

UNDP’S RESPONSE TO TECHNICAL COMMENTS PROVIDED BY GEF SEC AND THE GEF EXECUTIVE COUNCIL

GEF Secretariat :	
Comments:	Response
<p>All recommendations for further processing of this project (tabled by GEF SEC and agreed at the Bilateral Meeting between UNDP and GEF SEC of Nov 30, 1998) prior to work programme entry were satisfied in 2000. The Project was subsequently circulated to the GEF Intersessional of July 2000 and approved as part of the GEF Work Programme. Two further recommendations were to be addressed prior to CEO endorsement of the Project Document:</p>	
<p>Finalise the arrangements with the World Bank for its participation in the project</p>	<p>Collaboration with the World Bank was initiated in 1995 prior to approval of PDF B funds in extensive discussion between respective task managers in UNDP and the Bank. These discussions were continued during project preparation. In addition, a number of official bilateral meetings were convened between UNDP, and the WB during project preparation. The World Bank water sector team covering Angola and Namibia have been fully informed of the PDF B and Project Brief drafting process and have made continuous comment and suggestions, all of which have been incorporated in project design.</p> <p>The Project makes provision for the participation of the World Bank in efforts to identify ‘bankable’ investment opportunities, to implement priority interventions identified in the Strategic Action Programme. The Project will provide deal-flow identification services, by matching investment opportunities with prospective financiers, including the World Bank. The World Bank involvement will be facilitated in three ways (see text in paras 44 and 54): 1] Active participation in the two donor workshops planned, in years one and three. 2] Close communications between the Project Management Unit and World Bank Task Managers, responsible for the water sector in Southern Africa, to ensure investment needs are compliant with Bank strategies (see Terms of Reference for Project Staff in Annex XII); and 3] Invitations to participate in Project Steering Committees and other fora dealing with investment activities.</p> <p>The World Bank has a limited portfolio of active water resource management initiatives in the region. The contribution of initiatives in Angola and Namibia towards policy and legal work pertinent to activities in the ORB is discussed in Paras 31, 41, and 44 and annex II. Further reference to WB financed baseline activities is provided in Paras 16 and 18.</p> <p>Angola: A number of water supply operations are on going or planned: a water supply component is included in the post-conflict Rehabilitation and Reconstruction Programme, and a Water Sector Development Project and Luanda Water Project are in the pipeline. The Bank has no current or planned water resource management initiatives. A Country Framework Report is under preparation and will assess private sector participation in infrastructure projects.</p>

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	<p>The Report will cover the water sector, amongst others. A review of the country portfolio will be engineered as the de-mobilization process gathers momentum, possibly allowing for further investments in the water sector, and alignment with Okacom priorities.</p> <p>Botswana: The WB has no current water resource management activities in Botswana.</p> <p>Namibia: The Namibian water resources review was concluded in 2001, and has led to a new policy and enactment of new laws. However, there are no water resource management projects under implementation.</p> <p>Accordingly, the focus of interventions during the project will be on cultivating new ‘win-win’ investment opportunities satisfying Bank policies and strategies, rather than integration into existing initiatives.</p>
<p>Secure the participation of UNEP and the World Bank on the Steering Committee</p>	<p>As indicated in Para 59 of the Project Document, in the Log Frame A.1.5, and Annex XII, the World Bank and UNEP will be invited to participate in Project Steering Committee meetings and workshops dealing specifically with investment strategies and technical issues. Provision to finance the participation of the WB and UNEP in these forums is made in the final Project Budget (b/l 3201 and 3202), recognising that the two agencies will be acting as vendors of specific investment and technical services to facilitate management of the ORB and not as GEF implementing agencies.</p>
<p>Sweden</p>	
<p>Comment</p>	<p>Response</p>
<p>The project aims at producing a strategic action programme in the first phase and implementing it in the second phase. As a strategic line of action this seems to be the correct approach. More specifically the project would address mechanisms for joint management based on wide participation and removing institutional barriers. Also improved information base and SAP formulation are included. These present a complete and appropriate approach. The technical formulation of the project proposal is adequate.</p>	<p>The endorsement given by the Government of Sweden to an approach that will be inclusive of joint management, based on wide participation and the removal of institutional barriers, will be reinforced through the SAP which will structure diverse inputs and identify specific resources necessary for implementation of the transboundary elements of the EA and the IMP. Subsequently, Stage II will support implementation of the SAP. The SAP will include necessary baseline and additional actions to address the priority transboundary issues and provide an essential monitoring and evaluation tool for implementation</p>
<p>France</p>	
<p>Comment</p>	<p>Response</p>
<p>The project aims at promoting the joint management of Okavango River Basin, in order to minimise the impact of its future development on the environment. Such project is justified as the Okavango Delta is world-wide acknowledged for its exceptional biological diversity The project is a classical project for international</p>	<p>As per response to the statement of Sweden.</p>

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<p>waters: a trans-boundary diagnosis analysis leading to the preparation of a strategic action plan, for implementation in a second phase. In addition, the project will aim at reinforcing regional consultations, people’s participation and the role of OKACOM. Our comments are the following:</p>	
<p>OKACOM promised to implement an environmental analysis and an integrated management plan. It is not easy to understand the distinction made in the document (and specifically in the summary) between the trans-boundary diagnosis and the environmental analysis and between the strategic action plan and the integrated management plan. Clarification on links between these different works would be necessary, so as an eventual adaptation of the classical methodology of PEM to the OKACOM objectives.</p>	<p>In 1995 OKACOM declared its commitment to the implementation of an Environmental Assessment (EA) and an Integrated Management Plan (IMP) for the basin. The proposal for the EA and IMP recognised the threats to the basin and the need for joint management to protect national interests. No explicit consideration of global objectives in terms of the GEF Operational Strategy or International Waters Operational Programmes were given at that stage, nor have they been elaborated since. OKACOM formally requested the assistance of the GEF in August 1995; requesting UNDP to assist in the development of a GEF supported programme for the Okavango River Basin. Consequently, GEF PDF Block A and then Block B resources were used in 1996 and 1997 to begin removing critical barriers in regional co-operation and analysis and working toward the development of a joint integrated management programme. The GEF project is therefore financing the incremental cost related to the transboundary components of OKACOMs proposed environmental analysis (EA) and integrated management plan (IMP).</p>
<p>Component B lays on the study and modelling of the system’s different aspects (hydrologic, socio-economy, etc.). We recommend an integrated approach from the start of the project, in order to reach an integrated model for OKAVANGO River Basin. The integrated model for the internal delta developed by the IRD is a good example of this kind of approach.</p>	<p>Specifically, the TDA will develop the required physical and socio-economic models across the whole basin, as requested by the Government of France. The physical models will be adapted from distributed hydrological and hydro-geological models that have been calibrated and validated for comparable basins in Africa and the United States of America and will pay close attention to the Okavango alluvial fan and the special nature of transmission and evaporative losses across the surface of the fan. Water quality modelling across the basin will pay particular attention to the salt budgets to determine hydrological limits for maintaining current salt balances. All hydrological and hydro-geological processes will be verified, where possible, through the use of isotope studies. Socio economic models will be layered on the distributed hydrological models to determine consequences of various patterns of demand for raw water, hydropower generation and environmental service from the Okavango system.</p>
<p>The financial planning is very approximate, especially for Component A, too expensive. Details of the financial lines/objects would be appreciated, as well as co-funding.</p>	<p>The project financing is indicative and has been revised to accommodate much higher operation costs at the PMU base in Luanda which is covered under Component A. A detailed operational budget has been prepared for the benefit of the PMU. A summary of co-financed inputs is provided in Annex II</p>
<p>References to the project pagination do not match the present project document, which does not help understanding the comments. Furthermore, the (STAP) Review Reporter is not mentioned. It would be appreciated if these points could be clarified</p>	<p>The pagination problem has been resolved. The STAP reviewer is Ni Boi Ayibotele of Nii Consult, Ghana.</p>



United Nations Development Programme



Global Environment Facility

PROJECT DOCUMENT PROJECT OF ANGOLA, BOTSWANA AND NAMIBIA

Project Number: RAF/00/G33/A/1G/12

Project Title: Environmental Protection and Sustainable Management of the Okavango River Basin.

Co-ordinating Agency: OKACOM (Permanent Okavango River Basin Water Commission)

Executing Agency: FAO

Lead Country: Angola

Project Site(s): Okavango Basin [Angola, Botswana, Namibia]

Estimated Start Date: January 2003

Estimated End Date (Phase1): December 2005

Duration: 3 years

UNDP Programme Officer: Nik Sekhran, Regional Co-ordinator, UNDP-GEF BDP (nik.sekhran@undp.org)

FAO Programme Officer: Barbara Cooney, FAO-GEF Focal Point, FAO/UN, Rome (barbara.cooney@fao.org)

Summary of UNDP and Cost-Sharing	
UNDP:	
TRAC (1&2)	
TRAC (3)	
Other (GEF)	US\$5,391,000
Regional Program	
<i>Parallel Financing:</i>	
<i>Government</i>	
<i>Govt of Angola (in-kind)</i>	US\$ 542,000
<i>Govt of Botswana (in-kind)</i>	US\$ 542,000
<i>Govt of Namibia (in-kind)</i>	US\$ 542,000
<i>FAO (in-kind)</i>	US\$ 150,000
<i>UNDP</i>	US\$ 300,000
<i>Sub Total:</i>	US\$ 2,076,000
Grand Total	US\$ 7,467,000

Classification Information

ACC sector & sub-sector	Primary type of intervention
0400 – Natural resources	
0410 – Water resources planning and development	
DCAS sector & sub-sector	Secondary type of intervention
Primary area of focus/ sub-focus	Primary target beneficiaries
Secondary area of focus/ sub-focus	Secondary target beneficiaries

Summary: The Okavango River Basin (ORB) remains one of the least human impacted basins on the African continent. Mounting socio-economic pressures on the basin in the riparian countries, Angola, Botswana and Namibia, threaten to change its present character. It is anticipated that in the long term this may result in irretrievable environmental breakdown and consequent loss of domestic and global benefits. Maintaining these benefits requires agreement over the sharing of both the benefits and associated liabilities (to include those of an environmental and ecological nature) through joint management of the basin's water resources. The 1994 OKACOM Agreement, 1995 SADC Protocol on Shared Watercourse Systems and the 1997 UN Convention on the law of the non-navigational uses of international watercourses provides a framework for such an agreement. Under the OKACOM Agreement, the riparian countries are working toward the implementation of an Integrated Management Plan (IMP) for the basin on the basis of an Environmental Assessment (EA).

To address the critical transboundary elements of the proposed EA and IMP, Stage I of GEF support will enable the completion of a Trans-boundary Diagnostic Analysis (TDA), and formulate a Strategic Action programme (SAP). This Project provides for these activities, and sets the stage for long term investment activities to protect the ecological integrity of the basin. Specifically, the TDA will develop required physical and socio-economic models across the whole basin needed to facilitate joint management based on wide participation and the removal of institutional barriers. The SAP will structure diverse inputs and identify specific resources necessary for implementation of the transboundary elements of the EA and the IMP. A follow on project will support implementation of the SAP. The SAP will provide an essential monitoring and evaluation tool for the implementation phase. The project provides for a process of formal endorsement of the SAP by the participating governments, support to the translation of SAP provisions into national policy and legislation, and the mobilisation of institutional and investment resources for its implementation. Following an OKACOM decision in July 2001, the Programme Management Unit (PMU) is to be located in Luanda, Angola.

Signatures

On behalf of the	Signatures	Date	Name/Title
Government of Angola			
Government of Botswana			
Government of Namibia			
FAO			
UNDP			

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ACRONYMS AND ABBREVIATIONS

APR	Annual Programme Review
CTA	Chief Technical Adviser
DWA	Department of Water Affairs
DNA	Direcção Nacional de Águas
EA	Environmental Assessment
FAO	Food and Agricultural Organization of the United Nations
GEF	Global Environment Facility
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GHABIC	Angolan Authority of the Cunene River Basin
IA	Implementing Agency
IMP	Integrated Management Plan
IUCN	International Union for the Conservation of Nature
IW	International Waters
IMP	Integrated Management Programme
LEARN	Learning Exchange and Resource Network.
M&E	Monitoring and Evaluation
MEA	Ministério da Energia e Águas
NCU	National Co-ordination Unit
NGO	Non Governmental Organisation
NWRMR	Namibian Water Resources Management Review
OBSC	Okavango Basin Steering Committee
OKACOM	Permanent Okavango River Basin Commission
ORB	Okavango River Basin
OP	Operational Programme
OS	Operational Strategy
PIR	Project Implementation Review
PMU	Project Management Unit
PPER	Project Performance and Evaluation Review
PSC	Project Steering Committee
SADC	Southern Africa Development Community
SAP	Strategic Action Programme
STAP	Scientific and Technical Advisory Panel
TDA	Transboundary Diagnostic Analysis
TPR	Tri-partite Review
UNDP	United Nations Development Programme

I. PROJECT CONTEXT AND BASELINE COURSE OF ACTION

1. **General Context.** The Okavango River Basin (ORB) is shared by three nations, Angola, Botswana, and Namibia. A map of the basin is presented in Annex IV. The basin straddles sub-humid climatic zones in Angola through semi-arid to arid climatic zones in northern Namibia and Botswana where freshwater sources are scarce. The basin's source in Angola stems from the Huambo Province and cuts across the Bie Moxico and Kwando Kubango provinces where the demand for water is anticipated to increase as resettlement occurs and agricultural development projects follow. As the main tributaries converge on and run along the border with northern Namibia, human development alongside the trunk watercourse intensifies. In Botswana, the ORB drains into the Kalahari Desert as an alluvial fan, commonly known as the Okavango Delta which forms part of a large national wetland ecosystem. Periodic outflows from the apex of the fan to the Chobe channel linked to the Zambezi basin can occur but the bulk of the flow drains to the distal margin of fan which is bounded by geological faults across which flood flows intermittently drain and flow into the Boteti river to evaporate in the Makgadikgadi basin.

2. **The Hydrological Context.** The ORB has a topographic catchment of approximately 704,000 km² and a length from basin divide in Angola to the distal margin of its terminal fan of approximately 1,100 km. The economic and ecological vitality of the ORB and its associated wetlands depends upon the detailed character (timing, volumes, duration) and quality of the annual flow regime generated in the source catchments of Angola. Over the Angolan portion of the basin, from the mean annual rainfall of approximately 800 mm, only 58 mm appears as flow at Rundu (Cubango sub-basin) and 74mm at Dirico (Cuito sub-basin). At the head of the Delta, at Mohembo, the combined annual flow of both these sub-basins is reduced to 44 mm. By the time flow has traversed the Delta, despite the addition of a further 4-500 mm in direct rainfall over the area of the fan itself, outflows from the fan are negligible in most years. The bulk of the loss over the area of the Delta is through evaporation and evapotranspiration from surface and shallow groundwater. Potential rates of evaporation over the fan are in the order of 2,000 mmyr⁻¹. All transmission and evaporative losses along the course of the ORB are essentially non-negotiable if the basin is to retain its present hydrological and ecological character. In addition, the evaporation component of the hydrological cycle is a key element of the basin's micro-climate, which supports specific aquatic habitats. As a low gradient hydrological "sink" in an arid quarter of southern Africa, the fan is highly sensitive to variations in tectonic and climatic regime, but is equally sensitive to **man-induced threats** and there is now preliminary evidence that the hydro-environmental integrity of both the source and the sink of the ORB is under threat from such activities.

3. **Environmental Context.** Freshwater is the prime environmental and socio-economic resource and agent in the ORB directly supporting all human activity, vegetation and wildlife habitats and their associated productivity. Freshwater sources are also the natural resource component most at risk since there is no economic substitute for the basin's watercourses and associated aquifers while they are also the final repository of anthropogenic waste. The status of the sources and the characteristics of the freshwater **balance** in the basin as a whole is therefore key not only as a critical resource for development, but also as an irreplaceable global **environmental asset**. The Okavango Delta has been designated a RAMSAR site on the basis of its wetland values and also contains the globally important Moremi Protected Area. The flood and baseflow to the fan sustain a unique wetland environment, which supports significant regionally and globally significant biodiversity with a large number of endangered and threatened species.

4. **System Boundary.** The functional system boundary for water, land, forests and wildlife comprise much smaller sub-sets of the basin's geographic limit. This is because the hydrologically active area of the basin is much smaller than the topographic limits of the basin in Botswana and Namibia. Equally, only a part of the basin's population and communities bounded by the topographic divide in Namibia and Botswana are directly engaged with the water resources of the basin. However, there are significant **external linkages** beyond the hydrological and topographic system envelopes, notably; demands for water abstraction in Namibia originating beyond the topographic limits of the basin; with the ongoing peace process in Angola, priority is

given to resettlement policies and in the case of the Kwando Kubango it is expected that this will result in most of the original population returning to the area; and the wetland environment of the fan in Botswana provides staging area for birds migrating to southern Africa during the boreal winter and is a storehouse of globally significant biodiversity. Thus the impact of water body degradation would have ramifications far beyond the physical boundary of the basin.

5. **Socio-economic Context.** Population growth and shifts in consumption patterns drive the pressures on the water resource base and associated environments of the ORB. While the population within the ORB is currently estimated at approximately 580,000 (250,000 in Angola, 140,000 in Botswana, and 190,000 in Namibia), the pent-up demands for raw water from population centres outside the basin in Namibia and Botswana are now significant. The intra-basin population comprises predominantly mixed agro-pastoral low income communities who are highly dependent upon the freshwater resources of the basin for their basic subsistence and income generation. By contrast, the extra-basin population creating pressure for inter-basin transfer is largely urban with associated industrial demands. The productivity associated with freshwater use and its related aquatic ecosystems is estimated at approximately 25% of GDP in the basin as a whole although there is considerable inter-country variability. In Angola, with the ongoing peace process, it is anticipated that the previous decline in population, commerce, and trade will be halted and the current levels of water use in the basin will rise. In contrast, Botswana's mineral led growth is putting pressure on its vital freshwater resource base as urban centres on the fringe of the Delta expand. There is also significant demand for amenity use of the Delta largely from international tourists. Namibia is attempting to manage demand for water but is also facing unprecedented levels of demand for municipal and industrial water, particularly in its central area, which lies outside the topographic and hydrologically active system boundaries of the ORB. The ORB is the only perennial river system that lies within Namibia and is therefore the first candidate in Namibia's search for new water. These disparate levels of dependence upon the basin's natural resource base in each country create barriers to harmonised development of the basin as a whole. In addition there is concern in both Botswana and Namibia that current national patterns of development are not sustainable. State of the Environment (SoE) reports dealing specifically with water have recently been commissioned by the Ministries responsible for environment in both countries.

6. **Policy Context.** Recognising the significant regional and global values of the Okavango River Basin, the Governments of Angola, Botswana and Namibia convened the first meeting of the riparian States in Windhoek in 1993. The Permanent Okavango River Basin Commission (OKACOM) was subsequently established in September 1994. The countries are committed to the negotiation of all transboundary water issues through OKACOM where they place high level inter-ministerial representation to advise on all technical and policy issues to do with the water resources of the basin. The countries have made it clear that they intend to continue this reliance on OKACOM to address technical and policy issues regarding water resources in the basin. This is seen as strengthening the rationale for a GEF intervention. For example, a key issue for this project will be prior notification between the riparian countries. Under the Helsinki Rules (Article XXIX) invoked in the 1994 OKACOM Agreement, riparian countries are required to give prior notification of planned and unplanned measures affecting the ORB. Thus, at regional level, the 1994 OKACOM Agreement, the 1995 SADC Protocol on Shared Watercourse Systems and the 1997 UN Convention on the law of the non-navigational uses of international watercourses provide a framework for national policy initiatives to converge on an agreed **programme of joint management**.

7. Commissioners of OKACOM are appointed by the respective cabinet offices and the Commission reports at cabinet level in all three countries through the respective Ministers. In Angola this is the Ministério da Energia e Águas (MEA), in Botswana the Minister of Mineral Resources and Water Affairs and in Namibia, the Minister of Agriculture, Water and Rural Development. Meetings are held in rotation at national capitals and the Departments of Water Affairs in Botswana and Namibia and GABHIC (The Cunene River Basin Authority, under MEA) in Angola service the secretariat function within OKACOM. Prior to the establishment of OKACOM, Botswana had been supporting research in ORB system in collaboration with donors and had cancelled a major water development project for the southern margin of the Delta on the

basis of an independent IUCN review in 1992. Namibia had included the option of abstraction from the Okavango in its Central Area Water Master Plan published in 1995.

8. The national development policies of all three countries are centred on maintaining or increasing rates of growth while also addressing poverty alleviation and sustainable livelihoods. Freshwater resources are critical to pursue these national interests. The relevant national policies in Angola are associated primarily with the development priorities in Cuando Cubango Province as peace becomes re-established and with the commitment to co-ordinate basin level activities through GABHIC, under the Ministry in charge. The relevant national policies in Botswana are linked very much to wildlife and nature conservation in the Delta where the Government is promoting eco-tourism and wildlife management. Botswana is also in the process of developing a Wetlands Policy and Strategy that will facilitate proper utilisation and management of resources in the Okavango Delta and other wetlands in the country. At the same time, Botswana is developing groundwater on the margins of the fan to serve urban expansion and mining activities. Caught between these two riparians, Namibia's policies are conditioned by an imperative to increase water supply for the central area of the country and an active policy of devolution of natural resource planning and management to the regions. These policy directions need to be co-ordinated if the ORB resources are to be managed in a sustainable fashion.

9. **Institutional Context.** The countries recognise that various ministries and other government entities at national level have an interest in the work of the project and its effective implementation. The countries are committed, through their presence in OKACOM, to involve the appropriate ministries and government and non-governmental organisations (NGOs) necessary for the completion of a TDA and the formulation and implementation of a SAP. There are several dozen NGOs in the basin that are active in monitoring & research, policy, habitat conservation, institutional strengthening, public awareness and education programmes dealing with critical environmental problems in the ORB. This commitment to stakeholder participation will also strengthen the engagement of key ministries with the process and thus help ensure country commitment to implementation. Despite the urgent need to co-ordinate at regional level, national co-ordination between lead agencies involved in water and environment needs to be strengthened and for a clearer separation of policy and operational (user) functions to emerge. In Angola, GHABIC and the Direcção Nacional de Águas (DNA) in the Ministry of Energy and Water, the Ministry of Planning and the Ministry of Fisheries and Environment play strong roles at the national and international levels for all Angola's shared river basins. In Botswana, the Department of Water Affairs under the Ministry of Minerals, Energy and Water Affairs is the lead agency in water resources and provides support to the National Conservation Strategy (Co-ordinating) Agency in the implementation of the National Conservation Strategy. In Namibia, the key institutions are the Department of Water Affairs under the Ministry of Agriculture, Water and Rural Development and the Environmental Directorate in the Ministry of Environment and Tourism. This institutional setting at national level is reflected in OKACOM where cross-sectoral co-ordination and cross-disciplinary collaboration is not yet effective. While OKACOM has the mandate to convene all relevant agencies and institutions, in practice this has been difficult to effect since governments' professional resources are severely stretched. Effective consultation and co-ordination at national and regional level is therefore an essential pre-condition for the successful formulation and implementation of an integrated management plan. This presents prime opportunity for GEF support to help clarify policy and institutional linkages to achieve co-ordinated management of the ORB.

10. OKACOM is thus the key inter-governmental institution in co-ordinating integrated approaches to the development and protection of the basin. Accordingly, the mandates, functions, commitments and resources invested within OKACOM need to be reviewed during formulation of any programme of joint management to assure countries that it will be able to discharge its role effectively during subsequent implementation. Following an OKACOM decision in June 2001, the Programme Management Unit (PMU) is to be located in Luanda, Angola.

11. In 1995 OKACOM declared its commitment to the implementation of an Environmental Assessment (EA) and an Integrated Management Plan (IMP) for the basin. The proposal for the EA and IMP recognised the threats to the basin and the need for joint management to protect

national interests. No explicit consideration of global objectives in terms of the GEF Operational Strategy or International Waters Operational Programmes were given at this stage. OKACOM formally requested the assistance of the GEF in August 1995; requesting UNDP to assist in the development of a GEF supported programme for the Okavango River Basin. Consequently, GEF PDF Block A and then Block B resources were used in 1996 and 1997 to begin removing critical barriers in regional co-operation and analysis and working toward the development of a joint management programme.

12. A draft **Transboundary Diagnostic Analysis** (TDA) has been compiled as part of the PDF B activities. The draft TDA has initiated a consultative process with some basin stakeholders, established the current status of the basin as a whole, identified causes of degradation, and imminent threats, and indicated critical gaps in information, policy and institutional arrangements. This is the first attempt of its kind to analyse the hydro-environmental and socio-economic information available in all three riparian countries. The draft TDA will be expanded as gaps in the analysis are filled and the TDA will include a thorough review of the competencies and comparative advantages of OKACOM as a basin organisation in preparation for SAP implementation. This analysis of the effectiveness of existing mechanisms and clear recommendations for improvement of both OKACOM and all the related policy, legal and institutional arrangements at national and regional level is an important test of the GEF intervention.

13. **Environmental Threats.** The chief threats to the ORB arise from patterns of development that cannot be effectively co-ordinated. It is apparent from the draft TDA findings that the natural resources of the basin are already subject to **demands** for water and land from agriculture, urban and industrial development both within and outside the basin. The externalities generated by these demands are already resulting in modified quantity, quality and sediment flows. There are also minimum requirements for the basin to be met if it is to continue to furnish its flow of environmental benefits and maintain a critical stock of freshwater assets. However, the national institutional and policy responses to date have been one of supply management. In financial, economic and environmental terms this approach is not sustainable. Regional demands for raw water have to be managed in a co-ordinated fashion and an integrated joint management plan with a comprehensive approach to demand management is therefore essential. If these threats are not addressed through such management, irreversible changes in the basin's water balance, and hydrochemical and hydrogeomorphological responses are anticipated. Such changes will impact the productivity and environmental integrity of the basin as a whole.

14. **Causes.** The **proximate cause** of environmental degradation is three fold; continuation of unplanned abstraction from watercourses and aquifers; growth of effluent disposal and non-point pollution sources; and the accelerated erosion of land hydro-geomorphologically linked to the basin. But the root causes lie with patterns of socio-economic development – population growth, urbanisation and industrialisation. Key factors in these trends are; over-grazing which is already resulting in accelerated land and soil degradation in Namibia and Botswana; unplanned development in Angola along de-mined transport corridors in the Cubango and Cuito sub-basins as the peace process re-settlement occurs; and pressure for new and increased abstraction of raw water to service urban expansion and irrigated agriculture. It is anticipated that these factors will continue to accelerate new demand for raw surface and groundwater in the basin, and its immediate region, and accelerate the process of land use conversion for subsistence agriculture. But it is equally apparent that the trends are outpacing policy and institutional response in the riparian countries and it is to address these **intermediate causes** where co-ordination is necessary and where improved understanding can drive the required policy shifts.

15. **Baseline.** The expected baseline course of action in the ORB is directed at national interests, primarily socio-economic development (whether planned or informal) through the promotion of water services for rural and urban water supply and sanitation, small scale irrigation and stock watering. Only a small portion of the national baselines is directed specifically to water resource management in the ORB. Further details of the baseline are given in the Incremental Cost Analysis presented in Annex I.

16. **Angola:** Since independence in 1975, there has been no appreciable inward investment to the basin. A proposed regional re-habilitation programme for Kwando Kubango province formulated in 1995 will supply a considerable amount of infrastructure related to water supply, sanitation, agriculture and transport. However, under present circumstances these activities cannot be verified. In 1997 World Bank has proposed an Agricultural Sector Investment Programme part of which may be expected to assist smallholder and commercial farmers in the Province. The World Bank is also preparing a national Water Sector Development Project which is expected to channel resources for water supply and sanitation to major provincial capitals, Cabinda, Lubango, Lobito-Benguela, Luanda and Namibe. None of them is in Cuando-Cubango province.

17. **Botswana:** The Government of Botswana is committed to the implementation of their 8th National Development Plan for the period 1997/8-2002/03. In this period, the Plan anticipates various capital development projects and studies, elements of which are related to water management in the vicinity of the Okavango Delta. These national plans include; Major Village Water/Sanitation Development; Groundwater Studies and Protection; Hydrological Support including updating of the Okavango Forecasting Model; and International Water Planning and Development.

18. **Namibia:** Under its First National Development Plan (NDP1) for the period 1995/6-1999/2000, the Government of Namibia's support to the Okavango region and Caprivi Strip focuses on health and education sectors with a programme of rural water supply and sanitation supported by GTZ. Additional community development activities are carried out by Namibian and international NGOs. A World Bank/GTZ/UNDP Water Resource Management Review (NWRMR) was launched in early 1998 with total resources of US\$ 1,100,000. Elements of this exercise will be directly related to transboundary water issues, including the Okavango. Despite this, the Government of Namibia has made provision for feasibility studies for the construction of an emergency pipeline from Grootfontein to the Okavango at Rundu. The preliminary feasibility work carried out in 1997 amounted to approximately US\$ 1,500,000.

19. **Hydrological Analysis:** Current detailed hydrological, hydrogeological and hydrochemical information for the ORB is fragmented and, in the case of Angola, the information is scarce and scattered. The basin has no regulatory or control structures at which flows can be determined accurately. Validation and verification of resource development options (both in terms of quantity and quality) is therefore dependant upon high quality continuous stage/discharge information at key natural channel reaches in the basin, particularly in relation to the relative contribution of the Cubango and Cuito sub-basins and their associated catchments in Angola. At present, the water resource records from Angola are limited to variable sets of level readings and gaugings for the period 1963/4 to 1969/70 in the Cubango and Cuito sub-basins, principally in the upper catchments. There is no systematic measure of the relative yields of the sub-basins before they cross the Namibian border. The former gauging locations in Angola are known to have been selected on the basis of ease of access, not reach stability so that their stage/discharge relationships are suspect. The only permanent cableway from which an accurate stage/discharge relationship has been determined is at Mukwe in Namibia. The gauged flows at Mukwe are routinely compared with the flow readings at Mohembo in Botswana to establish an agreed inflow to the 'panhandle' in Botswana. The hydrometric network described above is not sufficient to determine and monitor the amount of water, its quality, timing and availability throughout the system that is needed to sustain the various consumptive and non-consumptive uses for water, and for the Okavango Delta in particular, nor does it provide a system to verify compliance with a basin-wide joint management plan. The riparian countries have no specific national plans for the improvement of hydrometric monitoring on the ORB.

20. **Information Availability.** Government departmental libraries, national research institutes, and universities all maintain indexed hardcopies of relevant reports and maps and some digital data, but in a variety of formats. Access to these sources in the ORB region is therefore limited. Hydrological and hydrogeological information for the Angolan portion of the basin was taken out of the country at Independence in 1975 and is believed to reside in Lisbon, Portugal. Since 1975 there has been no additional hydrometric data gathered for the Cuito and Cubango sub-basins. Equally, much original research on the Okavango Delta resides with

research groups, institutions and at universities outside the basin. Much of the collected data and subsequent analysis is either sector based, academic or focused on the Delta.

21. **Consequences.** The national policy focus and institutional arrangements are not sufficiently co-ordinated at national or regional level to address threats to the basin's freshwater resources. The consequences are two-fold. First, the primacy of national interests is resulting in the imposition of transboundary externalities; these include: quality and quantity losses of water supplies for urban centres in the basin (Rundu, Maun); reduced supplies for irrigated agriculture (Caprivi and fringes of the Delta); degraded stock watering (Caprivi, Ngamiland); reduced supplies for mining (Orapa); loss of biodiversity; and compromised nature tourism (Caprivi, Panhandle, Delta,). Second, the costs of co-operation are high where barriers to communication and understanding persist.

22. **Required Actions.** Barriers to transboundary management and the achievement of global benefits are manifest under the baseline. To overcome these barriers, understanding of environmental issues, consultation and commitment to alternative course for sustainable development needs to be addressed. The principal barriers and constraints include:

- **Policy, Institutions and Co-ordination** - there is no basin-wide policy perspective. The current policy focus on national issues will not result in the sustainable development of basin and OKACOM lacks expertise and the capacity to co-ordinate effectively. OKACOM therefore needs to be in a position to establish this perspective and drive a programme of joint management with the appropriate political and financial support.
- **Awareness, Consultation and Communication** – there is a lack of cross-sectoral and stakeholder consultation and communication which is inhibiting participation, commitment, and investor buy-in. To address this issue, national and regional consultative fora need to be scaled up, particularly during the intensive planning stages.
- **Information and Analysis** – there is a fundamental lack of understanding of the threats and opportunities of the hydro-environmental and socio-economic systems of the basin as a whole. This is particularly the case for the Angolan portion of the basin. Alternatives cannot be evaluated and transboundary economic assessments made. Knowledge based planning frameworks (with distributed modelling and scenario development capabilities) need to be assembled and multi-objective decisions made.
- **Criteria, Guidelines** – There exist no basin-wide technical criteria or guidelines for resource assessment and valuation to inform allocation decisions. This gap needs to be filled through basin wide hydro-environmental and socio-economic analyses.
- **Indicators, Monitoring and Evaluation** – there is no basin-wide system of hydro-environmental and socio-economic monitoring procedures that can be used to evaluate the impact of the joint management plan. Key indicators and benchmark monitoring arrangements need to be agreed.
- **Training** – All levels of technical and professional level staff in water, environmental and community development agencies will require training in specific aspects of SAP implementation.
- **Political Agreement On and Commitment to SAP Implementation** – the role of OKACOM in brokering political agreement and commitment needs to be strengthened through the inter-ministerial and cross-sectoral advisory mandate that it possesses. Here the role OKACOM can play in convening the technical dialogue between ministries, sectors and disciplines in all three countries will be pivotal.
- **Sustainable Financing** – The generation of financial resource flows for implementation of the management plan has not been addressed. Specialist training in investment analysis and resource mobilisation is required to service stakeholder participation and donor consultations.

II. PROJECT PURPOSE AND THE RATIONALE FOR GEF FINANCING - THE ALTERNATIVE COURSE OF ACTION

PROJECT OBJECTIVE

23. The project objective is to alleviate imminent and long-term threats to the linked land and water systems of the OR through the joint management of the ORB water resources and the protection of its linked aquatic ecosystems, comprising all wetlands, fluvial and lacustrine systems, and their biological diversity. A two-stage approach has been adopted. Stage 1, the subject of this intervention, will involve the preparation of the SAP. Stage 2, the subject of a subsequent intervention, will involve implementation of the SAP.

PROJECT PURPOSE

24. The **purpose** of the project is threefold. **First**, to overcome current policy, institutional, human resource and information barriers and constraints to co-ordination and joint management of the basin. **Second**, to complete a transboundary analysis to underpin a programme of joint management. **Third**, to facilitate the formulation of an implementable programme of joint management to address threats to the basin's linked land and water systems. A Strategic Action Programme (SAP) approach will be used as the programming instrument for the project. A two-stage approach will be adopted, namely **formulation** of a Strategic Action Programme (SAP) to bring together all planning and management initiatives followed by **SAP implementation**. This project marks the first stage in this process. The SAP provides the vehicle in which to package the plan, overcome the barriers to regional co-operation and ensure that the sustainable development baseline can be met and global objectives achieved. The SAP will be designed to achieve the equivalent national development goals articulated in the baseline but will take national and regional activities into a new area - the alternative - where global benefits will accrue. The project will establish three fundamental outputs:

- strengthened mechanisms for the joint management of the Okavango River Basin (ORB);
- a completed transboundary analysis; and
- a formulated SAP.

This initiative will be driven by OKACOM in which the countries transboundary technical and policy analysis functions are invested and who will be responsible for co-ordinating formulation of the SAP and its subsequent implementation. OKACOM will also be strengthened through the review of its mandates, functions, competencies and resources, and its commitment to inter-ministerial and cross-sectoral co-ordination and collaboration.

RATIONALE FOR GEF FINANCING

25. **Eligibility for GEF Financing:** As recipients of UNDP technical assistance, Angola, Botswana, and Namibia all meet the eligibility criteria set out under paragraph 9 (b) of the GEF Instrument. The project is eligible for GEF assistance under Operational Programme number 9: Integrated Land and Water/Multiple Focal Area, meeting the eligibility criteria by: [1] focussing on preventive measures to address threats rather than remedial, highly capital-intensive measures. [2] being nested firmly within the regional and international agreements on transboundary waters, [3], developing sound land and water resource management strategies through new policy initiatives and institutional arrangements [4] testing the use of the SAP concept to facilitate collaboration and leveraging of funding [5] financing the agreed incremental costs of measures to secure global benefits, providing for institutional and financial sustainability, [6] following guidance regarding public participation, [7] including a strong monitoring and evaluation component, that will document and widely disseminate lessons learned during the course of activity implementation, and 8] have clear links with GEF OP # 1 and 2. In addition, the GEF support will produce outcomes that address the short-term Operational Programme objectives of land degradation, a focus on Africa, SAP development, and participatory planning.

26. The objectives mark a significant response by the riparian countries to the 1995 Protocol on Shared Watercourse Systems in the SADC region and the Convention on the law of the non-navigational uses of international watercourses passed as a UN resolution in July 1997. They also echo the concerns of Chapters 18, 10 and 12 of Agenda 21 dealing with freshwater, land resources and fragile ecosystems respectively. An agreed SAP will provide a substantive background for additional GEF support to government actions in Botswana to safeguard the globally significant biodiversity of the wetlands of the Okavango Delta in accordance with the agreed broader programme of UNDP support to Botswana.

THE PROJECT DESIGN AND PROCESS

27. The formulation of the SAP will be driven by a consultative process with stakeholders and enabled by policy, legal, institutional and financial commitments. When finalised through a series of consultative workshops, the TDA will provide an analysis of priority transboundary environmental problems, identify the scale and causes of degradation (proximate, intermediate and root), information gaps, policy distortions and institutional deficiencies. The SAP approach will be instrumental in defining and driving the necessary policy and financial commitments in the short to medium term. It is anticipated that the SAP will be formulated over a three year period after which substantial leveraged co-financing will be used to launch a longer period of SAP implementation followed by a continuous programme of joint management. The SAP will establish clear priorities that are endorsed at the highest levels of government and widely disseminated. Priority transboundary concerns will be identified, as well as sectoral interventions (including, policy changes, program development, regulatory reform, capacity-building investments) needed to resolve the transboundary problems as well as regional and national institutional mechanisms for implementing elements of the SAP. Co-ordination of priorities with those identified under the climate change and biodiversity focal areas will be undertaken during the SAP formulation. The countries and the GEF will agree on the baseline environmental commitments (which should be funded domestically or through donors or loans) and activities that are additional for solving the transboundary priority problems. A major donor conference will be held when the SAP is in the draft stage to facilitate international commitments to action.

III. PROJECT COMPONENTS, OUTPUTS AND ACTIVITIES AND EXPECTED RESULTS

GEF PROJECT COMPONENTS AND OUTPUTS

28. This proposal identifies specific groups of outputs and activities leading to the preparation of a Transboundary Diagnostic Analysis and Strategic Action Programme for the Okavango River Basin as a whole. Indicative budgets are based on performance costs and the experience gained during the PDF work. The project outputs have been determined from consideration of the gaps identified in the draft TDA and guided by the principles for successful initiatives in river basin and wetland management for the entire river basin. The specific activities under each output are detailed in the Logical Framework Matrix, Annex II. All activities under each output are time bound and sequenced. Many of the project activities are iterative while others are strictly phased. A Gantt chart is presented as Attachment 2 and compliments the Logical Framework (Annex II) to clarify the timing of outputs within the 3-year project duration.

COMPONENT A: STRENGTHENED MECHANISMS FOR JOINT MANAGEMENT OF THE ORB

Output A1. *Expertise in the riparian countries strengthened to drive both inter governmental and intra-governmental technical and policy initiatives in river basin planning and management for the ORB*

29. To initiate all outputs OKACOM will establish a small appropriate project executive office, a Project Management Unit (PMU), together with national counterparts in National Co-ordination Units (NCUs). These units will form the core of an **Okavango Initiative** to pull

together a network of national and regional experts to produce the analytical work and then launch policy initiatives through consultative fora. The project will be aided by the high-level riparian country commitment invested in OKACOM and its mandate to advise on technical and policy issues, and involve country resources that cut across ministerial mandates, sectoral interests, and technical and scientific disciplines. The PMU/NCU arrangement will exist for the life of the project only and will have transferred key expertise to national and regional institutions through training and education activities so that programme co-ordination can continue through the period of SAP implementation and beyond. A critical activity of the PMU at project inception will be to obtain an independent review of the mandate and capacity of OKACOM to make recommendations on appropriate changes in the OKACOM agreement and national enabling environments to better effect the implementation of joint management of the ORB. Activities of the PMU and NCUs will include: undertaking policy analysis; publishing and discussing results of analysis; formulating policy initiatives; identifying and servicing key training needs at all levels (institutions and communities); and designing investment vehicles for SAP implementation (ii & vi). Sub activities for the PMU will include: identifying regional and national capacity building needs and targets; and developing professional training at the regional level. Sub-activities for NCUs will include; developing and advocating national policy perspectives; and developing professional and community training at the national level.

Output A2. Basin-wide mechanisms for stakeholder participation in basin management established and tested to ensure consensus, replicability and taking to scale

30. The consultative process developed during PDF activities will be extended **through consultative public meetings, reviews and seminars.** SAP formulation will require broad-based collaboration with and participation of these basin stakeholders in association with related interest groups, donors, NGOs and research organisations to design realistic approaches to the management of land and water resources in the ORB. The PMU will establish and maintain a series of fora in each county to serve as principle sounding board for SAP formulation. Special emphasis will be given to activities in Angola where previous attempts during the PDF process were inhibited by political instability but where special consideration of displaced communities is required. In addition to the basin communities, the key institutional partners within government ministries and departments will be brought in to play a much more active role, a role facilitated by the presence of carefully selected NCU members. Clear participatory mechanisms for SAP formulation and later implementation will be established including an NGO sub-forum for NGOs to network, identify priorities and responsibilities, and share data and information. In addition broad public awareness in understanding the work to be undertaken in the SAP will be promoted through: a high intensity campaign in public awareness which will occur in the first months of the project; improving and extending World Wide Web access to the OKACOM website; and publishing and disseminating TDA and SAP formulation information. Pilots and demonstrations for community participation (including mobilisation of funding) will be initiated in selected key communities within each country to test the replicability of basin management at local levels the scope for taking the initiatives to scale in the basin.

Output A3 Policy, legal, institutional and human resource initiatives launched and linked to national policy reviews to co-ordinate river basin resource management approaches across the basin

31. Well-structured institutional mechanisms are required to permit integration across natural resource issues at the national and regional levels. An important element here is ensuring that OKACOM becomes much more inclusive of environmental, agricultural, financial and planning agencies. Therefore the project's executive office, the Project Management Unit (PMU), together with national counterparts in the National Co-ordination Units (NCUs) will : establish natural resource planning linkages across national, inter-ministerial and socio-economic sectors and actors; specify natural resource linkages within national administrations/jurisdictions and NGOs associated with the basin boundaries; and link the basin initiative to regional planning and socio-economic development and initiatives and the activities of regional NGOs. This will allow OKACOM to: lock on to national and regional organisations responsible for natural resource

management in the ORB; facilitate government buy-in and eventual commitment to implement; determine feedback in SAP formulation; and establish channels and participatory mechanisms for SAP implementation. The results of the local level basin management pilots under A2 will be used to test the effectiveness of existing and alternative institutional links and structure appropriate SAP interventions. In particular, the international waters elements of the World Bank led Angola Water Sector Development project and the Namibian Water Resources Management Review (NWRMR) will be instrumental in defining Angolan and Namibian policy toward shared basins and will establish the enabling environment for subsequent investment under the SAP.

Output A4 *Monitoring and Evaluation Procedures for SAP implementation*

32. The analytic work carried out in both component A and B will result in a set of key hydro-environmental, socio-economic and institutional criteria. This will occur toward the end of the project. These criteria will be used to develop a set of agreed indicators by which to verify compliance of a joint management plan and monitor and evaluate the impact of the SAP. Therefore institutional adaptation/sustainability indicators will be used to assess the extent to which the alternative has resulted in changes to national and regional institutions, particularly within the stakeholder institutions in the basin. In addition, the monitoring of key hydro-environmental indicators will have commenced as part of the project to measure the environmental impact of the SAP.

COMPONENT B: COMPLETED TRANSBOUNDARY DIAGNOSTIC ANALYSIS

Output B1 *Water resource assessment and analysis completed to determine hydro-environmental processes, characteristics and limits*

33. A joint management programme will involve decisions about the allocation of water quantity and quality amongst the riparian countries and the basin's environment. The programme will also require basin-wide environmental indicators to be monitored to check compliance with and evaluate the impact of the SAP and the ensuing programme. While the overall system boundaries and preliminary understanding of the ORB has been identified by the draft TDA work, the TDA can only be completed if hydrological, hydrogeological and hydrochemical information can be analysed to the minimum degree of precision necessary to permit assessment of credible alternatives and joint management regimes. The current information on the dynamics of the basin water balance (quantity and quality) and consumptive and non-consumptive uses across the basin and projections for future water demands will be refined. Given the urgent need to establish this data for consultation and decision making for SAP formulation, these water resource assessments will be given the highest priority. The compilation of existing data and new data sets that are needed will be fast-tracked to identify the minimum data sets to initiate the preparation of basin management models and subsequent negotiation and joint management. This compilation of water resource data will be done on the basis of priority and need concentrating on the glaring data gaps in Angola. Thereafter data will be selectively compiled on the basis of the most sensitive use scenarios so that a realistic range of likely water management scenarios can be modelled and options prepared at later stage of project implementation.

Output B2 *Socio-economic analysis completed to establish current and future patterns of river basin resource use and levels of demand*

34. A socio-economic framework will be established in parallel with the physical analysis/framework developed in Output B1. This framework will be based on published reports and census data and targeted socio-economic assessments, particularly in Angola where particular attention will be given to the status of displaced communities and their specific engagement with the natural resources base of the ORB. Levels of consumptive and non-consumptive water use and levels of demand for the basin resources will be established and targeted social and economic assessments will be undertaken where no information exists. To enable appropriate economic

analysis of all use and non-use values for the water resource base, the economic and social productivity of alternative uses of water across the basin and anticipated changes with time in productivity will be analysed.

Output B3 *Water resource and socio-economic analysis super-imposed to define environmental system limits and parameters*

35. The descriptions and analyses of the basin's linked environmental and socio-economic systems will be super-imposed. The layering of basin frameworks will include; hydrological systems; hydrogeological sub-systems; ecological sub-systems; basin demographics and socio-economic status; and basin demands in water quantity and quality. This super-imposition and meshing of the resource base and the current demands will allow the identification of critical system limits and parameters for inclusion in subsequent modelling.

Output B4 *Environmental assets of the ORB described and valued to structure models*

36. The existing environmental assets of the basin will be described in detail based largely on published material and the State of Environment Reports for Botswana and Namibia due for publication in early 1999. In the case of Angola, specialist environmental surveys and reports will need to be commissioned to complement the published material in Botswana and Namibia. These will include rapid surveys of the fluvial and wetland environments in the Cuito and Cubango sub-basins using remote sensing techniques and structured ground sampling. The use and non-use values of the environmental assets of the basin will be calculated on the basis of appropriate valuation methods.

Output B5 *Comprehensive set of water resource alternatives for the ORB assessed to structure model scenarios and tested for replicability and taking to scale*

37. All the sources of freshwater and resource management opportunities for the region will need to be assessed to the extent that they offer alternatives to direct abstraction from the Okavango. These include existing groundwater sources in all three countries, optimisation of existing infrastructure, and non-structural solutions such as conjunctive use, national demand management programmes and trade-able abstraction and pollution permits. Each source and potential management solution will be detailed with sufficient precision to form a model component which can be considered as a potential alternative source or substitute for raw water abstraction or water quality tradeoffs. (To assess the viability and replicability of alternatives, feasibility studies of enhanced recharge, small-scale irrigation from groundwater, conjunctive use and small-scale programmes in demand management will be carried out) In association with the World Bank, the PDF B has already initiated such studies in Namibia.

Output B6 *Water resource development and management models used to produce water resource management options.*

38. As soon as sufficient data is assembled, by the end of the second year of the project, interactive modelling techniques will be used to explore regional water supply and water management alternatives and sensitivities and to demonstrate these to basin stakeholders. A detailed proposal for this work has already been submitted to OKACOM by the Natural Heritage Institute of Berkeley, California. A range of **alternative development scenarios** will be elaborated to assess the impact of future patterns of socio-economic demand and the ecological water requirements to maintain the functioning and productivity of wetlands in the basin and prevent wetland degradation. Opportunities for conjunctive use and alternative water resource options both within the basin and for centres of existing and potential demand outside the basin will be assessed in the models.

Output B7 *Economic and environmental criteria produced to guide water resource planning and development decisions*

39. Environmental and socio-economic criteria and guidelines will be produced by the end of the second year of the project to ensure that management actions and designs are consistent with the achievement of global environmental objectives. The guidelines and criteria will be pivotal in driving policy and institutional changes at the regional, national and local levels. These will include clear recommendations on natural resource valuation, rights in water use and associated natural resource use, allocation, levels of irrigation efficiency, demand management for urban water and tariff structures for water services. In addition, a comparative analysis of existing legal and regulatory provisions will be made and evaluated as a basis for joint management under the SAP and appropriate recommendations made for national review.

COMPONENT C: SAP FORMULATION

Output C1 *Technical and policy implications of joint management options evaluated*

40. The implications of adopting the various options will be evaluated by the riparian countries in a series of OBSC and OKACOM meetings in which the PMU will present the results of the TDA. The degree to which the various options meet the economic and environmental criteria will be assessed and the options ranked accordingly. This evaluation will occur within the context of the SAP as it is developed over the duration of the project.

Output C2 *Joint management plan*

41. As soon as the management options have been evaluated, the countries will begin work on a joint management plan for the basin. It will have direct links with ongoing water and environmental management activities including those carried out by the World Bank and UNDP in the riparian countries. It will begin to take into account a much deeper economic analysis of the transboundary benefits linked to the ORB.

Output C3 *Commitments to SAP Implementation defined including, policy, legal, institutional, human resource arrangements*

42. Authority has been vested in OKACOM by the cabinets of the riparian governments to advise on all policy, technical and investment matters related to the ORB. The precise policy, enabling environment and resource commitments from each country will be defined in inter-ministerial and multi-disciplinary consultations hosted by OKACOM **from project inception**. This will allow government commitment to the SAP to be incorporated into national development plans and give a clear signal to basin stakeholders and SAP partners. These policy and resource commitments will form the basis of the support to SAP implementation and will have been built over the whole period of SAP formulation.

Output C4 *SAP document produced and endorsed by riparian governments through integration of outputs C1- C3 in collaborative process with basin stakeholders and SAP partners*

43. A draft SAP will be produced in the first year of the project on the basis of preliminary findings from ongoing project activities. The technical and policy commitments given by the riparian countries will form the basis of a rolling SAP document into which basin stakeholders and SAP partners will be invited to contribute on the basis of their respective comparative advantage. The SAP will include expected and additional priority actions to address the priority transboundary issues and will comprise policy, legal, institutional and investment decisions at national and regional level. The final draft of the SAP will be presented to governments for their endorsement in the third year of the project prior to presentation at donor conferences.

Output C5 *SAP finance mobilised in preparation for implementation*

44. SAP investments will be integrated into national development plans circumscribing budgetary appropriations and guiding donor activities. It is anticipated that the bulk of financing for SAP implementation will come from non-GEF sources. It is therefore important to develop an adaptable and flexible arrangement with development partners – governments, donors, NGOs and basin stakeholders who will provide financial, technical, and human resources for implementation. The design of investment vehicles and the production of prospectus material to match investment opportunities with investors will be essential, as will the training of Government personnel in this field, material and training will be developed and provided to ensure the Okavango initiative can leverage sufficient funding to realise both an enhanced domestic baseline and global benefits. There will be an initial, early donor conference as an early project priority. This will be followed by additional Donor consultations to assure increased donor support for the SAP by the end of the second year of the project in readiness for additional formal donor conferences in the final year of the project. Significant project resources will be used to assure the preparation of all necessary documentation, meetings and conferences to mobilise financial support for the SAP. ‘Deal flow’ identification services will be provided, with consultancy input, to match priority investment needs identified in the SAP with funding sources. To this effect, two donor workshops are planned, one in year 3 and one in year 4. The PMU will liaise closely with the World Bank in the preparation of co-financing and donor support for the SAP, including the organisation of the donor conferences. This will necessarily build on World Bank assistance to Angola and Namibia in setting the policy frameworks for water related investments. The Project will work closely with the Bank to identify bankable investment opportunities. This will be facilitated by ensuring the active participation of the World Bank in the Donor Conferences, maintaining close communication between the Project Management Unit and Task Managers responsible for the water sector in the beneficiary countries and involving World Bank resource people in Project Steering Committee meetings and workshops dealing with water and agricultural sector investment issues. In addition, current World Bank activities in Angola and Namibia with direct links with the project outputs and have been leveraged by the GEF PDF activities. Investment inputs will further be solicited from regional development banks.

INDICATORS TO MEASURE IMPLEMENTATION OF PROJECT COMPONENTS

45. Specific indicators to **measure the implementation** of project components are derived from project reporting requirements, completion of scheduled meetings and consultations and are detailed in the Logical Framework Matrix (Annex II). These are distinct from the implementation indicators for the programme of joint management.

END OF PROJECT SITUATION

46. **End of Project Situation.** Key institutional barriers to integrated management will have been overcome. Broad awareness about the state of the basin will have been raised at the national, regional and international levels. This will draw attention of decision makers to the critical planning needs and guarantee political and financial support for SAP implementation. OKACOM will have been strengthened as both a political forum for involving key high level government officials to negotiate the sharing of transboundary water and as an initiator of policy shifts at national and regional level. Specifically there will be in place; mechanisms for consultation, communication, and participation in all three riparian countries; an updateable knowledge base; policy initiatives launched and cross sectoral integration mechanisms established; a joint programme for management of the basin; natural resource management capacity built at regional and national level; and finance mobilised for SAP implementation and beyond. The project will have demonstrated new collaborative approaches to transboundary water management that are based on open understanding and consensus while also fulfilling the countries’ stated desires to understand and protect the basin in order to meet a potentially divergent range of national interests including disparate levels of socio-economic development, nature conservation, and eco-tourism. Explicit links between this International Waters project and the GEF’s bio-diversity focal area are anticipated and will be articulated in the SAP. This is

particularly the case in Botswana where natural resource conservation activities will be promoted on the basis of the water resource management analysis carried out in the project.

47. **Project Beneficiaries.** The protection of a key freshwater body with extremely high instrumental value will yield a range of benefits at both the global and national levels—according direct, indirect use, option, and existence values. The global community will benefit from the protection of a unique hydrological system and its related aquatic ecosystems, that would otherwise be threatened, and for which no equivalents exist. At the national and local levels, the project would maintain the option for basin communities to use the freshwater base and associated biological diversity for consumptive and productive purposes. Other beneficiaries include communities, government personnel and staff from local NGOs working in the project sites that would benefit from additional training and exposure to innovative basin management and conservation approaches.

IV. RISKS AND SUSTAINABILITY

RISKS

48. The long-term success of this initiative depends primarily on the political willingness of the riparian countries to co-operate not only on regional transboundary issues, but also to collaborate positively across the linked sectors within their national administrations and socio-economic systems. The success of OKACOM as the co-ordinating agency is the key to maintaining the initiative and any undermining of OKACOM's position as the prime technical adviser to all three governments on the ORB will pose a serious risk to SAP implementation. This political will is necessary to the creation of specific institutional arrangements and strategies that are consistent with the SAP process. An ongoing concern is the ability of OKACOM and related institutions in the riparian countries to implement progressive natural resource policy. While OKACOM has a mandate as an inclusive body, sectoral interests may crowd out key partners across environmental, agricultural, financial and planning departments and agencies. To prevent this from occurring, the consultation and communication components have been designed to address this risk from the inception of the project.

49. The current uncertainty over peace in Angola and the Democratic Republic of Congo poses risks to project implementation if unrest in the region spills over into the ORB. In particular, if access to the catchments and the risks of land-mines inhibit direct data collection more emphasis will be placed on remote sensing and detailed interpretation of multi-temporal imagery. While a period of unrest may disrupt consultations, water will remain a key issue for any government. In the case of major unrest, which threatens project implementation, UNDP will suspend operations in accordance with standard UNDP rules and procedures. The risk of international water disputes through lack of communication and understanding over water as the ORB is progressively re-settled and developed in Angola is minimised by the effective dialogue that takes place within OKACOM. Generally there is strong interest in co-operation and co-ordination among the three countries, particularly since all countries belong to SADC and OKACOM and can be expected to respect the SADC Protocol on Shared Water Resources.

50. Time is of the essence in this initiative. SAP formulation needs to proceed as quickly as possible to establish a meaningful framework for riparian co-operation and avoid unilateral action on the basis of drought conditions or other national imperatives such as dealing with the emergency re-settlement of refugees in the ORB. Prevention on this basis will be much cheaper than cure and needs to occur while close co-operation amongst the riparian countries can be assured. It should be noted that locating the PMU in Angola will impose higher transaction costs on the project. The implementing and executing agency will need to constantly review operational realities that arise from placing the PMU in Luanda. The implications of this will be taken into account during the scheduled TPR meetings and during the ongoing M&E process.

51. **Government Commitment.** The governments of the three countries of the Okavango Basin have already demonstrated strong commitment to strengthening international co-operation in the regional basin management and this commitment has been confirmed among other things

by their readiness to appoint OBSC as the co-ordinator of the PDF work on the TDA. The draft TDA further illustrates the governments' commitment to the development of enhanced transboundary environmental co-operation under the GEF International Waters Operational Strategy. This project brief has incorporated the comments and suggestions from the governments, scientific institutions, NGOs, and other donors and UN system agencies, gathered in several regional consultative meetings, and has received the official endorsement of all participating countries and OKACOM (Annex VI).

SUSTAINABILITY

52. **Economic Sustainability.** The project is designed to identify all use and non-use values of the ORB within the national and regional economic frameworks. This will establish the economic rationale for investing in integrated management of the ORB, conserving the stock of environmental assets, and optimising the flow of benefits from the basin's natural resource base. Positive and negative externalities associated with a set of water resource development options in the ORB will be evaluated and policy initiatives put in place to minimise transaction costs and work toward internalisation of negative externalities

53. **Institutional Sustainability.** The project is designed specifically to mainstream hydro-environmental and ecological concerns for the ORB within processes of decision making occurring within communities, local government, interest groups and NGOs operating within the basin - the stewards of the basin's landscapes. It will do this in two ways. First by driving policy changes and institutional adaptation at national levels and second, by active engagement of the basin stewards in research, analysis, and monitoring of programme components. Schools, colleges, universities, and research institutions will be key partners in building this capacity. In addition, the penetration of these sustainability concerns into national policies, regulatory, and institutional frameworks will be driven by the engagement of national professional interest groups in carrying out awareness raising, research, analysis, and monitoring. OKACOM will promote this penetration by use of their communication and networking capabilities, a feature of the PDF work that had positive resonance within the basin communities.

54. **Financial Sustainability.** The promotion of the SAP and solicitation of government, investor, and donor resources by OKACOM and the IAs will provide supplementary funding for SAP formulation and implementation. Overheads of the operational units at regional and national level will be kept low - they will rely on networking of dedicated professionals and interest groups rather than a permanent basin secretariat - and will present attractive donor opportunities. Investment opportunities will be identified and prepared during SAP formulation with the World Bank taking a lead role in co-ordinating and organising key donor conferences and stimulating national investment. The SAP and subsequent joint management initiatives will be designed to be self-financing. Specifically, under output C3 the project will ensure that the financing mechanisms established for the SAP will continue beyond the life of SAP implementation through the incorporation of SAP components in national development plans and external assistance projects.

V. PROJECT IMPLEMENTATION ARRANGEMENTS

STAKEHOLDER COMMITMENT AND PARTICIPATION

55. Environmental issues are a high societal priority in the region. Many public organisations as well as individual scientific and research institutions and consultants have invested their resources in understanding and analysing the Okavango basin. The project will involve these various stakeholders in project monitoring, evaluation, and implementation through numerous consultations and workshops and improved Internet access among stakeholders. Many of these stakeholders will have an important role to play in implementation.

56. Recent project proposals for developments in both Namibia and Botswana have highlighted the need for the most complete public/stakeholder consultation and participation possible. The consultation process set up during the PDF work has provided a clear message, that

education, participation and consultation can go hand in hand. Both community members and leaders expressed the opinion that they would not be able to participate in the consultative process if they did not have a good grasp of all the issues. Schools, colleges, research institutions, and NGOs in the basin have expressed a high degree of interest in an Okavango initiative and the project makes provision for a serious education, training, and information effort to be included. A summary of the proposed public involvement plan is presented in Annex VIII.

PROJECT IMPLEMENTATION AND INSTITUTIONAL FRAMEWORK

57. **Institutional Framework.** The institutional framework for the project is set out below. OKACOM derives its authority from the respective cabinets of the riparian countries. The Governments of Angola, Botswana, and Namibia have nominated national experts as country delegates to OKACOM. These delegates are drawn from the respective Departments/Directorates for Water Affairs, Ministries of Environment, Planning, and Attorney General's Offices. The Okavango Basin Steering Committee (OBSC) serves as an executive body for the Commission, and is responsible, amongst other things for overseeing the implementation of studies related to the ORB.

58. **Project Implementation.** The illustration below and Figures 1 and 2 of Annex V illustrates the project implementation arrangements. A provisional workplan is detailed in Annex XI. A detailed version of this Gantt chart will be elaborated by the Project Manager upon appointment and will form the principal management tool of the project. Preference will be given in recruitment of project managers and consultants to experts resident in Southern Africa. If suitable candidates cannot be found, then international consultants/staff will be chosen.

59. **The Project Steering Committee (PSC)** will have overall responsibility for the project and will provide management and financial guidance. The PSC will consist of OBSC, UNDP, in its capacity of Implementing Agency for the GEF and FAO, as project executing agency in a tripartite arrangement. The World Bank and UNEP will be invited to participate in PSC meetings and technical workshops as required to facilitate preparation of the TDA-SAP, and secure investment finance for follow on activities. The PSC will be instrumental in feeding back initiatives and identifying investment opportunities in the SAP through the OBSC to OKACOM. PSC meetings will occur regularly and will rotate through all three countries.

60. OKACOM will continue in its role as the inter-governmental mechanism for co-ordination, delegating specific tasks to OBSC and linking high-level policy and decision-makers from the three Okavango basin countries.

61. **Executing Agency:** The Project will be executed by the Food and Agricultural Organisation of the United Nations (FAO) on behalf of UNDP, based on rules and procedures established by the United Nations System¹. Under the guidance and oversight of the PSC, the executing agency will be responsible for the following functions

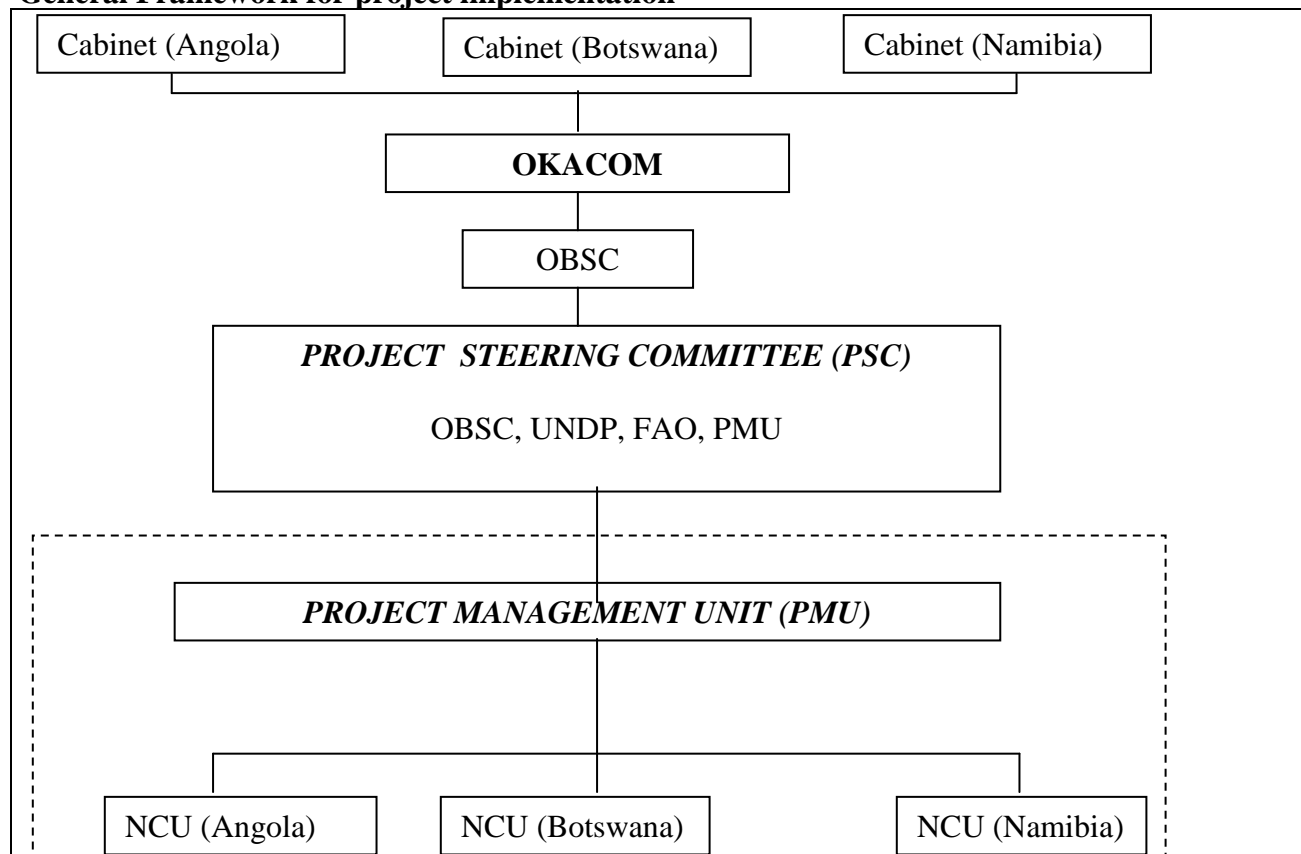
- (a) monitoring project activities, evaluating impacts, and reporting on progress in implementation to the PSC;
- (b) coordinating the recruitment of project staff and consultants through competitive and transparent recruitment procedures. The Project Manager and National Coordinators will be appointed by the PSC and recruited as necessary by FAO. The PSC will approve terms of reference and recruitment criteria for other consultants recruited by the executing agency;
- (c) procuring non-expendable equipment and software;
- (d) coordinating independent evaluations of the project, under the oversight of UNDP and the OBSC;
- (e) managing project accounts and reporting to the PSC on disbursements;
- (f) coordinating the preparation of work plans, for approval by the PSC;

¹ The following criteria were applied to the selection of the executing agency: 1] familiarity with rules and procedures prescribed by UNDP for project execution; 2] knowledge of the thematic focal areas, to be addressed by the Okavango IW project, particularly, irrigation technology, agriculture within the context of river basin management and land degradation; and 3] operational presence in the region, with an office in Angola.

(g) arranging for audits of expenditures in compliance with UN System procedures.

62. The **Project Management Unit**, (PMU) will be appointed by the PSC and will work under its guidance to oversee day to day implementation of project activities. The PMU will play the primary role in ensuring co-ordination of the project with other relevant activities in the region. The unit will be based in Luanda, Angola, in accordance with the OKACOM decision taken in June 2001. One project vehicle will be bought for the project. Supplementary project vehicles for field based project activities and office accommodation are to be provided by the participating government agencies. A core team comprising a programme manager and national programme co-ordinators will form the project executive office and will be responsible for the detailed formulation of the SAP bringing in key specialist services at the regional level as required. The composition of this core team will draw the best possible expertise from the riparian countries in water resources; natural resource management; environmental specialists (with emphasis on wetlands); and social and community development. Specific line ministry co-ordination and multi-disciplinary collaboration, including national NGOs will be undertaken at country level by the **National Co-ordination Units (NCUs)**, the functional equivalents of inter-ministerial committees. The national executing agencies under UNDP co-operation agreements will be; the Ministry of Energy and Water in Angola; the Ministry of Mines, Energy and Water Affairs in Botswana; and the Ministry of Agriculture, Water and Rural Development in Namibia.

General Framework for project implementation



63. **Funding** administered according to the rules and regulations of the UN System, with oversight from the PSC, PMU and the NCUs. All project funds, including those of GEF, will be listed together with their respective conditionalities and financial reporting requirements. Each component of the funding will be subject to individual reporting requirements but will be matched with SAP activities to provide a transparent map of current programme expenditure flows.

64. In all **documentation**, information, signage, and written and oral communication, this project will be referred to by the title “GEF Environmental Protection and Sustainable Management of the Okavango River Basin”. All project documentation, information, signage, and written and oral communication material related to this project must carry such project title together with the logo of the Global Environment Facility (GEF) and the acknowledgement “This project is partially (fully) funded by a grant from the Global Environment Facility (GEF).” The GEF logo and the acknowledgement must be at least of equivalent size to any other logo or acknowledgement appearing on any documentation, information material, signature, or communication material and must appear first. Press releases and other descriptions shall acknowledge the project as a GEF project before referring to the implementation arrangement.

VI. INCREMENTAL COSTS AND PROJECT FINANCING

65. **Incremental Costs.** Total incremental costs for Stage I are calculated at US\$7,467,000 of which the GEF contribution is US\$5,391,000 and declared co-financing from Governments (in-kind) and FAO and UNDP is established at US\$2,076,000. Expressions of interest have been received from several bilateral donors to finance complementary project activities, and are expected to be confirmed in the course of project implementation. The incremental costs attached to this GEF project are linked principally to overcoming barriers to joint management of the basin, completion of a TDA and the subsequent development and negotiation of the SAP. Overcoming these barriers has specific capacity building implications and associated costs that lie beyond the domestic baselines of the riparian countries. Annex I presents a summary of the domestic and global benefits and costs together with a matrix of individual country baseline and alternative costs associated with each project objective.

66. **Project Financing.** The financing of the project within the context of the SAP will be ensured by the commitment of all three governments and bi-lateral and multilateral donors who have expressed an interest in supporting OKACOM and the SAP process. The summary of costs presented in Table 1 are indicative and are based on 2001 performance costs and the experience gained in executing the TDA studies during the PDF phase. In addition, operating costs in Angola are much higher than in either Botswana or Namibia. These are accommodated within the budget. A detailed input budget is given in Attachment 1.

Table 1. Summary GEF Project Financing (US\$)

Project Components/Outputs	TOTAL	Co-financing	GEF
Component A: Joint Management			
Output A1: Expertise	731,700	35,000	696,700
Output A2: Stakeholder Participation	934,850	100,000	834,850
Output A3: Policy initiatives	360,800	315,000	45,800
Output A4: Monitoring and Evaluation	161,675	0	161,675
Total: A.	2,189,025	450,000	1,739,025
Component B: Completed TDA			
Output B1: Basin water resource analysis	1,966,820	1,426,000	540,820
Output B2: Socio-economic analysis	720,200	200,000	520,200
Output B3: Super-imposed frameworks	94,069	0	94,069
Output B4: Environmental assets	117,630	0	117,630
Output B5: Alternatives	500,576	0	500,576
Output B6: Water management models	127,450	0	127,450
Output B7: Criteria	90,140	0	90,140
Total B.	3,616,885	1,626,000	1,990,885
Component C: SAP Formulation			
Output C1: Technical & policy implications of options	111,660	0	111,660
Output C2: Joint management plan negotiated	417,040	0	417,040

Output C3: Commitments defined	137,190	0	137,190
Output C4: SAP document produced	245,210	0	245,210
Output C5: SAP finance mobilised	259,900	0	259,900
Total C.	1,171,000	0	1,171,000
Project Support Services	490,091		490,091
TOTALS	7,467,000	2,076,000	5,391,000
PDF (Block A and B)	374,000		374,000
Total Project Financing	7,841,000		5,765,000

VII. LEGAL CONTEXT

67. This project document shall be the instrument envisaged in the Supplemental Provisions to the Project Document. The host-country implementing agency shall for the purpose of the Supplemental Provisions to the Project Document, refer to the co-operating agency described in the Supplemental Provisions. All activities stipulated in the Project Document shall be implemented accordingly.

68. UNDP acts in this project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to the UNDP as per the terms of the SBAA shall be executed mutatis mutandis to GEF.

69. The executing agency is authorized to effect in writing the following types of revisions to this project document, provided it has verified the agreement thereto by the UNDP GEF unit in writing and is assured that the other signatories of the project document have no objections to the proposed changes:

- (a) Revisions or additions to any of the annexes of the Project Document
- (b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and
- (c) Mandatory annual revisions which rephrase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility.
- (d) The executing agency will provide the Principal Project Resident Representative and UNDP GEF with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds. The Audit will be conducted by the legally recognized auditor of the executing agency, or by a commercial auditor engaged by the executing agency.

VIII: MONITORING, EVALUATION AND LESSONS LEARNED

70. The project will be subject to the various evaluation and review mechanisms of the UNDP, including the Project Performance and Evaluation Review (PPER), the Tri-Partite Review (TPR), and an external Evaluation and Final Report prior to termination of the Project. The project will also participate in the annual Project Implementation Review (PIR) of the GEF. A more detailed description of the monitoring and evaluation processes, including specific responsibilities, is included later in this Project Document as Attachment 3. Particular emphasis will be given to emerging GEF policy with regard to monitoring and evaluation in the context of GEF IW projects.

71. Working in concert with appropriate scientific and technical institutions and government agencies in the region, in line with emerging GEF policies the project will develop a set of 'indicators' to track the short and long-term impacts of this and other related projects in the ORB. Key indicators will include process (e.g. policy, legal, institutional, etc. reforms), stress reduction (e.g. reduced pollutant loads or per capita water demands, etc.), and environmental status (e.g.

cleaner waters, restored habitats, etc.). An especially important Process Indicator will be the updated TDA that will be created by the end of year two of the project.

72. The project will identify the relevant Process Indicators (PIs), Stress Reduction Indicators (SRIs) and Environmental Status Indicators (ESIs) relevant to the project. These indicators will be reviewed as part of the initial monitoring and evaluation exercise and upon their adoption will become a basis for the ongoing monitoring and evaluation process. The Logical framework Analysis incorporated into the Project Brief and this Project Document shall be used in significant measure to assist in the identification of the relevant indicators. It is expected that as with many other GEF IW projects, many of the indicators to be employed during the life of the project will be PIs.

73. The mid-point review will focus on relevance, performance (effectiveness, efficiency and timeliness), issues requiring decisions and actions and initial lessons learned about project design, implementation and management. The final evaluation will focus on similar issues as the mid-term evaluation but will also look at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. Recommendations on follow-up activities will also be provided.

74. The evaluation process will be carried out according to standard procedures and formats in line with GEF requirements. The process will include the collection and analysis of data on the Program and its various projects including an overall assessment, the achievement of clearly defined objectives and performance with verifiable indicators, annual reviews, and description and analysis of stakeholder participation in the Program design and implementation. Explanations will be given on how the monitoring and evaluation results will be used to adjust the implementation of the Program if required and to replicate the results throughout the region. As far as possible, the M&E process will be measured according to a detailed work plan and a Logical Framework Analysis approach developed and tabulated in the project document.

75. **Lessons learned and technical reviews.** The development of this project has benefited substantially from a detailed review of previous environmental studies carried out in Botswana and Namibia. This includes approaches to community and NGO involvement, public awareness and consultation activities and the TDA process, and from the direct involvement of local specialists active in basin research. The STAP technical review has strengthened the economic rationale for the project by pointing to allocation issues and the need to evaluate tradeoffs at an early stage in the development of the SAP. This consideration will refine the types of data and resulting scenario analyses that are carried out. In addition, the project will be involved from the start in the new GEF IW LEARN (Learning Exchange and Resource Network) programme.

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- VI. ROOT CAUSES: TABLE OF CONTENTS AND SUMMARY OF THE OKAVANGO BASIN DRAFT TRANSBOUNDARY DIAGNOSTIC ANALYSIS
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ANNEX I A: DETAILED PROJECT BUDGET INPUT

Budget Line	Description	Total	2003	2004	2005
		Budget			
		US\$	US\$	US\$	US\$
10	Personnel				
1100	Project Staff – Regional				
1101	Project Co-ordinator (P5) - 3yrs	480,000	160,000	160,000	160,000
1102	River Basin Management Expert (P4) -1.5 yrs	195,000	132,000	63,000	
1103	Consultant OKACOM review	29,400	9,800	9,800	9,800
1104	Consultant Update TDA	29,400	9,800	9,800	9,800
1105	Consultant Basin Management Specialist	29,400	14,700	14,700	
1106	Consultant training	48,900	16,300	16,300	16,300
1107	Consultant training	39,200	19,600	19,600	
1108	Consultants Stakeholder Participation	55,500	19,600	19,600	16,300
1109	Consultant Policy/Legal	39,200		19,600	19,600
1110	Consultant Institutional	29,400	9,800	9,800	9,800
1111	Consultant monitoring and evaluation	29,400	9,800	9,800	9,800
1112	Consultant monitoring and evaluation	29,400	9,800	9,800	9,800
1113	Consultants Water Resource (Expert Analysis)	58,800	19,600	19,600	19,600
1114	Water Resource Consultants	19,500	6,500	6,500	6,500
1115	Consultant Hydrometric	48,900	16,300	16,300	16,300
1116	Consultant hydro-environmental	117,600	39,200	39,200	39,200
1117	Consultant Socio-economic surveys	88,200	29,400	29,400	29,400
1118	Consultant GIS/Modelling	78,300	26,100	26,100	26,100
1119	Socio-economic analysis (Expert Analysis)	58,800	19,600	19,600	19,600
1120	Consultant Socio-economic analysis	88,200	29,400	29,400	29,400
1121	Consultant GIS Analysis (Expert)	14,700	4,900	4,900	4,900
1122	Consultant GIS Analysis	58,800	19,600	19,600	19,600
1123	Consultant Env Valuation (Expert Analysis)	34,700	14,900	14,900	4,900
1124	Expert Environmental Valuation	29,400	9,800	9,800	9,800
1125	Water Resource Expert	19,500	6,500	6,500	6,500
1126	Water Resource Specialists	48,900	16,300	16,300	16,300
1127	Water Resource Management Specialist	29,400	9,800	9,800	9,800
1128	Water Resource Management	39,000	13,000	13,000	13,000
1129	SAP development specialist	29,400	9,800	9,800	9,800
1130	SAP Criteria specialist	29,400	9,800	9,800	9,800
1131	Communications specialist	39,000	13,000	13,000	13,000
1132	Basin management specialist	29,400	9,800	9,800	9,800
1133	Planning specialists	39,000	13,000	13,000	13,000
1134	Regional administrative specialist	73,500	24,500	24,500	24,500
1199	Component subtotal	2,106,600			

Budget Line	Description	Total	2003	2004	2005
		Budget			
		US\$	US\$	US\$	US\$
1300	Administrative Support National Support Staff				
1301	PMU Secretary	29,400	9,800	9,800	9,800
1399	Component subtotal	29,400			
1500	Monitoring and Evaluation/TPRs				
1501	Mid-term and Final Evaluations	49,000		24,500	24,500
1599	Component subtotal	49,000			
1600	Mission Cost				
1601	PMU Mission costs	135,000	45,000	45,000	45,000
1602	National Consultant mission costs	152,860	52,000	52,000	48,860
1603	Regional Consultants mission costs	294,000	98,000	98,000	98,000
1699	Component subtotal	581,860			
1700	National Professional Project Personnel				
1701	National Programme Co-ordinator Angola -3yrs	144,000	48,000	48,000	48,000
1702	Translators	38,400	11,800	11,800	14,800
1703	NPPP Stakeholder Participation	88,200	29,400	29,400	29,400
1704	GIS Product Specialists	58,800	19,600	19,600	19,600
1705	Natural Resource Field Personnel	93,900	31,300	31,300	31,300
1706	Natural Resource Data Specialists	102,000	34,000	34,000	34,000
1707	Social Assessment Surveyors	78,000	26,000	26,000	26,000
1799	Component subtotal	603,300			
19	Component Total	3,370,160			
30	Training/Fellowship/Meetings				
3201	Steering Committee, PSC	55,000	15,000	15,000	25,000
3202	Expert meetings/regional workshops	65,000	20,000	25,000	20,000
3203	Meeting of 6 WG on TDA-issues	24,600	8,200	8,200	8,200
3204	Meeting of the WG on SAP	24,600	8,200	8,200	8,200
3205	Meetings on public participation	36,750	12,250	12,250	12,250
3206	Donor Conferences	146,000	73,000		73,000
3207	Training in River Basin planning, etc.	73,900	26,300	31,300	16,300
3299	Component subtotal	435,850			
39	Component Total	435,850			
40	Equipment				
4501	Office Operation and Maintenance	144,000	48,000	48,000	48,000
4502	Computing Equipment (Hardware and Software)	120,000	80,000	40,000	
4503	Imagery and GIS product production	120,000	60,000	60,000	
4504	Project Vehicle	30,000	30,000		
4505	Field Communication equipment	50,000	40,000	10,000	

Budget Line	Description	Total	2003	2004	2005
		Budget			
		US\$	US\$	US\$	US\$
4506	Hydrometric Monitoring equipment	420,000	140,000	140,000	140,000
4507	Survey equipment	45,000	15,000	15,000	15,000
4599	<i>Component subtotal</i>	929,000			
49	Component Total	929,000			
50	<i>Miscellaneous</i>				
5201	Printing and Publication of interim reports	34,200	11,400	11,400	11,400
5202	Printing and Publication TDA	44,100			44,100
5203	Printing and Publication SAP	24,300			24,300
5204	Printing and Publication State of the Okavango	19,500			19,500
5205	Miscellaneous reporting including Audit	9,400	2,800	2,800	3,800
5206	Communication costs (telephone and email)	44,400	14,800	14,800	14,800
5299	<i>Component subtotal</i>	175,900			
59	Component Total	175,900			
90	Project total (operational)	4,900,910			
	Administrative and Operational Support (AOS @ 10%)	490,090			
99	GRAND TOTAL	5,391,000			

ANNEX II: INCREMENTAL COST ANALYSIS

Regional Context and Broad Development Goals

The region has given a high priority to both water resource development and environmental concerns. UNDP and the World Bank are already funding water resource management reviews in Angola and Namibia. All three countries are participating in a SADC water roundtable initiative. Both Namibia and Botswana have committed funds to environmental assessments of the basin in so far as national priorities have been addressed. The socio-economic pressures on the region's limited water resource base have driven high levels of investment in water infrastructure, particularly in Botswana and Namibia. Over the past ten years, these water development initiatives have been increasingly subject to economic and environmental scrutiny both from domestic interest groups and international institutions.

Global Environmental Objective:

The Okavango River Basin has unique qualities in terms of its geomorphology, hydrology, and biodiversity, qualities, which remain relatively pristine with little discernible human impact on the hydrology and aquatic ecology of the basin. The significance of the basin has been highlighted by the international interest in the hydro-ecological state of the Delta and the biodiversity it supports. In addition, by virtue of its remoteness and the continuing political instability, the Angolan portion of the basin remains one of the least developed regions in the savannah belt that traverses Angola, the Republic of Congo and Zambia. The complex arrangement of linear tributaries, dambos and broad seepage zones in the upper and middle Cuito and Cubango sub-basins make road access difficult and it is probable that this relatively undisturbed environment exhibits largely unmodified hydrological responses. The incipient degradation under the baseline conditions will threaten aquatic flora and their associate fauna both in the source sub-basins in Angola and the Delta in Botswana. If left unchecked, the direct and indirect threats to this international water body will result in the breakdown of the hydrological and ecological integrity causing the global community to forfeit sizeable conservation benefits (including direct and indirect use values, and existence and option values). The threats are real and imminent – as evidenced by the recent unilateral initiative by Namibia to abstract water from the system under emergency drought conditions. This was avoided following a period of rainfall that re-established reservoir levels in the central area of the country. It is expected that the opportunity to protect this relatively pristine system will not appear again and that the costs of remedial action will exceed current conservation costs by several orders of magnitude.

Baseline

The scope of the baseline is set spatially by the natural limits of the ORB and the locus of external demands upon the basin's resources, thematically by the project objectives (joint management, water resource analysis and planning/programming), and temporally by the life of the project (3 years). The sectoral activities in the basin that involve direct water abstraction and disposal from and to the Okavango watercourses are distinguished from activities that relate to mechanisms for joint management, water resource analysis for the ORB, and the programming and planning of water related investments in the ORB. A proportion of these non-operational activities carried out by each country will be diverted into the alternative.

i. Operational Water Service Management: In this analysis, this is taken to comprise all water supply, sanitation, irrigation and watershed management activities that occur in the basin. These are established in published national development agenda and where information is not available on the planned investments made in the basin, estimates have been based on the basis of population distributions. Current levels of inward investment and domestic productivity in the **Angolan** portion of the basin cannot be assessed with any degree of accuracy at the moment since access to the Cuando Cubango Province is limited and the legacy of the recent civil war inhibits provincial development. Since independence, there has been no appreciable inward investment to the basin. Prior to independence in 1975, small scale irrigation activity was largely privately managed and only two small scale hydro-electric schemes in Menonge and Cuvango were put

into operation. Following 22 years of war and some 5 years of recent drought, the Province has been de-populated. Under a recent provincial planning exercise for a re-habilitation programme, the overall budget for Cuando Cubango Province is US\$ 27,170,062 based on 1995 prices. A sectoral breakdown apportions agriculture 31%, rural trade 17%, roads 15% and education 11%, which represents 74% of the total programme. In 1997 World Bank has also proposed a US\$40,000,000 Agricultural Sector Investment Programme to assist smallholder and commercial farmers through improvements in government services, an improved policy framework and the provision of funds for rural infrastructure. The World Bank has initiated a national water sector development project. It is anticipated that this will focus on priority areas in the north and west of the country. The development plans for Cuando Cubango Province are being formulated, but given the small population of the basin, a small level of investment in water services, water supply and sanitation and small scale irrigation is anticipated. In **Botswana**, development priorities for the Okavango Delta region are aimed at a disparate range of development programmes, nature conservation and eco-tourism. It is important to note that tourism currently accounts for 3% of GDP in Botswana as a whole, but the relative contribution from tourism related services for the Okavango Delta is much higher. The Government of Botswana is committed to the implementation of the 8th National Development Plan for the period 1997/8-2002/3 which anticipates a Major Village Water/Sanitation Development project costed at \$US 9,000,000. In **Namibia** a policy of devolving planning and budgetary functions to regional authorities has been initiated. A recent World Bank poverty alleviation study has recommended the Okavango freshwater resources be utilised for small scale irrigation. The First National Development Plan specifies ongoing work in rural water supply and sanitation for the period 1996-2000. Bulk water transfer investments are costed at \$10,000,000. Provision for feasibility studies for the construction of an emergency pipeline to the Okavango has been set at approximately US\$2,000,000. The preliminary feasibility work carried out in 1997 amounted to approximately \$US 1,500,00. Upgrading of Rundu town water scheme over the project period approximately US\$3,500,00.

ii. Mechanisms for Joint Management: The national resources devoted to joint management of the ORB are extremely limited, comprising government staff time dedicated to servicing OKACOM meetings. In the absence of GEF support, the level of expenditure on joint management is anticipated to remain at this level which would amount to no more than \$100,000 over the life of the project. The PDF A and B contributions have amounted to \$374,000 over the past three years. However, of significance is the fact that since 1997, all three countries are participating in the SADC water roundtable process supported by UNDP. Direct support from UNDP for all three countries is estimated at US\$200,000. National activities in policy development are variable. In **Angola**, the World Bank will be focussing on water policy and institutional development (~US\$1,400,000) and transboundary water resources (~US\$460,000). The support may also include a pilot study for the Cunene basin (~US\$2,400,000) which is also shared with Namibia. However, since the Cubango is not a priority basin for the country, it is not anticipated that any of these resources will be dedicated to the ORB. In its 8th National Development Plan **Botswana** has budgeted for International Water Planning and Development of which some 30% (~\$US 130,000) is earmarked for the Okavango basin). **Namibia** is undertaking a more substantive policy and institutional review of its water sector in the light of its recent policy directive on decentralisation and a need to address increasing demands for water services. A World Bank/GTZ/UNDP supported Water Resources Management Review amounting to \$US 1,100,000 was launched in early 1998. Approximately \$250,000 of this will address transboundary river basins where Namibia is forced to negotiate with neighbours. It is anticipated that some \$75,000 of this budget will be directly related to transboundary issues for the Okavango

iii. Basin Analysis. Interventions in integrated natural resource analysis within the basin and within the riparian countries are limited. Most interventions are of a sectoral nature and relate to water supply and sanitation, agriculture, and tourism. In **Angola** the World Bank and the Norwegian Government are co-operating on a set of national water resource management proposals in areas where the respective comparative advantage is greatest. Norwegian assistance is estimated at US\$2,000,000 and is committed to the upgrading of key hydrometric installations in northern and coastal provinces and undertaking a national water resources assessment. It is anticipated that the thrust of this work will concentrate on areas other than the Cubango and Cuito

sub-basins. In **Botswana** the 8th National Development Plan includes; Hydrological Support including updating of the Okavango forecasting model (~\$US 182,000); and Groundwater Studies and Protection (~ \$US 200,000). The University of Botswana has obtained private sector support for a research station in the Okavango Delta estimated at \$US 500,000 over the life of the project. Other relevant activities include a Finnish Government assisted State of the Environment Report on Water in Botswana (\$95,000) and research on demand management assisted by IUCN (\$25,000). In Namibia, relevant activities include a Finnish Government assisted State of the Environment Report on Water in Namibia (\$95,000) and research on demand management assisted by IUCN (\$25,000). The Directorate of Environmental Affairs are also carrying out a review of pollution control and waste management legislation and research into natural resource accounting. Future work of the Department of Water Affairs will include the compilation of a national hydrogeological map and the consolidation of a groundwater database. This work may be expected to complement the ongoing work in the Department of Agriculture in the use of satellite imagery to monitor national agricultural and rangeland conditions.

iv. Programmatic Formulation and Finance. In the baseline, there is no provision for the formulation and programming of resources to address joint management. These activities will only occur in the alternative once the transboundary diagnostic is completed.

GEF Alternative

Without adoption of the GEF alternative, the riparian countries' ability to develop a joint management plan for the ORB will be limited. The Alternative will promote radically new approaches to natural resource management in the ORB. These will be based upon thorough consultation, analysis and cross-sectoral policy and programmatic integration. The following interventions are proposed;

i. Operational Water Service Management: In the alternative, baseline activities in water service operations will continue according to national development plans.

ii. Strengthened Mechanisms for Implementation of Joint Management: Current institutional arrangements at the national and regional levels cannot adequately address transboundary management of the ORB. GEF funds will be used to identify and enhance existing mechanisms and develop new mechanisms for integrating natural resource planning across sectors and jurisdictions throughout the ORB. Strategic alliances with key partner government agencies, communities, NGOs, and the private sector will be sought and sustained during SAP development so that SAP implementation can proceed unimpeded by bottlenecks that would otherwise occur, particularly with newly established institutional arrangements at local levels. The Project Management Unit and the respective National Co-ordination Units will be instrumental in driving the necessary policy and institutional initiatives to implement the SAP. **Awareness Raising, Consultation and Communication** is necessary to enlist broad support for an Okavango River Basin initiative and GEF funding will be used to ensure that the PMU can produce and broadcast TDA and SAP information extensively in the ORB region and internationally. In addition GEF funding will be used to enhance the relatively under-resourced stakeholder fora in the ORB region. National and district level fora will be established by the PMU through the NCU in each riparian country. **Training** will be an important function of the PMU that needs to service specific training needs in progressive natural resource management and basin planning at regional and national levels. Without this pro-active approach to the training of artisans, technicians, community animators and environmental and socio-economic professionals in the region, the desired policy responses and institutional innovations will not be implementable. Provision is also made for the development of skills and leveraging of finance to implement the SAP.

iii. Completed Transboundary Diagnostic Analysis. GEF funding will be used here to specifically fill critical natural resource information gaps and bring the refined knowledge of the hydro-environmental socio-economic systems onto a platform where transboundary externalities can be examined and resolved. This is not possible under current baseline where national interests determine research and analysis activities and where basin-wide information does not exist or is not accessible. The knowledge embedded in the finalised TDA will underpin the design of the

SAP and substantively service the monitoring and reporting needs during SAP implementation. Most importantly, the process of completing the TDA will inform policies and initiatives to be launched in preparation for SAP implementation.

iv. Strategic Action Programme Formulation. The design of the SAP together with the specification of the necessary institutional and financial arrangements will involve a long period of careful negotiation between the riparian countries and development partners. This process is not addressed in the baseline where national planning priorities are addressed.

v. Scope of Analysis: The system boundary of the project is defined in two ways. First, by the hydrologically active portions of the ORB in Angola, Botswana and Namibia where intra-basin demands for water and associated natural resources are centred. Second, by specific links to centres of demand for water outside the basin. The topographic boundary of the basin is crucial in Angola, but is less relevant in terms of transboundary water resources in Botswana and Namibia. The thematic limits for this analysis are set by the project objectives to prepare for the implementation of a programme of joint management through strengthened institutional mechanisms, transboundary analysis and SAP formulation. Requisite institutional strengthening across the related sectors is of the essence. The design of the proposed project has taken into full consideration its complementarity with other existing projects in the region, particularly the World Bank and UNDP funded water reviews in Angola and Namibia. The temporal boundaries for this analysis are set by the anticipated period of preparation for implementation and SAP formulation, a three year period. The project benefits will clearly continue to accrue beyond this time boundary of both the first stage defined by the project and the second stage of SAP implementation.

Sunk costs, incurred prior to 1998 have been omitted from the analysis. The baseline captures investments within the ORB and specific elements associated with extra-basin demands for water. The Alternative captures the additional actions required to secure project objectives within the system boundary. There will be substantial leveraging of domestic baseline costs that address joint management and basin analysis towards the globally preferred alternative.

Costs and the Incremental Cost Matrix:

Baseline expenditures amount to US\$31,050,000; the Alternative has been costed at US\$38,026,911. The GEF would provide US\$ 5,391,000 in incremental cost financing, approximately 14% of the total cost of implementing the Alternative. This funding is targeted specifically at over-coming barriers by defraying the transaction costs associated the joint management of transboundary waters. Co-financing has been secured for institutional strengthening aspects and several expressions of support to the SAP process have been given by national and international NGOs and bilateral donors. Total co-financing confirmed by the participating governments amounts to US\$ 2,076,000. Further co-financing is anticipated at project inception when donor support will be re-mobilised.

In the longer term, removal of barriers to sustainable use will widen the menu of development options available at a local level. But in the short term, the generation of the SAP will result in mainly non-pecuniary benefits. For the riparian countries, tangible costs exceed tangible benefits in the intermediate term, providing little incentive to undertake this initiative without external assistance.

INCREMENTAL COST ASSESSMENT: SAP DEVELOPMENT FOR THE OKAVANGO RIVER BASIN

Costs/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
<u>Domestic Benefits</u>	<ol style="list-style-type: none"> 1. Basin degradation accelerates as socio-economic demands increase pressure on land and water resources in the respective districts linked to the ORB. 2. Sectoral competition for water increases and locally sustainable development opportunities through natural resource management lost 3. Limited scope for public involvement in environmental management of the river system. Basin stakeholders poorly engaged with environmental concerns at local and district/provincial level 4. National data collection , processing, and analysis limited to surface water resource information only 5. National capacities to effect integrated land and water body management measures limited. 	<ol style="list-style-type: none"> 1. Basin degradation attenuated 2. Sectoral competition ameliorated 3. Consultation and participation mechanisms for engendering public participation in environmental planning and management expanded and better informed. 4. Basin frameworks 5. Institutional and human capacity strengthened in the arena of integrated land and water body management 	<ol style="list-style-type: none"> 1. Transboundary externalities removed 2. Sectoral activities co-ordinated and optimised 3. Basin stakeholders more responsive to environmental protection measures 4. Completion of national analysis 5. Strengthened national capacities in international basin negotiation
<u>Global/Regional Benefit</u>	<ol style="list-style-type: none"> 1. Globally significant river basin experiences degradation in water quantity, quality and sediment regime along its length, leading to loss of aquatic habitats and associated biodiversity. 2. International competition for water exacerbated. Sustainable development opportunities for the basin as a whole foregone 3. No basin-wide forum for discussion and consultation Lack of awareness about transboundary issues 4. Lack of regional communication and co-ordination among and between Okavango River basin stakeholders/civil society and limited opportunities to develop negotiation skills 5. International negotiation limited by infrequent technical meetings and lack of detailed hydro-environmental 	<ol style="list-style-type: none"> 1. Globally significant basin protected Identify strategic measures to address root causes of transboundary degradation of the Okavango River system 2. International competition for water ameliorated 3. Public participation in Okavango River basin management increases the sense of ownership of civil society over management and rehabilitation efforts 4. Wide civil society support in the three riparian countries facilitates the planning and implementation of management measures (enabling transboundary issues to be addressed). 5. Basin-wide synthesis made possible 6. Improved understanding natural resource management and protection needs at basin level enabling follow-up action at national and regional levels. 7. Improved regional capacity for data collection, integration, analysis and use in 	<ol style="list-style-type: none"> 1. A Strategic Action Programme is prepared to address basin degradation and is endorsed by all three riparian countries. 2. Agreements on sharing of benefits concluded 3. Process of consultation , communication, knowledge building and natural resource integration initiated at basin level and active fora for basin stakeholders established 4. Improve linkages between regional stakeholders through meetings, Internet and print communications. Raise awareness of the findings of the Transboundary Analysis and sensitise stakeholders to the need for regional action to mitigate basin degradation 5. Synoptic view of basin established, hydro-environmental and socio-economic data complete the regional picture, transboundary knowledge base

Costs/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	<p>information for basin as a whole.</p> <p>6. No basin-wide hydro-environmental or socio-economic synthesis possible. Limited understanding of basin-wide implications of resource use and protection, (including) biodiversity hot spots and protected area needs. Limited knowledge of cross-border linkages</p> <p>7. ORB environmental data dispersed; collection and utilisation of Okavango data inadequate</p> <p>8. OKACOM cannot act as a substantive expert office.</p> <p>9. Lack of specific operational regional mechanisms to co-ordinate and implement joint action to manage transboundary river basins. Policy/legal/economic framework for co-ordinating and enforcing river management is inadequate.</p> <p>10. Lack of integrated strategic approach to Okavango River basin management and protection at regional scale. Okavango River basin activities not integrated into basin-wide approach .</p> <p>11. Lack of capacity to finance the transactions costs of regional co-operation.</p>	<p>decision-making.</p> <p>8. Adaptive and innovative river basin institution created</p> <p>9. Transboundary mechanisms established</p> <p>10. ORB countries committed to a co-ordinated basin-wide approach.</p> <p>11. Identification of innovative financing mechanisms for basin-wide management.</p>	<p>significantly enhanced.</p> <p>6. Clear spatial frameworks for natural processes and socio-economic dynamics established</p> <p>7. Furnish structured knowledge base for international discussion, negotiation and participation.</p> <p>8. OKACOM strengthened and transboundary policy initiatives launched</p> <p>9. institutional mechanisms to drive and co-ordinate basin-wide action. Improve understanding of policy/ legal/ economic mechanisms required for integrated sustainable river basin management</p> <p>10. SAP process adopted in ORB region</p> <p>11. Financial sustainability of regional waterbody management measures and institutions assured.</p>

Purpose (Component)/Output		Baseline (B)	Alternative (A)	Increment (A-B)
A. STRENGTHENED MECHANISMS FOR JOINT MANAGEMENT OF THE ORB				0
A1	Expertise Strengthened	0	731,700	696,700(GEF) 35,000 (non GEF)
A2	Stakeholder Participation	100,000	1,034,850	834,850 (GEF) 100,000 (non GEF)
A3	Policy, legal, institutional and human resource initiatives	100,000	460,800	45,800 (GEF) 315,000(non-GEF)
A4	Monitoring and Evaluation	0	161,676	161,676 (GEF)
B. COMPLETED TRANSBOUNDARY DIAGNOSTIC ANALYSIS		0	0	
B1	Water Resources Assessment and Analysis	1,150,000	3,116,820	540,820 (GEF) 1,426,000 (non-GEF)
B2	Socio-economic analysis completed to establish current and future patterns of water resource use and levels of demand	200,000	920,200	520,200(GEF) 200,000 (non-GEF)
B3	Super-imposed hydro-environment and socio-economic frameworks to define environmental system limits and parameters	0	94,069	94,069(GEF)
B4	Environmental assets of the ORB described and valued to structure water resource management models	0	117,630	117,630(GEF)
B5	Comprehensive set water of resource alternatives for the ORB assessed to structure model scenarios	0	500,576	500,576(GEF)
B6	Water resource development and management models used to produce water resource management options	0	127,450	127,450(GEF)
B7	A set of guidelines/criteria to guide SAP development and implementation	0	90,140	90,140(GEF)
C. STRATEGIC ACTION PROGRAMME (SAP) FORMULATION		0	0	
C1	Technical and policy implications of water resources management options evaluated	0	111,660	111,660(GEF)
C2	Joint Management Plan for water sector investments negotiated and designed amongst riparians	29,500,000	29,917,040	417,040(GEF)
C3	Policy, legal, institutional and human resource commitments necessary for SAP implementation defined	0	137,190	137,190(GEF)
C4	SAP document produced and endorsed	0	245,210	245,210(GEF)
C5	SAP finance mobilised in preparation for implementation	0	259,900	259,900(GEF)
Total		31,050,000	38,026,911	6,976,910
Project Support Services				490,090
PDF				374,000
Total Project Cost				7,841,000

Sources of Baseline and Co-financing

Output/Activity		Baseline	Co Finance
A1	Expertise Strengthened		Technical assistance in land management FAO \$ 35,000
A2	Stakeholder Participation	GoN Decentralisation Programme 100,000	Stakeholder Dialogue And Study Tours UNDP: \$ 100,000
A3	Policy, legal, institutional and human resource initiatives	Govts A/B/N water policy initiatives 100,000	Policy Support in Botswana :Irrigation FAO \$ 115,000 Facilitation of national policy dialogue in A/B/N on freshwater management UNDP \$ 200,000
A4	Monitoring and Evaluation	0	0
COMPONENT A SUBTOTAL		200,000	450,000
B1	Water Resources Assessment and Analysis	National natural resource info Govts A/N/B: \$250,000 State of the Environment Reports Govts B/N: \$200,000 Groundwater Studies Govt B/N \$200,000 Okavango Delta Research Station Private (B) \$500,000	Staff time and logistical support to national hydrometric programmes in the ORB: Govts A/N/B(2002-2005) \$ 1,300,000
B2	Socio-economic analysis completed to establish current and future patterns of water resource use and levels of demand	National Social Assessments Govts B/N 200,000	Govts A/B/N staff and logistical support to TDA related activities(2002-2005) \$326,000
B3	Super-imposed hydro-environment and socio-economic frameworks to define environmental system limits and parameters	0	0
B4	Environmental assets of the ORB described and valued to structure water resource management models	0	0
B5	Comprehensive set water of resource alternatives for the ORB assessed to structure model scenarios	0	0
B6	Water resource development and management models used to produce water resource management options	0	0
B7	A set of guidelines/criteria to guide SAP development and implementation	0	0
COMPONENT B TOTAL		1,350,000	1,626,000

Output/Activity		Baseline	Co Finance
C1	Technical and policy implications of water resources management options evaluated	0	0
C2	Joint management plan negotiated and designed amongst riparians	GoA ¹ : 8,000,000 GoB ² : 9,000,000 GoN ³ : 12,500,000 Sub Total \$29,500,000	0
C3	Policy, legal, institutional and human resource commitments necessary for SAP implementation defined	0	0
C4	SAP document produced	0	0
C5	SAP finance mobilised in preparation for implementation	0	0
	COMPONENT C TOTAL	29,500,000	0
	GRAND TOTALS	31,050,000	2,076,000

¹ Estimated expenditures based on proposed multi-lateral assistance to Angola.

² Estimated expenditures of Department of Water Affairs in the project region.

³ Estimated expenditures of Department of Water Affairs in the project region.

ANNEX III: LOGICAL FRAMEWORK MATRIX: SAP DEVELOPMENT FOR THE OKAVANGO RIVER BASIN

Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
<p>Development Objective:</p> <ul style="list-style-type: none"> To alleviate imminent and long term threats to the linked land and water systems of the OR through the joint management of the ORB water resources and the protection of its linked aquatic ecosystems (comprising all wetlands, fluvial and lacustrine systems) and their biological diversity. 	<ul style="list-style-type: none"> Environmental indicators (state-response, stress reduction, and source vulnerability) Socio-economic indicators (policy, legal, and institutional processes) 	<ul style="list-style-type: none"> International NGO and multilateral organisation reports National State of Environment Reports (Namibia and Botswana) 	<ul style="list-style-type: none"> No unforeseen threats to the basin environment that cannot be addressed through joint management Enhanced basin management leads to flow of global and domestic benefits Political process remains stable Baseline planning and budgeting remains constant
<p>Project Purpose:</p> <ul style="list-style-type: none"> To strengthen mechanisms for joint management of the ORB. To complete a transboundary analysis to underpin a programme of joint management. To facilitate the formulation of an implementable SAP to address threats to the basin's linked land and water system 	<ul style="list-style-type: none"> Consultative fora established. Enabling environment (policy, law institutions and human resources) enhanced Public and private sector capacity to implement SAP OKACOM review completed and internalised Completed TDA SAP endorsed and financed 	<ul style="list-style-type: none"> Annual and periodic reports from OKACOM and Ministries of Environment, Water and Agriculture and NGOs etc. Government policy statements Economic planning reports Ministry staffing tables and private sector inventory 	<ul style="list-style-type: none"> Countries commit to and donors agree on SAP Processes to ensure enhanced basin management are sustained beyond life of project Processes can be synchronised by all three riparians Donor support is locked in
<p>Project Components/Outputs: A. STRENGTHENED MECHANISMS FOR JOINT MANAGEMENT OF THE ORB</p>			
Output A1.	Expertise within the riparian countries strengthened to drive the necessary inter-governmental and intra-governmental technical and policy initiatives in water resource planning and management of the ORB		
Output A2	Basin-wide mechanisms for stakeholder participation in basin management established and tested to secure consensus and ensure replicability and taking to scale		
Output A3	Policy, legal, institutional and human resource initiatives launched for the ORB and linked to national policy reviews to co-ordinate water resource management approaches across the basin		
Output A4	Monitoring and evaluation procedures for implementation of joint management		
<p>B. COMPLETED TRANSBOUNDARY DIAGNOSTIC ANALYSIS</p>			
Output B1	Water resource assessment and analysis completed to establish hydro-environmental processes, characteristics and limits		
Output B2	Socio-economic analysis completed to establish current and future patterns of water resource use and levels of demand		
Output B3	Water resource and socio-economic analysis super-imposed to define environmental system limits and parameters		
Output B4	Environmental assets of the ORB described and valued to structure models		
Output B5	Comprehensive set water of resource <u>alternatives</u> for the ORB assessed and tested (at pilot level) to structure model scenarios		
Output B6	Water resource development and management <u>models</u> used produce water resource management options		
Output B7	Economic and environmental <u>criteria</u> produced to guide water resource development and allocation decisions		
<p>C. STRATEGIC ACTION PROGRAMME (SAP) FORMULATION</p>			
Output C1	Technical and policy implications of water resources management options evaluated		
Output C2	integrated management plan negotiated and designed		
Output C3	Policy, legal, institutional, human resource and financial arrangements and <u>commitments</u> necessary for SAP implementation defined		
Output C4	SAP document produced and endorsed through integration of outputs C1, C2 & C3 in <u>collaborative process</u> with SAP partners		
Output C5	SAP finance mobilised in preparation for implementation through donor conferences and other deal flow identification activities		

Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
<p>Output A1. Strengthened <u>expertise</u> to drive both inter-governmental and intra-governmental technical and policy initiatives in water resource management for the ORB</p>	<ul style="list-style-type: none"> Project expertise transferred and internalised by riparian countries by end of project 	<ul style="list-style-type: none"> PMU progress and expenditure reports and published ORB Forum newsletters 	<ul style="list-style-type: none"> PMU demonstrate its expertise and influence partner organisations.
<p>Activities</p> <p>A1.1 Establish a Project Management Unit (PMU) and National Co-ordination Units (NCUs) to execute all project activities at regional and national level and support OKACOM for the duration of the project.</p> <p>A1.2 A review of OKACOM mandates and functions</p> <p>A1.3 Establish regional expert groups on water resource management and environmental protection</p> <p>A1.4 PMU/NCU to assess and service national and regional training needs in environmental policy, legislation, basin management and communication skills</p> <p>A1.5 Create an inter-ministerial Project Steering Committee with representation from key ministries in environment, water, energy, mining, agriculture, planning and finance and including Implementing Agencies, NGOs, research institutions and PMU representatives .</p>	<ul style="list-style-type: none"> PMU operational within 3 months of project inception OKACOM review completed and recommendations put to OKACOM meeting in first year of project Expert working groups working within 6 months of project inception Training needs identified within 6 months of project inception Project Steering Committee convened within first three months of project and regular biannual scheduled 	<p>PMU publications</p>	
<p>Output A2 Enhanced basin-wide mechanisms for <u>stakeholder participation</u> in water resource planning and management established to secure consensus.</p>	<ul style="list-style-type: none"> Okavango River Basin Forum (inc. sub-fora) established at district/provincial, national and basin level by end 2002 	<ul style="list-style-type: none"> PMU progress and expenditure reports Published ORB Forum newsletters 	
<p>Activities</p> <p>A2.1 Consolidate identification of key stakeholders</p> <p>A2.2 Initiate the consultative process in Angola</p> <p>A2.3 Extend the consultative process in Botswana</p> <p>A2.4 Extend the consultative process in Namibia</p> <p>A2.5 Regional <u>stakeholder consultations</u>: sponsor and organise bi-annual basin NGO sub-forum</p> <p>A2.6 Undertake selected <u>pilots and demonstrations</u> in each country to test replicability and taking to scale during SAP implementation</p> <p>A2.7 Improve web access</p> <p>A2.8 Publish and disseminate SAP information</p> <p>A2.9 Create public awareness and environmental education campaigns environmental curricula</p>	<ul style="list-style-type: none"> Public invitations issued Public meetings Cubango/Cuito Outreach to schools and institutions Outreach to schools and institutions NGO sub-forum established Environmental curriculae adopted in schools Pilots projects identified , executed and evaluated Web site updated monthly by mid 2002. Publications compiled and broadcast on quarterly basis from mid 2002 	<ul style="list-style-type: none"> Published list of stakeholder groups Minutes of public meetings Minutes of NGO sub-forum published Published minutes and formal expressions of interest/co-financing OKACOM publications produced digitally Hardcopy publications publicly available in all three riparian countries Press coverage 	<ul style="list-style-type: none"> The ORB initiative is embraced at all levels Stakeholders responsive to consultation process Communication channels open frequently and are stable and cheap

Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
Output A3. Policy, legal, institutional and human resource initiatives launched and linked to national policy reviews to co-ordinate water resource management approaches across the basin	Policy statements and institutional reviews carried out in key sector departments at national level and within OKACOM at regional level	Endorsed map of function institutional linkages at national and basin level published by OKACOM	All relevant institutions agree to be part of initiative.
Activities A3.1 Specify natural resource linkages within national administrations/jurisdictions and NGOs associated with the basin boundaries A3.2 Link the basin initiative to regional planning and socio-economic development initiatives and the activities of regional NGOs. A3.3 Evaluate current national policy, legal, institutional and human resource arrangements in respect to basin co-ordination and joint management A3.4 Evaluate the use of existing regional and national legal instruments to facilitate basin co-ordination and joint management A3.5 Formulate national and regional policy initiatives to facilitate basin co-ordination and joint planning A3.6 Convene regional expert group meetings environmental policy, legislation and basin management and publish findings A3.7 Prepare draft water management agreements and protocols for consideration by OKACOM	<ul style="list-style-type: none"> ▪ All institutional players identified in formally agree to participate in the ORB initiative in first 12 months of project ▪ National policy initiatives launched and institutional and legal arrangements reviewed in all three riparian countries in first 24 months of project ▪ Regional co-operation agreements reviewed by end of project 		
Output A4: Monitoring and Evaluation Procedures for SAP implementation			
A1.1 Develop hydro-environmental and institutional adaptation sustainability indicators A1.2 Develop monitoring and evaluation procedures			

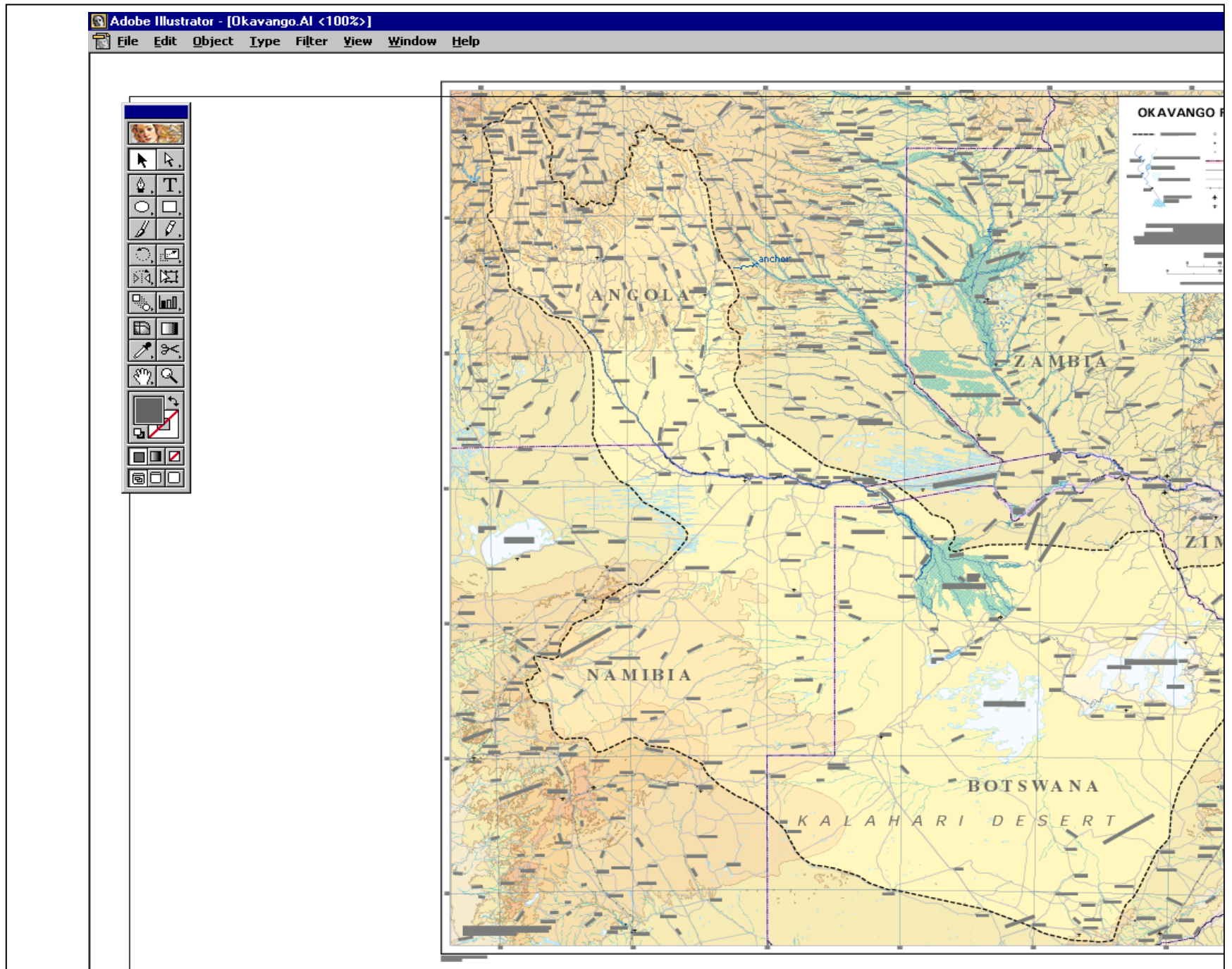
Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
<p>Output B1. Water resource assessment and analysis completed to establish hydro-environmental processes, characteristics and limits</p>	<p>Reports/data collection services commissioned in first year and completed to terms of reference by end of second year.</p>	<p>Reports published by PMU</p>	<ol style="list-style-type: none"> 1. Data collection in Angola not impeded by peace process 2. Data of sufficient precision compiled to enable completion of frameworks at resolution appropriate for SAP implementation
<p>Activities</p> <p>B1.1 Consolidate the network of water resource specialists in the region</p> <p>B1.2 Convene technical working groups on hydro-environmental processes</p> <p>B1.3 Commission a maximum of 5 full cable-way and continuous level river recording stations throughout the basin to serve as benchmark stations for SAP implementation</p> <p>B1.4 Commission level recorders and spot gauging sites in the upper Angolan sub-basins</p> <p>B1.5 Commission targeted reports on specific hydrological, hydrogeological and hydro-ecological processes associated with priority water uses and management options</p> <p>B1.6 Specific assessment of the amount of water, its quality and timing of availability through the system that is needed to sustain the Delta</p> <p>B1.7 Consolidate national water resource data and structure for use in basin analysis</p> <p>B1.8 Produce associated GIS/mapping products through the use of multi-temporal imagery</p> <p>B1.9 Design, calibrate and validate distributed models of surface and groundwater processes</p> <p>B1.10 Prepare detailed analyses of basin processes, characteristics and limits</p> <p>B1.11 Produce working hydro-environmental framework integrating processes, characteristics and limits</p>	<ol style="list-style-type: none"> 1. Frameworks elaborated on basis of all spatial and thematic data collected under Output B1 by end 2000 2. GIS products available by end 2000 	<ol style="list-style-type: none"> 1. Frameworks published by OKACOM as a basin atlas 	

Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
Output B2. Socio-economic analysis completed to establish current and future patterns of water resource use and levels of demand	Reports/data collection services commissioned first half year 1 and completed to terms of reference by end year 2	PMU publications	Proxy assumptions
Activities B2.1 Consolidate the network of social and economic experts from the region B2.2 Compile demographic framework for basin from published sources B2.3 Commission social surveys in Angola to assess current future patterns of demand for raw water B2.4 Establish basin-wide patterns of demand B2.5 Assess opportunity cost of water across the basin B2.6 Produce working socio-economic framework to integrate demographic and demand characteristics			
Output B3. Super-imposed hydro-environment and socio-economic frameworks to define environmental system limits and parameters	Frameworks compiled in GIS product and analysis initiated mid year 2 and completed by first quarter year 3.		
Activities B3.1 super-impose hydro-environmental and socio-economic frameworks B3.2 Identify environmental hot-spots, fixed and transient B3.3 Evaluate limits of sustainable use in space and time			
Output B4 Environmental assets of the ORB described and valued to structure water resource management models	Valuation of assets entered into basin planning model in year 1.	PMU publications	
Activities B4.1 Identify environmental entities linked to water in the ORB B4.2 Select valuation method(s) B4.3 Apply valuation method through targeted surveys B4.4 Describe and quantify in linkages in economic terms			

Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
Output B5 Comprehensive set of water resource <u>alternatives</u> for the ORB assessed to structure model scenarios	Alternatives assessed in year 1		
Activities B5.1 Identify sources of freshwater in the region outside the basin that present feasible alternatives of raw water B5.2 Identify and examine resource management opportunities (structural and non-structural) for the region B5.3 Form model component as alternative source or substitute B5.4 Execute demonstration and pilot studies in enhanced recharge, conjunctive use and demand management			
Output B6. Water resource development and management <u>models</u> used to produce water resource management options	Models designed and compiled on basis of Outputs B1 and B2 by mid year 2 and options produced end year 2	Databases published (hard and soft) and accessible	No restrictions on sovereign data
Activities B6.1 Evaluate environmental and economic impact of a set of alternative water resource development and allocation scenarios through the use of appropriate interactive basin planning models (WEAP, STELLA® II etc.)			
Output B7. Economic and environmental <u>criteria</u> produced to guide water resource development and allocation decisions.	Transparent criteria agreed for all hydro-environmental, ecological and socio-economic process by end year 2	Guidelines published and disseminated to stakeholders by OKACOM	Knowledge base adequate to develop appropriate and practical criteria.
Activities B7.1 Define the design state for the basin B7.2 Develop environmental criteria for resource use and guidelines for resource protection B7.3 Develop socio-economic criteria for resource allocation B7.4 Develop guidelines for implementation of the SAP			

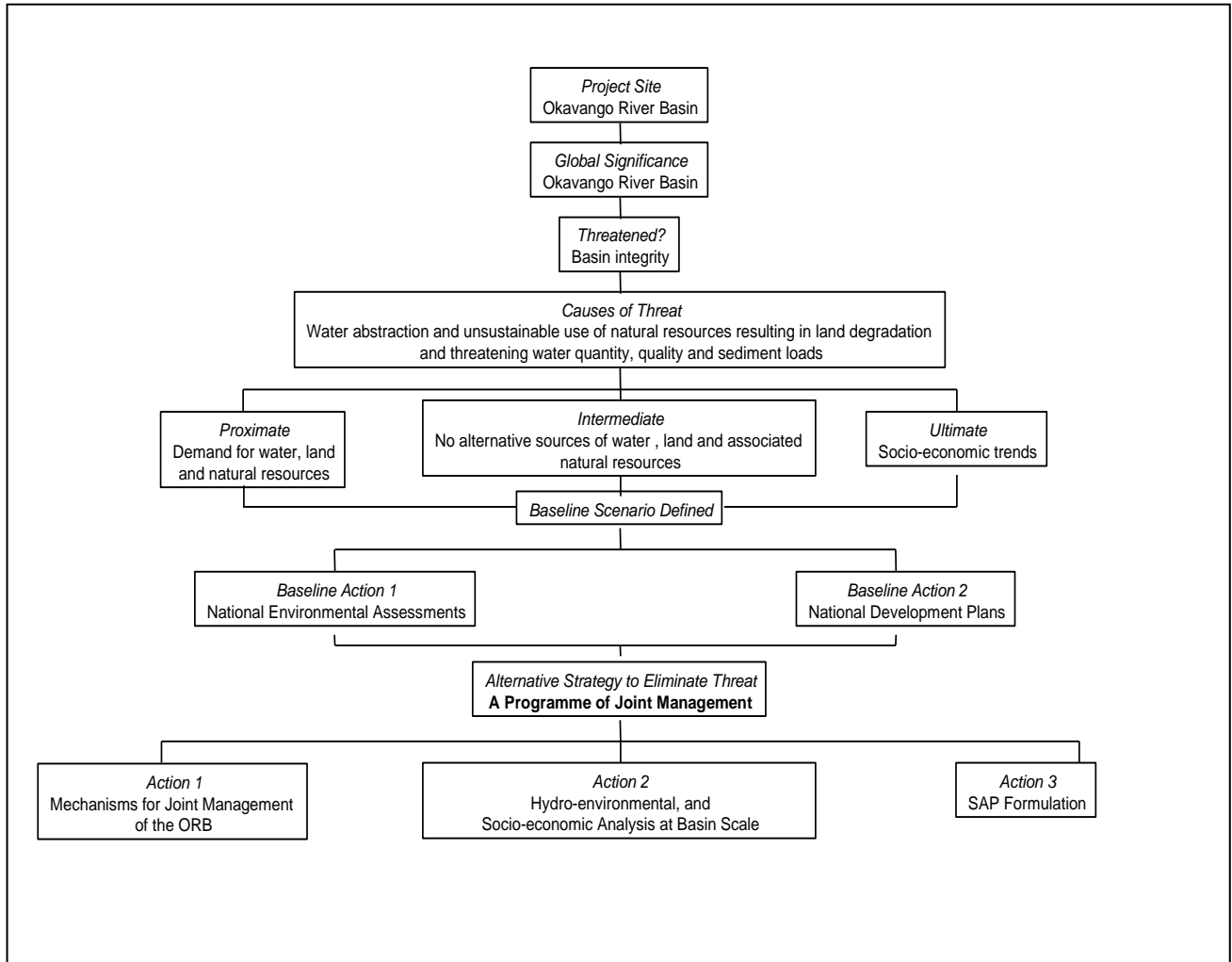
Intervention Logic	Indicators of Performance	Means Of Verification	Assumptions
Output C1 Technical and policy implications of water resources management options evaluated	Evaluation complete by first quarter year 3		
Activities C1.1 Present model outputs to basin stakeholders C1.2 Feedback responses to policy makers			
Output C2 Joint management plan negotiated and designed amongst riparians	Plan finalised by first half year 2	OKACOM negotiations	Bi-lateral relationships stable
Activities C2.1 Prepare plan on basis of stakeholder consultation C2.2 Negotiate plan			
Output C3 Policy, legal, institutional and human resource <u>commitments</u> necessary for SAP implementation defined	Commitments declared third quarter year 3.	Government statements, cabinet memoranda	
Activities C3.1 Solicit commitments from governments C3.2 Confirm commitments			
Output C4 SAP document produced through integration of outputs C1, C2 & C3 in <u>collaborative process</u> with basin stakeholders and SAP partners (donors, NGOs, research institutions., schools etc)	SAP formally endorsed by riparian countries third quarter year 3. Finance plan for SAP implementation agreed with governments, donors and investors	Draft and final SAP published by OKACOM	Bi-lateral relationships stable
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SUMMARY

Introduction

One of the aims of the PDF work has been to prepare a Transboundary Diagnostic Analysis (TDA) of the Okavango upon which to develop a Strategic Action Programme (SAP). The TDA has been based on the inputs of some 20 specialists drawn from the three riparian countries who were responsible for individual reports on the status of the ORB. The TDA was divided into two sections. Section A describes the data available and an overview of the subject and Section B highlights data deficiencies and outlines work that will be required to develop a SAP. The summary, combines the two sections.

Availability of Information

A total of twenty national consultants were commissioned within the three riparian states to compile specialist reports covering a wide range of relevant topics. In general, the approach was to commission reports to cover areas and topics not covered in other studies and to try by these means to acquire a good overall summary of existing knowledge within the basin. For some of the topics covered this was easier than others, and the usefulness of the reports received varied considerably. The work of the consultants in Angola was particularly difficult for a number of reasons. These include difficult communications, no possibility of visiting the catchment, difficulty in obtaining data from government offices, and a generally extreme lack of any up-to-date information on almost all the fields of study. The need for a concentration of efforts within the Angolan part of the catchment during the SAP preparation is clear.

Stakeholder Consultation and Participation

A key goal of the PDF work was to establish co-ordination and consultation mechanisms – that is to establish channels of communication for the further effective co-ordination, consultation and co-operation between basin stakeholders. This will facilitate stakeholder participation in the implementation of the SAP. Stakeholders were broadly defined as those parties which have a perceived interest in what happens in and to the Okavango River Basin as well as those who would be affected directly or indirectly by developments. While this goal was largely achieved in Botswana and Namibia, progress within Angola was limited by operational difficulties, and it is clear that the consultative process will still have to be properly initiated there.

The scope of the communication and consultation component during the PDF work and during its SAP preparation and implementation should not be underestimated, particularly when involving communities and interest groups. This process necessarily drives the design of the alternative course of action and the achievement of global environmental objectives. In this regard it is considered important that education is incorporated into communication. Attitudes and practices can be changed through education and it is through this that an integrated basin management plan can best and most successfully be implemented.

The work that needs to be carried out with respect to Stakeholder Consultation and Participation falls into three main categories,

A high intensity effort during the first 3 to 6 months of the project to initiate the process in Angola and further extend it in Namibia and Botswana during which time the main points arising can be incorporated into the outline Strategic Action Plan.

A continuing effort in which the main aim will be to maximise interest and input from all stakeholders.

Presentation and discussion of a final SAP

Categories 1 and 2 will include a programme to establish comprehensive understanding of the ORB in school curricula in the region. A certain number of bursaries could also be made available to the most able of the school leavers to enable them to study further. It is also proposed that a small number of suitably qualified graduates, preferably from the region, could be employed alongside the school leavers in order to strengthen capabilities in catchment management and conservation. Previous experience has shown that this type of project can often attract funding for PhD and post-graduate studies, and this sort of support should be encouraged, but not at the expense of the education of the grass root stakeholders.

General Catchment Information: the mapping base

Topographic mapping at various scales is, in principle, available for the entire catchment. The scales used vary from country to country, although all three countries have mapping available at both 1:250 000 and 1:500 000. Namibia has up-to-date 1 : 50 000 mapping for its Okavango Region, but otherwise mapping is at least 15 –30 years old.

High resolution digital satellite imagery (Thematic Mapper) covering all of the catchment in Angola, and active parts within Botswana and Namibia for July/August 1993 were purchased, processed and printed as part of the TDA activities. Once sufficient ground observation has been carried out, these will represent the best available general mapping for the catchment in Angola. Slightly lower resolution imagery (Landsat) covering the catchment in Angola for August 1973 were also purchased and processed and these will be used to assess changes in the catchment over the last twenty years.

The suggested methodology for the production of useful; mapping will be to scan and digitise the existing 1 : 100 000 (or 1:50 000) mapping where this is not already available. The information on these maps should be limited to infrastructure (roads, towns etc) and contours. The 1993 TM Landsat imagery (or more recent) should be used as a backdrop for these maps and will allow the up-dating of infrastructure, such as the position of roads, settlements , agricultural developments, land-use changes.

For both environmental assessment and river basin management purposes, the production of a regional standardised soils database is imperative. The Soil and Terrain Database for Southern Africa (to be released by FAO) contains a preliminary correlation of Angolan soils to the FAO Revised Legend in addition to a full dataset of Botswana soils.

The initial scope of work to be undertaken in the environmental assessment phase should focus on the development of a regional soils database in which information is based upon the FAO Revised Legend and from which thematic maps may be derived at a scale of 1:250,000. This scale is consistent with the general scale to be utilised for the base satellite mapping. It is also a convenient scale for the production of hard copies of complete satellite image scenes.

The Physical Background: Climate, Hydrology, Hydraulics and Hydrogeology of the ORB

Mean annual precipitation decreases from around 1350mm over the headwaters of the Cubango River down to around 450mm at Maun. Up to 20 rain gauges once operated within the catchment area in Angola, but no data are available since 1975. In the Namibian portion of the catchment relatively long rainfall records are available for 11 stations along the riverside. There are 7 established rain gauge stations located in the Delta area, generally around its peripheries, and an expansion programme is currently underway. There are virtually no rainfall intensity data. The need to collect supplementary rainfall and other climate data is fundamental, especially within Angola to complete the TDA. It is anticipated that low cost telemetrically-linked data collection platforms with a range of climatic sensors will be used to ensure precision

The Cubango River rises in the Bié plateau, Angola's hydrographic centre, the Cuito River further to the east. In Angolan territory, the basin covers an area of 148 860 Sq. Km, of which 60 860 belongs to the basin of the Cuito River. On reaching the border with Namibia the Cuito River makes its confluence with the Cubango (Okavango) River and then turns more southwards, crosses the Namibian Caprivi Strip and enters Botswana. Seventy kilometres further downstream the mainstream starts to divide and the Okavango Delta is formed. Flow of the Okavango and Cuito Rivers just upstream of their confluence is estimated at 5391 Mm³/a and 4350 Mm³ respectively. At Mohemebo at the top of the panhandle the mean annual runoff is approximately 9900 Mm³/a. Flows in the Okavango River even close to the confluence show great variability with a minimum flow of a little as 13m³/s, but a maximum of as high as 909m³/s. By contrast the flow of the Cuito River just upstream of the confluence rarely drops below 90m³/s, but only rises to around 550m³/s on very rare occasions.

No river flow data have been collected upstream of Rundu in Namibia since 1975. The longest record for any station in Angola is only 12 years and many are much shorter. Thus while relatively reliable records of more than 50 years exist for the downstream reaches of the river, information on the main runoff-generating portions of the catchment is patchy, of questionable accuracy and representing a very limited time period. A priority task will be to set up a new gauging network in the Angolan portion of the catchment. In many cases it will be necessary to select new sites.

While the hydrogeology of the Okavango region within Namibia and Botswana has been investigated on an ad-hoc basis only. Monitoring of both levels and quality is an important issue especially around the Delta. Groundwater quality is generally good although there are isolated areas downstream of the Delta where TDS values can be as high as 2000mg/l. There are no recent data available for the catchment within Angola and this is an area which will require investigation during the project to develop the SAP

Water Quality and Chemistry

Detailed studies on water quality in the Angolan and Namibian portions of the catchment are lacking. A 1984 survey measured a range of chemical parameters at 35 mainstream and 10 backwater sites along the river in Namibian territory. Other water quality data are available from The Division of Water Environment within DWA Namibia. The water quality of the water in the Okavango rivers measured in the section shared by Namibia and Botswana is relatively good, and this is likely to be the case for the upstream tributaries. The water is typically soft, with very low conductivity. Chemical and nutrient concentrations are low. The pH of the Okavango surface water varies between 5.9 to 7.6. The temperature of Okavango water entering the panhandle varies seasonally and ranges from 18°C in July to 29°C in January. Temperatures are generally found to be 3 to 4 degrees higher at the distal end of the Delta, ranging from 22°C in July to 32°C in January.

Dissolved Oxygen content throughout the flowing waters of the Okavango is generally high and near saturation conditions. Predicting the mass of TDS added to the overall system by rainfall is limited by seasonal variability in volume, distribution, infiltration and runoff. However, rainwater TDS mass is around 3% of floodwater mass derived from the Angolan mountains, so a crude estimate would be in the range of 8 000 to 10 000 tonnes of TDS and therefore could have a significant input on water chemistry/quality. Little to no work has been done on rainwater chemistry. Approximately 96% of the water entering the Okavango Delta is lost through

evapotranspiration. Two percent leaves via groundwater paths and two percent leaves via surface flow.

The mass of TDS of inflow water to the Delta is approximately 400 000 tonnes. The outflow is only 30 000 tonnes, but the occurrence of saline surface water is rare.

Inorganic and organic toxic constituents of water in the Okavango Delta are present in low values and represent mostly natural background accumulations. It is important, however, to establish a baseline of present concentrations, should the concentrations change through later development.

No recent information exists on the ambient water quality of the Cubango and Cuito Rivers and their tributaries within Angola, and this should be collected as soon as possible. It is important to collect data up and downstream of major settlements such as Menongue and other large settlements and to monitor this regularly .

The Okavango River Ecosystem

Almost no work has been done in the Angolan portion of the catchment. By contrast, aspects of flora, fauna and ecosystems have been studied in some detail in Namibia and especially Botswana. Despite this, a number of fundamental issues requiring detailed study have been identified in Namibia and Botswana.

With respect to the catchment in Namibia, very little original research (with the exception of fish studies) has been done in recent years. The lack of comprehensive baselines, long-term data series and monitoring programmes in Namibia, which are relevant to developing an understanding of the biology and ecosystem functioning, is a major problem in clarifying the potential impacts of the broad scale changes that have occurred as a result of human interventions over the past 20 years.

No studies have been carried out in the Namibian sector of the river which detail the determinants and processes involved in defining the principal riverine and associated vegetation units. The importance of plants in the hydrological and biological cycles of the river has not been studied in any detail. This work is clearly fundamental to a good understanding of the functioning of the ecosystem.

While the use of satellite imagery will be an extremely important component in vegetation and land-use studies, the need for sufficient fieldwork can not be over-emphasised.

Ultimately the aim of this part of the work will be to achieve an understanding of the linkages between climate, runoff, physical determinants, primary and secondary producers. In this particular study, which must not be seen as merely an inventory exercise of flora and fauna, it is particularly important to understand how the ecosystems are functioning and how they are affected by natural or man-made changes to flora and fauna and water management regimes. Evidence from research in the Delta has already established the sensitive links between hydrochemistry, sediment, flora and channel hydraulics. Understanding of the same hydrogeomorphological links needs to be extended upstream to assess the vulnerability of the Angolan sub-basins.

Man and the Okavango River Basin

The population density of the Okavango river Basin in general is low, although the river-side environment is, in places quite heavily settled. Demographic information for Namibia and Botswana, although several years out of date is quite accurate. Large settlements within the catchment are limited in number. With a population of around 100, 000, Menongue is by far the biggest town in the Angolan portion of the basin.

Water demand is currently low due to the absence of industry and major irrigation schemes. There are currently no large-scale water transfer schemes taking water out of the system although such a scheme is part of Namibia's short to medium-term planning. Domestic demand in Angola is particularly low due to a lack of water distribution infrastructure. This can be expected to increase dramatically as peace leads to an increase in the standard of living and pressures for development, irrigated agriculture in particular.

Population pressures in Botswana and especially Namibia have led to significant degradation of the riverside environment. The poor condition of the Namibian flood plains and their immediate proximity, which has developed over the last two decades, is in sharp contrast with the Angolan side of the river. This is clearly visible from a comparison of 1973 and 1993 satellite imagery. By contrast a comparison of the imagery covering the catchment within Angola indicates that there has been little significant degradation. Indeed, for some areas the catchment looks less impacted in 1993 than it did in 1973. For the few urban areas, monitoring of water use and effluent production will be necessary. Population and industrial growth both result in increased demand for water supply of a given quality and both result in the production of water of lower quality.

Man's activities are concentrated around agriculture, fisheries and tourism. Within the agriculture sector the emphasis is on cattle-farming although cereals are grown extensively at a subsistence level. Livestock levels in Angola have been reduced to nearly zero. There are a handful of medium-sized irrigation schemes in Namibia and also on the panhandle in Botswana.

An inventory of land-use will be a useful point of departure, although some care will have to be taken with respect to the catchment in Angola to look at likely future scenarios representing a situation of normality. Within all three countries no survey on the extent of subsistence and commercial use of and dependency on key natural resources has been done. No quantitative data exist on rates of extraction for any plant species. This is an issue of major concern because of the large increase in commercial off-takes of reeds and thatching grass for sale in main centres such as Maun. Within Angola, it will once again be important to look at historical and potential use of natural resources. It will be necessary to complete the existing picture of asset ownership and to consider carefully how existing ownership within the catchment will fit in with integrated management of the basin, since no management plan can function if it does not fit with existing ownership and management patterns.

ANNEX VII: NATIONAL EXPERT GROUP AND SPECIALIST REPORT TITLES

REGIONAL EXPERT	TITLE OF REPORT
E. Bereslawski	Geohydrology, Geology and Soils of the Cubango River Basin ; Angolan Sector
A. Grion	Demographics and Socio-economics ; Angolan Sector
F.A. Leite	Flora/Fauna ; Angolan Sector
H. dos Santos	Agriculture and Land Use Studies ; Angolan Sector
R. Marques	Climate, Hydrology and Water Resources ; Angolan Sector
I. dos Santos	Communication and Consultation ; Angolan Sector
D. Alheit	A Photographic Reconnaissance Survey of the Cubango and Cuito River Basins in Angola
L. Cassidy	The Human Environment ; Botswanan Sector
A. Sefe	Climate and Water Resources ; Botswanan Sector
A. Cashman	Communication and Stakeholder Consultation ; Botswana and Namibia
F. Becker	Water Demand, Supply and Resource Development; Namibia and Botswana
R. Harris	The Application of Remote Sensing and GIS Technology
S. Simmonds	Soil Studies ; Namibia and Botswana
B. Curtis	Aquatic Invertebrates (Namibian Sector) and Water-borne Diseases of the Okavango River Basin
C. Hines	The Biophysical and Human Environment ; Namibian Sector
M. Murray-Hudson/D. Parry	Biophysical Environment ; Botswanan Sector
M. Murray	Fauna of the Okavango River ; Botswana
P. Warmeant	A Review of Water Chemistry and Water Quality in the Okavango Delta

ANNEX VIII: PUBLIC INVOLVEMENT PLAN SUMMARY

Introduction

A key goal of the Preparatory Assessment Study was to Establish Co-ordination and Consultation Mechanisms – that is to establish channels of communication for the further effective co-ordination, consultation and co-operation between stakeholders. This will facilitate stakeholder participation in the Environmental Assessment and towards the development of a Strategic Action Plan.

One of the first tasks was the identification of stakeholders. Stakeholders were broadly defined as those parties which have a perceived interest in what happens in and to the Okavango River Basin as well as those who would be affected directly or indirectly by developments. Stakeholders were identified either through knowledge and experience of the region or through consultation with various parties.

While this goal was largely achieved in Botswana and Namibia, progress within Angola was limited, and it is clear that the consultative process will still have to be properly initiated within Angola.

The Need for Public Consultation and Participation

During the public meetings with traditional and regional leaders and communities held during the Preparatory Assessment the desire to be kept informed was strongly expressed. This is the clearest possible expression of interest in being involved from the grass roots level and communities will be involved in refining the outline SAP through consultative public meetings, reviews and seminars. In this regard, special emphasis must be given to activities in Angola. This process is at the core of the design of the alternative course of action and the achievement of global environmental objectives.

The scope of the communication and consultation component during preparation of the Strategic Action Plan and during its implementation should not be underestimated, especially when it comes to involving communities and interest groups. These are key players in the process and much of the success of the exercise will depend on them as much as on the efforts of government and specialists. In this regard it is considered important that education is incorporated into communication. Attitudes and practices can be changed through education and it is through this that an integrated basin management plan can best and most successfully be implemented.

Consultation will include the involvement of interested and affected parties from the development of the terms of reference of individual study modules, through the selection of specialists, the management and the review of their work.

Workshops and interviews of key informants will have to be the principal means of communication. A balance between involving the general public and those who represent particular interest groups will need to be struck. Overall this the process of consultation and communication must be seen as being constructive and transparent by all parties involved. The effort required to achieve this should not be underestimated and it is likely to generate a considerable amount of work.

Work required

The work that needs to be carried out with respect to Stakeholder Consultation and Participation falls into three components.

1. A high intensity effort during the first 3 to 6 months of the project to initiate the process in Angola and further extend it in Namibia and Botswana during which time the main points arising can be incorporated into the outline Strategic Action Plan.
2. A continuing effort in which the main aim will be to maximise interest and input from all stakeholders.
3. Presentation and discussion of a final SAP

Component 1

The main activities will comprise:

- Drawing up of publicity material and dissemination to all stakeholders, both locally, regionally and internationally
- Workshops/meetings with :
 - i) Government
 - ii) Local government and Community leaders, including teaching community
 - iii) Public meetings
 - iv) Meeting with appropriate NGOs and groups interested in having an input to the Strategic Action Plan and/or participation in the Environmental Assessment and Integrated management Plan
 - v) Meetings with the scientific and technical community to review the TDA, its specialist inputs and other relevant studies
- Registering of all issues, concerns and ideas. Formulation of a preliminary draft elaborated Strategic Action Plan will follow from these meetings and workshops.

The final step in the Start-up Phase of the consultation process will be the presentation of the detailed activities to be undertaken during the three year period, the laying down of mechanisms for feedback and the definition of targets for the final SAP.

Component 2. During the SAP Formulation

- Regular Meetings with those actively involved in the work. Such meetings will be both informal and formal and will involve members of the PMU, national specialists, NGOs and other groups who are playing a part in the implementation of the Strategic Action Plan.
- Bi-annual workshops should be held, open to all the stakeholders in order to keep everybody informed with the progress of the project.
- The existing website on the internet should be continued and expanded, and continually updated with feedback from the ongoing research and the feedback on the outcomes of the various meetings and workshops.

Education: The implementation of an education programme will be extremely important. It is recognised that this is an indispensable tool in the implementation of the project. A programme providing the necessary background for a good understanding of the Okavango River basin should be worked into the school curricula in the region. If this can not be done in formal way it could be achieved in the form of school projects or similar approach. In this way school-leavers will be in a position to participate more effectively in the stewardship of the river basin. The collection of rainfall and other useful data by volunteers should be promoted and the project could consider employing a certain number of school leavers from the region who would be tasked to assist the various specialists in their work especially where data gathering is concerned. School leavers would have to receive training and this would have to be incorporated into the

brief of the specialists and researchers. They could also assist with providing feedback to local communities as well as liaising with schools.

A certain number of bursaries could be made available to the most able of the school leavers to enable them to study further. It is also proposed that a small number of suitably qualified graduates, preferably from the region, could be employed alongside the school leavers in order to strengthen the capabilities.

This approach is strongly recommended and should be considered as a priority. Previous experience has shown that this type of project can often attract funding for PhD and post-graduate studies, and this sort of support should be encouraged, but not at the expense of the education of the grass root stakeholders.

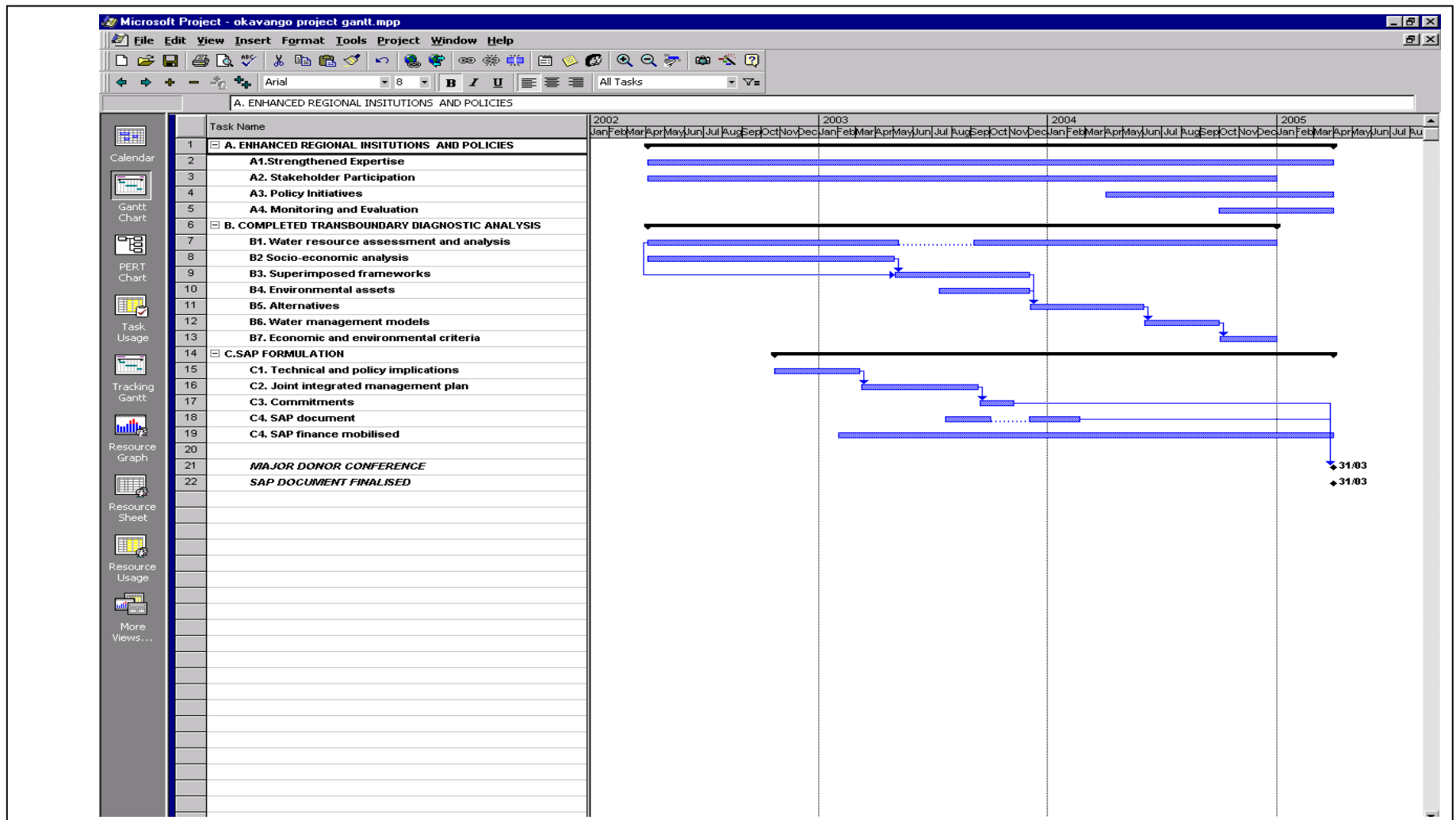
Component 3. Presentation and discussion of a final SAP

It will be necessary and advisable to present the draft final SAP at a number of Public workshops. This would best be achieved through a number of steps within a relatively short period :

- i) Workshop for key members of the technical team.
- ii) Presentation to OBSC
- iii) Public Presentation and Discussion

At this stage it would be possible to finalise the documents for endorsement by OKACOM.

ANNEX IX:PROJECT WORK PLAN IN GANTT CHART FORM



ANNEX X: MONITORING AND EVALUATION DETAILS

As a result of the emphasis placed on results-based management, it has become mandatory for all GEF projects to develop a detailed Monitoring & Evaluation work plan at the inception of the activities. For purposes of this project, the monitoring and evaluation overall plan will begin with the development of IW critical indicators as described in paragraph 71. of this document. Unique among IW projects, this project has already undergone an exercise in M&E that was undertaken in December of the year 2000. This M&E exercise was unique as it was conducted prior to implementation of the full project. The results of the evaluation appear in this document as Attachment 4. The M&E work plan will allow for a critical assessment of project performance by showing the schedule of the activities, their cost and the expected outputs and achievements according to the established benchmarks and milestones. The work plan will be the main tool for monitoring and evaluating the progress of the project.

While distinct, Monitoring and Evaluation are yet “interactive and mutually supportive” activities.

Monitoring is a continuous process of collecting and analysing information to measure the progress of a project toward expected results. Monitoring provides managers and participants with regular feedback that can help determine whether a project is progressing as planned.

Evaluations are periodic assessments of project performance and impact. Evaluations also document what lessons are being learned from experience.

Generally, individuals involved in managing a project are charged with monitoring. By contrast, individuals independent of project operations conduct evaluations.

Reporting is the systematic and timely provision of essential information. It is an integral part of the monitoring and evaluation function.

Monitoring, reporting and evaluation are management functions which could also be described as observing project progress (monitoring), documenting the observed information (reporting) and assessing on the basis of the above (evaluating).

Monitoring and systematic reporting must be undertaken for all regular and medium-size projects regardless of duration and budget. A chart describing standard M&E practices, timing of activities, and responsibilities for those activities follows.

Standard Monitoring and Evaluation Activities, Timeframes, and Responsibilities²

ACTIVITY	RESPONSIBILITIES	TIMEFRAMES
1. Drafting Project Planning Documents: Prodoc, Logframe (including indicators)	Project proponent , together with UNDP/GEF staff, project development specialists and other stakeholders	During project design stage
2. M&E Plan	Project proponent , together with UNDP/GEF staff, project development specialists and other stakeholders	During project design stage
3. Inception Report	Project Implementation Team	At the beginning of project implementation
4. Work Plan	Project Implementation Team	Annually
5. Annual Programme/ Project Report (APR)	The Governments, UNDP Country Office , Executing Agency, Project Team, UNDP/GEF Task Manager ³ , and Target Groups	Annually
6. Tripartite Review (TPR)	The Governments, UNDP Country Office , Executing Agency, Project Team, UNDP/GEF Task Manager, and Target Groups	Annually
7. Tripartite Review Report	UNDP Country Office	Annually, immediately following TPR
8. Project Implementation Review (PIR)	UNDP Country Office , UNDP/GEF headquarters, Project Team, GEF's M&E team, UNDP/GEF Task Manager	Annually, between June and September
9. Mid-term, Final and Ex-post evaluations	Project team, UNDP/GEF headquarters , UNDP/GEF Task Manager, UNDP Country Office	At the mid-point and end of project implementation; Ex-post, about two years after project completion
10. Terminal Report	UNDP Country Office , UNDP/GEF Task Manager, Project Team	At least one month before the end of the project
11. Audit	Executing Agency , UNDP Country Office, Project Team	At least once in the life of the project (see section on audit)

² The unit in bold has the lead responsibility.

³ *UNDP / GEF Task Managers* is a broad term that includes regional advisors, sub-regional coordinators, and GEF project specialists based in the region or in HQ.

ANNEX XI: REPORTING REQUIREMENTS

Ongoing project reporting will be provided in accordance with established UNDP procedures and will be provided by the UNDP Country Office with support from UNDP- GEF. Overall supervision of the Project will be the responsibility of the Chief Technical Adviser (Project Director).

REPORTING

The Project Management Unit will be responsible for the preparation and submission of the following reports:

Financial Reporting

Financial reporting by FAO to UNDP will be carried out on a quarterly basis by FAO/ TCI on the basis of returns from the CTA and will be in FAO standard Oracle format

Inception Report (IR)

The inception report is to be prepared by the Project CTA with the assistance of the project experts as relevant. The IR will be prepared no later than three months after project start-up and will include a detailed Work plan and Budget for the duration of the project, progress to date on project establishment and start-up activities and any proposed amendments to project activities or approaches. The report will be circulated to all the parties who will be given a period of one calendar month in which to respond with comments or queries. The report will also be reviewed by UNDP - GEF to ensure consistency with the objectives and activities indicated in the Project Document.

Annual Programme/Project Report (APR)

The Annual Project Report (APR) is designed to obtain the independent views of the main stakeholders of a project on its relevance, performance and the likelihood of its success. The APR aims to: a) provide a rating and textual assessment of the progress of a project in achieving its objectives; b) present stakeholders' insights into issues affecting the implementation of a project and their proposals for addressing those issues; and c) serve as a source of inputs to the Tripartite Review (TPR). The main project stakeholders participate in the preparation of the APR.

The APRs will be prepared every six months during the first year of the project, and then annually. The APRs will detail activities undertaken since the last APR, milestones reached, key results and achievements, problems encountered and any other issues that need to be highlighted.

Periodic Status Reports

As and when called for by the Project Director (CTA), the government or UNDP, the Project CTA will prepare Status Reports, focusing on specific issues or areas of activity as stipulated by the querant. The request for a Status Report will be in written form, and will clearly state the issue or activities which need to be reported on. These reports can be used as a form of specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. The parties are requested to minimise their requests for Status Reports, and when such are necessary will allow reasonable timeframes for the preparation of these Reports.

Technical Reports

Technical Reports are detailed documents covering specific areas of analysis or scientific specialisations within the overall project. As part of the Inception Report the Project Director/CTA will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants as Final Reports for their technical inputs, and should be comprehensive, specialised analyses of clearly-defined areas of research within the framework of the project and its sites.

Project Publications

Project Publications will form a key method of crystallising and disseminating the results and achievements of the Project. These publications will be scientific or informational texts on the activities and achievements of the Project, in the form of books, journal articles or multimedia publications. These Publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The Project Director/CTA will determine if specific Technical Reports merit formal publication, and will also (in consultation with the government and other parties and with the help of external specialists and staff where necessary) plan and produce these Publications in a consistent and recognisable format and identity. These Publications will form the most visible public output of the Project, and as such should be prepared and presented to the highest scientific and technical standards.

Project Terminal Report

During the last three months of the project the Project Director/CTA will prepare the Project Terminal Report. This comprehensive report will summarise all activities, achievements and outputs of the Project, lessons learnt, objectives met and missed, structures and systems implemented, etc. and will be the definitive statement of the Project's activities over the five-year duration. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

Other Publications and Publicity Activities

In order to ensure international dissemination of project results, ***a high-quality publication of results*** will be prepared, based upon the Project Terminal Report and previous Project Publications. Finally, it will be useful to hold at least one *international workshop* at which policy makers in neighbouring countries can be made aware of the country's progress in achieving the project's goals.

Tripartite Review (TPR)

The tripartite review (TPR) is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every twelve months by representatives of the Government, the executing agency and UNDP, and the first such meeting to be held within the first twelve months of the start of full implementation. The Project Support Unit shall prepare an Annual Project Report (APR) and to submit to UNDP. The APR must be ready two weeks prior to the TPR.

The APR will be used as one of the basic documents for discussions in the TPR meeting. The National Project Director/CTA presents the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The NPD/CTA also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Six-monthly APR's will be provided during the first two years of the project to ensure that design and inception activities are closely monitored, and subsequently the APR will be done on an annual basis. Separate reviews of each state component may also be conducted if necessary. Monitoring and Evaluation Indicators will be built into the project in consultation with UNDP.

Terminal Tripartite Review (TTR)

The terminal tripartite review is held in the last month of project operations. The Project support Unit is responsible in preparing the Terminal Report, and to submit to UNDP. It shall be prepared in draft sufficiently in advance to allow review and technical clearance by the executing agency at least two months prior to the terminal tripartite review. The Terminal Report will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its immediate objectives and contributed to the broader environmental objective, and decides whether any actions are still necessary.

Project Implementation Review (PIR)

A major tool for monitoring the GEF portfolio and extracting lessons is the annual GEF Project Implementation Review (PIR). The PIR has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. The PIR is mandatory for all GEF projects that have been under implementation for at least one year at the time that the exercise is conducted. A project becomes legal and implementation activities can begin when all parties have signed the project document. The PIR questionnaire is sent to the UNDP country office, usually around the beginning of June. It is the responsibility of the Project Director/CTA to complete the PIR questionnaire, with the oversight of the UNDP Country Office.

Mid-Term Evaluation

An independent Mid-Term Evaluation will be undertaken at the end of the second year. The Mid-Term Evaluation will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organisation, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document.

Final Evaluation

An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The

organisation, terms of reference and timing of the final evaluation will be decided after consultation between the parties to the project document.

Regular Monitoring and Evaluation

The project will also be closely monitored by the UNDP Country Office through quarterly meetings or more frequently as deemed necessary with the National project Director (CTA). This will allow to take stock and to trouble shoot of any problems pertaining to the project quickly to ensure smooth implementation of project activities.

ANNEX XII: TERMS OF REFERENCE FOR OKAVANGO SAP FORMULATION

- **Terms of Reference for PSC, PMU and Job Descriptions for the PMU Staff**
- **Terms of Reference for Public Involvement Plan, Terms of Reference for a Review of OKACOM and Model Terms of Reference for Project Studies**

PROJECT STEERING COMMITTEE (PSC)

Background

The Steering Committee will function as the principal policy guidance body of the Project. The Committee will provide guidance to the Project Management Unit (PMU) on issues pertaining to the regional administration of the project and to the National Co-ordination Units (NCUs) on issues pertaining to the national administration of the Okavango Initiative. The Committee will set its own operational procedures and prepare its own detailed Terms of Reference. It will meet twice a year.

Membership

Membership of the Committee will comprise of a senior government (OKACOM) representation from each country, UNDP and FAO. The World Bank and UNEP will participate in Steering Committee Meetings dealing with investment finance and critical technical issues pertaining to finalisation of the TDA-SAP. Funding for Steering Committee business will be covered by the Project.

Tasks

- to provide overall strategic policy and management direction to the project;
- to review the Project budget and work programmes
- to develop mechanisms for interaction with the private sector and other bodies representing civil society in the region;
- to seek additional funding to support activities within the project and those related to it which are not subject to GEF funding support;
- to ensure co-operation with neighbouring GEF programmes within the GEF's IW Africa portfolio.

PROJECT MANAGEMENT UNIT (PMU)

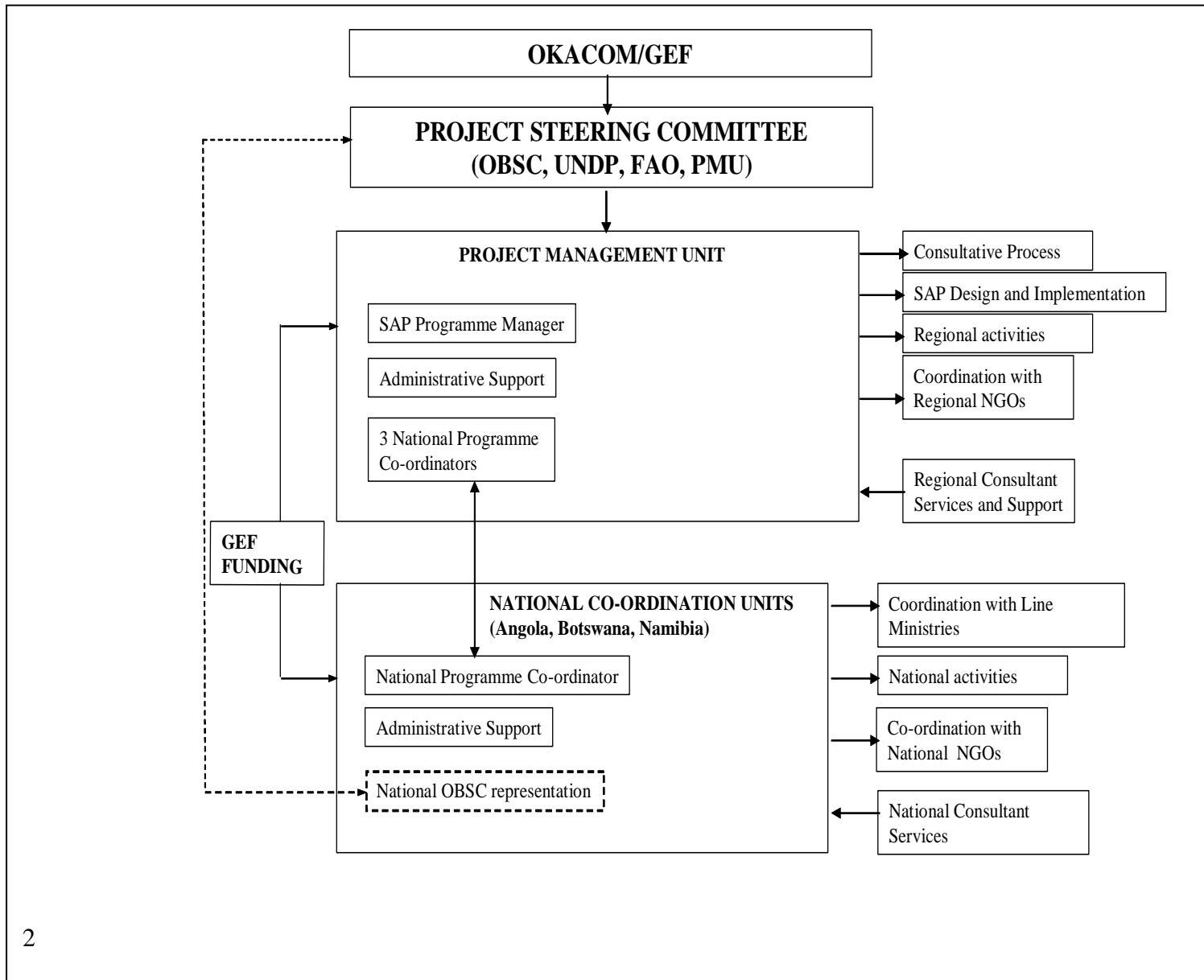
Background

The PMU will provide a co-ordination and management structure for the development and implementation of the Okavango Project in accordance with the rules and procedures of GEF/UNDP based on directions provided by the Project Steering Committee (PSC) and policy guidance from OKACOM.

Tasks

- assistance in networking between National Co-ordinators, Working Groups and any other multi-country bodies established in the three riparian countries;
- organisation of technical co-operation activities between all three riparian countries for capacity-building, environmental policy, management and pre-investment activities;
- organisation of consultative meetings;
- collection and dissemination of information on policy, economic, scientific and technical issues related to the project;
- provision of support for the preparation of technical and pre-investment studies;
- preparation of progress reports (administrative and financial) concerning programme activities;
- establishment of and assistance in networking between specialised institutions in participating countries and technical specialists from elsewhere;
- assistance in implementing pilot projects for the environment;
- co-ordination of international, multi-lateral and bi-lateral environmental activities in the Okavango Basin, where appropriate; and
- programme management (financial, logistical and strategic) in the context of the GEF/UNDP and, where appropriate, the sub-contracted components of the project.

Figure 1: Detailed Project Implementation arrangements



JOB DESCRIPTIONS FOR THE PROJECT MANAGEMENT UNIT STAFF⁴

Project Manager

General Job Description

The Project Manager shall be responsible for the overall management of the GEF funded project activities within the domain of the Okavango Project. He/she shall liaise directly with members of the OBSC and the representatives of the GEF partners, and donors, in order to co-ordinate the annual work plan for the Project. The work plan will provide guidance on the day-to-day implementation of the current project document and on the integration of the various donor funded parallel initiatives. He/she shall be responsible for all substantive, managerial and financial reports from the Project. He/she will provide overall supervision for all GEF staff in the Project Management Unit as well as guiding and supervising all external policy relations. The Project Manager will communicate directly with OBSC and the National Co-ordinators. The Project Manager will also liaise with and closely co-ordinate with all other Project national activities. He/she shall consult with, and co-ordinate closely with, the Project Steering Committee, the Principal Project Resident Representative, senior representatives of partner agencies as well as the respective UNDP officers in all Okavango Basin Countries.

Duties

The Project Manager will have the following specific duties:

- to manage the PMU, its staff, budget and imprest fund;
- to become personally involved in project implementation according to the workplan and his/her particular specialist knowledge;
- to prepare the annual work plan of the programme on the basis of the generalised workplan presented in the Project Document, in close consultation and co-ordination with the National Focal Points, the Project Steering Committee, GEF Partners, NHI and relevant donors;
- to co-ordinate and monitor the activities described in the work plan;
- to ensure consistency between the various programme elements and related activities provided or funded by other donor organisations;
- to prepare and oversee the development of Terms of Reference for consultants and contractors;
- to maintain close communications with the World Bank and other investment institutions, to secure investment finance for implementation of priority activities, defined in the SAP;
- to co-ordinate and oversee the preparation of the substantive and operational reports from the Programme; and
- to foster and establish links with other related Okavango Basin projects, and, where appropriate, the other regional International Waters programmes within the GEF's Africa portfolio.

Skills and Experience Required

- post-graduate degree in Environmental Management or a directly related field (e.g. river basin management, natural resources economics, etc.);

⁴ It should be noted that preference will be given to regional consultants/staff in the Southern Africa sub-region. If suitable candidates cannot be found, then international consultants/staff will be chosen.

- at least twenty years experience in fields related to the assignment. At least ten years experience at a senior project management level. Demonstrated diplomatic and negotiating skills;
- familiarity with the goals and procedures of international organisations, in particular those of the GEF partners (UNDP, UNEP, World Bank);
- excellent knowledge of English; and
- excellent familiarity with and work experience in the riparian countries, and knowledge of

Duty station: Luanda
Duration: Three years on a fixed-term contract
Suggested post level: P5

River Basin Management Specialist

General Job Description

The Specialist shall be responsible for the all technical aspects of the transboundary diagnostic analysis in the first 18 months of the project. He/she shall liase directly with the Project Manager, OBSC members and the representatives of the GEF partners, and donors, in order to co-ordinate the TDA work..

Duties

The Specialist will have the following specific duties:

- to co-ordinate and monitor the activities required to produce the TDA;
- to ensure consistency between the various programme elements and related activities provided or funded by other donor organisations;
- to prepare and oversee the development of Terms of Reference for consultants and contractors;
- to co-ordinate and oversee the preparation of the substantive and operational reports from the Programme; and
- to foster and establish links with other related Okavango Basin projects, and, where appropriate, the other regional International Waters programmes within the GEF's Africa portfolio.

Skills and Experience Required

- post-graduate degree in river basin management or a directly related field (e.g. river basin management, natural resources economics, etc.);
- at least fifteen years experience in fields related to the assignment.
- familiarity with the goals and procedures of international organisations, in particular those of the GEF partners (UNDP, UNEP, World Bank);
- excellent knowledge of English; and
- excellent familiarity with and work experience in the riparian countries, and knowledge of

Duty station: Luanda
Duration: 18 month fixed-term contract
Suggested post level: P4

National Project Co-ordinators

Background

Each country will select a person, or persons, who will have executive responsibility for the Project in that country. This person would normally be a senior government official, such as national Director, a Minister or Deputy Minister of the Environment, or equivalent. The National Project Co-ordinators (NPCs) will be a major driving force for the Project and eventually for a wider implementation of the Okavango SAP. They will speak on behalf of their governments and ensure liaison with other sectors, also at the executive level.

Tasks

- to represent his/her/their country on the Project Steering Committee and the Joint Management Committee;
- to ensure implementation of the agreed workplan and timetable, both nationally and regionally;
- to liaise with other government sectors to guarantee an inter-sectoral approach to project implementation;
- to participate in the development of the Strategic Action Programme for the Okavango and to promote its adoption at the highest level of government;
- to ensure the provision of national counterpart funding and institutional support for the implementation of the project;
- to help coordinate, under the supervision of the National Project Manager and in close collaboration with the World Bank efforts to secure investment finance;
- to oversee the development of National Programmes of Action;
- To chair the National Project Steering Committee;
- to develop institutional plans to encourage long term sustainability in the implementation of the SAP and NAPs;
- to encourage participation of civil society in the project, including national Non-Governmental Organisations.

Local PMU Staff

The TORs of the local PMU staff will be prepared by the Project Manager at the inception of the project and presented to the Project Steering Committee.

Terms of Reference for Public Involvement Plan

Introduction

A key goal of the Preparatory Assessment Study was to Establish Co-ordination and Consultation Mechanisms – that is to establish channels of communication for the further effective co-ordination, consultation and co-operation between stakeholders. This will facilitate stakeholder participation in the Environmental Assessment and towards the development of a Strategic Action Plan.

One of the first tasks was the identification of stakeholders. Stakeholders were broadly defined as those parties which have a perceived interest in what happens in and to the Okavango River Basin as well as those who would be affected directly or indirectly by developments. Stakeholders were identified either through knowledge and experience of the region or through consultation with various parties.

While this goal was largely achieved in Botswana and Namibia, progress within Angola was limited, and it is clear that the consultative process will still have to be properly initiated within Angola.

The Need for Public Consultation and Participation

During the public meetings with traditional and regional leaders and communities held during the Preparatory Assessment the desire to be kept informed was strongly expressed. This is the clearest possible expression of interest in being involved from the grass roots level and communities will be involved in refining the outline SAP through consultative public meetings, reviews and seminars. In this regard, special emphasis must be given to activities in Angola. This process is at the core of the design of the alternative course of action and the achievement of global environmental objectives.

The scope of the communication and consultation component during preparation of the Strategic Action Plan and during its implementation should not be underestimated, especially when it comes to involving communities and interest groups. These are key players in the process and much of the success of the exercise will depend on them as much as on the efforts of government and specialists. In this regard it is considered important that education is incorporated into communication. Attitudes and practices can be changed through education and it is through this that an integrated basin management plan can best and most successfully be implemented.

Consultation will include the involvement of interested and affected parties from the development of the terms of reference of individual study modules, through the selection of specialists, the management and the review of their work.

Workshops and interviews of key informants will have to be the principal means of communication. A balance between involving the general public and those who represent particular interest groups will need to be struck. Overall the process of consultation and communication must be seen as being constructive and transparent by all parties involved. The effort required to achieve this should not be underestimated and it is likely to generate a considerable amount of work.

Work Required

The work that needs to be carried out with respect to Stakeholder Consultation and Participation falls into three components.

- A high intensity effort during the first 3 to 6 months of the project to initiate the process in Angola and further extend it in Namibia and Botswana during which time the main points arising can be incorporated into the outline Strategic Action Plan.

- A continuing effort in which the main aim will be to maximise interest and input from all stakeholders.
- Presentation and discussion of a final SAP

Component 1

The main activities will comprise:

- Drawing up of publicity material and dissemination to all stakeholders, both locally, regionally and internationally.
- Workshops/meetings with:
 - i) Government;
 - ii) Local government and Community leaders, including teaching community;
 - iii) Public meetings;
 - iv) Meeting with appropriate NGOs and groups interested in having an input to the Strategic Action Plan and/or participation in the Environmental Assessment and Integrated Management Plan;
 - v) Meetings with the scientific and technical community to review the TDA, its specialist inputs and other relevant studies.
- Registering of all issues, concerns and ideas. Formulation of a preliminary draft elaborated Strategic Action Plan will follow from these meetings and workshops.

The final step in the Start-up Phase of the consultation process will be the presentation of the detailed activities to be undertaken during the three year period, the laying down of mechanisms for feedback and the definition of targets for the final SAP.

Component 2. During the SAP Formulation

Regular Meetings with those actively involved in the work. Such meetings will be both informal and informal and will involve members of the PMU, national specialists, NGOs and other groups who are playing a part in the implementation of the Strategic Action Plan.

Bi-annual workshops should be held, open to all the stakeholders in order to keep everybody informed with the progress of the project.

The existing website on the internet should be continued and expanded, and continually updated with feedback from the ongoing research and the feedback on the outcomes of the various meetings and workshops.

Education: The implementation of an education programme will be extremely important. It is recognised that this is an indispensable tool in the implementation of the project. A programme providing the necessary background for a good understanding of the Okavango River basin should be worked into the school curricula in the region. If this can not be done in formal way it could be achieved in the form of school projects or similar approach. In this way school-leavers will be a position to participate more effectively in the stewardship of the river basin. The collection of rainfall and other useful data by volunteers should be promoted and the project could consider employing a certain number of school leavers from the region who would be tasked to assist the various specialists in their work especially where data gathering is concerned. School leavers would have to receive training and this would have to be incorporated into the brief of the specialists and researchers. They could also assist with providing feedback to local communities as well as liaising with schools.

A certain number of bursaries could be made available to the most able of the school leavers to enable them to study further. It is also proposed that a small number of suitably qualified graduates, preferably from the region, could be employed alongside the school leavers in order to strengthen the capabilities.

This approach is strongly recommended and should be considered as a priority. Previous experience has shown that this type of project can often attract funding for PhD and post-graduate studies, and this sort of support should be encouraged, but not at the expense of the education of the grass root stakeholders.

Component 3. Presentation and discussion of a final SAP

It will be necessary and advisable to present the draft final SAP at a number of Public workshops. This would best be achieved through a number of steps within a relatively short period :

- i) Workshop for key members of the technical team.
- ii) Presentation to OBSC
- iii) Public Presentation and Discussion

At this stage it would be possible to finalise the documents for endorsement by OKACOM.

Terms of Reference for a Review of OKACOM

Background

The success of this stage of the project and all subsequent stages will hinge upon the performance of OKACOM as a political forum and a political driver of the project. It has been accepted by the riparian countries that the mandate, constitution and institutional competence of OKACOM will need to be elaborated as a result of the changing natural and political circumstances in the basin and the imperative to achieve joint implementation of the SAP. To this end it is recommended that an independent review of the roles, functions and competence of OKACOM is undertaken. A team of specialists will be retained by the project to fulfil this review

Tasks

- establish the existing mandates and functions of OKACOM;
- Establish the chronology of meetings, and summarise decisions and actions from inauguration to the present;
- evaluate the degree to which OKACAM has been able to fulfil its mandate (its performance);
- recommend changes/enhancements in the context of SAP development and implementation.

Model Terms of Reference for Project Studies

Introduction

In describing water resources characteristics at national and regional levels it is essential to establish a framework in which surface and groundwater occurrences can be related to the landscapes in which human settlement and economic activity are placed. Issues of resource allocation, and human and environmental sustainability sensibly derive from this appreciation of hydrological processes operating across landscapes. The geomorphology of presents a set of well defined sub-basins that may be used to establish such a framework. Information on water resource availability, variability and quality are required for two reasons. First, to provide natural resource managers with hydro-environmental information of a sufficient degree of accuracy to plan and manage the resources of the basin under existing conditions. Second, to inform local, national and regional planning processes and to guide investment decisions in the sustainable development of the sub-basins. An up-to-date assessment of the sub-basin in southern has been identified by the Ministry ofas a priority.

Objective

To complete a hydrological baseline assessment of the (including the sub-catchment) sub-basin in in order to develop a hydrological framework for the sub-basin and to present water resources information to decision makers at local, national and regional levels.

Scope Of Activities And Outputs

Scope of Activities

The scope of the study will comprise a compilation of hydrometeorological data for the sub-basins, an evaluation of the data quality and a summary of key hydro-environmental characteristics and processes in the sub-basins. Activities will include the following principal elements.

Compile and summarise existing sub-basin precipitation and streamflow data for the sub-basin in using national data and cross border flows. =Evaluate the quality of the data and identify critical gaps in data acquisition, processing, storage and analysis. Assist the DWA in processing chart data from 1991 as specified in DWA terms of reference (Annex 1) Present in map form key environmental data including geology, geomorphology, land-use, patterns of soil erosion and sediment transfer within the sub-basin. Characterise catchment response using daily and monthly data where appropriate and identify key hydrological process operating in the sub-basins and indicate hydro-environmental trends. Specifically this should aim to present annual hydrographs of daily data for representative streamflow and precipitation stations in wet, dry and mean years over the period of record.

Outputs

These will be in the form of main reports, maps and databases as appropriate. Appendices should include data tabulated by individual catchments and sub-basin where possible and must be prepared in spreadsheet or database formats to be available on diskette to the Ministry of

Administrative Arrangements

FAO has allocated \$..... to be used to sub-contract qualified consultants based in Luanda.

Implementation schedule

A tentative implementation schedule of the Project is shown in Table 3 below.

Model Terms of Reference for Consultants

Short-term international consultants will give technical inputs to the national and regional working groups, act as resource persons, and give methodological guidance in organising meetings and workshops. International expertise will be required in the areas of general environment and regional development.

Environmental Specialist (International)

Responsibilities: Serve as an Expert Resource on issues related to work undertaken during the PROJECT. Specifically the Environmental Specialist will be expected to render expert advice on matters related to hydrology, pollution, and groundwater resources. The consultant may be expected to undertake extensive field missions into remote areas in the Okavango basin. The consultant will be expected to produce written reports on issues related to work undertaken during project execution and deliver such reports in a timely fashion. The consultant will work as part of a multi-disciplinary team comprised of other international and national consultants, professional staff members of OKACOM, work with professional staff members of the implementing Agencies, and work under the general direction of the Executing Agency.

Qualification: An advanced degree (Ph.D. or equivalent) in a environmental studies or in a discipline related to environmental management and institution building (e.g. limnology, environmental engineering, environmental management) with an emphasis on land/water interactions. At least five years of professional experience in issues directly related to those to be addressed during the project. Previous experience in Africa generally, and in sub-Saharan Africa specifically a strong plus. Demonstrable and excellent English language speaking and writing skills. Portuguese language ability a strong plus. Familiarity with the goals and procedures of international organisations, in particular of the GEF Implementing Agencies involved with this project (The UNDP and the World Bank). Demonstrated diplomatic skills.

Regional Development Specialist

Responsibilities: Serve as an Expert Resource on issues related to work undertaken during the course of the PROJECT. Specifically the Regional Development Specialist will be expected to render expert advice on matters related to institution building, general capacity building at the regional, national and local levels, issues related to project funding, particuallry from multi-lateral financial institutions and increasing the level of donor support, and sustainable development issues related to the land/water issues to be addressed by the project. The consultant may be expected to undertake extensive field missions into remote areas in the Basin. The consultant will be expected to produce written reports on issues related to work undertaken during project execution and deliver such reports in a timely fashion. The consultant will work as part of a multi-disciplinary team comprised of other international and national consultants, professional staff members of the OKACOM, work with professional staff members of the Implementing Agencies, and work under the general direction of the Executing Agency.

Qualifications: An advanced degree (Ph.D. or equivalent) in regional development or in a discipline related to regional development and institution building (e.g. the law, environmental management, environmental economics). At least ten years of professional experience in issues directly related to those to be addressed during the project. Demonstrable and excellent English language speaking and writing skills. Familiarity with the goals and procedures of international organisations, in particular of multi-lateral and regional financing institutions, such as the World Bank. Demonstrated diplomatic and negotiating skills.