Final Technical Report

Support for Devising the Aquaculture Development Strategy for Botswana and the Development of outlines for the Fisheries Management Plan of the Okavango Delta

Project ref. N° CU/PE1/MZ/10/004

Country: Botswana

03 May 2011

A project implemented by:

Soges S.p.A. consortium

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Basic Project Data Sheet

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<td>Support for Devising of the Aquaculture Development Strategy for Botswana and the development of outlines for the Fisheries Management Plan of the Okavango Delta</td>
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<td><strong>Contracting Authority</strong></td>
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<td><strong>Reporting period</strong></td>
<td>15 December 2010 – 30 May 2011</td>
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<td><strong>Report prepared by</strong></td>
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Acknowledgements

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## Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ACP</td>
<td>African, Caribbean and Pacific Group of States</td>
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<tr>
<td>ADSB</td>
<td>Aquaculture Development Strategy for Botswana</td>
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<td>ALCOM</td>
<td>Aquaculture for Local Communities</td>
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<td>BDC</td>
<td>Botswana Development Corporation</td>
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<td>BEDIA</td>
<td>The Botswana Export Development and Investment Authority</td>
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<td>BNVL</td>
<td>Botswana National Veterinary Laboratory</td>
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<td>BOBS</td>
<td>Botswana Bureau of Standards</td>
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<td>BWWNP</td>
<td>Botswana Wildlife and National Parks</td>
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<td>CBNRM</td>
<td>Community Based Natural Resource Management</td>
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<td>CEDA</td>
<td>Citizen Enterprise Development Agency</td>
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<td>CU</td>
<td>Coordination Unit</td>
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<td>DABP</td>
<td>Department of Agriculture Business Promotion</td>
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<td>DEA</td>
<td>Department of Environmental Affairs</td>
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<td>DTI</td>
<td>Department of Trade and Industry</td>
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<td>DEA</td>
<td>Department of Environmental Affairs</td>
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<td>DWA</td>
<td>Department of Water Affairs</td>
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<td>DWWNP</td>
<td>Department of Wildlife and National Parks</td>
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<td>EDD</td>
<td>Economic Diversification Drive</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EU</td>
<td>European Union</td>
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<td>EUS</td>
<td>Epizootic Ulcerative Syndrome</td>
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<td>FA</td>
<td>Fisheries Authority</td>
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<td>FAO</td>
<td>Food and Agriculture Organisation</td>
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<td>FCR</td>
<td>Food Conversion Ratio</td>
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<td>FD</td>
<td>Fisheries Division</td>
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<td>FMPOD</td>
<td>Fishery Management Plan for the Okavango Delta</td>
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<td>IFSC</td>
<td>International Financial Services Center</td>
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<td>ITR</td>
<td>Interim Technical Report</td>
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<td>KAZA</td>
<td>Kavango Zambezi Park</td>
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<tr>
<td>KIFI</td>
<td>Kamutjonga Inland Fisheries Institute</td>
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<tr>
<td>LEA</td>
<td>Local Enterprise Authority</td>
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<tr>
<td>MEWT</td>
<td>Ministry of Environment, Wildlife and Tourism</td>
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<td>MFDP</td>
<td>Ministry of Finance and Development Planning</td>
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<td>NCCEE</td>
<td>National Conference on Citizen Economic Empowerment</td>
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<td>NDP9</td>
<td>National Development Programme 9</td>
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<tr>
<td>NGO</td>
<td>Non Government Organisation</td>
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<tr>
<td>NTMP</td>
<td>Ngamiland Tourism Management Plan</td>
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<td>ODMP</td>
<td>Okavango Delta Management Plan</td>
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<td>OKACOM</td>
<td>Okavango River Basin Commission</td>
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OFA  Okavango Fishers Association
OFMC  Okavango Fisheries Management Committee
OIE  World Organisation For Animal Health
PEIA  Preliminary Environmental Impact Assessment
PS  Permanent Secretary
RAMSAR  Convention on Wetlands signed in Ramsar Iran in 1971
RAS  Recirculating Aquaculture Systems
RFU  Regional Fisheries Unit
SADC  Southern African Development Community
SANAS  South African National Accreditation System
SAREP  Southern African Regional Environmental Programme
SME  Small to Medium Enterprise
SPEDU  Selebi Phikwe Economic Diversification Unit
SSA  Sub Saharan Africa
TLA  Tawana Land Board
TOR  Terms of Reference
WTO  World Trade Organisation
WUC  Water Utilities corporation
UBOTS  University of Botswana
Executive Summary

The European Union’s ACP Fish II mission to Botswana comprised of two projects, visibly the drafting of:- 1) an Aquaculture Development Strategy for Botswana (ADSB) and 2) the development of outlines for a Fisheries Management Plan of the Okavango Delta (FMPOD).

The approach to the project took the form of a series of three missions to Botswana by Soges experts who worked within a technical team under the auspices of Botswana Department of Wildlife and National Parks (BWNP). The project methodology was based on extensive stakeholder consultation and a participative approach designed to promote institution building, stakeholder buy-in, and consensus building. A series of consultative workshops was used to elicit stakeholder inputs, and to educate public and private stakeholders and interest groups about aquaculture and current approaches to fishery management. Additional information relevant to aquaculture in Botswana in the form of available literature, policies and legislation was gathered and analysed.

The three missions to Botswana achieved their objectives as defined in the ACP Fish II project terms of reference (TOR). As the TOR had been developed with BWNP Fishery Division staff, the inception meetings resulted in the formation an effective and enthusiastic technical team. Four consultative workshops were conducted for the fishery and aquaculture components, which attracted full attendances of 50 people per workshop, excellent representation of stakeholder groups, and quality inputs. The workshops were complemented with a wide range of individual consultations, site visits and gathering of relevant literature. The consultations revealed that Botswana enjoys excellent governance, strong institutions and a well-developed policy environment. These conditions provided a very effective environment to execute the processes required to draft the ADSB and FMPOD. At the national workshops where the FMPOD and ADSB were presented, very constructive and incisive feedback was elicited which helped shape the final documents. At the final Validation Workshop convened by the Ministry of Environment, Wildlife and Tourism, attendance was lower than expected (18 people) due to technical problems with invitations to other government departments during a public sector strike. Nonetheless, there was strong support for adopting both the FMPOD and ADSB documents, and the Fishery Division staff was very positive about having clear plans and strategies going forward.

The drafting of the ADSB and FMPOD was informed by series of reviews written by the Soges experts, visibly:-

- A review of governance arrangements, policy and legislation in respect of aquaculture and fisheries in Botswana

- An assessment of the status and potential of aquaculture in Botswana, with a diagnostic analysis which informed the ADSB strategic objectives
The Status of the Okavango Fisheries: A stocktaking and diagnostic report.

The ADSB and FMPOD reports identified key issues which were translated into ‘Strategic Objectives’ and ‘Operational objectives’ for action. The consultative workshops ensured that the draft documents were well interrogated and representative of stakeholder needs.

The FMPOD is based on the principles of modern environmental governance articulated in Botswana’s draft Wildlife Policy and the Okavango Delta Management Plan. The operational objectives build on existing initiatives to promote fisheries co-management. Implementation of the FMPOD will require a strong focus on building participative stakeholder institutions, and collaboration between government departments to promote livelihood projects and enhanced benefit from existing fisheries. For commercial fishers, a key issue was post-harvest processing and value adding of their catch which requires linkage to existing value chains, particularly the tourist lodges of the Delta. Trans-boundary issues emerged as a strong focus area as fisheries are a key component of building a shared approach to the sustainable management of the Okavango catchment which includes Namibia and Angola. Recommendations for short-term actions to begin implementing the priorities of the FMPOD are made.

The ADSB represents Botswana’s first comprehensive approach to developing its aquaculture sector. The lack of an aquaculture policy remains a constraint to implementing the recommended strategic objectives, but the ADSB provide a foundation upon which to base a policy process. The ADSB review revealed some fundamental biophysical and market constraints to SME and commercial aquaculture sector development in Botswana, requiring a rethink of public sector support strategies. However, development opportunities worth supporting were highlighted, such as the stocking of new impoundments for subsistence aquaculture and as well as for tourism linked recreational angling. Implementation of the ADSB strategic objectives will require coordination structures between government agencies.

In conclusion, both the ADSB and FMPOD achieved their goals and elicited significant stakeholder and government buy-in. Both stakeholders and government officials commented that the consultative processes had deepened their understanding of both aquaculture and fisheries management, and that they had new energy to try to implement the strategic objectives identified. The ADSB and FMPOD will be particularly useful to the Department of Wildlife and National Parks in supporting and resourcing the Fishery Division to carry out its mandate more effectively. The EU ACP Fish II Programme in Botswana can thus be considered to have achieved its objectives as per the original terms of reference. The next steps in the process are official acceptance of the draft FMPOD and ADSB documents by the Ministry of Environment, Wildlife and Tourism and implementation of priority actions.
1. Background

The European Union’s ACP Fish II mission to Botswana is a demand driven project with the objective of developing 1) an Aquaculture Development Strategy for Botswana (ADSB) and 2) the development of outlines for a Fisheries Management Plan of the Okavango Delta (FMPOD). Soges S.p.A. was the successful bidder for the contract with the ACP Fish II Coordination Unit and was duly contracted (Contract n° CU/PE1/MZ/10/004) with its designated team of experts.

The project addresses the national priorities of the Botswana government, as articulated in the national development objectives (NDP9 and Vision 2016), visibly the diversification of the agricultural sector including the promotion of fisheries and aquaculture production (NDP9, Chapter 10). While fisheries development and management in the Okavango Delta has a relatively long history, interventions in support of the aquaculture sector are more recent, and very limited.

Fish production and consumption in Botswana is small, originating entirely from harvest fisheries. The Okavango Delta is the most important source of fish accounting for 80% of production. The balance originates from the Linyati/Chobe and Limpopo systems, and man-made reservoirs in different parts of the country. There is currently no commercial aquaculture production in Botswana, although the government has recently constructed a tilapia/catfish hatchery on the Letsibogo Dam near Mmadinare, to promote aquaculture development and the College of Agriculture runs a small demonstration facility at the Botswana College of Agriculture at Sebele outside Gaborone. Botswana is a net importer of fish with 2800t worth P19million imported in 2003 (DWNP website). The disparity between the national fish yield and the quantity imported thus poses a challenge in meeting the domestic fish demand as Botswana seeks to be self-sufficient in food production. The Botswana government has identified both aquaculture and fisheries as means of promoting local fish production and creating economic growth. The challenge is thus to determine to what extent local fisheries and aquaculture can meet the demand, and what interventions would be required to achieve the regional production potential.

A complementary policy context is Botswana’s resource use policies, which are strongly development orientated, promoting community based natural resource management to contribute to sustainable livelihood creation and poverty eradication. In this context, fisheries and aquaculture are not only potential providers of food but could provide employment opportunities in the service industries associated with tourism (through recreational angling) and the associated value chains. Management plans therefore need to incorporate both Botswana’s food production and natural resource use policy objectives.

While the Okavango fishery and its components are well understood through ongoing research conducted by the Okavango Research Institute (K. Mosepele’s various publications, www.orc.ub.bw/index.htm), the fishery department’s policy context and
management objectives have never been clearly articulated. As a result, daily management operations lack a clear policy directive and are based on the outdated Fish Protection Act (1975), and the more recent (2008) regulations which address very specific technical issues. The result is a somewhat mechanistic operational approach, and a lack of resources to creatively address government policy objectives in as far as realising the socio-economic potential of fisheries is concerned. Management requirements identified through the BiOkavango Project and Botswana’s socio-economically orientated resource use policies have yet to be formalised into a holistic fishery management framework with defined operational and resource requirements. Clearly, the process to develop a FMPOD is a timely and appropriate intervention which will potentially empower the FD to more effectively carry out its mandate.

Aquaculture does not yet exist as a sector in Botswana, but there is widespread interest (often over-optimistic) in its potential from both a political and private sector perspective. As a farming activity, the current location of the government mandate for aquaculture within the fishery division (FD) of the DWNP is questionable, notwithstanding that the FD is the only public sector institution with staff possessing aquaculture technical skills. The many enquiries received by the FD about aquaculture from both small and corporate business interests indicates that there is an urgent need for realistic information on the aquaculture potential of Botswana, and for guidance on appropriate public sector interventions to create an enabling environment for its development. The ACP Fish II mission to assist the Botswana government develop and ADSB is thus an appropriate intervention to lay a rational foundation which will guide the Botswana government’s approach to this potential agricultural sub-sector.

2. Approach to the assignment

The approach to the project took the form of a three missions to Botswana by Soges experts to work within a technical team under the auspices of BWNP. The project methodology was based on close collaboration between Soges S.p.A. and BWNP Fisheries Division staff, with extensive stakeholder consultation. The ACP FISH II Regional Manager for Southern Africa was present at different stages of the project, participating in meetings and workshops, and accompanying the technical team on selected site visits and consultations. The participative project approach was designed to promote institution building, stakeholder buy-in, and consensus building. A series of consultative workshops was used to elicit stakeholder inputs and educate public and private stakeholders and interest groups about aquaculture and current approaches to fishery management. Additional information relevant to aquaculture in Botswana in the form of available literature, policies and legislation was gathered and analysed.
The first mission to Botswana by the team of consultants comprised of project inception meetings, document gathering, consultations, workshops and reviews of relevant aspects of fisheries and aquaculture. The second visit consisted of further consultative workshops, the presentation of the draft FMPOD at a national workshop, and follow up consultations. During the third mission, the draft ADSB was presented at a national workshop and the feedback used to revise the document. The final versions of the ADSB and FMPOD were presented to the senior government officials in two validation workshops. These final presentations were designed to elicit senior management buy-in and political support for the implementation of the ADSB and FMPOD. The ACP FISH II Manager for Southern Africa was present during a number of the initial consultative workshops / discussion sessions, and was present at the national validation workshops.

3. Comments on Terms of Reference

From the Soges project team perspective the terms of reference (TOR) were well conceived and appropriate. The phases of the project were executed according to plan, with very good support from the DWNP Fishery Division. Consultative workshops were well attended yielding meaningful outcomes and promoting the FMPOD and ADSB processes.

4. Delivery of Terms of Reference

<table>
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<tr>
<td>0.1 Inception Meetings 1. FA and RFU Initial contact with the DWNP and its FD staff, expert group and RFU.</td>
<td>Inception meeting on 25 January between FD staff, project team and RFU coordinator. Briefing meeting on the project held with DWNP acting Director. Follow-up meetings on 26 and 27 January between project team and FD staff. Project methodology, work plan, itinerary and technical team agreed.</td>
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<tr>
<td>Inception meetings 2.</td>
<td>Project team accompanied RFU coordinator to meeting with EU representative Mr Vincent Vire, to brief him on the Botswana component of the EU-ACP Fish II project.</td>
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<tr>
<td>Inception meetings 3.</td>
<td>SADC Program officer, natural resource management, Mr H. Nyambe, briefed on the project by project team and RFU manager.</td>
</tr>
<tr>
<td>Inception meetings 4.</td>
<td>As aquaculture is a form of agriculture, Department of Agriculture Agri-hub planner, Mr Neil Fit, was briefed on the aquaculture component of project on 28 January. He agreed to provide advice and inputs relevant to his department’s mandate and expressed interest in the ADSB as a project outcome.</td>
</tr>
<tr>
<td>0.2 Establish Project Technical Team</td>
<td>The project technical team was established during the inception meetings comprising of the SOGES consultants and member of the Fisheries Division of DWNP (Section 5.2).</td>
</tr>
<tr>
<td>0.3 Documentation</td>
<td>During the first visit to Botswana (24 Jan – 23 Feb), the Project</td>
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<tr>
<td>0.4</td>
<td>Regulatory review</td>
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<tr>
<td>0.5</td>
<td>Interim Technical Report</td>
</tr>
<tr>
<td>Final Technical Report</td>
<td>Final technical report was submitted to RFU within deadline of 6 May.</td>
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## 1. Aquaculture Development Strategy for Botswana

### 1.1 Assess Botswana Aquaculture Status and Potential
A report assessing the aquaculture status and potential of Botswana was drafted by the aquaculture expert, Dr Jerome Davis based on interviews, site visits and available literature. This report forms the first section of the ADSB, informing the formulation of strategic and operational objectives.

### 1.2 Consultative Meetings
Two stakeholder consultative meetings which attracted 50 people each were held in Gaborone (24 March) and Francistown (29 March). The meetings were deemed a success attracting a representative group of participants from the private sector, government, and development finance organisations. The meetings elicited participation and contributions helping to shape a strategic approach to aquaculture development in Botswana. The record of the consultative meetings and attendance are included in the ADSB report (Appendix 11).

### 1.3 Site Visits and Regional Consultations
Site visits and individual consultations were carried out with stakeholders, including aspirant fish farmers and investors, aquaculture consultants, fish distributors and retailers, DWNP staff (See Appendix 2 for full list of persons consulted). Site visits included the farm of Mr Hassan Hussain, DWNP’s Mmadinare hatchery, the Jakalas II village stock enhancement project, and the aquaculture facility at the Botswana College of Agriculture.

### 1.4 ADSB National Workshop
A successful ADSB National workshop was held on Gaborone on 26 April 2011. The record of the meeting and attendance list is included in Appendix 5. Attendance (20 people) was lower than expected due to a public sector strike.

### 1.5 Further Stakeholder Consultations
Further consultations were held with tertiary aquaculture training staff at the Botswana College of Agriculture, a representative of a major frozen food distributor, and senior policy and planning staff in the Ministries of Agriculture; and Environment, Wildlife and Tourism respectively (See Appendix 2 for full list of persons consulted).
1.6 – 1.7 National Validation of ADSB

The National Validation Workshop for the ADSB was held in Gaborone on 28 April 2011. The meeting was convened by the Deputy-Permanent Secretary of the Ministry of Environment, Wildlife and Tourism, who invited senior representatives from various government departments, as well as other key parastatal, and NGO stakeholders. The record of the meeting and attendance list is included in Appendix 7. Attendance (18 people) was lower than expected due to technical problems with invitations to other government departments during a public sector strike.

2. Fishery Management Plan for the Okavango Delta (FMPOD)

2.1 Fishery Review

An assessment of the current status of the fishery was carried out, analysing the existing information and trends, identifying main potentialities and constraints relevant to the development of fisheries in the area, as well as effectiveness of current policy, legal and management instruments in providing for sustainable resource management and stakeholders conflict mitigation. A diagnostic analysis of issues for inclusion in the FMPOD was provided. Draft Fishery Review discussed with DWNP and included in the FMPOD (Appendix 12).

2.2 Consultative meetings

Two stakeholder consultative meetings were arranged under the auspices of the DWNP Fishery Division at Shakawe on 8 February 2011, and Maun on 15 February 2011. Both meetings were well attended (50 people each) and representative of the fishery stakeholders comprising members of the Okavango Fishers Association, Tour Operators, Fishery Division staff, local Chiefs, government departments, and NGOS (See Fishery Review Report Appendix 12 for the records of the meetings and attendance lists).

2.3 Site Visits and Consultations

A series of site visits and consultations were held with stakeholders from local communities, the Okavango Fishers Association, NGO’s, Government, tour operators, fish distributors and retails, and other interested parties (See Appendix 2 for Itinerary and list consultations).

2.4 FMPOD National Workshop

The project team prepared the first draft of the guidelines for the elaboration of the FMPOD in close collaboration with the DWNP Fishery Division. The FMPOD draft guidelines were presented and discussed in a national stakeholders workshop (40 participants) on 23 March in Maun. Feedback from the participants was incorporated into the final draft (See Appendix 4 for record of the meeting and attendance list).

2.5 Further Consultations

Further individual consultations were conducted with stakeholders, including DWNP staff, fishermen, tour operators, and fish distributors and retailers (Appendix 2).

2.6 FMPOD Review

The draft Guidelines for the FMPOD were further elaborated and amended following feedback from 1) review of the draft with DWNP staff on 22 March in Maun, and 2) the FMPOD national stakeholder workshop on 23 March in Maun.
| 2.7 | **Final presentation of FMPOD to DWNP** | The final FMPOD was presented to senior government officials and other stakeholders on 28 April in a workshop convened by the Ministry of Environment, Wildlife and Tourism (MEWT). Endorsement of the final FMPOD was expressed by the participants, which would be forwarded to the Ministry for approval implementation. The record of the meeting and attendance list is included in Appendix 6. |
5. Conduct of the Assignment

5.1 Inception meeting

Following arrival of the project team in Botswana, the first formal contact with the Botswana National Parks and Wildlife Department (BWNP) took the form of an inception meeting at BWNP headquarters on 25 January 2011. The ACP Fish II Regional Manager for Southern Africa, Mr Leone Tarabusi was present and facilitated the initial agenda points. The meeting went very well and established a good working relationship between the team members and the BWNP Fishery Division staff. Being a demand driven programme, it was clear that the proposed fishery management plan for the Okavango Delta (FMPOD) and Aquaculture Development Strategy for Botswana (ADSB) addressed real needs within the BWNP, and the Fishery Division staff provided immediate and enthusiastic support for the process. Fishery Division staff subsequently accompanied SOGES staff to stakeholder consultations, on field visits, and facilitated logistical arrangements for the proposed meetings and project team displacements from Gaborone. This ongoing contact with the Fishery Division staff deepened the project team’s understanding of the issues, and established an excellent understanding and working relationship within the technical team.

The inception meeting identified the main issues to be addressed within the FMPOD and ADSB, arranged the sourcing policy documents, relevant fishery and aquaculture publications, the drafting of the project work plan, and project team movements.

The Soges team was introduced to the acting Director of BWNP, Mr Nelson Nagasela, who was briefed on the project’s objectives and work plan. A meeting with the Permanent Secretary (PS) was requested at a date to be determined by the PS ’s Office.

The above interactions served to credibly constitute the Project Technical Team, its modus operandi, and working relationships. This having been done, attention was then directed to document gathering and stakeholder consultations.

5.2 Technical Team

The project technical team was established comprising of the SOGES experts and members of the DWNP Fishery Division. A collegial working relationship was established, with DWNP staff prioritising the EU-ACP Fish II projects and providing all support required to the project. This provided for a highly effective technical team.

SOGES experts:
Prof Peter Britz, Team Leader, Senior Inland Fisheries Expert
Dr Jerome Davis, Inland Aquaculture Expert
Dr Tom Shipton, Inland Fisheries Expert

Department of Wildlife and National Parks technical team members:
5.3 Initial document review

The project team gathered and reviewed the relevant documentation relating to fisheries and aquaculture in Botswana, producing three reports, visibly :-

- A review of the policy, legislation, regulations and institutional framework supporting aquaculture and fisheries development in Botswana (Appendix 10)

- An assessment report of the current status and of the Okavango Fishery with a diagnostic analysis on its potential, the constraints, and the effectiveness of current policy, legal and management instruments (Appendix 12).

- An assessment of the current status and potential for aquaculture development in Botswana and identification of constraints to development (Appendix 11).

The Okavango fishery was found to be well described and relatively information rich, while documentation on aquaculture in Botswana was sparse reflecting its undeveloped status. Similarly, the policy context for fisheries was well developed, while both the policy context and government mandate for aquaculture was poorly defined.

5.4 Identification of Key Issues

As a result of the consultations carried out and of the documentation collected and analysed during the inception phase of the mission, the team identified the key issues to be addressed and dealt with in the framework of the project (see Appendix 9: Interim Technical Report for list of issues identified).

5.5 Consultations

The consultation schedule by the technical team (Appendix 2) was intensive with DWNP facilitating introductions and accompanying the technical team to all meetings. The result has been very effective consultations with key aquaculture and fishery stakeholders. The consultations at field’s sites provided the project team with valuable insights into the environment and context of aquaculture and fisheries in Botswana.

5.5.1 Shakawe FMPOD Consultation

The first FMPOD consultative workshop was conducted at Shakawe in the northern ‘Pandhandle’ region of the Okavango Delta where the main fishery is located. The area has been characterized by previous conflict between gill net fishers, recreational fishing tour
operators and subsistence fishes. As it took place in a remote rural location DWNP staff transported fishers from remote villages and provided overnight accommodation to enable them to participate in the process. The meeting was facilitated by DWNP who also provided translation of English and Setswana. A representative meeting of 50 people took place in which stakeholder groups, including various individual fishers, the Okavango Fishers Association, Tour operators, NGO’s, and government, participated in a sometimes heated discussion and made inputs into the proposed FMPOD. The ACP FISH II Regional Manager for Southern Africa was also present at the workshop. Interestingly, aquaculture was mentioned a number of times as a possible means of alleviating the problems that fishers were experiencing. The workshop was complemented with visits to fishing cooperatives at Ngarange, Samochima and Mohembo and extensive discussions with various individuals from different stakeholder groups. This provided the consultants with a first hand and in-depth insight into the situation and issues facing the fishery. The record of the meeting and the list of participants are available at Appendix 12.

5.5.2 Maun FMPOD and Aquaculture Consultation
The second FMPOD took place in Maun, the main administrative centre for the region and tourism gateway to the Okavango Delta. The stakeholder profile was somewhat different to Shakawe as, in addition to fisher groups, the meeting attracted senior government administrators, tourism lodge owners and operators, and academics. Once again, a full attendance of 50 people was achieved and all present had an opportunity to state their views. Aquaculture was also addressed at the meeting, with stakeholders once again proposing aquaculture as an alternative to fisheries. A number of media reports (print and radio) flowed from the meeting, some of which did not capture the proceedings in a representative way (Appendix 8). It was thus decided to issue press releases at future workshops. The record of the meeting and the list of participants are available at Appendix 12.

5.5.3 Gaborone and Francistown Aquaculture Consultations
Two well attended ADSB consultative workshops were held in Gaborone (50 people) and Francistown (48 people) which elicited wide stakeholder interest and including participation from the private sector, government departments, parastatals, development finance agencies, and tertiary training institutions. Efforts by the Botswana government to raise awareness of aquaculture, had clearly reached the stakeholders who had high expectations entering the sector. In order to educate stakeholders about the realities and aquaculture, a presentation presenting a perspective of global and regional aquaculture status and prospects was provided, which helped contextualise the discussion and needs expressed. In general, most private sector persons were looking for a small enterprise aquaculture opportunity which could not be realised at the present time due to the lack of an established aquaculture value chain in Botswana. A great need for technical and business planning advice was expressed. These needs informed the drafting of the ADSB. The record of the meeting and the list of participants are available at Appendix 11.
5.5.4 Site Visits and Individual Consultations

Site visits and individual consultations were conducted by the Technical Team to gain insights into the status of aquaculture in Botswana and the market for fish. Site visits included:

- The farm of Mr Hasan Hussain outside Gaborone who is a small scale fish farmer
- The DWNP Mmadinare hatchery and Letsibogo Dam near Selibe Pikwe
- The Jakalas II community dam stocking project
- The Botswana College of Agriculture
- Informal fish sellers next to Gaborone Dam
- Fisher cooperatives at Shakawe and Mohembo, accompanied by the ACP FISH II Regional Manager for Southern Africa
- A visit to a tourism project at the Ngarange fisher village in the Okavango Panhandle, accompanied by the ACP FISH II Regional Manager for Southern Africa
- A visit to the Kamutjonga Inland Fisheries Institute in Namibia, accompanied by the ACP FISH II Regional Manager for Southern Africa

Individual consultations included staff of the DWNP, Ministry of Wildlife Environment and Tourism, Ministry of Agriculture, development finance agencies, aspirant fish farmers, retail trade representatives, researchers, NGO representatives and aquaculture consultants.

5.6 National Workshops

5.6.1 National FMPOD Workshop, Maun

The draft FMPOD was workshopped with DWNP staff on 31 March in Maun in preparation for the National FMPOD workshop on 01st April. The National FMPOD workshop attracted great interest from stakeholders, and numbers exceeded the planned 40 participants. Represented groups included fisher associations, traditional authorities, various government departments, tour operators and lodges, researchers, NGO’s and the media (See Appendix 4 for the full list of persons and organisations that attended). The ACP FISH II Regional Manager was present at the meeting. Fishers traveled several hundred kilometers from the Okavango Panhandle (with assistance from DWNP) region to be present.

The feedback elicited from stakeholders was of a high quality. Government officials and researchers responsible for the implementation of the Okavango Fishery Management Plan made several constructive recommendations. Fishers from the community were positive about the FMPOD recommendations, particularly the incorporation of post-harvest processing and...
marketing, and linking fishing to tourism opportunities. But concern was expressed about their lack of education and ability to participate in such opportunities. Tour operators and lodges expressed openness to supporting the processes.

In summary, the meeting served as a valuable consensus building exercise and there was general support for the draft FMPOD.

5.6.2 National ADSB Workshop, Gaborone

The National ADSB Workshop held in Gaborone on 26 April, attracted fewer than expected delegates (20) due to a public service strike and perhaps because it fell on the first working day after the Easter weekend. The meeting nonetheless attracted a representative cross section of stakeholders including government departments, parastatals, development finance agencies, tertiary education institutions, consultants and the private sector. (See Appendix 5 for the full list of persons and organisations represented).

The status and diagnostic report on aquaculture generated some debate due to the conclusion by the consultants that the promotion of aquaculture as a small to medium size enterprise (SME) by DWNP had not resulted in the establishment of any viable fish farms due to the absence of an established aquaculture value chain. The recommendations to focus public sector efforts more on 1) promoting low-inputs subsistence aquaculture through dam stocking; 2) a commercial aquaculture site with a minimum economically viable production of 100t and scope for SME satellite growers and 3) supporting the development of Tourism opportunities through recreational fishing based on the stocking of fish from the Mmadinare hatchery were generally well received.

5.6.3 National Validation Workshop of ADSB and FMPOD

The final draft ADSB and FMPOD were presented to senior government, parastatal and NGO stakeholders in a ‘national validation’ workshop convened by the Deputy Permanent Secretary of the Ministry of Environment, Wildlife and Tourism (MEWT). Although attendance was lower than expected (18 persons) due to technical difficulties with invitations sent to government departments during the public sector strike, the DWNP was well represented as well as some other key government departments, such as the Attorney General’s (AG) chambers whose lawyers were responsible for drafting fisheries regulations (See Appendices 6 and 7 for list of persons and organisations present). Other important representatives were the Local Enterprise Authority, and the Southern African Regional Environmental Programme (SAREP) which is promoting a transboundary approach to management of the Okavango Ecosystem. The ACP FISH II Regional Manager was present at the meeting.
Both the FMPOD and ADSB were positively received by MEWT staff, including Deputy-Permanent Secretary (Elmont Moabi), the Deputy Director of DWMP (Nelson Nagafela), and head of the Fisheries Division (Shaft Nengu).

The meeting helped to make the various agencies present to be aware of the need to promote cooperative government to achieve the needs of both programmes. The AG’s Chamber representatives were grateful for the opportunity to gain better insight into the need for revised fishery legislation and regulations, and the SAREP representative expressed interest in partnering with MEWT to implement some of the recommendations and facilitate their implementation in the development of transboundary ecosystem catchment management processes with Namibia and Angola.

In terms of the way forward, DWNP Acting-Director Nelson Nagafela, stated that the next step was for Ministry of Environment and Tourism (MEWT) to officially accept the draft ADSB and FMPOD documents. He commented further that it while the MEWT was empowered to do this, the documents should also be circulated to cabinet and sister government departments for information and comment.
6. Conclusions and Recommendations

The EU-ACP Fish II programme to Botswana was executed according the original terms of reference, with excellent support and participation by both government and civil society stakeholders. This was reflection of the well prepared and demand driven project brief, an effective technical team, and the very good governance institutions that characterise Botswana society.

The FMPOD builds on the sound framework provided by the Okavango Delta Management Plan, the draft Wildlife Policy, and existing initiatives to build fisheries co-management. The reviews and consultations revealed an expansion of the traditional resource management focus from monitoring, extension and compliance, to supporting livelihood and development opportunities for residents of the Okavango based on their natural resource endowment. These trends dictated a strong FMPOD focus on building participative institutions, such as the Okavango Fisheries Management Committee, as well as collaboration between government departments to promote livelihood projects, such as CBNRM arrangements for linking fishing to the tourism industry. For commercial fishers, a key issue is post-harvest processing and value adding of their catch which requires linkage to existing value chains, particularly the tourist lodges of the Delta. Transboundary issues emerged as a strong focus area as fisheries are a key component of building a shared approach to the sustainable management of the Okavango catchment which includes Namibia and Angola. Recommendations for short-term actions to begin implementing the priorities of the FMPOD were included.

The ADSB represents Botswana’s first comprehensive evaluation of the potential of aquaculture in the country and provides a set of strategic objectives to build the sector. The lack of a national aquaculture policy remains a constraint to implementing the recommended strategic objectives, however, it is hoped that the ADSB provides a useful context and guidance for the Botswana government to develop a well informed policy. While the ADSB review of the status and potential of aquaculture in Botswana revealed some fundamental biophysical and market constraints to SME and commercial aquaculture sector development, some exciting opportunities worth supporting emerged. These included the stocking of new impoundments for subsistence aquaculture and as well as for tourism linked recreational angling. A major challenge will be the coordination of government agencies to work together to achieve the ADSB strategic objectives. Inter-departmental task teams are suggested for specific projects.

In conclusion, both the ADSB and FMPOD achieved their goals and elicited significant stakeholder and government buy-in. Both stakeholders and government officials commented that the consultative processes had deepened their understanding of both aquaculture and fisheries management, and that they had new energy to try to implement the strategic objectives identified. The ADSB and FMPOD will be particularly useful to the Department of Wildlife and National Parks in supporting and resourcing the Fishery Division to carry out its mandate more
effectively. The EU ACP Fish II Programme in Botswana can thus be considered to have achieved its objectives as per the original terms of reference.

In terms of the process required to implement the ADSB and FMPOD, the following recommendations are made:

- The draft ADSB and FMPOD documents need to be accepted by the Ministry of Environment, Wildlife and Tourism.
- Both documents need to be circulated to senior administrators and political level. Although the Ministry of Environment, Wildlife and Tourism is empowered to endorse the FMPOD and ADSB, an inter-departmental process will be required to define the required cooperative government arrangements.
- The staffing, resources and operational plans of the DWNP Fisheries Division need to be reviewed and action plans formulated to address the defined operational objectives. This will require a much greater emphasis on project facilitation, participative stakeholder initiatives and partnerships with other government and NGO’s with the requisite mandates and skills. This process ideally requires an expert consultant with appropriate organisational competencies.
- Priority actions, such as activating the OFMC and transboundary initiatives should be undertaken immediately with support where possible from partners such as SAREP.
- An action plan including needs assessment and budget to establish effective fish production at the Mmadinare hatchery should be undertaken.
- Staff should be identified for further post-graduate training in aquaculture and fisheries beginning in 2012.
7. APPENDICES
Appendix 1. Terms of Reference
Appendix 2. Itinerary, institutions and individuals consulted
## Consultations

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Designation and Institution</th>
<th>Theme</th>
<th>Location</th>
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<tbody>
<tr>
<td>25-Jan-11</td>
<td>Mr Shaft Nnengu</td>
<td>Director Division of Fisheries, Botswana Department of Wildlife and National Parks</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>25-Jan-11</td>
<td>Mr Nelson Nagasela</td>
<td>Acting Director of Botswana Department of Wildlife and National Parks</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>25-Jan-11</td>
<td>Mr Hasan Hussain</td>
<td>Fish Farmer/ entrepreneur</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>26-Jan-11</td>
<td>Mr Vincent Vire</td>
<td>Economic Attaché, European delegation</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>26-Jan-11</td>
<td>Mr H. Nnyambe</td>
<td>Program officer, natural resource management, SADC</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>26-Jan-11</td>
<td>Mr Julian Van der Nat</td>
<td>Consultant, TAHAL Group Consulting Engineers</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>27-Jan-11</td>
<td>Mr Ulf Nermark</td>
<td>Managing director, Water Farming Botswana</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>28-Jan-11</td>
<td>Mr Neil Fitt</td>
<td>Coordinator agricultural Hub</td>
<td>Aquaculture</td>
<td>Gaborone</td>
</tr>
<tr>
<td>31-Jan-11</td>
<td>Mr Syria Molepo</td>
<td>Principle Technical Officer, Mmadinare Hatchery DWNP</td>
<td>Aquaculture</td>
<td>Letsibogo Dam</td>
</tr>
<tr>
<td>01-Feb-11</td>
<td>Jakalas II Community</td>
<td>Dam Committee – various members Village development Committee – various members</td>
<td>Aquaculture</td>
<td>Jackalas II Village, Francistown</td>
</tr>
<tr>
<td>02-Feb-11</td>
<td>Mr Gordon O’Brien</td>
<td>Aquaculture consultant</td>
<td>Aquaculture</td>
<td>By email</td>
</tr>
<tr>
<td>02-Feb-11</td>
<td>Mr Kaelo Nkile</td>
<td>Wildlife Biologist, DWNP</td>
<td>Aquaculture</td>
<td>Maun</td>
</tr>
<tr>
<td>02-Feb-11</td>
<td>Mr M.B. Othomile</td>
<td>Regional Wildlife Officer – Ngamiland, DWNP</td>
<td>Aquaculture</td>
<td>Maun</td>
</tr>
<tr>
<td>02-Feb-11</td>
<td>Mr Ketlhatlogile Mosepele</td>
<td>Senior Research Scholar, Harry Oppenheimer Okavango Research Centre, University of Botswana</td>
<td>Fisheries</td>
<td>Maun</td>
</tr>
<tr>
<td>03-Feb-11</td>
<td>Mr O. Modiaemang</td>
<td>Technical Assistant, DWNP Fishery Division</td>
<td>Fisheries</td>
<td>Maun?</td>
</tr>
<tr>
<td>03-Feb-11</td>
<td>Babontsheng Mokoba</td>
<td>Aspirant fish farmer</td>
<td>Aquaculture</td>
<td>Maun</td>
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<tr>
<td>03-Feb-11</td>
<td>Tekano Titus Kasale</td>
<td>Aspirant fish farmer</td>
<td>Aquaculture</td>
<td>Maun</td>
</tr>
<tr>
<td>07-Feb-11</td>
<td>Mr Shadrack Mogotse</td>
<td>Community Conservation Officer - Tourism, Biokavango Project</td>
<td>Fisheries</td>
<td>Shakawe</td>
</tr>
<tr>
<td>07-Feb-11</td>
<td>Mr Nine Setswalo</td>
<td>Wildlife Officer – regional Fisheries Division Head, DWNP</td>
<td>Fisheries</td>
<td>Shakawe</td>
</tr>
</tbody>
</table>
## ITINERARY, INSTITUTIONS AND INDIVIDUALS CONSULTED

### Support for Devising of the Aquaculture Development Strategy for Botswana and the development of outlines for the Fisheries Management Plan for the Okavango Delta

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Stakeholders/Contacts</th>
<th>Field of Study</th>
<th>Location</th>
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<tr>
<td>08-Feb-11</td>
<td>FMPOD Consultative Workshop</td>
<td>Shakawe stakeholders</td>
<td>Fisheries</td>
<td>Shakawe</td>
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<tr>
<td>09-Feb-11</td>
<td>Mr Segoa</td>
<td>Ngarange community recreational fishing project</td>
<td>Fisheries</td>
<td>Ngarange</td>
</tr>
<tr>
<td>10-Feb-11</td>
<td>MsKgomotsoMahupe MrKachiraXoro</td>
<td>Cheechora Fishing Trust, Mohembo</td>
<td>Fisheries</td>
<td>Mohembo</td>
</tr>
<tr>
<td>10-Feb-11</td>
<td>Mr Ekkehardt Klingelhofer</td>
<td>Deputy Director, Katmutjonga Inland Fisheries and Aquaculture Institute.</td>
<td>Fisheries/Aquaculture</td>
<td>Kavango, Namibia</td>
</tr>
<tr>
<td>11-Feb-11</td>
<td>MsChichoKambgthei MsKampindaDikoro</td>
<td>Basket fishers from Mohembo Community</td>
<td>Fisheries</td>
<td>Mohembo</td>
</tr>
<tr>
<td>14-Feb-11</td>
<td>Mr Moleele</td>
<td>Director, Biokavango Project Officer, Biokavango Project</td>
<td>Fisheries/Aquaculture</td>
<td>Maun</td>
</tr>
<tr>
<td>15-Feb-11</td>
<td>FMPOD/ ADSB Consultative Workshop</td>
<td>Stakeholders including government, DWNP, Chiefs, NGO's, fishers, tour operators, community, private sector.</td>
<td>Fisheries/Aquaculture</td>
<td>Maun</td>
</tr>
<tr>
<td>15-Feb-11</td>
<td>Mr Greg Thompson</td>
<td>Recreational Fishing Tour operator, Kubu Queen</td>
<td>Fisheries</td>
<td>Maun</td>
</tr>
<tr>
<td>16 Feb</td>
<td>Mr Drew Thornycroft</td>
<td>Small-scale Aquaculture Project owner Maun</td>
<td>Aquaculture?</td>
<td>Maun</td>
</tr>
<tr>
<td>22 March</td>
<td>Mr Edmont Moabi</td>
<td>Acting Permanent Secretary, Ministry of Environment, Wildlife and Tourism</td>
<td>Project briefing and consultation on Departmental position</td>
<td>Gaborone</td>
</tr>
<tr>
<td>25 March</td>
<td>Mr Neo Bagwase</td>
<td>Lecturer Botswana Agriculture Training College</td>
<td>Aquaculture course and facilities</td>
<td>Gaborone</td>
</tr>
<tr>
<td>28 March</td>
<td>Mr Warren Lane</td>
<td>Retail supermarket owner</td>
<td>Fish market</td>
<td>Gaborone</td>
</tr>
<tr>
<td>29 March</td>
<td>Mr Phin Mackenzie</td>
<td>Senn Food – frozen food distribution manager</td>
<td>Fish market and value chain</td>
<td>Francistown</td>
</tr>
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</table>
Appendix 3. List of reports and documents consulted
3.1 Governance and legislative review of the Okavango fishery and Botswana’s aquaculture policies and support measures


### 3.2 Aquaculture Development Strategy for Botswana


ALCOM 1996b. Aquaculture for local development and utilization of small water bodies in southern Africa. Joint evaluation by recipient countries, donor governments and FAO.


  http://www.fao.org/docrep/013/i1820e/i1820e00.htm

Feidi 2010. ‘Tilapia markets in the Middle East and North Africa: Demand trends and outlook’ Presentation at Third International technical and trade conference exposition in Tilapia, Kuala Lumpur October 2010; p.16


Fitzsimmons. 2011. Tilapia 2010 – Industry Continues to Grow in Importance Presentation, Kochi India, p.17


Josupeit (2010) World Supply and Demand of Tilapia (FAO); p.4


Mmadinare fish hatchery facility operators manual. Dept wildlife and National Parks. 38

Mmadinare fish hatchery facility water quality management manual.23

Mmadinare fish hatchery facility Fish Farm Management Manual. 110pp


3.3 Fishery Management Plan for the Okavango Delta


Mosepele, K, Kolding, J., Bokhutlo, T, and Wolski, P (in prep.) Fisheries dynamics in a fluctuating environment: The seasonal flood pulse – a major driver of change in the Okavango Delta’s fishery?


Appendix 4: FMPOD National Stakeholder Workshop Record
4.1 Workshop Agenda

Department of Wildlife and National Parks - ACP FISH II Programme

Fishery Management Plan for the Okavango Delta

NATIONAL WORKSHOP

Agenda

08h30  Registration
09h00  Opening Prayer
09h05  Introductions – Regional Wildlife Officer
09h15  Welcome – Kgosi
09h20  Workshop Objectives and Overview of the Consultative Process– Prof Peter Britz SOGES Consultants
09h30  Overview of the draft Fishery Management Plan for the Okavango Delta (FMPOD) –
        Dr Tom Shipton
10h30  Tea
11h30  Presentation and discussion of Management Strategies of the FMPOD
13h00  Lunch
14h00  Continuation of Discussion of Management Strategies of the FMPOD
15h00  Summary and Consensus on Final FMPOD document
15h20  Closing remarks
4.2 Discussion and feedback on draft FMPOD

Management Plan Objectives Discussion

How can we reconcile sustainable fish production with maximising incomes?

Mr Motsumi, Department of Environmental Affairs (DEA)

- Strategy 8 is not reflected in the Objectives or Principles
- Access fairness equity not reflected in strategies
- In situ management plan – nothing on aquaculture
- Management plan not linking to other documents on Management of the Okavango.
- Principles – accountability not highlighted, people who are the practitioners being responsible and accountable.
- The objectives talk to sustainability but not institutional management frameworks, this should perhaps be a pillar of the management objectives put in institutional capacity building in the social management objectives

Mr Chonguica - Okacom

What interactions are being proposed for cross boundary issues?

Mr Motsumi, DEA

A key element of the management objectives should be outward looking to address Transboundary issues.

Draft 4 Prioritise transboundary ecosystem based management

Mr Joe Liti – fisherman

Wrote a letter to wildlife on how to get fish inspected. The fishermen are forced to live in the villages as they do not have ablution facilities at the river – this does not make sense as they
are on the river all day. There are no fish inspectors in the country so they cannot sell their fish. How do fishers gain food security if they cannot sell their fish. They need the department of the environment to resolve the ablutions issue.

Response Mr Motsumi, Department of Environmental Affairs

The costs of the fishing industry have to be internalised, the fishers have to manage their own waste they are not doing this at present and are leaving wastes in the delta, and that is why they are forced to live in the villages at present. The fishery management plan should address fishers' wastes.

Response: Peter Britz, SOGES. Fishers leave a mess they need to be responsible so perhaps they need to have a user pay principle inserted in the guiding principles

Mr Johan van Jaarsveldt, Lodge Owner

The Okavango is fragile in terms of disease and alien invasive species. Should this not be put in the management objectives?

Response: Peter Britz, SOGES

There is a need to separate out our objectives and how to get there through the Management Strategies. Alien invasive species fall under the Ecological Objectives on ecosystem integrity / maintaining ecosystem function. The specific issue of disease is addressed under the transboundary issues.

Discussion of Strategies

STRATEGY 1. Data collection, research and decision making rules.

Mr Motsumi, Department of Environmental Affairs

Who collects, who analyses and who makes the decision based on that data. E.g. Recreational, commercial fishers doubt data. Issues of transparency and reliability of data. Process of collection and decision making must be inclusive so that there is trust in the data and decision making process.

Response : Peter Britz, SOGES. This relates to the institutional issues. We need for an institution to discuss data and make decisions. The revival of the Okavango Fisheries
Management Committee is proposed as a forum for the fishers, researchers and DWNP fisheries division staff to meet and make decisions.

Shaft Nengu, DWNP – Fisheries Division
Separate capacity building and formalisation of relationships

Mr Sekgoa, Ngarange
Need for feedback to fishermen in order to explain research and recommendations flowing from them.

Mr Motsumi, Department of Environmental Affairs
Don’t lose sight of indigenous knowledge systems in the data collection and analysis.

Mr Joe Liti, Fishermen
Mentoring of fishermen on data collection. Tom Shipton SOGES: Need to bring the data capture down to a user level.

Mr Kakuru, Chairman of Fishermans Syndicate, Samochima
There are other fisher groups such as basket fishers that don’t require licences to fish. They should be licensed so that their activities can be recorded. Basket fishers catch smaller fish – juveniles (implied a concern about this). Recording of the catch – not all species recorded e.g. catfish.

Mr Nononfo, Local fisherman Maun
Recording of fish – all must be recorded irrespective of whether they are recorded or not.

Mr Molefi, Local Fisherman
Suggested imports of fish be banned during the fishing season to allow locals to market fish locally.

Strategy 2. Support to fisher organisations (OFA/OFMC) to ensure financial and operational sustainability, and the development of co-management systems.

Mr Nononfo, Local fisherman Maun
The OFA isn’t representative of the whole fishery – just the Panhandle.

Response: Mr Shaft Nengu, DWNP The organisation is open to anyone who wishes to join it, not just the Panhandle.
Mr Sam Njwake, Chairman Okavango Fishers Association.
Confirmed everyone is accepted to associate with the OFA.

Mr Aaron Seepetswe Member OFA
Logistically difficult to return the catch return forms to the DWNP office
Appealed to facilitators to fund OFA

Mr Motsumi, Department of Environmental Affairs
Need a standalone strategy on Co-management

Mr Chonguila OKACOM
Need robust specific measures to ensure financial sustainability of OFA.

Response: Tom Shipton, SOGES. It needs financial assistance in the short term, need to financially self-sustaining in the long term. Need to also address mentorship, training etc.

Mr Sekgoa, Ngarange
Need specific financial support measures for OFA

Mr Joes Liti, Fisherman
Address long term financial sustainability. Perhaps they could appeal to tour operators for support. Seek funds from other stakeholders.

Strategy 3. Institutional capacity to implement Wildlife mandate in respect of fisheries.

Mr Mosojane, Okavango Research Centre
This objective does not relate to the DWNP. Why is it in the management plan. DWNP will regulate movement of fish related to disease spread. DWNP need to play a facilitator role.

Response: Peter Britz SOGES. The challenge is to make institutional linkages to other organisations to support the achievement of the fishery objectives as not all skills reside within DWNP, e.g. marketing skills. DWNP should play a facilitator role.

Mr Johan van Jaarsveldt, Lodge owner.
Pointed out that lot of the necessary marketing and distribution infrastructure is in place. E.g. Lodges serviced by small planes. Everything in the Okavango is connected by water and boats transport tourists and goods to the lodges. The fishers need to get the fish fresh to Maun.
Objective to start with education e.g. fish can’t lie in the sun for an hour. One can regulate imports but you have to have acceptable substitutes. Need to have competitive products.

Mr Eben Chonguila OKACOM

How can fishermen participate in other aspects of the value chain?

Mr Kakuru, Chairman of Fishermans Syndicate, Samochima

Mr Kakuru emphasised that the cleanliness and quality of fish is up to standard. He outlined requirements for hygiene and encouraged fishermen to supply fresh fish.

Mr Van Jaarsveldt, DEA

Who are the consumers? We should not take only one fish for one market. We should market other species to other markets. There is nothing wrong with barbel (African catfish). You can sell it to foreigners.

Strategy 5 Promote Tourism Based Economic Activities Linked to Recreational Fishing and Traditional Fishing practises.

Mr Motsumi, DEA

As fishers are new to CBNRM arrangements, need emphasise CBNRM challenges in recommendations such as access to land, water, finance, joint venture partnerships.

Mr Aaron Seepetswe, Member OFA

Appreciated the recommendations that tourism is a possibility for a new livelihood opportunity

Gontse Lobelo, Member OFA

Might be difficult to enter the new business due to a lack of resources, e.g. to look after clients. Response from Mr Nkili: Could enter joint ventures with existing operators.

Mr Kakuru, Chairman of Fishermans Syndicate, Samochima, Mr Njwake, Chairman OFA

Communities may also want to set aside an area for traditional fishing practises. They were particularly not very comfortable with the dynamics of recreational fishing practises. Use their own vessels and don’t rent own vessels. Deters them from entering into this business arrangement.

Response Peter Britz, SOGES: Setting up CBNRM arrangements for fisheries is a new challenge which needs to be negotiated
Strategy 6 Improve compliance with fisheries legislation at all levels

Mr Motsumi, Department of Environmental Affairs

Add in self regulation is missing from the strategy, A code of conduct needs to be developed

Gontse Lobelo, Member OFA

Self compliance in the community is difficult as those fishers who break the rules do not like to be told what they can and cannot do by other members of the community.

Strategy 7. Periodically review policy, Act, all subsidiary legislation an agreements related to the fisheries

Gontse Lobelo, Member OFA

Mr Motsumi, Department of Environmental Affairs

Capture issue of adaptive management as it unpins issue of monitoring and evaluation and the management system including legislation.

Mr Shaft Nengu, DWNP

Dept Wildlife and Nat Parks (rather than Fishery Division) should incorporate draft fishery regulations for inclusion under the revised Wildlife Act.

Mr Noel Stevens Fisher Syndicate Member

Do recommendations for regulations affect just Okavango or the whole of Botswana? Response Mr Shaft Nengu: The FMPOD is just for the Okavango. The other systems have their own management plans. The regulations will cover the whole country.

Mr Molefe. Is Lake Ngami part of the Okavango Delta?

Mr Mosejane. Yes, Lake Ngami is part of the Okavango Delta as it is fed by the Okavango Delta.

Mr Motsumi. Makgadigadi Pan is not part of Okavango but the systems are linked. A lot of fish is going to be produced with the rising waters in all systems.

Strategy 8. Improve the trans-boundary cooperation and management
Kgosi (Chief) Kgosigaenyatswe

Appreciates management plan and the answers. But what is going to be done about an abattoir for processing the product for the market. Responses: Shaft it is still a draft management plan and guides future actions. Issue is captured very clearly

Mr Motsumi, Department of Environmental Affairs

Bullet “Botswana” National Action Planning Process. SAREP is just a project and may or may not be part of implementation.

Shaft – ZACPLAN is different to the four corners

Recommended inclusion of issues captured in the Objectives

Issues of equity, fairness and participation

Recommend to Include:

Strategy 9Issues of equity, women, youth, poverty

Concluding remarks: Kgosi (Chief) Kgosigaenyatswe

Thankful to consultants for the job they have done. Encouraged stakeholders to support each other – wished all well. It is not anyone’s job – it is everyone’s. He is looking forward to seeing the contributions realised in the future.
4.3 Attendance list of persons at the FMPOD National Workshop, Maun 01 April 2011
EU-ACP FISH II PROGRAMME WORKSHOP ATTENDANCE LIST 01/04/11

<table>
<thead>
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<th>NAME</th>
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Appendix 5. ADSB National Stakeholder Workshop Record
Department of Wildlife and National Parks - ACP FISH II Programme

AQUACULTURE DEVELOPMENT STRATEGY for BOTSWANA (ADSB)

National Workshop Programme

Development of an Aquaculture Strategy for Botswana

GICC, Gaborone, 26 April 2011

08h30 Welcome Tea and Coffee
09h00 Opening prayer
09h05 Introduction of Delegates/ Participants
09h15 Welcome Remarks – MEWT/DWNP representative
09h20 EU ACP 2 programme and workshop objectives – S. Nengu DWNP
09h30 Botswana Aquaculture Status and Potential Diagnostic Analysis – Dr J. Davis SOGES
10h30 Tea
11h00 Draft Aquaculture Development Strategy for Botswana – presentation P. Britz
11h30 General Discussion
13h00 Lunch
14h00 Further discussion
15h00 Summary and way forward
15h15 Closing remarks vote of thanks – MEWT/DWNP representative
15h30 Tea
Feedback At ADSB National Workshop 26 April 2011

Ulf Nermark, Aquaculture Consultant

Confirmed that minimum viable commercial aquaculture unit was approximately 120t based on the Megafish model for catfish.

The closed season is a problem for community fishers to market fish locally

Ornamental fish is an opportunity for aquaculture, for example, species from the Okavango Delta

Trevor Mmompelwa, Former Director of Fisheries Division

We need to consider all the information and realistically plan strategies going forward. 300 dams identified in ALCOM programme representing a production potential of around 500t for subsistence aquaculture.

Montshari Molefe, DWNP

If the target market is unfrozen fish market and small scale aquaculture if it won’t bear fruit, is it possible to do it?

Response: Jerome Davis, SOGES. Aquaculture is a business – what will it cost to produce through all the phases to market. Costs have to add up to less than you selling it for. If there is a margin, then go ahead.

There are many sources of water – underground, spring using for consumption. Can they be used?

Response: Jerome Davis, SOGES Need to keep costs down – avoid inputs like expensive feed and pumping costs. Minimise input costs of small scale farming.

Why is winter a problem?

Response: Jerome Davis, SOGES Fish don’t grow in winter so one crop not competitive in countries with a cold winter. We need to compete against two to three crops in neighbouring countries. They will be more competitive and sell at a lower price. For small scale with low input costs and selling fresh cold winter is not a problem.
Ulf Nermark, Aquaculture Consultant.

Fish farming is an extension of agriculture. Need training as a foundation – Botswana Agricultural Research Institute could provide support for models for production. We mustn’t expect CEDA to be obligated to provide finance for business plans that are not viable. Busplans often cut and paste – best scenarios in one proposal. Accountants analyse the figures but lack realism on aquaculture. The typical applicant says “I have no money, I have no knowledge.” We need to set our priorities right with strong Government input in the beginning like pig and dairy. Fish was with LEA mandate but was taken away as they need to concentrate on other things.

Theodore Seemule, SPEDU – It’s a hard sell to attract foreign investment in a sector that has few competitive advantages. We need to learn from past experience. Botswana failed to attract investment with incentives in textiles etc. We need to rethink model of foreign investment. For example, Panadamatenga project technical knowhow needs to be internalized in local industry. When we talk about aquaculture, how best to develop Botswana’s own technical skills. We are an agrarian society. We need to integrate aquaculture into other horticultural skills provide technical skills and create technical knowhow on the ground.

Mr Duressa Regassa, Agriculture Consultant. Botswana needs to improve the rural protein economy and promote sustainable food security. Let us incorporate this programme into the rural economy.

Bonosi Bere. We have a hatchery. What is the way toward for private entrepreneurs? How will I make money, how will I feed my fish? I need to know the strategies? I have the ponds? How do I make my fish grow?

Kereemang Moilwa, LEA. In terms of Botswana’s Economic Diversification Drive. How will it fit it? Feasibility study – must include what is in the presentation. Needs to include all aspects. Short – medium – long term strategies. 3, 5, 10 year strategy. Are financial institutions supporting aquaculture?

Input suppliers? What is needed in aquaculture? OK Mmadinare – can it alone support. Feed – we have suppliers are we going to depend on other countries. What about transport costs?
**Choto Choto, Mmadinare Hatchery.** Can major dams be used for cage culture? Can we employ cheaper ways of doing pond culture? Can it be practical for Botswana. We need to look at target groups – who are we looking at. Need to look at food security and consumption. How can project improve their lives? What can be done to improve the systems?

**Theodore Seemule, SPEDU**

Information to prospective investors. Are we starting another layer of bureaucracy? We have BEDIA, Spedu etc. How can China provide so much fish? I understand China is a cold country? Look at starting aquaculture business around industry. We also need the land use authority as land use is zoned for different uses because of issues like heavy metal pollution. We don’t need a new agency but coordination between the existing ones.

Action plans need to begin as early as possible. Need to include stakeholders in development of action plans.

In terms of implementation, avoid the big bang approach. We need to say clearly who does what and where. Pilot projects are recommended, for example in Selebi Pikwe Economic Development region. Then develop in an incremental approach.

Lack of coordination between government departments is a big problem. Different mandates ends up people trying to defend turf. Need to agree that Departments do what they do effectively.

The Tiger fish experimental study. We should look at what we done so far before take it further. Evaluate its impacts

**Ulf Nermark, Aquaculture Consultant**

Zone implies a wide area. Rather say a “site”. NAMPPAAD sites for horticulture that have not been taken up. Botswana has one investment agency BEDIA. Need to stay with their primary activity with support from line departments.

**Trevor Mmompelwa, Former Director of Fisheries Division**

In terms of an aquaculture Zone, the northern part of Botswana is ideal. Unique as Botswana is, we need to stimulate the technology over the whole country. In terms of necessary support, a land holder in Ghanzi with financial muscle – whether he goes for membrane lined ponds - should be encouraged to go that route. Or water coming out of a smelter at Selebi Pikwe. All types should have the opportunity to do that.
Institutional issue as proposed. Government support will be easy if you harness existing institutional structures. There is the economic diversification drive. Study its objective as it fits nicely into its ADSB objectives. We need to link it into EDD. We are dealing with a government very sympathetic to poverty alleviation. Let us have a strategy that deals with all. Have a subsistence component linked to gardens, even if it is not a profit making enterprise in itself.

Exotics introduction. Bass were introduced into the Khanye dams. Probably would survive once it escapes but need to be careful with other species. Tread carefully on introductions. Yes if it’s there, let us use it. To talk of other introductions we need to proceed with extreme caution.

**Bonosi Bere, Fish farmer**

Dams – are we forgetting the smaller people? What about ponds? Are we excluding them? How can we include them in the strategy and see how it works. Are zones excluding ponds? What if I have a borehole and a pond?

Response: Peter Britz: Suggested on farm research with established farmers to optimize production techniques.

**Ulf Nermark, Aquaculture Consultant**

Distinguish market research and marketing. How was 100t of fresh fish derived? Currently 100t for frozen. No existing market for fish. Need branding of origin to distinguish local product.

**Malaki Bowane, Ministry of Agriculture.** Subsistence farming needs to be included. Can we have backyard ponds with a complete package of numbers of male and female fish etc. You need the key Ministries with Permanent Secretaries, Directors, to push it through. NDB, Tourism, Bedia, Youth. Target Ministries particularly up to PS levels.

**Trevor Mmompelwa, Former Director of Fisheries Division**

Institutional issues. We have the Zambezi Integrate Agriculture Project. If were to have just one viable project running, can government dictate terms to create national capacity. Perhaps we build a scheme whereby locals can go work in those farms in Israel. Whether government or private funds, the capacity would have been created. Also support in terms of value chain. The programme needs to be designed to become independent in terms of feed and so on. There could be scheme whereby satellite fish
production facilities could start small, grow and the facility be provided with feed. If we want to be realistic and serious about the economic diversification drive we need government to commit to supporting and funding these strategies.

Water temperatures. We know temps drop below optimal in winter. If we want to work on a seasonal production arrangement, with overwintering who absorbs those costs? We need to tease that out.

Feed was pointed out as another limiting factor. The Botswana Agriculture Marketing Board provides nets. They would be the ideal people as a government parastatal, they would be the best placed to provide distribution of feed.

Live fish transport. This was part of the project design and funds ran out. Additional funding was provided on 3-4 occasions. These problems can be overcome.

Response: Shaft Nengu, DWNP. Regarding Pandamatenga I have fears that the problem is that they will bring an exotic species ND41 strain resulting from a cross of Niloticus and another strain. If it is given to other farmers it potentially be invasive. Strategy is addressing constraints. Government interventions – small scale farmers can farm for cheap food not profit. Capacitate everyone from small farmers to commercial.

Strategies 5.1 and 5.2. Zoning issue – it comes from the clustering idea from the last workshop where infrastructure is provided at a site. It does not exclude production in other areas.

Production systems design is not the mandate of this consultancy – it is strategies. The production systems is the mandate of DWNP.

**Ulf Nermark, Aquaculture Consultant.** I consulted on the Pandamatenga EIA. The hybrid proposed to brand the fish as “organic” so it can’t go through a hormone sex reversal treatment. The hybrid is not sterile so it can’t propagate and breed with other fish. Recommend not used for satellite farming as it a threat to biodiversity. Satellites will be good for producing volume to commercial supply.

**Choto Choto, DWNP Mmadinare Hathery.** Aquaculture is a broad term in the line of tourism and fish farming and it’s not working for me. Why not focus on fish farming – categorise small and large scale and focus on systems that can improve production. Farmers have land and water. The cost of feed is a problem. Let is focus on fish farming not on Tourism and tiger fish.

Responses:

Shaft Nengu, DWNP. The strategy needs to be inclusive.
Theodore Seemule, SPEDU. Consultants often identify something outside their brief. If there is a window of opportunity, I don't see a reason why they shouldn't bring that out very clearly. It is important that we also look at that.

Trevor Mmompelwa, Former Director Fisheries Division

To allay concerns, if we look at objective 6.2 there is a wide array of investors, small scale, subsistence, commercial. Government departments provide information and mandated to provide an extension service. You unlikely to get detailed production information, but info from extension service should come out extension services should come out with that information. The strategy should say who is responsible for these services but we cannot go into that detail.

On incentives, there are so many incentives. Some people say 1Ha produces less that 300kg of grain with no inputs and yet you can go to several tons with fertilising etc. Without subsidy we will see a very different agricultural sector. What incentives will be enticing enough to the government? We need to tie to existing policies and structures, economic diversification, poverty alleviation. If a production model is presented government can provide the necessary inputs.

Response: Shaft Nengu. 6.2 Major issue should be extension services. We need to extend the extension services. There are only 2-3 to serve the whole country. The issue of feed – there is fed for livestock, piggery, cows. Government sells subsidized feed to farmers.

Monshwari Molefe. DWNP

In the first thematic area, are we saying we should use the current fish hatchery to make a pilot project or identify a farmer or a farm to help as a pilot. And then we go for another one.

Response: Peter Britz, SOGES. Both have pros and cons depending on the project objectives, but for SME aquaculture, the suggestion is to perform on-farm research in order to benchmark performance and develop a viable production model.

Ulf Nermark, Aquaculture Consultant

The information needed for the investor is different to the practitioner. They need budget info that is auditable. Another strategy 6.3 could be on information for practitioner.

Response: Shaft Nengu, DWNP. I agree about the website as a means of primary information for prospective fish farmers. The strategy should say that the extension service should be extended.
This should be clearly outlined in the strategy. We strategy should also include the integration of other activities to make aquaculture viable.

Theodore Seemule, SPEDU.

What is the situation in Botswana? Is our fish consumption low? Some of these things stem from statistics.

An example I am familiar with is a potential big investor in aquaculture in Botswana. He had a budget of P47m. He decided the project in a dam was not viable after visit to aquaculture facilities in Brazil. For those very big projects and small projects how will the strategy be encouraging and supporting investors?

Response: Ulf Nermark. Direct import substitution is not possible, for example for tinned fish, prawns. Botswana need to compete with industrial fish like frozen hake. There might be a market for fresh fish but we don't know that. A private Motswana sells 20t of Chinese bream out of Tlokweng. All the peripheral activities marketing will provide experience. Guide people to keep an interest through subsidies and so on.

Theodore Seemule, SPEDU.

To what extent do we have a market? I have dealt with individual that couldn't proceed with large investments due to market issues. Also water is a strategic resource – need to get the Water Utilities Corporation on board to get this project off the ground.

Response: Shaft Nengu, DWNP. This issue of markets depends on what scale you are producing. Large scale is definitely not a market. Regional or even to the EU. For example, Lake Harvest in Zimbabwe were exporting to the EU, but are changing strategy to try and supply the regional market. This Tahal project did their market survey did not have a problem with the market, regional, local and abroad.

Trevor Mmompelwa. The fastest fishery production is 200t from Chobe and 150t from Delta. P30m imports. In terms of the issue of fresh fish for Johannesburg, the fish they produce in the
Delta is all frozen. People want frozen fish. Unfrozen needs chilling on ice. Its marketing issue that can be addressed.

**Malaki Bowane, Ministry of Agriculture.**

We haven’t talked about integrated systems. If we go into the subsistence sector, then integration becomes a good alternative. We need to look at that. The argument is that you are making optimal use of the water.

DOA Ministry calculated the demand for various products in Botswana, for example, cereal 200mt. milk 40 metric litres, honey 8 mt per annum. We need to do a study on the potential market demand for fish. The Central Statistics Office (CSO) can provide import figures but not internal consumption. We need a detailed study on demand. Hotel consumption provides a good insight.

**Shaft Nengu, DWNP.** We do have production figures from CSO. About 3000t per annum.

**Shaft Nengu, DWNP.** We need at least one successful farmer. E.g. Lesotho has put up one farm with 300t. We need government assistance to support aspiring farmers.

**Theodore Seemule, SPEDU.** We need to look at dams for not only water, but for agriculture and aquaculture. Nobody seems to know the do’s and don’ts. We have a problem at Letsibogo around rights ownership. We need a clear policy on what we can and can’t do.

Response: Shaft Nengu, DWNP. DWA is consulting is on policy on activities on new dams.

**Shaft Nengu, Concluding remarks.** Thank you very much for attendance and ideas. Please don’t hesitate to contribute in future. Contribute to fish farming as a business to create a platform for development. We will include your comments in the final draft Aquaculture Development Strategy for Botswana which will be submitted to our senior government officials for consideration.
## Attendance List. ADSB National Stakeholder Workshop, 26 April 2011

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Appendix 6. FMPOD National Validation Workshop Record
Department of Wildlife and National Parks - ACP FISH II Programme

VALIDATION OF THE FISHERY MANAGEMENT PLAN FOR THE OKAVANGO DELTA

Gaborone 28 April 2011

Agenda

14h00  Presentation of the draft Fishery Management Plan for the Okavango Delta (FMPOD) – Dr T. Shipton SOGES

15h15  Discussion of the FMPOD

15h30  Tea

16h00  Discussion of the FMPOD

16h20  Summary and Consensus on Final FMPOD document

16h30  Closure

Feedback on FMPOD Validation Workshop, 28 April 2011
**Letsoa la Tshipa, Ministry of Arts and Culture.** The statement that quality and hygiene is the reason that the lodges cannot create/buy fish says a lot. It indicates a serious need for intervention by government. It is mainly a question of packaging? Could you comment on this?

Response: Tom Shipton. SOGES. Excellent quality fish is caught. The problems arise post-harvest. Assistance is needed with post-harvest, particularly packaging.

**O-Amo Keitisile, Department Wildlife and National Parks.** Is it possible to have guidelines for fish handling packaging and storage?

Responses:

Peter Britz, SOGES. The need is addressed in the FMPOD operational objectives. There is now a need for training needs to be addressed in a “management action plan” which is the next step to implement the FMPOD operational objectives.

Belda Mosepele, SAREP – BiOkavango did a training course on post harvest and hygiene. The fishers don't have capacity to buy ice, for example, when they go for three days to an island. The course was done with help from Departments of Environment and Health. Some fishermen fall by the way side – some are very old and not trainable.

Shaft Nengu, DWNP. You need to understand the calibre of the people and environment they are dealing with. They travel far and petrol expensive. When they remove the fish from the boat, they just throw them on the landing site and the bellies start swelling. It is a complex situation.

**Alba Orapeleng, DWNP**

1. Can the OFA and CBNRM projects work together? This could be a sub-set of the programme.

   Response: Tom Shipton, SOGES. The FMPOD provides a framework for CBNRM initiatives which is aligned with the Wildlife Policy, ODMP and Ngamiland Tourism Management Plan.

2. Could the trans-boundary KAZA be involved in the FMPOD programme?

   Response: Peter Britz, SOGES. The FMPOD, and the Okavango Delta Management Plan Process and BiOkavango pilot projects which preceded it provide a framework with which to expand into the trans-boundary ecosystem programmes.
3. In terms of fisheries data capture, there is an integrated Wildlife Management Programme which could solve the problem of data not being properly captured.

4. Is the closed season the right time during January and February?

Response: Tom Shipton, SOGES. Consultations revealed that this was the best time for a closed season. It is a natural brake on fishing. It is something agreed by the whole community. Unless there is a compelling economic reason it should be left as it is.

Response: Shaft Nengu, DWNP. The closed season was initially proposed for September – November but a lot of resistance was encountered so it was moved to Jan – Feb. The flood starts arriving in Shakawe in December most fish start spawning then so there is a good biological reason for it.

**Letsoma la Tshipa, Ministry of Arts and Culture.** Closed season rationale for moving from Sept to Nov. Was this the fish main fishing time?

Response: Shaft Nengu, DWNP. It was because it is the peak recreational fishing period when lodges make most income.

**Shaft Nengu, DWNP.** Recommended corrections to draft FMPOD wording.

1. Under Key issue 1, Institutional Strengthening, it states “DWNP to undertake needs assessment”. DWNP doesn't have capacity to do this. DWNP thus needs to “facilitate” a needs assessment.

2. Trans-boundary issue – Tom Shipton SOGES recorded it.

3. Issue of data collection. I don’t agree that experimental fishing results in wasting of resources. Fisheries monitoring is a component of ODMP and ongoing experimental fishing data collection is required to so that we can have a fish stock assessment report. The data will be used in management decision making.

4. In terms of “Decision rules”. Do not limit to fishery research and management collaboration to Okavango Research Institute. Include ORI and other organisations.

**Letsoma la Tshipa, Ministry of Arts and Culture.** Can we emulate the example of Lake Victoria where the private sector is working with fishers, and fish are even exported to Europe?
Responses:

Shaft Nengu, DWNP. The Okavango is oligotrophic nutrient poor – I don’t see much more catch coming out of the system. That is why we are pushing for aquaculture.

Belda Mosepele, SAREP. We need to be precautionary in our approach to fishing the resource as it is fragile.

Peter Britz, SOGES. The Ngamiland Tourism Management Plan (NTMP) evaluated CBNRM community based organisation governance performance and noted that most has failed to deliver equitable benefits to communities. The NTMP recommended joint venture partnerships with the private sector as a way forward which would be incentive based and include more accountable corporate governance structures. The existing fishing cooperative governance structures were flawed in that there was no performance based incentive or reward related to fish quality and so fishers that delivered poor quality were paid the same as those that delivered good quality. The BiOkavango socio-economic surveys revealed that 40% of fishers had no formal education. Private sector support and mentorship would be required to assist with establishing proper processing, and distribution to the Okavango Lodge market.

The Deputy Permanent secretary had mentioned that the MEWT was in discussion with the hotel and lodge owners to assist indigenous suppliers to deliver quality and a regular supply.

Peter Britz, SOGES. Concluding remarks. The FMPOD has profound implications for fishery management activities and DWNP operational activities in order to promote the socio-economic benefits from fisheries as envisaged in the Wildlife policy. Institutional and organizational cooperative governance is central to this.

The FMPOD and the co-management Biokavango pilot projects initiated in the development of the ODMP require a fundamental shift in DWNP operational activity. Traditionally, it focused on monitoring, extension and compliance. Now it needs to be extended into participative management with a focus on facilitation, for example, of the activities of the Okavango Fishers Association, Okavango Fisheries Management Committee, and CBNRM tourism projects linked to fisheries. A review of DWNP operational management procedures and resources will be required.

Leone Tarabusi, EU-ACP Fish II Coordinator. What is the way forward? What will happen next to implement these documents?
Response: Nelson Nagasela, DWNP. Once the comments incorporated deliver the documents. They will go to Permanent Secretary and the Ministry to decide how to carry forward. In this case the documents can be approved by the Minister. Depending in interest, he can take the documents to cabinet for information.

Leone Tarabusi, EU-ACP Fish II Coordinator. What is the timeframe?

Nelson Nagasela, DWNP. I can’t comment on the timeframe.

Nametso Mothoka, Attorney Generals Chambers. The document will inform legislative review and drafting of the Wildlife Act and regulations

Peter Britz, SOGES. The Documents will include recommendations on revised legislation and regulations.

Shaft Nengu, DWNP. Concluding remarks. Thanked all for participation and contributions to the process. He emphasised the importance of the trans-boundary ecosystem issues, and that the cooperation of neighbouring countries was required if management plan was going to have meaning. On behalf of DWNP, he promised to implement the documents and seek resources from his principals.
**Attendence list, FMPOD National Validation Workshop, 28 April 2011**

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Appendix 7. ADSB National Validation Workshop
AQUACULTURE DEVELOPMENT STRATEGY for BOTSWANA (ADSB)

NATIONAL VALIDATION WORKSHOP

Gaborone 28 April 2011

Agenda

08h30  Introductions
08h40  Welcome Remarks – Mr Nelson Nagafela, Acting Director, DWNP
09h50  EU ACP-FISH II programme objectives – Leone Tarabussi, ACP Fish II coordinator
09h00  Workshop Objectives – P. Britz SOGES
09h10  Presentation of the draft Aquaculture Development Strategy for Botswana (ADSB)
10h30  Tea
11h00  Discussion of the ADSB
12h30  Summary and Consensus on Final ADSB document
13h00  Lunch
Record of Discussion at ADSB Validation Workshop

Mr Letsomo la Tshipa – Dept Arts and Culture.

The belief and will is there to establish aquaculture. I suggest that aquaculture opportunities should be included in dam planning, river management and EIA’s.

Response: Jerome Davis, SOGES. It appears the intent is there on the part of government to initiate cooperative planning processes to include aquaculture.

Mr Maloma Malomo - CEDA

What do you advise CEDA on lending to small enterprises? What do you think of the local market? Can you offer training?

Response: Jerome Davis, SOGES. CEDA is doing an excellent job judging applications on their merits. Interventions are needed to make small farmer development more viable as standalone enterprises. Local markets or export very dynamic. The local market is the place to start. There is scope for growth in local consumption, as per capita consumption is very low and with growing urbanization people consumption patterns changing and consumers are becoming more aware of fish and its benefits.

Mr Nelson Nagafela, DWNP

1. Is 100t minimum economic size a single farm or can it be several?

Response: Jerome Davis, SOGES. The main issues is achieving a production volume so it can either be a single business or several investors.

2. Ministry of Wildlife, Environment and Tourism supports Mmadinare hatchery but it needs support from regional programmes like the EU-ACP Fish II programme.

Responses:

Jerome Davis SOGES: The ADSB identifies where money should be spent and where it should be not. This will guide goals, projects and resourcing at Mmadinare.

Leone Tarabusi, ACP Fish II regional coordinator. The current ACP Fish II programme is not really able to support further action. In a years’ time if there are project savings, additional support for
short to medium term actions could be possible. Furthermore, the ACP Fish II programme can promote your cause and inform focal points.

Peter Britz, SOGES. Potential projects for Mmadinare are identified in the ADSB which can be used to seek funding.

**Ms O. Amo Keitsile Lady.** Has there been research on Nile tilapia introductions?

Response: Peter Britz, SOGES. More information is required on Nile tilapia distribution to inform management guidelines. A zonation approach is suggested in the ADSB.

**Ms Belda Mosepele, South African Regional Environmental Programme (SAREP)**

If aquaculture is being developed going across from Mohembo in Namibia, why is it not in Botswana? In the Okavango Delta Management Plan we recommended to invest in training two DWNP officials in aquaculture and two fisheries biologists. How can we capacitate more people in aquaculture to benefit from resources?

Response: Peter Britz, SOGES. Both higher degree training and internships for DWNP on commercial aquaculture enterprises in neighbouring countries are included in the ADSB.

**Mr Nelson Nagafela – Deputy Director, Department of Wildlife and National Parks**

MEWT needs similar benefit of subsidies of provided other sectors to promote Tourism growth in Botswana.

Why is it suggested to move mandate for aquaculture to the Ministry of Agriculture?

Response: Peter Britz, SOGES. As aquaculture is an agricultural activity, it would logically be housed under the mandate of the Ministry of Agriculture which is resourced with various departments to support agricultural sector development. As aquaculture capacity currently resides within the Fishery Division under the Ministry of Environment, Wildlife and Tourism, which has demonstrated an appetite for aquaculture development, and a pragmatic approach will be required. Perhaps rigid mandate boundaries are counterproductive and efforts should be made to establish “cooperative government”. This is a theme which is emphasized in the ADSB.

DWNP attempted to create a post for an Aquaculturist at Mmadinare but it was not approved.
Response: Peter Britz, SOGES. There are opportunities through projects to obtain a visiting aquaculturist to lead research and mentor staff. For example, through regional programmes and organisations such as “Aquaculture Without Frontiers” which send volunteer senior aquaculturists to countries requiring aquaculture capacity building.

In terms of the recommendation to refocus DWNP staff from SME promotion to subsistence aquaculture, what other considerations were taken into account besides staff time considerations?

Response: Peter Britz, SOGES. It is a question of focussing available resources on where the best outcomes will be achieved. The results achieved in stocking dams for subsistence aquaculture to date have been very promising and had a clear impact on food security and community livelihoods, whereas the SME aquaculture promotion has not resulted in a single farmer becoming successfully established. This is due to the absence of an established aquaculture value chain and service sector which renders SME aquaculture non-viable under current conditions. Therefore it is recommended that DWNP Fisheries Division focus more attention on subsistence aquaculture.

The zoning and GPS referencing of alien species distribution is most welcome from a DWNP perspective.

Mr Nametso Mothoka, Attorney Generals Chambers. Live fish imports are done in accordance with the 1975 Fish Protection Act which empowers the Minister to make regulations. In the draft 2008 regulations live fish imports are not addressed. A regulation is needed to address this issue.

Response: Peter Britz, SOGES. This is a problem. A process to review legislation and regulations relevant to aquaculture development is required to protect Botswana’s biodiversity from irresponsible introductions of alien fish.

Response: Shaft Nengu, DWNP. A weakness is that aquaculture it is not anchored in any legislation or policy. For example, such as the one they have in Namibia.

Deputy Permanent Secretary Moagi, Ministry of Environment, Wildlife and Tourism. Do we really need to do study of size of market? I would like guidance on what current consumption is. What are Botswana’s fish imports? I suspect a demand for fish is there. What is missing is the local produce. The sub-sector needs to be developed further than is now, but we must be cautious about the incentives created by grants. Although very little is produced by the Okavango fishery now, when grants were provided to fishers under the government’s Financial Assistance Programme (FAP) for fisher groups, production grew and the market seemed to be developing. People had direct arrangement with fishers, but when the subsidies were phased out these collapsed and consumption went down. When a grants
present production grows and outlets increase, then they decline when grants stop. We must learn from previous experience with grants.

Response: Shaft Nengu, DWNP: Two categories of fish production – Okavango delta (200t) and imported fish (3000t) per annum from Central Statistics Office data.

I support the zonation of areas for aquaculture in terms of alien and local species. People bring in fish as a business decision. They leave the consequences to someone else. Live fish importation should be controlled and restricted to facilities where they cannot escape during heavy rains.

I support the view that that aquaculture is sub-sector that is under-developed and needs government support.

Ms O. Amo Keisile, Department Wildlife and National Parks Concern on Fish Diseases – do we have the capacity of professionals?

Response: Shaft Nengu DWNP. The Department of Veterinary Services has the mandate and DWNP works with them and a certificate of origin required.

Response: Peter Britz, SOGES. The OIE is promoting the training of state veterinarians in aquatic animal health issues. A training course will be offered at Rhodes University supported by the OIE.

Mr Letsoma la Tshipa Arts and Culture. It is important to cultivate aquaculture industry to complement Tourism industry. Government taken a deliberate decision to support market places and this provides an opportunity to eat traditionally cooked bream. Inter – government collaboration is very important to link aquaculture to potential marketing strategies based on local products. The current organisational situation doesn’t work for us as there are different directions in government departments. We need the collaboration to use the little resources we have to the greater good.

Response: Peter Britz, SOGES. The creation of arrangements for cooperative government to create an enabling environment is one of the ADSB’s strategic objectives.
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Appendix 8: Media reports
Botswana has been cautioned against venturing into aquaculture as the sector has not made any meaningful contribution to the GDP growth of most Sub-Saharan countries. This emerged during a consultative workshop between the Department of Wildlife and National Parks and Okavango fishermen in Maun recently. Making a presentation on aquaculture, a South African aquaculture specialist Dr. Tom Shipton, said the industry is recent to Sub-Sahara having first begun between 1950 and 1970 only to experience significant growth between 1970 and 1995. During this period according to Dr. Shipton, the industry was mainly donor sponsored with active government involvement in seed supply and extension. From 1995 to date donor funding has substantially decreased to be replaced by “re-orientation of public support towards facilitation and the emergence of the commercial sector,” he said. Shipton said aquaculture is marred by poor outcomes as its contribution to GDP in Sub-Saharan countries remains negligible. This contribution ranges from 0.001% to 0.715% while Sub-Saharan Africa itself contributes 0.13% and 13.6% to total World and Africa aquaculture production, respectively. Shipton however said there were signs of growth in countries such as Nigeria, Madagascar, Cote d’Ivoire, Zambia, and South Africa. Also there has been growth in total aquaculture production in the Sub-Saharan Africa countries between 1998 and 2003. This has led to a production increase by 61% from 44,962 metric tonnes to 72,334 metric tonnes. Shipton says it is further projected that aquaculture production in Sub-Saharan Africa by 2013 will be between 208,600 and 380,400 metric tonnes per annum. These figures of possible growth are however not significant of a viable aquaculture industry in Botswana and both professionals and fishermen caution it is premature to invest in this sector. Professor Peter Britz of SOGES Consultants cautioned Botswana against venturing into the aquaculture sector advising that the country should wait and observe ongoing projects in Namibia to see how they fare.
Appendix 9: Interim Technical Report
Appendix 10: Review of governance and institutional arrangements supporting fisheries management and aquaculture development in Botswana
Appendix 11: Draft Aquaculture Development Strategy for Botswana (ADSB)
Appendix 12: Draft report on guidelines for the fisheries management plan of the Okawango Delta (FMPOD)