;
- Ability to remain focused in the face of competing priorities; and
- Good verbal and written communication skills.

#### Other requirements

- Fluency in the English language;
- Good health;
- Experience with a variety of computer applications including word processing, spread sheet and electronic communications software; and
- Must hold a valid driver's licence.

Should you wish to apply, please send your application letter and full curriculum vitae before 20<sup>th</sup> April 1996 to the Programme Manager, ZBWCRUP, IUCN-ROSA, P.O. Box 745 Harare, Zimbabwe.  
(Fax +263-4-720738)





## APPENDIX 15

# POSITION VACANCY ADVICE FOR FIELD PROJECT OFFICERS IUCN - THE WORLD CONSERVATION UNION IUCN - THE WORLD CONSERVATION UNION REGIONAL OFFICE FOR SOUTHERN AFRICA

**IUCN wishes to appoint:  
FIELD PROJECT OFFICERS (4 POSTS)**

**Starting date: June 1996**

**Duration: One year, renewable over 3 years**

**Post Stations: 1. Malawi, Chikwawa, south of Blantyre  
2. Mozambique, Sofala Province, Beira  
3. Namibia, Caprivi Strip (2 posts)**

Founded in 1948, IUCN - The World Conservation Union brings together states, government agencies and a diverse range of NGOs in a unique world partnership: some 800 members in all spread across 125 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. IUCN builds on the strengths of its members, networks and partners to support global alliances and safeguard natural resources at the local, regional and global levels.

IUCN - Regional Office for Southern Africa (IUCN-ROSA) coordinates the union's programme in 11 member states of the Southern African Development Community. The Southern African Programme is built around four regional support programmes: Institutional Support Programme, Wetlands and Ecosystems Management and Environmental Communications.

IUCN-ROSA is encouraging and assisting the Zambezi Basin riparian states to use their natural resources in an equitable and ecologically sustainable manner. A programme development feasibility study was carried out and it developed a framework for the implementation of an integrated wetlands support programme known as the Zambezi Basin Wetlands Conservation and Resource Utilisation Project (ZBWCRUP). The project focuses on four key wetland areas in Zambia, Namibia, Botswana, Malawi and Mozambique.

### **Qualifications**

- A first degree in a relevant field (e.g. geography, biological sciences, social sciences, etc.) or equivalent;
- Practical field experience in wetlands conservation and utilisation;
- Fluency in English (oral and written), proficiency in Portuguese will be a strong advantage; and
- Computer literacy is essential.

### **Other requirements**

- Willingness to work in remote areas with small communities;
- Ability to communicate (a qualification in communications as a field of study will be an added advantage);
- Must be prepared to travel extensively within the project area;
- Must hold a valid driver's licence; and
- Must be in good health.

### **Responsibilities**

Under the direction of the ZBWCRUP Project Manager, the Field Project Officer will:

- Through contacts with wetlands residents, various levels of government agencies, academic institutions and non-governmental institutions, collect and synthesise information on the ecological, social and economic values of wetlands;
- In collaboration with a wide range of IUCN members and partner agencies communicate wetlands values to area residents, local level of government and other decision-makers whose actions have inputs on wetlands conservation and utilisation;
- Assist in the communication of wetlands values at the national and regional level;
- In partnership with other organisations having wetlands interests, design and oversee the implementation of demonstration projects to show how conservation and utilisation of wetlands can be epitomised;
- Guide, evaluate and report on the activities of contractees retained to carry out specific elements of the programme;

- Recommend and oversee the implementation of activities to improve the well-being of wetland area residents including educational and/or health facilities;
- Organise and convene workshops and other meetings within and outside the project area as required; and
- Present written and oral reports to the Project Manager as required.

Should you wish to apply, please send your application letter and full curriculum vitae before 20<sup>th</sup> April 1996 to the Project Manager, ZBWCRUP, IUCN-ROSA, P.O. Box 745, Harare, Zimbabwe. (Fax +263-4-720738)

## APPENDIX 16

### EQUIPMENT SPECIFICATIONS

**Letter to Eric Hiscock  
from Nigel Hulett, Access Computer Services Pvt. Ltd**

IUCN  
6 Lanark Road  
Belgravia  
Harare

6 February 1996

Attention: Mr. Eric Hiscock

#### **Re: Revised Quotation for Computer Equipment**

We are please to submit herewith our quotation for computer equipment as per your specification. Please note that equipment prices listed below are in US dollars.

- Access Pentium P100 with: Intel P100 CPU \$2 962  
256k cache  
16MB RAM  
1GB EIDE hard drive  
1.44 MB floppy drive  
1 MB PCI video card  
On-board PCI I/O controller  
Mini tower case  
Fujitsu keyboard  
Microsoft mouse  
16-bit NE2000 network adapter  
Magnavox 17" SVGA .28 mm color monitor
  - For Microsoft Office 95 and Windows 95,  
use the IUCN global license pack.
  - Hewlett Packard HP Scanjet 4C 600DPI color flatbed  
scanner /w software \$1 225
  - Hewlett Packard Deskjet 850C color inkjet printer \$675
  - Shipping for one 14" system, one 17" system,  
one scanner, one printer \$985
  - Total for two systems, one scanner, one printer, including shipping \$8 207
- Access Pentium P100 with: Intel P100 CPU \$2 360  
256k cache  
16MB RAM  
1GB EIDE hard drive  
1.44 MB floppy drive  
1 MB PCI video card  
On-board PCI I/O controller  
Mini tower case  
Fujitsu keyboard  
Microsoft mouse  
16-bit NE2000 network adapter  
14" SVGA .28 mm color monitor

Prices may fluctuate according to exchange rates at time of order. All new equipment sold by Access comes with a twelve month warranty, inclusive of parts and labor, exclusive of damage caused by neglect, improper use, power surges and lightning strikes. Shipping to depot, if required, is not included.

Delivery time is approximately three weeks from time of payment. Customs clearance and duty payment are the responsibility of the purchaser, however, Access has a relationship with a local clearing agent to facilitate such activities and can assist in this area. On-site hardware setup upon arrival in Harare is included in the above costs.

We trust the information provided is sufficient for your needs. Should you have any queries or require any clarification, please contact us. We assure you of our best intentions and hope to hear from you shortly.

Yours faithfully,

Nigel Hulett

**Letter to Eric Hiscock  
from Chipu Wright, Calibra Motors**

Mr. Eric Hiscock  
IUCN  
P O Box 745  
Harare  
Fax: 14-720738

5 February 1996

Dear Sir,

**I have pleasure in quoting our price for an Isuzu KB280D T  
D/CAB 4x4 LE:: ISUZU KB280D T D/CAB 4x4 LE:**

**Standard features:**

- 2.8 ltr. direct injection, turbocharged diesel engine
- Air conditioner
- Four wheel drive
- Central locking
- Power steering
- Console: front/centre
- Cloth seats and carpeting
- Tinted windows/windscreen
- Sliding rear window
- Tilt steering wheel
- Reading light

- Digital clock
- Step-up tow bar with ball and electrics
- Bull bar with spotlights
- Immobiliser
- Radio/Tape - CD compatible
- Allow wheels
- Cellular phone harness
- Front/Rear headrests
- Roll bar
- Differential locking system with warning light
- Driving lamps
- Courtesy door lights
- Door pockets

**Price:**

Price excluding all duties and taxes

Z\$ 267,00.00

**Optional extras:**

Canopy

Z\$ 20,000.00

Metallic paint

Z\$ 2,500.00

Please note that these prices are based on today's prices, should a price increase be announced by the manufacturers it is regretted that these increases would be passed on to the customer.

**Delivery:**

Estimated delivery date - six (6) to eight (8) weeks from time of receipt of confirmed order.

**Payment Terms:**

Total contract price before vehicle handover.

Please do not hesitate to contact the undersigned should you require any further details.

Yours faithfully,

for Calibra Motors  
Chipu Wright (Miss)  
Sales Consultant

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## LIST OF ACRONYMS

<b>ABBREVIATION</b>	<b>MEANING</b>	<b>ABBREVIATION</b>	<b>MEANING</b>
ADD	Agricultural Development Division	HR/ODU	Hydraulics Research/Overseas Development Unit (Wallinford)
ADMAD	Administrative Management Design	IAP-WASAD	International Action Plan-Water for Sustainable Agricultural Development
AGRITEX	Department of Agricultural Technical and Extension Services (Zimbabwe)	IDRC	International Development Research Centre
ASIP	Agricultural Centre Investment Programme	IEC	Information, Education and Communication
BQ	Black Quinta	IFAD	International Fund for Agricultural Development
CBPP	Contagious Bovine Pleuro Pneumonia	IFFW	Inland Fisheries, Forestry and Wildlife
CIDA	Canadian International Development Agency	IKS	Indigenous Knowledge System
CURE	Coordination Unit for Rehabilitation of the Environment	IUCN	International Union for Conservation of Nature
DBL	Danish Bilharziasis Laboratory (Charlottenlund)	IWRB	International Wetlands Research Bureau
DC	District Commissioner	L&WMP	Land and Water Management Programme
DDC	District Development Committee	LA	Local Administration
DLUPU	District Land Use Planning Unit	LDP	Livestock Development Project
DNFFB	Direccao Nacional de Florestas e Fauna Bravia	MAD	Mean Annual Discharge
DNPWM	Department of National Parks and Wildlife Management	MENR	Ministry of Environment and Natural Resources (Zambia)
EA	Environmental Assessment	METN	Ministry of Environment and Tourism of Namibia
EARO	Eastern Africa Regional Office	MICOA	Ministeria da Coordinacion de Accao Ambiental
ECZ	Environmental Council of Zambia	MMD	Minimum Monthly Discharge
EEV	Environmental Economic Valuation	MOREA	Ministry of Research and Environmental Affairs
EIA	Environmental Impact Assessment	NCDP	National Commission for Development (Zambia)
ELDP	Evangelical Lutheran Development Program	NEEP	National Environmental Educational Programme
ELMS	Environmental and Land Management Sector (of SADC)	NGO	Non-Governmental Organisation
EMINWA	Environmentally-sound Management of Inland Waters (A UN programme)	NORAD	Norwegian Development Agency
EP	Emergency Programme	OMVS	The Senegal River Basin Authority
EPA	Extension Planning Area	PAC	Provincial Advisory Committee
ESCOM	Electricity Supply Company of Malawi	PEEM	Panel of Experts on Environmental Management of Vector Control (Joint WHO/FAO/UNEP/UNCHS)
EU	European Union	PLA	Participatory Learning Approach
FAO	Food and Agricultural Organisation (of the United Nations)	POC	Office of the President and Cabinet
FHI	Food for the Hungry International	PPU	Provincial Planning Unit
GERFFA	Gestao Recurcos Florestas e' Fauna	PRA	Participatory Rural Appraisal
GIS	Geographical Information System	RAMSAR	Location of signing of Convention on Wetlands of International Importance
GNP	Gross National Product	RDP	Rural Development Programme
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Agency)	RE	Royal Establishment
GVH	Group Village Headman	RIDP	Regional Institute for Development Programme
HIP	Health Impact Programme of the Liverpool School of Tropical Medicine	ROSA	Regional Office for Southern Africa

<b>ABBREVIATION</b>	<b>MEANING</b>
SADC	Southern African Development Community
SADC-ELMS	Southern African Development Community-Environmental and Land Management Sector
SPFFB	Sofala Province Forestry and Wildlife Service
SUCOMA	Sugar Company of Malawi
TA	Traditional Authority
TOR	Terms of Reference
UNCHS (Habitat)	United Nations Centre for Human Settlements (Nairobi)
UNDP	United Nations Development Programme (New York)
UNEP	United Nations Environmental Programme (Nairobi)
UNICEF	United Nations Children's Fund (New York)
USAID	United States Agency for International Development
WHO	World Health Organization
WWF	World Wildlife Fund
ZACPLAN	Action Plan for Environmentally Sound Management of the Zambezi River System
ZACPRO	Zambezi Action Plan Project
ZBWCRUP	Zambezi Basin Wetlands Conservation and Resource Utilisation Project
ZEEP	Zambia Environmental Education Programme
ZERO	Zimbabwe Regional Environment Organisation
ZRA	Zambezi River Authority
ZWEDA	Zambezi Wetlands Development Agency



## IUCN IN SOUTHERN AFRICA

The World Conservation Union Regional Office for Southern Africa (IUCN-ROSA) is part of the international membership organisation, IUCN, which brings together states, governments and a diverse range of non-governmental organisations in a global partnership concerned with environmental issues.

IUCN-ROSA was established in Harare, in 1987, at the invitation of the government of Zimbabwe, to benefit the Southern African Development Community, then SADCC, in the development of modern skills in conservation and natural resource management.

IUCN country offices in Botswana, Mozambique, Zambia, and soon, South Africa, complement and add value to IUCN-ROSA's work in the region.

IUCN-ROSA's Southern Africa programme mandate covers 11 of the 12 SADC member states namely: Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Swaziland, South Africa, Zambia and Zimbabwe.

Tanzania, one of the 12 SADC members, is represented by IUCN East Africa Regional Office (EARO).

### IUCN-ROSA MISSION

The Mission of the IUCN, Southern Africa Region, is to facilitate and strengthen an integrated approach for the sustainable and equitable use of natural resources and the conservation of biological diversity.

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