

**Shared resource management on the Zambezi/Chobe systems in northeast
Namibia: Current practices and future opportunities
Existing fishery management systems and implications for future management**

John Purvis, James Abbott, Tor Næsje and Clinton Hay



Ministry of Fisheries and Marine Resources
Private Bag 13 355 Windhoek
Namibia



Executive Summary

The paper brings together issues raised from a number of pieces of research and varied consultations and interviews with stakeholders in the study areas. It is an important time for this discussion, as the formal aspects of the fisheries management in Namibia are currently being reviewed. The paper aims to:

- *provide a brief introduction to fisheries co-management;*
- *outline the main features of the existing system of fisheries management in the study areas; and*
- *consider options for future management of fisheries in the region.*

Current informal fisheries management systems

In the absence of a strong formal system of fisheries management, the informal (or traditional) component in Namibia has remained. There are access rules, supported by a number of technical measures, designed to control the type of gears used. The access system is still relatively robust with only isolated incidents of infringement, but the technical measures seem to be confused by different stakeholders and is only sporadically enforced. The fisheries management system is only one component of the broader resource management system based on the khuta (tribal council at various levels) structure. For example, the use of poison or explosives for fishing is prohibited by all levels in the system, whereas in different areas there are differences in the allowed mesh sizes for gill nets and in the rules governing the use of drag nets. There are no closed seasons or fisheries reserve areas on the Namibian side of the river. Rules governing who can fish where and with what permission are generally followed, with only isolated cases of infringement – for example, a fisherman from one silalo (administrative area in the traditional system) must request permission and/or inform the relevant silalo induna (headman of the administrative unit) of his intention to fish a certain area. Mulapos (seasonally flooded depressions) have family ‘owners’ who give permission, in conjunction with the khuta.

There is a system of fisheries management in operation on the Zambian side of the river – a partnership between central and local government, traditional authorities and communities involving both gear restrictions and spatial/temporal closures (e.g. closed seasons).

The ability of the Traditional Authorities to enforce some of these fishery management regulations in both Namibia and Zambia is limited, and concerns have been raised about this lack of enforcement.

Current formal fisheries management systems

The implementation of formal management measures has been weak in the past, with little guidance from the appropriate authorities. This is set to change with the passing of the Inland Fisheries Resources Act (thought at the time of writing the Act has not yet been signed). This legislation for Namibia draws on the framework from the Food and Agriculture Organisation (Code of Conduct on Responsible Fisheries) and the Protocol on Fisheries signed by the Southern Africa Development Community member states in 2001. Once the Inland Fisheries Resources Act is signed, there will be moves to develop specific regulations for areas or water bodies as appropriate.

At a recent workshop in the Caprivi region, stakeholders identified the following as potential components of a co-management system in the area:

- *the community must be fully involved through effective consultation;*
- *the community should have a mandate to enforce regulations (e.g. legal powers of enforcement, powers to issue licenses and permits) in co-operation with the appropriate government authority;*
- *the community should maintain a register of fishers;*
- *the community should be involved in data collection in partnership with the government.*

However, warnings are given that co-management is not a panacea for all conflicts and problems identified and the work required for establishing and maintaining a system should not be underestimated.

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Acronyms

BDF	Botswana Defence Force
FFI	Freshwater Fisheries Institute (MFMR)
GRN	Government of the Republic of Namibia
MFMR	Ministry of Fisheries and Marine Resources
MNSCFF	Multinational Steering Committee for Freshwater Fisheries

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1. INTRODUCTION

The paper addresses the second objective (socio-economic, management issues) of the original project proposal for the ‘Shared resource management on the Zambezi/Chobe systems in northeast Namibia: Current practices and future opportunities’ project. The proposal states that ‘the nature of the fishery management systems are identified, investigated and documented and their appropriateness for future management is assessed whilst various alternatives for the future management of the freshwater fisheries in the region are explored’ (Næsje et al., 2002). As such, the paper will:

- briefly introduce the concept of co-management of fisheries;
- outline the main features of the existing system through which fisheries are managed on the floodplains; and
- consider the options and the relevance of the existing system for the future management of fisheries in the region.

In addition, the Ministry of Fisheries and Marine Resources (MFMR) is in the process of passing legislation to govern the management of fisheries in the freshwaters of Namibia. This paper hopes to assist decision-makers in this process, emphasise the complexities of some of the issues, and show the need for in-depth and continued local consultations in the formulation of policy, legislation and detailed regulations.

Specific pieces of research were undertaken to establish whether or not there are still traditional systems in place – whether they are strong or weak, declining or growing. This report will establish a baseline to direct future work in the analysis and development of new systems in the future.

2. COMMUNITY-BASED SYSTEMS IN FISHERIES MANAGEMENT

2.1 *Towards community-based management systems*

Various definitions exist of co-management. At a recent workshop in Katima Mulilo, the following was put forward: ‘co-management is the common understanding of the management of resources by formal/government institutions and informal/traditional institutions especially with respect to sharing management responsibilities and efforts. Co-management also involves equitable resource utilisation and devolving decision-making over the use of the resource.’ The concept can have a transboundary meaning (i.e. co-management of shared resources between two or more countries) or can be used to refer to collaborative management within one country (i.e. between resource users and government). Figure 1 shows the range of conditions that can be broadly defined as co-management. It is important to find the point on the scale that defines the nature and role of the different stakeholders that meets the local conditions.

ICLARM state that; ‘Co-management implies that the user groups participate in the decision-making on how to protect and exploit the resources, and to some extent also in the monitoring, surveillance and control of the fisheries. Co-management is increasingly seen as an alternative to centralised fisheries management, because ideally, it integrates the experiences gained by the user groups with scientific advice and policy considerations at central level. Also it integrates biological, social and human aspects of fisheries.’ (ICLARM, 1998)

The move towards greater involvement of resource users in the management of the resources on which they depend is not new, nor is it limited to fisheries. Numerous authors have extolled the virtues of developing institutions and systems for natural resource management that enable and encourage the active involvement of resource users in the conduct of management functions.

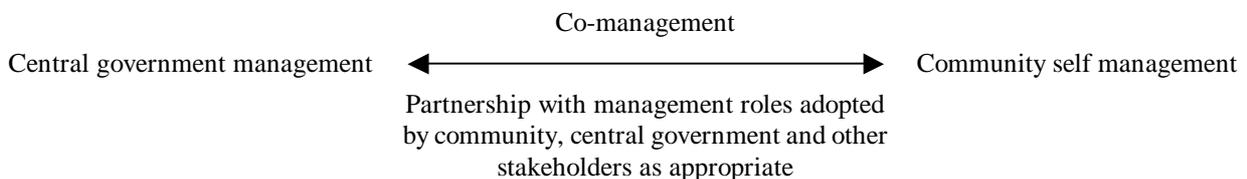
Cases for some form of community involvement have been advocated in wildlife management, forest management, water resource management and fisheries among others – see for example, Hanna, 1998; Jentoft, 2000; Welcomme, 1998; Jentoft and McCay, 1995; Crean, 1999; Jentoft, 1989; and Berkes, 1986.

A reason that co-management receives so much attention is because it has the potential to achieve objectives in two important areas: environmental conservation and development. It can be seen as a method of conservation and improved management, through the development of the people using the resource.

The essential reasons cited for the involvement of local communities in resource management are many, and vary enormously with local conditions and stakeholders. But some of the most frequently mentioned reasons are:

- the complexities of natural resource management – from the techniques used for harvest (many are very localised) to the institutions for their management, to the cultures;
- variations in these systems over time (seasonal changes, yearly changes or cycles) and space (local and regional movements of people on seasonal or longer term basis);
- regulations or laws restricting the use or exploitation of natural resources will never be adhered to unless there is some local legitimacy or at least understanding of why – this legitimacy largely comes from the process adopted in the development of the laws and rules;
- enforcement in the type of environment in which resource use takes place is very difficult and can never be achieved through traditional monitoring, control and surveillance operations;
- local bodies can understand the complex social relationships and problems in an area and can therefore make more appropriate, responsive and locally acceptable decisions;
- local bodies may respond to local problems, and the needs of individuals and families in a better way than can central governments offices;
- local bodies can be more accountable because of the network of social relationships, etc., that exists in the local levels;
- local groups have the understanding of local conditions to build from the traditional structures in the area – rather than establish a new competing structure;
- through local groups, some of the traditional knowledge held in communities can be utilised for management;
- co-management can encourage fishermen to become active and responsible participants in their own development thereby reducing the dependency syndrome.

Figure 1 The responsibility in the conduct of the various functions of management as a continuum



Source: Hoggarth et al., 1999

2.2 *Relevance of the co-management concept to Namibian freshwater fisheries*

The following section will show that there is a clear mandate and directive at international levels (Southern African Development Community and the Food and Agriculture Organisation), at the macro level (the fisheries White Paper, the *Inland Fisheries Resources Act*) and down to the micro level through requests from communities.

2.2.1 **Micro/meso level conditions**

The concept of co-management may have a lot to offer for the future management of the floodplains fisheries in northeast Namibia for the following reasons:

- An effective institutional system for the full involvement of local communities in fishery management decision-making is important because of the complexities in the system (including but not limited to the multi-species resource, multi-gear use, large number of individually owned gears and operators, dispersed activities in remote locations, seasonal landing sites and activities, complex and poorly understood interactions with other components of the farming system, setting within a complex traditional social system). These conditions make it unlikely that any centralised system for fishery management could be devised with sufficient flexibility to be locally acceptable and enforced in such a dynamic environment.
- There is an existing system of fishery management (technical regulations and access restrictions) which, although in decline, is firmly positioned within the prevailing social system in the area. It is the people responsible for and subject to, such a system who are best placed to establish how a workable system, integrated with the government operations can be developed and respond to local needs. There can be no parallel structure for fisheries management.
- Given that large parts of the resource are shared with Zambia and Botswana, there is a need for the legal framework and local capacity to be sufficiently flexible to enable fine-tuning of the system locally, so that local rules and regulations can be developed with application across national borders.
- Social structures in the area extend beyond national borders.
- The appropriate national government offices will not have the resources available – nor the inclination – to micro-manage fisheries in each region of Namibia or Zambia respectively.
- Especially given the areas experiences during the colonial period, the process of empowering the people is paramount in the development objectives of the Government of the Republic of Namibia (GRN).

In order to incorporate the full value of local knowledge, etc., into a management system, simply involving local groups in advisory role, or in implementing rules made from afar, is not sufficient, local resource users should be allocated responsibility and have the authority to make and implement decisions on fisheries in their area. The process of decision-making is important at all stages.

Experience in co-management in the region

In Botswana, the basic fisheries legislation is the *Fish Protection Act of 1975*, and not surprisingly, does not address the issues relating to the involvement of local communities in fisheries management (Cacaud, 2002). Zambia, however, has a wealth of experience in developing co-management systems on a variety of lakes, rivers and swamps. The fisheries policy of 2000 includes as one of 12 objectives ‘the creation of a framework for local community participation in fisheries development’ (Cacaud, 2002). The new legislation in Zambia should provide the legal basis for the establishment of a community-based management framework. At a workshop in Katima Mulilo in 2001, it was stated that ‘the Department of Fisheries [of Zambia] aims at decentralising fisheries management responsibility such that they are shared between

government agencies and communities with traditional leaders playing a prominent role' (Kapasa and Milindi, 2001). Other countries in the region (e.g. Zimbabwe and Malawi) have spent considerable resources on the development and implementation of co-management systems for fisheries with varying degrees of success.

Experience of co-management in other sectors in Namibia

Within Namibia, a number of natural resource sectors have begun the implementation of policies and legislation which components of co-management. The *Forestry Act* establishes a classification of forest as 'community forest', designed to enable the local institutions to take a pivotal role in the management of 'their' forest resources. The *Nature Conservation Act 1996* (Amendment 5 of 1996) amends the Nature Conservation Ordinance so that the 'residents of communal areas can gain the same rights over wildlife and tourism as commercial farmers'. The Act sets the framework for the establishment of conservancies and conservancy committees as the institutional structures through which ownership and use rights are granted to residents of the communal areas. Similarly in the tourism sector the MET policy (1995) provides a framework for the involvement of local communities and a system for them to benefit from opportunities offered in the sector.

In Caprivi, conservancy committees and associated institutions have made considerable headway in the implementation of the community management of certain resources within their jurisdiction. Many of the conservancy committees have expanded from the wildlife sector to cover other natural resources such as forestry. Some of these committees have also stated their interest and willingness to move into the management of other natural resources such as fisheries.

Results of community consultations

During a series of consultative meetings with communities in the study areas in May 2002 (Purvis, 2002c) using the Draft Inland Fisheries Resources Act as a framework, community members clearly stated their desire to become involved in future fisheries management in the region. With regard to licensing, communities wished to see some spatial restrictions on where a license entitled individuals to fish. This restriction would be based on the extent of the *silalo* (administrative unit of the traditional authorities) in which the individual resided, and such a license would therefore need the endorsement or the authorisation of the appropriate *Induna*. A license of this type could therefore only be issued with co-operation between the Traditional Authorities and the Ministry concerned. In draft versions of the Act, there was a section requiring the preparation of Fishery Management Plans for different water bodies. Many of the groups consulted felt that these plans could only be developed by the Ministry with full and effective co-operation with the local resource users. There was a clear demand from communities for inspectors (at least some of them) to be appointed by the Traditional Authorities and work hand-in-hand with governments staff. Communities wanted to see local committees formed that could work with local stakeholders and also to liaise with the national Inland Fisheries Council. Without these local committees, the communities felt the Inland Fisheries Council would be unable to respond to local needs.

Stephanus et al., (2002) note a general feeling among respondents of the 'urgent' need for improved regulations of the fisheries in the region. Through focused group discussions held, the report states there was agreement that the 'resource must be co-managed by representatives of the Ministry of Fisheries and Marine Resources and the user groups'. Many of the key informants interviewed stated that the Traditional Authorities should be strengthened and 'empowered' to enforce fishery regulations in the area.

Potential dangers of co-management

Although some form of co-management appears to have potential, it should not be seen as a panacea to all management problems. Dangers often include:

- the availability of resources at local level to establish such a system;
- local level conflicts and engrained attitudes, or communities or community institutions are always heterogeneity and lack of representation of all stakeholders;
- effective co-management needs some degree of power redistribution and not all parties are willing to accept such conditions;
- the agreement of revised roles and responsibilities is a large task;
- the potential shift of power from central government to another form of local elite;
- the costs involved to central government of the establishment of a successful system of local management are often underestimated;
- spatial/temporal scales of factors important to resource management may not be suitable for the local level.

2.2.2 Macro-level conditions

Freshwater Fisheries White Paper

Following extensive consultation and discussion in drawing up the White Paper (MFMR, 1995), the document ‘spells out the policy of the Government of Namibia towards the management of its freshwater fish resources in the Namibian inland waters’. The paper continues: ‘in the new legislation the objectives will be ... to ensure the responsibility for the management of a communal resource is vested at the local level rather than with central government through a ‘top-down’ system’. Part f aims ‘...to strive towards a holistic approach in the management of the fish, the rivers and floodplain areas.’ Local resource users, residents and authorities are surely best placed to lead in this objective. The White Paper states ‘the enforcement of measures is therefore seen as a partnership between central government, local government and traditional leaders, through a system of delegated powers to be defined in the new *Fresh Water Fisheries Act...*’. Section 8.9 further states that ‘... recognising the differences in the various systems, different management regimes are proposed in each system to suit the particular needs of a system’. Section 9.1 (the legal framework) states ‘the new legislation will specifically need to address the following issues: ... consideration will be given to the practical implementation of the devolution of powers to regional and traditional levels and to ensure that management decisions can be implemented effectively’. Section 9.7 (law enforcement and the role of Local and Traditional Authorities) states ‘enforcement of the *Inland Fisheries Act* will be done primarily by traditional and local authorities in the rural communal areas. The devolution of powers to regional and traditional authorities will be spelled out in the Act and implementation of and control over management will be spelled out in the regulations of the Act.’

Inland Fisheries Resources Act (draft) 2003

At the time of writing (March, 2003) the *Inland Fisheries Resources Act* (GRN, 2003) had not yet been signed by the President. The (draft) Act makes some limited provision for the development of local structures to ensure the involvement of resource users in the fishery management decision-making process. Potential provisions supporting the establishment of some form of co-management include:

- ‘in determining general policy to be applied in a particular area, the Minister must consult with local authority councils, regional authorities or traditional authorities’;
- allowing for the creation of an Inland Fisheries Council to advise the Minister which ‘may, from time to time, establish committees to perform subject to the directions of the Council, such of the Council’s functions as the Council may determine’;
- traditional authorities being able to nominate inspectors to the Minister;

- the Minister has powers to make regulations, including to ‘provide for the establishment of inland fisheries committees for purposes of managing the fisheries in particular water bodies or in particular areas and define the functions, powers and duties of such committees’.

Further analysis of the legal opportunities must await the finalisation of the Act.

Multi National Steering Committee for Freshwater Fisheries

The Multi National Steering Committee for Freshwater Fisheries (MNSCFF) was set up in 2000 during a workshop held in Katima Mulilo. At the establishment stage, the group was made up largely of fishery biologists and researchers representing Botswana, Namibia, Zambia and Zimbabwe. At a second workshop in 2000 (‘Co-management of freshwater resources in the Okavango and Zambezi systems: Consultative workshop’), representatives from the committee came together to discuss freshwater fisheries issues on the shared waters. During a discussion session, the report notes the following, ‘agreed statements and issues discussed’;

- community involvement in the conservation and sustainable utilisation of the communal resource is of paramount importance;
- although legislation is very important, participants expressed difficulties in law enforcement attempts;
- the co-management of aquatic resources, involving communities at grassroots level, is seen as a pre-requisite for proper law enforcement.

The group went on to develop a purpose for their efforts: ‘All stakeholders (government, non-government, private and community-based) in the Okavango and Zambezi river systems are effectively co-managing the shared aquatic resource in a sustainable manner’. The group continued on this theme in identifying five main objectives:

1. To better understand aquatic systems and the share this knowledge amongst all stakeholders;
2. To put in place a common policy and legal framework that is conducive to the co-management of aquatic resources;
3. To establish and maintain appropriate structures and mechanisms for the co-management of aquatic resources;
4. The commitment and active participation of all stakeholders is secured and maintained;
5. The capacity of local communities to sustainably manage their aquatic resources is enhanced.

Co-management as a strategy in international agreements/protocols

The SADC Protocol on Fisheries (SADC, 2001) makes a number of statements regarding the co-management of fisheries resources:

- ‘State parties shall work towards the development, acquisition and dissemination of tested means and methods of providing education, empowerment and upliftment of artisanal and subsistence fisheries communities.’
- ‘State parties shall facilitate broad-based and equitable participatory processes to involve artisanal and subsistence fishers in the control and management of their fisheries and related activities.’
- ‘State parties shall work towards harmonising their national legislation as appropriate to traditional resource management systems, taking due account of indigenous knowledge and practices.’
- ‘State parties shall, subject to Article 16 of this Protocol, adopt equitable arrangements whereby artisanal, subsistence and small-scale commercial fishers who are traditionally part of a transboundary fishery may continue to fish and trade in goods and services.’

Code of Conduct for Responsible Fisheries

The FAO Technical Guidelines for Responsible Fisheries (FAO, 1997) makes a number of specific references to the development of co-management systems and some are noted below. The document states that ‘decisions regarding this component [fisheries management] of management usually are political and have been made at relatively high level by centralised fishing agencies in the past. There is now increasing tendency to involve local peoples in such decisions through co-management or through the assignment of rights’. Furthermore the guidelines state that ‘... States should seek to identify relevant domestic parties having a legitimate interest in the use and management of fisheries resources and establish arrangements for consulting them to gain their collaboration in achieving responsible fisheries’ (see section 7.1.2 of FAO, 1997). It continues: ‘where users groups (often the fishers themselves) have no organised voice, mechanisms should be set up to adequately reflect their views.’

3. TRADITIONAL SOCIAL ORGANISATION IN THE AREA

Given that the fishery management system of the study area of this project (described in Section 4) is based on, and nested within, the traditional social organisation in the area, it is important to provide the background to the system. Similarly, in considering the possible management units for future fisheries management (e.g. a *silalo*), decision makers must have a full understanding of this system.

3.1 *Brief administrative history of the Caprivi*

Since the 1800s, the people of the eastern Caprivi have endured a series of colonial masters (local and foreign), with relief and Independence only occurring in 1990. The Lozi empire, covering the whole of the eastern Caprivi by 1830s, was a harsh system where ‘fear of the merciless punishment [from the Lozi] from the powerful made the subject submissive and the ethnic groups of the Caprivi strip [including the MaSubia] lived in a state of dependency that bordered on slavery’ (Fisch, 1999a). After a brief period of rule by the Makololo empire, the Lozi again took control of the area (about 1864) and re-installed many of the Lozi systems of administration, taking components from the Makololo system (Malan, 1999). Provinces and districts were established and district and village *induna* were established within the *khuta* system. With the arrival of the administration of German South West Africa, and their setting up of a headquarters in Schuckmannsburg in about 1909, Bruchmann (1999) reports that ‘the Barotse had to withdraw, leaving the local tribal system in tatters’. However, the German Resident was determined to build on the remnants of the Barotse system, and worked towards the setting up of the two customary authorities with chiefs that survived to Independence (Zeller, 2000). With the outbreak of the First World War, the British/allied forces took control of the area and until 1990 there were various administrations in charge (Union of South Africa, SWA Administration) some local and others more distant.

It can be seen that the current inhabitants of the area (mainly MaSubia but with sections under the Chinchimane *khuta*) have been subjected to a history of different administrations, some more benign than others, but most have had an external objective in their occupation of the area at some time. For example, the Lozi in the past (perhaps to 1909) in efforts to raise revenue and ensure that they had access to a sufficiently wide set of resources so as to maintain their livelihoods (Reader, 1999) and the South West Africa/Union of South Africa Administration (particularly from 1972 to Independence in 1990) used the region as a base for the fight against the African National Congress and the South West Africa Peoples Organisation. With changing administrations, residents were often informed rather than consulted about any changes. Amongst all of these political changes, the people had to survive and families spread across international divides.

3.2 Existing social organisation in the Caprivi (with particular reference to fisheries)

The nature and effectiveness of the social organisation in the eastern Caprivi floodplains is largely a product of the history of occupation, combined with modern pressures of commerce and population growth. Annex 1 shows a schematic diagram of the institutional set-up within a tribal authority.

3.2.1 Litunga, Senior Chief and the Barotse Royal Establishment

The Royal Kraal of the Lozi people is situated on the Zambezi in the upper reaches near to Mongu. Here the *Litunga* (or Paramount Chief) has his residence on the Zambezi floodplains (Lealui) and on the escarpment at Mongu. This has been the seat of the Royal Family since the early period of the first Lozi empire in 18th century.

Mwandi is still the seat of the Senior Chief, who presides over the area, and is widely seen as the Senior Chief to both the Chinchimane and the Bukalo *Khutas*. The Mwandi *Khuta* is made up of elected representatives from the *silalo* and sits daily. The *Induna* here have clearly defined sectoral responsibility (e.g. the fisheries *induna*, the natural resources *induna*).

3.2.2 The Chiefs, and Bukalo and Chinchimane Khuta

The Caprivi region is essentially divided into two separate administrations, with the Senior Chief in Mwandi – the MaSubia Administration headed by the Bukalo *khuta*; and the Mafwe grouping led from the *khuta* in Chinchimane. Despite the widespread recognition of these two main groupings, the border between the two is still disputed (Fisch, 1999a; Fisch 1999b). Essentially the boundary between the two administrations runs from around Kalimbeza/Lisikili in a southerly direction to the tar road (Katima Mulilo to Ngoma): to the east is under the MaSubia control and to the west is Mafwe. Beyond the tar road, to the south, the boundary snakes down to Muyako area.

The Chief is the hereditary head of the tribe and is a descendant of the Royal family. The Chief is assisted in his duties by the *Ngambela* (or Prime Minister) who is generally not a member of the Royal family. The *Ngambela* also serves as the primary council for the Chief on all issues. The *Ngambela* presides over the *Khuta* (or tribal council) which sits on most days at the tribal headquarters. The *khuta* is the highest legislative, administrative and judicial body in the unit, and at this level is made up of elected representatives from the *silalo* (wards) – these individuals are known as *Natamoyo*. The *Natamoyo* are elected in each of the wards, to sit in the *khuta* at the tribal headquarters. Some *induna* may be given specific sectoral responsibilities.

3.2.3 Silalo/ward system

At the next level, each *silalo*, or ward, has an elected Headman (*Silalo Induna*) who serves as the Head of the Ward. There appear to be some differences in the systems for the Bukalo and the Chinchimane *Khutas* – particularly in the selection of candidates for the position of *Induna*. However the *Induna* is either proposed or approved by the main *khuta*. Once an *Induna* is appointed there are no repeat elections and so long as there are no serious or justified objections to his rule, he will remain as *Induna* until his death. If the *Induna* feels unable to continue his duties, he may resign. Under the *Silalo Induna* there are two elected officials of the Traditional Authorities – the *Ngambela* or Second *Induna* who sits alongside the *Induna* at the sub-*khuta*; and the *Natamoyo* who is tasked to represent the *silalo* at the main *khuta*.

The difference between the *Induna* and the Second *Induna* was summarised thus, ‘the *Silalo Induna* is the mouth and eyes of the main *khuta*. The Second *Induna* is the representative of the people’ (pers. comm., Lisikili Second *Induna*, 2001).

The *Silalo Induna* presides over the sub-*khuta* (his own council or court of advisers) made up usually of the senior village heads in the *silalo*. The sub-*khuta* meets periodically (e.g. on Impalila the sub-*khuta* meets weekly) or as necessary when called by the *Induna*.

3.2.4 *Munzi/village levels*

A *Silalo* is made up of a number of *munzi* (villages). The *Induna ya Munzi* is the headman of a village. He is usually the oldest surviving descendant of the founding family of the village, the first settler.

Through the above described system, there appear to be channels of communication from the villager up to the King. The system is one of nested responsibility, and grievances follow the chain upward to higher authorities until they are resolved.

The Traditional Authorities (largely through the *Induna* at different levels) take the role of mediator and facilitator in the resolution of disputes. On the whole, the dispute resolution system is transparent and allows all interested parties to have their say and input to the discussion. The final word, of course, rests with the most senior representative of the *khuta*, usually the *Induna*. This system of open discussion allows the elder members (both men and women) of the area to make substantial input even if they are not currently holding a position in the Authority. There is also a right of appeal if either side in the dispute is not happy with the outcome: they can lobby the *Induna* personally, or the issue can be taken to the next level in the Traditional Authority. In this way the system allows 'local solutions to local problems' whilst at the same time, if this local solution is not satisfactory to all players there is a route of appeal to another *khuta* level.

According to Zeller (2002), the effectiveness of customary ways of decision-making remains strongly dependent on a tight network of personal relationships and social control. *Induna* must have a good knowledge of the history of their people and the lands use in order to make decisions that are balanced between all interested parties.

Some authors have reported the largely ineffective role of women within the traditional systems (Zeller, 2000) and it is true that in the formal roles of the Traditional Authorities are restricted to male representatives. However in Zambia there are at least two female *silalo induna*, who are, presumably, supported by the Mwandu *khuta* (pers. comm., District Fisheries Officer, Sesheke, 2001). In Namibia many of the judgements made and the disputes resolved have included the active participation of women through the *silalo* level community meetings (pers. obs., Impalila Island).

3.2.5 *Silalanda*

Apparently of particular relevance to the fisheries management system on the floodplains, but of uncertain importance to other features of the administration, are the *silalanda*. The *silalanda* appear to be the lowest level of resource management used in the current system. The residents inside a particular *silalanda* are said to be more closely related, than with people from outside. (See Annex 2 for an approximation of the *silalanda* for the Lifumbela Ward.) There appears to be no functional, formal institution associated with the unit (e.g. an *Induna* or a *khuta*) but it plays an important role in the allocation or the system of permissions for fishing rights. The application of this unit in the fishery management system is explained below.

4. FISHERY MANAGEMENT SYSTEMS IN THE SELECTED STUDY AREAS

Before reporting findings of some aspects of the fishery management systems it should be noted that:

- the results reported are from the research undertaken and cannot be said to be exactly true in all situations – there will be considerable variation between sites;
- traditional systems are so engrained, and holistic that it may be hard to identify explicit fishery related components;
- information in the following text comes from a number of sources – some may be considered more reliable than others;
- as in any system of administration or management, many of the results will be dependent on personalities and local conditions, so generalisations are dangerous. This should be remembered when trying to draw conclusions.

Fishery management systems are usually said to be made up of three components fishing regulations, fishing access restrictions and punishment and enforcement. These will be examined in turn in the traditional system and then in the formal government sector. Section 4.3 will address some of the inadvertent conditions which serve to influence fishing activities.

4.1 ‘Traditional’ systems of fishery management

Many of the following examples and case-studies show a sufficient level of continuity and application to a specified group of people to be called ‘traditional’ systems, but it should be noted that the history of the Caprivi must have left its mark on anything that is seen or considered to be traditional.

4.1.1 Fishing regulations

Gear restrictions

The following table has been drawn up following meetings and discussions with representatives of the different *Khutas* (including that of the Senior Chief in Mwandu), individual fishermen and others.

Table 1 Technical restrictions/prohibited fishing methods in the fishery

Prohibited methods	TA Wanyambe (Lisikili)	TA Lifumbela (Kalimbeza)	TA Bukalo	TA Chinchimane	TA Mwandu
Drag netting (all mesh sizes)	#	#	#	#	
Drag netting (2” and below only)	#				
Drag netting (2½” and below only) ¹					#
Telelamp (kerosene lamp and spear)	#	#	#	#	#
Bashing water (pushing fish to net) ²	#	#	#	#	
Gill nets (1½” and below)					#
Gill nets (2” and below)	#	#	#		
Gill nets (2½” and below only)					
No gill net restrictions					
Closed season (Dec 1–Feb 28/29)					#

Notes: TA = Traditional authorities

(1) TA Mwandu allows ‘large mesh drag nets’.

(2) *kutumpula* – the traditional term

Use of poisons and explosives were widely prohibited and actively discouraged in many areas.

A number of comments should be made regarding Table 1:

- There are a number of discrepancies and anomalies between the different individuals, groups and stakeholders consulted and what has been observed. Stakeholder interests may play an important role in this.
- Particular problems were identified with drag nets and their prohibition. Many people say they are banned, but in reality many have been observed in the study areas and little appears to be done to prevent their use.
- Similarly small mesh nets are regularly seen, mosquito nets are sometimes observed, bashing of water is heard and dugout canoes heading for the main stream at night with lamps and spears have been seen.

Some of this confusion between what is apparently a *khuta* rule (from either the Mwandu, or the Bukalo or Chinchimane seats) and what is believed to be true at the Ward level may be explained by the degree of autonomy enjoyed by the authorities at *Silalo* level. Kamminga (2001) explains that ‘decisions for example, by-laws, can be taken at this [*silalo khuta*] level, but they need to be endorsed by the Bukalo *khuta*’ in the case of the MaSubia system.

Discussions with representatives of the *silalo khuta* suggest they would never propose a local rule (or by-law) which would be outside the rules emanating from the *khuta* itself. Therefore a more likely reason for the differences between the rules from the *khuta* and the sub-*khuta* is that given that very few of the gear restrictions are actually enforced (save the drag net rule on isolated occasions), there is no urgency or very little importance attached to the detail of the rules.

Restrictions on numbers of fishermen

No evidence was found to suggest there are any restrictions on the absolute numbers of fishermen able to fish in a particular water body or area. Factors identified as resulting in the concentration of fishermen include ‘good catches’ and to explain the presence of empty lakes or lakes devoid of fishing gear, is the fact that ‘there are no fish left’ or perhaps the presence of unusually large numbers of crocodiles or hippos. The relatively straightforward system of acquiring permission to fish (apparently in most cases a simple discussion) suggests that there may be an increase in the number of fishermen as the population increases. Even at this time, a number of fishermen have complained that the number of fishermen is too high and the competition for space and fish is increasing (Stephanus et al., 2002).

Temporal restrictions

In this particular survey, no evidence was found of organised or decreed closed seasons playing an important role (either now or in the past) in fisheries management in any of the areas where interviews were carried out. The closed seasons and areas identified by the fishermen relate to largely inadvertent measures which reduce their ability to fish (see Section 4.3).

The absence of closed seasons on the Namibian side of the river is in contrast to the Zambian side where a fish ban is observed from December 1st to the last day of February the following year. This fish ban was introduced in 1987 by the Government of Zambia in many fisheries in the country and was said to be fully functioning by 1990. During this time, no fishing is allowed, except for ‘these fishermen traditionally living by the water who can use hook and line only for subsistence purposes’ (pers. comm., DoF, 2003). People in this area did not traditionally fish much in the rivers between December and February because they moved upland to plough, plant and then harvest their crops. It is a common claim that there are ‘outsiders’ who started the practice of remaining on the river banks to fish throughout the year.

The Mwandu Traditional Authority is serious in their closure and explained that they set up road blocks (manned by representatives from the government and the Traditional Authority) in order to stop the movement of uncertified fish. Fishing is still allowed in other lakes in Zambia and fish from these areas are supposed to be certified as being from a different Province – to distinguish it from locally caught fish. Other people have reported that the closed season is a prohibition on the sale of fish, rather than a broad fishery closure. The evidence from surveys and observations during the closed season is that there is still a considerable amount of fishing going on the Zambian side of the river with gill nets and other prohibited gears, but it is unclear whether this is for sale or home consumption. Although the end result is a closed season for fishery, the period of the closure may be related to the multiple-livelihood strategy adopted in the area. Pollnac and Littlefield (1983) recount a number of cases where the closed season may not have been entirely determined by fishery considerations, but may have had its origins in the needs of agriculture. Evidence was heard by the authors, from the *Khuta* at Mwandu that this period (i.e. closed season from December to February) is normally or traditionally the time that people move inland to cultivate.

Bell-Cross (1974) writes about the upper Zambezi in general in the late 1960s and 1970s that the majority of fishermen only fish during the dry season and cultivate gardens during the rest of the year. The wide distribution of fish on the floodplain renders fishing uneconomic during the flood season. The fishing season therefore was between July and December.

4.1.2 Fishing access restrictions

The system of access and use rights to fisheries in the study area are based on the social and political organisation and administrative system outlined in Section 3. The level of compliance and adherence to these rules differs in different areas. There are a variety of rights and procedures based on the nature of the water body: main river; *mulapos* (seasonally flooded depressions); floodplains (Abbott et al., 2003). There are also some specific rules for the placing of *siyande* (fish fences).

Main river

For those *silalo* with a river border of the Zambezi or Chobe, any resident of the *silalo* is allowed to fish in the main stream at any time of the year, without requesting permission. A resident of another *silalo* (whether he is known to the people or not) must request permission from the *Silalo Induna* of the appropriate ward before fishing, although the *Induna* is not allowed to refuse such permission. As stated many times, the main river is for all people. In the past, backwaters of the main streams (or the gulfs) on the Namibian and Zambian side were shared, but now the Zambians must stay on their side and the Namibians on theirs.

Floodplains

When the floods of the Zambezi and the Chobe are high (March to August) large areas of plains are inundated with water. During this period many of the modern gears cannot be used either because the water is too shallow on the inundated floodplains (for gill nets), running too fast in the main channels (for gill nets), or the bottom vegetation is too thick (for drag nets). All flooded areas are therefore open to such an extent that ‘anybody can fish anywhere’ whether from that particular *silalo* or not. Some interviews suggested that access to the flooded plains is only open to the residents of the *silalo* in question, and any outsiders wanting to fish must request permission. Traditionally, the rising waters and the flooded period heralds the use of a wide variety of traditional gears (van der Waal 1980; Purvis 2002a) and often it is the women and the children who take a greater role in the fishery at this time of year.

Mulapos, lakes and streams

This third category of water body is perhaps the one over which most control is exerted. As suggested by Tvedten (1994) this control may come from the fact that these water bodies are the most valuable and subject to the most pressure at certain times of the year. All people interviewed stressed that *mulapos*, lakes and (whether temporary or permanent) come under family ownership – ‘the streams are our streams’ (Purvis, 2002c).

Within a *silalanda*, any resident of that *silalanda* can fish in any water body without asking permission. Within a *silalo*, if somebody wants to fish in a lake inside a *silalanda* different to that in which he resides, then he must first ask permission from the ‘owner’. The ‘owner’ is usually the head of the family (i.e. the *Induna ya Munzi*) of the village closest to the water-body. As long as the applicant is a resident of the *silalo* itself then the *Induna* cannot refuse permission, after consultation with his local *Induna*.

Access rights applicable to the fish fence (or *siyande*)

The *siyande* or fish fence is a traditional gear made from reeds and grasses. The fence is usually constructed across a channel in advance of the flood waters rising and aims to catch fish in an enclosure as they move with the water onto the plains. The temporary structures can be between five and 50 metres long, but fences of over 200 metres have been observed at the mouth of larger *mulapos*. The right to set the fences in the *mulapos* goes with the ownership and use rights for the *mulapo* itself. If a person from a different *silalanda* (but the same *silalo*) wants to set a *siyande*, then they must first obtain permission from the owner. Applicants can never be given the right to set a *siyande* in a *silalo* other than that in which they live.

Payment for access to fishing rights

In many other parts of the world, the payment of fees for the rights to fish are widely accepted (e.g. in northeast Nigeria, Neiland (1994) explains there are rarely transfers of rights without payment). However, in the study areas there is very little direct evidence of payments having been made. It is not always possible to separate the cases where direct payment is made or required from the more subtle systems of payment or reciprocal arrangements that may exist. For example, people may state that there are no direct payments for fishing access, but they expect an offering (usually a proportion of the catch) and if this is not forthcoming ‘we will chase him [the fisherman] away’ or ‘he will not be entertained next year’.

The offering of tributes (or *mubingo*) may have a role to play in the system. Traditionally the *mubingo* is a tax or an offering paid to the Chief (or representative) and may well be distributed to the poor and needy.

It appears that the *mubingo* system is a throw-back to a period of much wider and broader system of payment of tributes to Chiefs. Traditionally when the flood waters were receding and *mulapos* were becoming dry (usually water at about knee-depth and too shallow for netting), the ‘owner’ of that *mulapo* would be required to inform the Chief that the particular *mulapo* was ready for *mubingo*. The Chief (or *silalo induna*) would announce the fact that the particular *mulapo* was ‘open’ for fishing. On a particular day people from the *silalo* (and outsiders if permission was correctly obtained) would descend on the *mulapo* and using spears would catch the remaining fish. Part of the catch from this particular event would be given as a *mubingo* to the Chief or representative and other proportions to the elderly and unmarried mothers in the village. In Zambia this system still appears to operate and certain areas are set aside and remain unfished until the first fishing of the season is undertaken by the Chief or his representative.

4.1.3 Enforcement and punishment

The above recorded technical gear restrictions are often and openly flouted or ignored. Reasons given for poor enforcement include ‘there are no police here’, ‘there is no formal recognition of the restrictions’, ‘the Ministry of Fisheries have no office here’, ‘the *Induna* do not do their job’. Similarly the culprits will explain their actions thus: ‘we have to eat’, ‘at certain times of year if you use a 3” net you will catch no fish on these areas’; ‘if we do not use these nets, the *Zambians* will and they will finish the fish’ (Purvis, 2002c). Most *Induna* interviewed recognised the problem of lack of enforcement and claimed that they were largely powerless to prevent such action.

Stephanus et al., 2002 reported the following findings from their study regarding prohibited gears:

- When respondents were asked about the use of drag nets, a small majority of fishing households (56 per cent versus 46 per cent) stated that they were not allowed in their ward.
- Among fishing households, the opinion was that only 16 per cent of fishers comply with fishery rules more than half the time, while 84 per cent comply less than half the time, leading to the conclusion that regardless of who makes or enforces the rules, levels of compliance do not appear high.
- Of the 15 per cent of households that believed fishery rules existed, the most common rules cited rules were that no small mesh nets were allowed, no drag nets were allowed, and no fishing with mosquito nets was allowed.

During the Joint Frame Survey undertaken in 2002, between 20 and 25 per cent of fishers said that no fishing methods are prohibited, illegal gear is widespread and enforcement is poor, with much illegal fishing going on unpunished (Abbott et al., 2003).

4.2 Inadvertent methods of fisheries management

This group of factors or conditions are such that they limit the fishery (either through temporal, technical or spatial means) in some ways, but they were not intentionally devised to limit fishing activity. Tvedten (1994) mentions some of these as does Purvis (2002a).

Table 2 Inadvertent management practices or limitations on fishing

Closed seasons (periods when fishing effort is reduced or absent)	Closed areas (areas where fishing effort is reduced)
Water runs too quickly during the rising flood for certain gears. Water runs too quickly for the safe use of a canoe. Fishing effort reduced when people are busy with other livelihood components. No night fishing by Namibians because of fear of wild animals.	Areas known to be inhabited by crocodiles or hippos are not used. Sections of the river patrolled by the Botswana Defence Force (legitimately or not) are rarely used by Namibian fishers. Aquatic vegetation may prevent canoes from moving, or hinder the setting of nets. Areas (especially on the Chobe) where tourist traffic is heavy can restrict the setting of gill nets
Gear restrictions (areas or times when certain gears cannot be used)	Traditions (cultural or social factors reducing fishing effort)
The nature of the river and the river bed prevents the use of some dragging equipment. The investment required for drag nets may be beyond the reach of many households. Quality fishing nets are becoming more available locally but there is still no regular supply.	<i>Linyonga</i> (barb/labeo) is said to be linked with evil and should not be landed. <i>Mbufu</i> (redbreast tilapia) should not be consumed by women. <i>Ndombe</i> (catfish) is not eaten by members of the Seventh Day Adventist Church

Source: Purvis, 2002a

There are a number of environmental conditions, not related to fisheries, which may have had an important influence on the development of the fishery the patterns of exploitation. These influences may in turn have had a greater impact on the current shape of the fishery than specific fisheries-related restrictions.

Such features or limits may include:

- the poor condition of roads on the floodplain making access difficult even in the dry season;
- the lack of regular and reliable transport to villages on the floodplain;
- poor storage facilities across the floodplain and in the market at Katima Mulilo;
- the availability of other sources of protein may serve to reduce the demand for fish;
- multiple sources of livelihood for fishing households may prevent an increase in fishing effort without sacrificing some other activity in their work calendar;
- subsistence level households must be involved in a multitude of activities, so there is unlikely to be room for an increase in fishing effort unless appropriate access rights for various resources are held for other times of the year.

4.3 *Formal, government systems*

Since Independence in 1990, the responsibility for freshwater fisheries has moved from the Ministry of Agriculture, to the Ministry of Wildlife, Conservation and Tourism to its current location in the Ministry of Fisheries and Marine Resources (MFMR). Currently, the Freshwater Fisheries Institute (FFI) of the MFMR is based at Hardap Dam near Mariental, some 250kms south of Windhoek.

The legislation currently governing the management of freshwater fisheries in Namibia is a mix of pre-Independence legislation and the Constitution of the Republic of Namibia. The Namibian Constitution (Article 95) notes that ‘the state shall actively promote and maintain the welfare of the people by adopting ... policies aimed at ... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future’.

Namibia’s Green Plan states one of the goals of the government is ‘to protect and manage its wetland systems by means of rational and integrated land-use planning in accordance with the philosophies of the Ramsar Convention, based on the principles of (a) preserving biotic diversity, (b) monitoring life-support systems and, (c) ensuring the sustainable utilisation of wetland resources’ (MWCT, 1992). More recently the Government of Namibia set out their policies with regard to inland fisheries in a White Paper (MFMR, 1995).

In order to facilitate the introduction of these policies, the government is in the process of drawing up an *Inland Fisheries Resources Act* and Regulations. The Act has been passed but is yet to be signed by the President. The regulations associated with the Act should be developed to address issues in different systems of Namibia.

4.4 *Conflict*

The most often reason for the implementation of traditional rules as outlined above, was ‘to avoid conflict’. In comparison to some of the conflict over land use issues, then perhaps the rules have been successful. Abbott (2003) states that 70 per cent of fishermen reported there are conflicts predominantly over access to fishing grounds and fishing practices – ‘stealing’ of fish by not asking permission (rare); stealing of fish from another persons nets; stealing of nets; and Zambians fishing in waters where prohibited. These can be broadly described as internal and external conflicts.

4.4.1 Internal conflicts

Internal conflicts are those that occur within the *silalo* and within the territory of Namibia. Conflicts or disputes at this level should be handled by the Traditional Authorities as the dispute most frequently enters the system at the village level, and may then move up to the *silalo* or sub-*khuta*. If the problem remains unsolved it can be dealt with at the main *khuta*. Although such disputes are reportedly rare they may include fishing in an area without asking permission (referred to as stealing fish); removing fish from the nets belonging to somebody else (also stealing); and stealing nets – especially when the flood is high and the nets are widely dispersed across the plains, possibly some distance from the village.

Very few cases were reported where people had been taken to the *khuta* for offences of using prohibited fishing gears. This is not regarded as a conflict because the level of enforcement is so low.

4.4.2 External conflicts: Botswana

The south side of the Chobe River forms the border between Namibia and Botswana and is also the northern boundary of the Chobe National Park. Hunting, fishing and all extractive activities are prohibited in the Park and the area is strictly and heavily patrolled by the Botswana Defence Force (BDF). Abbott et al., (2003) relates a number of incidents involving conflict between Namibian residents (especially fishermen) and the BDF ranging from the BDF chasing and threatening fishermen, and cutting or taking nets or fish to arrests, beatings and shootings. Similar issues have been brought to the attention of the Joint Committee for Botswana and Namibia in its quarterly meetings.

This conflict is not new and the local fishermen share some of the blame because they often set nets across the entire channel into Botswana waters. Fisherfolk argue that this is necessary because ‘the Chobe is a stream so we can’t fish without putting our nets like that’ though it is illegal (Abbott et al., 2003).

Other conflicts occur, with fish vendors from Impalila and Kasika complaining of harassment when they take their fish to sell in the market in Kasane. Almost all of the fish in the Kasane market is supplied from Namibia, and vendors from this area find it uneconomic to travel regularly to Katima to sell their fish.

In the past, conflicts were reported between fishermen from Namibia and Botswana during the years of the active Lake Liambezi fishery.

4.4.3 External conflicts: Zambia

The northern border of Caprivi along the Zambezi River is with Zambia. Namibia’s relationship with Zambia is more complicated than that with Botswana – there has always been some synergy between the inhabitants of the two countries, some positive and some negative.

The most commonly held complaint about the interaction with fishermen in Zambia is that they fish in the Namibian waters without asking permission. As explained in an earlier section although parts of the main river may be shared and access rights are equal, the fishermen of Caprivi are very serious when it comes to the use rights for *mulapos*. Reports are increasing of Zambian nationals crossing the Zambezi and walking inland to fish in ‘owned’ lakes and *mulapos*.

These complaints should be tempered by the following:

- Many reports received where Zambians are fishing in Namibia using gear belonging to Namibian nationals. The Zambian fisher will take his share of the fish, and the rest goes to the net owner.
- Reports have also been received that show that some Zambians are fishing in Namibia with the (unlawful) permission of the *mulapo* 'owner' or the *induna* of the said area.
- Many Zambians are employed throughout the year by Namibian households – they are employed mostly as herd boys and also as fishers at certain times of the year.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The paper has demonstrated that:

- There is a system of fisheries management on the floodplains based on the traditional structures. However this system is experiencing problems, particularly in the level of enforcement of the technical regulations.
- The new *Inland Fisheries Resources Act* of the Government of Namibia appears to hold some limited opportunities for the development of management systems incorporating local resource users in an effective role.
- There are clear written frameworks (national and international) to which the MFMR subscribes, which encourage the inclusion of local resource users in the management of fisheries resources.
- A number of these international agreements make clear the need for co-operation across borders in the management of shared resources.
- There are repeated calls from stakeholders in the Caprivi Region for their involvement in future decision-making and enforcement of fisheries rules and regulations.
- There are complicated institutional and livelihood issues in the fisheries systems in the region.
- Co-management systems have the potential to offer much in the achievement of broad objectives, but changes in systems towards co-management should not be assumed lightly. Incentives leading different stakeholders to support the concept of co-management, may well prove to be irreconcilable once the details are examined.

In conclusion, some of the key questions that this paper, and more broadly the 'Shared resource management in northeast Namibia' project, has addressed are:

- Who are the stakeholders in a future fisheries co-management agreement?
- What broad activities need to be done for effective floodplain fisheries management?

5.1.1 Who are the stakeholders in a future fisheries co-management agreement?

From research undertaken recently in Caprivi, a list has been developed of stakeholders in the fishery that may wish to be involved in any future co-management system in the area (Table 3). Although the list focuses primarily on Namibia, a similar list could be prepared for the Zambian side of the river.

Table 3 Potential fishery sector stakeholders in the Caprivi Region

Local/international NGOs	Co-operatives (agriculture, fisheries)
Fisherfolk (permanent, seasonal)	Credit Unions, banks
Local entrepreneurs	Traditional Authorities (Village, silalo, tribal, in Zambia)
Fish vendors (fresh and dry)	Caprivi Regional Council
MFMR Regional Office (Katima Mulilo), Freshwater Fisheries Institute (Hardap) Headquarters (Windhoek)	Local Resource management groups (Conservancies, SWANERCA)
Ministry of Agriculture, Water and Rural Development	Consumers
Ministry of Trade and Industry	Angling clubs/recreational fishers
Ministry of Environment and Tourism	Lodges
Katima Mulilo Town Council	SADC
Market Committee	Regional Development Co-ordinating Committee
Department of Fisheries, Zambia	Donors

5.1.2 What broad activities must be undertaken for effective floodplain fisheries management?

The following activities are based on work reported in Hoggarth et al., (1997) with some additions from the authors to focus on the Caprivi floodplains.

- i) establish management objectives;
- ii) ensure international responsibilities taken into account (especially with regard to agreements to which Namibia is a signatory. This has particular relevance given that many of the river resources are shared with neighbouring countries.);
- iii) ensure the environment is protected;
- iv) assess the fishery;
- v) provide technical guidance (knowledge and expertise);
- vi) conduct research (both pure and applied);
- vii) provide catchment management perspective (in collaboration with other countries);
- viii) develop management plans;
- ix) provide funding;
- x) set rules for fishing activities;
- xi) set rules for institutional relationships;
- xii) Develop appropriate legislation to support fisheries management;
- xiii) provide mechanisms for conflict resolution;
- xiv) provide coordination of activities for floodplain fisheries management;
- xv) provide effective paths of communication;
- xvi) provide education, training and extension;
- xvii) enforce agreed rules;
- xviii) monitor both the resource and its management;
- xix) identify and develop post-harvest, marketing and processing opportunities (alternative livelihoods);
- xx) develop and assist in the adoption of fish farming activities;
- xxi) provide appropriate loan assistance if vessel/gear re-structuring is required.

An important future task is to agree responsibilities and roles to the various stakeholders (or in combination) to undertake the above duties. Attachment 3 shows a set of criteria from Ostrom (as used in Neiland et al., 1994) and broadly applies these conditions required to the situation in the eastern floodplains. This table could be developed further and form the basis for action planning to continue the move towards co-management. Attachment 4 shows a potential set up for the institutional structure to accompany efforts to implement some co-management system.

5.2 Recommendations

A number of recommendations are made in order to continue the moves to an appropriate systems of fisheries management for the region. They include:

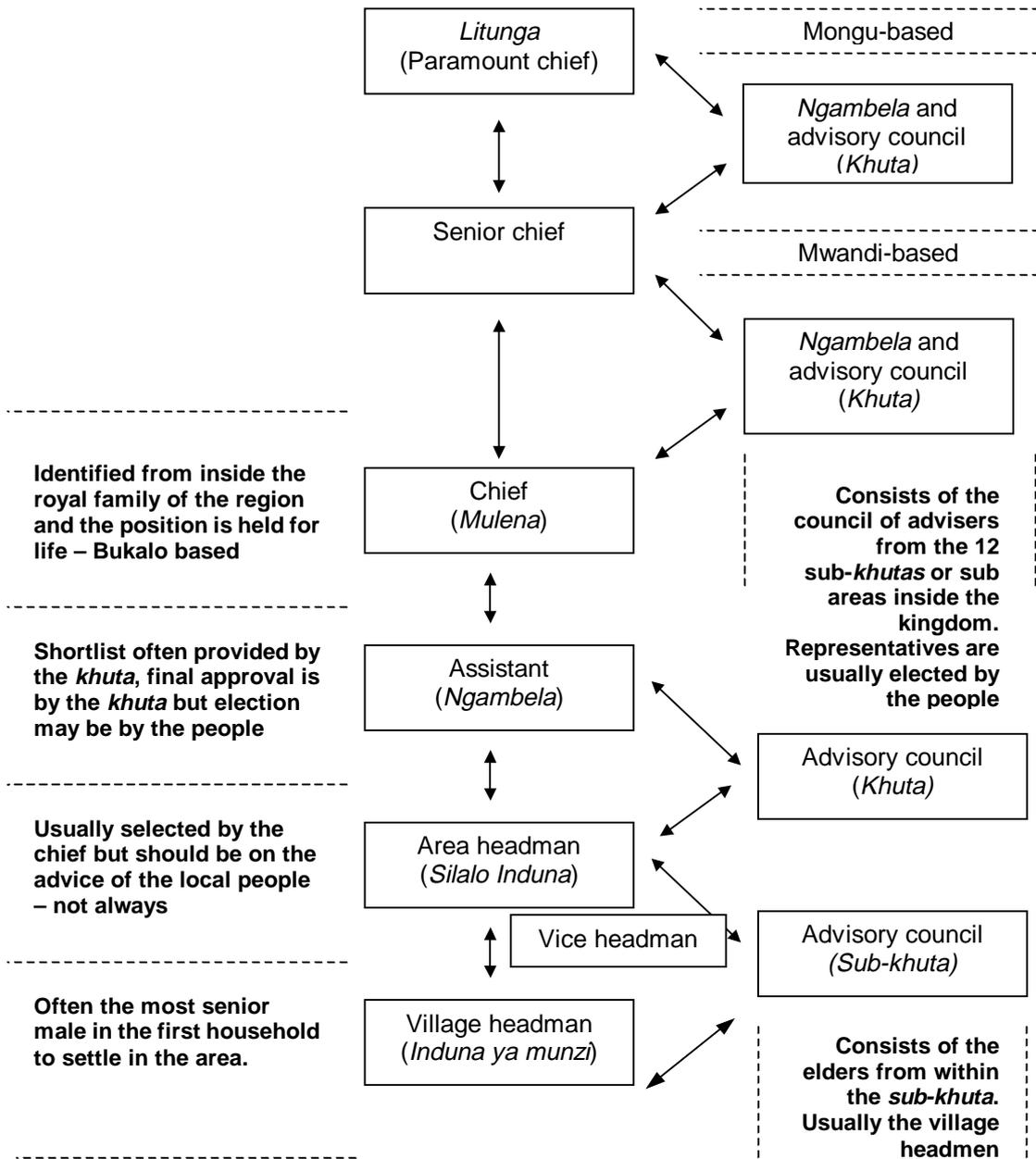
1. Review the gazetted *Inland Fisheries Resources Act (2003)* and other Namibian legislation that is relevant to fisheries management, in order to establish and clarify the opportunities in the formal framework including assessment of the current conservancy legislation.
2. Review the gazetted and planned legislation in Zambia that relates to fisheries management, which in combination with the review of Namibian legislation may provide opportunities for developing transboundary management systems.
3. From the stakeholder list above (and from other project activities) work to establish a working group (with representatives from Zambia and Namibia) which can focus on training and education and consultative activities – and to a lesser extent to provide a discussion forum for future systems.
4. Undertake information and education campaigns regarding any new management system must be conducted at all levels using a range of media. The institutional and personal changes necessary at all levels, for a successful management system, should not be underestimated.
5. Effort should be made to pilot alternative management systems – as one of the best tools in education is the use of real examples. For example, in the light of the discussion around closed seasons in the area, a trial along a section of river should be undertaken. Monitoring of impacts (both positive and negative) and the experimenting with institutional structures for the implementation of such a measure would be necessary. This would provide a good testing ground for the communities and government and other stakeholders to take part in the active management of the resource, and to experience the full impact of decision-making powers.
6. The MFMR is in the process of developing regulations for the fisheries in the study area and this could be used as a process to test the commitment of communities, representatives to the fact that they have rights and responsibilities.

6. REFERENCES

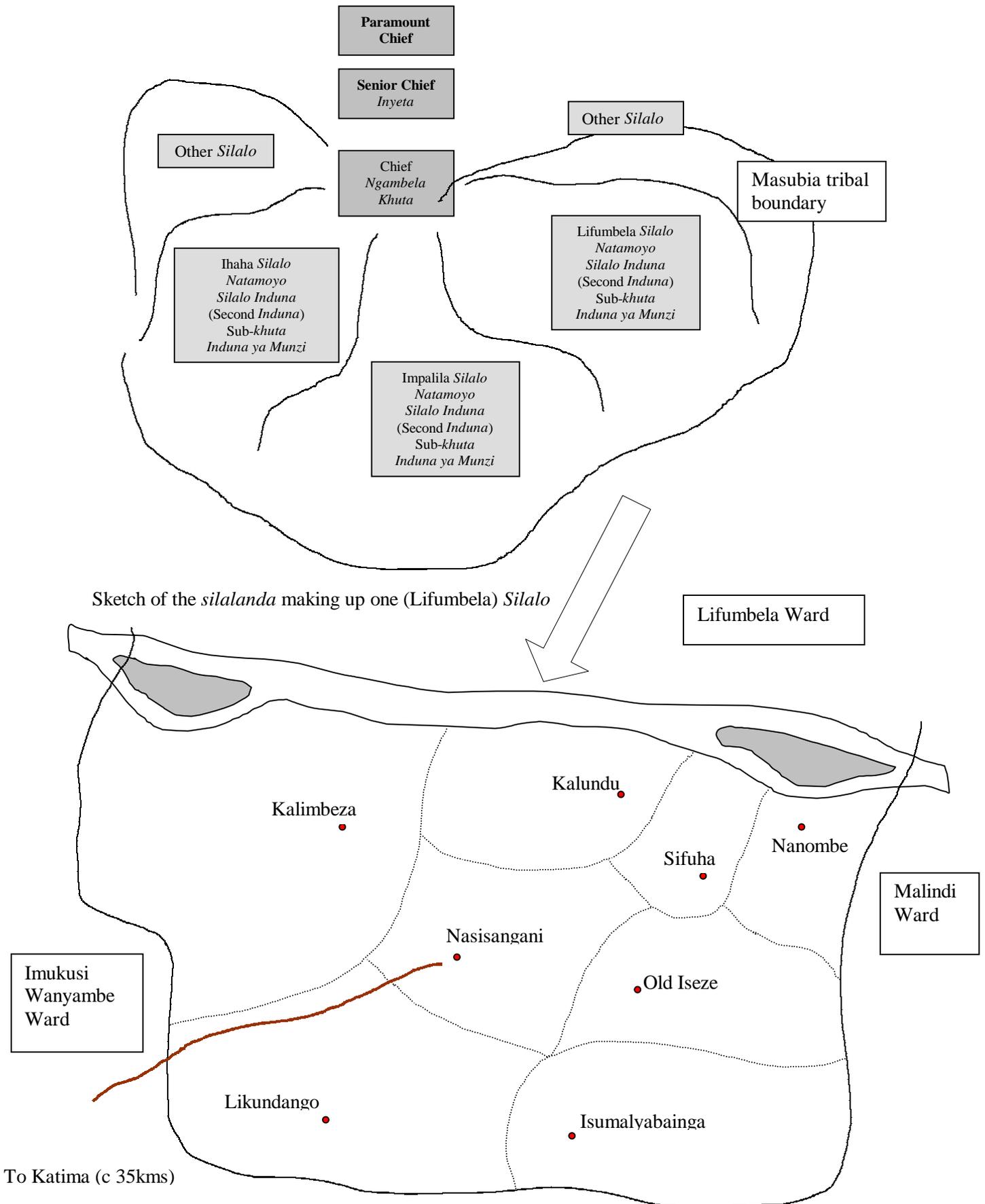
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ANNEX 1 TRADITIONAL SOCIAL STRUCTURE (LOZI/MASUBIA) IN THE STUDY AREA



ANNEX 2 INSTITUTIONAL SET-UP



Note: schematic diagram only – no geographic reference for boundaries of *silalanda*

ANNEX 3 ASSESSMENT OF SUITABILITY OR POTENTIAL FOR CO-MANAGEMENT SYSTEMS ON THE EASTERN FLOODPLAINS IN CAPRIVI

Criteria	Conditions required	Conditions on floodplains
1 Clearly defined boundaries	Boundaries for area to be managed should be clear and based on ecosystem understood by group Size to allow for management	Existing management unit boundaries are the <i>silalo</i> and the <i>silalanda</i> . These are based on family and (sometimes) ethnic differences, so there will always be some dispute. Are the management units for other natural resources under the TA control, so well understood by the groups? Boundaries of the family-owned streams are well known and recognised locally although not documented. Variable size but maybe eight <i>silalo</i> in the studied floodplain area.
2 Membership is clearly defined	The individuals or households with rights should be clearly defined Small enough group to allow decision-making and group activities	Access rights under the existing system depend on residence within the borders of the <i>silalo</i> and the <i>silalanda</i> , distinguishing between members and outsiders – but no written lists. Family rights are clearly defined groups. Family groups (extended) can be quite small. The population in the <i>silalo</i> may be up to 2,000 people and it is estimated that around 30 per cent are fishermen – so possibly 600 people.
Group cohesion	People permanently adjacent to managed area High degree of homogeneity (kinship, religion, fishing gears) Provide a basis for collective action Common understanding of the issues and objectives	Some settlement components move with the water level, so at flood time the settlements may be grouped far from the main stream (though at this time fishing is open), but with low water settlements move to the banks of streams or main channel. Population is still relatively homogeneous with no significant groups of ‘outsiders’, unlike the conditions on the Zambian side. The <i>silalo</i> is the unit already for some degree of collective action in natural resource use (forests, grazing). Issues and objectives are not very well understood (apparently) outside of a small group of leaders.
4 Existing organisations	Some prior experience of traditional community-based management systems and organisations Representation of groups is good in these organisations	<i>Silalo</i> and sub- <i>khuta</i> is already the functioning unit for the management of fisheries, forests, grazing land and other land use. Other possible institutions (e.g. conservancy committees in some areas) have experience in resource management. Officials in the traditional authority system (<i>induna</i> at some levels) are based on family groups, and do not include women. Institutional operation allows for the participation of all members of society (including women) although decision-making powers of non- <i>indunas</i> is limited.
5 Benefits exceed costs	Individuals believe that the benefits of the exercise will exceed the costs	Mixed, although for the implementation of management tools it appears the benefits are clear (for some stakeholders) but the potential for unbearable costs may not have been fully considered from all angles.

	Criteria	Conditions required	Conditions on floodplains
6	Participation by those affected	Most individuals affected by the management arrangements are included in the group that makes and can change the system People making management decisions are also those collecting information for management	The sub- <i>khuta</i> is an institution open to all, but decision-making group can be limited. Often young fishermen are under-represented in group meetings and traditional authority activities, as are vendors. Some of the fishermen are involved in Ministry-supported research activities collecting information on the fisheries. Other groups have expressed a willingness to get involved in data collection schemes.
7	Management rules enforced	Management rules are simple Monitoring and enforcement can be undertaken by and shared by all fishers	The existing access rules are still largely enforced, but technical measures (e.g. gear restrictions) are still confused and there is very little enforcement. This lack of enforcement may be due to the complexities and details of such rules, or the lack of enforcement support from government and others. Current enforcement is seen as the responsibility of the <i>induna</i> and/or the government and there is little enforcement or assistance by other fishers at this stage but this may well change with the new Act.
8	Legal rights to organise	Fishers group has the legal right to organise and make arrangements and there is enabling legislation from the government defining and clarifying local responsibility and authority	The legislation governing fisheries is in flux – there is a new Bill currently going through Parliament. It is still uncertain what exactly is included in the Bill, but it is hoped that it will provide enabling legislation should a local or regional group wish to take the legal right for fisheries management in a specified area (e.g. local fisheries committees).
	Co-operation and leadership at community level	There is an incentive and a willingness from the fishers to actively participate (time, money, effort) There is an individual or core group taking leadership and responsibility for some aspects	Apparent willingness to become involved in certain activities (e.g. workshops, meetings) but still to be tested in pilot fisheries management efforts. Some ‘leaders’ and representatives of Traditional Authorities accept responsibility but leadership needs testing.
10	Decentralisation and delegation of authority	The government has formal policies for decentralisation of administrative functions and responsibility to local government and local groups	The government has stated the intent to actively encourage the process of decentralisation in the country. At present some aspects have moved further than others, and in terms of natural resource management progress has been slow.
11	Co-ordination between government and community	A co-ordinating body is established (external from the fishers groups) to monitor the local arrangements, resolve conflicts and generally assist	Possibilities of establishing a Regional or Area Fisheries Council or Agency which could take some responsibility for it. This is dependent on the final contents of the <i>Inland Fisheries Resources Act</i> .

Based on criteria from Ostrom, as used in Neiland et al., 1994.

ANNEX 4 POTENTIAL STRUCTURE FOR A FISHERIES CO-MANAGEMENT SYSTEM IN THE CAPRIVI REGION

