

INTEGRATED MANAGEMENT OF ZAMBEZI / CHOBE RIVER SYSTEM - TRANSBOUNDARY FISHERY RESOURCE, NAMIBIA / ZAMBIA / BOTSWANA

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FINAL EVALUATION REPORT

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ABBREVIATIONS AND ACRONYMS

| | |
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| IRDNC | Integrated Rural Development and Nature Conservation |
| IUCN | International Union for Conservation of Nature |
| MFMR | Ministry of Fisheries and Marine Resources |
| MTR | Mid Term Review |
| NGO | Non-Governmental Organisations |
| NNF | Namibia Nature Foundation |
| NINA | Norwegian Institute for Nature Research |
| Norad | Norwegian Agency for Development Cooperation |
| SAIAB | South African Institute for Aquatic Biodiversity |
| WWF | Worldwide Fund for Nature |

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EXECUTIVE SUMMARY

Background

This Evaluation carried out in April-May 2009 was commissioned by WWF in Namibia to assess and review the relevance, effectiveness, efficiency, impact and sustainability of the project.

The Caprivi Region in Namibia borders on Botswana, Angola, Zambia and Zimbabwe. The fisheries project area, a system of floodplains and backwaters, includes the Chobe, Kwando/Linyanti and Zambezi rivers. Lake Liambezi, an important fishery in the 1970s and early 1980s, dried up in 1985. During this project the lake refilled, particularly in April 2009, and fishery activities are again taking place. The rivers are rich in fish species diversity (> 80 species). The annual flood cycle is the main stimulant for fish production. Species diversity and species composition differ in different habitats within the river-floodplain mosaic, as well as during the different flood periods.

The Namibia Inland Fisheries Resources Act (Act No. 1 of 2003) and Regulations restrict effort by limiting number of nets, mesh sizes, net lengths, and damaging fishing methods. The shared nature of the transboundary fish resource is complex and conflict arises because of access and the method of fishing, and the high number of nets. The Fisheries Act in Zambia includes decentralisation of fisheries management through community involvement, and co-operation with neighbouring states in the management and development of shared fisheries. A third of the Caprivi floodplain households in Namibia depend primarily on the fishery, and fish are also important in the Zambian economy. Major stakeholders include households, vendors, potential local management structures such as fish associations, conservancies, etc., traditional authorities, sport fisherman and the tourism industry including Botswana, Namibia Ministry of Fisheries and Marine Resources, Zambia Department of Fisheries, WWF in Namibia, Namibia Nature Foundation.

The evaluation was carried out through: (1) review of all available literature; (2) interviews and discussions with stakeholders, including meetings with staff of project, MFMR in Namibia, Zambia DoF (including the Principal Fisheries Officer from Head Office in Lusaka), IRDNC (a community-based management NGO), fishing committees, conservancy committees, the Governor of the Caprivi Region, tourist lodge owners; (3) observation of fishing activities in Namibian floodplains (the most extensive in the area although other floodplains exist in Zambia and Botswana also) and Lake Liambezi; (4) experience of fisheries and biodiversity throughout the Zambezi River system, and (5) internal discussion and review of findings of evaluation, and discussion with the Permanent Secretary of MFMR.

The aims of the project were: **Project Goal:** The shared Zambezi/Chobe River fisheries resources managed sustainably, and **Project Purpose:** Alternative community fishery management practices piloted and tested contributing to a fully integrated management system for fisheries that provides optimal benefits to all stakeholders.

Relevance of project

Pressure on the natural resources, including fish, continues to increase, thus it is vital that emphasis is placed on sustainable management of the resources and therefore the goal and purpose are highly relevant.

The initial project aims, directed primarily at management of the larger fish species, do not address the issue of rational exploitation of the other fish species on the floodplains and in ephemeral water

bodies. This finding was reached as a result of the biological monitoring undertaken during this project phase. This necessitates a change in emphasis in the fisheries regulations proposed under the new Namibian Fisheries Act, although the goal and purpose of the project should remain aimed at sustainable management through alternative community fishery management practices. There should be a change in emphasis towards an approach whereby the communities, with guidance from the project/MFMR, draw up their own localised regulations for ratification under the Act. Such an approach would allow communities on the floodplains the right to exploit small, prolific floodplain species during flooding, while communities on major river channels would be encouraged to develop regulations that protect the large, valuable cichlid species until they have reached maturity.

Continued project inputs to support sustainable management and use of freshwater ecosystems will ensure that the current fish biodiversity of the system is maintained and in balance, contributing to national, regional and global conservation priorities.

The project has experienced difficulties with the complexities of stakeholder interests. The greatest difficulties have been with relations between the tourist lodges, the MFMR enforcement team, and the Regional Council, centred around licensing and enforcement. Other difficulties have arisen because of a perceived weakening of commitment to the project by the MFMR due to loss of capacity, and weak involvement of the Zambian Department of Fisheries. The fishing communities and conservancies' committees are strongly committed to the project's aims.

Effectiveness

The project monitoring system kept the project largely on track, but if the project goes into a further phase, a project steering committee is needed to review progress, the relevance of project work-plans, and the need for modification as new information becomes available and in response to changes in the fishery.

The biological data analysis shows that the larger cichlid species have been over-exploited in the project area, while the smaller species are more lightly exploited. Changes in messages that need to be disseminated should be used as a basis for review of proposed amendments to regulations and discussed with the fishing communities.

The project has not yet achieved the ultimate long-term goal of "sustainable management of the fishery through transboundary coordination and collaboration after the introduction of fully integrated fishery management systems", but this is a long-term goal that could not be fully achieved in the time frame of this project. The project has laid the groundwork, both biological and socio-economic, for possible future success, but continued inputs and commitment are necessary to reach the target in future.

Capacity development

The fishing communities are aware of the issues that need to be addressed to manage the fisheries. Conservancy members were trained in the use of the Event Book system for recording natural resource activities, including fishing in their areas. Two members of staff who obtained practical training on the project have been appointed to IRDNC to guide the fisheries component of CBNRM activities in the conservancies. MFMR capacity was limited for the duration of the project through lack of senior officers at Katima Mulilo.

Project delivery

The project has elucidated the ecology of the fishes and the complexity of the fishery of the Zambezi-Chobe system. The biological research and market surveys have developed an understanding of the subsistence and commercial fisheries of the system. The project is therefore able to provide good management guidelines and the framework for a local adaptive management approach to accommodate the dynamic river-floodplain system.

The project has successfully supported the promotion of low-input community-based aquaculture in pans, while more formal, higher-input fish farming has been shown to be impractical and not economically viable in the low-gradient, flood-susceptible Caprivi area.

The project has carried out a thorough review of the Fisheries Act and Regulations. Emphasis has been placed on the formation of Community Fisheries Committees. The next step is to assist community fisheries committees and their members to establish local management plans that include fisheries reserves. While the project has succeeded in sensitising the fishing communities, implementing community management plans has not yet been achieved.

Impacts

The project assisted in the conservation of the Caprivi population of *Nothobranchius kafuensis*, and played a major role in helping to understand and rapidly respond to the ESU outbreak. The research data showed which species are under pressure from excessive exploitation and thereby indicated where management intervention is necessary. The project has educated the population throughout the Caprivi area about the fishes, fisheries and management through a series of 20 radio programmes. The project worked with the angling community to ensure good, sustainable practices. Implementation of revised regulations under the Fisheries Act has a major impact in conserving aquatic biodiversity, as effective management of the fisheries will assist in maintaining balanced fish populations and ecosystem health and services. The Caprivi floodplains are of major global biodiversity importance and effective management of the natural ecosystem and its resources must be given high priority.

The LEAD fish ranching project benefits biodiversity by boosting populations of valuable fishery species in pans stocked during the programme.

Fishery community committees set up through the project have good female representation. African rivers and floodplains are most important in providing local livelihoods rather than commercial-scale fisheries, although the newly-filled Lake Liambezi may develop a semi-commercial fishery for a few years while it continues to hold water. The project and long-term fisheries management activities following the project can best address poverty levels by ensuring that fisheries regulations are agreed, implemented and enforced by the fisheries communities.

The project also addressed poverty through promoting more sustainable harvesting and management of the fishery, supporting the LEAD fish ranching project, working towards legalising the utilisation of the smaller fish species and assisting and helping to raise awareness of tourist angling, which creates employment in the Caprivi fisheries through employment in the lodges and in guiding activities. Tourist angling does not impact on the resources, but it depends on the presence of a healthy stock of large fish species. Proposals for non-fishing reserves would benefit tourism and ensure continued sectoral employment of local residents.

Sustainability, replicability and magnification potential

Communities, under their traditional authorities, are capable of making decisions on fisheries, with guidance based on sound scientific principles. The project is in a position to facilitate this by playing an advisory and supportive role, thus the potential for sustainability is high.

Until the mechanism is in place for effective handover to communities, MFMR and NGOs, NNF can best ensure sustainability by supporting the project through the following activities: (1) motivating for the enabling legislation to be formulated and enacted; (2) promoting and supporting local level institutional development (fisheries committees); (3) supporting and assisting with local level monitoring and management; (4) providing training to community fisheries committees, community fisheries guards/monitors; (5) supporting fisheries committees and their members to develop local level fisheries management plans (that include zonations for, e.g. fisheries reserves as well as agreed approved and disallowed practices); (6) providing training and guidance to the newly appointed MFMR scientists (including for ongoing biological and socio-economic monitoring and adaptive management); (7) facilitating MFMR staff and fishing communities to work in mutually supportive and harmonious fashion.

If successful, the project will act as a model for CBNRM in other similar river and floodplain fisheries such as the Barotse Floodplain.

Lessons learned

Radical changes in fisheries management methods in a rural environment cannot be achieved overnight. Government ministries and departments in Africa have for decades operated through legislation and attempted enforcement of regulations, despite lacking the financial and staff capacity to be effective. Attitudes are slowly changing with a recognition in many quarters (though not universally) that CBNRM has considerable advantages over a top-down enforcement approach. There have been notable failures in CBNRM, usually where the resources are so degraded and people so impoverished and in need of food, however little, that control is impossible. The Caprivi fishery is fortunately not yet in such a state, although the fishery is noted to be in decline.

The fisheries personnel in the area would benefit from being exposed to modern methods of information-based local management, e.g. by attending specialised training courses and by attachments to other, successful CBNRM projects.

The project, because of financial constraints, was limited to a single technical adviser. If the project goes into a new phase, technical support should, at the very minimum, consist of a fish and fisheries expert and an expert in CBNRM to work closely with IRDNC and the communities.

The project has been supported through the NNF and WWF, with a mid-term review, six monthly visits to Caprivi, visits by the coordinator to Windhoek, and frequent telephone and email contact but this evaluation endorses the recommendation of the mid-term review that a “Technical Advisory Committee” should be set up to oversee the project.

Conclusions and overall assessment

The project has, in general, been conducted efficiently, although not without difficulties. The separation of the project executant’s office from the MFMR offices as a result of space constraints was regrettable. The sectoral nature of MFMR, with inland fisheries based on the same structure as marine fisheries, also created problems and a single inland fisheries section handling all issues

(resource monitoring & management, extension and community-based management, law enforcement and fish ranching) would greatly improve efficiency.

The foundations have been laid for community-based management of the fisheries, and if devolution succeeds, the prospects for sustainability and replicability elsewhere in Zambezi floodplain systems are excellent.

The project goal is a long-term target that could not possibly be fully achieved through a 3-year project with limited scope, technical input, and funding. Experience elsewhere in Africa shows that it is essential to implement effective community management before stocks are seriously depleted. Fortunately, the three governments have recognised the need for management while the larger more valuable species are still present, and thus there is an opportunity to develop an effective community-based approach to local management, but counteracting the present tendency to overexploit the resources will take much longer than the present project.

With a CBNRM approach to manage the fisheries in place, the project has a long-term potential to contribute to conservation goals at all levels from local to global.

Recommendations for the way forward

The outline of a comprehensive management plan for the fisheries should be completed and translated into Silozi before the end of the present project phase, with emphasis on implementing the findings from the studies through CBNRM methodology. The plan should involve all three countries, and should emphasise local level management plans and accommodate different management approaches for main river, main channels, side channels, floodplains, pans, etc., including fisheries sanctuaries.

The management plan should incorporate fisheries monitoring and research as well as adaptive management.

The proposed fisheries regulations should be greatly simplified and a new version of revisions of the Namibia Fisheries Act and regulations should be drafted with legal and biological advice and given high priority by MFMR.

The system for issuing fishing permits needs to be reviewed and the economics of the recreational fishery should be quantified to illustrate the value of the fishery and provide an enabling environment for cooperation between local fishing committees/conservancies and lodges. The project should help fishing communities to liaise with tourism interests to develop mutually beneficial conservation and management arrangements

The project must, with major input from the relevant Government ministries/departments, strengthen transboundary collaboration between Namibia, Zambia and Botswana to improve communication and decision-making in the project in future.

Conditions for new project

A new phase to this project should be a joint project between the three countries with full participation of senior officers in the Fisheries ministries/departments in the three countries. The project should be guided by a steering committee incorporating senior officers from the three countries and meeting frequently to review progress and modify workplans if necessary. Technical assistance should include a fish and fisheries specialist and a specialist in CBNRM. The project emphasis (by providing guidance to the communities based on sound scientific principles) must be on empowering the fishing communities/conservancies to manage the fisheries on a localised basis.

The new phase of the project should provide close support to IRDNC to develop CBNRM in the fisheries.

Overall recommendation:

Because fish is vital for food security, local livelihoods, and tourism in the area –

Because the fishery will experience an accelerating decline if management action is not taken now –

Because the project, despite its shortcomings, has laid the groundwork for future success in fisheries management –

Because Government capacity to manage the fisheries effectively (or to provide sound guidance to the communities) has not yet been achieved –

Because an enabling legislative environment for devolution of management to communities has not yet been gazetted –

Because devolution of management to communities needs continued support –

IT IS RECOMMENDED that the project continues into a further 3-year phase.






1. INTRODUCTION AND PURPOSE OF THE PROJECT EVALUATION

This Project Evaluation was commissioned by WWF in Namibia and forms part of the requirements of the funding agency, Norad/Norwegian Ministry of Foreign Affairs, through WWF-Norway. The main purpose of the evaluation is to assess and review the relevance, effectiveness, efficiency, impact and sustainability of the project to determine if the project has delivered its intended benefits and ultimately provided value for money. The evaluation will also serve to guide the design of similar projects in the future and generally contribute to organizational learning. It also forms part of WWF's desire for transparency. For details on the scope of the evaluation and evaluation criteria see Section 4 below and Annex 1 - Evaluation TOR.

This evaluation was carried out from 20 April to 17 May 2009 by Denis Tweddle, a Fishery Specialist with 38 years experience in African fish and fisheries, particularly in Malawi and East Africa, including involvement in community-based initiatives in Malawi, and extensive knowledge of the Zambezi and Okavango systems fish and fisheries. Mr Tweddle is a Research Associate at the South African Institute for Aquatic Biodiversity, Grahamstown, RSA.

2. METHODOLOGY

The evaluation was carried out through a combination of methods:

-  Review of all available literature on the fisheries of the Upper Zambezi/Chobe river systems, including all outputs of the present project and the previous project carried out by the Ministry of Fisheries and Marine Resources, Namibia, (MFMR) in collaboration with the Norwegian Institute for Nature Research (NINA).
-  Interviews and discussions with stakeholders as listed in Annex 3. This involved meetings with staff of project, MFMR in Namibia, Zambia Department of Fisheries (including the Principal Fisheries Officer from Head Office in Lusaka), Integrated Rural Development and Nature Conservation (IRDNC) (a community-based management NGO), fishing committees, conservancy committees, tourist lodge owners.
-  Observation of fishing activities in Namibian floodplains (the most extensive in the area although other floodplains exist in Zambia and Botswana also) and Lake Liambezi.
-  Extensive personal experience of fisheries and biodiversity throughout the Zambezi River system.
-  Internal discussion and review of findings of evaluation, and discussion with the Permanent Secretary of MFMR.

A list of documents referred to during this review is included as Annex 8.

3. PROJECT BACKGROUND AND CONTEXT

3.1 Summary of project Information

| | | | |
|---|--|---------------------------|----------------------|
| Project Name | Integrated Management of Zambezi / Chobe River System Transboundary Fishery Resource, Namibia / Zambia / Botswana | | |
| Project Location | Caprivi Region, Namibia Western and Southern Provinces, Zambia | | |
| Project reference numbers: WWF WWF-Norway NORAD | 9F0792 5012 GLO-05/312-11 | | |
| Project budget | FY06 – NOK 641,582 FY07 – NOK 864,877 FY08 – NOK 846,528 FY09 – NOK 850,652 | | |
| Donor(s)/ funding sources | WWF-Norway via NORAD Match Funds (Ministry of Fisheries and Marine Resources, Namibia) | | |
| Implementing agency and partners | Namibia Nature Foundation/Ministry of Fisheries and Marine Resources through WWF In Namibia | | |
| Contact person | Chris Weaver, Director: WWF In Namibia, | | |
| Start Date: | 2006-07 | Expected End Date: | 2009-12 ¹ |
| Network Initiative / Ecoregion Programme / Priority Place(s) | | | |
| Zambezian Flooded Savannas – Ecoregion 98 Central and Eastern Miombo Woodlands – Ecoregion 88 (Slight influence) | | | |

3.2 Project background

3.2.1 Project location

The Caprivi Region in Namibia borders on Botswana in the south, Angola and Zambia in the north and Zimbabwe to the east. The Chobe River and the Kwando/Linyanti River System border on Botswana and the Zambezi River on Zambia. The Chobe National Park in Botswana borders a large section of the Chobe River (both sides of Kabula-Bula), where no subsistence fishing is allowed on the Botswana side, but with a fishery operating on the Namibian side. The Zambezi River borders Namibia and Zambia for approximately 120 km between Katima Mulilo and Impalila Island, where it connects with the Chobe River. The water level of the Chobe River is influenced by the Zambezi River and changes direction depending on the flood level of the Zambezi. Both the Zambezi and Chobe

¹ The project originally was due to end in July 2009 but a six month extension has been granted which means that the finish date is now December 2009

Rivers are slow flowing with large floodplains and small, vegetated islands, with the only rapids being at Katima Mulilo and Impalila Island. The largest sections of the floodplains fall within Namibia with smaller sections in Zambia. Both the Chobe and the more westerly Kwando/Linyanti Rivers flow into Lake Liambezi, depending on the magnitude and duration of the annual flood. This lake played an important role in the subsistence fishery in the 1970s and early 1980s, but dried up in 1985. Prior to the start of the present project, some inflow was recorded during the 2000 and 2003 floods, but during the course of this project the lake has received more floodwater, culminating in April 2009 in a major flood that has filled the lake. Consequently, fishery activities are again taking place in Lake Liambezi. Three major tributaries enter the Zambezi River on the Zambian side with several lagoons present between Sesheke and Mambova.

At 600-700 mm, East Caprivi has the highest rainfall in Namibia -- although it is considered low globally. The rainfall in the catchment area of the Zambezi River in Angola and Zambia is, however, much higher and is the main factor determining the flood level, timing and duration in the Caprivi. In comparison, the local rain in the Caprivi has very little impact on the flood cycle of the Caprivi floodplains. The floodplains cover large areas (>300,000 hectares) of the eastern Caprivi and in times of a major flood, the Kwando/Linyanti System connects with the Chobe River. More than 30 per cent of the eastern Caprivi can then be flooded. The fishery and overgrazing of the floodplains in the eastern Caprivi are possibly the activities with the highest impact on the environment and the fish community and there now is evidence of overexploitation of the fish stocks (Hay and van der Waal, 2009). The absence of large-scale industries and cities in the region ensure very little pollution on the floodplains. The physical characteristics and water quality of each river system does not change drastically between the different regions. No dams or weirs are present or planned for the proposed project area, as the floodplains' flat topography is not conducive to such structures.

Figure 1 highlights the study area and the stations that are monitored each year during the biological survey (by MFMR, Namibia) and also the stations surveyed during the previous project (Kalimbeza, Impalila and Kabula-Bula/Ihaha areas).

3.3 Project context

3.3.1 Biodiversity importance of project area

The project area is largely comprised of a rich system of floodplains and permanent backwaters to the Zambezi River. These floodplains are part of a wider ecosystem that has historically been part of a seasonal migration complex for a mix of charismatic large African megafauna (i.e., elephant, buffalo, plains zebra, waterbuck, etc.) that also includes the Kalahari Woodlands found on the southern side of the Chobe River. Until the late 1960s, the floodplains were occupied by large numbers of wildlife such as red lechwe, puku, and hippopotamus. However, the occupation of the area by the South African Defence Force, and attendant proliferation of firearms in the area, resulted in extensive over-use of the floodplains' valuable wildlife stocks for the next three decades.

Since passage of the Namibia Conservancy legislation in 1996, a number of conservancies have begun to form and remnant populations of these animals have begun to recover. Presently, the area is of significant biodiversity value to Namibia and the region, and is under consideration as a potential Ramsar Wetland Site of International Importance. Additionally, the area provides critical

habitat to a number of endangered and/or rare species on the CITES annexes (Nile crocodile, African elephant, etc.) and national and IUCN Red Data books.

Figure 1: Map of project area

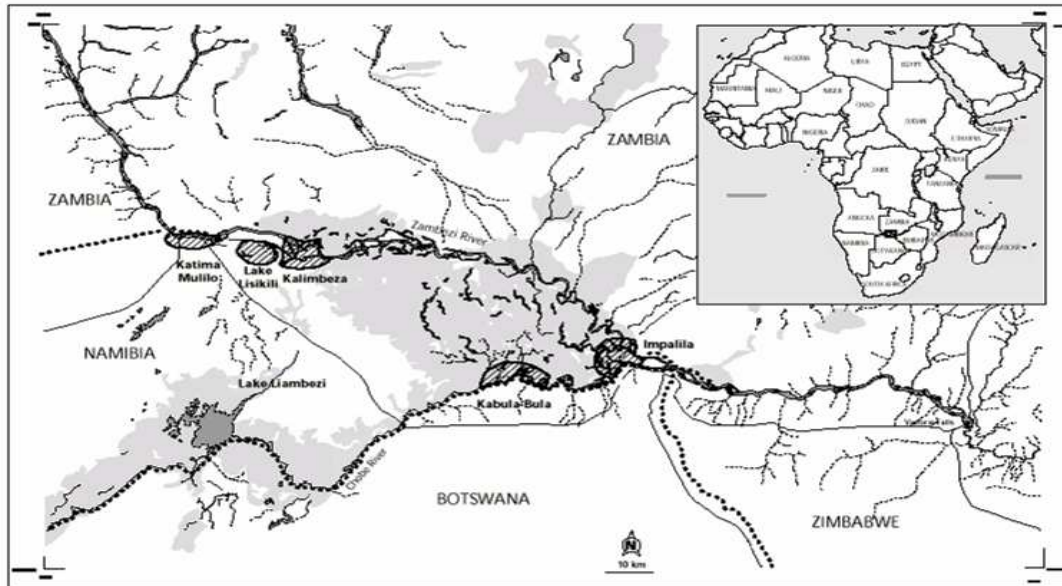


Figure 1. Map of the study area with the stations surveyed during the annual monitoring programmes of the Ministry of Fisheries and Marine Resources, Namibia (Hay et al., 2002).

A locally threatened fish species, the Caprivi Killifish (*Nothobranchius* sp.) (taxonomy under investigation but considered by B. Watters [pers. comm.] to be a colour form of *Nothobranchius kafuensis*), is found in a small number of rain pools in the Caprivi. It has a specialised life cycle where eggs are laid on the bottom and development is suspended when the pool dries out. During the next rainy season, these eggs hatch, the fish mature and breed before the pool dries up again. These pools are not connected to the river or floodplains and the distribution is linked to the movement of terrestrial animals. Any development projects, such as roads, may further threaten this species.

The Zambezi and Chobe Rivers are rich in fish species diversity with more than 80 species identified from the Namibian section of the system. The entire Zambezi River has close to 160 species. Several species have been identified as having specialised life cycles and habitat niches. There are species that are not commonly sampled due to habitat preferences, but others are rare with no known reason for this. The annual flood cycle is the main stimulant for fish production and any changes to the hydrology will seriously influence the fish stocks. Similarly, any artificial changes to the habitats may negatively impact on the fish population. It was found that species diversity and species composition differ between stations as well as during the different flood periods. This is probably linked to habitat differences, and breeding and migration behaviour of the different species. Another important aspect of the fish resource is that the Namibia Ministry of Fisheries and Marine Resources has initiated an index where fish can be used as indicators for aquatic ecosystem health. Fish are part of the top structure of the system and will show signs of any impacts at lower levels. Species

diversity plays a very important role in this index. The Ministry started a monitoring programme in 1997 (working on all fish species) to follow the trend in the fish population over years.

Policy and legal context

The Namibia Inland Fisheries Resources Act (Act No. 1 of 2003) and Regulations came into operation on 6th June 2003. The Regulations make provision for differences between different river systems due to the nature of these systems and also due to the importance of the fishery to the communities. Seasonal systems such as the Cuvelai System (seasonal river system in north central Namibia flowing from Angola) will be managed differently from perennial systems such as the Zambezi River. Also, the Orange River (bordering South Africa in the south), where the fish resource play a minor role towards community welfare, will also differ in the management approach compared to e.g. the Okavango River, where the fishery resource is extremely important to resident households.

The subsistence nature of Caprivi's multi-species fishery, combined with the shared nature of the fishery resource, makes fishery management impossible through a quota system. Hence, the regulations are written in such a way as to restrict the input effort by the fishery. These restrictions are linked to the number of nets, mesh sizes, and net lengths. Furthermore, no dragging or drifting of nets is allowed in the Caprivi, but all traditional gear types are allowed. The rationale is that no restrictions will be put on the poor communities who can still use the traditional ways of fishing. The making of these gear types, in itself, is restricting the catch effort.

Illegal fishing has been reported by fishermen both from Zambia, as well as from Namibia, with Zambians often being the offenders, and limitations in enforcement is often cited as a reason. The shared nature of the transboundary fish resource is complex, having multiple users who are responsible to different authorities with different rules, having different capabilities and means of enforcement. Conflict also originates from different causes on both sides of the river, as during the Zambian closed fishing season many Zambian fishermen simply fish in the Namibia backwaters or side of the Zambezi River. In Namibia, conflict arises because of access and the method of fishing, whereas in Zambia it also includes the high number of nets.

The Act also makes provision for an Inland Fisheries Council that will advise the Minister in relation to any matter on which the Minister is required to consult the Council. This council will also include traditional leaders leading the way for inputs from the fishing communities. The council may also establish committees to investigate issues as determined by the council.

According to the Act, closed seasons and fish sanctuaries can be established with collaboration with the stakeholders with the aim to preserve the environment, protect the fish resource and habitats necessary for successful breeding, and to promote the regeneration of the fish stocks. Fishery Inspectors are employed by the Ministry, but the Minister can also appoint a person nominated by the traditional authority as an inspector.

The Fisheries Act in Zambia is under review with the following considerations:

- The need to regulate and mandate fish farming;
- The need to decentralise fisheries management through community involvement;
- The increasing need for co-operation with neighbouring states in the management and

development of shared fisheries; and

The need to increase protection of aquatic fauna and flora, biodiversity from environmental degradation.

Different policy and legislative frameworks exist between Namibia, Botswana and Zambia. In the Botswana Okavango Delta, the commercial fishery plays a much larger role than in Namibia, where subsistence fishery is favoured over the commercial fishery. The Namibia subsistence emphasis is based upon the collection of biological data from the Namibian rivers that shows the fish resource is limited and will not sustain commercial ventures. Also in Zambia, different regulations exist for the same resource utilized by Namibians. Botswana and Zambia are in the process of reviewing their legislation and continued communication will be needed to ensure a harmonised policy between stakeholder countries.

3.3.3 Social, and economic context

A study conducted on the eastern floodplains of the Caprivi, Namibia states that a third of the households depend primarily on the fishery for subsistence and income purposes and that there is a clear reliance on the fishery for survival. The income generated by fisheries covers the basic needs of the people such as food, clothing and school fees. Fish are important in the diet, especially in years of drought and stress. These households on the floodplains usually have a subsistence livelihood, further emphasising the importance of the fishery. The fishermen in the Caprivi are mainly males, using modern gill nets. In contrast, the vendors at the markets are mainly females (frequently the head of a household), who rely on fish sales as the main source of income for their families.

Although the area has a relatively high level of literacy, a high rate of unemployment is present, stressing the importance of the fishery. The study further revealed that the households in the area earn on average N\$ 868 (US\$108) per month and experience difficult times during November/December to April/May when incomes are low.

Fish are very important in Zambia with approximately 55% of all animal protein coming from fish. More than 300 000 households in Zambia are directly and indirectly employed by this sector.

3.3.4 Major stakeholders and their roles, interests and concerns

Households dependent on subsistence use of the fishery resource

In the Kabbe constituency (the majority of the project area), Namibia, about 30 per cent of the households depend mainly on fishing for subsistence and income purposes. A large percentage of these households indicate that fishing is critical to the family for survival. The income generated from fishing goes to basic needs such as food, clothing and school fees. No real commercial fishing is taking place on the Zambezi River, although there may be increasing numbers of people hiring fishermen to fish for them.

Vendors

The majority of the vendors are women, with many indicating they are the head of the households. For some, fishery is the most important income activity to sustain the family.

Potential local fishery management structures (i.e., fish associations, conservancies, etc.)

The fisheries management system is only one component of the broader resource management system, based on the traditional structure at various levels. Access to the fishery under traditional systems is still in place but weakened. Regulations on who can fish where and when are generally followed, although they are difficult to enforce. The traditional authority (the Khuta) has confiscated and condemned illegal fishing gears but not consistently in line with the national legislation. A system of management is present on the Zambian side between the Government and the Traditional Authority, where the traditional system is respected by the DoF and not interfered with, but enforcement is problematic. Conservancies are now managing natural resources in their areas through a system of committees with NGO support and have the potential to take over local fishery management, while outside the conservancies, village fishery committees are in place to fill the same role.

Traditional Authority

The Traditional Authority is the facilitator in relation to the handling of conflicts or disputes. This is particularly meaningful in Caprivi and Zambia where government enforcement of fishery regulations is weak. This Traditional system is transparent and it allows everybody to have a say in the discussion. There is also the right of appeal and the discussion can be taken to the next level in the Traditional Authority. The Traditional Authority is seen as a key role player in future joint management of the fish resource when considering the transboundary aspects.

Sport fisherman and tourism industry

Tourism and recreational ventures are important activities, bringing new income opportunities and economic benefits to the rural communities. This is also the situation in the Caprivi where several lodges specialise in the recreational fishing industry. The Zambezi and the Chobe Rivers have several excellent large fish species for sport fishing, and tourists come from far to catch tigerfish and large cichlids such as nembwe and threespot tilapia. A study done during a fishing competition (2008) held in the Caprivi indicated the value generated for local business per fish caught was N\$ 52.

Namibia Ministry of Fisheries and Marine Resources

The Namibia Ministry of Fisheries and Marine Resources is the responsible Ministry for the freshwater fish resources in the country. The line functions of the Ministry are further based on the Namibian Constitution (Article 95) that states “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”.

Department of Fisheries, Zambia

The Department of Fisheries in Zambia has its head office in Chilanga and falls under the Ministry of Agriculture, Food and Fisheries and has the responsibility to implement fisheries and aquaculture development programmes in the country.

WWF in Namibia

The WWF in Namibia has a mandate to assist with the development of capacity in Namibian partner organisations to develop and implement innovative community-based natural resource management (CBNRM) and monitoring systems. As part of this process, WWF staff and partner organizations assist the MFMR and relevant Caprivi stakeholders (conservancy committees, traditional authorities, private sector partners, etc.) to develop, implement, and test pilot fishery management and monitoring systems as part of a broader approach to integrated resource management in Caprivi that also involves wildlife, forestry, and tourism resources.

Namibia Nature Foundation (NNF)

The NNF is a national, not-for-profit NGO whose mission is to support sustainable development, to protect biodiversity and ecosystems, and to promote the welfare of people, both present and future. The NNF plans, implements and manages projects and programmes in support of this mission, including CBNRM, transboundary, river basin, biodiversity and livelihoods initiatives. It promotes partnership with community-based organisations, other NGOs, the private sector, government ministries and donor organisations. In this project the NNF employs the project executive, administers and runs the funds, provides technical and administrative support and endeavours to maintain an open and constructive partnership and dialogue with the MFMR on project activities and developments.

Lodge Operators and Guides In Botswana

Presently, the Zambezi/Chobe River system is routinely exploited by Botswana lodges and guides who ferry sport fishermen into the Namibian portions of the system to undertake sport fishing for tigerfish, large cichlids, and barbel. This is a lucrative undertaking. While the sport fishery presently does not directly benefit the conservancies or fisherfolk of any country, it does employ a considerable number of people from the local fishing communities in the lodges and as fishing guides and thus contributes to the local economy. The introduction of a fishery management plan for the Impalila and Kasika Conservancies will entail the establishment of a daily use fee for Botswana lodge operators and guides who bring sport fisherman into the Namibian waters.

3.3.5 Other related conservation initiatives in the project area

The Project is liaising closely with the Namibian NGO, Integrated Rural Development and Nature Conservation (IRDNC), which is supporting the formation of conservancies in Caprivi. In addition, and where applicable, the Project coordinates with the Namibia Ministry of Environment and Tourism, which is playing a key facilitator role in the establishment of the Kavango/Zambezi Transfrontier Conservation Area.

4. PROJECT GOAL, PURPOSE AND EXPECTED OUTPUTS

□ Project Goal

The shared Zambezi/Chobe River fisheries resources managed sustainably through transboundary coordination and collaboration after the introduction of fully integrated fishery management

systems.

Project Purpose

By mid 2009, alternative community fishery management practices have been piloted and tested and these contribute to a fully integrated management system for subsistence, semi-commercial, and sport fisheries that will provide optimal benefits to all stakeholders who are reliant on this valuable resource.

Project Outputs

Output 1.

A better understanding of the impact of the new Inland Fisheries Resource Act (Namibia) on the fisherfolk (on Namibians and Zambians and the resource) is acquired and documented.

Output 2.

Collaboration on fisheries management achieved between the transboundary communities through the establishment of a cross border committee (between Namibia and Zambia) that will have input on the joint management of the shared fishery resource and oversight of the closed fishing season.

Output 3.

Support the emergence of local level community fishery groups that assume management responsibility for fisheries in their areas.

Output 4.

Facilitation of the development of appropriate fish farming projects in conjunction with MFMR and projects utilising existing water bodies and local fish species.

Output 5.

Monitoring programmes are introduced and/or maintained (i.e. for the river fisheries survey at Kalimbeza (Namibia) and Ngweshi (Zambia) area), the fish market survey at Katima Mulilo, EUS monitoring and the biological surveys on the rivers and the lakes.

The full Logical Framework Analysis (LFA) is attached as Annex 5, with progress in achieving outputs, matched against indicators in Annex 6.

5. RELEVANCE AND QUALITY OF PROJECT DESIGN

Relevance of project goal and purpose

The goal and purpose are still highly relevant; in fact given the latest research findings and observations on the fishery they are more relevant than ever. The human population in the area is rapidly increasing, particularly on the Zambian side of the river as a result of recent improved communications in the area, and thus pressure on the natural resources, including fish, continues to increase. It is therefore vital that emphasis is placed on sustainable management of the resources on both sides of the river, as stipulated in the Project Goal.

There have been developments in understanding of the fishery dynamics as a result of the project. It is now realised that the initial project aims, directed primarily at management of the larger fish species targeted by the fishery in the main river channels, do not address the issue of rational exploitation of the other fish species present in the system, particularly on the floodplains and in other ephemeral water bodies. This necessitates a change in emphasis in the fisheries regulations proposed under the new Namibian Fisheries Act. This does not mean a change in the goal and purpose of the project, which remain aimed at sustainable management through alternative community fishery management practices.

During the project, recommendations were made for revisions to the regulations under the Fisheries Act to address the problems in fishery management (van der Waal, 2009c). The existing regulations and the proposed revisions are lengthy and highly prescriptive, and leave little room for flexibility in management of the different fisheries stocks. The research results analysed by Hay & van der Waal (2009) note that many stocks are under-exploited and that the current gillnet mesh size regulations prohibit the exploitation of the smaller species while providing little in the way of protection for the juveniles of the heavily-exploited large cichlid species. It is therefore considered that there should be a change in emphasis from promoting the presently proposed fisheries regulations towards an approach whereby the communities, with guidance from the project/MFMR, are allowed to draw up their own localised regulations for ratification under the Act. The proposed revisions to the Act and to the regulations incorporate procedures for the declaration and establishment of inland fisheries committees, which should be the administrative bodies responsible for management. The proposed revisions do not yet incorporate the flexibility necessary for establishing local regulations as they specifically exclude rules that would be in contravention of the Act or any other relevant legislation. If this stipulation remains, the rules under the Act should be kept to an absolute minimum to facilitate flexibility in management.

Such an approach would allow communities on the floodplains the right to exploit the very small, prolific floodplain species during the short period of flooding, while on the other hand communities on major river channels would be encouraged to develop regulations that protect the large, valuable cichlid species until they have reached maturity.

❑ Changes to LFA

The midterm review recommended that the closed season should not be considered as an output, and suggested that it should be regarded as one of the activities contributing to Output 2, i.e. collaboration with Zambia on fisheries management. The decisions in MFMR against imposing closed seasons were reportedly based on lack of analytical data and/or concerns about communities' livelihoods during the non-fishing period and not on project recommendations. The validity of closed seasons as an appropriate management measure at the currently recommended time of year is now being technically and scientifically questioned, and therefore the decision to remove closed seasons from outputs was an appropriate step.

Other changes to the LFA consist of minor changes to wording of outputs and activities.

☐ Value and relevance of project in relation to WWF's Global Programme Framework, and other global, regional and national conservation priorities, national policies and strategies.

Achieving rational and sustainable management of the fisheries is possible through this project and through further interventions, based on the sound scientific principles that are now in place following the publication of the research findings (Hay and van der Waal, 2009). Continued inputs will ensure that the current fish biodiversity of the system is maintained and in balance, thereby contributing to national and regional conservation priorities. The project contributes to WWF's global priorities under the freshwater thematic target as well as to WWF Species targets in that management systems initiated by the project enhance sustainable management and use of freshwater ecosystems including floodplains, which provide habitat to a number of rare and/or endangered large mammal and bird species. The attention paid by the project to the Caprivi Strip's unique population of *Nothobranchius kafuensis*, involving the Salambala Conservancy in its conservation, is another valuable conservation contribution.

☐ Evaluation of assumption and risks

Assumptions

Two sets of assumptions were available for the evaluation, those included in the original project proposal, Section 8, which cover the project as a whole, and those included in the log frame for each goal, purpose, and output. The assumptions (below, with comments) and estimation of risk are derived from the project proposal. The assumptions contained in the log frame for each output are considered to be logical and no comment is needed, but assumptions in general are considered to have been somewhat over-optimistic given the complexity of the project and the short time frame.

Assumption 1. The Fisheries Departments (Namibia and Zambia) are committed and will make available the necessary resources (staff, funds, office space and equipment) for the project.

Comment: It was clear during the evaluation that following the departure of the project mentor, Dr Hay of MFMR, the MFMR staff in Katima Mulilo did not have the necessary leadership, supervision and local authority to engage constructively in the project. This was true not only for the allocation of personnel, but also for the mobilisation of MFMR in terms of funding. There was a period when MFMR had no funds locally to fund field allowances for its staff for project activities and the project therefore had to fund this, in contravention of the project agreement.

This evaluation considers it to be a mistake for the Project Executant to set up office in his home because of the shortage of space at the MFMR offices. A solution should have been found to this problem that ensured continuous contact between project and MFMR to work jointly on the project.

In Zambia, no funds appear to have been allocated by the Department of Fisheries to facilitate project activities. The relatively large overnight allowances expected by field staff were not forthcoming and thus there was an expectation by field staff that the project should fund allowances to conduct joint surveys.

Assumption 2. That a qualified and experienced Project Executant is appointed to run the project, thereby providing dedicated inputs towards implementing, planning and reporting for the project.

Comment: The appointed Project Executant, Dr B. van der Waal, is an experienced fish ecologist with previous fisheries experience in the region and a familiarity with the fish fauna. He was appointed by the Permanent Secretary of the MFMR based on the recommendations of a committee established by the MFMR after an open recruitment, assessment and interview process. His skills, coming from a university background, are in academic teaching, fish ecology and practical fisheries issues, and he interacts and communicates well with fishermen. The radio broadcasts about the fisheries and the project are a good example of such communication. His practical skills have been put to good use in many facets of the project and he has also been of considerable assistance to other projects in the area, particularly assisting the MFMR and the Namibian Nature Foundation on linked initiatives when called upon.

Before the appointment of Dr van der Waal, the project was temporarily headed by Dr N. Nyambe, whose skills were particularly apparent in community-based activities, with a number of reports produced showing well-organised communication with the fishing communities.

One cannot expect a single technical expert to have all the skills necessary to achieve all project targets in such an innovative and broad-based project. The project deals with a dynamic situation where an understanding of the complexities of the fishery and ability to adapt to changing circumstances is essential to guide the direction of project interventions. It also has to deal with complex human interactions and very different perceptions of fishery priorities in communities. Dr van der Waal and Dr Nyambe had complementary skills that together, if the budget had so allowed, would have been much more effective in addressing the issues, resulting in the project moving further and more quickly than was the case.

Assumption 3. That the Regional Government, Traditional Authorities (both Namibia and Zambia) and other interested parties cooperate in the studies and discussions at regional level.

Comment: Regional Government in the Caprivi area in Namibia was not sufficiently committed to the aims of the project; in fact its actions were to the detriment of project aims by its insistence on centralising licensing of nets and anglers. The Regional Governor, however, did inform the evaluation that his office has strong collaborative links with regional authorities in Zambia which has potential benefits for the project in future.

Assumption 4. That the Department of Fisheries in Zambia delegate personnel to take part in the Project which will ensure the full flow of information to the stakeholders in Zambia.

Comment: The Sesheke office of DoF collaborated with the project but not as effectively as was needed for a fully functional project. The issue of allowances for staff for fieldwork was a major problem. The support of more senior DoF officers was needed to take the initiatives to the communities

Assumption 5. Recruitment of suitable staff from the local communities (Namibia and Zambia) to ensure involvement of stakeholders for the project.

Comment: In Namibia, staff recruited for the project were trained and subsequently seconded to IRDNC to continue the project aims in the communities, but this was not the case in Zambia.

Assumption 6. That there is a willingness of local communities to take part in the Project and to test and evaluate proposed new management systems.

Comment: The discussions with communities and conservancies in the evaluation showed a strong commitment to the project's aims, and thus this assumption was valid.

Risks

The project proposal considered that risks could be kept to a minimum. It stated that working across borders can be problematic and plagued with bureaucracy, but that the initial workshop and future follow-up meetings would streamline the process. In practice, however, the departure of Dr Hay left a hiatus in MFMR that seriously handicapped cross-border cooperation. Strong Government commitment and support is essential for transboundary projects and this was not forthcoming.

The project proposal also considered that the proposed closed season might not be accepted by all parties. This turned out to be the case, with MFMR in Windhoek refusing to ratify proposed closed seasons.

❑ Alignment with stakeholder expectations

The project has experienced difficulties with the complexities of stakeholder interests. The greatest difficulties have been with relations between the tourist lodges, the MFMR enforcement team, and the Regional Council. The main issue surrounds the process of licensing. The decision by the Regional Council to restrict the responsibility for issuing licences to a single person in an office in Katima Mulilo has, on occasion, made it impossible for tourist anglers, or lodge owners on their behalf, to obtain licences before fishing. Local net fishermen also find great difficulty in obtaining licences. In addition, there is a strong perception, particularly in tourist lodges, that the MFMR enforcement team targets tourists in preference to enforcing laws on local fishermen, despite the negligible impact that tourists have on the fish resources.

The issue of licensing needs to be resolved as a matter of priority by restoring the practice of allowing tourist lodges to buy pre-paid books of licences for issue to their angling clients, and by devolving the issuing of licences for net fishing to the fishing communities through their committees. This requires commitment by both the Regional Council and MFMR.

Other difficulties have arisen because of a perceived weakening of commitment to the project by the MFMR in Namibia (following the departure of Dr Hay). It is acknowledged by this evaluation, however, that the problem was largely one of capacity, with key posts being left vacant because of a reported lack of suitable candidates. With the posts now in the process of being filled by qualified candidates, it is anticipated that the MFMR will once again play a far more active role in the project.

The Zambian Department of Fisheries also lacked the capacity to participate fully in the project (e.g. by requiring allowances paid by the project to take part in surveys and enforcement).

The fishing communities and conservancies' committees remain committed to the project despite the difficulties experienced in getting legislation ratified that will allow them to take over responsibilities for fisheries management. Greater commitment is therefore needed by the other stakeholders, primarily MFMR and local government, to create the legislative and enabling environment needed to achieve the project's aims.

❑ Alignment and cooperation with other donors, projects and programmes

The Namibian Government's policies emphasise the role of conservancies in managing natural resources. The Project is liaising closely with the Namibian NGO, Integrated Rural Development and Nature Conservation (IRDNC), which is supporting the formation of conservancies in Caprivi. In addition, and where applicable, the Project coordinates with the Namibia Ministry of Environment and Tourism, which is playing a key facilitator role in the establishment of the Namibian component of the Kavango/Zambezi Transfrontier Conservation Area. This is a cross-border project for natural resource management and there are thus potential synergies between the projects.

6. EFFECTIVENESS (ACHIEVEMENT OF PURPOSE)

❑ Appropriateness of the project monitoring system

The project monitoring system succeeded in keeping the project largely on track as shown by the reports produced as stipulated in the indicators in the log frame, but there were weaknesses.

Project monitoring was largely conducted through the preparation of annual workplans and review of annual reports. A mid-term, internal review was conducted that was led by the previous MFMR head of inland fisheries and initiator of the project, Dr Clinton Hay, accompanied by Dr Chris Brown of Namibia Nature Foundation, Dr Greg Stuart-Hill of WWF and Dr Svein-Erik Hårklau of WWF-Norway. The review would have benefited from the inclusion of an advisor unconnected with the project to add an independent, fresh viewpoint. Apart from the annual monitoring, support and guidance was provided by six-monthly visits to the project area by Dr Chris Brown, by visits to NNF in Windhoek by the project coordinator, and by telephone and email communications between the project, NNF and WWF. Although it is difficult to evaluate the effectiveness of this support for the sole Project Executant, Dr van der Waal (particularly after the departure of Dr Clinton Hay from his position as head of the freshwater fisheries section of MFMR), the hiatus created by Dr Hay's departure might have been mitigated if an active project steering committee had been established and operating. If the project goes into a further phase, it is considered essential that the project has a steering committee (together with a budget that allows for meeting regularly - at least twice per annum and preferably quarterly) to review progress, the relevance of project workplans, and the need for modification as new information becomes available and in response to changes in the fishery.

❑ Conservation and socio-economic achievements likely to occur after the end of the project

Provided the long-term aim of the project to devolve management to the fishing communities is achieved, the communities will have the opportunity to tailor fishing activities in their areas to suit their local requirements. Provided the communities opt for sustainable fishing activities, and provided they can control illegal and damaging fishing methods, and get the support of the MFMR when required, the long term sustainability of the fisheries and hence conservation of balanced fish populations and biodiversity will be achieved. During the evaluation, the MFMR, through Dr E. Klingelhoefter and through the Permanent Secretary, Mr F.K.M. Tshemama, expressed their commitment to the aims of the project and indicated that two scientists are in the process of recruitment and will be posted to Katima Mulilo. They further stated their commitment to addressing the outstanding legislative issues.

❑ Project biological monitoring data recorded, stored and disseminated

The biological data have been analysed and a detailed report produced, completed in April 2009 (Hay and van der Waal, 2009). This report shows that the larger cichlid species have been over-exploited in the project area, while the smaller species are more lightly exploited. As the report has only just been completed, it has not been possible to disseminate the findings or incorporate them into policy making.

Key findings in this report indicate that the regulations in the Fisheries Act and the proposed amendments that are currently under consideration need to be reviewed before implementation. For instance, the current gillnet mesh size regulations are inappropriate as: (a) they do not allow legal fishing for abundant small fish species; and (b) smaller mesh sizes do not catch many juveniles of the larger species, which are in habitats not readily exploited by static gillnets.

In addition, the report questions the biological validity of an annual closed season. As the coordination of Zambian and Namibian closed seasons was considered an important component of the project, this raises an important issue. The Ministry in Namibia did not ratify the request for a closed season in 2007, because of the lack of analytic data to justify the closure. Traditional authorities also reportedly had (unjustified) concerns about fishermen's livelihoods in the period when fishing is not allowed. By 2008, discussions were in process about the validity of the closed season in comparison with alternative effort limitation measures such as non-fishing reserves. In Zambia, however, the closed season is a fundamental component of its fisheries management regulations. While the present timing of the closed season has no biological justification, effort in the river fishery is excessive and thus any measure that restricts overall effort in the fishery is of benefit. The whole issue of closed seasons should therefore be reviewed before any further attempts at implementation.

The changes in messages that need to be disseminated should be thoroughly discussed and used as a basis for review of proposed amendments to the fisheries regulations in the Fisheries Act. Revised suggestions for regulations should then be discussed with the fishing communities.

This process of modifying and implementing revised regulations to the Inland Fisheries Act is acknowledged to be of high priority by MFMR (Dr E. Klingelhoefter, pers. comm.).

❑ Project limitations

The project has not achieved the ultimate long-term goal of "sustainable management of the fishery through transboundary coordination and collaboration after the introduction of fully integrated fishery management systems", but this is a long-term goal that could not be fully achieved in the time frame of this project with its limited resources. The project has succeeded in laying the groundwork, both biological and socio-economic, for possible future success, but continued inputs, and commitment by governments, are necessary for some time to come to reach the target.

❑ Views of stakeholders

In meetings with the traditional authorities, fishing committees and conservancies during the evaluation, it was clear the project has succeeded in sensitising the communities to the need for them to participate in managing the resources and they are ready to do so when given the mandate.

Relations between the project and MFMR (Namibia) and the Department of Fisheries (DoF) (Zambia) are more complex. During the evaluation meetings it was clear there were differing views on the direction of the project and the degree of collaboration in achieving project targets. A significant problem is that the Inland Fisheries sector of MFMR is organised along similar lines to the Marine sector, with an Inspectorate (doing law enforcement) and a Resource Management component (focussing largely on aquaculture rather than the river and floodplain ecosystems), and that these two components seldom interact – they even have separate office locations in Katima Mulilo. The Resource Management component suffered from a lack of leadership after the departure of Dr Hay. The separation of the Project Executant’s office from MFMR contributed to a feeling of separation between MFMR and the project, exacerbated by problems with allowances for fieldwork, which was part of MFMR budgeted match funding as approved by the Permanent Secretary of MFMR.

One tourist fishing lodge was visited and the owner, Mr M. Cavanagh, was strongly in favour of the project and was keen to work with the conservancy and fishing committees. Mr Cavanagh was particularly interested in the prospect of establishing non-fishing reserves, which would sustain, and potentially enhance the prospects for, catch-and-release tourist angling in the area.

☐ Capacity development

The fishing communities have been sensitised about community-based management of the fisheries resources, and through regular meetings with the project are very much aware of the issues that need to be addressed when legislation is eventually passed to permit them to manage the fisheries.

Conservancy members were trained in the use of the Event Book system for recording natural resource activities in their areas, and an event book recording system was developed for the fishery. The Event Book system has been introduced and although there are teething problems that require attention, it has the potential to provide valuable information on fisheries trends and potential problems.

Two members of staff who obtained practical training on the project have now been appointed to IRDNC to guide the fisheries component of CBNRM activities in the conservancies.

MFMR capacity was limited for the duration of the project, although the project has provided on-the-job training to the available staff. The analysis of the latest frame survey data in Namibia and Zambia is being used as a collaborative training exercise, while the ongoing biological surveys and market surveys also provide valuable experience and expertise. MFMR has informed the evaluation that two scientists are in the process of being recruited to be based at Katima Mulilo. These scientists will need continued support for some time to familiarise them with the complexities of the fishery and its management needs.

7. EFFICIENCY OF PLANNING AND IMPLEMENTATION

7.1 Financial

Efficiency in utilisation of funds

The second transfer from WWF Norway was delayed but this did not cause any significant problems. There was under expenditure on the sub-grantee portion up until the end of the WWF Norway financial year (December), but these funds will be fully utilised in the final project period.

Explanation for over- or under-expenditure

Under expenditure resulted due to the loss of leadership in the Ministry of Fisheries which retarded implementation as discussed, combined with changes in NNF financial management staff during the project period under review. In addition to the above, the average exchange rate used to convert the total expenses into the donor currency was more favourable than the rate when the agreement was signed.

Table 1: Fund transfers

| Transfer requested | WWF-Norway transfer | | Funds received by project finance office | | Comment (exchange rates etc.) |
|--------------------|---------------------|--|--|------------|-------------------------------|
| N/A | | | 18/03/2008 | NOK300,000 | 0.6302 : N\$1 |
| N/A | | | 18/09/2008 | NOK481,182 | 0.6732 : N\$1 |

7.2 Project delivery, including management factors

Annex 6 illustrates the progress made in achieving project outputs. The project, following on from previous research and monitoring programmes, has succeeded in elucidating the ecology of the fishes and developing an understanding of the complexity of the fishery of the Zambezi-Chobe system. The resource base in the main river channels has been assessed (Hay and van der Waal, 2009) and problems with excessive exploitation of the large, valuable cichlid species have been noted. This biological research, together with the results of the market surveys, has resulted in a good understanding of the subsistence and commercial fisheries of the system. It is also recognised that the floodplains support very different fisheries for highly diverse, small pioneering species. Different flooding regimes each year are reflected in the highly dynamic nature of the system and its resources. As a result of the research and fisheries observations, the project is able to provide with some level of confidence, good management guidelines and the framework for a local adaptive management approach to accommodate the dynamic river-floodplain system.

The project has supported the promotion of low-input community-based aquaculture in pans, which is proving to be a sustainable and viable approach, and a better option than more formal, higher-input fish farming, which has been shown to be impractical and not economically viable in the low-gradient, flood-susceptible Caprivi area.

The project has carried out a review of the Fisheries Act and Regulations vis-à-vis CBNRM approaches in other sectors and their lessons for community-based fisheries management. These reviews have focussed on two levels: (a) the legislative and policy level, aimed at senior (including political) MFMR personnel; and (b) practical implementation level, aimed at community mobilisation, NGO support organisations and regional MFMR staff. In parallel with this, there has been a sensitisation and mobilisation of fishing communities, mainly linked to conservancies, but where there are no conservancies, linked more directly to Traditional Authorities. When working with fishing communities, emphasis has been placed on the formation of Community Fisheries Committees and their role in facilitating the establishment of agreed good practice, agreed harmful practices that should not be permitted, and the monitoring and management of the fisheries resource (and its supporting ecosystems). The next step is to assist community fisheries committees and their members to establish local management plans that include fisheries reserves.

While the project has been very successful in sensitising the fishing communities in the need for management of the resources, implementation of community management plans has not yet been achieved, partly because of delays in enacting enabling legislation.

The biological monitoring programme has been successful and the results must now be used, together with fishing community and social information, and market information, to inform the development of a comprehensive management plan.

Since the inception of the project, there has been a major change in the fisheries, i.e. flooding events in the past year on a scale not seen for at least 30 years. The extensive flooded areas have resulted in opportunist fishing for small pioneering fish species that can yield several thousand kg daily in localised areas. If managed sustainably, this can be a major input of protein to local communities without major deleterious consequences for fisheries for larger fish species in the main river channels. The effective methods used, however, are prohibited under the current regulations. The regulations therefore need to be adapted to accommodate fishing for small species, and management at a local level needs considerable flexibility to adapt to fishing opportunities when they arise.

Training of fishing and conservancy committees has taken place during the project, including training in the use of the Event Book system and awareness about the proposed CBNRM programme for fisheries management.

In future phases, the training needs of MFMR and DoF staff need to be taken further, particularly in the context of their more formal and active involvement in the project. The participation of the MFMR and DoF staff in joint surveys including frame surveys, monitoring programmes, and their involvement in frame survey data input and analysis adds to their skills and capacity to conduct such programmes in future. During the evaluation it was apparent that there is a need for further staff training in current research and management concepts, and particularly on the dynamic nature of the system and adaptive management responses. The fisheries staff in the area are relatively junior and are operating largely in isolation and with limited supervision

8. IMPACT (EFFECTS OF THE PROJECT AND VALUE ADDED)

8.1 Biodiversity, ecosystems and climate

This project, apart from assisting in the conservation of the Caprivi population of the killifish *Nothobranchius kafuensis*, has limited impact on biodiversity in the short-term, other than in sensitising stakeholders to the importance of maintaining healthy aquatic ecosystems. In this context, the project played a major role in helping all the countries in the Zambezi basin to understand and rapidly respond to the fish disease outbreak. The research data have shown what species are under pressure from excessive exploitation and thereby indicated where management intervention is necessary. The project has worked with the fishing communities and has educated the population throughout the Caprivi area about the fishes, fisheries and management through a series of 20 radio programmes (van der Waal, 2008-9). The project has worked with the angling community (lodges, fishing clubs and at competitions) to ensure good, sustainable practices.

Implementation of the regulations under the Fisheries Act (after revision to improve adaptability under a community-based management system) should, in the longer term, result in a major impact of the project in conserving aquatic biodiversity, as effective management of the fisheries will assist in maintaining balanced fish populations and ecosystem health and services. As the Caprivi area has the last great natural floodplain before the river system reaches the Lower Zambezi, where large dams have altered flows and severely affected the natural functioning of wetlands (e.g. Beilfuss and Brown, 2006), the Caprivi area is of major global biodiversity importance and effective management of the natural ecosystem and its resources must be given high priority.

The LEAD fish ranching project, which aims to stock pans with fish fingerlings during the dry season and harvest them some months later before the pans dry out, is being technically supported by this project and will benefit biodiversity by boosting populations of valuable fishery species in pans stocked during the programme.

8.2 Social and economic

Fishing in African rural communities tends to be a male-dominated activity in the larger scale fisheries such as in major river channels and lakes. In the more ephemeral floodplain fisheries, women play a greater role, fishing with mosquito nets and traditional basket traps. Women also play a dominant role in fish marketing. The fishery community committees set up through the project and with whom we met during the evaluation had good female representation.

Unlike in large lakes that can support commercial fisheries, African rivers and floodplains are most important in providing local livelihoods. Promoting commercial scale fishing in areas such as that served by this project is ill-advised (with the possible exception of Lake Liambezi – see below) and leads inevitably to rapid depletion of the more valuable fish species. The impact of the growing “commercial” fishery in Zambia, with people employing others to fish for them on the Zambezi and particularly on the Namibia side, and with fish being transported inland to Livingstone and Lusaka, is a case in point. The research data show an inevitable decline in stocks of the larger more valuable species as a result of this fishing pressure, and this has led to the increase in illegal gear usage (seining, drifting nets, driving fish into nets) to maintain catch rates, resulting in further stock decline.

The newly-filled Lake Liambezi, may be an exception. The lake supported a semi-commercial fishery in the late 1970s - early 1980s and may, if properly controlled, do so again for a few years while it continues to hold water

The project and long-term fisheries management activities following the project can best address poverty levels by ensuring that fisheries regulations are agreed and enforced by the fisheries communities, thereby ensuring sustainable fisheries.

The project also potentially addresses poverty levels by helping to raise awareness of recreational tourist fishing, which creates employment in the Caprivi fisheries through employment in the lodges and in guiding activities. The fishing lodges are a very important component of the fishery. Tourist angling in the area is mainly catch and release and thus does not impact on the resources, but it depends on the presence of a healthy stock of large fish species. Proposals for non-fishing reserves, if implemented and used for catch and release angling, would greatly benefit tourism and ensure continued employment of local residents in the sector.

8.3 Governance and management of natural resources

The project represents an attempt to restructure and devolve government interventions in natural resource management by empowering the communities to decide how the resources should be managed. The role of government will then be to provide advice, support and training to the communities, rather than being seen as simply a source of taxation (i.e. licence fees) and an enforcer of regulations, several of which are viewed as unrealistic. This will be of considerable assistance to government, which at present does not have the staffing capacity to control the fishery itself at a level sufficient to prevent widespread unsustainable fishing practices and consequent resource depletion. If successful, the project may act as a model and be extended to other fishing areas in the region, such as the Barotse Floodplain in Zambia. The enabling legislation needs to be put in place for this project to be considered successful in supporting sound management of the fishery resources.

9. SUSTAINABILITY, REPLICABILITY AND MAGNIFICATION POTENTIAL

9.1 Sustainability

At present, the legal and political environment is not conducive to effective management of the resources by government authorities. The licensing system, and the intense dissatisfaction expressed to the evaluation team about the way in which the fisheries are currently managed, are a clear indication that the present system operated by the MFMR (with licensing outsourced to the Regional Council) does not work. The project's aims to transfer decision-making to the communities will overcome this constraint. As in the wildlife sector in Namibia, communities under their traditional authorities are capable, with guidance based on sound scientific principles, of making decisions on how their fisheries should be managed, appointing community fisheries monitors/guards, excluding people from their fishing areas under traditional laws, and establishing non-fishing reserves. The project is in a position to facilitate this, with the traditional mechanisms and conservancies being appropriate for local level management.

If the project succeeds in its goal to create a social, legal and political environment in which the communities are empowered to manage the resources themselves with government playing an advisory and supportive role, the potential for sustainability is high.

The project has a clearly defined and simple exit strategy, i.e. to hand over its functions in advising and guiding fisheries management in the area to qualified staff in MFMR, and to integrate the ongoing support to communities into the larger national CBNRM programme. The project, however, is not yet in a position to implement this exit strategy, partly because of the administrative delay in implementing the new regulations to permit CBNRM to be initiated. Also, MFMR is about to appoint two scientists to the staff at Katima Mulilo. These officers will have the responsibility to advise and support the fishing committees, but they will themselves need support and guidance until they are fully trained as fisheries scientists and until they develop an understanding of the fishery. Only then will it be possible for the management system to function effectively without project support.

Until the mechanism is in place for effective handover of responsibilities to MFMR, NNF can best ensure sustainability by supporting the project through the following activities:

- i) motivating for the enabling legislation to be formulated and enacted,
- ii) promoting and supporting local level institutional development (fisheries committees),
- iii) supporting and assisting with local level monitoring and management,
- iv) providing training to community fisheries committees, community fisheries guards/monitors,
- v) supporting fisheries committees and their members to develop local level fisheries management plans (that include zonation for e.g. fisheries reserves as well as agreed approved and disallowed practices),
- vi) providing training and guidance to the newly appointed MFMR scientists (including for ongoing biological and socio-economic monitoring and adaptive management)
- vii) Facilitating MFMR staff and fishing communities to work in mutually supportive and harmonious fashion.

The key constraints to be overcome include the perception of an apparent lack of commitment to the project's aims in the Ministry (MFMR has now, through the Permanent Secretary, Mr F.K.M. Tshhama, expressed its commitment to the aims of the project), and adequate financial support to MFMR in Katima Mulilo to fund the essential extension and fieldwork. The evaluation was assured by MFMR that this constraint is being addressed to ensure long-term success of the project. The other constraint, the shortage of trained and sensitised staff, is reportedly being addressed by the pending appointment of two new scientists. On the Zambian side of the border, shortage of senior staff is likely to remain a problem because of the relatively low priority of this fishery in Zambia as a whole. Commitment to continued support from the Namibian side, and to work more closely together on the river as well as with regular cross-border meetings at a relatively senior level will help to mitigate for this weakness.

9.2 Replicability and magnification potential

If successful, the project will act as a model for CBNRM in systems other similar river and floodplain fisheries such as the Barotse Floodplain in Zambia.

10. LESSONS LEARNED

Radical changes in fisheries management methods in a rural environment cannot be achieved overnight. Government ministries and departments in Africa have for decades operated through legislation and attempted enforcement of regulations, despite lacking the financial and staff capacity to be effective. Attitudes are slowly changing with a recognition in many quarters (though not universally) that CBNRM has considerable advantages over a top-down enforcement approach. There have been notable failures in CBNRM, usually where the resources are so degraded and people so impoverished and in need of food, however little, that control is impossible. The Caprivi fishery is fortunately not yet in such a state, although the fishery is noted to be in decline.

The project could have been more involved in providing training for the relatively junior fisheries staff in Namibia and particularly in Zambia, where the staff's qualifications consist of fisheries certificate training courses. These staff received on-the-job training during the project through day-to-day activities such as surveys. Ideally, technical staff should be trained *in situ* by experienced fisheries officers and researchers, but senior staff were not available in MFMR during the project. While policy issues and planning of activities are decided at a higher level, technical staff are most often the fisheries personnel in closest contact with fishermen and thus it is essential that they are fully informed. The fisheries personnel in the area would benefit greatly from being exposed to modern methods, e.g. by attending specialised training courses and by attachments to other, successful CBNRM projects.

The project, because of financial constraints, was limited to a single technical adviser. It was unrealistic to expect a single adviser to possess all the skills necessary for such a complex project. If the project goes into a new phase, technical support should, at the very minimum, consist of a fish and fisheries expert (to provide advice on optimum and sustainable methods of exploiting the stocks) and an expert in CBNRM to work closely with IRDNC and the communities to implement the recommendations of the fisheries adviser.

The project has been supported through the NNF and WWF, with a mid-term review, six monthly visits to Caprivi, visits by the coordinator to Windhoek, and frequent telephone and email contact but this is considered insufficient. This evaluation endorses the recommendation of the mid-term review that a "Technical Advisory Committee" should be set up, with the appropriate budget, to oversee the project, including MFMR, DoF, IRDNC, NNF, WWF, and Dr C. Hay. If the project goes into a further phase, regular meetings of such a committee must be held to review progress, keep the project on track, and provide support where necessary, e.g. where government decisions or approvals are required for necessary actions.

11. CONCLUSIONS AND OVERALL ASSESSMENT

11.1 Project performance

Relevance

River fisheries in Africa are very vulnerable to over-exploitation and the Zambezi and Chobe rivers are no exception. The research data (Hay and Van der Waal, 2009) show over-exploitation of the

larger, more valuable species, and the human population and hence fishing pressure is increasing rapidly in both Zambia and Namibia. The governments do not have the resources (human or financial) to manage the fisheries effectively without the support of the fishing communities themselves. This project aims to resolve these problems by devolving management to the communities, using strategies similar to those that are proving successful for wildlife management in Namibian conservancies.

The project is therefore highly relevant to fisheries management and conservation of balanced fish communities in the Caprivi area.

☐ Effectiveness

The project has developed a good understanding of the fisheries biological / conservation issues and the socio-economic aspects. This has allowed the project to make recommendations on fisheries management, as well as the social arrangements (via fisheries committees under conservancies and traditional authorities) that would best support such management. These recommendations have all been included in a new draft of the Inland Fisheries Act and Regulations which is being considered by the MFMR, although recommendations are made in this evaluation for simplification of the regulations to allow for adaptive, localised management. The project has worked with communities to prepare the ground for such development, as well as with the angling and tourism sector. The full implementation of these recommendations have not yet been done, and this would be the focus of the next phase of the project. Delays in implementing changes to the Inland Fisheries Act to enable the communities to take over management functions, together with a perceived lack of commitment to community-based management from the MFMR as a result of capacity constraints within the Inland Fisheries sector of MFMR), have held up devolution of responsibilities to the communities.

☐ Efficiency

The project has, in general, been conducted efficiently, although not without difficulties. The separation of the project executant's office from the MFMR offices as a result of space constraints was regrettable as it added to the impression that the project was a separate entity and was not part of MFMR's core functions. The expectations from Zambian fisheries staff that the project would fund overnight allowances also handicapped the project by limiting the amount of joint operations that could be conducted over the course of the project.

The sectoral nature of MFMR has also created problems. Licensing, law enforcement, and fish farming are different sections, and this has created problems. A single inland fisheries section handling all these related issues would greatly improve efficiency. Proposed appointments of senior staff to the Katima Mulilo MFMR office should also help to improve efficiency.

☐ Sustainability, Replicability, Magnification opportunities

The foundations have been laid for community-based management of the fisheries. While urgent steps are needed to enact enabling legislation to allow the communities to adapt regulations to their own specific fishery needs, the project should nevertheless promote devolution of fisheries management now to the communities through traditional mechanisms and conservancies. The process of handing over responsibilities to the fishing communities should also be promoted in Zambia, which already has its own enabling legislation. If the necessary steps are taken, then the prospects for sustainability and replicability are excellent. Lessons learned from the project may

allow an expansion of the programme if it proves successful and may, for example, be applied elsewhere in Zambezi floodplain systems such as the Barotse floodplain in Zambia and other similar floodplain systems elsewhere in Africa.

11.2 Overall assessment of project

Achievement of project goal and purpose

The project goal is a long-term target that could not possibly be fully achieved through a 3-year project with limited scope, technical input, and funding. Successful projects to manage fisheries in African freshwaters are rare. Increasing human populations and inability to enforce regulations and an open access “tragedy of the commons” situation have resulted in serious declines in fisheries health and sustainability in many areas. There is an unfortunate tendency to disregard impacts of inappropriate management systems and excessive exploitation on fish stocks until it is too late. An example from Malawi is the collapse of the valuable ‘chambo’ (*Oreochromis* species) fishery of Lake Malombe and its replacement by a fishery for very small, low-value species (Tweddle *et al.*, 1995). Because of the initial high catches of the small species, possible adverse impacts of using small meshed seine nets on the chambo stocks were ignored until it was too late. Lake Malombe is also an example of a fishery where the introduction of community-based management has so far failed, and this provides an important lesson for the present project. Management of the fishery by the Government’s Fisheries Department through enforcing strict regulations failed, resulting in the introduction of community-based management (Bell and Donda, 1993). Expecting impoverished fishermen to change their fishing methods to help restore the fishery, when the inevitable result is very low catches and loss of income, was unrealistic and the situation continued to deteriorate, as shown in the box below (Dr O. Weyl, pers. comm. from Powerpoint presentation).

Status of Lake Malombe fishery, Malawi, 2002 (Dr Olaf Weyl)

- Access remains unlimited.
- Number of gear owners has increased 65%.
- Mosquito nets have increased 4-fold to 74 gears
- Number of gill net units has increased by 70%.
- Mean mesh size of gill nets has decreased since 1992 to 70 mm (< 10% legal mesh size).
- 27 % decrease in Nkacha (open water seines) < 10% with legal mesh size.
- 70 % decrease in kambuzi seines.
- Closed season 1 October - 31 Dec but FRU observations indicate that this is not effective.
- Malombe’s fisheries are monitored

The example of Lake Malombe is an important lesson for the present project, i.e. it is essential to implement effective community management before stocks are seriously depleted. Fortunately, the Namibian, Zambian and Botswana governments have recognised the need for management while the larger more valuable species are still present, and thus there is an opportunity to develop an effective community-based approach to local management.

An issue that has yet to be properly addressed is the tendency in MFMR (and other fisheries departments in Africa) and among fishermen to disregard the value of tourist angling to the local communities. It is often overlooked that fishing lodges bring increased expenditure into the region and create employment for local communities in the fishing areas, and people employed in lodges are as dependent on the health of the fishery as any active subsistence fisherman. The economics of the recreational fishery must be taken into account when planning management interventions with the government authorities, conservancies, and fishing communities.

To counteract the present tendency to overexploit the resources will take much longer than the present project. The groundwork has effectively been laid for progress towards achieving the project goal and purpose, but it will take a longer-term commitment to fully implement effective management systems that will lead to the goal being achieved. The greater commitment by MFMR to the project goals expressed by Dr Klingelhoefter needs to be followed up by evidence of action. Addressing, as a matter of urgency, the legislative issues to facilitate community involvement in management will be a significant advance in achieving project aims.

❑ Contributions to local, national, regional and global (WWF) biodiversity and ecosystem conservation goals, and to natural resource management

The project has a long-term potential to contribute to conservation goals at all levels from local to global. Effective and sustainable management of the fisheries in this area through devolution of decision-making and control to the communities as a result of this project will act as a model for fisheries management in the region, while helping to maintain a relatively stable fish population structure, which is a long-term conservation target. The biological research conducted by this project has added new and deeper ecological knowledge about the Zambezi floodplain/river system, thereby assisting stakeholders to gain a better understanding of the biodiversity uniqueness of this system and its management needs.






The protection of the *Nothobranchius kafuensis* “Caprivi” population in Salambala Pan and neighbouring pans in an effectively functioning conservancy, and the recognition by the conservancy committee of the importance of its presence in the conservancy area and the need to conserve it is a valuable contribution to biodiversity conservation.

❑ Contributions to socio-economic situation in the project area

If the trend to increased exploitation continues, the fishery-dependent households in the project area will become much poorer due to diminishing shares of diminishing resources, while the loss of angling tourism will impact severely on the households dependent on incomes from employment in lodges and guiding. The contribution of the project to local livelihoods will only become apparent in the longer-term. If the initiatives implemented during the project succeed, incomes will be sustained and fish will continue to provide a major source of animal protein to the local population.


❑ Reasons for project weaknesses


Given the limitations in project financing and staffing, and the lack of support from MFMR in facilitating the transfer of fishery management to the communities by enacting enabling legislation, the project has made satisfactory and significant progress. The project has not achieved all proposed outputs for the following reasons:


-  During the evaluation, non-enactment of enabling legislation for management by the fishing communities was given as the reason for slow progress in devolution of management responsibility. As a result, fishing communities were not given sufficient support by MFMR and the project to develop their management proposals and to explore the possibility of establishing their own fishing rules or to set up pilot closed fishing areas. While the delay in enacting the legislation is a factor, it is pointed out earlier in this report that CBNRM can be implemented through Traditional Authorities, Conservancies and Fisheries Committees without waiting for legislative reform to be enacted, and thus the project should push ahead now with providing guidance to the fishing committees on management measures that can be implemented at the local level.
-  Lack of capacity (financial and human resources) in both the MFMR in Namibia and the Department of Fisheries in Zambia to enable effective extension work and enforcement to take place.
-  Over-dependence on one project executant for a complex project requiring a range of complementary skills: i.e. fish ecology; fisheries stock assessment; knowledge and experience of the Zambezi fauna and environment; understanding of legal aspects and implementation of fisheries regulations; ability to interact with, educate and learn from fishermen; CBNRM principles and practice; ability to communicate with different levels of government departments and ministries; etc. The skills of Dr van der Waal and Dr Nyambe complemented each other and it is unfortunate that funding constraints prevented them from working together for the duration of the project.
-  Enforcement of existing legislation by MFMR has been virtually non-existent. It is considered a major weakness in MFMR that the same officers tasked with educating the fishing communities and spreading extension messages are also the ones responsible for enforcement of regulations. Combining these tasks is impossible. The result is a marked lack of enthusiasm for enforcement of regulations against the rampant use of illegal fishing gears, while tourist anglers are considered an easy target for harassment.
-  A significant cause of weakness has been the weak MFMR involvement and leadership after the departure of Dr Hay. This resulted in reduced transboundary engagement as it is very difficult for a project to formally engage country-to-country without government personnel leading this process under clear senior-level authority. It also resulted in reduced involvement of MFMR staff and budget, and it reduced information transfer within MFMR from the region to head office and senior levels. The absence of Dr Hay amplified the perceived 'gap' between MFMR and project.


With further project support, and given the renewed commitment by MFMR towards the project goals that was expressed to the evaluation by Dr Klingelhoefter, these weaknesses are not insurmountable, and the next section of this report suggests the way forward.


12. RECOMMENDATIONS FOR THE WAY FORWARD

-  With the documentation now available on the status of the fish stocks (Hay and van der Waal, 2009) and the guidelines for community based management (Jones, 2008), the Project Executant, Dr van der Waal, is in a position to develop the outline of a comprehensive management plan for the fisheries, which should be completed before Dr van der Waal's departure at end-June. In addition to the reports mentioned above, the management plan should take note of the findings of the recent frame survey together with the Fisheries Act and regulations with proposed amendments. The emphasis should be on implementing the findings from the studies through CBNRM methodology.


-  On acceptance by stakeholders, in particular MFMR, of this approach to management, the management plan outline should be translated into Silozi and discussed with the fishing communities.


-  Further development of the comprehensive management plan should then be completed during a 6-months extension of the project to December 2009. The management plan should cover the Caprivi section of the Zambezi/Chobe system involving all three countries, and should set out broad, harmonised policy guidelines, monitoring approaches, joint collaboration, information-sharing, etc. Development of the plan should be linked to regular transboundary meetings. The plan should emphasise that local level management plans with zonation maps should be developed at community fisheries committee levels, and accommodate different management approaches for main river, main channels, side channels, floodplains, pans, etc., including fisheries sanctuaries.


-  The management plan should incorporate fisheries monitoring and research as well as adaptive management. This is vital to develop understanding of the fisheries dynamics, particularly in this period of high floods that are of great benefit to the fish stocks. The project, while not directly conducting research, should explore with MFMR ways of facilitating collaborative research involving Namibian university students and external universities and institutes (e.g. Rhodes University Department of Ichthyology and Fisheries Science and the South African Institute for Aquatic Biodiversity in Grahamstown, RSA, both of which have extensive experience in African inland fisheries research and management) .


-  The proposed fisheries regulations should be greatly simplified and the project has a major role to play in assisting in the formulation of these revised regulations, as it did in the proposed revisions put forward by van der Waal (2009b & c). The majority of proposed regulations are aimed specifically at fishing in the main river channels and do not take into account the widespread floodplain fisheries for very different fish species assemblages. Gazetting regulations including lengthy lists of banned fishing gears for the whole area will be counter-productive as fishermen will not respect regulations that they know are unnecessary and that prevent them efficiently harvesting resources. Regulations must therefore be agreed at local community level. For example, regulations aimed at protecting large species in the

major river channels will be pointless in floodplain scenarios where small, pioneering, highly prolific species are the target. It is therefore suggested that only the most destructive fishing gears are prohibited through the Fisheries Act regulations. These are: seine nets, including gillnets modified to allow them to be dragged through the water; drifting gillnets; beating the water or marginal vegetation to drive fish into gillnets; poisons and explosives. The use of monofilament gillnets should also be prohibited as they are much more effective than multifilament nets, thus creating an enormous increase in effective effort in an already heavily-exploited fishery. A comprehensive ban should be placed on possession of, and distributing, this gear.


 Following development of the new comprehensive management plan, and with agreements on the way forward for community management and on local regulations, a new version of revisions of the Act and regulations should be drafted with legal advice, and enactment of these revisions should be given high priority by MFMR.

 The system for issuing fishing permits needs to be reviewed by MFMR and the project can help to provide guidance on this. The present system, where it is operated through the Regional Council and fishermen have to travel to the office to obtain licences, is unworkable. The system is a major cause of the current tendency for the majority of fishermen to use unlicensed gears. The ill-will generated by the inability of tourists to obtain licences directly from the lodge at which they stay, and the perception that anglers are a 'soft' target for law enforcement, creates negative impressions of Namibia abroad. Issuing of licences should be the responsibility of the fishing communities and conservancies, and tourist lodges for anglers, with a percentage of fees earmarked for the Regional Council. Revenues realised would undoubtedly be greater and the system would be more effective in enabling control of illegal fishing. Until this issue is resolved the project faces enormous difficulties in achieving its goals.

 The recreational fishery must be more thoroughly assessed. The *modus operandi* of angling tourism is not generally understood by Government. In fact, the original documentation presented to the evaluator as TOR for this project review also displayed a lack of understanding. It stated "This [i.e. angling tourism] is a lucrative undertaking, which presently does not benefit the conservancies or fisherfolk of any country." This ignores the number of local people employed in the fishing lodges and as tour guides, who therefore directly benefit from the fishery. The contribution of the angling tourism sector to the local economy should be quantified (possibly as a postgraduate project for a natural resource economist) to illustrate the value of the fishery and provide an enabling environment for cooperation between local fishing committees/conservancies and lodges.

 Catch and release angling, which does not impact on fish stocks, is promoted by the tourist lodges. The needs of the recreational fishery and the local fishermen exploiting the main river channels and peripheral lagoons are the same, i.e. a healthy stock of large fish species. It is, therefore, important that project (and post-project) activities in the tourist areas address issues raised by both sectors. Conservancies have accepted the concept of non-fishing reserves and in fact this is reportedly a part of old traditional systems of control, therefore

pilot programmes should be initiated as soon as possible. The project should explore the possibility of incorporating contributions from tourist lodges to conservancies that promote sound conservation measures such as non-fishing reserves where catch and release angling can be promoted. This can be funded through a revised angling permit scheme whereby a percentage of the fee is given to the conservancy.

 Strengthen transboundary collaboration between Namibia, Zambia and Botswana. Dr Klingelhoefter reported the intention of the senior staff in fisheries ministries/departments to hold a transboundary meeting in the near future and stated that such meetings would be a regular occurrence in future. These meetings should form the basis for improved communication and decision-making during the project in future, as detailed below.

 **Conditions for new project:**

A new phase to this project should be a joint project primarily between Namibia and Zambia but with Botswana input also, operating with the full confidence and participation of senior officers in the Fisheries ministries/departments in the three countries. MFMR and the Zambian DoF must be active partners and it is suggested that there is a permanent (or at least more frequent) project presence on the Zambian side of the river. Botswana should also be much more closely involved in the project as the Chobe floodplain is a shared resource and Botswana has a set of fishing regulations that needs to be harmonised with agreed regulations on the Namibian side of the Chobe River. The project should be guided by a steering committee incorporating senior officers from the three countries. This should meet frequently (at least twice yearly and preferably quarterly) to review progress and make recommendations for modification to the workplans if necessary.

Commitment to the project goals by the countries is vital if a new phase to the project is to be successful. MFMR has indicated to the evaluator that greater commitment will be forthcoming, with a positive sign being the imminent appointment of two senior officers to Katima Mulilo. Zambia also indicated its commitment to the project through its principal Fisheries Officer, Mr Chilala, who joined in the evaluation process.

Technical assistance should include a fish and fisheries specialist and, in addition, a specialist in CBNRM. These two officers should work very closely together. It is essential that extension messages conform to current knowledge of fishery dynamics and do not conflict with indigenous knowledge on the state of the fish stocks and how best to conserve them. A case in point is the timing of the closed season in Zambia, which does not protect the larger, more valuable species in their breeding season as claimed. Its only benefit is that it causes a reduction in overall annual effort, and is in force at a time when many fishermen do not fish much anyway as they are tending their crop fields at that time.

The project emphasis must be on empowering the fishing communities/conservancies to manage the fisheries on a localised basis, including responsibility for licensing of fishermen and/or fishing gears. Regulations need to be reviewed to remove the excessive and biologically unnecessary restrictions contained therein. Agreement of local regulations should

be decided on a localised basis dependent on the fishery priorities in the immediate area controlled by a committee or conservancy. The project's role should be to provide guidance to the communities based on sound scientific principles.

IRDNC, a local NGO, is experienced and successful in guiding conservancies in CBNRM. The current project has initiated close links with IRDNC and appointed two officers trained through the project to assist IRDNC in fisheries matters. The new phase of the project should continue to provide close support to IRDNC to develop CBNRM in the fisheries. With this support, and with the existing traditional community management structures, the project can be effective despite the delay in enactment of supporting legislation in Namibia.

 **Overall recommendation:**

Because fish is vital for food security, local livelihoods, and tourism in the area –

Because the fishery will experience an accelerating decline if management action is not taken now –

Because the project, despite its shortcomings, has laid the groundwork for future success in fisheries management –

Because Government capacity to manage the fisheries effectively (or to provide sound guidance to the communities) has not yet been achieved –

Because an enabling legislative environment for devolution of management to communities has not yet been gazetted –

Because devolution of management to communities needs continued support –

IT IS RECOMMENDED that the project continues into a further 3-year phase under the conditions detailed above. An outline of the proposed purpose of the new phase and suggested outputs are listed below (Table 2), to be reviewed and assessed by the three countries fisheries ministries/departments as part of the design of the next phase of the project. The details of transboundary collaboration and development of detailed management plans and rules and regulations (local, national and transboundary) need to be fleshed out during the development of the project proposal.

Table 2. Purpose and outputs of the proposed new project phase.

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Assumptions |
|----------------------------------|---|---|--|--|
| Project Purpose (target): | By end 2012, a fully integrated management system for livelihood and sport fisheries, that provides optimal benefits to all stakeholders reliant on this valuable resource, is in place | <ul style="list-style-type: none"> • Local fishery management structures operational (i.e., conservancy committee, Fisheries Committee, traditional authority, etc.) • New fishery management practices introduced at local level, including gear restrictions and mandatory licensing, closed sections of river, sport fishery agreement with conservancies etc. | <ul style="list-style-type: none"> • Fisheries committees in Caprivi, and in Zambia formed but not yet mandated to take over responsibilities for fisheries management. | <ul style="list-style-type: none"> • Full support by all stakeholders during the Project -[includes Fisheries Committees, Conservancy Committees, Lodges, MFMR, DoF] • MFMR accepts devolution of management to communities • Legislation amended to allow community institutions to manage own fisheries resources |
| Outputs (results) | Output 1. Cross-border committee established at senior level and meeting regularly | <ul style="list-style-type: none"> ▪ Meetings of senior fisheries staff from three countries occurring regularly. ▪ Minutes produced and communicated to local officers | <ul style="list-style-type: none"> ▪ Initial senior staff meeting held during the present project, more planned for near future | <ul style="list-style-type: none"> ▪ Governments commit to support for project and planning meetings. |

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Assumptions |
|--|---|--|--|---|
| | Output 2. Comprehensive management plan for fisheries agreed by all stakeholders | <ul style="list-style-type: none"> ▪ Published management plan (before end of present project phase) ▪ Minutes of stakeholder meetings showing approval | <ul style="list-style-type: none"> ▪ Groundwork laid for development of plan before end of present phase, including research report and CBNRM reports | <ul style="list-style-type: none"> • MFMR accepts devolution of management to communities |
| | Output 3. Management plan implemented | <ul style="list-style-type: none"> ▪ Fishermen licensed and abiding by agreed regulations. ▪ MFMR and Zambia enforcement staff working in close consultation with management committees. ▪ Monitoring indicates stabilisation of fish stocks. | <ul style="list-style-type: none"> ▪ Fishermen ignoring existing regulations. ▪ Licensing through Regional Council impractical | <ul style="list-style-type: none"> ▪ MFMR accepts devolution of management to communities |
| | Output 4. Tourist angling lodges operating in agreements with local fishing committees/ conservancies | <ul style="list-style-type: none"> ▪ Contributions from angling fees paid to lodges to committees/ conservancies. ▪ Catch records from lodges. ▪ Establishment of non-fishing reserves and agreements over catch & release angling. | <ul style="list-style-type: none"> ▪ Friction between lodges and MFMR over licensing enforcement. ▪ Complaints about falling catches. ▪ No closed fishing reserves. | <ul style="list-style-type: none"> ▪ Agreements on resource utilisation acceptable to all stakeholders ▪ Regional Council and MFMR enforcement section accepts revised licensing arrangements |

Certain activities are necessary during the final months of this phase of the project to ensure the project achieves as much of the project purpose as is feasible in the time available, and these are listed below (Table 3).

Table 3: Action points

| Action point | Deadline | Responsibility |
|--|-----------------|-----------------------|
| 1. Prepare an outline of a comprehensive management plan for review | End June | Dr van der Waal |
| 2. Approve 6-month extension to project | End June | WWF/NNF/MFMR |
| 3. Evaluate economic value of angling tourism industry (and explore possibility of information poster) | End June | Dr van der Waal |
| 4. Recommendation for new project phase, request and detailed proposal | End August | WWF/NNF/MFMR |

ANNEX 1: EVALUATION TOR

The evaluation TOR supplied to the consultant consisted of the evaluation template with details added about what the evaluator should address under the various headings. To avoid confusion between this report and the TOR with its very similar layout, the TOR is included with this evaluation report as a separate document. This course of action also avoids the duplication of the Table of Contents.

ANNEX 2: SCHEDULE FOR THE EVALUATION

| Day, date | Time | Location | Activity (meeting, field visit etc) | Purpose of meeting / visit |
|-------------------------------------|-------------|--------------------------------|--|--|
| <i>Day 1 April 20 Monday</i> | 08h30 | South Africa | D. Tweddle flies to Namibia from Port Elizabeth via Johannesburg | Arrival of D. Tweddle to Namibia to commence the evaluation |
| | 13h20 | Hosea Kutako Airport | Arrival of D. Tweddle to Namibia and check in to Protea Hotel | Arrival of D. Tweddle to Namibia to commence the evaluation |
| | 15h00 | Windhoek | Meet with Chris Weaver and Greg Stuart-Hill, WWF staff | Orientation on Evaluation process and background materials |
| | 16h00 | Windhoek | Review of project documentation and historical documentation of fishery project; design of evaluation approach | Understanding and documentation of project activities and progress; preparation for evaluation |
| <i>Day 2 April 21 Tuesday</i> | 07h30 | Windhoek | Review of project documentation and historical documentation of fishery project; design of evaluation approach | Understanding and documentation of project activities and progress; preparation for evaluation |
| | 10h00 | Windhoek | Meeting with NNF (Chris Brown) and WWF | Foundation briefing meeting with WWF and NNF on the grant history & progress |
| | 12h00 | Windhoek | Review of project documentation and historical documentation of fishery project; design of evaluation approach | Understanding and documentation of project activities and progress; preparation for evaluation |
| <i>Day 3 April 22 Wednesday</i> | 08h00 | Windhoek | Review of project documentation and historical documentation of fishery project; design of evaluation approach | Understanding and documentation of project activities and progress; preparation for evaluation |
| <i>Day 4 April 23 Thursday</i> | 6h30 | Windhoek | Charter plane departs for Katima Mulilo from Eros Airport | Transport to field |
| | 09h45 | Katima Mulilo | Plane arrives, book into Guest house, meeting with Helga Denker of WWF and the project executant, Ben van der Waal | Briefing on purpose and programme changes |
| | 11h00 | MFMR Offices | Meet staff of MFMR | Discuss list of items requiring attention |
| | 13h30 | Priscah Lilungwe – guest house | Presentation about LEAD Fish Ranching Project and Meeting | Alternative fish farming development |
| | 15h00 | Zambian Department of | Meeting with Alex Chilala, PFO, Zambia DoF HQ and | Progress on transboundary contact and cooperation |

| Day, date | Time | Location | Activity (meeting, field visit etc) | Purpose of meeting / visit |
|----------------------------------|-------|---------------------------------|---|--|
| | | Fisheries at guest house | Sesheke staff | |
| | 17h00 | IRDNC | Meeting with Beaven Munalu, head of IRDNC in Caprivi and seconded project staff | Continuation of support to conservancies to manage fisheries in areas |
| <i>Day 5 April 24 Friday</i> | 08h00 | Regional Governor | Meeting | Discuss Regional Council involvement, fishing licences, and opinions on project activities |
| | 13h00 | Salambala Conservancy/ campsite | Meeting with executive – six committee members | Discuss development at Lake Liambezi and killifish – visit pan with killifish |
| | 15h00 | Lake Liambezi | See fish landings and boat trip on lake | Observation of fishery |
| | 19h00 | Dr van der Waal's house/office | Meeting with MFMR staff | Progress and continuation of project activities |
| <i>Day 6 April 25 Saturday</i> | 08h00 | Guest house | Meeting with Dr van der Waal and MFMR | Review of project activities to-date |
| | 11h00 | Lisikili | | Observe floodplain fishing activities |
| | 12h00 | Lisikili | Meeting with Induna and sub-Khuta | Discuss progress toward community-based management and performance of fishery committee |
| | 15h30 | Island View Lodge | Meeting with Mike Cavanagh, lodge owner | Discuss recreational fishing and tourism issues, and relationships with MFMR and local fishing communities |
| | 18h15 | Lisikili fisheries committee | Meeting with executive of fisheries committee, 7 members present | Progress in establishment and fisheries reserve, problems and cooperation |
| | | | Sikunga Conservancy/Kalimbeza fisheries committee | Meeting |
| <i>Day 7 April 26 Sunday</i> | 08h00 | Guest house | Meeting | Continue review of Progress |
| | 12h00 | Mpacha airport | Flight over floodplain | Observe extent of flooding and Lake Liambezi with Dr van der Waal |
| | 13h00 | Mpacha airport | Book in for flight | Flight back |
| | 16h30 | Windhoek | Flight arrival | Return to Windhoek |
| <i>Day 8 April 27 Monday</i> | 08h00 | WWF Office | Commence write-up of evaluation and presentation | Evaluation write-up and prepare presentation of results |
| <i>Day 9 April 28 Tuesday</i> | | WWF Office | Continue write-up of evaluation and presentation | Evaluation write-up |
| <i>Day 10 April 29 Wednesday</i> | 08h30 | WWF Offices | Presentation of draft evaluation report | WWF/NNF/WWF-Norway to immediately review and prepare |

| Day, date | Time | Location | Activity (meeting, field visit etc) | Purpose of meeting / visit |
|----------------------------------|-------|-------------------------|---|---|
| | | | | comments/suggestions |
| | 10h00 | Depart for Airport | Travel | Return to South Africa |
| | 11h30 | Depart for South Africa | Travel | Return to South Africa |
| <i>Day 11 May 11 Monday</i> | | South Africa | Continue revisions/incorporation of comments into evaluation report | Finalise the evaluation report |
| <i>Day 12 May 12 Tuesday</i> | | South Africa | Continue revisions/incorporation of comments into evaluation report | Finalise and submit evaluation report for review by all relevant stakeholders |

ANNEX 3: KEY INFORMANTS

| | |
|--|---|
| Hon. Leonard Mwilima | Regional Governor |
| Frans K.M. Tsheehama | Permanent Secretary, MFMR |
| Chris Weaver | WWF, Windhoek |
| Greg Stuart Hill | WWF, Windhoek |
| Chris Brown | NNF, Windhoek |
| Ben van der Waal | Project Executant |
| Ekkehard Klingelhoefter | Head, MFMR Inland Fisheries |
| Castro Samunsala, Filemon Lita, John Phiri | MFMR enforcement team |
| Calvin Mwiya (head), Morgan Saisai | MFMR Katima Office |
| Albert Mutelo, Michael Ekandjo | MFMR research office |
| Beaven Munali, James Maiba, Robert Kaapala | IRDNC |
| Mike Cavanagh | Island View Lodge |
| Ms Priscah Lilungwe | LEAD Fish Farmers Project |
| Induna Imukusi & Subkuta Misikusi Michad | Lisikili traditional authority |
| Royd Simataa , & six members | Lisikili fisheries committee |
| Induna Henri Sinvula, Christopher | Muyako subkhuta |
| Robert Sinyambo & six members | Salambala conservancy, Chairman and committee members |
| Alex Chilala, Moses Katongo & staff member | Zambian Department of Fisheries |

ANNEX 4: EVALUATION INSTRUMENTS

This evaluation took place primarily through interviews with all stakeholders. The questions asked were based on an extensive knowledge of Zambezian and other African river and floodplain fish and fisheries, a thorough review of all the project documentation, and preliminary discussions with Drs Chris Weaver and Greg Stuart Hill of WWF and Dr Chris Brown of NNF. Given the variety of stakeholders to be interviewed, and the complexities of the fishery, no formal questionnaires were prepared

ANNEX 5: PROJECT LOG FRAME

This project log frame is the latest produced by the Project Executant, Dr van der Waal (December 2008). The evaluation assessment of the progress made follows in Annex 6.

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|----------------------|--|--|--|---|---|--|
| Project Goal: | The shared Zambezi/Chobe River fisheries resources managed sustainably through transboundary coordination and collaboration after the introduction of fully integrated fishery management systems. | <ul style="list-style-type: none"> • A fully integrated management plan in place. • Full co-operation between Namibia, Botswana, and Zambia on the management of fishery resources of the Upper Zambezi River. | <p>No formal or personal contact between Zambian and Namibian fisheries departments.</p> <p>No integration or harmonization of fishery regulations</p> | Concept of coordinated management discussed with partners in Zambia and Botswana. Little reaction so far, initiative required by MFMR | <ul style="list-style-type: none"> • Joint patrols by Zambia and Namibia. • Joint surveys between DoF and MFMR. • Functional cross-border committee. • Conservancy committees taking part in management issues. | <ul style="list-style-type: none"> • Joint management of shared resources a high priority by both Namibia and Zambia. • Willingness to co-operate, contribute to effort and cost and share information |

Zambezi/Chobe Fishery Project Evaluation

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|----------------------------------|---|---|---|--|--|---|
| Project Purpose (target): | By mid 2009 alternative community fishery management practices piloted and tested and these contribute to a fully integrated management system for subsistence, semi-commercial, and sport fisheries that will provide optimal benefits to all stakeholders who are reliant on this valuable resource | <ul style="list-style-type: none"> • New local fishery management structures tested (i.e., conservancy committee, Fisheries Committee, traditional authority, etc.) • New fishery management practices introduced (i.e., closed season, closed sections of river, sport fishery agreement with conservancies etc.) • A closed fishery season on the Namibia side of the river is enacted in tandem with the closed season on the Zambia side of the river [if acceptable]. | <p>No fisheries committees in Caprivi, fishery committees initiated in Zambia.</p> <p>Closed fisheries season called in Namibia in 2006 for EUS health reasons.</p> | <p>Two Fisheries Committees formed and supported by Project but not formally recognised by MFMR.</p> <p>Closed season was motivated to Minister for 2007 but never declared.</p> <p>Concept of closed season is now questioned by MFMR and Project</p> | <ul style="list-style-type: none"> • Documentation of recommended management structures. • Recommendations on closed seasons and areas. • Conservancies implementing fishery management plans and practices. • Documentation and reports on closed season and fisheries reserves | <ul style="list-style-type: none"> • Full support by all stakeholders during the Project - [includes Fisheries Committee, Conservancy Committees, Lodges, MFMR, DoF] • MFMR accepts closed seasons as means of protecting fish stock • Legislation amended to allow new institutions to manage own fisheries resources |

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| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|--------------------------|---|---|---|---|--|---|
| Outputs (results) | <p>Output 1. A better understanding of the impact of the new Inland Fisheries Resource Act (Namibia) has on the fisherfolk (on Namibians and Zambians and the resource) is acquired and documented.</p> | <ul style="list-style-type: none"> Study that documents the positive and negative impacts of implementing the Fishery Act on the livelihoods of participating fisherfolk. | Effect of the fisheries act on fisherfolk not investigated or understood. Some unforeseen difficulties include the issuing of licences by the Regional Council only | Study has not been undertaken as present act has to be amended before it can be effectively implemented. Present implementation of the act has very limited effect on fishing behaviour of fishers. | <ul style="list-style-type: none"> Published report | <ul style="list-style-type: none"> Fisheries legislation of Namibia and Zambia is made available Fisheries Act of Namibia is amended in time to make it truly relevant |
| | <p>Output 2. Collaboration on fisheries management achieved between the transboundary communities through the establishment of a cross border committee (between Namibia and Zambia) that will have input on the joint management of the shared fishery resource and oversight of the closed fishing season.</p> | <ul style="list-style-type: none"> A cross-border fishery committee, composed of key stakeholders from Namibia and Zambia is established and the terms of reference documented | No communication between Fishery departments or community structures across the border | Transboundary committee not yet established but officials now have contact and cross-border visits take place | <ul style="list-style-type: none"> Minutes of the cross-border committee meetings held. | <ul style="list-style-type: none"> Collaboration between fishermen from both countries Agreement on the structure, functions and terms of reference of the committee. Recognition of these committees by both governments. |

Zambezi/Chobe Fishery Project Evaluation

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|--|---|--|--|--|--|---|
| | <p>Output 3. Support the emergence of local level community fishery groups that assume management responsibility for fisheries in their areas.²</p> | <ul style="list-style-type: none"> ▪ Conservancies and Fishery Committees initiate fishery management systems and practices, and monitor fishery use practices. ▪ Fishery activities are included in the Event Book system | <p>Some contact between Project and conservancies. Fisheries Committees non-existent</p> | <p>Attend Quarterly meetings, and visited conservancies. Event book includes fisheries activities. Fisheries Committees formed at Lisikili and Kalembeza</p> | <ul style="list-style-type: none"> ▪ Minutes of Fisheries Committee/Conservancy meetings held indicating the fishery aspects. ▪ Fisheries Committee/Conservancy Fishery management plans. ▪ Conservancy Fish Event Book. ▪ Training of game guards to include fisheries activities in the Event Book | <ul style="list-style-type: none"> ▪ Support from the conservancies on the initiative of including the fishery within the conservancy framework. ▪ Support from MFMR to authorise conservancies to manage the fisheries activities in their areas |

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| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|--|--|---|---|---|--|---|
| | <p>Output 4.</p> <p>Facilitation of the development of appropriate fish farming projects in conjunction with MFMR and projects utilising existing water bodies and local fish species</p> | <p>1. MFMR/ NGO's developing alternative fish farm activities as recommended.</p> | <p>Fish farming limited to the three formal fish farms and one private enterprise</p> | <p>LEAD fish farmers' project initiated and actively supported by advice and technical support. Some 8 private natural ponds stocked with cichlids and catfish in 2007/8 and growth monitored.</p> <p>Proposal to MFMR to stock Lake Liambezi</p> | <ul style="list-style-type: none"> ▪ Report on recommendations made for alternative fish farming activities. ▪ Reports on alternative fish farming and fish ranching possibilities | <ul style="list-style-type: none"> ▪ Support from MFMR to stock fish in major water bodies, e.g. Lake Liambezi. ▪ Availability of fish fingerlings at reasonable price ▪ Upgrading of fish farms into tilapia nurseries. |

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

| | Intervention logic | Objectively verifiable indicators (qualitative and quantitative) | Baseline (value and time of measurement) | Progress to date (against the baseline) | Sources of verification | Assumptions |
|--|--|---|--|---|--|---|
| | <p>Output 5. Monitoring programs are introduced and/or maintained (i.e. for the river fisheries survey at Kalimbeza (Namibia) and Ngweshi (Zambia) area), the fish market survey at Katima Mulilo, EUS monitoring and the biological surveys on the rivers and the lakes.</p> | <p>✓ The Zambian Department forms part of the monitoring programs (seasonal biological assessments, household surveys, monthly river transects, etc.) run by MFMR</p> | <p>Annual biological surveys are undertaken by the Fisheries MFMR staff at Katima Mulilo. No data capture or interpretation takes place locally – data are faxed to Hardap. No participation by Zambian DoF No market survey</p> | <p>Annual biological surveys is expanded to two-monthly surveys in four selected sites. Regular EUS monitoring takes place together with the biological sampling. Data are entered and verified and a report written. Participation by Zambia is still limited Fish market survey done on two-weekly basis.</p> | <ul style="list-style-type: none"> ▪ DoF Zambia join the surveys done by MFMR and <i>vice versa</i> ▪ Exchange of reports on EUS status in neighbouring countries. ▪ Reports on EUS status in Caprivi ▪ Report on fish market data | <ul style="list-style-type: none"> ▪ Co-operation received from DoF Zambia in terms of staff and funding of Zambian officials. ▪ Research staff component strengthened in Katima Mulilo to accept all functions |

ANNEX 6: PROGRESS AGAINST INDICATORS




This table lists the projected outputs and rating of the progress made towards the outputs, together with a brief assessment of the activities. The activities table with comments is as given in the TOR for the evaluation, with success ratings and comments where relevant added by the evaluation.

| Project Targets | Indicators | Baseline (value and time of measurement) | Current status (Value and Date) with discussion of any variance | Success rating (green, amber or red) |
|---|---|---|---|---|
| Project Goal | | | | |
| The shared Zambezi/Chobe River fisheries resources managed sustainably through transboundary coordination and collaboration after the introduction of fully integrated fishery management systems. | <ul style="list-style-type: none"> A fully integrated management plan in place. Full co-operation between Namibia, Botswana, and Zambia on the management of fishery resources of the Upper Zambezi River. | <p>No formal or personal contact between Zambian and Namibian fisheries departments.</p> <p>No integration or harmonization of fishery regulations</p> | <p>Concept of coordinated management discussed with partners in Zambia and Botswana.</p> <p>Contact between DoF and MFMR established on a local as well as managerial level. Initiative now required by MFMR.</p> <p>Integrated regulations not yet in place but this should not delay implementation of CBNRM through traditional management structures.</p> |  |
| Project purpose | | | | |
| By mid 2009 alternative community fishery management practices piloted and tested and these contribute to a fully integrated management system for subsistence, semi-commercial, and sport fisheries that will provide optimal benefits to all stakeholders | <ul style="list-style-type: none"> New local fishery management structures tested (i.e., conservancy committee, Fisheries Committee, traditional authority, etc.) New fishery management practices introduced (i.e., closed season, closed sections of river, | <p>No fisheries committees in Caprivi, fishery committees initiated in Zambia.</p> <p>Closed fisheries season called in Namibia in 2006 for EUS health reasons.</p> | <p>Two Fisheries Committees have been formed and supported by Project Conservancies have also been sensitised to the aims of CBNRM in the fisheries. Formal recognition by MFMR is still awaited.</p> <p>Closed season was motivated to Minister for 2007 but not declared. The concept of closed seasons is now questioned by MFMR and</p> |  |

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|---|---|--|--|--|
| who are reliant on this valuable resource | <p>sport fishery agreement with conservancies etc.)</p> <ul style="list-style-type: none"> • A closed fishery season on the Namibia side of the river is enacted in tandem with the closed season on the Zambia side of the river [if acceptable]. | | <p>Project following analysis of monitoring data and observation of the fishery.</p> <p>Communities accept the concept of non-fishing reserves but progress towards implementation is slow.</p> | |
| Output 1 | | | | |
| A better understanding of the impact of the new Inland Fisheries Resource Act (Namibia) on the fisherfolk (on Namibians and Zambians and the resource) is acquired and documented. | <ul style="list-style-type: none"> ▪ Study that documents the positive and negative impacts of implementing the Fishery Act on the livelihoods of participating fisherfolk. | Effect of the fisheries act on fisherfolk not investigated or understood. | <p>Study has not been undertaken as present act has to be amended before it can be effectively implemented.</p> <p>Present implementation of the act has very limited effect on fishing behaviour of fishers.</p> <p>Unforeseen difficulties include the issuing of licences by the Regional Council only resulting in large scale fishing without licences.</p> |  |
| Output 2 | | | | |
| Collaboration on fisheries management achieved between the transboundary communities through the establishment of a cross border committee (between Namibia and Zambia) that will have input on the joint management of the shared fishery resource and oversight of the closed fishing season. | <ul style="list-style-type: none"> ▪ A cross-border fishery committee, composed of key stakeholders from Namibia and Zambia is established and the terms of reference documented | No communication between Fishery departments or community structures across the border | <p>Transboundary committee not yet established but officials now have contact and cross-border visits take place. MFMR confirmed to evaluation that further high level meetings are planned in the near future.</p> |  |
| Output 3 | | | | |

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



| | | | | |
|---|--|--|---|---|
| <p>Support the emergence of local level community fishery groups that assume management responsibility for fisheries in their areas.</p> | <ul style="list-style-type: none"> ▪ Conservancies and Fishery Committees initiate fishery management systems and practices, and monitor fishery use practices. ▪ Fishery activities are included in the Event Book system | <p>Some contact between Project and conservancies. Fisheries Committees non-existent</p> | <p>Dr van der Waal attended quarterly meetings, and visited conservancies. Event book includes fisheries activities. Fisheries Committees formed at Lisikili and Kalembeza. Responsibility for fisheries management not yet devolved.</p> |  |
| <p>Output 4</p> | | | | |
| <p>Facilitation of the development of appropriate fish farming projects in conjunction with MFMR and projects utilising existing water bodies and local fish species</p> | <ul style="list-style-type: none"> ▪ MFMR/ NGOs developing alternative fish farm activities as recommended. | <p>Fish farming limited to the three formal fish farms and one private enterprise</p> | <p>Project [correctly] did not support non-viable formal fish farms. LEAD fish farmers' project initiated and actively supported by advice and technical support. 8 private natural ponds stocked with cichlids and catfish in 2007/8 and growth monitored. Proposal made to stock Lake Liambezi with cichlid fingerlings but no action taken as yet by MFMR. .</p> |  |
| <p>Output 5</p> | | | | |
| <p>Monitoring programmes are introduced and/or maintained (i.e. for the river fisheries survey at Kalimbeza (Namibia) and Ngweshi (Zambia) area), the fish market survey at Katima Mulilo, EUS monitoring and the biological surveys on the rivers and the lakes.</p> | <ul style="list-style-type: none"> ▪ The Zambian Department forms part of the monitoring programmes (seasonal biological assessments, household surveys, monthly river transects, etc.) run by MFMR | <p>Annual biological surveys are undertaken by the Fisheries MFMR staff at Katima Mulilo. No data capture or interpretation takes place locally – data are faxed to Hardap. No participation by Zambian DoF No market survey</p> | <p>Annual biological surveys expanded to two-monthly surveys in four selected sites. Detailed report on analysis of data prepared and recommendations made for management based on results. Project needs extra scientific staff (promised imminently by MFMR). Without new staff, ongoing programme will not be sustained. Long-term monitoring needs to be at least 3 times per year, preferably quarterly, essential to quantify impacts of flood cycles</p> |  |

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| | | | <p>and fishing.</p> <p>Regular EUS monitoring takes place together with the biological sampling. Data are entered and verified and a report written.</p> <p>Participation by Zambia is still limited</p> <p>Fish market survey done on two-weekly basis.</p> | |
|--|--|--|--|--|

| Activity | Success Rating |
|---|---|
| <p>Activity 1.1 – A platform from which feedback from the communities can be obtained regarding the Inland Fisheries Resources Act and regulations will be established. Meetings will be scheduled by the MFMR and Project to bring the Inland Fisheries Resources Act into line with the original community based approach as spelled out in the White Paper. All stakeholders will be involved in these discussions. The Kalimbeza area as well as the Kasika and Impalila Conservancies will be used as a pilot study areas.</p> <p>Limited progress was made. The main reason is the very low level of law enforcement and general unhappiness about the present Act preventing communities to participate or manage the licensing of fishers. Communities [including traditional authorities, conservancies and fisheries committees] were approached about suggested amendments and a memorandum submitted to MFMR. A special request was also made to have a review soon with participation of all conservancies and other concerned stakeholders in Caprivi.</p> |  |
| <p>Activity 1.2 – The biological monitoring of fish life in the region (in collaboration with Zambia) will continue to determine whether there are any significant differences in the fish population and whether these differences can be ascribed to the introduction of legislation.</p> <p>The data of the previous 11 years are now being analysed by Dr Hay and the executant in order to determine changes and effects of the intensive gillnetting. Limited collaboration with Zambia is taking place.</p> <p>Evaluation comment – Report on monitoring completed and available for evaluation.</p> |  |
| <p>Activity 1.3 – Translation of the Inland Fishery Resources Act into SiLozi. This is distributed to traditional authorities, local Councils and conservancies for use by affected communities.</p> <p>The act has been translated and SiLozi copies submitted to conservancies, khutas and fisheries committees in order to facilitate better understanding</p> |  |







Zambezi/Chobe Fishery Project Evaluation

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| <p>of the law.</p> | |
| <p>Activity 2.1 - A closed season will be requested by the MFMR to coincide with the closed season in Zambia, from 1st December to 28/29th February. The principles of the closed season will also be similar to that in Zambia. After the Legislation has been changed by the MFMR, communities will be helped to become directly involved in the management and control of the process, as well as with monitoring its effectiveness and impacts.</p> <p>The requested closed season was not declared in 2007. Meetings where communities and new institutions are represented, to discuss amendments were requested from MFMR. A closed season was again requested for 2008.</p> <p>Evaluation comment – Biological relevance of closed season now questioned. Harmonisation with Zambia and Botswana is necessary and should be pursued in next phase.</p> |  |
| <p>Activity 2.2 – The effect of the closed season or fish sanctuaries on the stakeholders will be documented as well as the effect on the fish population. This will be done in conjunction with activity 1.2.</p> <p>No monitoring can take place presently as no closed season or fisheries reserve has been established. No data on the beneficial effect of a closed season is available in Zambia either.</p> | <p>N/A</p> |
| <p>Activity 2.3 – A motivation will be drawn up in collaboration with one or more interested conservancies or fisheries committee to declare fish sanctuaries in the respective conservancies in terms of the Inland Fisheries Resource Act.</p> <p>The Lisikili Fisheries committee in collaboration with the Mfooma subkhutas has proposed the declaration of Maningimanzi and fisheries reserve.</p> <p>Evaluation comment – Implementation should not be delayed pending enactment of enabling legislation but should use traditional authority.</p> |  |
| <p>Activity 2.4 - A workshop will be held with stakeholders both from Namibia and Zambia to establish a cross-border committee that will be responsible for all fishing related activities in the Kalimbeza area. The Kalimbeza area again will be used as a pilot site for this activity. The terms of reference will be developed.</p> <p>Discussions were held with fisheries committees on both sides of the river and idea of joint committee was accepted.</p> <p>Evaluation comment – MFMR has indicated that cross-border cooperation will be given priority. This must be expedited in the next phase.</p> |  |
| <p>Activity 2.5 – Linkages with the MFMR, Namibia and the DoF, Zambia will be set up to facilitate the flow of information between the fishermen and the two Government departments. Additionally, steps will be taken to incorporate representatives from the Botswana Fishery Department and Department of Wildlife and National Parks to coordinate fishery management issues along the river frontage of the Chobe National Park.</p> <p>Contact has been made with the relevant departments. A joint frame survey is taking place on the Zambezi.</p> |  |







Zambezi/Chobe Fishery Project Evaluation

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| <p>Evaluation comment – Analysis of frame survey must be expedited.</p> | |
| <p>Activity 2.6 - Link up with the proposed FAO project on the EUS outbreak and include this in the mandate of the cross-border committee (joint management).</p> <p>The Project has participated actively by participation in joint surveys, own regular regional surveys, reports and participation in FAO initiated workshops. A presentation was made and samples of affected fish submitted to the University of Zambia for analysis.</p> |  |
| <p>Activity 3.1 – Continue training courses for game guards to include all fish and fisheries activities in conservancies in the already present Event Book system.</p> <p>Visits were brought to Kasika, Salambala and Impalila Conservancies. Further training is needed.</p> <p>Evaluation comment – Event book well-designed but should be reviewed after reviewing early data. Book is in partial use but more training is needed and agreement on consistent implementation across all conservancies.</p> |  |
| <p>Activity 3.2 – A pilot fish management system will be piloted in the Impalila, Kasika or other Conservancy in Namibia to explore the optimal integration of subsistence fisheries, with semi-commercial fisheries, with premium sport fisheries. As part of this process, assistance will be provided to the relevant Conservancy to initiate contractual arrangements with sport fishing guides (from Namibia and Botswana) for the right to fish within the waters of the concerned Conservancy[ies]. The income from the venture shall be applied towards the institutionalisation of a sustainable fishery management plan for the waters of the Conservancy.</p> <p>Two meetings with Kasika Conservancy did not materialize. Follow up is needed. A change in the legislation could greatly enhance process and motivate conservancies to take control.</p> <p>Evaluation comment – Groundwork has been laid but action needs to be taken. The amber rating is perhaps rather generous.</p> |  |
| <p>Activity 3.3 – Develop a data collection system for all fishing lodges in the region to return all information of catch and released fish. Additionally, released fish will be tagged where possible to add value to data. This data will be used for evaluating the conservation measures in fisheries reserves.</p> <p>Forms with a request were personally delivered at all lodges involved in angling. Only one set of forms were returned. More follow-up is required. The MFMR can put some pressure on lodges to return angling records [condition of chartered boats].</p> |  |

Zambezi/Chobe Fishery Project Evaluation

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| <p>Activity 3.4 – Develop fish sanctuaries [reserve] in one or more conservancies.</p> <p>The Mfooma subkhutas together with the Lisikili Fisheries Committee has identified Maningimanze as fisheries reserve. This will be followed up with letters from these two institutions to the MFMR to get the water body declared.</p> <p>Evaluation comment – Success not yet achieved, implementation needs to be expedited.</p> |  |
| <p>Activity 4.1– Assist the MFMR to develop different appropriate fish farming and fish ranching approaches and communicate that to local and traditional authorities, conservancies and Central Government.</p> <p>Powerpoint presentations presented to MFMR and proposals were submitted. At khuta meetings at Bukalo and Chinchimane as well as to conservancies at Quarterly meetings and Regional Council the principles and examples were explained. The Lead Fish Farmers Project is actively setting an example of alternative low input fish farming.</p> <p>Evaluation comment – Formal fish farming in floodplain area shown to be uneconomic and non-viable, good technical support given to LEAD project.</p> |  |
| <p>Activity 4.2 – Assist the MFMR and NGOs in the development of projects on low input appropriate fish ranching and fish farming projects in conservancies</p> <p>The Lead Fish Farmers Project has been actively supported. A submission was made to MFMR and Regional Council on fish ranching in Lake Liambezi.</p> <p>Evaluation comment – Good progress in ranching with exception of Lake Liambezi, where MFMR did not respond to suggestions by project. Feasibility of stocking Lake Liambezi on big enough scale to influence stocks on a significant scale is considered questionable by the evaluation.</p> |  |
| <p>Activity 4.3 – Data collection on the yield from the existing and planned fish farms, the prices and processing of the fish</p> <p>Relevant data was not available from MFMR staff. A meeting with MFMR staff is needed to collect data for the future.</p> |  |
| <p>Activity 4.4 – An assessment of the production potential from the new fish farms to determine the ability of these fish farms to alleviate fishing pressure on the Zambezi River or to supplement livelihood needs of fisherfolk during the proposed closed fishing season.</p> <p>New and existing fish farm fish production is still small in comparison with the fisheries and no effect could be assessed.</p> |  |
| <p>Activity 5.1 - The monitoring programs already in place in Namibia will continue, but will be adjusted where necessary to supplement the data collected by the Project.</p> <p>Planned biological, EUS, market surveys are all taking place in Namibia. Difficulties are however experienced to undertake joint activities with Zambia. Regular biological surveys and EUS monitoring are combined in order to increase efficiency.</p> |  |

Zambezi/Chobe Fishery Project Evaluation

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| <p>Activity 5.2 - The Department of Fisheries in Zambia will be incorporated into these monitoring programmes.</p> <p>The DoF is involved in a joint frame survey and this will be extended once financial responsibilities are resolved.</p> |  |
| <p>Activity 5.3 – Monitoring of the health of fish in the region [particularly monitoring the occurrence of EUS in fish communities in the Zambezi and Chobe rivers] in collaboration with scientists in Botswana and Zambia, This is very important and can be a motivation to convince Zambia to join the surveys.</p> <p>An annual report has to be completed for the next FAO meeting. Good cooperation is maintained</p> |  |
| <p>Activity 5.4 – Monitoring system developed in conjunction with MFMR for monitoring the quantity and composition of fish sold at the Katima Mulilo Open Market.</p> <p>Two weekly surveys are undertaken since Oct 2007.</p> |  |
| <p>Activity 5.5 - Organizing and executing a fisheries Frame survey of the Zambezi/Chobe region with the full participation of the Department of Fisheries, Zambia and Department of National Parks and Wildlife, Botswana.</p> <p>Activity was started in September 2008 and will be completed before the rainy season.</p> <p>Evaluation comment – Analysis must be expedited to justify the green progress rating by the end of the project phase.</p> |  |
| <p>Activity 5.6 - Training of young fisheries biologists and technicians of the MFMR in the identification of prominent fish diseases, particularly EUS, and the collection and preparation of samples for laboratory analysis.</p> <p>Not started.</p> <p>Evaluation comment – In next phase, training of staff (including relatively junior staff who are often the main link between government and fishing communities) should be given higher priority.</p> |  |
| <p>Activity 5.7 - Training and preparation of young fisheries biologists and technicians in the use and maintenance of fisheries data bases to continue the use and updating databases and to enable the writing of reports.</p> <p>Some progress has been achieved by the two fisheries technicians in Katima Mulilo.</p> <p>Evaluation comment – In next phase, training of staff (including relatively junior staff who are often the main link between government and fishing communities) should be given higher priority.</p> |  |

Zambezi/Chobe Fishery Project Evaluation

Red – limited progress (<1/3 of indicators achieved);

Amber – good progress (1/3 – 2/3 of indicator achieved);

Green – very good progress (>2/3 of indicator achieved)

ANNEX 7: PRESENTATIONS

Powerpoint presentation of preliminary findings of evaluation to WWF and NNF at the WWF offices, Windhoek, 29 April 2009.

INTEGRATED MANAGEMENT OF THE ZAMBEZI / CHOBE RIVER SYSTEM TRANSBOUNDARY FISHERY RESOURCE

Project: WWF: 9F0792
WWF-Norway: 5012
Norad: GLO-05/312-11

EVALUATION PRESENTATION APRIL 2009

Prepared by
DENIS TWEDDLE
South African Institute for Aquatic Biodiversity

Commissioned by
WWF In Namibia

PROJECT GOAL

Shared Zambezi/Chobe River fisheries resources managed sustainably through transboundary coordination and collaboration after the introduction of fully integrated fishery management systems

PROJECT PURPOSE

By mid-2009:
Alternative community fishery management practices piloted and tested and these contribute to a fully integrated management system for subsistence, semi-commercial, and sport fisheries that will provide optimal benefits to all stakeholders who are reliant on this valuable resource

PROJECT OUTPUTS

Output 1: Better understanding of impact of new Inland Fisheries Resource Act (Namibia) acquired and documented

Output 2: Collaboration on fisheries management achieved between transboundary communities

- establishment of cross border committee (Namibia and Zambia)
- input on joint management of shared fishery resource and oversight of closed fishing season

Output 3: Support emergence of local level community fishery groups that assume management responsibility for their fisheries

Output 4: Facilitate development of appropriate fish farming projects in conjunction with MFMR, and also projects utilising existing water bodies and local fish species

Output 5: Monitoring programmes introduced and/or maintained

- river fisheries survey at Kalimbeza (Namibia) and Ngweshi (Zambia)
- fish market survey at Katima Mulilo
- EUS monitoring and biological surveys on rivers and lakes

GENERAL OBSERVATIONS (1)

- Project planning and implementation hampered by inadequate understanding (or perhaps consideration) of fishery complexity
- Emphasis on river fisheries, primarily focusing on larger, K-selected 'bream' species important to recreational anglers and commercially-orientated fishermen
- Floodplain fisheries for small, r-selected, pioneer species ignored in legislation
- Result: regulations laid out in new Fisheries Act specifically prohibit fishing gears useful for effective exploitation of r-strategists, e.g. mosquito nets and other small-meshed dragnets



Using mosquito nets to catch small, but adult, pioneering floodplain species, a valuable, ephemeral food resource

Video of fishing with mosquito nets in here

GENERAL OBSERVATIONS (2)

- Gillnet regulations unnecessarily restrictive
 - 3" minimum mesh size wrong, catches immature 'bream' species at period of fastest growth
 - 3" minimum mesh prevents legal fishing for small, abundant species, e.g. *Brycinus lateralis*, *Barbus poecheii*, *Schilbe intermedius*, *Pharyngochromis acutidens*, various mormyrids, all of which can be caught in 1" - 2" mesh nets
- Import and use of monofilament gillnets must be stopped urgently
- Possession of illegal gear to be made a criminal offence even if not being fished (traders supplying such gears as guilty as fishermen using them)
- Following illegal methods must remain banned under any circumstances:
 - Seine nets (dragnets) >5 m long in main river channels
 - Drifting gillnets
 - Driving fish into gillnets by beating water or bankside vegetation

GENERAL OBSERVATIONS (3)

- Earlier project - good relations with Zambian Fisheries Department staff at Sesheke
- Present project attempted to build on this relationship, but was Namibian-based, including Zambia because the fish are a shared resource
- Result: Zambian staff, although they are willing to cooperate, do not see the project as theirs and thus do not have absolute commitment
- Zambian Fisheries Department has many fisheries to manage, several much larger than Caprivi and thus given higher priority
- Result: Staff at Sesheke, although competent and responsible, are relatively junior and do not have policy and decision-making responsibilities
- Any future phase MUST be joint Namibia/Zambia venture, including Zambia in design process, and with budget resources for Zambia

GENERAL OBSERVATIONS (4)

- One cannot expect single technical expert to have whole range of skills necessary to achieve all project goals
- Current Project Coordinator, Dr van der Waal's skills are fish ecology, practical fisheries issues, general relations with fishermen. Genuine respect for him noted in all fishing and conservancy communities visited
- Dr Nyambe, who coordinated the project until Dr van der Waal's appointment, skilled in community relations and organisation - highly regarded by interviewees during evaluation mission
- Project strongest when Dr van der Waal and Dr Nyambe worked together - skills complemented each other
- Unfortunate that project finances did not allow the pair to continue working together for the duration of the project

GENERAL OBSERVATIONS (5)

RECREATIONAL FISHERY

- Modus operandi of recreational fishery (predominantly by tourists) not generally understood by Government
- Value of lodges to local communities (particularly employment) needs emphasis
- Target species are tigerfish (stocks generally healthy) and large 'bream' species (stocks over-exploited and in urgent need of management)
- Potential for conservancies to manage reserves where catch and release angling practised on payment of rod fees to conservancies
- Conflict between lodge owners and commercial/subsistence fishermen over resource utilisation
- Antagonism between lodge owners and MFMR enforcement officers because of unworkable fishing licence system operated through Regional Council - apparent lack of awareness by government of damage caused to external perceptions of Namibia as a tourist destination when enforcement officers harass tourist anglers

GENERAL OBSERVATIONS (6)

FISHERIES ENFORCEMENT

- Present system not effective – education AND enforcement by same officers DOES NOT WORK
- 3 officers in Katima Mulilo enforcement team all work together for safety hence only one area of operation at any time
- Marked lack of enthusiasm for enforcement of regulations, e.g. confiscating illegal nets
- Officers need sensitisation about importance of making tourists welcome: problems (e.g. licences unavailable) should be referred to lodge management for resolution, not dealt with by harassment on the river
- Implementation of controls needs to be by communities, with MFMR enforcement team available for back-up in difficult circumstances

CONCLUSIONS

SUCCESSSES

- Improved understanding of floodplain fisheries dynamics
- Sound biological basis now available for adaptive management
- Thorough groundwork prepared for community management based on conservancy principles
- Excellent relations established with conservancy and fishing committees in project area
- Potential for no-fishing reserves accepted in principle by fishing communities
- Recommendations for modification to Inland Fisheries legislation (but still needs further input to remove excessive gear restrictions)
- Support for LEAD fish ranching programme, which appears to be very successful in its initial phase and has high potential for further expansion
- Removing support for conventional fish farming from project goals
- Good communication and cooperation with tourist angling lodges

CONCLUSIONS cont...

WEAKNESSES (1)

- Lack of support from MFMR (Departure of senior officer, Dr Clinton Hay, who initiated and supported project left vacuum, not yet filled. Staff at Katima Mulilo considered project to be a separate entity, not part of core functions, did not support activities with MFMR funds, e.g. for field allowances, as required in project document)
- Project support by MFMR, NNF, WWF [generally conducted through email communication] should have been more directive (e.g. minuted quarterly meetings to review progress, relevance of project targets and need for modification, Project Coordinator workplans and adherence thereto, etc. would have been very useful. Mid-term review appears to be only formal input). If new phase approved, formal project steering committee needed

CONCLUSIONS cont...

WEAKNESSES (2)

- While accepting argument that current Fisheries Act does not permit full devolution of management to communities, more effort should have gone into supporting community activities and obtaining feedback on e.g. attitudes to regulations imposed through the Act
- For example, pilot fish sanctuary could have been more actively promoted within receptive fishing communities – does not need government approval to implement although control of recalcitrant fishermen might prove difficult without legal back-up and consequent government support

CONCLUSIONS cont...

SHORTCOMINGS (and mitigating circumstances)

- Impact of new Fisheries Act on communities not recorded (because of weaknesses in implementation and need for modification)
- Fishery management not yet devolved to communities (because of delays in revising Inland Fisheries Act, with no facilitating mechanism in existing Act)
- Strengthening of cross-border relationships and implementation of regular joint surveys and monitoring needed greater commitment by MFMR (departure of Dr Clinton Hay from MFMR created hiatus) and Zambian Fisheries Department senior management

CONCLUSIONS cont...

PROGRESS TOWARDS OVERALL PROJECT PURPOSE AND GOAL

Progress towards **OVERALL PROJECT PURPOSE**, i.e. "Alternative community fishery management practices piloted and tested - contributing to fully integrated management system to provide optimal benefits to all stakeholders reliant on resource", consisted of laying following foundations:-

- Analysis of all research data and recommendations for management based thereon
- Preparation of reports on and recommendations for community-based management
- Proposals, supported by MFMR for modification to Fisheries Act to devolve management to fishing communities
- Development and strengthening of relationships with local authorities, conservancies, and fishing community committee

If community management is implemented through further project phase, testing of management system(s) will help to achieve **LONG TERM GOAL**, i.e. "Shared Zambezi/Chobe River fisheries resources managed sustainably"

RECOMMENDATIONS

INTRODUCTION OF “FULLY INTEGRATED FISHERY MANAGEMENT SYSTEMS”

- With documentation available (see next slide), Project Coordinator should now develop outline for comprehensive management plan (~ 6 pp) before project end
- Initial plan to be a technical plan for MFMR to review, incorporating:
 - Recommendations based on latest research results, necessitating changes to current Fisheries Act and Regulations
 - Recommendations for devolution of management authority to communities, and implementing local fisheries Community-based Natural Resource Management (CBNRM) initiative
- On acceptance of approach, Management Plan outline document should be translated into Silozi and discussed with fishing communities

RECOMMENDATIONS cont...

Documentation for use in developing management plan:

1. Brian T. B. Jones, November 2008: Developing community-based fish management in the Zambezi-Chobe river systems in Caprivi, Namibia. Report 1: Findings and Recommendations for devolving management authority to local communities
Report 2: Findings and Recommendations for implementing a local fisheries Community-based Natural Resource Management (CBNRM) initiative
2. Clinton Hay & Ben van der Waal, April 2009: Analysis of Historic Fisheries Research Data for the Caprivi Region
3. Frame Survey Results – current analysis must be speeded up
4. Fisheries Act, proposed revisions, and further recommendations from this evaluation

RECOMMENDATIONS cont...

- Review proposed regulations in light of new research findings
- Present Fisheries Act has been translated into Silozi – proposed amendments (and further adjustments based on latest research) should also be translated and presented to communities in proposed 6-month project extension, if approved - use of poster to simplify messages may be considered
- Place approximate value on recreational fishery (bed nights, %age of guests fishing, number of rod days annually, potential income for conservancies or fishing committees through rod fees, number of local staff employed by lodges, etc., in relation to number, weight of fish removed from river)

RECOMMENDATIONS cont...

CONDITIONS FOR NEW PROJECT

- Joint project between Namibia and Zambia, operating with full confidence of Zambian Fisheries Dept senior officers. Botswana should also be involved in consultation process
- MFMR (Namibia) and DoF (Zambia) active partners with “ownership” of the project (project staff presence on Zambia side is suggested)
- Technical Assistance to include:
 - Fish and fisheries specialist
 - Community relations specialist
- Two officers work closely together – essential extension messages conform to current knowledge of fishery dynamics
- Project emphasis: devolving fisheries management to fishing communities, either in conservancies or in fishing committees established in fishing villages, and providing advisory support to these management bodies. NGO (i.e. IRDNC) assistance in community-based management needed

OVERALL RECOMMENDATION

- Project, despite shortcomings, laid groundwork for future success in fisheries management in area
- Fish vital for food security, local livelihoods, tourism
- Government capacity to manage effectively not yet achieved
- Devolution of management to communities needs continued support
- Achieving PROJECT GOAL therefore needs longer-term support

EVALUATION RECOMMENDATION IS, THEREFORE, TO CONTINUE WITH FURTHER 3-YEAR PROJECT PHASE

ANNEX 8: REFERENCES AND DOCUMENTS REVIEWED

- Anon (2206). Original Project proposal: Integrated Management of the Zambezi / Chobe River System Transboundary Fishery Resource.
- Beilfuss, R. and Brown, C. (eds) (2006). Assessing environmental flow requirements for the Marrromeu complex of the Zambezi Delta: application of the DRIFT model (Downstream Response to Imposed Flow Requirements), May 2006, Museum of Natural History – University of Eduardo Mondlane, Maputo, Mozambique. Chapter 7, 68-81.
- Bell, R.H.V. and Donda, S.J. (1993). Community Fisheries Management Programme, Lake Malombe and the Upper Shire River. Government of Malawi Department of Fisheries & MAGFAD, Community Participation Consultancy Final Report, Volume 1, 112 pp.
- Ekanjjo, M.N. and Van der Waal, B.C.W. (2008). Survey of the fish life in the oshanas in northern Namibia during the 2008 major flood. 2 June 2008.
- Hay, C.J., Brown, C., Stuart Hill, G. and Hårklau, S.E. (2007). Integrated Management of the Zambezi / Chobe River System Transboundary Fishery Resource. Mid-term Review Report.
- Hay, C.J., Næsje, T.F., Kapirika, S., Koekemoer, J., Strand, R., Thorstad, E.B. & Hårsaker, K. (2002). Fish populations, gill net catches and gill net selectivity in the Zambezi and Chobe Rivers, Namibia, from 1997 to 2000. NINA Project Report no. 17, 88 pp.
- Imukusi wa Nyambe Sub-Khuta (2008). Request to declare the Maningimanze fisheries reserve and recognition of the Lisikili fisheries management committee. Document written with Lisikili Fisheries Committee and Mfooma subkhutas for submission to MFMR.
- Jones, B.T.B. (2008). Developing community-based fish management in the Zambezi-Chobe river systems in Caprivi, Namibia. Report 1: Findings and Recommendations for devolving management authority to local communities. Report 2: Findings and Recommendations for implementing a local fisheries Community-based Natural Resource Management (CBNRM) initiative. November 2008.
- Lilungwe, P. (2009). Extensive fish farming in temporary water bodies, presentation by Ms Priscah Lilungwe to the project evaluation team, April 2009.
- Næsje, T.F., Hay, C., Kapirika, S., Sandlund, O.T. & Thorstad, E.B. (2001). Some ecological and socio-economic impacts of an angling competition in the Zambezi River, Namibia. NINA•NIKU Project Report no. 14, 31 pp.
- Næsje, T.F., Hay, C., Purvis, J., Hamukuaya, H., Kapirika, S. & Abbott, J. (2002). Shared resource management on the Zambezi/Chobe systems in northeast Namibia: current practices and future opportunities, report of first river survey and collection of information from fish markets, including survey manuals and forms. NINA Project Report no. 18, 72 pp.
- Nyambe, N. (2007a). Proceedings of consultative workshop with indunas on key issues in fisheries management in the Kalimbeza/Lisikili area. Island View, katima Mulilo, 23 May 2007.

- Nyambe, N. (2007b). Report on meetings with Indunas at Nfooma and Kalimbeza sub-khutas, June 2007.
- Nyambe, N. (2007c). Proceedings of a training workshop for community rangers on the integration of fisheries monitoring in the event book system, Salambala Conservancy Office, 11-12 June 2007.
- Nyambe, N. (2007d). Proceedings of a planning workshop for Kalimbeza and Lisikili fishery committees. Cheshire Home, 14 September 2007.
- Nyambe, N. (2007e). Mini-survey of experiences and perceptions of fish traders operating at the Katima Mulilo open market.
- Thorstad, E.B., Hay, C.J., Næsje, T.F., Chanda, B. & Økland, F. (2003). Space use and habitat utilisation of tigerfish and the two cichlid species nembwe and threespot tilapia in the Upper Zambezi River: implications for fisheries management. NINA Project Report no. 24, 22 pp.
- Tweddle, D., Turner, G.F. & Seisay, M. (1995). Changes in species composition and abundance as a consequence of fishing pressure in Lake Malombe, Malawi. In *The impact of species changes in African lakes*, edited by Pitcher, T.J. & Hart, P.J.B. Chapman and Hall, London, 413-424.
- Van der Waal, B.C.W. (2007a) Motivation for bridges and culverts on the upgraded Kalimbeza road.
- Van der Waal, B.C.W. (2007b). Preliminary motivation for a closed fishing season in the Zambezi and Chobe, Caprivi. Prepared for the Ministry of Fisheries and Marine Resources to enable the Minister to make a decision on the need to declare a closed fishing season in Caprivi.
- Van der Waal, B.C.W. (2007c). Report on visit to potential fish ranching [low-input fish farming] sites in the Salambala, Kwando and Wuparo conservancies.
- Van der Waal, B.C.W. (2007d). Scientific, common and local names (SiLozi) of fish species in the Zambezi, Chobe and Kwando Rivers in Caprivi, Namibia.
- Van der Waal, B.C.W. (2007e). The Salambala Conservancy conserves an unique fish. Information leaflet, in prep.
- Van der Waal, B.C.W. (2007f). Report on the toxicity of impregnated mosquito nets used for fishing, 9 pp.
- Van der Waal, B.C.W. (2007g). Comment on “Extensive fish farming in temporary water bodies”, proposed by Kwandu Conservancy.
- Van der Waal, B.C.W. (2007h). Investigation of occurrence of diseased fish in the Ihaha area, Caprivi Region, February 2007.
- Van der Waal, B.C.W. (2007i). Report on the occurrence of diseased fish in the Caprivi Region in March 2007.
- Van der Waal, B.C.W. (2007j). Report on the occurrence of fish with EUS in the Caprivi Region in June 2007

- Van der Waal, B.C.W. (2007k). Report on the 2007 Zambezi classic annual angling competition and Namibian artlure trials, August 2007 at Kalimbeza, Zambezi River, Caprivi, Namibia.
- Van der Waal, B.C.W. (2007l). Report on joint law enforcement operation on the Zambezi River, 30 November and 1 December 2007,
- Van der Waal, B.C.W. (2008a). Report on occurrence of EUS in fish in the Caprivi region, Namibia, from February 2007 to February 2008. Report to the Ministry of Fisheries and Marine Resources, Namibia, 15 March 2008.
- Van der Waal, B.C.W. (2008b). A realistic fisheries strategic plan for the Caprivi region. Discussion document for the Caprivi Regional Council Conference on a strategic plan, 14-15 April 2008
- Van der Waal, B.C.W. (2008c). A new opportunity for conservancies - fishery development in the conservancies of Caprivi. Talk to the integrated rural development of natural resources [IRDNC} quarterly planning meeting of conservancies of Caprivi region, Namibia held at the Kalimbeza Fish Farm in the Sikunga Conservancy from 25 to 27 June 2008.
- Van der Waal, B.C.W. (2008d). Report on the 2008 Zambezi classic angling competition, August 2008 at Kalimbeza, Zambezi River, Caprivi, Namibia.
- Van der Waal, B.C.W. (2008e). Report on EUS in fish in the Caprivi region, Namibia, March to October 2008. Report to the Ministry of Fisheries and Marine Resources, Namibia, 17 October 2008.
- Van der Waal, B.C.W. (2008f). Suggested items to be discussed for preparation of amendments to the Inland Fisheries Resources Act of 2003.
- Van der Waal, B.C.W. (2008g). Notes on items to be discussed with the Caprivi Regional Council on 6 November 2008
- Van der Waal, B.C.W. (2008h). Optimizing the fish production potential of Lake Liambezi. Memorandum to MFMR.
- Van der Waal, B.C.W. (2008i). Optimizing the fish production potential: fish ranching at Lake Liambezi. Proposal for consideration to Caprivi regional council, November 2008.
- Van der Waal, B.C.W. (2008j). Optimizing the fish production potential of Lake Liambezi, Caprivi, by fish ranching. Project proposal
- Van der Waal, B.C.W. (2008k). WWF technical progress report 2008, 25 pp.
- Van der Waal, B.C.W. (2008-9). Radio talks. List of topics for NBC [Lozi service] on fisheries related matters. Each 40min talk was translated on the air by Mr Saisai of MFMR and presented between July 2008 and Jan 2009.
- Richness of fish species in Caprivi
 - History of the Upper Zambezi River
 - Aspects of the hydrology of Caprivi - Lessons in geological history
 - Hydrology of the rivers of Caprivi

Tilapias and their habits

Importance of tigerfish as a predator

General life cycle of cichlids Other fish families of the Zambezi

A special unique fish of the pans of Caprivi, the killifish

How fast do fish grow?

The breeding pattern of fish of the Zambezi Fish migration - to stay in the river or to move on to the floodplain

Food web in the Zambezi system

Effect of floods on the fish life in the Zambezi

Liambezi, a history of a changing lake

Fisheries opportunities and recovery of Lake Liambezi in 2008

Opportunities to harvest Lake Liambezi

Need for fisheries management in Caprivi

Selectivity of fishing gear and nets - a tool to manage fisheries

Present fishery and need to manage it with effective fishery laws

Van der Waal, B.C.W. (2009a). Angling and fishery in Caprivi - a precarious balance. Article for "Caprivi, Namibia's Wetland Paradise" edition 2009.

Van der Waal, B.C.W. (2009b). Amendment proposals for Namibian Inland Fisheries Resources Act.

Van der Waal, B.C.W. (2009c). Amendment proposals for Namibian Inland Fisheries Resource Regulations.

Van der Waal, B.C.W. (2009d). Norad periodic progress results report, 2006-2008, 28 pp.

Van der Waal, B.C.W. (2009e). Continuation of fisheries development in conservancies. Letter to IRDNC.

Van der Waal, B.C.W. & Nyambe, N. (2007). Report on incidence of infected fish, February 2007 at Kalimbeza.

Van der Waal, B.C.W. & Samunzala, C. (2007). Report on meeting with fishermen, Kasika sub-khuta and Kasika Conservancy, 15 November, 2007.

WWF Project Proposals, Annual Project Plans 2006, 2008 and 2009.

WWF Project Annual Reports 2006, 2007 and 2008.