





November 2024

Strategic Environmental Assessment for the Cuando River Basin













APPENDICES – VOLUME 2

Foreword

The Cuando River Basin, shared by Angola, Botswana, Namibia, and Zambia, is a vital sub-basin of the greater Zambezi Watercourse, supporting diverse ecosystems, livelihoods, and economic activities across the region. As riparian states strive to harness the basin's potential for sustainable development, it is imperative to balance socio-economic progress with environmental stewardship.

The Strategic Environmental Assessment (SEA) of the Cuando River Basin reinforces our shared vision of fostering resilient ecosystems, securing water resources for present and future generations, and promoting transboundary collaboration. From a strategic point of view, the SEA's alignment to the Strategic Plan of the Zambezi Watercourse (ZSP 2018 – 2040) is critical in ensuring sustainable environment and water resources management. It serves as a crucial tool in ensuring that environmental, social, and economic considerations are integrated into decision-making processes.

The Zambezi Watercourse Commission (ZAMCOM) remains committed to fostering cooperation among riparian states in promoting the sustainable and equitable utilization of shared water resources. This SEA aligns with our collective vision of strengthening resilience, enhancing livelihoods, and safeguarding biodiversity in the region. It provides a science-based assessment of potential impacts, mitigating measures, and opportunities for sustainable development. Importantly, it also provides recommendations for implementation.

I commend the governments of the Republic of Angola, Republic of Botswana, Republic of Namibia, and the Republic of Zambia for their commitment to this important initiative. I also extend my gratitude to our partners, the Kavango-Zambezi Trans-frontier Conservation Area (KAZA TFCA) Secretariat for their technical support and the World Wildlife Fund (WWF), whose financial and technical support has been invaluable in making this initiative a reality.

Through enhanced collaboration, data-driven decision-making, and strategic investments, we can ensure that the Cuando River Basin remains a source of prosperity and environmental integrity for present and future generations.

On behalf of ZAMCOM, I encourage all stakeholders to actively engage with the insights provided in this assessment and to work together toward a sustainable and resilient future for the Cuando River Basin.

Felix M. Ngamlagosi

ZAMCOM EXECUTIVE SECRETARY

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Appendix 1: Vital statistics and scenarios of the CURB countries

Table App 1.1: Selected Statistics for the Angolan part of the CURB and 10 year projection under the assumed medium-low growth scenario.

		Projected 2033	
ANGOLA	Baseline approx 2022	low / medium growth assumed	Notes
Population, health	and social Statistics		
Luina	13,760 (growing at 8,9%)	32,277	Angola pop growth rate 3,2% (World Bank 2022). https://data.worldbank.org/indicator/SP.POP.GROW?locations=AO
Licua	8,300 (growing at 3,8%)	12,051	
Mavinga	33,000 (growing at 3,36%)	45,923	
Rivungo	41,000 (growing at 2,3%)	51,468	
Chipundu	8,595 (Growing at 1,56%)	9,974	
TOTAL population	104,655	151,693	assume growth of 3,9% pa
Unemployment rate %	65	65	29,6% nationally - WB 2022
% HIV AIDS prevalence	2	2	2% nationally
Gender based violence	No data - thought to be low	unlikely to change	
Towns (physical foc	otprint)		
Mavinga	46,076 km²	will expand	
Rivungo	22,610 km²,	will expand	
total land hectares	6,869	9,268	assume 3% expansion p/a
Fuelwood used p/a	104,655	151,693	assume 1kg pp/pd
Fish caught p/a	104,655	151,693	assume 1kg/pp/d
Water used p/a	2,093,100	3,033,860	assume 20l pp/d
other			
ha cropfields	100	135	assume 3% expansion pa
Tourist beds	insignificant	unlikely to change	
Bednight occupancy %	insignificant	ditto	
HWC incidences p/a	Extremely high, unquantified	ditto	
Animal Poaching incidences pa	High, unquantified	ditto	
Illegal logging incidences pa	Unknown	ditto	
Human waste (kg)	68,026	98,600	assume 0,65 kg pp/pd

Table App 1.2: Selected Statistics for the Botswana part of the CURB and 10 year projection under the assumed medium-low growth scenario.

		Projected 2033		
BOTSWANA	Baseline approx 2022	low / medium growth assumed	Notes	
Population, health and social Statistics				
Parakarungu	1,005	1,190	Botswana pop growth rate 1,6 % (World Bank 2022). https://data.worldbank.org/indicator/SP.POP.GROW?locations=AO	
Satau	710	753		
TOTAL population	1,715	1,943	assume growth of 1,6% pa. Nearly everyone in area is urbanised	
Unemployment rate %	21,16	20	Unemployment is high in parakarungu and Satau as these very rural areas. National unemployment rate is 21.16% as of 2021.	
% HIV AIDS prevalence	Chobe average 21,46	22	20,68% nationally	
Gender based violence	No data - est >70%	unlikely to change		
Towns (physical footp	rint - hectares)			
Parakarungu	275	322		
Satau	205	240		
total land hectares	480	562	assume 1,6% expansion p/a	
Fuelwood used p/a	1,715	1,943	assume 1kg pp/pd	
Fish caught p/a	1,715	1,943	assume 1kg/pp/d	
Water used p/a	34,300	38,860	assume 20l pp/d	
other				
ha cropfields	9,800	10,000	assume minor expansion	
Tourist beds	144	unlikely to change	9 camps are located within 10 km of the Cuando River. Average 8 chalets with 2 beds per Chalet	
Bednight occupancy %	75	unlikely to change		
Boats	9	9	Average 1 per camp	
HWC incidences pa	Extremely high, unquantified	unlikely to change		
Animal Poaching incidences pa	High, unquantified	unlikely to change		
Illegal logging incidences pa	Unknown - but minor	unlikely to change		
Human waste (kg)	1,115	1,263	assume 0,65 kg pp/pd	

Table App 1.3: Selected Statistics for the Namibian part of the CURB and 10 year projection under the assumed medium-low growth scenario.

Namibia	Baseline approx 2022	Projected 2033		
		low / medium growth assumed	Notes	
Population, health and social Sta	tistics	<u>'</u>		
Kongola	6,438	7,325	pop growth rate in the area is 1,3 %.	
Other smaller settlements	29,262	33,296		
TOTAL population	35,700	40,621	assume growth of 1,3% pa. urbanisation rate is 2,5% (Zambezi Region)	
Unemployment rate %	37,7	37,7		
% HIV AIDS prevalence	23,7	23,7		
Gender based violence	est 27,5 %	unlikely to change		
Towns (physical footprint - hectares)				
Kongola	286	325	assume about 1,3%	
Other smaller settlements	349	397	as above	
total land hectares	635	722	assume 1,3% expansion p/a	
Fuelwood used p/a	35,700	40,621	assume 1kg pp/pd	
Fish caught p/a	35,700	40,621	assume 1kg/pp/d	
Water used p/a	714,000	812,420	assume 20l pp/d	
other				
ha cropfields	87,460	90,000	assume minor expansion	
Tourist beds	386	400	Assume some expansion	
Bednight occupancy %	22,7	40	Assume improvements	
Boats	15	18	Assume some expansion	
HWC incidences pa	Extremely high, unquantified	unlikely to change		
Animal Poaching incidences pa	High, unquantified	unlikely to change		
Illegal logging incidences pa	Unknown - but minor	unlikely to change		
Human waste (kg)	23,205	26,404	assume 0,65 kg pp/pd	

Table App1.4: Selected Statistics for the Zambian part of the CURB and 10 year projection under the assumed medium-low growth scenario.

ZAMBIA	Baseline approx 2022	Projected 2033		
low / medium growth assumed			Notes	
Population, health ar	nd social Statistics			
Shangombo District	59,725	68,633	National pop growth rate 2,8 % (World Bank 2022). Shangombo distric at 1,4% https://data.worldbank.org/indicator/SP.POP.GROW?locations=AO	
TOTAL population	59,725	68,633	assume growth of 1,4% pa. 80% are rural	
Unemployment rate %	15	15	Unemployment is high in very rural areas. National 13,03% as of 2021.	
% HIV AIDS prevalence	10,6	10,6	11 % nationally	
Gender based violence	high	unlikely to change		
Towns (physical foot	orint - hectares) and selec	ted consumption		
Shangombo District	829,500	953,226	assume growth of 1,4% pa. >80% are rural	
Urban areas	8,000	9,193		
Fuelwood used p/a	59,725	68,633	assume 1kg pp/pd	
Fish caught p/a	59,725	68,633	assume 1kg/pp/d	
Water used p/a	1,194,500	1,372,660	assume 20l pp/d	
other				
ha cropfields	10,000	12,000	Mostly small scale, subsistence, rainfed. assume minor expansion	
Tourist beds	80	unlikely to change	Mostly contract people – a few "genuine" tourists	
Bednight occupancy %	70	unlikely to change		
Forest/timber concessions (ha)	40,000	Probably will increase		
HWC incidences pa	High, unquantified	unlikely to change		
Animal Poaching incidences pa	High, unquantified	unlikely to change		
Illegal logging incidences pa	Unknown - but is a concern	unlikely to change		
Human waste (kg)	38,821	44,611	assume 0,65 kg pp/pd	

Table App 1.5: Combined selected statistics for the CURB and a 10 year projection under the assumed low-medium growth scenario.

Combined	Baseline approx 2022	Projected 2033	profile book		
	1411	low / medium growth assumed	Baseline approx 2022	Projected 2033	Notes
Population, health ar	nd social Statistics				
Angola	104,655	151,693	161,000		assume 3,9 % growth p/a
Botswana	1,715	1,943	3,500		assume 1,6 % growth p/a
Namibia	35,700	40,621	60,130		assume 1,3% growth p/a
Zambia	59,725	68,633	49,700		assume 1,4% growth p/a
TOTAL population	201,795	262,890	274,330		
Towns (physical footp	orint - hectares)				
Angola	6,869	9,268	not quantified	ditto	assume growth of 1,4% pa. >80% are rural
Botswana	480	562	ditto	ditto	
Namibia	635	722	ditto	ditto	
Zambia	8,000	9,193	ditto	ditto	
TOTAL hectares	15,984	19,745	ditto	ditto	
Fuelwood used p/a	201,795	262,890	274,330		assume 1kg pp/pd
Fish caught p/a	201,795	262,890	274,330		assume 1kg/pp/d
Water used litres p/a	4,035,900	5,257,800	5,486,600		assume 20l pp/d
Land cleared for crop	growing (hectares)				
Angola cropfields	100	135	not quantified	ditto	
Botswana	9,800	10,000	ditto	ditto	-
Namibia	87,460	90,000	ditto	ditto	Mostly small scale, subsistence, rainfed. assume minor
Zambia	10,000	12,000	ditto	ditto	expansion
Total cropfields (ha)	107,360	112,135	ditto	ditto	
Tourism					
Angola beds	0	15	ditto	ditto	1
Botswana beds	144	144	ditto	ditto	-
Namibia beds	386	400	ditto	ditto	-
Zambia beds	80	80	ditto	ditto	1
Total tourist beds	610	639			Mostly small, ecolodge type. A few larger lodges
Angola tourist boats	0	3	ditto	ditto	Mostly small, ecolouge type. A few larger louges
Botswana	9	12	ditto	ditto	-
Namibia	15	18	ditto	ditto	-
Zambia	0	3	ditto	ditto	
Total tourist boats	24	36			1
Other (all countries co	ombined)		1		
Fish caught (kg)	201,795	262,890	ditto	ditto	assume 1 kg pp/d
fuelwood (kg)	201,795	262,890	ditto	ditto	assume 1 kg pp/d
water used (I)	4,035,900	5,257,800	ditto	ditto	assume 20 litres pp/d
Human waste (kg)	131,167	170,879	ditto	ditto	assume 0,65 kg pp/pd
Household waste	131,167	170,879	ditto	ditto	assume 0,65 kg pp/pd (higher in cities)
(kg)					

Appendix 2: Socio-economic and Environmental Management and Monitoring Plan

See Volume 3

Appendix 3: Systematic Conservation Plan

See Volume 4

Appendix 4: Summary of stakeholder consultations

As noted in the main report (section 2.2), in Angola ACIDIR conducted consultations and data collection within the Cuando Cubango province, specifically in Jamba, Licua, Mavinga, Rivungo and Chipundo. The methodology included focus group discussions (ensuring participation of women), one-on-one interviews with key informants (notably the Regional Council) and completion of survey questionaires. 22 questionnaires were answered (9 in Jamba/Luengue Luiana, 4 Licua, 4 Mavinga, 4 Rivungo and 1 in Chipundo/Rivungo). 130 stakeholders participated in the consultations (45 in Jamba, 17 Licua, 46 Mavinga, 38 Rivungo and 2 Chipundo/Rivungo). Stakeholders included administrators and vice-administrators, local administration members, Police, Military Commander, Teachers, Nurses, Clinic manager, TAs Chiefs and political party representatives, Cooperative members, local community and church leaders.

On 7 October 2024, the SEA report was presented to government officials in Luanda. In attendance were the following:

Name	Position and institution		
Ms Bela Julieta Bango Chindumbo	Head of Department, INRH (Instituto Nacional de Recursos Hidricos, National Institute for Hydrological Resources)		
Ms Paula Francisca	Secretary of State for Climate Action and Sustainability, Ministry of Environment (MINAMB)		
Participants at Conservation Values Mapping workshop	 Included: Carolino Mendes (Director, GABHIC Statute of the Cabinet for River Basin Management of Cunene, Cubango and Cuvelai) Narciso Ambrosio (Dir-General INRH, Ministry of Energy and Water MINEA) Rafael Antonio (Director INOTU Institute of Spatial Planning) Jose Ramos (MINAGRIF Ministry of Agriculture and Forestry) Abias Huongo (retired Sec of State, MINAMB Ministry of Environment) 		
Participants at INOTU online meeting (17 October)	 Rafael Antonio (Director, INOTU Institute of Spatial Planning) Jose Fortes (Head, Dept of Territory Planning) Jose de Brito (Head, Urban Development Dept) Jose Jeronimo (Senior Technician, Dept of Territory Planning) Jandira Erasmo (Senior Technician, Dept Licensing ad Inspection) Zacarias Manuel (Senior Technician, Urban Development Dept) Catarina Dias (Dept of Territory Planning) Miguel Gracio (Senior Technician, Urban Development Dept) Maria Neto (Senior Technician, Urban Development Dept) Jose Balila (Information Officer, INOTU) 		

In Namibia SAIEA conducted Focus Group Discussions during scoping in Okavango East and Zambezi Regions. The Okavango meeting was with the Kamatjonga Inland Fisheries Institute (KIFI), to gather the opinions and data from their work conducted on the Cuando, and sharing pertinent information from the Okavango River which is similar in some respects. Subsequent FGDs were with conservancies, tourism operators and authorities in areas adjoining the Kwando and Linyanti Rivers. These meetings included men and women representing local conservancies, lodges and tourism operators, and officials from Fisheries, Environment and Forestry, and the Regional Council. In Katima Mulilo, discussions were held with officials from Regional Planning, Agriculture, Environment and Forestry, and the local coordinator of the Namibian Wetlands Route. Subsequent follow-ups for data were made by email, whatsapp and telephone, with local stakeholders such as researchers, farm owners, lodge owners and Councillors.

At a more strategic level, a briefing was provided to the Sustainable Development Advisory Council (SDAC), and an invitation extended to its members to participate in more detailed discussions should they wish to. The SDAC members present included Dr Gloria Simubali (Ministry of Mines and Energy), Mr Ruan Bestbier (private sector banking), Mr. Petrus Canisius Nangolo (Ministry of Lands), Ms. Graca D' Almeida (Ministry of Fisheries and Marine Resources), Mr. Sylvester Mbangu (National Planning Commission), Mr Timo Mufeti (the Environmental Commissioner - Ministry of Environment, Forestry and Tourism, Ms Saima Angula (DEA MEFT). The above consultations were undertaken during the scoping phase. During the full SEA phase, the draft SEA report was presented to the SDAC in Windhoek.

On 1 October 2024, the draft SEA report was presented to mid-high level government officials in Windhoek. In attendance were the following:

Name	Institution and position
Anna Haufiku	Senior Hydrologist, MAWLR
Ignatius Shikongo	Hydrologist, MAWLR
Edgar Muyumbano	Hydrology Technician, MAWLR
Tuuliki Kandjinga	Senior Hydrologist, MAWLR
Selma Kanandjembo	Hydrologist, MAWLR
Aune Amwaama	Chief Hydrologist, MAWLR
Nicco Masule	Senior Conservation Scientist, MEFT
Anna David	Senior Geohydrologist, MAWLR
Britta Hackenberg	Senior, NNF
Clinton Hay	Unam Lecturer, Fisheries Advisor to NNF

On 3 October 2024, the SEA report was presented to technical level government officials in Katima Mulilo. In attendance were the following:

Name	Institution and position
Lennox Kulobone	Farmer, and representative on ZamCom
Aldrin Mwilima	Ministry of Fisheries and Marine Resources
Ben Mukasa	Sikanjabuka Community Forest
Oris Mulonga	NamWater
Florian Libanda	Salambala Conservancy, Manager

Name	Institution and position	
Leeverty Muyoba	Control Warden, Ministry of Environment,	
	Forestry and Tourism	
Sililo Sitengu	Chief Fisheries Biologist, MFMR	
Jolosi Mukena	Development Planner, Land Reform,	
	MAWLR	
Shadrick Mukata	Katima Mulilo Town Council	

In Zambia five meetings were held at Sioma DNPW headquarters, Sioma District, Shangombo District 2 and 3, and with the Zambia CBNRM forum. These were attended by over 50 participants representing various government agencies, local authorities, security/immigratioin, health and education, conservation/forestry and CBNRM, community development and CSOs. The above were undertaken during the scoping phase.

The final draft SEA report was presented to government officials and other stakeholders in Lusaka on 23 August 2024. In attendance were the following:

Name	Institution and position
Chambo Zyambo	MWDS Intern
Michael Katongo Phiri	NRSC Senior Geospatial Analyst
Obrian Mwanza	WWF Water Resources Management Specialist
Adamson Sakala	MWDS Principal Water Officer
Rockie Mwene	MWDS Hydroinformatics Officer
Jones Banda	MWDS Hydroinformatics Officer
Joy Sikufele	MWDS Intern
Emma Ndhlovu	MWDS
Kawana Banda	UNZA IWRM
Mbindo Keddy	Principal Herbarium Curator,MGEE, Forestry
	Department
Sipawa Songiso	MOA
Chisala Lupele	WWF (PhD Researcher)
Kanembwa Mukona	Senior Research Officer, Forestry Department
Chisanga Siwale	NRSC Manager ops
Prince Makondo	MOA – Irrigation Engineer
Linda Gladys Muzungaire	MOA Technical Officer Irrigation
Rita Kafungwa	MWDS, DWRD
Muriel Simukanda	DNPW MOT KAZA Desk Officer
Chansa Chipasha	MWDS
David Siamubi	Ministry of Water Development & Sanitation
Rollet Sam	MWDS SHO
Violet Chikule Mkandawire	SHIO
Ethel Mudenda	WWF
Celine Muntuumo	WWF
Mangando Simatta	MWDS PWO
Mr Moonga	DNPW – Senior Warden
Mirriam Mbewe	MGEE RMD

In Botswana, Ecosurv convened Focus Group Meetings with community leadership from Parakarungu and Satau villages. Furthermore, online consultative meetings were undertaken with

key government stakeholders including; Chobe District Land Use Planning Unit, Okavango Land Use Planning Unit, North West District Development Committee, Department of Wildlife and National Parks among others. As part of the consultations, survey instruments were sent to other key stakeholders. The above were undertaken during the scoping phase.

During the full SEA phase, high-level physical meetings were held with the DEA in Gaborone. The officials included Ms Mokgadi Monamah, Ms Senikiwe Faith Tsile, Mr Jobe Manga, Mr Otsile Dikganga, Mr Lesego Seakanyeng, Mr Phillip Sandawana and Ms Tsalano Kedikilwe.

Kwando Joint Action Group (KJAG)

At both scoping, mid term and at the end of the SEA, meetings were held with the KJAG, and draft chapters were shared with the members at various intervals. The KJAG comprises the following members:

Angola

Names	Institution	Position
Bela Julieta Bango		
Chindumbo	INRH	Chefe de Departamento
Jonia Chifita Pedro Maria	EPAs-Moxico	Tecnica Superior
Paulo Kibela Quitanda	GABHIC	Técncico Superior
Rodrigues Bongue		
Malengue	EPAs-Cuando Cubango	Técncico Superior

Botswana

Otlaathusa Tshekiso	DWS	Senior Hydrological engineer
Daniel Moatshe	ne DWS Regional manager	
Ituemeleng Naane	CECT	Community Officer
Baagi Chilume	MOA-DAP	District Animal production Officer
Botsalo Thamuku	DWS	Public relations
Refhilwe Mekwe	DWS	Public relations
Nayang Gaobope	DWS	Superitendent
Onneetse Moleta	DWS	Principal Technical Officer
Rebecca Munisola	MOA- DCP	District Crop Production Officer
Ogopotse Pule	DWS	Principal Water Resources Engineer
Thabo Baoliki	DWS	Senior Hydrological engineer
Boipelo Otsisitswe	DWS	Custoimer Service officer
Bogadi Mathangwane	DWS	Director Of Water & Sanitation
Babusi Latiwa	DWNP	Senior Wildlife Warden
Lesego Toteng	DWS	Principal Water Resources Engineer

Namibia

Directorate of Water Res		
	Management (Water	
Ndina Nashipili	Enviroment Div)	Chief Hydrologist

	Directorate of Water Res	
	Management	
Sakeus Ihemba (Geohydrology Div)		Chief Hydrologist
	Directorate of Water Res	
	Management (Hdrology	
Geraldine Diergaardt	Div)	Chief Hydrologist
	Directorate of Water Res	
	Management (Water	
Tuuliki Kandjinga	Enviroment Div)	Hydrologist
	Directorate of Water Res	
	Management (Hdrology	
Oriri Rukoro	Div)	Hydrologist
	Directorate of Water Res	
	Management (Hdrology	
Edgar Muyumbano	Div)	Hydrological Technician
	Directorate of Water Res	
	Management (Water	
Aune Amwaama	Basin Mangtm Div)	Chief Hydrologist
	Directorate of Water	
	Supply and Sanitation	
Betty Muyatwa	Coordination-Zambezi	Control Administrative Officer
	Zambezi Regional	
Olaska Markina	Council-Planning and	Book Bloods
Cletius Mubita	Development Div	Deputy Director
	Land Reform	
Mary Mahada	Department -Zambezi	Dayalanmant Dlampar
Mary Kabuku	Region Ministry of Fisheries and	Development Planner
	Marine Resources -	
Aldrin Mwilima	Zambezi Region	Snr Fisheries Biologist
Aldriii wwiiiiiia	Directorate of	Stil Fisheries biologist
	Agricultural Production	
	Extension and	
Violet Simaata	Engineering Serv	Chief Agricultural Scientific Officer
violet Simaata	Ministry of Environment,	one rightentara scientific officer
	Forestry and Tourism-	
Leeverty Mulife Muyoba	Zambezi Region	Control Warden: Zambezi Region
Looverty Maine Mayoba	Directorate of Forestry -	Control Warden. Zambezi Kegion
Veronica Kangumu	Zambezi Region	Chief Forestry Technian
	J -	,

Zambia

Ms Flora Simumba	Acting Director	flosika@yahoo.com
Dr Mpamba N.Howard	Assistant Director-IW	mpambahoward@gmail.com
	Acting Assistant	
Mr Mafayo Ziba	Director	MAFAYO.ZIBA@moe.gov.zm
Dr Mkhuzo Chongo	PrincipalWater Officer	chongo.gov.zm@outlook.com
Mr David Wamulume	Electrification Officer	david.wamulume@moe.gov.zm
Mr Siwale Chisanga	Manager-Operation	siwalechisanga@gmail.com
Mr Andrew Mabula	Engineer-Civil	amabula@zesco.co.zm

	Principal Natural	
	Resources Management	
Mwangala Simate	Officer	Mwangala.Simate@MLNR.GOV.ZM
	Principal Irrigation	
Andrew Songiso	Engineer	sipawasong@gmail.com
Noel Kunda	Principal Engineer	noelkunda@yahoo.com
	Water Resources	
Chewe Chishala	Operations Manager	cchishala@warma.org.zm
	Chief National Heritage	
Chanda Kelvin	Officer	kcchanda@yahoo.com
Stanley Hantambo	Senior Water Officer-ZB	stanley.hantambo@mwdsep.gov.zm
Mr Manyando Simaata	PWDO-Western	manyandosimata@yahoo.com
Mr Edwin Pateli	Principal Planner	edwinpeteli@gmail.com
	Senior Manager water	
	resources and	
	environmental	
Mr Boniface Mfula	management	boniface.mfula@ZAMBEZIRA.ORG
	Global Water	
Cooperating partners 1	Partnerships	
		Transboundary Water, Governance &
Dr Loreen Katiyo	GWPSAF	Environment specialist
Dr Mkhuzo Chongo	GWPSAF	AIP Country Manager Zambia
		Coordinator: Youth, Jobs, Innovation
Paseka Lesolang	GWPSAF	&Industrialisation
Litumelo Mate Sievers	GWPSAF	Gender Specialist

Co-operating partners

Anna Cestari	World Bank	
Malala Wakunuma	World Bank	Consultant- Water Global Practice
Sarah Moyer	World Bank	
Mr. David Kryzwarda	USDOS	
J. Gina	USAID	
Nachilala Nkombo	WWF Zambia	Country Director
Isabel Mukelebai	WWF Zambia	Governance Manager
Beauty Mbale	WWF Zambia	Freshwater Team Lead
Faith Chivava	WWF Zambia	WRM Specialist
Katie Luoma	WWF NL	
Lazarous Mwale	WWF Zambia	M & E Officer
James Mbewe	WWF Zambia	River Basin Health Specialist
Obrian Mwanza	WWF Zambia	Chief or Party COP
Dr. Nyambe Nyambe	KAZA Secritariat	Executive Director
Eng. Micheal Mutale	ZAMCOM	Executive Secretary
Eng. Evans Kaseke	ZAMCOM	Technical Advisor
Thembi Dube	ZAMCOM	Administrative Assitant

Stakeholder input

The minutes of meetings, attendance registers and excel spreatsheets are substantial in size and volume. For this reason they are not included in this SEA report, but will be made available on request. Key issues emanating from stakeholder consultations are listed verbatum below:

Angola

Key environmental threats that may change the basin in a negative way

- Uncontrolled illegal burning,
- Poaching (wildlife incl use of snares -and fish, incl inappropriate fishing methods),
- Unsustainable timber logging and harvesting of forest products,
- Unsustainable charcoal production,
- climate change,
- soil disturbance using traditional cultivation methods,
- unsustainable, inadequate environmental rangers to protect the areas,
- human wildlife conflicts, including water competition for the people and animals,
- human migration and population growth.

key social threats that may change the basin in a negative way

- Untrained people, mismanagement and unsustainable use of resources by the population
- lack of access to services, transport for tourism and the flow of goods
- Inadequate water and sanitation for the communities
- construction of buildings, farms and industries poorly planned along the basin
- inadequate health centers, nurses, doctors and ambulances to assist the communities
- lack of renewable energy, public lighting and communication network for the development of the communities
- Inadequate training facilities, schools and teachers
- Lack of school meals to attract and keep children in school
- Food insecurity and extreme poverty
- inadequate health facilities and insufficient medicine
- unemployment and lack of veterinary specialists and medicines for the animals to avoid the propagation of diseases
- insufficient water drills (boreholes) and existing conflict between man and animal.
- Illegal visits by foreigners.

Key Economic threats that may change the basin in a negative way

- Climate change
- Inadequate access to banking and affordable credit facilities
- No large-scale buyers of field products
- Unsustainable commercial fishing
- Illegal intensive logging (unsustainable with opportunity costs)
- Poaching and sale of meat

- Lack of access, communication and transport/trading routes
- inadequate markets for food commodities/produce
- No operative banking services.
- Unsustainable commercial agriculture throughout the basin
- Lack of harmonization of community development policies
- Water pollution (especially from mining activities).

Kinds of Projects that should not be allowed to happen in the basin

- Diversion of river and/or dams
- Illegal water offtake, especially on large/industrial scale
- Unsustainable commercial logging,
- unsustainable commercial fishing,
- · unsustainable reed harvesting,
- poaching and illegal sale of meat and sale of wild animals
- exploitation of natural resources (especially minerals and petroleum)

Things to be maintained or improved in the basin

- Combat environmental crimes
- Maintain safe wildlife corridors that help prevent HWC
- Improve agriculture e.g conservation agriculture projects with solar panel irrigation system, planting of crops better suited to the area and climate, veterinary services, beekeeping
- Promoting sustainable fishing
- Establish cooperatives to assist communities to manage resources and projects
- Vocational training (mechanics, maintenance, construction, plumbing, electrics, etc.)
- Appropriately located boreholes to avoid conflict between man and animal.
- Better roads, health (incl malaria prevention), education, and potable water
- Create fenced community farms with irrigation systems and water holes
- Promote renewable energy and secondary school construction
- Improve capacity to manage existing national parks and improve communication between local rangers and counterparts in neighboring countries
- Promote cultural activities.

Botswana

Key environmental and social threats that may change the basin in a negative way

- Human-wildlife conflict.
- Fishermen's access into Cuando River within controlled hunting area is controlled by tourism operators; this threatens communities' livelihood activity¹.

¹ Note that CECT, a CBO representing the Chobe West community leases out the concessions for tourism and hunting

- Diseases (Foot and Mouth) and pest (Tsetse fly could reinvade).
- Climate change.
- Wild fires, including cross-border.
- Upstream developments e.g. tourism may result in pollution.
- Poverty.

Kinds of Projects that should not be allowed to happen in the basin

- Large scale (commercial) irrigation projects in any of the four countries.
- Dams.
- River diversions.
- Prospecting and Mining.

Things to be maintained or improved in the basin

- New border crossing point needed in Satau (between Namibia and Botswana) to improve transboundary tourism and public movement.
- Communities need to be empowered to make decisions.
- Communities should benefit through ecotourism.
- Maintain wildlife corridors (e.g. Chobe-Ngwashe wildlife corridor) use smart fences to allow wildlife movements
- Harmonization of policies (e.g. fishing), legislation and law enforcement (anti poaching) between the countries.
- Local communities should be sensitized on the sustainable use of the basin.
- Monitoring of the amount of water abstracted from the river.
- Sustainable management of the basin.
- Improvement of livelihoods for people living in the Botswana portion of the basin.

Namibia

Key environmental threats that may change the basin in a negative way

- Aquaculture (fish-farming) projects, with risks of introduction of alien species
- Large-scale agricultural projects, due to excessive water demand and risks of nutrient contamination into river channels
- Agricultural fields close to (<50m) the river bank or floodplain margin
- Mining, due to pollution risks
- Large-scale water abstraction
- Modifications to the hydrology, such as dams or 'optimising' flows in to or out of Lake Liambezi
- Poorly planned urban growth, with risks of water pollution

- Drag-netting for fish, due to damage to natural river-floor habitat
- Introduction of alien plants
- Uncontrolled fires, causing degradation of woodland habitat
- Disruption to / obstruction of wildlife corridors, which block wildlife movements and dynamics
- Excessive deforestation, especially from clearing for crop fields

Key social threats that may change the basin in a negative way

- Linear development along roads, due to greater risks to children and livestock, and greater difficulties to provide social services such as water, health
- Allowing settlement / cultivation in wildlife corridors, due to increased HWC
- Poorly planned urban growth, due to risks of water pollution from eg uncontrolled waste dumps close to river, or sewage effluents discharged into or close to river
- Large-scale tourism establishments, due to risks to sense of place and deteriorated wilderness experiences.

Key economic threats that may change the basin in a negative way

- Linear development along roads, due to greater costs, and therefore less likelihood, to provide social services such as water, health.
- Allowing settlement and crops in wildlife corridors, due to economic losses from HWC, and less support for a wildlife economy when HWC occurs.
- Large-scale tourism establishments. JVs with small lodges bring proportionally more benefits to conservancies.
- Illegal logging, due to loss of value-addition to the cut timber, and unsustainable offtake so the timber is 'mined', not harvested.

Kinds of projects that should not be allowed to happen in the basin

- Aquaculture (fish-farming) projects
- Large-scale agricultural projects, and crop fields close to (<50m) the river bank or floodplain margin
- Mining and exploration
- Large-scale water abstraction
- Modifications to the river channels or flows in the channels
- Poorly planned urban growth
- Disruption to / obstruction of wildlife corridors, which block wildlife movements and dynamics
- Excessive deforestation, from illegal logging and clearing for crop fields

Things to be maintained or improved in the basin

- Conservation agriculture projects, which are by nature small-scale, enviro-friendly, productive in the nutrient-poor soils, and resilient to climate extremes.
- Urban growth in nodes and existing centres, not linear along roads or rivers.

- Improve market connections between farmers and local markets, especially lodges.
- Sustainable harvesting of whatever resources.
- Fish reserves.
- Protected areas and community-based conservation areas, and community-based conservation practices which should include regulated hunting.
- Traditional fishing methods
- Collaboration between basin states, wrt management of fisheries, use of water resources, monitoring of river flows, wildlife.
- Keep wildlife corridors open.
- Greater awareness and commitment to a unifying 'vision' for the area. This should include translation of guidelines and policies into local languages.

Zamibia

Key environmental threats that may change the basin in a negative way

- Large-scale agriculture industries such as banana and sugarcane plantations
- Commercial timber extraction
- Hydroelectric power plants
- Development of Roads, townships, and water canals
- Mining.

key social threats that may change the basin in a negative way

- Human-wildlife Conflicts
- Poverty and loss of incomes
- Poor crop yields

Key Economic threat that may change the basin in a negative way

- Poaching will reduce tourism and income revenues
- Reduced cross-border trade between Zambia and Angola

Kinds of Projects that should not be allowed to happen in the basin

- Industrial agriculture (e.g. sugarcane)
- Hydro schemes

Things to be maintained or improved in the basin

- Forest regeneration/ Forest Land Restoration
- Conservation and Climate-smart agriculture.
- Low-impact smallholder concessions (e.g. Nature-based tourism)
- Subsistence agriculture (tilling) and Controlled grazing
- Beekeeping

Appendix 5: Notification Mechanism

As noted previously, the development of Transboundary EIA Guidelines was originally envisaged to be a deliverable of this SEA assignment. However, it was subsequently realised that ZAMCOM already has a Notification Mechanism, which is essentially the same thing as Transboundary EIA Guidelines. The Procedures were adopted by the ZAMCOM Council of Ministers in their ordinary meeting of 23 February, 2017 in Tete, Mozambique. For ease of reference, the ZAMCOM Mechanism is summarised below²:

The "Zamcom Notification Mechanism (ZNM) of planned measures³" states that notification is an important element of international water law and crucial for the cooperative management of shared watercourses. It states also that the 'duty to notify' is a legally binding international treaty obligation set out in Art. 16 of the Agreement establishing the Zambezi Watercourse Commission (ZAMCOM Agreement) as well as Art. 4 of the Revised SADC Protocol on Shared Watercourses. While the Revised SADC Protocol provides detailed rules and procedures on notification, in line with its character as a framework agreement it also provides for basin specific rules and procedures to be developed (provided they are in accordance with the spirit and intent of the Revised Protocol).

Art. 16 of the ZAMCOM Agreement provides some specific rules in this regard, but lacks the detail and clarity needed to ensure easy compliance and efficient implementation of the notification process. Clear guidance to Member States on detailed notification requirements, e.g. timelines, format, required supporting information etc., will ensure faster project development, approval and implementation and significantly reduce the possibility of disputes arising over planned projects.

The ZNM consists of two parts, Part I highlighting the legal basis for the Procedures and the guiding principles, with Part II containing the detailed procedural rules and processes for carrying out a notification process in practice.

The ZNM points out that it is the responsibility of a Member State(s) engaged in planning any programme, project or activity with regard to the shared watercourse or which may adversely affect the Watercourse or any other Member State to notify the Secretariat and to provide all available data and information regarding such programme, project or activity. Where two or more Member States are engaged in planning such a programme, project or activity, the ZNM recommends that they should agree amongst themselves which of them has primary responsibility for notification. In the absence of such agreement all Member States will have individual responsibility for notification.

The ZNM provides detailed procedures and templates for use in the notification process.

² Much of the text in this summary is quoted verbatum from the source document.

³ planned measures requiring notification shall include any programme, project or activity planned by one or more ZAMCOM

Member States which may adversely affect the Watercourse or any other Member State.

Appendix 6: Major projects/activities expected to be implemented in the CURB under different scenarios.

From the stakeholder consultations, the following initiatives are likely to be initiated or implemented over the next 10 years or so. The bullets below are presented verbatum, but these will be verified and clustered during the SEA:

Angola

- Construction of a 245km gravel road from Licua to Mavinga. 20km is already constructed by the government
- Access roads for park management and tourism within the Luengue Luiana national Park. 5 routes, with a lotal length of 138 km (each one between 28 to 35 km long and 4 meters wide. The routes are used by community gamescouts and government ranger for patroling and cotroling the poacher movements, monitoring of activitities within the park, used to navigate during the game counting of animals, accessibility of other important stakehoders within the park. These routes in future will be used for tourism promotion.
- Combined 300 hectares Conservation Agriculture in 6 fenced electical farms wih solar pannels in Jamba/Luengue Luiana National park, part of Rivungo Municipality, Licua, Part of Mavinga Municipality. They will have installed irrigation ram water solar sistems.
- Small-scale agro-livestock farminig in Jamba, Licua, Mavinga, Rivungo, Chipundo areas.
- Establish WildLife Despersal Areas and Wildlife Transboundary Corridors. Some communities need to be resettled in other (non-wildlife) areas where they will have water and fenced land (implemented through WWF-Namibia).
- Tourism lodges in the national parks (localities and size unknown).
- Compilation of management plan for Luengue Luiana National Park
- Creating a veterinary commission and monitoring program for existing species

Botswana

- Road construction project from Kachikau to Parakarungu. This will result in a tar road and possible growth of the two villages (Parakarungu and Satau).
- Fish farming to allow local communities to solve the problem of tourism operators controlling denying fishermen's access into the river.
- A possible border crossing point in Satau (between Namibia and Botswana) to improve tourist traffic. Satau community experiences flooding, a border may help residents move across villages as flooding usually leads to using alternative routes.
- New or expanded improved wildlife corridors.

Namibia

- Trans-Zambezi railway line (i.e. through Bwabwata NP)
- Rural water supply

Zambia

- Opening of feeder roads planned 15km stretch to the various ward centres
- Dredging a canal to connect Shangombo to Rivungu, and constructing 2 harbors. The canal dredging is underway but not the harbors yet.
- Meat Processing plants to slaughter up to 50 carcesses a day
- Agricultural Processing Plant for grains, nuts and horticultural crops such as vegetables to support small scale farmers around the District
- Storage sheds and staff houses for Extension Workers. At least 3 sheds covering an estimated areas of 3- 5ha
- Promotion of Agro-forestry- setting of about 100 woodlots dotted around the District
- District Water reticulation system to cover the more than 300 households
- Additional combined 20,000 ha timber concessions (Multiple, exact localities unknown)
- Fish Hatchery and fish processing plant, size and locality not clearly defined
- Construction of bridge to link Zambia and Angola no clear size estimate
- Petroleum exploration

APPENDIX 7: Summary of PPPs relevant to the CURB SEA, sector trends, key environmental and social concerns and sector-specific objectives.

Table APP 7.1: CURB development overview⁴

	Sector: Agriculture, irrigation, and rural development				
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives	
Angola	 Fisheries and Aquaculture Development Plan for the 2018-2022 quinquennium – Presidential Decree No. 29/19 of 16th of January Integrated Plan for Agriculture and Family Fishing Acceleration 2020/2022 (PIAAPF-2020/2022) – Presidential Decree No. 227/20 of 4th of September Rural Trade Development Integrated Programme 'PIDCR' – Presidential Decree No. 123/20 of 30th of April Agricultural Sector Medium-Term Development Plan (PDMPSA) 2013-2017 Rural Women National Support Programme – Presidential Decree No. 138/12 National Strategy for Food and Nutrition Security and its Plan of Actions – Resolution No. 130/08 of 29th of December 	• Possible (though likely modest) expansion of irrigated area in Angola and Namibia	 Food and nutrition security to growing population Safeguard agricultural income security, 	• Livelihoods • Food security • Water resources	
Botswana	 National Policy on Agricultural Development National Master Plan for Arable Agriculture and Dairy Development 2001 	Expected population growth Increasing urbanisation Increased	 against climate change vulnerability Compatibility/ adequacy of land uses Ecosystem services and biodiversity 	 sustainability Conservation of ecosystems services and biodiversity 	
Namibia	 Strategic Plan 2017/18 to 2021/22 of the Ministry of Agriculture, Water and Forestry 		and biodiversity conservation • Water resources sustainability (quantity and quality)	• Land use changes	

 $^{^{\}rm 4}$ Modified from CORB 2022 SEA

	National Policy on Subdivision and	Growing water	Minimize soil	• Climate
	Subdivision and Consolidation of	demand by different	degradation and deforestation	change adaptation
	Agricultural Land 2018	sectors		
	Namibia Agricultural Policy 2015	• Climate change		
	National Rural Development Strategy 2013/14 – 2017/18			
	Green Scheme Policy 2008			
	National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing 2007			
	Agricultural Lands Act CAP187			
	8 th National Development Plan 2022- 2026			
ZAMBIA	Indaba Agricultural Policy Brief 2015			
ZAWBIA	Zambia Agriculture policy 2004- 2015			
	• 2 nd National Agriculture Policy, 2016			
	The National Agriculture policy 2012-2030			

	Sector: Water and sanitation				
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives	
Angola	National Total Sanitation Strategy led by Communities and Schools in Angola 2019 – 2030 (ENSTLCEA) – Presidential Decree No. 140/20 of 20th of May National Water Plan (PNA) – Presidential Decree No. 126/17 of 13th of June General Plan for the Integrated Use of Water Resources in the Cubango				
	River Basin 2012 – 2030 (PGUIRH – Presidential Decree no. 27/16)				
	National Strategic Water Programme 2013-2017 (PNEA) Presidential Decree No. 9/13 of 31st of January				

Botswana	Integrated Water Resources Management & Water Efficiency Plan Botswana National Water Policy 2012 2003 National Master Plan for Sanitation and	Several developments requiring water (irrigation, tourism, urbanisation, small-scale	 Basin-level access to safe water and sanitation Adequate wastewater treatment Cost-effective and 	Economic development Health and disease control Access to safe water and
Namibia	National Water and Sanitation Master Plan of 2018 Integrated Water Resources Management Plan for Namibia National Water Policy Water Paper (2000) National Sanitation Strategy 2010/11 – 2014/15 1974 National Water Master Plan	mining) • HWC over water • In Angola Poor and accessible to basic infrastructure /services • Water-borne diseases • Population growth • Climate change	just water allocation strategies to the different sectors and development plans • Safeguard ecological flows • Water resources sustainability (quantity and quality) • Minimisation of conflicts over water use • Transboundary coordination and	sanitation • Environmental flows • Water resources sustainability • Transboundar y governance • Climate change adaptation
Zambia	National Water Policy: November 1994: Government of Zambia: Ministry of Energy and Water Development. The Water Supply and Sanitation Act, 1997: Government of the Republic of Zambia: National Water Supply and Sanitation Council. 1986 Zambian Drinking Water Guidelines. The Environmental Protection and Pollution Control Act, 1990: No. 12 of 1990: Government of Zambia. The Water Pollution Control (Effluent and Waste Water) Regulations, 1993: Environmental Council of Zambia. National Environmental Action Plan, 1994 Environmental Protection and Pollution Control Act, CAP 204 Water Act CAP184 Water Pollution and Control (effluent and wastewater) Regulation, 1993: ECZ Mines and Minerals Act of 1995		communication • Alignment with CURB's acceptable development space	

Public Health Act		
Keep Zambia Clean Campaign.		

	Sector: Energy and extractive industry				
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives	
Angola	Strategy for the Rational Use of Agro-Mineral Resources and for the Launch of the Fertilizer Industry in Angola – Resolution No. 22/04 of 24th of September Angola Hydrocarbon Exploration Strategy 2020-2025 – Presidential Decree No. 282/20 of 27th of October Energy and Water Sectors' Plan 2018-2022	 Increasing urbanisation Envisaged economic development 	1 ° 1		• Socioeconomic development
Botswana	National Energy Policy 2021		economic development and livelihoods • Energy security and reduce energy imports • Increase of renewable energy share in energy mix	 Energy coverage Energy sources Water resources sustainability Conservation of ecosystems services and biodiversity Greenhouse gas 	
Namibia	 Minerals Policy 2020 National Policy on Prospecting and Mining in Protected Areas National Energy Policy 2017 	Energy dependence (imports) Oil and gas exploration intentions			
Zambia	 Energy Regulation Act No. 12 of 2019 Energy Regulation Cap 436 Energy Regulation SI No. 42 of 2021 National Environmental Action Plan, 1994 Environmental Protection and Pollution Control Act, CAP 204 Mines and Minerals Act of 1995 Public Health Act 	Renewable energy untapped potential Mining extraction Climate change	Minimize greenhouse gas emissions Biodiversity conservation and natural and water resources sustainability	emissions	

	Sector: Biodiversity, conservation, and tourism			
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives
Angola	 National Strategy and Biodiversity Action Plan 2019 – 2025 – Presidential Decree No. 26/20 of 6th February Strategy for the Hospitality and Tourism Sector – Resolution No. 9/97 of June 27th National Policy on Forests, Wildlife and Conservation Areas – Resolution No. 1/10 of 14th January National Tourism Policy – Resolution No. 7/97 of 20th June 	 Expected population growth Livelihoods' dependency on ecosystem services 	• Inclusion of communities into natural resource management (CBNRM)	
Botswan a	 National Biodiversity Strategy and Action Plan 2016-2025 (NBSAP) Botswana Intended Nationally Determined Contributions (2015) National Ecotourism Strategy of 2002 Wildlife Policy 2013 Community Based Natural Resources Management (CBNRM) Policy of 2007 National Policy on Natural Resources Conservation and Development No. 1990/1 of 17th December 	Tourism sector development High number of conservation areas Human-wildlife conflicts Deforestation and illegal logging Climate change Oil and gas exploration intentions Mining extraction	 Sustainable and ecological development of tourism sector Adequate planning to minimise human-wildlife conflicts and prevent illegal logging Minimisation of oil, gas, and mining sectors' impacts on biodiversity, wildlife, and ecosystem services Promotion of transboundary governance to safeguard wildlife migration corridors 	Livelihood strategies Biodiversity and wildlife conservation Tourism sector development Extractive industry development Land use planning
Namibia	Second National Biodiversity Strategy and Action Plan 2013- 2022 – NBSAP2 Namibia Intended Nationally Determined Contributions (2015)			

	. Notional Deller
	National Policy on Community Based
	Community Based Natural Resources
	Management of 2013
	- Diadiyyaraity Daliay
	Biodiversity Policy, 1999
	First National Riediversity Strategy
	Biodiversity Strategy and Action Plan 1,
	2014
	Second National
	Biodiversity Strategy
	Action Plan 2 2015-
	2025
	National
	Decentralisation Policy
	2015
	National Parks and
	Wildlife Policy, 2018
	National Climate
	Change Policy, 2016
	• Forest Act, 2015
	Water Resources
Zambia	Management Act, 2011
	Disasater Management
	Act, 2010
	• Constitution of Zambia,
	2016
	National Strategy for Reducing emissions
	from Forest
	Deforestation and
	Forest Degradation,
	2015
	National Disaster
	Management policy,
	2015-2020
	National Climate
	Change Strategy, 2020
	• Zambia Climate
	Change Gender Action
	Plan, 2018

	Sector: Spatial planning and governance			
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives
Angola	 National Strategic Plan of Territory Administration (PLANEAT) 2015-2025 – Presidential Decree No. 214/15 of 8 December Strategic Actions Programme (PAE) for the Sustainable Development and Management of the CORB – Presidential Decree No. 32/15 of 19th of January National Action Plan (NAP) for the Sustainable Management of the Okavango River Basin Resources (draft version of 2011) Strategy to Combat Poverty – Resolution No. 9/04 of 4th of June Integrated Programme on Local Development and Poverty Alleviation 2018 – Presidential Decree No. 140/6 of 6th June Main National Spatial Planning Options (POOTN) and Territorial Management Provincial Plans (not developed) 	 Expected population growth Increasing urbanisation Increasing pressure on soils Increasing conflicts over land use Envisaged sectoral 	 Compatibility between territorial planning and emerging new land uses Compatibility between land uses planning and conservation status Minimisation of land use conflicts Equal land tenure rights, particularly to the most vulnerable 	 Socioeconomic development Land use changes Conservation of ecosystem services and biodiversity Land tenure access and security Governance
Botswana	 2036 National Spatial Plan 2036 National Spatial Plan's Regional guidelines Maun Planning Region; Gumare Planning Region; Ghanzi Planning Region; Kasane Planning Region ILUPs of Chobe, Central Area, Ngamiland, and Ghanzi District Botswana Land Policy and Land Policy Review of 2015 Okavango Delta Management Plan (ODMP) 2008 (Under revision) 	economic development Climate change Land demand for agriculture expansion, mining, and commercial interest on the increase	groups • Harmonisation of land use planning within and between CURB MSs • Competition over limited and encroachment into protected wildlife and Forestry areas.	Climate change adaptation

Namibia	 IRLUPs of Kavango East, Kavango West, Otjozondjupa Regions Omaheke Regional and Local Economic Development (LED) Strategy Omaheke Regional Council Strategic Plan 2017-2022
	Constitution of Zambia, 2016 Land Act, 1975
	• Land Act, 1995
	Town and Country planning Act, 1990
	• Town and Country Planning Act No.3 of 2015
Zambia	National Land Policy, 2021
	Decentralisation policy 2012
	6 National Development Plan
	• 7 National Development Plan
	8 National Development Plan

	Sector: Climate change adaptation and disaster risk reduction				
Country	PPP	Trends in the CURB	Key concerns	Sectoral Objectives	
Angola	 National Strategy for Climate Change (ENAC) 2018-2030 Strategic Plan for Disaster Risk Prevention and Reduction 2013-2017 – Presidential Decree No. 30/16 National Plan for Preparedness, Contingency, Response and Recovery from Disasters 2015-2017 - Presidential Decree No. 29/16 National Action Programme to Combat Desertification (PANCOD) – Presidential Decree No. 46/14 of 25th of February 				
Botswana	Botswana's Third National Communication to the United Nations Framework Convention on Climate Change (2019) National Disaster Risk Reduction Strategy 2013-2018 National Disaster Risk Management Plan 2009 (NDRMP) Botswana Climate Change Response Policy of 2017—Draft Version 2 National Policy on Disaster Management 1996	Expected population growth Envisaged economic development Livelihoods' dependency on ecosystem services High incidence of malnutrition and poverty levels High incidence of diseases	Adequate planning to mitigate and adapt to climate change impacts and to manage disasters (considering increased livelihoods' vulnerability, increased probability of infrastructure damages, incidence of diseases, food security, water availability, impacts on ecosystem services) CCA and DRR mainstreaming into sectoral PPPs	Livelihoods' security Decision support systems Transboundary governance CCA and DRR sectoral mainstreaming	
Namibia	National Strategy for Mainstreaming Disaster Risk Reduction and Climate Change Adaptation into Development Planning in Namibia 2017-2021 National Climate Change Strategy and Action Plan 2013-2020 (NCCSAP) National Policy on Climate Change for Namibia - 2011	 Climate change Increased frequency and magnitude of disasters 	Harmonisation of CCA and DRR within and between CURB MSs Transboundary cooperation in monitoring, risk assessment, and planning		

	Disaster Risk Management Plan 2011 (NDRMP) National Drought Management Policy and Strategy of 1997
	 Constitution of Zambia National Policy on Climate Change in 2016 National Parks and Wildlife Policy, 2018
	 Forest Act, 2015 Water Resources Management Act, 2011 Disaster Management Act, 2010
Zambia	National Strategy for Reducing emissions from Forest Deforestation and Forest Degradation, 2015
	 National Disaster Management policy, 2015-2020 National Climate Change
	Strategy, 2020 • Zambia Climate Change Gender Action Plan, 2018

Appendix 8: Relevant constitutional commitments and EIA legislation in the CURB countries

Constitutional commitments by the four CURB countries 5

Country	Constitutional commitment
Angola	First signed into law in 1992, the Constitution of the Republic of Angola (Lei Constitucional da República de Angola) was replaced in 2010 and provides the basis for the Environment Framework Law through Article 39.
	Article 39 (Environmental rights):
	 Everyone has the right to live in a healthy and unpolluted environment and the duty to defend and preserve it. The state shall take the requisite measures to protect the environment and species of flora and fauna throughout the national territory, maintain the ecological balance, ensure the correct location of economic activities and the rational development and use of all natural resources, within the context of sustainable development, respect for the rights of future generations and the preservation of species. Acts that endanger or damage conservation of the environment shall be punishable by law.
	In addition, Article 90(e) reads that the state shall promote social development by "ensuring that all citizens enjoy the benefits resulting from collective efforts in terms of development, specifically with regard to quantitative and qualitative improvements to standards of living." Article 15 recognises that local communities have access to, and the use of land without prejudicing the possibility of expropriation for public use on the basis of fair compensation in terms of the law.
Botswana	The right to a clean environment (a so called third generation right) is absent from the Constitution of Botswana. However, Botswana's commitment to the sustainable management of natural resources is supported by various policies and legislation as well as by Vision 2036.
	One of the four 'Pillars' of Vision 2036 is 'Sustainable Environment', which states that: "By 2036 sustainable and optimal use of natural resources will have transformed our economy and uplifted our people's livelihoods. This pillar includes the ecosystem functions and services, sustainable utilization of natural resources, water security, energy security, sustainable land use and management, sustainable human settlements, climate resilience and disaster risk reduction and pollution and waste."
	Sustainable development is one of the four principles that underpins the process of developing the National Development Plans, the other three being rapid economic growth, economic independence and social justice.
Namibia	Article 91(c) of the Namibian Constitution defines the functions of the Ombudsman to include: " the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia" Article 95(l) commits the state to actively promoting and maintaining the welfare of the people by adopting policies aimed at the: " maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future"

⁵ Source: DBSA 2023

Zambia	The preamble to the Zambian Constitution (as amended by Act No. 2 of 2016) recognises the
	right of the people of Zambia to "manage our affairs and resources sustainably".
	Article 43(1) commits every Zambian citizen to:
	• "protect and conserve the environment and utilise natural resources in a sustainable manner;
	maintain a clean and healthy environment."
	Article 151(2)(f) commits the local government system to promote a clean, safe and healthy
	environment. Article 255 lays out 13 principles which govern the management of Zambia's environment and natural resources. These principles, which include the precautionary approach
	to development and the polluter pays principle and sustainable utilisation, provide strong support
	for environmental protection.

Legislative Framework for Environmental Assessment in the CURB countries⁶

Country	Legislative framework		
Angola	 The legislation in force covers only the EIA and the scope of its application, defined by law, does not include the elaboration of PPPs, including those referring to land use and land use, such as river basin plans. However, the list of activities and projects subject to EIA includes activities related to several areas covered by CURB such as, areas along water courses or used as a source of drinking water, wetlands in an area greater than 1 ha, conservation and protection areas and their buffer areas, as well as ecosystems with special protection status under national and international legislation – Presidential Decree No. 117/20, General Regulation for EIA and Environmental Licensing Procedure. Environmental legislation does not refer to transboundary impacts, but Angola has often collaborated on international projects developed in this area (Walmsley & Patel, 2011). 		
Botswana	 EIA and SEA are defined in the Environmental Assessment Act, 2011. In compliance with subsection 1 of the Act, regulations are published regarding: i) activities that have the potential to cause significant impacts on the environment, or that are located in environmentally vulnerable places, and are therefore subject to an environmental impact statement; ii) the procedure for assessing whether the activities described in i) are likely to have a significant impact on the environment; iii) the criteria that should be used to determine the potential effects of the proposed activity. The Act clearly defines that the elaboration of a policy, program, legislation or planning plan, must be accompanied by an approved SEA. Whenever the competent authority determines that the proposed activity may have an adverse impact on the environment, it should request the preparation of an EIA or SEA, as applicable. The definition of a monitoring programme after the implementation of the proposed activity / plan is also included in the diploma. The preparation of an assessment report and environmental audits may also be required by the competent authority. Section 68 specifies that, if a given activity has the potential to cause transboundary impacts, the Ministry responsible for foreign affairs should consult the target country (ies). 		
Namibia	 In force since 2007, the Environmental Management Act, which establishes the procedure for the assessment and control of activities that may result in significant effects on the environment. The Act and Regulations list the activities that require environmental certification, which include activities related to the use and transformation of the soil, the use of water, the extraction of resources, agricultural and industrial processes, waste and effluents, recreation, and leisure, among others. The 2012 Regulations define procedures for the EIA. The provisions included in this instrument include guidelines for the preparation of the Inception Report / scope of the evaluation; the structure of the evaluation report itself; the responsibilities of the competent authority; the need to carry out an environmental assessment and to carry out the public consultation process. The specific processes for the preparation of an SEA are 		

⁶ Modified from CORB SEA 2022

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Country	Legislative framework
	not included in these documents; however, Namibia published in 2008, in accordance with Part X of the Environmental Management Act, procedures and guidelines for SEA and Environmental Management Plans.
Zambia	 The first environmental legislation was the Environmental Protection and Pollution Control Act EPPCA (Cap. 204) which was enacted in 1990 (Act No. 12 of 1990) and amended by the Environmental Protection and Pollution Control Amendment Act in 1999 (Act No. 12 of 1999). The EIA process was formalised in the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations, No. 28 of 1997. Section 30 of the EMA makes provision for the Minister, on the advice of ZEMA, to promulgate new Regulations relating to the administration and enforcement of both SEA and EIA. The EIA process is set out in the EIA Regulations of 1997. ZEMA considers the Project Brief and determines if a project needs an EIA or not. The EIA process is relatively standard and similar to that of other CURB States Similarly, the draft SEA Regulations make provision for the registration and certification of SEA experts. Until such time as a formal Registration Authority is set up, the process of registration will be undertaken by ZEMA.

Appendix 9: Relevant institutions in the CURB countries

National authorities with responsibilities in the $basin^7$

Entities	Responsibility	
Angola		
National Water Council (CNA)	Advisory body in the fields of planning, use and management of water resources.	
National Institute of Water Resources (INRH)	 Execution of the National Water Resources Policy. Issue licenses for the use of water resources. Establish the limits for water resources' use. 	
Ministry of Energy and Water (MINEA)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of energy and water.	
National Directorate for Water	 Direct executive service whose object is the study, preparation, execution and monitoring of water supply and wastewater, water resources and sanitation policies. Part of MINEA. 	
Regulatory Institute for Electricity and Water Services (IRSEA)	The regulatory body for water and electricity services.	
Water and Sanitation Companies (Public)	Carry out studies, projects, maintenance of water collection, treatment, adduction, and distribution systems under a public service regime; Parastatals.	
Ministry of Culture, Tourism and Environment (MCTA)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of Culture, Tourism and Environment.	
National Directorate for Environment and Climate Action	 Responsible for designing and developing environmental and climate management policies and strategies. Part of MCTA. 	
National Directorate for Prevention and Environmental Impact Assessment	 Responsible for designing and developing policies and strategies to prevent the incidence of environmental impacts. Part of MCTA. 	
Ministry of Agriculture and Fisheries (MINAGRIP)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of agriculture, livestock, forests, food and food safety, aquatic biological resources, fishing activities and sustainable aquaculture, salt production.	
Ministry of Public Works and Spatial Planning (MINOPOT)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of public works, civil construction, urban planning, urban planning, land, and housing.	
Ministry of Mineral Resources, Oil and Gas (MIREMPET)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola relating to geological and mining, oil, gas, and biofuel activities.	
Ministry of Finance (MINFIN)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of public finances, rational management of public finance and property resources, the balance of public accounts, and implementing public investment policies.	
Ministry of Economy and Planning (MEP)	Ministry responsible for proposing the formulation, conducting, executing, and controlling the policy of the Government of Angola in the fields of national developments, economic growth, economic integration, development cooperation and international business.	

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 $^{^{\}rm 7}$ Modified from CORB SEA 2022, and DBSA 2022

Entities	Responsibility	
Botswana		
Ministry of Land Management, Water and Sanitation Services (MLWS)	Ensure proper land management to facilitate socio-economic development through land servicing and ensure water delivery and reuse of grey water for domestic and agricultural uses.	
Department of Water and Sanitation (DWS)	 Responsible for water management and planning to ensure that the water resources are protected, managed, and used in a sustainable and integrated manner for the benefit of all life forms and the economy. Part of MLWS. 	
Water Utilities Corporation (WUC)	A parastatal organisation, wholly owned by the Government, oversees the supply of potable water in the country and wastewater and sanitation services management.	
Water Apportionment Board	Appointed by the MLWS to ensure equity and independence in water resources allocation through a regulating and coordinating role.	
Ministry of Environment, Natural Resources Conservation and Tourism (MENT)	Ministry responsible for Botswana's government policy in the fields of national natural and cultural resources, environment, and tourism.	
Department of Environmental Affairs	 Mission of promoting environmental-based projects for the conservation and protection of the environment to increase the effectiveness with which natural resources are used and managed. Part of MENT. 	
Department of Waste Management and Pollution Control	 Objective of preventing and controlling pollution of the environment by formulating the waste management policies, regulating, and monitoring the waste sector. Part of MENT. 	
Department of Tourism	Manages and promotes sustainable tourism development.Part of MENT.	
Department of Forestry and Range Resources	 charged with conservation, protection, and management of vegetation resources in Botswana. Part of MENT. 	
Department of Wildlife and National Parks	 responsible for conserving and managing fish and wildlife resources and their habitats. Part of MENT. 	
Botswana Tourism Organisation (BTO)	A parastatal corporate body established through the Botswana Tourism Organisation Act of 2009 to develop Botswana into a unique preferred tourism destination of choice.	
Forest Conservation Botswana (FCB)	 Non-profit making entity registered in 2008 to administer the Tropical Forest Conservation Fund. To promote activities designed to conserve, maintain, and restore the forests of Botswana 	
Ministry of Mineral Resources, Green Technology and Energy Security (MMGE)	Ministry responsible for Botswana's government policy regarding the provision of services in the mineral and energy sectors for national prosperity.	
Department of Mines	 Ensure that mineral resources are prospected, developed and exploited in a sustainable manner. Part of MMGE. 	
Ministry of Local Government and Rural Development (MLGRD)	Oversees 16 local authorities and semi-autonomous local authorities categorised into City, Town, and District Councils inclusive of tribal administrations.	
Ministry of Finance and Economic Development (MFED)	 Ministry responsible for Botswana's government policy regarding treasury and budget administration, economic management and national development planning coordination, finance, and mobilisation of resources for economic development. 	
	Namibia	
Ministry of Agriculture, Water and Land Reform (MAWLR)	Ministry responsible for Namibia's government policy regarding agriculture, water resources and land reform.	

Entities	Responsibility				
Directorate of Water Supply and Sanitation Coordination	Implementation of rural water supply for the rural communities on communal land. Part of MAWLR.				
Directorate Water Resources Management	 To promote and facilitate the environmentally sustainable development, management, and utilisation of water as a scarce resource. Part of MAWLR. 				
Water Advisory Council (WAC)	Advises the minister (of MAWLR) on water resources management and policy development on any matter about water raised by a Basin Management Committee on which the council considers it wise to provide advice.				
Namibia Water Corporation (NamWater)	A parastatal company with the goal of commercialised water.				
Water Regulator of Namibia (WRN)	Determine the tariffs of fees and charges or the maximum tariffs of fees and charges for water-related services.				
Ministry of Environment, Forestry and Tourism (MEFT)	Ministry responsible for Namibia's government policy regarding the environment, forestry, and tourism.				
Directorate of Environmental Affairs	Responsible for sustainable management of natural resources and protection of the environment and implementing multilateral environmental agreements. Part of MEFT.				
Directorate of Forestry	 Responsible for sustainable forest management and optimal utilisation of forest resources. Part of MEFT. 				
Directorate of Wildlife and National Parks	 Manages protected areas, supports communal conservancies, and is responsible for developing and enforcing wildlife protection legislation, human-wildlife conflict management, and environmental education centres. Part of MEFT. 				
Sustainable Development Advisory Council (SDAC)	Advise the Minister (MEFT) on the protection and use of the environment, conservation of biological diversity, appropriate monitoring methods, and other matters.				
Environmental Investment Fund of Namibia	 Established to mobilise funding and allocate funding to activities and projects, which promote the sustainable use and efficient management of natural resources for the benefit of all Namibians. Parastatal. 				
Namibia Tourism Board	The regulatory and marketing body for tourism activities in Namibia.Parastatal.				
Nature Conservation Board	Operating since 2018 to advise the minister concerning the control, management and maintenance of national parks, game parks and nature reserves, and the establishment and management of conservancies.				
Ministry of International Relations and Cooperation (MIRCO)	Ministry responsible for Namibia's government policy regarding foreign policy and the conduct of Namibia's international relations.				
Ministry of Mines and Energy (MME)	State's leader agency in attracting private investment in resources exploration and development.				
Ministry of Finance (MoF)	Responsible for issues concerning central government finances, including coordination of the central government budget, forecasts and analyses, tax issues, and management and administration of central government activities.				
	Zambia				
Department of Water Resources Development,	Responsible for ownership, control and use of water. Delegates management of water resources through Catchment Councils established under the Act, consisting of the water users of the catchment. Overssses the equitable, reasonable and sustainable use of water resources in Zambia.				

Entities	Responsibility				
Ministry of Water Development, Sanitation and Environmental Protection	 Promotes sustainable water resources development to facilitate an equitable provision of adequate and quality water for all users and to ensure security of supply under varying conditions. regulates water supply and sewerage utilities to protect consumers from unjustified tariffs. 				
ZEMA	 license point source polluters. ensure adequate waste management for all projects. oversee the storage, transportation, handling, treatment and the control of waste and toxic substances, and their licensing. 				
Ministry of Energy	licensing of undertakings for the production of energy or the production or handling of certain fuels.				
Ministry of Health	Prevention and suppression of diseases and the general regulation of all matters connected to public health.				
Ministry of Local Government	Administering and managing urban and regional planning for Zambia.				
Forestry Department – _Ministry of Lands and Natural Resources	Control, manage, conserve and administer national and local forests, and the participation of local communities, traditional institutions and NGOs regarding the conservation and sustainable use of forests and trees, and the implementation of international instruments.				
Ministry of Mines and Mineral Development	Regulates the exploration, development and production of minerals and petroleum products.				
Ministry of Lands and Natural Resources	Monitoring of natural resource conservation and utilisation outside forest reserves and national parks.				
Department of Parks and Wildlife	Manages national parks, game management areas and bird sanctuaries for purposes of conserving and enhancing wildlife ecosystems.				
Ministry of Agriculture Ministry of Lands and Natural Resources	Regulates and controls the manufacture, processing, importation and sale of agricultural fertilisers and feed, and establishes minimum standards of purity.				
Fisheries Department – _Ministry of Fisheries and Livestock	Provides for the development of commercial fishing, the registration of fishermen and their boats, and the protection of endangered species.				
Ministry of Tourism and Arts	Controls tourism enterprises.				

Appendix 10: Relevant multilateral environmental agreements to which the CURB countries are a Party

The table below lists the international protocols and conventions applicable in the CURB.

Document	Angola	Botswana	Namibia	Zambia
ZAMCOM				
ZAMCOM Agreement In force from June 26, 2011	13/07/2014 (signed)	13/07/2014 (signed)	13/07/2014 (signed)	Acceded July 2013
SADC				
SADC (Revised) Protocol on Shared Watercourses (2003)	07.08.2000 (ratified)	07.08.2000 (ratified)	07.08.2000 (ratified)	07.08.2000 (ratified)
SADC Regional Water Policy (RWP)	08.2005	08.2005	08.2005	08.2005
SADC Regional Water Strategy (SIT)	2006	2006	2006	2006
SADC Protocol on Fisheries	14.08.2001	14.08.2001	14.08.2001	14.08.2001
SADC Protocol on Forestry	3.10.2002 (ratified)	3.10.2002 (ratified)	3.10.2002 (ratified)	3.10.2002 (ratified)
SADC Protocol on Energy (1996)	1996	1996	1996	1996
SADC Protocol on the Development of Tourism	1998 (ratified)	1998 (ratified)	1998 (ratified)	1998 (ratified)
SADC Protocol on Wildlife Conservation and Law Enforcement	18.08.1999 (ratified)	18.08.1999 (ratified)	18.08.1999 (ratified)	18.08.1999 (ratified)
Kavango-Zambezi Transfrontier Conservation Area (KAZA TFCA)	2011	2011	2011	2011
African Union				
African (Revised) Convention on the Conservation of Nature and Natural Resources	17.02.2014 (ratified)	-	09.12.2003 (signed)	Ratified 29.3.1972
United Nations				
United Nations Convention on Biological Diversity	1.04.1998	12.10.1995	16.05.1997	Ratified 28.05.1993
UNCCD	30.06.1997	11.09.1996	16.05.1997	Ratified 19.09/1996
UNFCCC	17.05.2000	27.01.1994	16.05.1995	Ratified March 1993
UNESCO				
Convention for the Protection of the World Cultural and Natural Heritage 1972 ⁸	1991 (ratified)	1998 (acceptance)	2000 (acceptance)	Ratified 4.6.1984
Convention for the Protection of Cultural Property in the Event of Armed Conflict	2012 (access)	2002	-	-

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⁸ The SEA will allow Riparian States to comply with Decision 42 COM 7B.89 of the World Heritage Committee (UNESCO World Heritage Centre - Decision - 42 COM 7B.89), pursuant to the PM Convention: "5. Taking into account the potential impact on the Outstanding Universal Value (OUV) of the property of any development leading to water abstraction in the river basin and the complexity and extent of the basin, it urges the States to assess the impacts of any development at the strategic level and at the landscape scale through a SEA in line with the IUCN World Heritage Advisory Note on Environmental Assessment." (ibid)

with Regulations for the Execution of the Convention 1954				
First Protocol to the 1954 Hague Convention	-	2017	-	-
Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005	2012 (ratified)	2020 (ratified)	2006 (ratified)	-
Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property 1970	1991 (ratified)	2017	-	Ratified 21.6.1985
Convention for the Safeguarding of the Intangible Cultural Heritage 2003	(ratified)	2010	(ratified)	Approved 10.5.2006
Other				
Ramsar Convention / Convention on Wetlands of International Importance	-	09.04.1997	23.12.1995	28.09.1991
Bonn Convention on the Conservation of Migratory Species Belonging to Wild Fauna	2006	-	-	-
UNEP/AEWA Agreement on the Conservation of Afro-Eurasian Migratory Waterbirds	-	2017	-	-
CITES	-	1978	1991	1981
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)	-	signed	-	-
Gaborone Declaration for Sustainability in Africa	(ratified)	(ratified)	(ratified)	-

Appendix 11: The CVs of the SEA team

Not included due to space limitations, available on request.

Appendix 12: The Terms of Reference for the SEA assignment

Not included due to space limitations, located in Volume 5