Okavango River Basin Transboundary Diagnostic Analysis Technical Report

OKACOM

The Permanent Okavango River Basin Water Commission

Environmental Protection and Sustainable Management of the Okavango River Basin (EPSMO) Governance Review

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February 2010

Environmental protection and sustainable management of the Okavango River Basin

EPSMO

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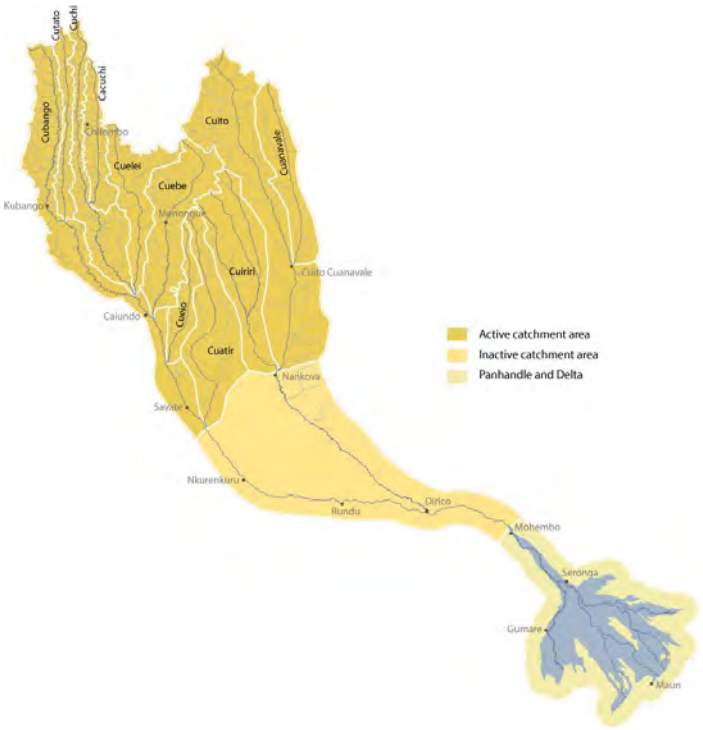

Governance Review

February 2010

Okavango Transboundary Diagnostic Analysis

Governance Review

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OKACOM

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The Governance Framework for the Okavango River Basin

1. Introduction

This governance review forms part of a series of reports (on hydrology, environmental flows, economics etc.) towards the Okavango Transboundary Diagnostic Analysis. The governance review complements the scientific-technical reports in describing the policy, legal and institutional framework within which management decision are made that affect the current and future use of the basin's water and other natural resources and determine the development trajectory for the basin as a whole.

Thus, the purpose of the review is to describe the complex, interrelated framework of laws and policies applicable to the Okavango Basin at national and international level as well as the corresponding organisational management structures. It is furthermore to analyse the governance framework within the basin, in order to highlight legal, policy and institutional challenges and opportunities within and between the basin states that may have an impact on the sustainability of any developments within the basin. Thus, based on the description of the current baseline, the review undertakes an analysis of present strengths and weaknesses in the governance framework and identifies opportunities for (in the policy and legal framework) for the promotion of economic development in an environmentally and socially sustainable manner.

In its first part, the report describes the constitutional order and organisation of states in the three Okavango basin states Angola, Botswana and Namibia.

This is followed by a detailed description of overarching national economic development policies and sector development policies, focused on economic sectors most relevant to the current and potential future uses of the Okavango river water resources, e.g. agriculture, energy, tourism. Furthermore, this section provides a detailed description of the natural resource governance framework in the basin with a focus on water, land and biodiversity management as well as climate change. International and national laws and policies are described together with an overview of current organisational responsibilities at national and international level. The section concludes with an analysis of present legal and institutional constraints with a view to addressing these constraints.

The baseline description is followed by a description and analysis of the main policy drivers for management and investment decision-making in the basin and summarised in a SWOT matrix.

The role of the Permanent Okavango River Basin Water Commission (OKACOM) is then discussed in terms of facilitating greater regional cooperation and sustainable use of the basin. Following a description of OKACOM's current role and mandate, options for its future role in light of the growing responsibilities of the Commission are discussed, particularly in the context of the forthcoming Okavango Basin Strategic Action Programme (SAP).

Last, the report concludes with a series of governance recommendation aimed at addressing current weaknesses in the governance framework and using its existing strengths and opportunities for the promotion of environmentally sustainable socio-economic development in the basin.

2. The Political Organisation of the Basin States

All three Okavango basin states are independent Republics with a written Constitution as the supreme law of the land. These post-independence Constitutions –Angola 1992 (replacing the 1st post-independence Constitution of 1975), Botswana 1966 and Namibia 1990 – establish the respective states as parliamentary democracies with an elected President as both Head of State and Head of Government.

ANGOLA

Angola has four layers of government - national, provincial, municipal, and communal. These are not independent spheres of government; instead, the latter three are hierarchically related and integrated into the central government (UNDP, 2006). It is incumbent on the Provinces to execute the policy of central government at the provincial level through the coordination of the central government agencies in the territory (UNDP, 2006). The respective Provincial Governor, appointed by the President, is the representative of the central government in the Province and Provincial Directorates mirror the ministerial structure at national level (UNDP, 2006). Likewise, municipal administrations headed by the Municipal Administrator are de-concentrated bodies of the central government, reporting to the provincial government with the municipal administration replicating the ministerial structure at national level (UNDP, 2006). At the same token communal administrations are de-concentrated bodies of the central administrative power answerable to the respective municipal administration (UNDP, 2006). Headed by the Communal Administrator who is appointed by the Provincial Governor, the Communal Administration acts as spokespeople for the day-to-day problems of the communities (UNDP, 2006). In addition of the formal state structures, traditional authorities also play an important role in local level decision-making.

The Angolan parliament approved a new Constitution on 201 January 2010. With respect to the structure of government the new Constitutions follows the 2001 Strategic Plan for Deconcentration and Decentralisation, which envisages a reformed structure of government over time, ultimately culminating in the creation of autonomous local municipalities (UNDP, 2006). The text of the new Constitution received positive appraisal of the Constitutional Court and was subsequently promulgated by the President of the Republic.

The Angola part of the Okavango basin falls in the Provinces of Huambo (municipality of Chicala Tcholoanga), Huíla (municipality of Kuvango), Bié (municipality of Chitembo), Moxico (municipality of Luchazes) and Kuando Kubango (municipalities of Cuchi, Menongue, Cuito Cuanavale, Nankova, Cuangar, Calai and Dirico).

BOTSWANA

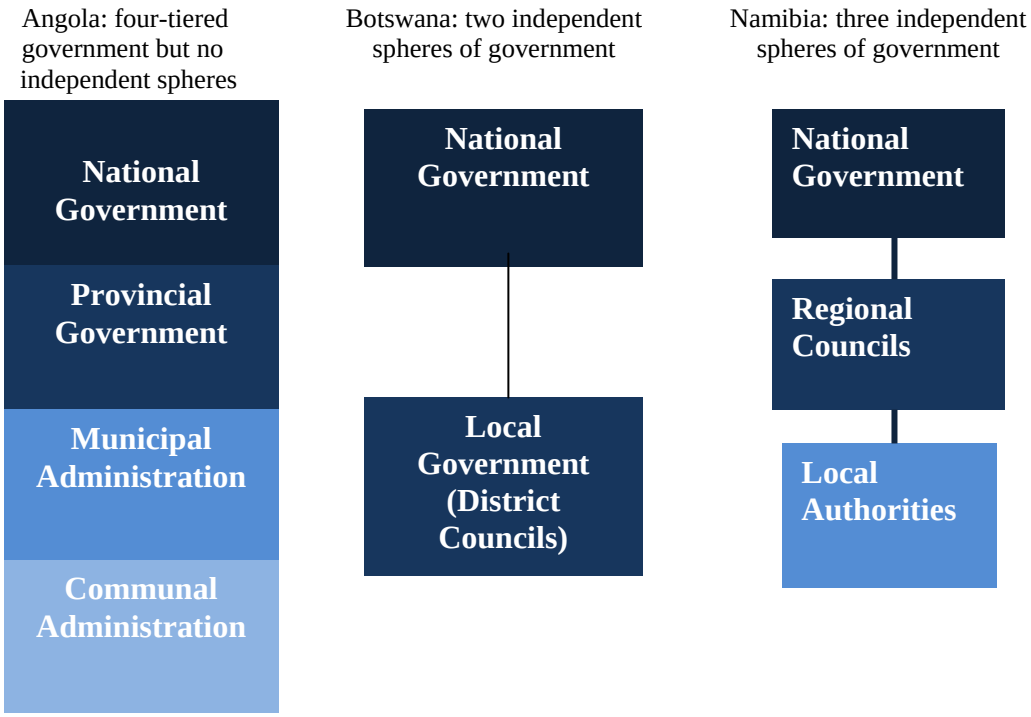
Botswana has no province or states with government being comprised of national and local government. The latter is single-tiered comprising both urban (two city councils, five town councils, one township authority) and rural councils (10 district councils) (CLGF, 2006). The hydrologically active part of the Okavango basin within Botswana falls into Ngamiland District. Local government in Botswana works with participative structures such as the kgotla (village assembly) and village development committees (VDCs) as institutions for two way communication between the government and the community (CLGF, 2006). Traditional authorities play an important role in local level decision-making, particularly concerning issues of land allocation (see below section on land-use management).

Councils have their own jurisdiction but their activities and plans are coordinated through various mechanisms and forums organised by central government, for example national and local level decentralised development planning through the National and District Development Plans. A recent (2004) White Paper proposes reforms that further strengthen the role of local government in Botswana. The proposed reforms include greater autonomy of local government in local level development planning and management (CGLF, 2006).

NAMIBIA

Namibia's 1990 Constitution establishes three independent spheres of government – national, regional and local. Each regional and local government has an elected Council and an executive administration. Local Authorities can take different forms such as municipalities, communities or village councils. The powers and functions of regional and local government are assigned to them by an Act of Parliament. Regional and local government have some revenue raising power and also share in the revenue raised by central government. As in Angola and Botswana, traditional authorities play an important role in local decision-making, particularly with respect to land allocation. The Namibia part of the Okavango basin falls into the Kavango Region.

Figure 1: Overview of government structures in the three Okavango Basin states



3. Overview of Sector Development and Natural Resource Management Policies

3.1. National Development and Sector Policies

ANGOLA

Angola's post-conflict priority on economic growth and development for poverty reduction and improvement of livelihood is reflected in two key national development policies. The Angola 2025 Long Term Strategy (*Estrategia de longo prazo*), reviews the significant development challenges in the country, some of which include: low human development, a weak economy and institutional instability. It then puts forward a number of development strategies, including the possible growth of designated sectors and key activities. It is complimented by the Strategy to Combat Poverty (ECP) 2005, which was developed in terms of the key goals of reconstruction and national development as stated above. Its overall objective is improving the living conditions of Angolan citizens. Specific objectives under this strategy include minimising hunger risk; enabling rural economies, and to reconstruct, rehabilitate and expand the basic infrastructures in order to foster socio-economic development.

The most relevant sector policies in the context of the management of the Okavango basin are the ones related to energy and agriculture. Although the country does not yet have a comprehensive Energy Policy, the Development Strategy for Angola's Power Sector (2002) and the Strategy for the Development of the Electricity Sector of Angola (2002) prioritise the repair of hydropower infrastructure which was damaged in the past, as hydropower is considered to be an important component of the national energy mix. The country has a Medium Term Development Plan for Agriculture that sets the strategy for the growth of the agricultural sector and increased agricultural production.

BOTSWANA

Vision 2016 is the country's overarching development vision, which aims to achieve the sustainable economic growth and development of the country by 2016, identifying environmental degradation as a key challenge in the achievement of such.

The National Development Plan 9 is a more detailed national development plan which calls for the appropriate use of natural resources and the consideration of the environmental costs when planning for the development of the country.

Botswana's National Development Plan is complemented by a wide range of sector policies and strategies. The National Energy Policy (2006), complemented by the Botswana Energy Master Plan, aims at providing a least cost mix of energy supply, which reflects total life cycle costs and externalities of the generation of such. The Energy Policy emphasises the need to reduce deforestation and the promotion of solar energy, aiming at making Botswana a centre of excellence in solar technology.

The National Policy on Agricultural Development (NPAD) (1991) contains the objectives of improving food security, diversifying the sector, increasing employment and conserving scarce agricultural resources for future generations. This policy is similar to the 1977 Arable Land and Development Programme. These agricultural policies are complemented by the Botswana National Master Plan for Arable Agriculture and Dairy Development (NAMPAD),

which seeks to significantly increase the commercialisation of agriculture, through easier access to agricultural land and a steady stream of agricultural inputs.

NAMIBIA

Namibia's development vision is contained in the Vision 2030, which deals extensively with all aspects of the environment, including water, land use, and biodiversity; and strict pollution control is put forth as a guiding principle when considering all of the above. Vision 2030 is complemented by the current National Development Plan 3, a more detailed planning document with an overall theme of accelerated economic growth through extensive rural development. Productive utilisation of natural resources and environmental conservation are key goals.

Namibian energy policy is enshrined in the Energy White Paper (1998), which emphasises the need for achieving security of supply, social upliftment, effective governance, sustainable growth, competitiveness, and efficiency. The White Paper emphasises the need for an energy mix that is increasingly based on renewable energy, as well as making Namibia a centre of excellence for solar energy.

Namibia's National Agricultural Policy (1995) focuses largely on generating increased income levels through agriculture, while at the same time acknowledging the limitations of the countries soil and advocating sustainable use of natural resources. In a similar vein, the National Drought Policy and Strategy (1997) shifts the onus for drought management from the government to farmers by establishing appropriate techniques to cope with droughts.

The country has developed the "Green Scheme" initiative, which encourages the development of irrigation-based agriculture in order to increase Namibia's GDP. The result is intended to be a four-fold increase in irrigated agricultural land in the country. The Kavango region, the Namibian part of the Okavango basin, is identified as one of the areas for the development of irrigated agriculture under the "Green Scheme".

Namibia's Industrial Policy (1992) advocates a change in direction for Namibia industry towards a more value-added manufacturing sector which would lead to increased exports.

3.2. Natural Resource Management Laws, Policies and Institutions

3.2.1. Water Resources Management

In 1994 the three Okavango basin countries signed an agreement to establish the Permanent Okavango River Basin Water Commission- the OKACOM-Agreement[1], subsequently complemented by the 2007 Agreement on the Organisational Structure of OKACOM. While not containing an explicit provision on the (substantive law) obligations of the Parties, the OKACOM-Agreement makes reference to key principles of international water law (e.g. equitable utilisation in Art. 4(3)) when delineating the functions of the Commission. At the time (1994) the Parties would have drawn from customary international law, which clearly establishes the principle of equitable utilisation, the duty to take all reasonable measures to prevent transboundary harm, and the duty to cooperate as

[1] Agreement between the Governments of the Republic of Angola, the Republic of Botswana and the Republic of Namibia on the Establishment of a Permanent Okavango River Basin Water Commission (OKACOM)

substantive legal obligations of states for the management of internationally shared water resources. With the entry into force of the (Revised) SADC Protocol on Shared Watercourses in 2003 these three key legal rules for shared waters are today applicable treaty law for the Okavango basin states as they have all ratified the Revised Protocol. In addition to the said three key principles the Revised Protocol (which for most parts mirrors the, not yet in force, text of the 1997 UN Convention on the Law of the Non-navigable Uses of International Watercourses) contains a number of additional substantive (mostly related to ecosystem protection) and procedural obligations, making it the water specific international legal instruments applicable to the basin. The Revised Protocol is complemented by other relevant international agreements, such as the UNCBD, the UNCCD and the Ramsar Convention (see overview table 1).

At policy level the Revised Protocol is complemented by the SADC Regional Water Policy (RWP) and the SADC Regional Water Strategy (RWS). Subscribing to the principle of IWRM the two instruments lay down regionally agreed policy guidelines concerning water resources management, covering a wide range of topics from infrastructure development, information exchange, capacity building to gender aspects and stakeholder involvement. Chapter 5 of the RWP deals with water and environmental sustainability and recognises the environment as a resource base and legitimate user of water in its own right. In chapter 10 the policy deals exclusively with stakeholder participation and capacity building, stating that water resources management and development at all levels shall be based on a participatory approach (Policy 10.1) and that stakeholders need to be empowered to effectively participate in such decision-making (10.1.2).

Although, as policy documents not legally binding on the SADC member states; the RWP and RWS provide important guidance for the ongoing harmonisation of national water policies (and laws) of the SADC member states. All Okavango River basin states are members of SADC and have committed themselves to meeting the principles and policy objectives set forth in the RWP and RWS.

At the national level, all three basin countries have adopted designated water resources management legislation, which recognises the obligations resulting from international water agreements the respective country is a Party to.

ANGOLA

The Angola Water Act (2002) establishes the state as the custodian of the country's water resources in charge of administering the water use rights system. It establishes a water allocation framework (licensing system) and water quality control regime and, in line with IWRM principles, provides for the establishment over time of basin committees (Comités de Bacia). Following the 2009 elections the Angola water sector went through a significant restructuring process. Initially, a new State Secretariat for Water (SEA – Secretaría de Estado das Águas) was created, which existed for about 15 months. After February 2010 the Ministry of Energy and Water (MINEA – Ministéiro de Energía e Águas) was created. Furthermore, as part of the ongoing restructuring Angola is in the process of setting up a National Institute for Water Resources Management. An Inter-ministerial Committee for the Coordination of International Waters (GATECI – Grupo de Apoio Técnico da Comissão Inter-Ministerial para Águas Internacionais) has been established.

With respect to the Okavango River Basin specifically, Angola is in the process of setting up a River Basin Authority for the (Angola part of the) Okavango, which will have resources management responsibilities, while the Comitée de Bacia, (which is going to be established)

will be a stakeholder forum. An Integrated Water Utilisation Master Plan for the Cubango[2] will be under development from the second quarter of 2010.

The biggest challenge with respect to effective water resources management in Angola is the limited capacity within government structures to implement and enforce existing policy and legislation. In this regard, Angola lacks long term training and research programmes aimed at developing the required technical and managerial skills. Capacity constraints in terms of human resources, infrastructure and financial aspects hamper effective enforcement and delivery. At the same time institutional responsibilities and roles are not always clearly defined, resulting in a duplication of process on the one hand and implementation and enforcement gaps on the other hand.

Figure 2: Planned institutional structure for water management in the Angola part of the Okavango basin

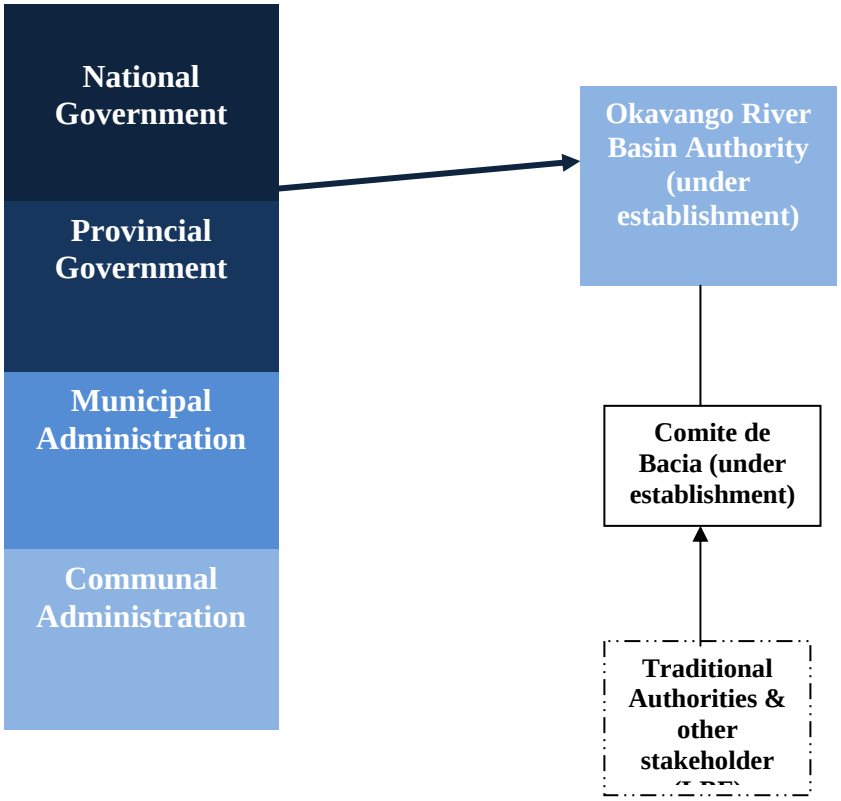


Figure 2: Planned institutional structure for water management in the Angola part of the Okavango basin

[2] Plano de Utilizacao Integrada dos Recoursos Hídricos da Bacia do Rio Cubango

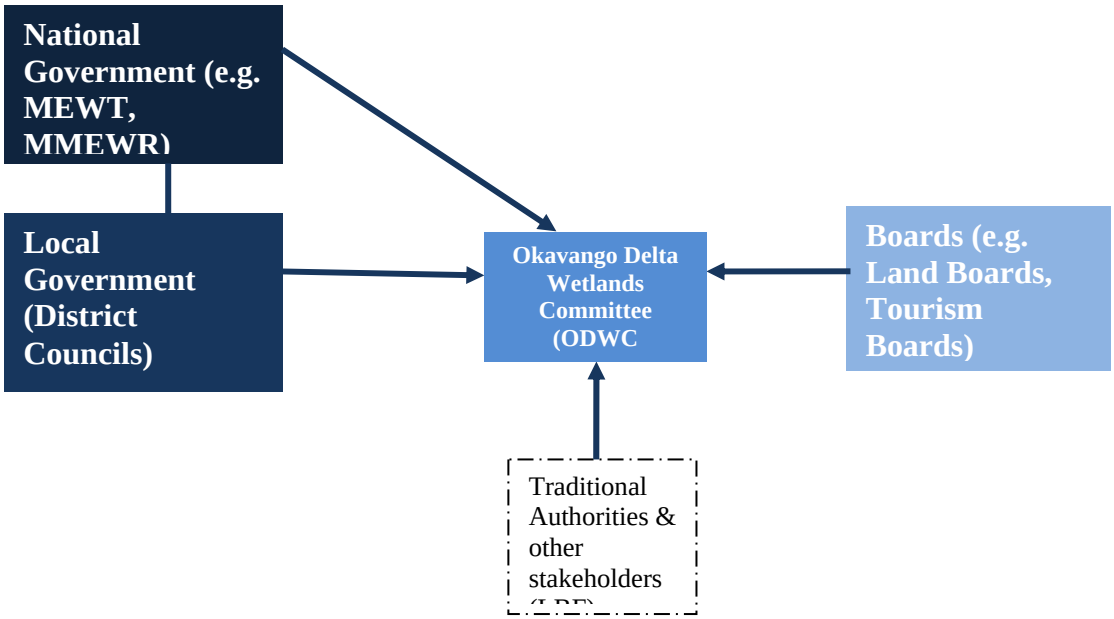
BOTSWANA

In 2005 Botswana undertook a review of its Water Sector Master Plan. The new Water Sector Master Plan (2005) recommended a restructuring of the sector and Botswana is now in the process of reforming its domestic water legislation, parallel to the development of a national IWRM plan and substantial reform of the institutional structure for water resources management. A draft Water Bill has been produced and will, once promulgated as an Act, replace the currently applicable 1968 Water Act. The proposed new Act brings the country's legislation in line with IWRM principles and, like the new Namibian Act, provides for the devolution of water management responsibilities to the lowest possible level (through the establishment of water management area bodies and village water development committees). The forthcoming new Act also establishes a new Water Resources Council with key functions in water resources management and allocation decision-making. Notably, the Water Resources Council shows strong elements of inter-ministerial cooperation in that a wide range of relevant line-ministries have to be represented on the Council.

In terms of policy/ strategy Botswana has, through a consultative process, developed a comprehensive Okavango Delta Management Plan (ODMP). The ODMP is an inter-sectoral management plan governing the management of the Delta's natural resources in an integrated way. The promotion of sustainable tourism is emphasised as a key economic driver in the ODMP.

Through the Draft Wetlands Policy Planning Process, the Okavango Wetlands Management Committee (OWMC) was established, which constitutes an inter-sectoral management committee at local level representing a wide variety of government and non-government stakeholders.

Figure 3: Current institutional structure for water management in the Botswana part of the Okavango basin



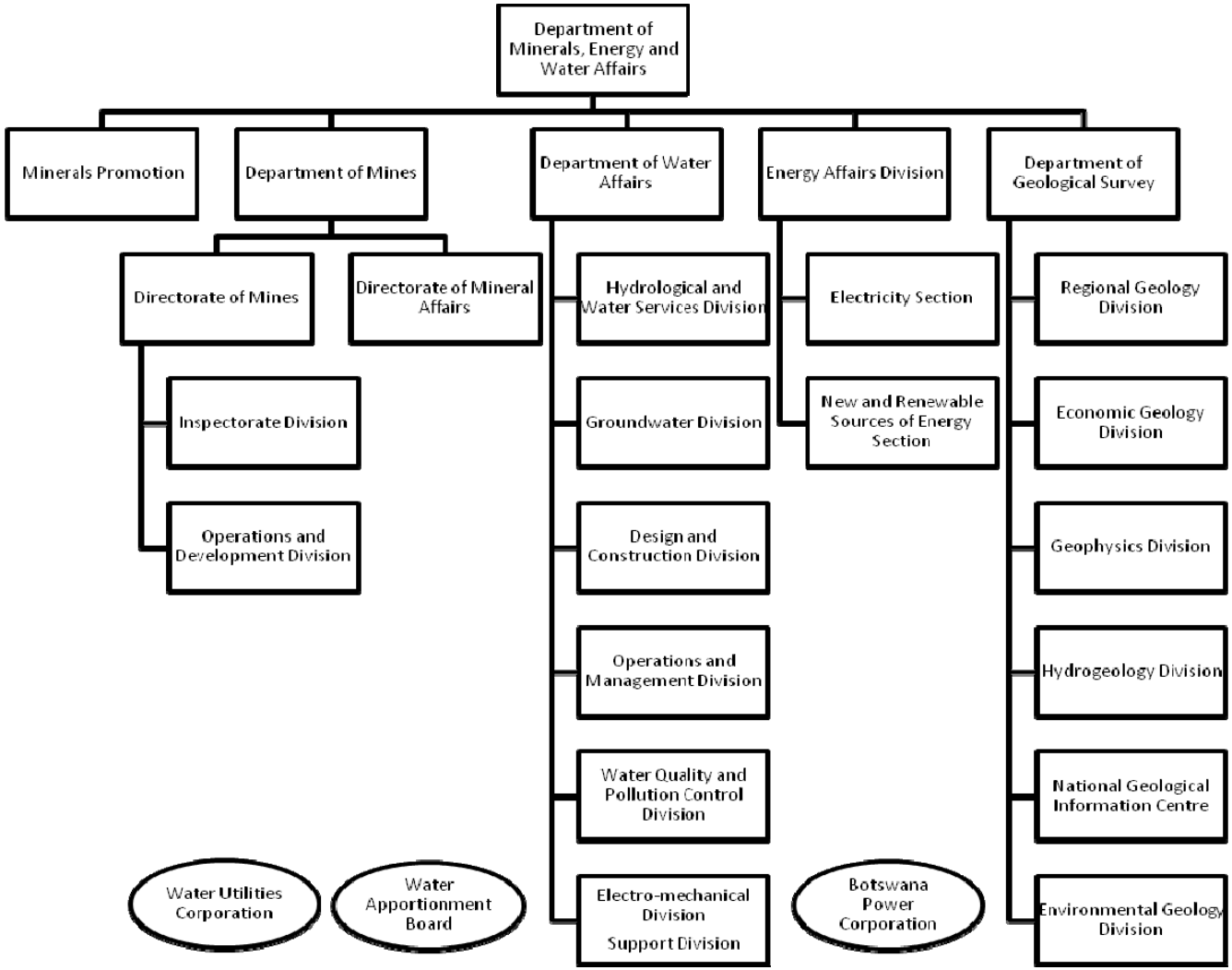


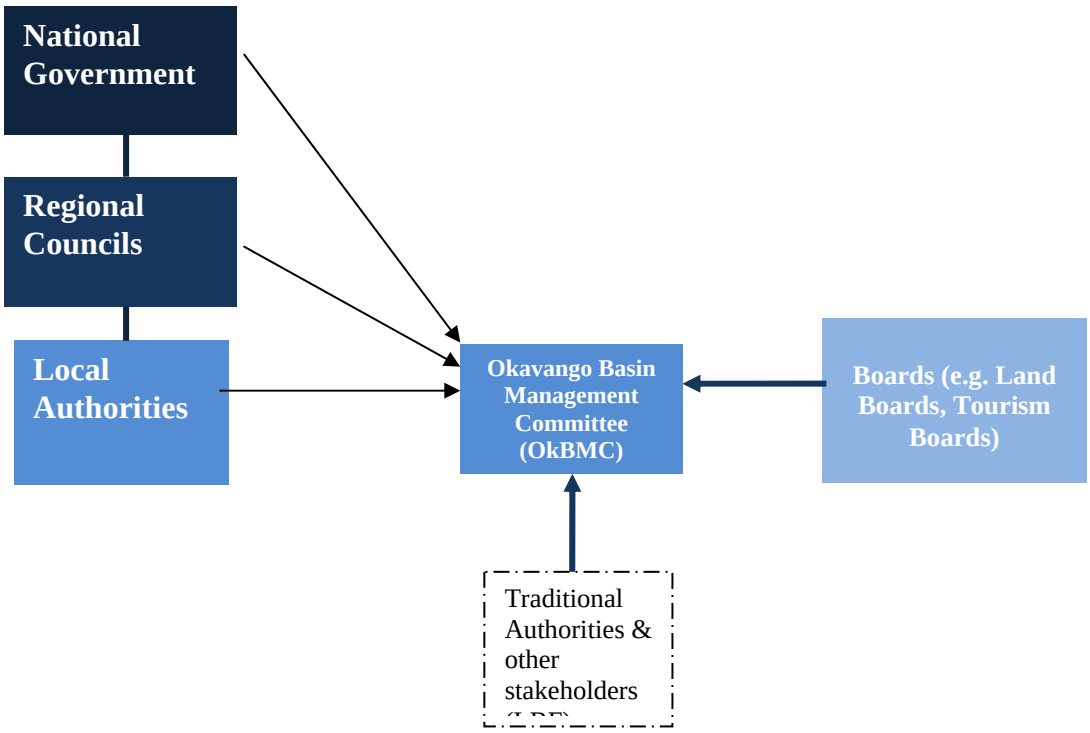
Figure 4: Institutional structure of the Botswana Ministry of Minerals, Energy and Water Affairs

NAMIBIA

Like Botswana, Namibia is currently going through a transitional phase in which the currently still applicable 1956 Water Act is replaced by the Water Resources Management Act (2004) that is soon to commence. The Water Act subscribes to the principle of IWRM and reforms the institutional framework for water management in the country – importantly in this context it places strong emphasis on the involvement of stakeholders in water resources management, e.g. by providing for the establishment of basin management committees. The Act also emphasises the need for ecosystem protection. Furthermore, it makes specific reference to meeting Namibia's international obligations, thus providing Namibian authorities with the domestic law means to comply with international agreements related to water resources.

Meanwhile Namibia has already started implementing significant elements of the new Act, among others the progressive establishment of basin management committees. In this context the Okavango Basin Management Committee (OkBMC) has been established in 2008. Namibia is also in the process of developing a national IWRM plan, and the OkBMC is in the process of developing a management plan for the Namibia part of the Okavango basin.

Figure 5: Current institutional structure for water management in the Namibia part of the Okavango basin



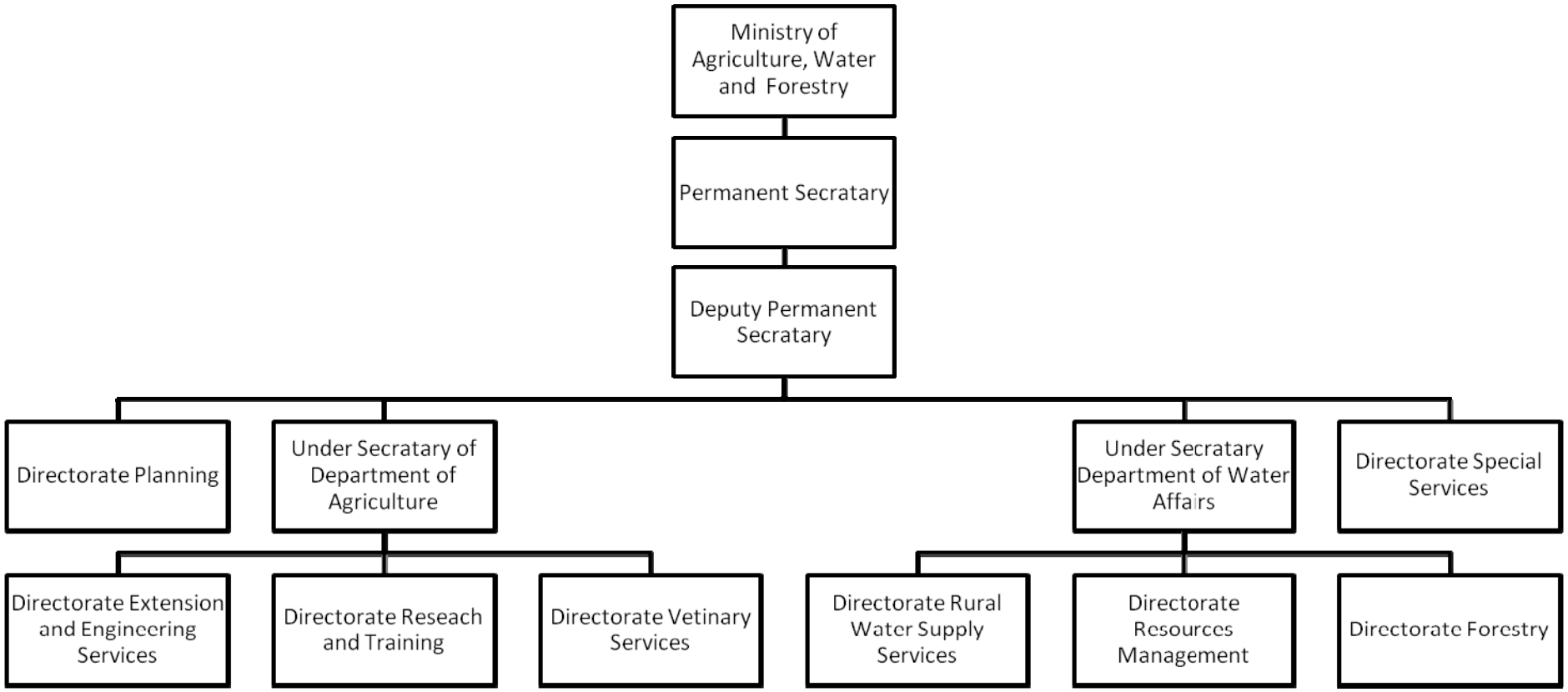


Figure 6: Institutional structure of the Namibia Ministry of Agriculture, Water and Forestry.

Biodiversity Management	• Bonn Convention • CITES • SADC Protocol on Forestry • SADC Protocol on Wildlife Management and Law Enforcement • RAMSAR	• Decree on Forestry Produce (1962) • Environmental Framework Act (1998) • Land Act (2004) • Water Act (2002)	• Agricultural (Conservation) Resources Act (1974) • Environmental Impact Assessment Act (2005) • Forestry Act (1968 and 2005) • Tourism Act (1992) • Tribal Land Amendment Act (1993) • Town and Country Planning Act (1977) • Wildlife Conservation and National Parks Act (1992)	• Environmental Management Act (2007) • Forestry Amendment Bill (2001) • Nature Conservation Amendment Act (1996) • Soil Conservation Act (1969)
Climate Change	• UNFCCC • UNCCD • Vienna Convention on the Protection of the Ozone Layer • SADC Energy Protocol • RAMSAR	• Environmental Decree on EIAs (2004) • Environmental Framework Act (1998) • Land Act (2004) • Land Law (1998) • Water Act (2002)	• Agricultural (Conservation) Resources Act (1974) • Atmospheric Pollution (Prevention) Act (1971) • Botswana Tourism Board Act (2003) • Environmental Impact Assessment Act • Waste Management Act (1998) • Forestry Act (1968 and 2005) • Mines, Quarries, Works, Machineries Act (1978) • Road Traffic Act (1987) • Town and Country Planning Act (1997) • Tribal Land Amendment Act (1993) • Wildlife Conservation and National Parks Act (1992)	• Atmospheric Pollution Prevention Ordinance (1976) • Communal Land Reform Act (2002) • Electricity Act (2000 and 2007) • Environmental Management Act (2007) • Forestry Amendment Bill (2001) • Nature Conservation Amendment Act (1996) • Pollution Control and Waste Management Bill (in preparation) • Soil Conservation Act (1969)

Table 1: Overview of applicable international agreements and national legislation for selected natural resources management fields

Field	Multilateral Agreements	Angola	Botswana	Namibia
Water Management	• OKACOM Agreements • SADC Protocol on Shared Watercourses • UNCBD • UNCCD • UNFCCC • RAMSAR	• Water Act (2002) • Environmental Decree on EIAs (2004) • Environmental Framework Act (1998) • Internal Waters, Oceans and EEZ Act (1992)	• Water Act (1968) • Borehole Act (1956) • Water Utilities Corporation Act (1970) • Waterworks Act (1962) • Environmental Impact Assessment Act (2005) • Waste Management Act (1998)	• Water Act (1956) • Water Resources Management Act (2004) • Namibia Water Corporation Act (1997) • Environmental Management Act (2007) • Minerals (Prospecting and Mining) Act (1992)

Land Use Management (Allocation and Use)	• UNCCD • UNFCCC • SADC Tourism Protocol • SADC Protocol on Forestry	• Decree on Forestry Produce (1955 and 1999) • Environmental Decree on EIAs (2004) • Environmental Framework Act (1998) • Land Act (2004) • Land Law (1998) • Territorial Management and Urbanisation Law (2004)	• Acquisition of Property Act (1955) • Agricultural (Conservation) Resources Act (1974) • Environmental Impact Assessment Act (2005) • Forestry Act (1968 and 2005) • Town and Country Planning Act (1997) • Tribal Land Amendment Act (1993) • Waste Management Act (1998) • Wildlife Conservation and National Parks Act (1992)	• Communal Land Reform Act (2002) • Draft Parks and Wildlife Management Bill (in preparation) • Environmental Management Act (2007) • Forestry Amendment Bill (2001) • Nature Conservation Amendment Act (1996) • Soil Conservation Act (1969)

Table 2: Date of ratification/ signature of international agreements by Okavango basin states

Multilateral Agreement	**Angola**	**Botswana**	**Namibia**
OKACOM Agreement	1994	1994	1994
OKACOM Structures Agreement	19.04.2007 (signed)	19.04.2007 (signed)	19.04.2007 (signed)
SADC Protocol on Shared Watercourses	2000-08-07 (signed)	2000-08-07 (signed)	2000-08-07 (signed)
UNCBD	1998-04-01	1995-10-12	1997-05-16
UNCCD	1997-06-30	1996-09-11	1997-05-16
UNFCCC	2000-05-17	1994-01-27	1995-05-16
RAMSAR		1997-04-09	1995-12-23
SADC Tourism Protocol	1998 (signed)	1998 (signed)	1998 (signed)
Bonn Convention	2006-12-01		
CITES		1978-02-12	1991-03-18
SADC Protocol on Wildlife Management and Law Enforcement	1999-08-18 (signed)	1999-08-18 (signed)	1999-08-18 (signed)
SADC Protocol on Forestry	2002-10-03 (signed)	2002-10-03 (signed)	2002-10-03 (signed)
SADC Energy Protocol	Tbc	tbc	Tbc

Table 3: Overview of relevant international and national policies/strategies/action plans for selected natural resources management fields

Field	Multilateral Policies and Strategies	Angola	Botswana	Namibia
Overarching Development Policies and key sector policies	• SADC Regional Indicative Strategic Development Plan (RISDP) • SADC Energy Recovery Strategy (2008) • Southern African Power Pool Plan (1995)	• Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (2009) • *Estrategia Nacional do Ambiente* (National Environmental Strategy) (ENA) (2000) • National Reconstruction Programme • Angola 2025: Long Term Strategy (*Estrategia de longo prazo*) (2005)	• Vision 2016 • Industrial Development Policy 9 (1998) • National Energy Policy (2004) • Privatisation Policy (2000) • Revised National Policy for Rural Development (2002) • Rural Development Policy and Strategy (2001) • Botswana National Settlement Policy (1998) • National Policy on Agriculture Development (NPAD) • Tourism Master Plan (2000) • Botswana National Master Plan for Arable Agriculture and Dairy Development (NAMPAD) • Arable Land and Development Programme (1997)	• Vision 2030 • National Development Plan (3) (2001) • Decentralisation Policy (1993) • Industrial Policy (1992) • National Agricultural Policy (1995) • National Resettlement Policy (2001) • Poverty Reduction Strategy (1998) • Regional Planning and Development Policy (1997) • SME Policy and Programme (1997) • The Green Scheme • Water Supply and Sanitation Policy (2008) • White Paper on Energy Policy (1998)
Water Management	• SADC Regional Water Policy • SADC Regional Water Strategy	• Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (2009) • *Estrategia Nacional do Ambiente* (National Environmental Strategy) (ENA) (2000)	• Okavango Delta Management Plan (2007) • Botswana Wetlands Policy and Strategy (2001) • National Master Plan for Wastewater and Sanitation (2003) • National Water Master Plan (2005)	• Cabinet Policy: Devolution of Rights over Natural Resources (1996) • Draft Wetlands Policy (2004) • Environmental Impact Assessment Policy (1995) • National Drought Policy (1997) • National Environmental Policy (1993) • National Environmental Health Policy (2002) • National Water Policy (2000) • Water Supply and Sanitation Policy (2008)

Land Use Management (Allocation and Use)		• Development Strategy for Angola's Power Sector (2002) • Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (2009) • *Estrategia Nacional do Ambiente* (National Environmental Strategy) (ENA) (2000)	• Botswana National Settlement Policy (1998) • Draft National Forestry Policy (2005) • Game Ranching Policy of Botswana (2002) • National Policy on Agricultural Development (1991) • National Policy on Land Tenure (1985) • National Policy on Natural Resources Conservation and Development (2007) • National Policy on Tribal Grazing Land (1975) • Tourism Policy (1990) • Wildlife Conservation Policy (1986) • Community-Based Rural Development Strategy (1996) • Botswana National Action Programme to Combat Desertification (2006) • Okavango Delta Management Plan (2007) • Arable Lands Development Programme (1976)	• Cabinet Policy: Devolution of Rights over Natural Resources (1996) • National Land Tenure Policy (2005) • Draft Policy on Protected Areas, Neighbours and Resident People • Environmental Impact Assessment Policy (1995) • National Agriculture Policy (1995) • National Environmental Health Policy (2002) • National Environmental Policy (1993) • National Land Policy (1998) • National Programme to Combat Desertification (NAPCOD) (1994)
Biodiversity Management		• Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (2009) • *Estrategia Nacional do Ambiente* (National Environmental Strategy) (ENA) (2000) • National Biodiversity Strategy and Action Plan (NBSAP) 2007 - 2012	• Botswana Wetlands Policy and Strategy (2001) • Draft National Forestry Policy (2005) • Game Ranching Policy of Botswana (2002) • National Conservation Policy (1990) • National Policy on Agricultural Development (1991) • National Policy on Natural Resources Conservation and Development (2007) • Wildlife Conservation Policy (1986) • Botswana National Biodiversity Strategy and Action Plan (NBSAPS) (2007) • Community-Based Rural Development Strategy (1996) • Ecotourism Strategy (2002)	• Cabinet Policy: Devolution of Rights over Natural Resources (1996) • Draft Tourism Policy (2007) • Environmental Impact Assessment Policy (1995) • National Agriculture Policy (1995) • National Environmental Policy (1993) • National Environmental Health Policy (2002) • Wildlife Policy for Communal Areas (1995) • National Biodiversity Strategy (2001-2010)
Climate Change (Adaptatio		• Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (2009) • *Estrategia Nacional do Ambiente* (National Environmental Strategy) (ENA) (2000) • Development Strategy for Angola's Power Sector (2002)	• National Conservation Policy (1990) • National Energy Policy and Master Plan (2006) • Okavango Delta Management Plan (2007)	• Environmental Impact Assessment Policy (1995) • National Drought Policy (1997) • National Environmental Policy (1993) • National Environmental Health Policy (2002) • National Programme to Combat Desertification (NAPCOD) (1994)

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3.2.2. Land Management

The most important international agreements applicable to the basin with respect to land use management are the UNFCCC and specifically the UNCCD, which provide an international law framework for adaptation measures and land management. At the regional level, the SADC Protocol on Forestry promotes sustainable forestry and related land use management.

The objectives of the United Nations Convention to Combat Desertification are to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa. It further aims at achieving sustainable development and regional cooperation between member states. It prioritises desertification while addressing the underlying causes thereof, with parties to the Convention being obliged to adopt an integrated approach towards combating desertification and drought; integrate poverty reduction strategies into efforts to combat desertification and mitigate drought effects; promote cooperation in the fields of environmental protection and the conservation of land and water resources, as they relate to desertification and drought; strengthen sub regional, regional and international cooperation; and cooperate with relevant intergovernmental organisations.

ANGOLA

Angola has two primary policies with regards to land use management: The Draft *Programa Nacional de Gestão Ambiental* (PNGA) (2009), which is seen as an important instrument for achieving sustainable development, and the *Estratégia Nacional do Ambiente* (ENA); which is closely related to the PNGA, and aims at identifying and addressing the main environmental problems in Angola, in order to achieve sustainable development (MINUA 2006).

Land use management legislation in Angola is largely contained in the Land Law (*Lei de Terras*) (1992), which is framed within the concept of integrated planning. Further regulation is contained in the Environmental Framework Act (1998) and the Land Act (2004), both of which follow the sustainable development principles contained in the Land Law. Angola has currently five ministries involved in land use management, with the Ministry of Planning and the Ministry of Environment being the lead ministries (see overview of institutional responsibilities in Table 4).

At present Angola's land tenure system does not lend itself to effective land and natural resources conservation in the country. Under the 1975 Constitution (for which a replacement has been approved by parliament in January 2010), the state is owner of all natural resources, and any land not definitively owned by private individuals is also the property of the state. Article 13 of the Constitution also allows the state to expropriate land which has been vacant for 45 days or more (Clover, 2008).

In light of the UNCCD, Angola's laws and policies have addressed a number of important provisions of the Convention, although full alignment has yet to be achieved. While the country's domestic laws apply the concept of sustainable development, some aspect are considered to be requiring further attention. These include creating proper institutional mechanisms for implementation of the laws in a decentralised manner, prioritising desertification in terms of national policy, and seeking to address the underlying causes of desertification. The importance of the UNCCD lies in the fact that these, as well as the issues of increasing regional cooperation and public participation on desertification matters,

could be at least partially achieved through the development of a Desertification Action Plan, as recommended by the UNCCD.

With respect to land use, it is noted that while Angola does have well established industrial policies, CBNRM and wildlife-based conservation mechanisms are largely absent. In general, land use planning and urban management are not yet priorities in Angola, which has led to an urban, sanitation and infrastructure setting based on limited consideration for public health and biodiversity (Clover J., 2008). Most existing land use legislation is colonial, and requires addressing, especially in light of the fact that land use planning has not been a priority in the past.

In terms of land use management and regulation, there is little monitoring or enforcement of EIAs, mainly due to a low level of governmental and regional capacity and coordination (NBSAP 2007-2012). This has resulted in a situation of general ineffective implementation and enforcement of policies and legislation. Management systems in the majority of protected areas are also ineffective or absent, which is problematic for these protected areas that cover approximately 6.6% of Angolan territory (not including forest reserves) (NBSAP 2007-2012).

Land tenure is another area where challenges to sustainable land management exist. In 2004 the government legislated a mandate for all land occupants to regularise their land before 2010, failing which it would revert to state control (Clover J., 2008). However, the required mechanisms and procedures where not put in place, which has led to further inefficiencies in the national land tenure system (Clover J. 2008).

BOTSWANA

Botswana has a multitude of policies and laws which have a direct impact on land use management (see overview table 3). These include the country's National Strategy and Action Plan to Combat Desertification under the UNCCD. Specifically relating to the Okavango Delta, land use management is an integral part of the ODMP, which aims to align sustainable land use with other natural resources use. Tourism is identified as a priority and is accordingly integrated into land use planning under the auspices of the ODMP. In Botswana eight ministries are involved in land use management as well as several multi-departmental entities which are also highly relevant, including the Land Boards and Tribunals. Traditional authorities play a key role in the allocation of land (see overview of institutional responsibilities in Table 5).

Through its laws and policies, Botswana has achieved a high degree of alignment between its domestic laws and policies and the UNCCD. Issues such as addressing the underlying causes of desertification and facilitating public participation are likewise addressed through the country's policies relating to CBNRM. An aspect identified as requiring further emphasis is the development of effective contingency measures for the impacts of desertification. Furthermore, since Botswana places strong emphasis on community involvement in land conservation, the fact that communal land is not subject to the same conservation criteria as other land may potentially provide it with challenges to true sustainability. The current land tenure regime also makes it difficult for communities to use their land as security for financing, something that is again at odds with the country's emphasis on CBNRM (Jones, 2009).

At the same time, rural areas are at risk from overgrazing and soil erosion and communal land is in danger of being used unsustainably as communities are unable to use their land in order to secure finance in order to pay for the land's rehabilitation of conservation (Arntzen J,

et al. 2009). This is compounded by the fact that the Tribal Land Act does not place environmental considerations on the use of communal land.

The above highlights a limited translation into law of the link between ecosystem and human development, along with an increasing population and socio-economic development, makes the situation of environmental protection challenging. Also, while there are policies putting forward sustainable development and land use, these are often not translated into law and are thus not enforceable against private individuals.

The country does have a strong emphasis of CBNRM, which is proving successful. However, the multitude of policies, laws and institutions involved in resource management creates a challenge to effective delivery and regulation. There is a need to harmonise a number of acts, including the Town and Country Planning Act, which although mentioning conservation, does not provide for environmental management during and after the development phase of a project. The Wildlife Conservation and National Parks Act follows the ecosystem approach principles, however does not explicitly lay them out in its provisions. Furthermore, the Agricultural (Conservation) Resources Act prescribes no regulation for non-commercial veldt products, which are used by the poor, sometimes in an unsustainable manner.

NAMIBIA

In Namibia the National Land Policy (1998) and the Draft National Land Tenure Policy (2005) both acknowledge the environmental limitations on land use and seek to ensure sustainability through improved resource use and land management. However, the National Land Policy also gives the state ownership over all communal land, which negatively affects communities' ability to use such land as security. Neither has led to the enactment of legislation to date although such principles are broadly covered under the Environmental Management Act and the Communal Land Reform Act (2005). Namibia has developed a National Strategy to Combat Desertification under UNCCD. Of particular relevance for the Okavango basin is that a regional land use plan for the Kavango Region (Namibia's part of the basin) is currently under development and nearing completion.

Namibia has seven ministries which each oversee land use management to a varying degree. Multi-departmental entities are also central to land management in Namibia, and include the Land Boards and Management Committees. Like in Botswana traditional authorities play a strong role in land allocation decision-making.

Like its neighbour Botswana, Namibia has incorporated a number of the principles and provisions of the UNCCD into its domestic legal framework. As is the case for the other two basin states a few aspects remain in order to harmonise completely its domestic legal provisions with the requirements of the UNCCD. Addressing the underlying causes of desertification and adopting contingency mitigation measures are the most notable ones.

One identified insufficiency in the land tenure system of the country is the lack of constitutional protection of private tenure for land acquired under customary land tenure systems (Jones BTB, 2009). The state of such communal land is also undermined through the Communal Land Reform Act, which makes no provision for the Communal Land Boards to take environmental considerations into account when allocating leases (Jones BTB, 2009). As a result, tenants are not obliged to manage their allocated land according to the Soil Conservation Act, which provides for such measures as pollution prevention and the combating of soil erosion. Similarly, the Communal Land Reform Act makes no provision for designated authorities to manage open access to rangelands. The overall result is land use

management in communal areas not being planned or carried out with biodiversity or ecosystem conservation in mind, and with legislation exempting land held in community areas from certain biodiversity laws is an area requiring attention (Jones BTB, 2009).

Namibian policies do make mention of sustainability and environmental conservation, and the country does have a vibrant CBNRM programme, which is supported by the National Agricultural Policy. This recognises the environmental constraints to farming, as well as that unsustainable resource management is still prevalent in the countries farming systems. The policy aims at promoting diversification of rural livelihoods and recognises the increased economic potential of wildlife production versus conventional agriculture. However, while the above are recognised, no measures are proposed to address them. Instead, reliance is placed on the Communal Land Reform Act, which in itself fails to provide for tenure to communities over grazing land.

Apart from policy and legislative integration, inter-departmental coordination remains a key area for improvement, and the issues of capacity constraints amplify the above inadequacies. Also, while the country does have a strong focus on community involvement in resource management, a system of integrated environmental management is still required, in order to ensure the long-term sustainability of these projects.

Table 4: Overview of institutional responsibilities in Angola for selected natural resources management fields

Areas of Responsibility	Government Ministries								
ANGOLA	Min of Agriculture	Min of Environment and Water	Min of Hotel Industry and Tourism	Min of Planning	Min of Environment	Min of Fisheries	Min of Geology and Mines	Prov. Gov	Local Gov
Water Management		Designates conservation areas necessary to water conservation		Oversees infrastructure planning	Regulates EIAs Participates in land planning	Criminalises water pollution	Oversees mining rehabilitation procedures	Promotes sanitation through law making and regulation	Promotes sanitation through law making and regulation
Land Use Management (Allocation and Use)	Designates protected areas Cooperates and coordinates with Ministry of Environment to synergise urban-rural land planning.	Designates conservation areas necessary to water conservation	Regulates tourism sites and building to ensure the protection and preservation of natural resources	Participates in land planning i.t.o. infrastructure development	Participates in land planning Declares land to be rural or urban Regulates EIAs		Governs all mining rights Oversees mining rehabilitation procedures	Promotes land management through laws and regulations	Promotes land management through laws and regulations
Biodiversity Management	Regulates agricultural and wildlife land use and protected areas	Designates conservation areas necessary to water conservation Regulates access to water sources	Protect and preserve natural resources facilitates community involvement in tourism	Participates in land planning i.t.o. infrastructure development	Participates in land planning and protected areas creation	Regulate fishing in interior waters Criminalises water pollution Sets fishing quota	Oversees mining rehabilitation procedures	Promotes environmental protection through law making and regulation	Promotes environmental protection through law making and regulation
Climate Change (Adaptation and Mitigation)	Regulates agricultural and wildlife land use and designates protected areas	Governs and regulates energy and water infrastructure projects	Protect and preserve natural resources	Participates in land planning i.t.o. infrastructure development	Regulates EIAs		Oversees mining rehabilitation procedures	Promotes development through law making and regulation	Promotes development through law making and regulation

3.2.3. Biodiversity Management

The applicable international law framework for biodiversity management and protection in the basin is provided by the UNCBD, CITES, and the Bonn Convention on Migratory Animals, complemented the regional level by the SADC Protocol on Wildlife, which promotes conservation and the sustainable use of biodiversity on a regional level.

The United Nations Convention on Biological Diversity, the principal biodiversity related international agreement, has three primary objectives which include the conservation of biological diversity, the use of biological diversity in a sustainable fashion, and the fair and equitable sharing of benefits derived from such use. It acknowledges the fact that substantial investments and financial resources are required to conserve biological diversity and that appropriate access to relevant technologies can be expected to make a difference in the world's ability to address the loss of biological diversity. The Convention promotes the conservation and sustainable use of biodiversity through the protection of ecosystems, while at the same time respecting countries' sovereign rights over biological resources within their own territories. For international watercourses, cooperation between watercourse states such as the one under OKACOM is essential in order to meet the requirements of the UNCBD.

ANGOLA

Angola's two overarching environmental policies, the Draft *Programa Nacional de Gestão Ambiental* (PNGA) (1993) and the *Estratégia Nacional do Ambiente* (ENA) deal with matters affecting biodiversity and conservation. The National Biodiversity Strategy and Action Plan (under the UNCBD) present more specific and concrete biodiversity objectives. The main legislation for biodiversity protection is the Environmental Framework Act (1995), which contains provisions for pollution prevention and natural ecological protection.

At present six ministries in Angola are involved in biodiversity management, of which the Ministry of Environment is the leading line function ministry.

Angola, as a signatory state of the UNCBD, has implemented laws and policies to give effect to the provisions of the Convention. The National Biodiversity Strategy and Action Plan is an important instrument to guarantee the conservation of biodiversity in Angola, as well as contributing to the implementation of the three objectives of the UNCBD. The National Biodiversity Strategy identifies remaining challenges, particularly improved co-operation between the different departments and the creation of institutional mechanisms for effective implementation and enforcement of laws in a decentralised manner.

Angola has at present no tourism policy and the country makes no provision for biodiversity Red Lists or hunting permits (NBSAP, 2007-2012). Also, important biodiversity areas are located outside existing protected areas, which is a challenge closely tied with effective land management. These deficiencies both hamper and necessitate a comprehensive strategic environmental assessment, for which there is at present no legislation in the country.

As a whole, environmental protection legislation is fragmented, leading to overlapping responsibilities (see institutional responsibility table at table 4). The EIA procedures that do exist suffer from a lack of specificity, enforcement and agency capacity; resulting in a situation where mitigation measures are rarely imposed and followed up on. Also, while there are guiding principles for pollution control in the Environmental Framework Law, there is no specific pollution control, biosafety or GMO legislation.

There is a need to strengthen scientific research capacity, institutional capacity, and upgrade infrastructure and basic equipment in this sector. Low resources and technical capacity, coupled with horizontal fragmentation of duties and information, leads to ineffective delivery and enforcement, which negatively impacts on biodiversity. The sharing of knowledge in this sector is crucial, as existing knowledge of biodiversity is dispersed across sectoral agencies and individuals in the form of project reports, scientific articles, maps, aerial maps and satellite images. Similarly, little attention is given to the involvement of communities in decision making processes and the development of biodiversity related projects.

BOTSWANA

Botswana's primary policy on biodiversity is the National Policy on Natural Resources Conservation and Development (1990), which entrenches sustainable development and environmental protection within the national planning process. This policy is supported by the Botswana National Biodiversity Strategy and Action Plan (NBSAPS) under the UNCBD, which provides for a series of activities and projects related to biodiversity conservation. Botswana recognises biodiversity conservation as a major economic development opportunity (through eco-tourism etc.). This aspect is further strengthened through relevant legislation such as the Wildlife Conservation and National Parks Act (1992) which, along with various other tourism related acts, provides for preservation of wildlife resources inside parks and reserves, and for the controlled use of wildlife resources elsewhere, in order to strengthen the country's eco-tourism sector.

Botswana has been a signatory state to the Convention since 1995, and the Cartagena Protocol on biosafety since 2003. Botswana's laws and policies have achieved a high degree of alignment with the principles of the UNCBD. In addition to the issue of uncoordinated land use, the key issues for improvement identified in the Botswana NBSAP are largely institutional issues, i.e. the co-operation between governmental departments, implementation of policies, resolving the issue of duplication and overlaps and effective stakeholder participation in decision-making.

At present, four ministries are responsible for the protection and management of the country's biodiversity (see overview table 5).

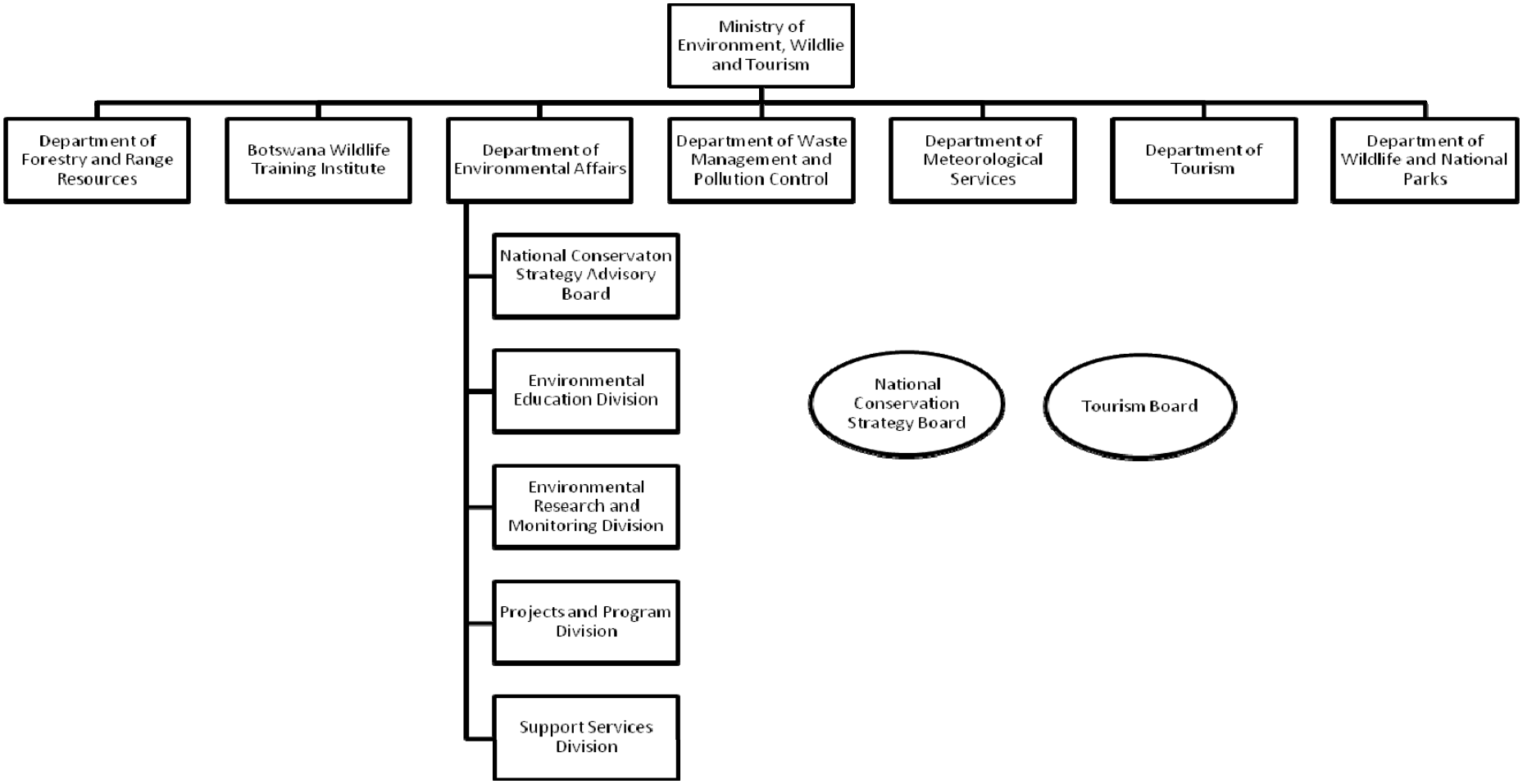


Figure 7: Institutional structure of the Botswana Ministry of Environment, Wildlife and Tourism

NAMIBIA

Namibia has several policies impacting on biodiversity protection in the country which are predominantly agricultural in nature. The Agricultural Policy (1995) aims at achieving growth and profitability in the sector, while still promoting sustainable land and natural resource use. The National Drought Policy (1997) makes provision for drought management procedures in order to reduce long term vulnerability to drought through the very same sustainable land and resource use. More specifically biodiversity protection is an integral part of the Wildlife Policy for Communal Areas (1995) and the Draft Tourism Policy (2007), both of which emphasis sustainable biodiversity use through CBNRM. Like Angola and Botswana, Namibia has also developed a National Biodiversity Strategy and Action Plan under UNCBD covering the period 2001-2010, in an effort to specifically address the challenges facing biodiversity in its territory.

The Environmental Management Act (2007) contains environmental management principles important to biodiversity preservation, while the Forest Act (2001), Nature Conservation Amendment Act (1996) and the Draft Parks and Wildlife Management Bill all provide for specific biodiversity protection in designated areas. Biodiversity import and export are regulated under the Biosafety Act (2006).

Through its various laws and policies, Namibia has incorporated most of the principles and provisions of the UNCBD into its domestic legislation. The Namibian National Biodiversity Programme deals with the conservation of biodiversity; the sustainable use of natural resources; as well as the monitoring, predicting and coping with environmental change and threats. Aspects identified as requiring further improvement are similar to the ones in Botswana, i.e. competing, uncoordinated land uses and institutional and capacity constraints with regards to effective implementation and enforcement.

Five ministries play a role in biodiversity preservation in the country with the Ministry of Environment and Tourism being the lead line function ministry.

As with Botswana, Namibia has several policies impacting on biodiversity protection, and there is likewise little integration of these, resulting in overlaps and conflicts in their implementation. In terms of legislation, specifically that dealing with mining, excludes biodiversity provisions dealing with conservation, sustainable use or fair and equitable benefit sharing.

Institutionally, the fact that traditional authorities lack knowledge on environmental and land issues, coupled with insufficient integration and coordination of planning and implementation at national, regional and local level is problematic. There is little environmental education and knowledge transfer when devolving rights over wildlife and forests to local communities (Jones B. 2009).

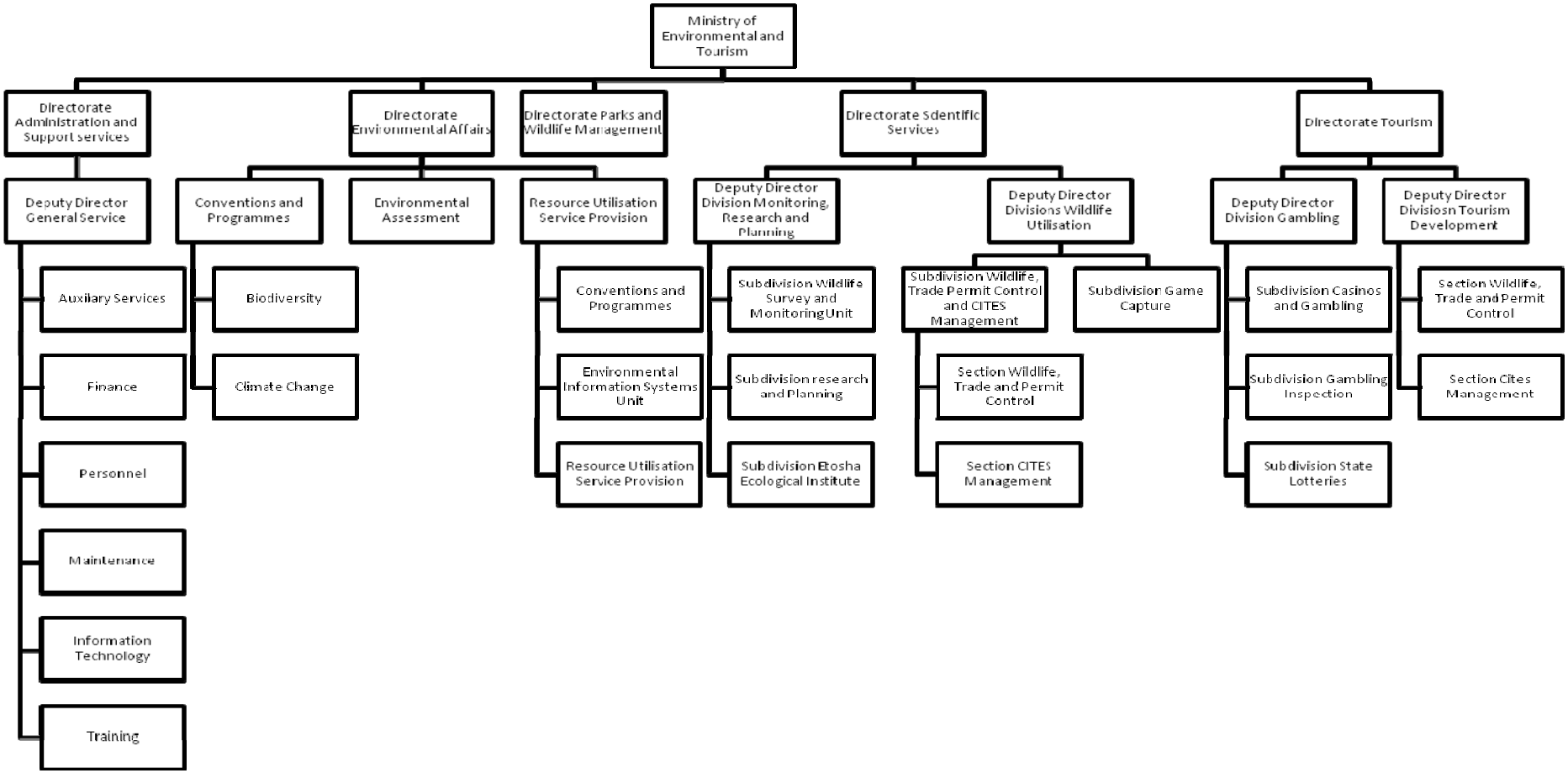


Figure 8: Institutional structure of the Namibia Ministry of Environment and Tourism

Table 5: Overview of institutional responsibilities in Botswana for selected natural resources management fields

Areas of Responsibility	Government Ministries								
BOTSWANA	Min of Agriculture	Min of Environment, Wildlife and Tourism	Health	Finance and Development Planning	Minerals, Energy and Water Resources	Land and Housing	District Councils	Land Boards	Traditional Authorities
Water Management		Regulates EIA standards and procedures Oversees pollution prevention through regulations and laws Proclaims protected areas			Regulates all water use rights Protection of water resources Responsible for water supply infrastructure		Prevents pollution through law making and regulations Responsible for water supply and infrastructure in some rural settlements Allocates surface rights for all land uses including water	Land boards may attach use conditions to land near water. Allocate surface rights for all land uses including water	
Land Use management (Allocation and Use)	Agricultural resources board supervises all use of agricultural resources as defined by the act, including land and water, for the purposes of conservation. May expropriate land	Regulates and proclaims protected areas Establishes tourism camp standards in protected areas Regulates EIA standards and procedures	Determines suitability of land for building medical facilities	Determines suitability of land for building medical facilities	Regulates all water use rights	Plan for, manage and allocate state land Town and Country Planning Board seeks to regulate sustainable urban and rural development	Involved in local infrastructure development Determines suitability of land for building medical facilities	Land Boards govern tribal land allocation and may attach conditions to such	Play a role within land boards in terms of allocating tribal land for agricultural purposes

Biodiversity Management	Agricultural resources board supervises all use of agricultural resources as defined by the act, including land and water, for the purposes of conservation. May expropriate land for conservation purposes.	Regulates EIA standards and procedures Oversees pollution prevention through regulations and laws Proclaims protected areas			Protection of water resources Regulates all water use rights			Tourism Board regulates standards and impacts of tourism camps and operators Land Boards attach and enforce use conditions to land allocations Town and Country Planning Board seeks to regulate sustainable urban and rural development	
Climate Change (Adaptation and Mitigation)	Agricultural resources board supervises all use of agricultural resources as defined by the act, including land and water, for the purposes of conservation.	Regulates EIA standards and procedures Oversees pollution prevention through regulations and laws Proclaims protected areas Establishes tourism camp standards in protected areas CDM Designated National Authority: Department of Meteorological Services			Regulates all water use rights		Protect wildlife and natural resources through law making and area designation	Tourism Board regulates standards and impacts of tourism camps and operators Land Boards may attach use conditions to land allocations Town and Country Planning Board	

3.2.4. Climate Change Adaptation and Mitigation

These most relevant applicable international agreements for climate change adaptation and mitigation measures are the UNFCCC, UNCCD, RAMSAR Convention and the Vienna Convention on the Protection of the Ozone Layer. At the regional level, the SADC Energy Protocol promotes sustainable energy generation.

The objectives of the UNFCCC are to stabilize greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, within a time-frame sufficient to allow ecosystems to adapt naturally to climate change; to ensure that food production is not threatened; and to enable economic development to proceed in a sustainable manner. It is guided by the concept of sustainable development as well as the precautionary principle. Under the Convention, all parties need to carry out regular inventories of emissions; national and regional programmes containing measures to mitigate climate change; transfer technology or useful information; adapt to the impacts of climate change and incorporate climate change considerations in policies and actions, as well as research policy cooperation and public awareness raising on climate change.

ANGOLA

Angola at present has no specific climate change policy or adaptation plan. Climate change issues are to a limited extent considered in the Draft *Programa Nacional de Gestão Ambiental* (PNGA) (1993), which emphasises the importance of environmental management, and the *Estratégia Nacional do Ambiente* (ENA), which is closely related to the PNGA, and is considered by some to be the country's 'Agenda 21' (MINUA 2006). Angola is currently classified as a least developed country (LDC) and thus entitled (under the UNFCCC) to special support for the development of a climate change adaptation plan through the National Adaptation Programmes of Action (NAPAs) fund. As yet Angola has not developed a NAPA nor submitted its first National Communication under the UNFCCC. In terms of climate change mitigation Angola is yet to determine a Designated National Authority (DNA) for the administration of Clean Development Mechanism (CDM) applications under the Kyoto Protocol.

Thus while Angola has incorporated a number of the principles of the UNFCCC into its legal and policy framework, there are a number of technical issues that present a challenge to the formulation of a comprehensive climate change response within the country. Specifically, monitoring mechanisms, research and public awareness remain key issues to be addressed, which could be facilitated with the support of the international community through the development of the above-mentioned NAPA.

BOTSWANA

Botswana has no designated climate change policy, although adaptation and mitigation requirements are addressed in such policies as the National Energy Policy (2004), National Conservation Strategy (1990), National Settlement Policy (1998) and Rural Development Policy (2001). The country has various acts that seek to prevent pollution and address climate change. The Waste Management Act, Atmospheric Pollution (Prevention) Act, Mines, Quarries, Works Machinery Act, and the Road Traffic Act all impose restrictions on pollution and emissions. The Forestry Act, Agricultural Resources Act and the Mines and

Minerals Act all in some way seek to improve natural resource management and sustainable development.

Botswana has submitted its first National Communication under the UNFCCC and established the Department of Meteorological Services in the Ministry of Wildlife, Environment and Tourism as the DNA for CDM applications. A number of ministries have responsibilities related to climate change adaptation and mitigation measures together with several multi-departmental entities such as the Botswana Global Environmental Change Committee. Thus, Botswana can be seen to be in a fairly good position in terms of the alignment between its laws and policies and the provisions of the UNFCCC. The development of a designated climate change policy would arguably help streamlining the currently fragmented policy responses and would further strengthen the technical monitoring and reporting advances already made by the country in terms of climate change management.

Botswana, like the other two countries, does not have a designated climate change policy or strategy, although it does have a desertification strategy (NAPCOD) that addresses related issues such as water scarcity and desertification, among others.

Furthermore, fragmented forest legislation may prove to be problematic from a climate change perspective as this hampers effective conservation measures, as well as the potential to use forests 'carbon sinks'. Forests and woodlands are not protected under the Forestry Act if they fall outside of designated areas, and this includes much of the Delta.

Institutional capacity, enforcement and low financial resources are again challenges faced by the relevant authorities when trying to make an impact on this sector.

NAMIBIA

Namibia has no designated climate change policy. However, a number of sector policies, including the Environmental Assessment Policy, National Land Policy, National Water Policy and National Environmental Health Policy seek to promote adaptation and mitigation of the affects of climate in their specific sectors. Namibian legislation largely follows these policy themes, with each sector providing for climate change under specific laws (see overview table in Table 1).

Namibia has submitted its first National Communication under the UNFCCC and established the Environmental Conventions Unit in the Ministry of Environment and Tourism as the DNA for CDM applications. Furthermore, a number of ministries and inter-departmental entities are involved in climate change adaptation and mitigation, of which the Namibia Climate Change Committee is an important role-player. In this way it can be seen to be in a similar position to Botswana, with the issues of fragmentation and effective implementation of climate change policies being the primary issues to be addressed under a designated climate change policy.

Table 6: Overview of institutional responsibilities in Namibia for selected natural resources management fields

Areas of Responsibility	Government Ministries								
NAMIBIA	Min of Agri, Water and Forestry	Min of Environment and Tourism	Min of Works and Transport	Min of Land, Resettlement and Rehab	Min of Regional, Local Gov. & Housing & Develop.	Min of Mines and Energy	Min of Fisheries and Marine Resources	Boards Gov. Institutions	Traditional Authorities
Water Management	Regulates water pollution generally and in terms of agricultural water pollution through erosion Responsible for water allocation, sustainable use and development of water, agricultural land and forestry resources DWAF in MAWF is responsible for river basin management DWAF proclaims water protected areas	Responsible for undertaking sustainable development initiatives and promotes community-based tourism		Promotes sustainable development broadly	Regulates national-local government interaction	Regulates all mining rights		River Basin Management committees facilitate planning, conservation and community-based management Namwater is partly responsible for water resource management through its mandate to conserve and protect water resources during their operations	
Land Use Management (Allocation and Use)	May suspend traditional authority allocations Promotes community development	Proclaims protected areas and forests Promotes community-based tourism	Oversees infrastructure projects	Promotes sustainable development broadly	Regulates national-local government interaction	Regulates all mining rights Regulates health, hygiene, safety and environmental stds		Land Boards Communal Land Board controls leases given out by traditional authorities and monitors environmental compliance of such parties	Allocate agricultural land Govern common grazing land

	ANGOLA			BOTSWANA			NAMIBIA		
	POLICY	LEGISLATION	INSTITUTIONS	POLICY	LEGISLATION	INSTITUTIONS	POLICY	LEGISLATION	INSTITUTIONS
Biodiversity Management	Facilitate resource management Promotes community based natural resource management	Proclaims protected areas and forests Promotes community based tourism		Promotes sustainable development broadly	Regulates national-local government interaction	Regulates storage of petroleum products and health, hygiene, safety and environmental stds	Mandated to oversee orderly exploitation	River Basin Management committees facilitate planning, conservation and community-based management of water sources	
Climate Change (Adaptation and Mitigation)	Promotes community development	Proclaims protected areas and forests Sustainable development initiatives and promotes community-based tourism CDM Designated National Authority: Environmental Conventions Unit	Oversees infrastructure projects	Promotes sustainable development everywhere	Regulates national-local government interaction	Regulates storage of petroleum products Regulates health, hygiene, safety and environmental stds	Mandated to oversee orderly exploitation of fish stocks	Communal Land Board controls leases given out by traditional authorities and monitors environmental compliance of such parties	

WATER	No water policy No agriculture policy No tourism policy Insufficiencies in the land tenure system Potential sectoral policy conflicts	No sector specific EIA guidelines	Little decentralisation Low resources and professional capacity Lack of effective implementation and enforcement Little integration and cooperation between departments No basin management committee	Insufficiencies in the land tenure system	Lack of integration Overlap and duplication legislation and institutions	Low cooperation and coordination Limited financial resources at local level Conflicting responsibilities	Insufficiencies in the land tenure system Insufficient integration and coordination of planning and implementation at national, regional and local level Sectoral policy conflicts	Sectoral priorities have led to overlaps and duplications	Inadequate environmental awareness Ineffective implementation and enforcement Little integration between departments compliance and enforcement Low financial resources at local level
LAND USE MANAGEMENT (ALLOCATION AND USE)	No desertification action plan and limited response to deforestation No community- based and/or wildlife-based conservation or land use Insufficiencies in the land tenure system No tourism or agricultural sector policies Land use planning and urban management not yet a priority	No strategic environmental assessment legislation	Little monitoring or enforcement of EIAs Low governmental and regional capacity and coordination Ineffective implementation and enforcement Low financial resources at local level	Policy conflicts between human expansion and conservation (town planning and environmental protection are not yet synthesised) Insufficiencies in the land tenure system Sectoral policy clashes	Sustainable development in policies not translated into law No strategic environmental assessment legislation Fragmented forest protection legislation Lack of effective implementation and enforcement Non-commercial mining is inadequately monitored and regulated	Lack of institutional capacity and enforcement No decentralised land management Implementation is problematic Lack of financial resources at local level	Insufficiencies in the land tenure system Insufficient integration and coordination of planning and implementation at national, regional and local level	Low awareness of traditional authorities on environmental and land use issues Fragmented land use regulation and allocation No strategic environmental assessment legislation	Little inter-sectoral and inter-governmental coordination Ineffective implementation and enforcement No decentralised land management No allocated institution dealing with the grazing of lands Low financial resources at local level
BIODIVERSITY	No agriculture policy No tourism policy Insufficiencies in the land tenure system Potential sectoral policy conflicts	No sector specific EIA guidelines No specific pollution control legislation Fragmentation	Low knowledge and awareness in biodiversity Little decentralisation Low resources and professional capacity Skill shortage Horizontal fragmentation of duties Ineffective implementation and enforcement Low financial resources at local level	Insufficiencies in the land tenure system	Communal lands are exempted from meeting environmental legislation Little integration Overlap and duplication of responsibilities	Little cooperation and coordination Little division of responsibilities Conflicting responsibilities Low financial resources at local level	Little integration of sectoral policies and their implementation leading to overlaps and conflicts Little integration in community-based policies Namibian agriculture policy conflicts somewhat with the basin conservation Insufficiencies in the land tenure system	Mining legislation fails to mention environmental or biodiversity provision in, conservation, sustainable use or fair and equitable benefit sharing Land use management in communal areas is not planned or carried out with biodiversity or ecosystem conservation in mind Legislation exempts land held in community areas from certain biodiversity laws	Ineffective implementation and enforcement Low awareness of traditional authorities on environmental and land use issues Insufficient integration and coordination of planning and implementation at national, regional, local and departmental level Little environmental education when devolving rights over wildlife and forests to local communities Low financial resources at local level

CLIMATE CHANGE (ADAPTATION AND MITIGATION)	No energy policy No agricultural policy Insufficiencies in the land tenure system No climate change adaptation or mitigation strategies	No strategic environmental assessment legislation No provision for emissions monitoring No specific pollution control legislation	Little governmental and regional capacity and coordination Little monitoring or enforcement of EIAs Low financial resources at local level Ineffective implementation and enforcement	Policy conflicts between human expansion and conservation (town planning and environmental protection are not yet synthesised) Insufficiencies in the land tenure system Potential sectoral policy conflicts	Sustainable development in policies not translated into law No strategic environmental assessment legislation Fragmented forest protection legislation Ineffective implementation	Little institutional capacity and enforcement No decentralised land management Low financial resources at local level Ineffective implementation and enforcement	Insufficiencies in the land tenure system	No strategic environmental assessment legislation Ineffective implementation and enforcement No climate change adaptation or mitigation strategies	Little governmental and regional capacity and coordination Ineffective implementation and enforcement No decentralised land management Low financial resources at local level		Inadequate basin-wide climate change adaptation and mitigation strategies Insufficient governmental and regional capacity and coordination

Table 7: Overview of present governance constraints in the three basin states related to selected fields of natural resource management

3.3. Basin-wide Legislation/Policy Constraints

The analysis of the policy and legal landscape in the three basin countries shows a relatively strong framework of natural resource management policies and legislation, although some variation between countries exists. The policy and legal framework in this regard is currently least developed in Angola due to the country's only relatively recent emergence from armed conflict. However, Angola is fast addressing policy and legislative gaps, with a Water Act and other environmental legislation already passed some time ago and a number of environmental policies and strategies being completed or under development (see overview table of existing policies in overview table 1).

The strength of the current policy landscape is the recognition of the economic and social development opportunities of sustainable natural resource management. Particularly in Botswana and Namibia, emphasis is placed on sustainable resource use as an economic driver, primarily through tourism and CBNRM activities and as such reflected in policy and legislation. In Angola there is growing recognition of the need for sustainable management of natural resources and it is expected that this aspect is increasingly mainstreamed into sector policies under development. Yet, there remain a number of existing or potential conflicts between sector policies that require resolution in order to determine the development trajectory for the basin (see section 4 on policy drivers).

Of great importance for integrated basin management is that all countries have replaced (or are in the process of doing so) old water legislation with IWRM based water legislation that emphasises the need for integrated management and provides the legal mechanism for implementing integrated management in practice. Of particular relevance in this context is the provision in law for the establishment of local level basin management committees, the composition of which legally requires inter-sectoral representation.

On the other hand, there are some policy and legislative gaps at national level that currently hamper the optimal economic use of natural resources in a sustainable way. An example is the insufficiencies in the land tenure systems such as insecurity of titles making it difficult to obtain bank loans for tourism or CBNRM developments on communal land. Other examples include the exemption by law of communal land from meeting certain environmental protection requirements or the lack of strategic environmental assessment legislation/ standards at national and basin level (see overview of governance problems in table 8).

Whereas the type, scope and area of legislative gaps vary between the three countries there are a number of common problems that the countries are faced with. Arguably the most important one in this respect is the inefficiencies in the land allocation and tenure system, which in one way or the other are of concern in all of the countries. Likewise, inadequate EIA and SEA regimes are common between the countries.

Common gaps in the policy, legislative and planning framework are mirrored at transboundary level. Again, arguably the most relevant issue is the absence of a harmonised land use planning framework between the three countries that allows integrated basin-wide planning. Similarly, harmonised basin-wide water quality standards and basin-wide climate change adaptation strategies are missing at present.

Having noted the existence of gaps in the policy and legal framework at national and basin level, it needs to pointed out that these problems are comparatively easy to identify and address (at policy and legislation level) in practice. More complex to solve, largely because of their more structural nature, are constraints resulting from a lack of institutional coordination and lack of effective implementation an enforcement of existing policies and legislation.

3.4. Basin-wide Institutional Constraints

3.4.1. Fragmentation and Limited Inter-sectoral Planning

The overview of the responsibilities of different line function ministries in the respective natural resource management fields shows that regularly a host of ministries and departments needs to be involved in most planning and decision-making processes and subsequent implementation. Whereas the required coordination between national ministries does happen to some extent, it is still underdeveloped with planning along line function responsibilities being the norm rather than integrated planning and decision-making. In some cases this is aggravated by conflicting sector policies that hinder integrated planning due to line function ministries having to pursue contradictory policy objectives (see section on policy drivers in Section 6).

Planning and decision-making across sectors and line function ministries/ departments is arguably easier to achieve at local level where common local interests provide stronger incentives for cooperation and integrated planning. The ODMP, a fully integrated management plan for the Okavango Delta developed with strong involvement of a vast diversity of stakeholders at all levels, in Botswana might serve as a good example in this regard. However, even where integrated planning occurs and leads to the development of a fully integrated management plan, the challenge remains that implementation responsibilities remain spread across a diversity of ministries/ departments and other bodies (e.g. land boards), bringing the above-mentioned issues of a lack of coordination and cooperation to the fore again at implementation level, often leading to inefficient use of government resources if not failure to implement altogether.

It is in this context that the provision in the three countries' water laws for the establishment of basin-management committee is of great importance. Using the Okavango Basin Management Committee in Namibia as an example, the committee is comprised of representatives from a wide range of national ministries, local government and other relevant stakeholders, ensuring that a diversity of management responsibilities and sector interests can be considered in basin planning. Needless to say that the importance of the basin management committees for effective integrated basin management requires strong institutions with adequate skills and capacity level as well as effective coordination and cooperation between the local committees in the three countries, directly and/or through OKACOM.

3.4.2. Strengthening Local Institutions

The above-mentioned need for strong institutions at local level is at present arguably the biggest challenge in the Okavango basin. All three countries have made provision in law or policy to strengthen and give greater autonomy to local government in local level development decision- making. Practical implementation is, however, lagging behind and local government continues to be under-resourced and with limited decision-making power resulting in central government remaining the dominant development decision-making power. Likewise, local basin management committees established under the respective national water act are either not yet established (Angola) or lack adequate levels of skills and financial capacity, requiring significant strengthening in order to fulfil their role in an effective manner.

Table 8: Overview of the main governance problems common to the three countries and of governance problems with transboundary impacts

COMMON PROBLEMS	TRANS-BOUNDARY PROBLEMS
Inadequate intra-governmental cooperation	Lack of harmonised water quality standards
Lack of enforcement through insufficient institutional capacity and resources	Insufficient basin-wide cooperation at different levels (particularly local level)
Insufficiencies in the land tenure system	Lack of enforcement due to insufficient institutional capacities and resources
Conflicting and repetitive institutional responsibilities	Inadequate EIA and SEA regulation and standards
Insufficient EIA and SEA regimes	Insufficiencies in the land tenure system
Insufficient long-term policy formulation (A and N)	Insufficient integration and coordination of planning and implementation at national, regional and local level
Minimal integration of poverty reduction into conservation schemes through community-based natural resource management	Lack of effective implementation and enforcement
Lack of awareness of traditional authorities on environmental and land use issues	Limited response to deforestation
Insufficient long-term policy formulation, particularly with respect to climate change adaptation	Lack of a comprehensive natural resource management plan
Lack of financial resources at local level	Lack of an integrated tourism plan
	Lack of harmonised land use and development plan
	Lack of integrated biodiversity management systems
	Inadequate basin-wide climate change adaptation and mitigation strategies

4. Key Policy Drivers Impacting the Determination of the Okavango River Basin Development Framework

The three basin countries share the overarching policy objective of alleviating poverty and improve the welfare and living conditions of their population through increased economic growth and foresee increasing future water demands to support such growth. Whereas this applies nationally it is of particular relevance for the Okavango river basin since in each of the three countries their part of the basin is the poorest, or among the poorest, of the respective country. In Angola the drive for economic growth is further exacerbated by the need for post-conflict reconstruction and the gradual return and resettlement of previously displaced people to the Angolan part of the basin.

In this context, decision concerning the (future) development trajectory of the basin and the nature of investments are made within the parameters set by a number of key national policies. The most relevant policies in this context are the countries' overarching national development policies as well as some key sector policies, most notably on agriculture (and food security), energy, water resources development and an array of policies dealing with conservation and sustainable natural resources management.

The implementation of such policies has impact on the management of the Okavango basin's land, water and other natural resources. The three main impacts on water resources are the ones identified in other technical reports (notably the hydrology and environmental flow analysis reports) produced for the TDA, namely a) changes in the flow regime, b) changes in the sediment dynamics, and c) changes in water quality.

It is critical to notice at this stage that a generic legal and policy analysis cannot identify with accuracy whether or not conflicts between policies within and between countries exist. Any potential conflict between policies will only materialise if the practical implementation of such policies will cross the threshold after which unacceptable harm is caused to other uses/users or the environment. These thresholds have to be determined by the countries sharing the basin. To use an example, an increase in irrigated agriculture in the Okavango basin can potentially go hand in hand with increased development of CBNRM development and/or tourism without causing a problem for either use or the environment itself. However, somewhere lies a threshold where any further increase in irrigated agriculture would be likely to jeopardise the (economic) sustainability of other activities such as tourism or the integrity of the ecosystem as a whole. These thresholds are heavily dependent on the nature, size and location of any developments (e.g. hydro power schemes, irrigation schemes etc.) and other components of the TDA have undertaken first steps to determine possible impacts based on the analysis of different water use scenarios[3].

On that basis the following section analysing policy drivers aims to identify key policies that are likely to impact decision-making affecting water resources management in the basin in the future. Where potential policy conflicts are identified, these are under the caveat that for the policy conflict to have adverse impacts in practice as certain trigger level needs to be reached – the determination of these trigger levels is not subject of this report and no prediction is made here whether these trigger levels will be reached. It remains a key task of the three basin states through cooperation within OKACOM to determine the correct balance between legitimate uses in a way that prevents potential policy conflicts from arising and having adverse impacts on the ground.

[3] See "Scenario report"

4.1. Social Development Policies/ Domestic Water Supply

Among the most important social development objectives in the three countries is the extension of domestic water supply services with the ultimate goal of full coverage. This has particularly high priority in Angola where coverage rates are on average the lowest of the three countries. More so, coverage rate in the Angolan part of the Okavango basin are among the lowest in the country. An increase in service coverage will require the building of abstraction infrastructure and an increase in water abstraction volumes. Being both political priority and social imperative the expansion of domestic water supply coverage is also a key factor in international law for determining "equitable and reasonable utilisation". In fact, numerous decisions of international have over time strengthened the legal concept of "vital human needs" and confirmed its priority as a factor in determining water allocation between countries. Thus, policies aiming at increasing domestic water supply to the basin population have to be considered a priority and cannot be seen as in conflict with any other economic development policies.

4.2. Agriculture and Food Security Policies

The expansion of agriculture (especially irrigation) is likely to be the key driver affecting future development options for the basin. All three countries in their respective policies emphasise the need to strengthen the agricultural sector and ensure food security. In Botswana and Namibia the food security aspect is highlighted in the national agricultural policies whereas in Angola it is highlighted in the Agricultural Master Plan as well as the country's long term development strategy and the poverty reduction strategy. Both Angola and Namibia (MAWF, 2008) have identified their parts of the Okavango basin among the geographic areas in which increased agricultural production can be promoted.

It is noteworthy that all three countries prioritise increased domestic production of agricultural crops as the solution to food security problems, thus essentially basing their food security objectives on the notion of food self-sufficiency. At present there seems to be no integration of food security objectives within the countries' international trade strategies, i.e. purchasing food on the world market instead of producing them locally. It would arguably be useful to carry out an assessment on the possible integration of food security aspects into national (and regional) trade policies, in other words to determine whether purchasing food on the international market would provide an alternative to the development of irrigated agriculture in the basin itself. However, such policy option, even if feasible could only be achieved in the long-term and given the levels of food insecurity and unemployment in the basin etc. it is likely that the increase in agricultural development in the basin will remain a political priority. As indicated above, whether or not the increase in irrigated agriculture conflicts with other policies, such as for example those focusing on sustainable natural resource use or tourism, depends on scale, location and nature of the irrigation development. The issue is herewith just flagged as one requiring careful consideration and balancing with other uses within the overall basin development framework.

4.3. Energy Policies

Improved energy security is likely to be a further key policy driver for decision-making concerning the development of the basin. The southern African region including the three basin states already suffer from energy shortages. In the light of the countries' economic development objectives a significant increase in energy availability and reliability of supply is

essential and this is recognised in the three countries' energy related policies and plans. Likewise, all three basin states are members of the Southern African Power Pool (SAPP), which aims at further developing the regional grid and increase regional generation capacity. However, in practice Angola's grid is yet to be integrated with the regional grid.

Whereas Angola is still in the process of developing an overarching, long-term national energy policy, the Development Strategy for Angola's Power Sector (2002) and the Strategy for the Development of the Electricity Sector of Angola (2002) prioritise the repair of hydropower infrastructure which was damaged in the past, as hydropower is considered to be an important component of the national energy mix. In this context potential hydropower development in the Angola part of the Okavango Basin is listed as an option in the above mentioned 2002 Strategies.

Botswana and Namibia, in their respective energy policies recognise the relationship between energy generation from fossil fuel sources and climate change and place strong emphasis on the increased use of renewable energies. Given the fact that both Botswana and Namibia are currently very reliant on fossil based energy (coal-based electricity generation), it is likely that in the effort to increase energy security and meet rising energy demands, hydro-electric power will be an increasingly attractive alternative. In the context of the development options for the Okavango River his raises the issue potential hydropower developments in the upper Okavango in Angola.

Hydropower generation at present is arguably the technically most feasible option for the development of large-scale, non-fossil based electricity generation capacity. Whereas this seems beneficial in the light of the countries' efforts to become less reliant on fossil based energy and prevent an increase in green house gas emissions as envisaged in the respective national energy policies, the development of hydropower generation capacity in the Okavango could potentially be at odds with other development options (i.e. development of eco-tourism potential; ecosystem integrity fund) that rely on a high degree of ecosystem integrity. Again, as is the case with policies promoting the expansion of irrigated agriculture, a clear prediction of policy conflict cannot be made. Whether or not hydropower developments jeopardise other development options is, as repeatedly stated, dependent on scale, nature and size of the developments. Thus, as it was done for the agricultural policies, the issue of potential hydropower development is here merely highlighted as one requiring careful consideration and balancing.

4.4. Climate Change Adaptation and Mitigation

While climate change adaptation and mitigation policy development in the three basin countries is still in its infancy, the issue is increasingly becoming a factor in national policy making and likely to be of progressively increasing importance for development decision-making. In the context of the future development trajectory of the Okavango basin this provides for a number of development options that until now have not been explored.

Climate change considerations are generally not adequately mainstreamed in the various sectoral policies. Yet, with improved accuracy of climate change predictions and growing scientific consensus concerning the likely effects of climate change on the region, the countries are increasingly cognisant of the issue as evidenced for example by Botswana and Namibia having submitted their Initial National Communications to the UNFCCC as the first step to climate change policy development.

Climate change aspects are relevant for the basin from both an adaptation as well as mitigation perspective. In the context of developing adaptation measures, Angola is the only

one of the three basin countries currently classified as a least developed country (LDC) and thus entitled (under the UNFCCC) to special support for the development of a climate change adaptation plan through the National Adaptation Programmes of Action (NAPAs) fund. This provides an opportunity for Angola to accelerate its climate change policy development and mainstreaming climate change into national development and sector policies.

In terms of climate change mitigation the importance for the Okavango basin lies less in the need for emissions reduction in the basin area itself (as these are minimal) than in the opportunities to generate economic benefit from the global climate change mitigation framework.

The market-based mechanisms under the UNFCCC (Kyoto Protocol), e.g. clean development mechanism (CDM) and Joint Implementation (JI) provide the opportunity to generate revenue through the generation of carbon credits. Although Botswana and Namibia have already established Designated National Authorities (DNAs) under the CDM, the potential for carbon credit generation in the Okavango basin has so far not been adequately investigated and could provide significant new opportunities in the context of determining the development trajectory for the basin.

Whereas the above-mentioned market based mechanisms apply to the generation of “new” carbon credits, there is an additional opportunity for deriving economic benefits from the preservation of the basin’s existing carbon storage capacity. Though not (yet) an official instrument under the UNFCCC, mechanisms such as the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) offer potentially significant economic opportunities for the basin that should be explored.

Hence, the impacts of climate change are cross-cutting through most policy areas with the likelihood of significantly altering the parameters in which investment and development planning in the basin takes place at present. The already complex task of achieving a balance between the uses and/or development options for the basin is made even more complex by the need to adequately consider climate change concerns. Conflicting policy objectives in the different basin countries (see above) that until now have not materialised as actual disputes could be aggravated by the effects of climate change. The consideration of the impact of climate change in national sector policy making as well as basin-wide investment and development planning is therefore important in order to avoid currently theoretical policy conflicts becoming real disputes in practice.

A supporting factor in this regard is the economic development options created through the global climate change adaptation and mitigation regime. Materialising the economic value of the basin’s ecosystems, for example through carbon storage or the establishment of an ecosystem integrity fund that rewards the maintenance of the basin’s ecosystem integrity provides alternative pathways for improved economic development of the basin. This even more so as the three countries, with some degree of variation, have a relatively robust legal and policy framework – and practice – for economically viable and environmentally sustainable natural resource use and biodiversity preservation, for example through CBNRM and eco-tourism.

4.5. Opportunities in the policy framework

The analysis of the current policy framework in the three countries shows that on the one hand there are some potential inconsistencies between sector policies both within as well as

between countries. On the other hand it appears that the combined policy framework would allow sufficient flexibility in implementation so as to achieve the respective countries' economic development objectives while at the same time allowing for the environmentally and socially sustainable use of the basin's water and other natural resources.

The SWOT analysis below highlights some of the key strengths and weaknesses of the current framework, as well as corresponding opportunities and threats.

STRENGTHS	WEAKNESSES
• HIGH LEVELS OF NATURAL RESOURCES AND ECOSYSTEMS INTEGRITY • COUNTRIES POLITICALLY STABLE • ESTABLISHED NATURAL RESOURCE MANAGEMENT POLICIES • EXISTING NATURAL RESOURCE BASED ECONOMIC PRACTICES IN BOTSWANA AND NAMIBIA, E.G. CBNRM • PROTECTED AREAS LEGISLATION IN ALL COUNTRIES • STRONG FOCUS ON TOURISM AND CBNRM IN BOTSWANA AND NAMIBIA • ACKNOWLEDGEMENT OF CLIMATE CHANGE CHALLENGES BY BOTSWANA AND NAMIBIA • EXISTING BASIN-WIDE COOPERATIVE FRAMEWORK EXISTS IN OKACOM • EXISTING REGIONAL COOPERATION AND SUPPORT UNDER SADC AND SAPP • POLICY AND LEGAL FRAMEWORKS PROVIDE FOR THE DEVOLUTION OF MANAGEMENT TO LOWER LEVELS AND FOR INTEGRATED MANAGEMENT	• LACK OF A COMPREHENSIVE, INTEGRATED NATURAL RESOURCE MANAGEMENT PLAN • INSUFFICIENT INTER-SECTORAL COOPERATION AND COORDINATION • INADEQUATE EIA AND SEA REGULATION AND STANDARDS • INSUFFICIENCIES IN THE LAND TENURE SYSTEMS HAMPERING INVESTMENT POTENTIAL • INSUFFICIENT INTEGRATION AND COORDINATION OF PLANNING AND IMPLEMENTATION AT NATIONAL, REGIONAL AND LOCAL LEVEL • LACK OF AN INTEGRATED TOURISM PLAN • INADEQUATE CLIMATE CHANGE ADAPTATION AND MITIGATION STRATEGIES • LACK OF EFFECTIVE IMPLEMENTATION AND ENFORCEMENT • LACK OF HARMONISED LAND USE AND DEVELOPMENT PLANS BETWEEN COUNTRIES • INSUFFICIENT SKILLS LEVELS AND FINANCIAL RESOURCES PARTICULARLY AT LOCAL LEVEL
OPPORTUNITIES	THREATS
• MATERIALISING ECONOMIC OPPORTUNITIES IN THE GLOBAL CLIMATE CHANGE MITIGATION FRAMEWORK OF PRESERVING ECOSYSTEM INTEGRITY, E.G. CDM, JI, UN-REDD • SPECIAL FUNDING FOR ANGOLA AS AN LDC UNDER THE UNFCCC FOR CLIMATE CHANGE ADAPTATION • INTEGRATING CLIMATE CHANGE ADAPTATION INTO NATIONAL SECTOR POLICIES AND INTEGRATED BASIN MANAGEMENT PLAN • ECONOMIC GAINS FOR ALL COUNTRIES FROM BASIN PRESERVATION THROUGH INCREASED TOURISM INCOME / SUSTAINABLE NATURAL RESOURCE USE • INCREASED LIVING STANDARDS THROUGH HARMONISED LAND USE PLANNING, IMPROVED LAND TENURE AND EXPANSION OF CBNRM • INCREASED REGIONAL COOPERATION AND ECONOMIC INTEGRATION (AT SADC LEVEL) PROVIDING INCREASED NUMBER OF DEVELOPMENT OPTIONS FOR THE BASIN • INTEGRATING ENERGY AND FOOD SECURITY IN	• POLICY CONFLICTS AND LACK OF INTEGRATED PLANNING LEADING TO UNCOORDINATED AND UNSUSTAINABLE DEVELOPMENT • • ECOSYSTEM DEGRADATION DUE TO UNSUSTAINABLE WATER USE LEADING TO LOSS OF ECONOMIC BENEFITS FROM ECOSYSTEM INTEGRITY • • LOSS OF POTENTIAL TOURISM REVENUE THROUGH BASIN DEGRADATION • INCREASED LOSS OF BIODIVERSITY AND NATURAL RESOURCES THROUGH INSUFFICIENT EIA AND SEA IN DEVELOPMENT PLANNING • INCREASED EXPOSURE TO CLIMATE CHANGE IMPACTS DUE TO INSUFFICIENT INTEGRATION OF CLIMATE CHANGE ADAPTATION INTO BASIN MANAGEMENT STRATEGY • INCREASED REGIONAL WATER RESOURCE COMPETITION PUTTING PRESSURE ON THE RESOURCE

INTERNATIONAL AND REGIONAL TRADE STRATEGIES • IMPROVED SECTOR-INTEGRATION IN BASIN MANAGEMENT, PARTICULARLY AT LOCAL LEVEL THROUGH STRENGTHENING OF BASIN MANAGEMENT COMMITTEES	• INADEQUATE HUMAN RESOURCE AND FINANCIAL CAPACITY FOR BASIN MANAGEMENT AT LOCAL LEVEL • INSTITUTIONAL CAPACITY OF OKACOM NOT ADEQUATE TO MEET INCREASING MANAGEMENT ROLE

Table 9: SWOT analysis of governance framework for the Okavango River Basin

5. The role of the Permanent Okavango River Basin Water Commission (OKACOM)

5.1. Present Status

Established in 1994 by the "Agreement between the Governments of the Republic of Angola, the Republic of Botswana and the Republic of Namibia on the Establishment of a Permanent Okavango River Basin Water Commission" (hereafter OKACOM-Agreement), OKACOM serves as technical advisor to the Parties on matters relating to the conservation, development and utilisation of water resources of common interest. Whereas the OKACOM-Agreement does not create substantive rights and obligations of the Parties with respect to the management of the basin, it determines the issues for which OKACOM is mandated to advise the Parties as:

- Measures and arrangements to determine the long-term safe yield of the water available from all potential water resources in the Okavango River Basin;
- The reasonable demand for water from the consumers in the Okavango River Basin;
- The criteria to be adopted in the conservation, equitable allocation and sustainable utilization of water resources in the Okavango River Basin;
- The investigations, separately or jointly by the Contracting Parties, related to the development of any water resources in the Okavango River Basin, including the construction, operation and maintenance of any water works in connection therewith;
- The prevention of the pollution of water resources and the control over aquatic weeds in the Okavango River Basin;
- Measures that can be implemented by any one or all the Contracting Parties to alleviate short term difficulties resulting from water shortages in the Okavango River Basin during periods of drought, taking into consideration the availability of stored water and the water requirement within the territories of the respective Parties at that time;
- Such other matters as may be determined by the Commission.

In April 2007 the three Parties concluded the "Agreement between the Governments of the Republic of Angola, the Republic of Botswana and the Republic of Namibia on the Organisational Structure of OKACOM" (hereafter OKACOM-Structure Agreement) which establishes the organs of OKACOM as

- The Commission,
- The Okavango Basin Steering Committee (OBSC); and
- The Secretariat,

With the Commission being the principal organ responsible for defining and guiding the development policy and the general supervision of the activities of OKACOM. The OBSC is the technical advisory body to the Commission whereas the Secretariat is responsible for providing administrative, financial and general secretarial services to OKACOM.

The OKACOM Structures Agreement defines the functions of the three organs in significant detail, together with regulating other procedural matters relevant for the functioning of OKACOM such as financing, working language and communication. Article 7(n) permits the Commission to establish *ad hoc* working groups or specific temporary or permanent committees. This has been made use of by the Commission and at present three Task Forces have been established, namely a Biodiversity Task Force, a Hydrology Task Force and an Institutional Task Force. In addition, National Coordination Units (NCUs) have been

established for the EPSMO project. Initially established as temporary, project specific bodies the basin countries are now considering maintaining the NCUs as permanent structures in order to strengthen OKACOM's linkages with the basin states at local, operational level. However, a final decision on the matter as well as the exact position of the NCUs in the operational structure of OKACOM is yet to be taken.

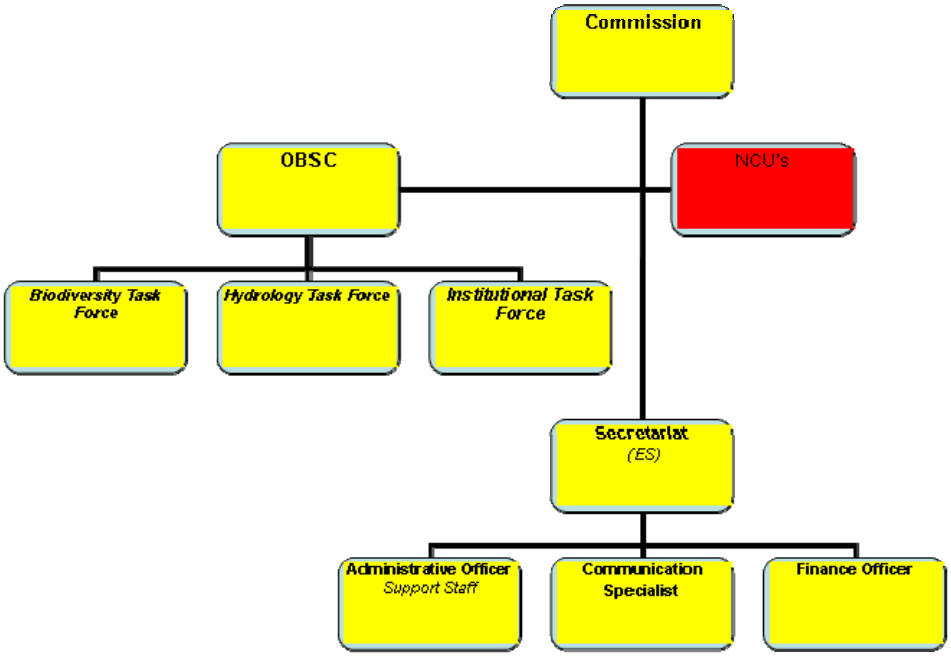


Figure 9: Current institutional structure of OKACOM

The Commission is comprised of the three national delegations, each comprised of three Commissioners appointed by the respective country. The Commissioners are representatives of relevant government departments who attend to OKACOM matters as part of their departmental functions but do not work on OKACOM matters on a full-time basis.

The establishment of the OKACOM Secretariat (OKASEC) and subsequent appointment of an Executive Secretary with support staff has put OKACOM on a firmer administrative footing. Guided by its three year plan OKASEC provides the necessary support for OKACOM to operate effectively and meet the increasing responsibilities OKACOM is entrusted with. The OKACOM Secretariat has the mandate to ensure that:

1. OKACOM decisions are well informed, based on a well-prepared analysis of the alternatives and relative costs and benefits; and once taken, are implemented in a timely and effective manner.
2. All relevant actors are aware of the sources of information about the basin and that these sources of information match the present and future needs for information.
3. All relevant actors are aware of, respect and understand the operations of the other actors in the basin, thus minimising communicational barriers to cooperation.

Thus, at present OKASEC fulfils an administration, communication and information management role. This role of the Secretariat could potentially be expanded in the future to a broader monitoring, coordination and possibly even project management and execution role.

In line with its mandate of being an information sharing platform for the three basin states, OKACOM has recently concluded the development of a Data Sharing Protocol (for hydrological data sharing between basin states) and the development of a Stakeholder Participation Strategy for OKACOM is ongoing.

5.2. Future Role of OKACOM

Given its mandate as a cooperation, coordination and information sharing platform for the three basin states with respect to water resources management, it is clear that OKACOM has a central role to play in the management of the basin. This is even more evident by the fact that there are no established basin-wide cooperation mechanisms in other natural resources management fields such as land-use or biodiversity. At the same time, it is well recognised in the context of IWRM that water resources management cannot be undertaken effectively without giving due consideration to issues of land management and other natural resources use aspects. OKACOM itself has already recognised the integrated nature of water resources management institutionally by establishing the Biodiversity Task Force.

While it is the prerogative of the member states to decide on the exact scope of activities of OKACOM in the overall management of the basin and without pre-empting any decisions taken by member states on the exact role of OKACOM in this regard, it is foreseeable that OKACOM's role and the scope of activities it has to undertake will significantly grow. This particularly once the Strategic Action Programme (SAP) for the basin has been agreed on and a more detailed basin management plan is being developed and implemented. A progressively growing role for OKACOM requires the commensurate strengthening of OKACOM's capacity, particularly at an operational level, i.e. with regards to monitoring and coordination of projects/ activities that are ongoing in the basin.
. Options in this regard include:

1. A narrower focus on water resources management issues only with OKACOM being the information exchange and coordination platform

2. A broader focus on integrated basin planning, including aspects of land management, biodiversity management etc., with OKACOM playing a key coordination and monitoring role.
3. OKACOM being the principal decision-making, coordination and monitoring body for integrated basin planning and playing an active role in promoting investments and economic development in the basin.

It is clear that each of the above three options outlines only a broad trajectory for the future role of OKACOM with various hybrid options being possible. Likewise, any shift from one option to the next is likely to happen only gradually as it requires considerable adjustment to the technical, and even more so, managerial capacity of OKACOM.

The establishment of the Biodiversity Task Force is evidence that OKACOM is already taking a wider interpretation of its role, recognising the integrated nature of water resources management. If the basin states decide to strengthen the role of OKACOM further, possibly moving towards options two and three above, this would have to be reflected in the institutional structure of OKACOM, for example by establishing task forces on hydropower development, agriculture development or investment promotion and coordination.

The OKACOM Structures Agreement gives OKACOM the necessary flexibility to structure its organs in a way that accommodates the growing (managerial) role of OKACOM, with the establishment of Task Forces being one such option. At operational level it is foreseeable that the OKACOM Secretariat would have to play a stronger role, possibly over time taking

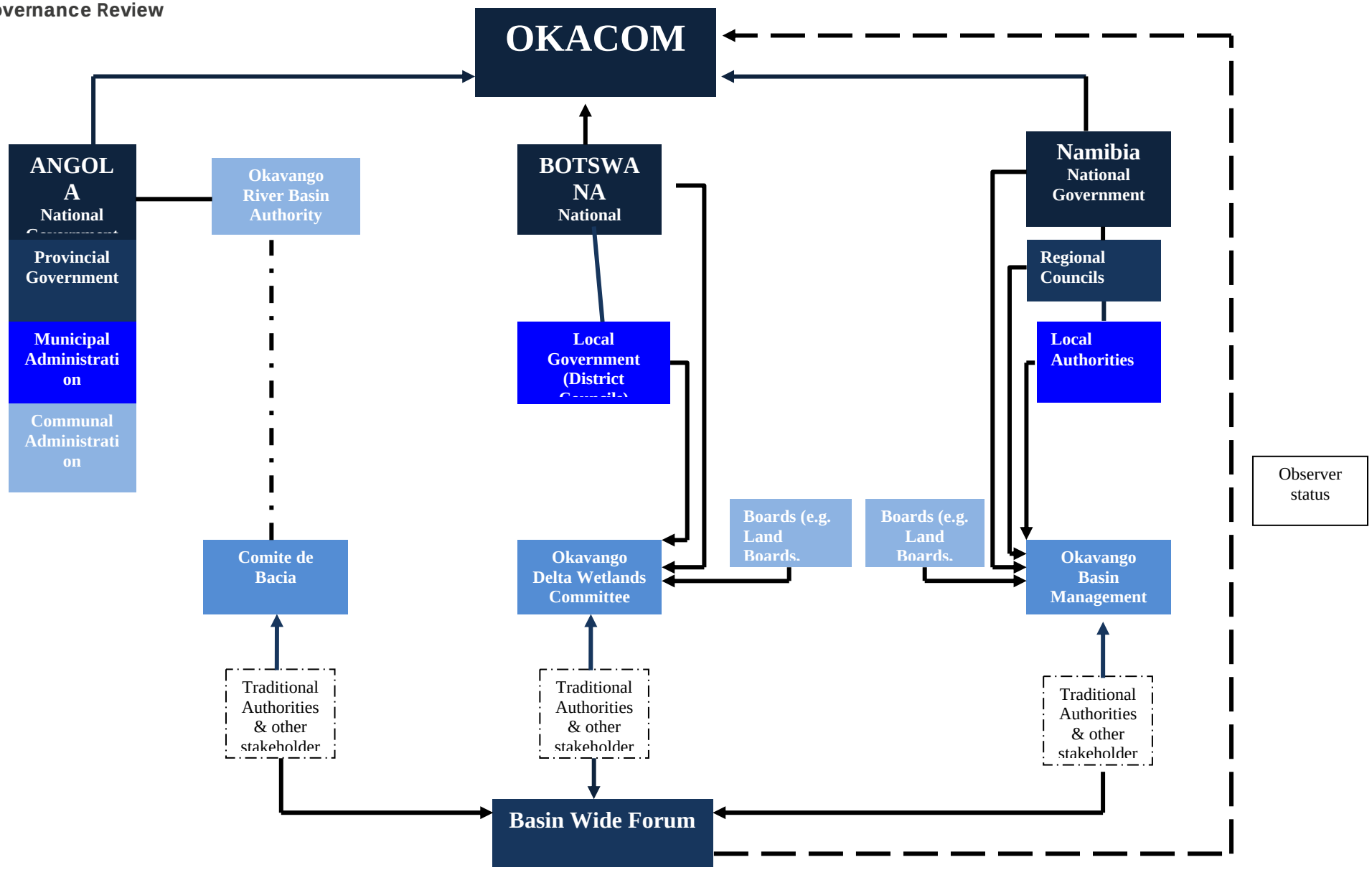
on a key role in day-to-day monitoring and oversight of (joint) activities and also the implementation of joint projects and programmes between the three countries. A number of proposals for the further institutional evolution of OKACOM, and the Secretariat in particular, are already under consideration. It is critical for the effective, integrated management of the basin that OKACOM plays a central role and its institutional capacity is progressively strengthened in line with its evolving role and increased scope of activities.

At political decision-making level it would be desirable that aspects of inter-sectoral coordination are increasingly reflected in the composition of the national delegations. At national level the need for inter-sectoral coordination is increasingly recognised and to some extent reflected in policy and legislation (e.g. the proposed Water Resources Council in the Botswana draft water bill). This need is not yet reflected though in the composition of the national delegations of all the countries to the Commission and /or to OBSC. Given the importance of agriculture and energy issues, increasing the diversity of sectors represented in the different organs of OKACOM appears to be worth considering in order to allow the sufficient consideration of and coordination between different sectors.

A growing role of OKACOM in the management of the basin also requires strengthened institutional linkages between OKACOM and national level institutions. This would not be to replace or undermine the decision-making power of the Commission made up of the national delegations. Instead such ties should take the form of direct information exchange between OKACOM (through OKASEC) and the national basin management committees in order for OKACOM to be better informed about local level planning, implementation and enforcement. Such direct information exchange mechanisms would improve the cooperation between the local committees in the three countries and bring implementation and enforcement challenges that require basin-wide cooperation to the attention of (the political decision-makers in) OKACOM in quicker and more effective manner.

Closer direct linkages are also desirable between OKACOM and the broad range of stakeholders in the basin and it is assumed that the stakeholder participation strategy currently under development will adequately address this matter. The aforementioned institutional linkages between local basin management committees and OKACOM could also be incorporated as an integral part of the stakeholder participation strategy.

Figure 11: Overall institutional structure for water management in the Okavango basin (next page)


OKACOM
ANGOLA
National
Provincial Government
Municipal Administration
Communal Administration
Okavango River Basin Authority
BOTSWANA
National
Local Government (District
Namibia
National Government
Regional Councils
Local Authorities
Comite de Bacia
Okavango Delta Wetlands Committee
Boards (e.g. Land Boards.
Boards (e.g. Land Boards.
Okavango Basin Management
Traditional Authorities & other stakeholder
Traditional Authorities & other stakeholder
Traditional Authorities & other stakeholder
Basin Wide Forum
Observer status

6. Conclusion and Recommendations

The SWOT analysis of the governance framework for the Okavango basin suggests that there is overall a strong policy and legal framework for sustainable natural resources management. Given the currently very high level of ecosystem integrity in the basin and high number of existing economic activities based on healthy ecosystems and sustainable natural resources management (tourism, CBNRM etc.), a development trajectory for the basin that is based on capitalising on the economic opportunities from ecosystem integrity and sustainable management of natural resources appears to offer the best possibilities for improving people's livelihoods and improved economic and social development. The as yet unexplored economic opportunities in the global climate change mitigation framework potentially add further to the basket of ecosystem integrity based development options for the basin.

Form a policy perspective the biggest threat for the optimal development of the basin arguably lies in the possible policy conflicts and the resulting possibility of uncoordinated development that proves to be economically and environmentally unsustainable in the long-run. The currently inadequate consideration of possible climate change impacts potentially aggravates this threat.

The existence and functioning of OKACOM as a basin-wide cooperation platform provides a strong basis for joint basin planning and the facilitation of coordinated, joint economic development. This can avoid policy conflicts and differences in the development interest of different role-players materialising in unsustainable development decision-making. A further strengthening of the role of OKACOM as well as of the inter-sectoral basin management committees at local level for improved integrated planning and implementation is essential to ensure the optimal, economically, socially and environmentally sustainable development of the basin.

Governance recommendations

Legal/policy harmonisation

1. Where possible harmonise sector policies within and between countries to avoid potential policy conflicts and create additional development options
2. Address legislative gaps to further promote economic activities based on sustainable natural resources (i.e. land tenure system; biodiversity legislation; EIA and SEA legislation)

Institutional strengthening

3. Increase number of sectors represented in OKACOM organs for improved inter-sectoral coordination and planning at basin level
4. Determine long-term (operational) role of OKACOM in basin planning and management
5. Strengthen the operational capacity of OKACOM in line with increasing management responsibilities as defined by the Commission
6. Strengthen, and where necessary establish, local basin management committees for improved inter-sectoral planning and implementation
7. Create effective institutional linkages between OKACOM, local basin management committees and other relevant stakeholders

Basin-planning

8. Develop Basin Development and Management Framework (BDMF) for progressively for development coordination and progressively integrated basin development planning
9. Coordinate (existing and forthcoming) basin-plans for the national parts of the basin within the parameters of the BDMF
10. Harmonise guidelines for land use planning, biodiversity management, tourism development, CBNRM between basin states for harmonised, integrated basin-wide planning.
11. Investigate the direct economic value of ecosystem integrity (i.e. global climate change mitigation framework; global existence fund) and integrate into basin planning
12. Explore basin development options that capitalise on the existing strong sustainable natural resource management policy and legal framework (i.e. tourism, CBNRM)
13. Develop a comprehensive basin-wide climate change adaptation strategies and mainstream climate change aspects into basin planning

Bibliography

i) Reports, Academic Papers etc

Arntzen J, Mpho T, Nyalugwe K. 2009. Review and streamlining of national policies, plans and regional protocols and international conventions in relation to the Okavango Delta.

Clover J. 2008. Land Reform in Angola: Establishing the Ground Rules. South Africa.

Commonwealth Local Government Forum. 2006. The local government system in Botswana. [Online], Available: http://www.clgf.org.uk/

Development Bank of Southern Africa. 2007. The Handbook on Environmental Assessment Legislation in the SADC Region. Windhoek. Southern African Institute for Environmental Assessment

International Union for Conservation of Nature. 2008. Application of the Ecosystem Approach (Agenda Item 3.6) Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP9), Bonn, Germany. [Online], Available: http://cmsdata.iucn.org/downloads/ecosystem_approach_cop9.pdf

International Union for Conservation of Nature. 2008. Biodiversity and Climate Change (Agenda Item 4.5) Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP9), Bonn, Germany. [Online], Available: http://cmsdata.iucn.org/downloads/iucn_position_paper_on_biodiversity_and_climate_change.pdf

International Union for Conservation of Nature. 2008. Protected Areas (Agenda item 4.7) Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP9), Bonn, Germany. [Online], Available: http://cmsdata.iucn.org/downloads/pas_cop9.pdf

International Union for Conservation of Nature.2008. Resolutions and Recommendations World Conservation Congress, Barcelona. [Online], Available: http://data.iucn.org/dbtw-wpd/edocs/WCC-4th-005.pdf.

Jones B.T.B. 2009. Policy and Legislative Review For the Development of a Regional Land Use Plan for the Kavango Region within the Okavango Integrated River Basin Management Project (IRMBP) (First Draft). Windhoek.

Namibia Ministry of Environment and Tourism. 2009. Directorates. [Online], Available: http://www.met.gov.na/directorates.htm

Republic of Angola. 2006. Government Overview. [Online] Available: http://www.angola.org/government.html.

Republic of Botswana. 2009. Organs of State. [Online], Available: http://www.gov.bw/index.php?option=com_content&task=view&id=52&Itemid=58

United Nations Development Programme. 2008. Orange-Senqu River Basin Preliminary

Transboundary Diagnostic Analysis. United Nations Development Programme. UNDP: New York

United Nations Environment Programme and International Union for Conservation of Nature. 2008. Biodiversity and Climate Change. [Online], Available: http://www.tematea.org/?q=node/12

USAID. 2008. Angola: Strengthening Land Tenure and Property Rights (Final Report). Burlington.

ii) International Agreements

Convention on International Trade in Endangered Species (CITES) 1973 (1974) 12 *ILM* 1085.

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979 (1980) 19 *ILM* 15.

Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat 1971 (1972) 11 *ILM* 969.
Revised SADC Protocol on Shared Watercourses (2001).
SADC Energy Protocol (1996)

SADC Energy Recovery Strategy (2008)

SADC Protocol on Forestry (2002)

SADC Protocol on Shared Watercourses (2000)
SADC Protocol on Wildlife Management and Law Enforcement (1999)

SADC Regional Indicative Strategic Development Plan (RISDP) (2001)

SADC Regional Water Policy (2005)

SADC Regional Water Strategy (2005)

SADC Tourism Protocol (1998)
Southern African Power Pool Plan (1995)

United Nations Convention to Combat Desertification 1992 (1992)81 *ILM* 679.

United Nations Convention on Biological Diversity 1992 (1993) 31 *ILM* 818.
United Nations Convention on the Law of Non-navigable uses of International Watercourses1997 (1997) 36 *ILM* 700.
United Nations Framework Convention on Climate Change 1992 (1992) 31 *ILM* 849.

Vienna Convention on the Protection of the Ozone Layer 1985 (1986) 26 *ILM* 1529.

iii) National Legislation

1) Angola

Decree on Forestry Produce (1955 and 1999)

Decree on Forestry Produce (1962)

Environmental Decree on EIAs (2004)

Environmental Framework Act (1998)

Internal Waters, Oceans and EEZ Act (1992)

Land Act (2004)

Land Law (1998)

Territorial Management and Urbanisation Law (2004)

Water Act (2002)

2) Botswana

Acquisition of Property Act Cap 32:10 1955

Agricultural (Conservation) Resources Act Cap 35:06 1973

Atmospheric Pollution (Prevention) Act Cap 65:03 of 1971

Borehole Act Cap 34:02 of 1956

Botswana Tourism Board Act 14 of 2004

Environmental Impact Assessment Act 6 of 2005

Forestry Act Cap 34:08 of 1968 and 2005

Mines, Quarries, Works, Machineries Act Cap 44:02 of 1978

Road Traffic Act 29 of 1989

Town and Country Planning Act 32:09 of 1978

Tribal Land Amendment Act Cap 32:02 of 1993

Waste Management Act Cap 40.02 of 1998

Water Act Cap 40 of 1967

Water Utilities Corporation Act (1970)

Waterworks Act CAP 26 of 1961

Wildlife Conservation and National Parks Act 28 of 1992

3) Namibia

Atmospheric Pollution Prevention Ordinance 11 of 1976

Communal Land Reform Act 5 of 2002

Draft Parks and Wildlife Management Bill (in preparation)

Electricity Act 2 of 2000 and 4 of 2007

Environmental Management Act 7 of 2007

Forestry Act 12 of 2001

Minerals (Prospecting and Mining) Act 33 of 1992

Namibia Water Corporation Act 12 of 1997

Nature Conservation Amendment Act 5 of 1996

Pollution Control and Waste Management Bill (in preparation)

Soil Conservation Act 76 of 1969

Water Act 54 of 1956

Water Resources Management Act 24 of 2004

iv) National Policies

1) Angola

Angola 2025: Long Term Strategy (*Estrategia de longo prazo*) (2005)

Development Strategy for Angola's Power Sector (2002)

Draft *Programa Nacional de Gestao Ambiental* (Draft National Environmental Management Programme) (PNGA) (1993)

Estrategia Nacional do Ambiente (National Environmental Strategy) (ENA) (2000)

National Biodiversity Strategy and Action Plan (NBSAP) 2007 - 2012

National Reconstruction Programme (2002)

2) Botswana

Arable Land and Development Programme (1997)

Arable Lands Development Programme (1976)

National Action Programme to Combat Desertification (2006)

National Biodiversity Strategy and Action Plan (NBSAP) (2007)

National Master Plan for Arable Agriculture and Dairy Development (NAMPAD) (2001)

National Settlement Policy (1998)

Wetlands Policy and Strategy (2001)

Community-Based Rural Development Strategy (1996)

Draft National Forestry Policy (2005)

Ecotourism Strategy (2002)

Game Ranching Policy of Botswana (2002)

Industrial Development Policy 9 (1998)

National Conservation Policy (1990)

National Energy Policy (2004)

National Energy Policy and Master Plan (2006)

National Master Plan for Wastewater and Sanitation (2003)

National Policy on Agriculture Development (NPAD) (1991)

National Policy on Land Tenure (1985)

National Policy on Natural Resources Conservation and Development (2007)

National Policy on Tribal Grazing Land (1975)

National Water Master plan (2005)

Okavango Delta Management Plan (2007)

Privatisation Policy (2000)

Revised National Policy for Rural Development (2002)

Rural Development Policy and Strategy (2001)

Tourism Master Plan (2000)

Tourism Policy (1990)

Vision 2016

Water Master Plan (2001)

Wildlife Conservation Policy (1986)

3) Namibia

Cabinet Policy: Devolution of Rights over Natural Resources (1996)

Decentralisation Policy (1993 and 1993)

Draft Policy on Protected Areas, Neighbours and Resident People (2008)

Draft Tourism Policy (2007)

Draft Wetlands Policy (2004)

Environmental Impact Assessment Policy (1995)

Industrial Policy (1992)

MAWF Strategic Plan 2007/8- 2011/12, July 2008

National Agricultural Policy (1995)

National Biodiversity Strategy (2001-2010)

National Development Plan (3) (2001)

National Drought Policy (1997)

National Environmental Health Policy (2002)

National Environmental Policy (1993)

National Land Policy (1998)

National Programme to Combat Desertification (NAPCOD) (1994)

National Resettlement Policy (2001)

National Water Policy (2000)

Poverty Reduction Strategy (1998)

Regional Planning and Development Policy (1997)

SME Policy and Programme (1997)

The Green Scheme (2003)

Vision 2030

Water Supply and Sanitation Policy (1993)

White Paper on Energy Policy (1998)

Wildlife Policy for Communal Areas (1995)

The Okavango River Basin Transboundary Diagnostic Analysis Technical Reports

In 1994, the three riparian countries of the Okavango River Basin – Angola, Botswana and Namibia – agreed to plan for collaborative management of the natural resources of the Okavango, forming the Permanent Okavango River Basin Water Commission (OKACOM). In 2003, with funding from the Global Environment Facility, OKACOM launched the Environmental Protection and Sustainable Management of the Okavango River Basin (EPSMO) Project to coordinate development and to anticipate and address threats to the river and the associated communities and environment. Implemented by the United Nations Development Program and executed by the United Nations Food and Agriculture Organization, the project produced the Transboundary Diagnostic Analysis to establish a base of available scientific evidence to guide future decision making. The study, created from inputs from multi-disciplinary teams in each country, with specialists in hydrology, hydraulics, channel form, water quality, vegetation, aquatic invertebrates, fish, birds, river-dependent terrestrial wildlife, resource economics and socio-cultural issues, was coordinated and managed by a group of specialists from the southern African region in 2008 and 2009.

The following specialist technical reports were produced as part of this process and form substantive background content for the Okavango River Basin Transboundary Diagnostic Analysis.

Final Study Reports	***Reports integrating findings from all country and background reports, and covering the entire basin.***		
		Aylward, B.	*Economic Valuation of Basin Resources: Final Report to EPSMO Project of the UN Food & Agriculture Organization as an Input to the Okavango River Basin Transboundary Diagnostic Analysis*
		Barnes, J. et al.	*Okavango River Basin Transboundary Diagnostic Analysis: Socio-Economic Assessment Final Report*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment Project Initiation Report (Report No: 01/2009)*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment EFA Process Report (Report No: 02/2009)*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment Guidelines for Data Collection, Analysis and Scenario Creation (Report No: 03/2009)*
		Bethune, S. Mazvimavi, D. and Quintino, M.	*Okavango River Basin Environmental Flow Assessment Delineation Report (Report No: 04/2009)*
		Beuster, H.	*Okavango River Basin Environmental Flow Assessment Hydrology Report: Data And Models(Report No: 05/2009)*
		Beuster, H.	*Okavango River Basin Environmental Flow Assessment Scenario Report : Hydrology (Report No: 06/2009)*
		Jones, M.J.	*The Groundwater Hydrology of The Okavango Basin (FAO Internal Report, April 2010)*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment Scenario Report: Ecological and Social Predictions (Volume 1 of 4)(Report No. 07/2009)*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment Scenario Report: Ecological and Social Predictions (Volume 2 of 4: Indicator results) (Report No. 07/2009)*
		King, J.M. and Brown, C.A.	*Okavango River Basin Environmental Flow Assessment Scenario Report: Ecological and Social Predictions: Climate Change Scenarios (Volume 3 of 4) (Report No. 07/2009)*
		King, J., Brown, C.A., Joubert, A.R. and Barnes, J.	*Okavango River Basin Environmental Flow Assessment Scenario Report: Biophysical Predictions (Volume 4 of 4: Climate Change Indicator Results) (Report No: 07/2009)*
		King, J., Brown, C.A. and Barnes, J.	*Okavango River Basin Environmental Flow Assessment Project Final Report (Report No: 08/2009)*
		Malzbender, D.	*Environmental Protection And Sustainable Management Of The Okavango River Basin (EPSMO): Governance Review*
		Vanderpost, C. and Dhliwayo, M.	*Database and GIS design for an expanded Okavango Basin Information System (OBIS)*
		Veríssimo, Luis	*GIS Database for the Environment Protection and Sustainable Management of the Okavango River Basin Project*

		Wolski, P.	*Assessment of hydrological effects of climate change in the Okavango Basin*
Country Reports Biophysical Series	***Angola***	*Andrade e Sousa, Helder André de*	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango: Módulo do Caudal Ambiental: Relatório do Especialista: País: Angola: Disciplina: Sedimentologia & Geomorfologia*
		Gomes, Amândio	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango: Módulo do Caudal Ambiental: Relatório do Especialista: País: Angola: Disciplina: Vegetação*
		Gomes, Amândio	*Análise Técnica, Biofísica e Socio-Económica do Lado Angolano da Bacia Hidrográfica do Rio Cubango: Relatório Final:Vegetação da Parte Angolana da Bacia Hidrográfica Do Rio Cubango*
		Livramento, Filomena	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango: Módulo do Caudal Ambiental: Relatório do Especialista: País: Angola: Disciplina:Macroinvertebrados*
		Miguel, Gabriel Luís	*Análise Técnica, Biofísica E Sócio-Económica do Lado Angolano da Bacia Hidrográfica do Rio Cubango: Subsídio Para o Conhecimento Hidrogeológico Relatório de Hidrogeologia*
		Morais, Miguel	*Análise Diagnóstica Transfronteiriça da Bacia do Análise Rio Cubango (Okavango): Módulo da Avaliação do Caudal Ambiental: Relatório do Especialista País: Angola Disciplina: Ictiofauna*
		Morais, Miguel	*Análise Técnica, Biófisica e Sócio-Económica do Lado Angolano da Bacia Hidrográfica do Rio Cubango: Relatório Final: Peixes e Pesca Fluvial da Bacia do Okavango em Angola*
		Pereira, Maria João	*Qualidade da Água, no Lado Angolano da Bacia Hidrográfica do Rio Cubango*
		Santos, Carmen Ivelize Van-Dúnem S. N.	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango: Módulo do Caudal Ambiental: Relatório de Especialidade: Angola: Vida Selvagem*
		Santos, Carmen Ivelize Van-Dúnem S.N.	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango:Módulo Avaliação do Caudal Ambiental: Relatório de Especialidade: Angola: Aves*
	Botswana	*Bonyongo, M.C.*	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Botswana: Discipline: Wildlife*
		Hancock, P.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module : Specialist Report: Country: Botswana: Discipline: Birds*
		Mosepele, K.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Botswana: Discipline: Fish*
		Mosepele, B. and Dallas, Helen	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Botswana: Discipline: Aquatic Macro Invertebrates*
	Namibia	*Collin Christian & Associates CC*	*Okavango River Basin: Transboundary Diagnostic Analysis Project: Environmental Flow Assessment Module: Geomorphology*
		Curtis, B.A.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report Country: Namibia Discipline: Vegetation*
		Bethune, S.	*Environmental Protection and Sustainable Management of the Okavango River Basin (EPSMO): Transboundary Diagnostic Analysis: Basin Ecosystems Report*
		Nakanwe, S.N.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Namibia: Discipline: Aquatic Macro Invertebrates*
		Paxton, M.	*Okavango River Basin Transboundary Diagnostic Analysis: Environmental Flow Module: Specialist Report:Country:Namibia: Discipline: Birds (Avifauna)*
		Roberts, K.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Namibia: Discipline: Wildlife*
		Waal, B.V.	*Okavango River Basin Technical Diagnostic Analysis:*

			Environmental Flow Module: Specialist Report: Country: Namibia:Discipline: Fish Life
Country Reports Socioeconomic Series	***Angola***	*Gomes, Joaquim Duarte*	*Análise Técnica dos Aspectos Relacionados com o Potencial de Irrigação no Lado Angolano da Bacia Hidrográfica do Rio Cubango: Relatório Final*
		Mendelsohn, .J.	*Land use in Kavango: Past, Present and Future*
		Pereira, Maria João	*Análise Diagnóstica Transfronteiriça da Bacia do Rio Okavango: Módulo do Caudal Ambiental: Relatório do Especialista: País: Angola: Disciplina: Qualidade da Água*
		Saraiva, Rute et al.	*Diagnóstico Transfronteiriço Bacia do Okavango: Análise Socioeconómica Angola*
	Botswana	*Chimbari, M. and Magole, Lapologang*	*Okavango River Basin Trans-Boundary Diagnostic Assessment (TDA): Botswana Component: Partial Report: Key Public Health Issues in the Okavango Basin, Botswana*
		Magole, Lapologang	*Transboundary Diagnostic Analysis of the Botswana Portion of the Okavango River Basin: Land Use Planning*
		Magole, Lapologang	*Transboundary Diagnostic Analysis (TDA) of the Botswana p Portion of the Okavango River Basin: Stakeholder Involvement in the ODMP and its Relevance to the TDA Process*
		Masamba, W.R.	*Transboundary Diagnostic Analysis of the Botswana Portion of the Okavango River Basin: Output 4: Water Supply and Sanitation*
		Masamba,W.R.	*Transboundary Diagnostic Analysis of the Botswana Portion of the Okavango River Basin: Irrigation Development*
		Mbaiwa.J.E.	*Transboundary Diagnostic Analysis of the Okavango River Basin: the Status of Tourism Development in the Okavango Delta: Botswana*
		Mbaiwa.J.E. & Mmopelwa, G.	*Assessing the Impact of Climate Change on Tourism Activities and their Economic Benefits in the Okavango Delta*
		Mmopelwa, G.	*Okavango River Basin Trans-boundary Diagnostic Assessment: Botswana Component: Output 5: Socio-Economic Profile*
		Ngwenya, B.N.	*Final Report: A Socio-Economic Profile of River Resources and HIV and AIDS in the Okavango Basin: Botswana*
		Vanderpost, C.	*Assessment of Existing Social Services and Projected Growth in the Context of the Transboundary Diagnostic Analysis of the Botswana Portion of the Okavango River Basin*
	Namibia	*Barnes, J and Wamunyima, D*	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module: Specialist Report: Country: Namibia: Discipline: Socio-economics*
		Collin Christian & Associates CC	*Technical Report on Hydro-electric Power Development in the Namibian Section of the Okavango River Basin*
		Liebenberg, J.P.	*Technical Report on Irrigation Development in the Namibia Section of the Okavango River Basin*
		Ortmann, Cynthia L.	*Okavango River Basin Technical Diagnostic Analysis: Environmental Flow Module : Specialist Report Country: Namibia: discipline: Water Quality*
		Nashipili, Ndinomwaameni	*Okavango River Basin Technical Diagnostic Analysis: Specialist Report: Country: Namibia: Discipline: Water Supply and Sanitation*
		Paxton, C.	*Transboundary Diagnostic Analysis: Specialist Report: Discipline: Water Quality Requirements For Human Health in the Okavango River Basin: Country: Namibia*

Environmental protection and sustainable management of the Okavango River Basin

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