



# Realising the Benefits of Transboundary Water Cooperation in the Cubango-Okavango River Basin

Policy Report



**OKACOM**

The Permanent Okavango River Basin Water Commission  
Comissão Permanente das Águas da Bacia Hidrográfica do Rio Okavango





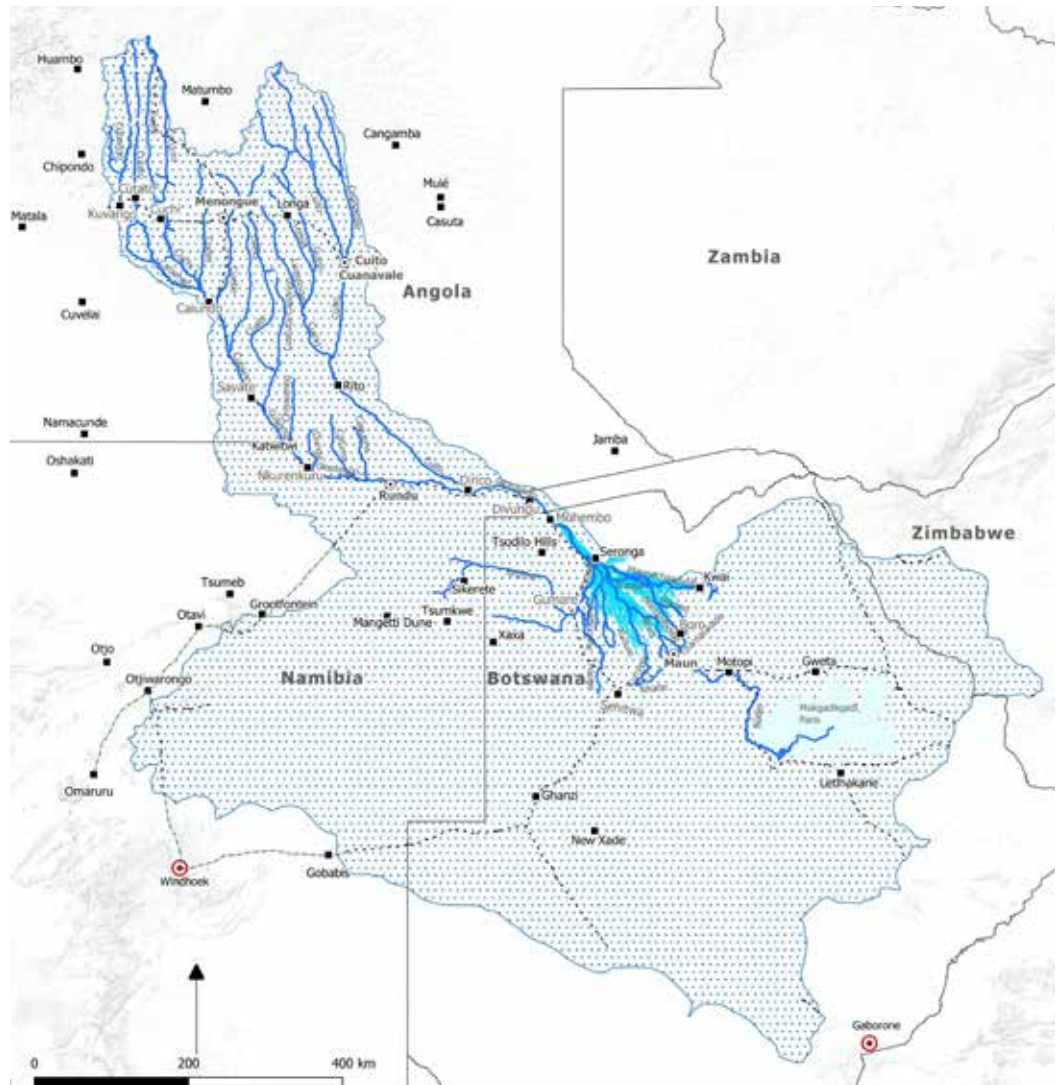


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“The OKACOM shared vision is to achieve an “economically prosperous, socially just and environmentally healthy development of the Cubango-Okavango River Basin”



The Cubango-Okavango River Basin with Sub-Basins (Source: OKACOM)

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## List of Acronyms

CORB	Cubango-Okavango River Basin
MSIOA	Multi-Sectors Investment Opportunities Analysis
NAPs	National Action Plans
OBSC	Okavango Basin Steering Committee
OKACOM	Permanent Okavango River Basin Water Commission
SAP	Strategic Action Plan
SDGs	Sustainable Development Goals
TDA	Transboundary Diagnostic Analysis
UNECE	United Nations Economic Commission for Europe



## Executive Summary



“Successful cooperative management of the world’s transboundary basins is key for achieving the Sustainable Development Goals.”

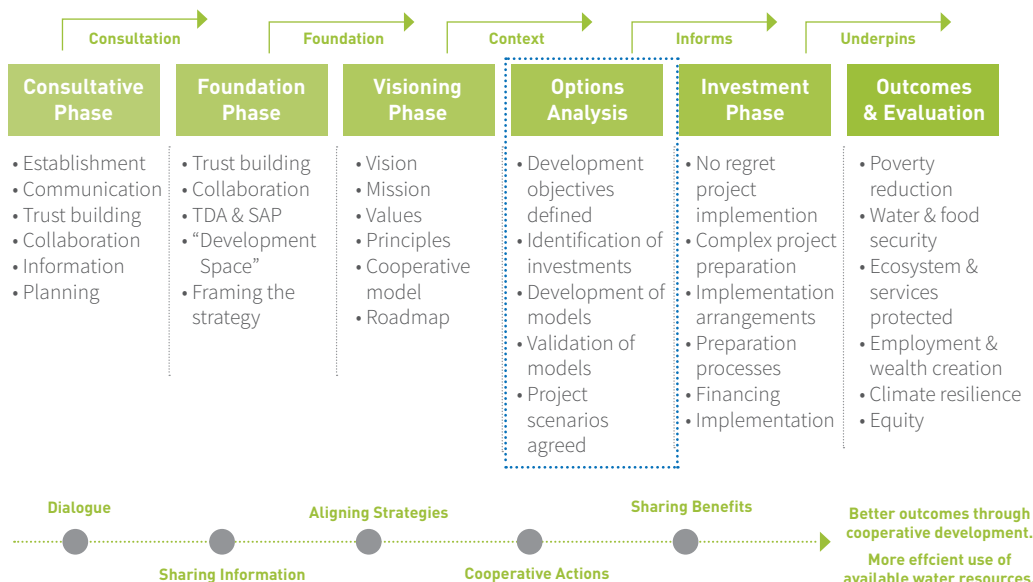


### The Cubango-Okavango River Basin (CORB)

The CORB has a high environmental value, while it suffers high levels of poverty and faces large uncertainties regarding the possible impact of climate change. The CORB is still relatively environmentally pristine, but this will not last, due to the pressures of poverty-induced catchment degradation, particularly in the north-west part of the upper basin. Possible threats to the CORB’s health are becoming very real with the need for development of riparian countries.

Successful cooperative management of the world’s transboundary basins is key for achieving the Sustainable Development Goals (SDGs). Angola, Botswana and Namibia have been cooperating in the knowledge and management of the CORB in the framework of the Permanent Okavango Basin River Commission (OKACOM) for over 20 years. The CORB has an agreed policy framework document, the Strategic Action Programme, that lays down the principles for the development of the basin and improvements of the livelihoods of its people through the cooperative management of the basin and its shared natural resources. The OKACOM shared vision is to achieve an “economically prosperous, socially just and environmentally healthy development of the Cubango-Okavango River Basin”.

Figure ES1. Institutional “phased” development in the CORB



## The Benefits of Transboundary Water Cooperation in the CORB

The CORB is at the forefront of identifying and assessing the benefits of transboundary water cooperation. The benefits assessment study in the CORB was an initiative led by OKACOM, implemented in partnership with the World Bank, DfID and the Water Convention Secretariat. It followed a participatory methodology. Participants in the benefit assessment identified a large number of realised and potential benefits of transboundary water cooperation in the CORB (see Table ES1). The qualitative benefit assessment carried in the CORB represented a first step towards characterising the relative importance of the different benefits and their distribution. The process of carrying out the benefits assessment represented a major communication and stakeholder engagement action. The process and results of the CORB benefit assessment have been communicated to the global water community.

**Table ES1. Benefits of transboundary water cooperation (realized and potential) identified through participatory processes in the CORB**

Economic benefits	Social and Environmental Benefits
<ul style="list-style-type: none"> <li>• Strong expansion of tourism sector</li> <li>• Modest expansion of agricultural activities, particularly fishing</li> <li>• Land use improvement</li> <li>• Foreign exchange from tourism sector</li> <li>• Projects in the fields of energy, irrigation and water</li> <li>• Reduced costs of natural disasters due to early warning</li> <li>• Increased value of plots along the river</li> <li>• Decrease in water price</li> </ul>	<ul style="list-style-type: none"> <li>• Employment creation in tourism and related sectors</li> <li>• Improved livelihoods and poverty reduction</li> <li>• Food security</li> <li>• Water transport and recreation benefits</li> <li>• Improvement of drinking water supply</li> <li>• Community cohesion</li> <li>• Exposure to and appreciation of other cultures</li> <li>• Ecosystem integrity conservation by communities</li> <li>• Conservation of biodiversity and delta ecosystem</li> <li>• Maintenance of good water quality in the delta</li> <li>• More collaboration natural resource management</li> <li>• Protection of upstream environment and river flow</li> <li>• Improved control of invasive species</li> </ul>
Regional Economic Integration	Peace and Security Benefits
<ul style="list-style-type: none"> <li>• Investments in research</li> <li>• Investment in road infrastructure</li> <li>• Increased transboundary tourism</li> <li>• Enhancement of bilateral relationships</li> <li>• Increased trans border commercial trade</li> <li>• Sharing of expertise on water management, sustainable tourism and agri-business.</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts avoidance</li> <li>• Increased collaboration in anti-poaching, border controls</li> <li>• Support from the three countries for World Heritage Site declaration of Okavango Delta</li> <li>• Cultural exchange visits</li> <li>• Agreement about a shared vision based on a shared identity</li> <li>• Increased security thanks to rapid alert systems</li> </ul>



Source: Chongica E, R Martin-Hurtado, and R Saraiva. 2017. "CORB Benefit Analysis", presentation delivered at the Basin Workshop "Assessing the Benefits of Transboundary Water Cooperation in the CORB", 10 May 2017.

## The Multi-Sectors Investment Opportunities Analysis (MSIOA)

The MSIOA is part of a systematic strategy by OKACOM to assist the Member States to achieve socially just, economically prosperous and environmentally healthy development of the CORB. The MSIOA framework facilitates the process to agree on the balance between development and ensuring the long-term safety and functioning of the natural assets which exist in the CORB. The MSIOA builds and compares different "scenarios" that combine a range of investment projects. In addition to economic return and environmental impact, the scenarios are evaluated taking account the social impact of the programme of investments, as well as climate resilience. The MSIOA does not provide a preferred scenario; rather, it provides information and a framework to facilitate decisions.



**“The existence of OKACOM as a platform for cooperation has been key to realise past and current benefits.”**

The MSIOA recommends the adoption of three basin-wide strategic development programmes:

- (i) a Livelihood Enhancement Program, that would support low regret measures needed to address underlying drivers of poverty through programmatic approaches to ensure continuous improvements;
- (ii) a Tourism Investment Framework, that would facilitate extending private sector investment from the Delta into the whole Basin and would include mechanisms to distribute benefits to address local needs, and
- (iii) a Cooperative Infrastructure Development that would include three types of large projects (urban water supply, irrigation and hydropower) and would promote joint regional infrastructure developments to enhance the individual national benefits.

### Conclusions and Recommendations

The existence of OKACOM as a platform for cooperation has been key to realise past and current benefits. Cooperation in the CORB has already generated a range of economic, social and environmental benefits. It has also generated peace and security benefits for all countries, and more than expected. But there are opportunities to deliver more and better distributed benefits, mostly related to regional economic integration. The “no development” option is not an option for the CORB, while there is Development Space to meet development and conservation objectives, if great care is taken in the implementation, sequencing and operation of infrastructures. Realising the potential regional economic integration benefits demands deeper cooperation and a stronger OKACOM platform to facilitate and sustain it.

- 1. Analysis.** Devote more efforts to communicate the benefits of cooperation at different scales; continue and refine the discussion on the benefits of transboundary water cooperation in the CORB; and expand the discussion on the benefits of transboundary water cooperation to the benefits of transboundary cooperation in the basin more generally, beyond water.
- 2. Planning.** Evaluate how transboundary water cooperation objectives are currently reflected in national plans, programmes and projects; integrate the findings of the benefit assessment into national and sectoral planning processes; and move towards integrated basin planning.
- 3. Institutional development.** Expand the mandate and capacity of OKACOM to ensure that the tangible benefits of transboundary basin cooperation are realized. This will require actions on three fronts:
  - Consider including other government ministries and agencies, in particular finance, planning and economic development, in OKACOM in order to embrace the change of focus from narrower transboundary water cooperation to wider transboundary basin cooperation;
  - Reflect on the extent to which current institutional arrangements are conducive to benefit sharing, and implement reforms as needed; and
  - Identify basin-level mechanisms (such as a water allocation mechanism or a universal project notification procedure) that need to be developed to achieve the agreed transboundary cooperation objectives, in complementarity to existing national processes.
- 4. Investments.** Develop and implement livelihood improvement programmes as soon as possible and ensure that cooperative responses from the Member States will perform satisfactorily across a wide range of possible climate scenarios.



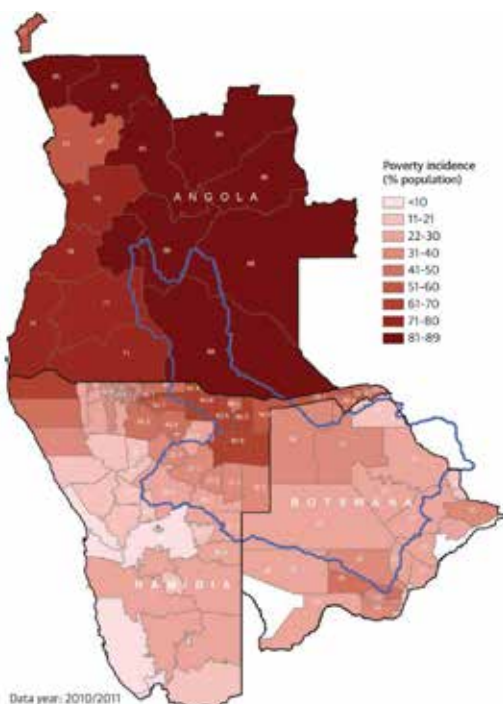
## 1. Setting the Stage

**Successful cooperative management of the world’s transboundary basins is key for achieving the Sustainable Development Goals (SDGs).** Transboundary basins provide drinking and domestic water to about 2 billion people worldwide, support irrigation for agriculture, enable industries to function, generate electricity and conserve ecosystems. Today, these transboundary water resources are under pressure from growing populations, unsustainable development patterns and climate change impacts, making cooperation over their management vital. Nevertheless, many obstacles can prevent countries from strengthening or embracing effective joint management of transboundary waters or can delay this process. These include differing level of socioeconomic development and institutional capacity, diverging priorities, or conflicting policies, but also an incomplete or biased perception of the benefits that could be achieved by cooperating with their neighbours<sup>1</sup>.

**The Cubango-Okavango river basin (CORB) has a high environmental value.** This is particularly true of the Okavango Delta, which is of global environmental and biodiversity importance. It is, for example, home to 80 species of fish, 115 species of mammals and over 500 species of birds. The Okavango Delta clearly has immense value, both locally and globally, and in recognition of this has been declared both a RAMSAR and World Heritage Site.

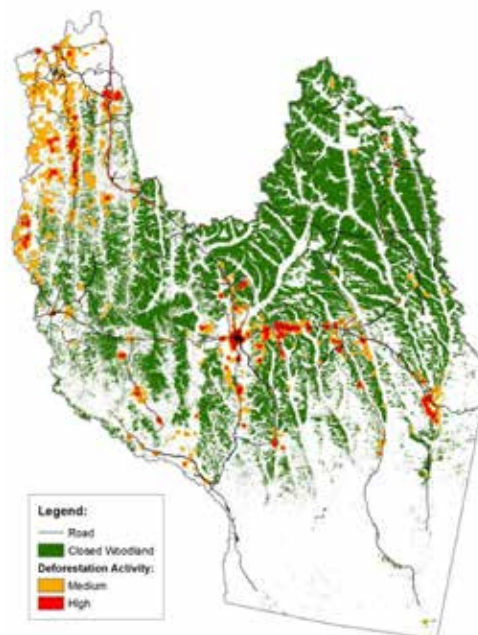
**The CORB suffers high levels of poverty.** While Angola, Botswana and Namibia are classified as Upper Middle-Income countries, they have very high levels of income inequality, and some of the higher poverty incidences in each country are to be found in the basin (see Figure 1a). As documented in the transboundary diagnostic analysis (TDA), in general, the people of the basin are poorer, less healthy and less well educated than other groups in their respective countries. Well over 50% of the population in the basin lives at “livelihood level” – 75% in the case of Angola, 54% in the case of Botswana and 60% in the case of Namibia.

**Figure 1a. Poverty incidence in the CORB**



Source: World Bank. MSIOA.

**Figure 1b. Deforestation activity in the upper CORB**



<sup>1</sup> Policy Guidance Note on the Benefits of Transboundary Water Cooperation – Identification, Assessment and Communication, United Nations, New York and Geneva, 2015.



**“The CORB faces large uncertainties regarding climate change.”**

**The CORB is still relatively environmentally pristine, but this will not last.** Botswana has followed a policy of protecting the Delta and is committed to uphold it. But in the upper reaches of the basin, which have been protected by limited development in Angola (partly due to the civil war), rising poverty is progressively undermining current environmental conditions. The threat of poverty-induced catchment degradation is greatest in the north-west part of the upper basin (see Figure 1b), an area which has long been densely populated and is hydrologically sensitive because of high levels of rainfall. A sub-study carried out under the MSIOA shows that the annual rate of deforestation almost doubled in 2013-2015 as compared with the previous four years, and that without specific initiatives to introduce sustainable livelihoods, the study area could be totally denuded of closed woodland in 88 years.

**Possible threats to the CORB’s health are becoming very real with the need for development of riparian countries.** Each of the three Member States which share the CORB have national development objectives to grow their economies and to meet the needs of their peoples, with water resource management being a key contributor to growth in the productive parts of their respective economies (see Box 1). The CORB straddles the north / south divide between sub-tropical and arid zones in Southern Africa resulting in pronounced asymmetries in the distribution of water resources.

**Box 1. Water and development in the CORB countries**

**Angola** has ambitious economic development plans and has recently experience high levels of economic growth during the recent period of high international oil prices. The development of the Angolan part of the Basin is directed by the comprehensive Plano Geral (2014) and includes urban and industrial development, irrigated agriculture of up to 185,000 ha and around 400 megawatts of hydropower. The Government also plans to develop mineral resources within the Basin and to expand manufacturing to process inputs from agriculture and mining. Growth in the service sector is expected to come from a wide range of activities, including tourism, transport, finance and commerce.

**Namibia** relies on the Kavango River as the only perennial source of water that flows across national territory. The river is currently used for tourism, urban water supply (particularly Rundu and Divundu) and irrigation. There are already around 2,500 ha of irrigated crop production under the “Green Scheme” concept, with the intention of expanding this to 16,000 ha. Associated processing, marketing and transport services are expected to expand, along with higher levels of tourism. The Basin is central to plans for securing future water supply for the Central Areas of Namibia, particularly Windhoek, the country’s primary economic and administrative urban centre. In addition to applying one of the world’s most efficient demand management and water re-use systems, water transferred from the CORB is one of two options under consideration, the other being the possible use of desalinated sea water

**Botswana** is committed to the sustainability of the Okavango Delta through the RAMSAR and World Heritage site designations. Most of the economic benefit currently derived from the Basin is through the low volume, high value nature-based tourism in and around the Okavango Delta. Future development options are largely focused on safeguarding and increasing the benefits derived from tourism and ensuring more equitable distribution of the benefits. In the wider Basin, there are investment projects in other sectors which could require water from the CORB, notably the mining sector.

Source: World Bank. 2019. “The Cubango-Okavango River Basin Multi-Sector Investment Opportunities Analysis: Summary Report.”

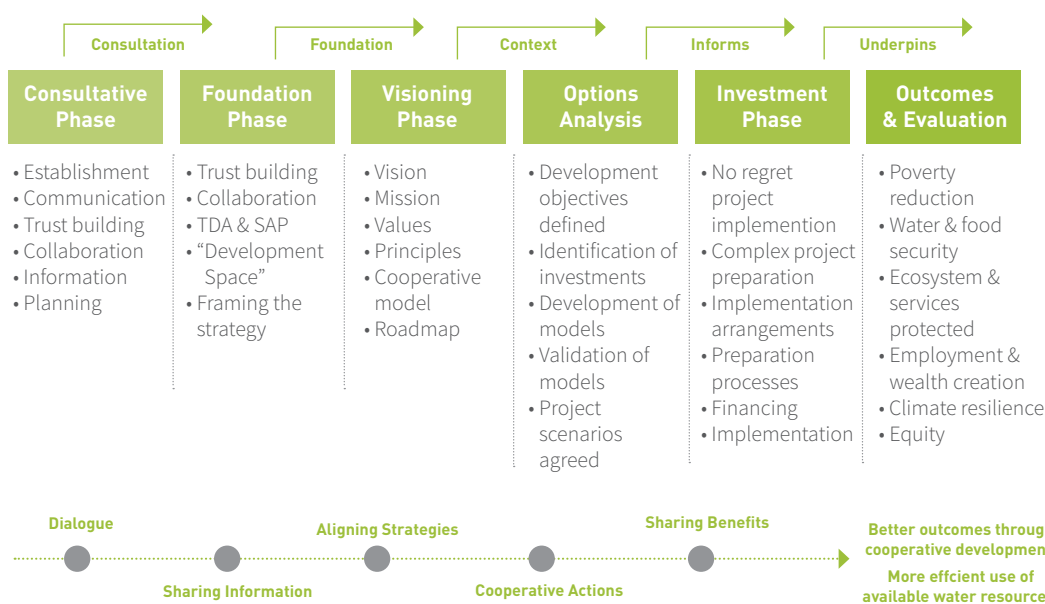
**The CORB faces large uncertainties regarding climate change.** Future climate projections for the CORB reveal wide variation in the range of plausible future climate conditions up to 2050<sup>2</sup>. These projections show consensus regarding a systematic overall rise in temperature of 1°C to 3°C, with wide ranging variation in predictions of future precipitation compared to the historical record.

<sup>2</sup> Cervigni, Raffaello; Liden, Rikard; Neumann, James E.; Strzepek, Kenneth M. 2015. Enhancing the Climate Resilience of Africa’s Infrastructure: The Power and Water Sectors. Africa Development Forum, Washington, DC: World Bank.

**Angola, Botswana and Namibia have been cooperating in the knowledge and management of the CORB in the framework of OKACOM for over 20 years.** This cooperation process has followed several phases, which can be characterised as “consultative”, “foundation”, “visioning” and “options analysis” (see Figure 2). That cooperation has provided a solid foundation for facilitating communication between Member States, trust building, and joint processes to understand and agree on the complex interactions between among states as well as the bio-geophysical and socio-economic drivers that characterise the basin. Important outputs of these phases include the Transboundary Diagnostic Analysis (TDA), the Strategic Action Programme (SAP), a visioning exercise, a benefit assessment, and a multi-sector investment opportunity analysis. The “options analysis” phase is not yet complete, and it should be followed by “investment” and “outcomes and evaluation” phases.

**The CORB has an agreed policy framework document that lays down the principles for the development of the basin and improvements of the livelihoods of its people through the cooperative management of the basin and its shared natural resources.** The Strategic Action Programme is a mid-term planning document that is designed for voluntary adherence by the Member States. Its contents are supported by and in accordance with their national development plans and the National Action Plans (NAPs) that have been developed in parallel with the SAP. Implementation of the SAP is the responsibility of the basin states independently as component of their NAPs, and collectively as part of OKACOM.

**Figure 2. Institutional “phased” development in the CORB**



Source: World Bank





**“Building on the long history of cooperation in the basin, it is important to ensure that moving forward to realise the Vision serves to re-enforce the cooperative spirit among the Member States ”**

## 2. The Benefits of Transboundary Water Cooperation in the CORB



**The CORB is at the forefront of identifying and assessing the benefits of transboundary water cooperation.** The Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) adopted the *Policy Guidance Note on the Benefits of Transboundary Water Cooperation – Identification, Assessment and Communication* (UNECE, 2015). The *Policy Guidance Note* offers guidance about how to carry out benefit assessments, to help riparian countries move from perception to facts regarding what they can gain from strengthening cooperation about their shared waters. The CORB is one of the three basins where the *Policy Guidance Note* has been applied. The experience of the CORB and the other two basins has been analysed in the publication *Identifying, Assessing and Communicating the Benefits of Transboundary Water Cooperation* (UNECE, 2018), which identifies a series of lessons learned and recommendations to help inform the design and implementation of future benefit assessment exercises.

**The benefits assessment in the CORB was an initiative led by OKACOM implemented in partnership with the World Bank, DfID and the Water Convention Secretariat.** Prompted by discussions on the benefits of transboundary water cooperation within the Water Convention framework, the OKACOM Secretariat commissioned in 2015 a scoping paper<sup>3</sup> on the benefits of transboundary cooperation in the CORB. The scoping paper, building on literature review analysis and discussions with OKACOM Secretariat, included a quick identification of benefits and beneficiaries and a proposal for the development of a full benefit assessment. The scoping paper was well received at the annual meeting of the OKACOM Commissioners in 2015 and a few months later OKACOM obtained support from the World Bank for the development of a benefit assessment. The objective of the benefit assessment was “to gain a clear understanding of the full range of benefits of transboundary water cooperation in the CORB to date, leading to enhanced cooperation and contributing to the realisation of the Basin Vision”. The World Bank mobilized Cooperation for International Waters in Africa (CIWA) funds to develop both a MSIOA and the benefit assessment. Further funds were mobilised from the Department for International Development (DfID)-funded Climate Resilience Investment Development Facility (CRIDF) to engage three national consultants (one per country) to carry out national identification of benefits of cooperation, while the Water Convention Secretariat was invited to contribute to the process by providing technical guidance.

**The benefit assessment in the CORB follows a unique participatory methodology.** The development of the benefit assessment included an initial meeting of the partners to agree on the approach in February 2016, the development of methodological guidance to be used by the national consultants to identify and qualitatively assess the benefits of cooperation in each country (included an interview guide), the organisation of three country workshops in the basin (one per country), stakeholder perception surveys consisting in series of consultations and/or interviews with key national stakeholders and sectors in the three capital cities, the drafting of three national perspective reports, a second meeting of the partners to review the results of the national perspective papers, and the organisation of a basin workshop gathering representatives from the 3 countries and from different sectors to discuss the findings of the benefit assessment in May 2017.

<sup>3</sup> Martin-Hurtado R. “The benefits of transboundary cooperation in the Cubango-Okavango River Basin – Scoping a Benefit Assessment Exercise”. OKACOM Discussion Paper Series, Discussion Paper 2015/2. May 2015.

**Table 1. Stakeholders engaged in the benefit assessment, classified by stakeholders group**

<b>National Ministries and Agencies</b>	<ul style="list-style-type: none"> <li>• Ministry of Foreign Affairs and International Cooperation (Botswana)</li> <li>• Department of Water Affairs (Botswana)</li> <li>• Department of Environmental Affairs (Botswana)</li> <li>• Department of Tourism (Botswana)</li> <li>• Ministry of Energy and Water (Angola)</li> <li>• Ministry of Environment (Angola)</li> <li>• Ministry of Agriculture and Forestry (Angola)</li> <li>• National Institute of Meteorology and Geophysics (Angola)</li> <li>• Ministry of Environment and Tourism (Namibia)</li> <li>• Directorates of Water Resources Management and of Forestry of the Ministry of Agriculture, Water and Forestry (Namibia)</li> <li>• Ministry of Fisheries and Marine Resources (Namibia)</li> </ul>
<b>Local Authorities and Agencies</b>	<ul style="list-style-type: none"> <li>• Local Department of Water Affairs (Botswana)</li> <li>• Local Department of Environmental Affairs (Botswana)</li> <li>• Okavango Wetlands Management Committee</li> <li>• Shambyu Traditional Authority (Namibia)</li> </ul>
<b>Water Users, Economic Sectors</b>	<ul style="list-style-type: none"> <li>• Tourism operators (Botswana)</li> <li>• Tourism Association of Botswana</li> <li>• Okavango Basin Tourist Development Pole (Angola)</li> <li>• National Electricity Transport Network (Angola)</li> <li>• Agriculture Business Development Agency (Namibia)</li> <li>• Agro-Marketing and Trade Agency (Namibia)</li> <li>• Namibia Water Corporation</li> </ul>
<b>Civil Society and Academy</b>	<ul style="list-style-type: none"> <li>• University of Botswana</li> <li>• Global Water Partnership – Botswana</li> <li>• Association for the Conservation of the Environment and for Rural Integrated Development (Angola)</li> </ul>
<b>Regional Organizations</b>	<ul style="list-style-type: none"> <li>• Permanent Okavango River Basin Water Commission Technical and financial partners</li> <li>• Secretariat of the Water Convention, UNECE</li> <li>• World Bank</li> <li>• CRIDF</li> <li>• Southern Africa Regional Environmental Programme</li> </ul>

Note: Some names of institutions have changed since the benefit assessment was carried out.

Source: UNECE. 2018. *Identifying, Assessing and Communicating the Benefits of Transboundary Water Cooperation*. United Nations: New York and Geneva.

Participants in the benefit assessment exercise identified a large number of realised and potential benefits of transboundary water cooperation in the CORB. The scoping exercise identified benefits related to tourism (including economic growth, employment, tax-revenue or cross-border investments), security for investors regarding water entitlements, access to water and sanitation services, sustainable livelihoods, biodiversity conservation, closer trade links, and reduced risk of conflict. The participatory identification of benefits also highlighted, among others, benefits related to food security, community cohesion, or security thanks to early warning systems. The benefits were classified following the typology developed in the framework of the Water Convention (see Table 2).





**Table 2. Benefits of transboundary water cooperation (realized and potential) identified through participatory processes in the CORB**

Economic Benefits	Social and Environmental Benefits
<ul style="list-style-type: none"> <li>• Strong expansion of tourism sector</li> <li>• Modest expansion of agricultural activities, particularly fishing</li> <li>• Land use improvement</li> <li>• Foreign exchange from tourism sector</li> <li>• Projects in the fields of energy, irrigation and water</li> <li>• Reduced costs of natural disasters due to early warning</li> <li>• Increased value of plots along the river</li> <li>• Decrease in water price</li> </ul>	<ul style="list-style-type: none"> <li>• Employment creation in tourism and related sectors</li> <li>• Improved livelihoods and poverty reduction</li> <li>• Food security</li> <li>• Water transport and recreation benefits</li> <li>• Improvement of drinking water supply</li> <li>• Community cohesion</li> <li>• Exposure to and appreciation of other cultures</li> <li>• Ecosystem integrity conservation by communities</li> <li>• Conservation of biodiversity and delta ecosystem</li> <li>• Maintenance of good water quality in the delta</li> <li>• More collaboration natural resource management</li> <li>• Protection of upstream environment and river flow</li> <li>• Improved control of invasive species</li> </ul>
Regional Economic Integration	Peace and Security Benefits
<ul style="list-style-type: none"> <li>• Investments in research</li> <li>• Investment in road infrastructure</li> <li>• Increased transboundary tourism</li> <li>• Enhancement of bilateral relationships</li> <li>• Increased trans border commercial trade</li> <li>• Sharing of expertise on water management, sustainable tourism and agri-business.</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts avoidance</li> <li>• Increased collaboration in anti-poaching, border controls</li> <li>• Support from the three countries for World Heritage Site declaration of Okavango Delta</li> <li>• Cultural exchange visits</li> <li>• Agreement about a shared vision based on a shared identity</li> <li>• Increased security thanks to rapid alert systems</li> </ul>

Source: Chongica E, R Martin-Hurtado, and R Saraiva. 2017. "CORB Benefit Analysis", presentation delivered at the Basin Workshop Assessing the Benefits of Transboundary Water Cooperation in the CORB, 10 May 2017.

The qualitative benefit assessment carried in the CORB represent a first step towards characterising the relative importance of the different benefits and their distribution. The methodology developed to guide the development of the benefits assessment included a qualitative assessment of the different benefits identified through a ranking exercise of the benefits of cooperation. The ranking exercise was carried out through the interviews with key national stakeholders and the country workshops (for local basin stakeholders). Box 2 explains how the ranking exercise was carried out during the Namibia workshop. In Botswana, the ranking of the benefits proved quite difficult during interviews but worked quite well during the workshop. Quantification was limited to the Botswana perspectives paper, which included statistics on tourism revenues and the findings of a previous economic valuation study (developed as part of the TDA). At the country workshops, the participants were asked to identify benefits for their own country, but also to identify benefits for other countries.

**Box 2. Qualitative assessment of benefits of cooperation in the Cubango-Okavango River Basin**

The benefit assessment of the CORB relied to a large extent on national perspective papers, which were mostly building on the outcomes of national workshops. During the Namibia workshop, stakeholders were initially asked to identify benefits of cooperation, categorize them according to the Water Convention typology and indicate to which periods of the CORB cooperation process: before OKACOM was established, before the OKACOM Secretariat was established, the recent years, or the future. Stakeholders were also asked to rank the importance of the individual benefits through a voting mechanism. Stakeholders also identified whether actions for the realization of the benefits are mostly dependent on decision by policy-makers or whether they are mostly under their own control.

Source: Honsbein D. 2016. Benefit Analysis for the Cubango-Okavango River Basin (CORB) – Country report Namibia. Report commissioned by CRIDF.

The process of carrying out the benefits assessment represented a major communication and stakeholder engagement action. Dozens of relevant decision-makers -- from different sectors and decision-making levels -- and stakeholders took part in the interviews and/or in the national workshops. Moreover, the interim results were presented to the basin Commissioners, to stakeholders taking part in MSIOA workshops, and were discussed at the basin workshop. It has proven useful to engage actors not usually involved in transboundary water management, such as the tourism sector. However, more efforts could be devoted to communicating the results of the benefit assessment at the national level.

The process and results of the CORB benefit assessment have been communicated to the global water community through its inclusion in a publication of the Water Convention, as well as a presentation at the eight session of the Meeting of the Parties to the Water Convention that took place in Nur-Sultan (Kazakhstan) in October 2018.





“The result of the MSIOA puts figures to the trade-offs between economic return, health of the river, social justice, and climate resilience.”

### 3. The Multi-Sector Investment Opportunity Analysis (MSIOA)

The MSIOA is part of a systematic strategy by OKACOM aiming to assist the Member States to achieve socially just, economically prosperous, and environmentally healthy development of the CORB. This is being pursued through the formulation of a Sustainable and Equitable Climate Resilient Investment Program that builds on the long history of cooperation and the foundations provided by the Transboundary Diagnostic Analysis and the Strategic Action Plan. The MSIOA is intended to assist OKACOM and the Member States by providing the tools needed to examine the implications of different development options and to identify a range of possible solutions to balance the different interests.

#### The MSIOA had three objectives

- (i) assist OKACOM and the riparian states to identify infrastructure investment projects which will catalyse social and economic development in the basin,
- (ii) propose ways in which collaborative effort can assist in meeting national development objectives, while facilitating overall economic and environmental sustainability within the basin, particularly the conservation of the Delta, and
- (iii) examine the concept of the “development space” within which agreement can be reached on strategic development trade-offs.

Figure 3. Potential urban, agricultural and dam developments in the CORB



Source: World Bank. 2019. “The Cubango-Okavango River Basin Multi-Sector Investment Opportunities Analysis: Summary Report.”



The MSIOA compares different “scenarios”. Scenarios are internally consistent combinations of investment options that allow for comparison among different combinations of potential projects. The scenarios analysed in the CORB consist of a mix of livelihoods, irrigation, tourism, water supply and hydropower projects. These scenarios were identified through a process of review, consultation and validation with a broad range of sectoral stakeholders within each of the Member States. The projects come from national plans, with informed assumptions about associated water requirements and costs.

**Table 3. Basin development scenarios analysed in the MSIOA (all building on the Improved Livelihoods scenario)**

<b>IL</b>	Includes the provision of water for domestic use, hygiene, livestock, and subsistence agriculture, based on an average quantity of 70 liters per person per day.
<b>BDS1</b>	Analyses the addition of the CAN abstraction to the improved livelihoods project scenario.
<b>BDS2</b>	Includes 66,720 ha of irrigation (55,060 ha in Angola, 11,660 ha in Namibia; total abstraction 698 million m <sup>3</sup> /year), with the Malobasdam (40 megawatts) on the Cubango River in Angola.
<b>BDS3</b>	Same as BDS2 but includes Mucundidam (105 megawatts) on the Cubango River in Angola.
<b>BDS4</b>	Same as BDS2 but includes Cuito Cuanavale dam (12 megawatts) to examine the downstream consequences of development on the Cuito River tributary.
<b>BDS5</b>	Includes a higher level of irrigation (131,685 ha, of which: 120,525 ha in Angola and 11,660 ha in Namibia; total abstraction 1,559 million m <sup>3</sup> /year) together with the Cavango and Malobas dams (51 megawatts).
<b>BDS6</b>	Same as BDS5 but includes all four dams with a total of 168 megawatts.
<b>BDS7</b>	Includes 222,261 ha of irrigation (total abstraction: 2,542 million m <sup>3</sup> /year) plus the Cavango and Malobas dams with a total of 51 megawatts.
<b>BDS8</b>	Includes 302,701 ha of irrigation (total abstraction: 3,557 million m <sup>3</sup> /year) plus the Cavango and Malobas dams with a total of 51 megawatts.
<b>BDS9</b>	Was defined after discussions with stakeholders at the National Workshops held in July-August 2016. The level of irrigation is intermediate between BDS2-BDS4 and BDS5-BDS6 (100,660 ha; of which 87,500 ha is in Angola, 11,160 ha in Namibia and 2,000 ha in the panhandle area of Botswana). It also includes an inter-basin transfer within Angola of water from the Cubango to the Cuvelai rivers. All 4 dams are included in this scenario (1687 megawatts). Total abstraction: 1,301 million m <sup>3</sup> /year.
<b>BDS10</b>	Same as BDS9 but includes simulated drying as a climate change scenario.

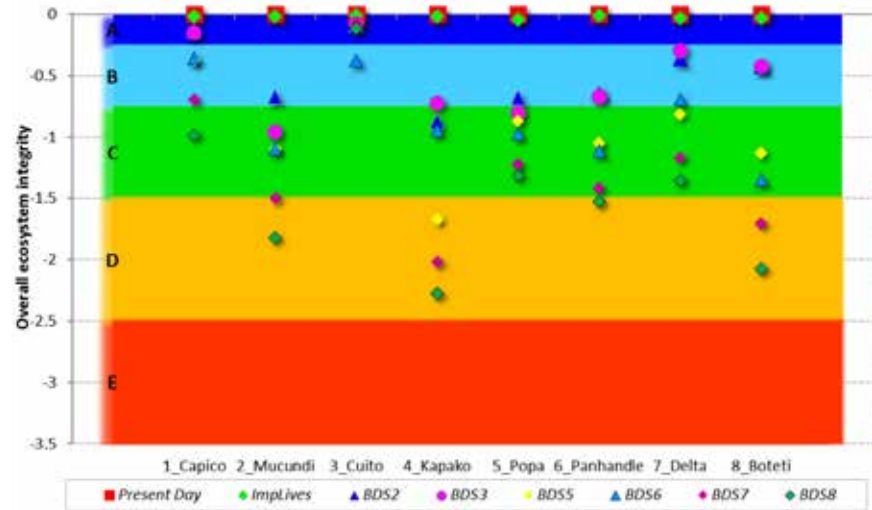


The MSIOA does not provide a preferred scenario, but information and a framework to facilitate decisions. It offers (i) insights on the implications on immediate tributaries and further downstream of different types of developments; (ii) guidance on what types and levels of investment can be reasonably undertaken in different parts of the Basin, and (iii) a framework for Member States, through OKACOM, to follow the developments of neighbours and have a constructive dialogue on how best to further common interests, share benefits and achieve equitable outcomes. The MSIOA leaves the judgment about acceptable limits on environmental damage to decision makers -- the level of development decided upon by the decision makers in the three Member States will determine the cost and the value of returns, and the level of acceptable environmental impact.



**“The accumulated impact of this Improved Livelihoods programme would have no material impact on the river flow in the Basin – less than 1%.”**

**Figure 4. Expected ecosystem integrity at different measuring points after the implementation of different scenarios**



Source: MSIOA

The MSIOA framework facilitates the process to agree on the balance between development and ensuring the long-term safety and functioning of the natural assets which exist in the CORB. The MSIOA determined the current status of the health of the river and modelled the likely impacts on the health of the river of various development options. The health of the river is measured in terms of Environmental Flows -- the quantity, timing and quality of water flows necessary to sustain dependent ecosystems, and the human livelihoods and well-being that depend on these ecosystems. The ecological status of the river habitat was categorised in six categories ranging from an unmodified natural condition (Category A) to a critically modified condition with almost complete loss of natural habitat and biota (Category F) in which basic ecosystem functions have been destroyed and the changes are irreversible.

In addition to economic return and environmental impact, the MSIOA also takes into account the social impact of the programme of investments in the different scenarios. The CORB Vision Statement includes the promotion of Social Justice as part of the long-term preferred future for the people of the Basin. The MSIOA developed a Social Justice Index which encompasses various measures of livelihood improvements within the framework for the SDGs, including measures on public health benefits of urban water, employee income in irrigation schemes, and the economic value of electricity not captured in tariffs charged to electricity consumers. A further indicator of social justice and the reduction of poverty is the extent to which investments in growth sectors of the economy such as agriculture, create direct and indirect waged employment -- this is also measured in the modelling.

The MSIOA strongly supports the development of an Improved Livelihoods programme. In addition to the large-scale development projects identified in national plans, a programme to invest in rural livelihoods was analysed which included providing water for domestic use (drinking, cooking etc.), hygiene, livestock, and subsistence agriculture (community gardens), based on an average quantity of 70 litres per person per day. The accumulated impact of this Improved Livelihoods programme would have no material impact on the river flow in the Basin – less than 1%. The programme would target over 840,000 people, of which over 600,000 located in Angola.

The result of the MSIOA puts figures to the trade-offs between economic return, health of the river, social justice, and climate resilience. The scenarios broadly reflect increasing complexity with increased numbers of development projects. This generally results in increased financial and social values resulting from the investments, and declining environmental values as the levels of abstraction from the system increases. As no feasibility or pre-feasibility studies were available from which to draw verified data, the results produced, particularly the financial and economic numbers, represent orders of magnitude rather than definite numerical “answers”.

The MSIOA recommends the adoption of a three basin-wide strategic development programmes. They include:

- **Livelihood Enhancement Program**, supporting low regret measures needed to address underlying drivers of poverty through programmatic approaches to ensure continuous improvements. It provides a relatively short-term intervention that can build on existing initiatives to provide quick returns in addressing the underlying drivers of poverty. These no regret measures can be used to demonstrate the proof of concept for longer-term sustained initiatives under a dedicated endowment fund.
- **Tourism Investment Framework**, which has the potential to leverage private sector investment provided adequate frameworks are in place to provide secure access to land; these need to be extended from the Delta into the whole Basin with mechanisms to distribute benefits to address local needs. It provides an illustration of how the OKACOM could facilitate the mobilization of private sector resources by creating an appropriate enabling environment. Guiding private sector investments with efforts to extend the distribution of benefits would help consolidate the cooperative venture among the Member States and create positive re-enforcements for the sustainability of the system.
- **Cooperative Infrastructure Development**. There are three types of large projects which were identified at a conceptual level in the analysis – urban water supply, irrigation and hydropower. Joint regional infrastructure developments can enhance the individual national benefits. The development of cooperative infrastructure developments, such as the Mucundi Dam, can provide a mechanism to address the development needs within the basin within a sustainable framework and consolidate the cooperative venture among the Member States. Careful design, informed by sound scientific information and appropriate institutional oversight mechanisms, can ensure sustained benefits for all three of the Member States.

**Box 2. Costing and financing the investment programmes suggested by the MSIOA**

**Livelihood Enhancement Programme.** Mobilisation of a USD 80 to 100 million or more in project financing could sustain a basin wide livelihood enhancement program over a 3 to 5-year period in parallel to the establishment of a dedicated endowment fund. An endowment of USD100m or more would then allow for a sustained investment of between USD 5 to 10 million a year in perpetuity to enhance government programs in priority areas of each of the Member States.

**Tourism Investment Framework.** A structured program with dedicated Transaction Advisors to facilitate a concession arrangement, with specific provisions that extend the benefits of tourism, could be implemented within the framework of the Strategic Action Plan for the basin. A number of sources of financing are available to support the formulation of such a process and this could be expedited over 12 to 18 months for less than USD1 million to define the framework for realising tangible investments in tourism development within the basin.

**Cooperative Infrastructure Development.** For a project of the type and size of the Mucundi Dam, initial project scoping or pre-feasibility study could cost in the order of US\$1 million to US\$2 million and take 1 to 2 years. The next step in project formulation would require a detailed feasibility study and environmental and social impact assessment, which typically cost in the order US\$6 million to US\$8 million for a project of this nature and could take another 1 to 2 years to complete. Based on the outcome of the feasibility studies project development could be carried out under various models, but a traditional detailed design and supervision approach, with one year for the detailed design and procurement, followed by supervision of the construction period over a 4 to 6 year period could require \$25-\$30 million in consultants services for construction and commissioning of a project with total capital cost of \$385 million (the figure estimated for use in the MSIOA models, but subject to revision once full studies have been completed). There are various financing options to support the preparatory work, with various grant financing mechanisms available to facilitate innovative transboundary projects.



Source: MSIOA



**“The only sustainable solution is to address the underlying drivers of poverty through targeted investments that can improve the lives of the Basin population within ecologically acceptable limits of change.”**

## 4. Conclusions and Recommendations

**Realising the recommendations of the MSIOA requires an iterative process of robust interrogation by the Member States with important implications for the future evolution of the institutional arrangements in the basin.** Building on the long history of cooperation in the basin, it is important to ensure that moving forward to realise the Vision serves to re-enforce the cooperative spirit among the Member States and does not detract from their proven capabilities of maintaining trust and good relations in pursuit of shared, sustainable prosperity.

### Conclusions

**Cooperation in the CORB has already generated a range of economic, social and environmental benefits.** Those benefits vary across scales – local (poverty alleviation in Namibia, water quality improvements in Botswana), national (environmental quality, revenue generation) and global (preservation of unique habitats). They also vary across countries -- with Angola gaining knowledge for decision-making, Namibia generating revenue in agriculture and mining and Botswana benefiting from tourism development. More benefits may have accrued than the ones identified in this policy report -- the benefit assessment carried out was based on consultations and was not exhaustive.

**Cooperation in the CORB has also generated peace and security benefits for all countries, and more than expected.** The relationships and trust between the three countries have improved dramatically, generating peace and security benefits through avoidance of possible conflicts. OKACOM has proven a useful framework to discuss and negotiate developments. There are also examples of security benefits from positive action, such as adaptation to extreme weather events and disease control.

**There are opportunities to deliver more and better distributed benefits, mostly related to regional economic integration.** These include increase in trade of goods, development of transnational infrastructure (roads, re-scoping of Mucundi dam), and investments in irrigation, hydropower or tourism sectors (whether projects in one country benefiting from international knowledge exchange, joint projects in one country by investors from different countries, or cross-border projects). There is a recognition among stakeholders from Botswana and Namibia that Angola has benefited less and has a “right to develop”.

**The existence of OKACOM as a platform for cooperation has been a key to realise past and current benefits.** Cooperation in the CORB generates benefits in a cascade. Early cooperation focused on environmental benefits; securing those environmental benefits requires realising economic and social benefits; the trust build working together has generated peace and security benefits and paved the way for future regional economic integration benefits. OKACOM has helped to raise the profile of the basin and its development challenges, attracted resources, and through knowledge generation and trust building accelerated the maturity and success of cooperation.

**The “no development” option is not an option for the CORB.** Lack of development is already leading to high levels of poverty and increasing degradation of the Basin. The only sustainable solution is to address the underlying drivers of poverty through targeted investments that can improve the lives of the Basin population within ecologically acceptable limits of change.

**There is Development Space in the CORB to meet development and conservation objectives if great care is taken in the implementation, sequencing and operation of infrastructure.** The MSIOA indicates that there is considerable scope for investments in livelihoods, agriculture, tourism and energy production in the CORB, without compromising the environmental assets of the Basin to a too great an extent.

**Realising the potential regional economic integration benefits demands deeper cooperation and a stronger OKACOM platform to facilitate and sustain it.** Member States would benefit from a cooperation platform that continues to facilitate knowledge creation and management but that is also able to facilitate coherent basin planning across Member States and the implementation of agreed basin-wide policies. The SAP and the MSIOA exercises provide a good basis, but also show the limits of the current institutional model – including the capacity of OKACOM to advise Member States on how to integrate agreed basin-wide

principles, objectives and policies in national development processes. Facilitating the development and implementation of, for example, a basin-wide water allocation policy or prior informed consent of water-related projects would require a substantial rethinking of OKACOM mandate and capacities.

## Recommendations

1. **Devote more efforts to communicate the benefits of cooperation at different scales.** The participatory nature of the recent benefit assessment made it an efficient communication tool. The results have been effectively communicated to the international community. But the number of participants in the benefit assessment was necessarily limited, and personnel in institutions often move. Thus, there is a need to communicate more broadly the benefits of water cooperation to national level stakeholders and basin populations.
2. **Continue and refine the discussion on the benefits of transboundary water cooperation in the CORB.** Currently there is not enough information to substantiate the relative importance of benefits at different levels. A better understanding of the size of the different types of benefits, the sources of those benefits, how different stakeholders benefit, and how combining different activities can maximise joint benefits would be helpful to inform policy and investment decisions. Moreover, perspectives on potential benefits will evolve overtime, as environmental conditions and socio-economic development change. One option is to keep a standing item on the benefits of transboundary water cooperation during the annual meetings of the Okavango Basin Steering Committee (OBSC).
3. **Expand the discussion on the benefits of transboundary water cooperation to the benefits of transboundary cooperation in the basin more generally.** This would imply to consider all projects within the basin that have a transboundary impact as well as cross-border projects, irrespective of the sector. This will allow to widen the scope for analysing cooperation options and trade-offs, optimising benefits within the basin, and sharing benefits among the three Member States.
4. **Evaluate how transboundary water cooperation objectives are currently reflected in national plans, programmes, and projects.** Significant analytical and planning efforts have been carried out at basin level, including the development of the Strategic Action Programme. But currently all implementation responsibilities lay with the three Member States. This means that knowing what progress has been made in translating transboundary water cooperation objectives into national processes is of utmost importance. This evaluation could be carried out independently by each Member State and shared with the other Member States, or the OKACOM Secretariat could be mandated and resourced to carry it out. To be most useful, this evaluation should be carried out regularly, for example every three years.
5. **Integrate the findings of the benefit assessment into national and sectoral planning processes.** The benefit assessment was carried out formally as a stand-alone exercise but was conceived as part of that suite of analytical and planning efforts. Its findings need to be integrated into decision processes related to the options analysis phase of OKACOM's investment programme. Policy reforms will likely be needed to operationalise benefit sharing among the three Member States.
6. **Move towards integrated basin planning.** Resilient development pathways are needed to optimise the allocation of water in support of the basin and national development plans and avoid constraints on development while enhancing the well-being of the citizens within the basin. This requires the consideration of projects from all sectors that happen in the basin, not just water-related projects.
7. **Expand the mandate and capacity of OKACOM to ensure that the tangible benefits of transboundary basin cooperation are realized.** This will require action on three fronts:
  - consider including other government ministries and agencies in OKACOM, in particular finance and planning and economic development, in order to embrace the change of focus from narrower transboundary water cooperation to wider transboundary basin cooperation;





**“For poverty reduction to be sustainable, it is not sufficient to only implement a set of isolated, stand-alone livelihood projects.”**

- reflect on to what extent current institutional arrangements are conducive to benefit sharing, and implement reforms as needed; and
- identify basin-level mechanisms (such as a water allocation mechanism or a universal project notification procedure) that need to be developed to achieve the agreed transboundary cooperation objectives in complementarity with existing national processes.

**8. Develop and implement livelihood improvement programmes as soon as possible**, especially in the Angolan part of the Basin, where two thirds of the Basin population reside. For poverty reduction to be sustainable, it is not sufficient to only implement a set of isolated, stand-alone livelihood projects. An integrated programme of rural regeneration is required, supported by national policy and public-sector financing that leads to sustainable livelihoods and net positive contributions by rural populations to national economies.

**9. Ensure that cooperative responses from the Member States will perform satisfactorily across a wide range of possible climate scenarios.** The most appropriate set of water management investments may differ significantly depending on what the future holds. Any future plan increasingly needs to address the uncertainties resulting from potential changes in climate. Over-dependence on irrigated food crop production and uneconomic irrigation schemes, which are vulnerable to drought, should be avoided. Large-scale developments should follow phased, adaptive planning -- developments that fit within the lower uncertainty limit could be planned and implemented initially, and as more knowledge becomes available subsequent investments could proceed.







**OKACOM**

*The Permanent Okavango River Basin Water Commission  
Comissão Permanente das Águas da Bacia Hidrográfica do Rio Okavango*

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