



**GMES
AND AFRICA**



Wetland Monitoring and Assessment Service for Transboundary Basins in Southern Africa



WEMA ST PARTNERS



The **WeMAST** (Wetland Monitoring and Assessment Service for Transboundary Basins in Southern Africa) Project will develop and implement an Earth Observation (EO) based online platform that supports Sustainable Wetland Assessment and Monitoring Services, promotes policy implementation and management practices in the SADC region, utilizes free satellite-based EO data and existing free software.

The WeMAST consortium aims to create products and services in line with the concept of

“with the Users for the Users”.

WeMAST objectives

- to identify existing assessment and monitoring methods applicable to southern Africa
- to design, develop and operationalize an integrated platform that can provide wetland information services to target groups and end users
- to extend existing EO capabilities to SADC decision makers for wetland assessment and monitoring through capacity building and leverage awareness

WeMAST Products & Services

All WeMAST products and services will be made available via an online web portal, a Wetland Monitoring and Assessment Service for Transboundary Basins in SADC:

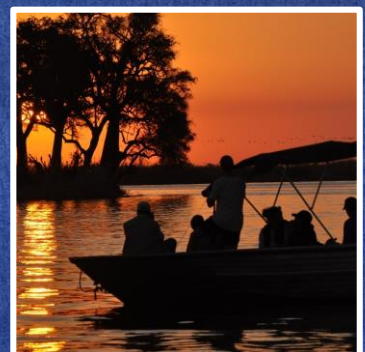
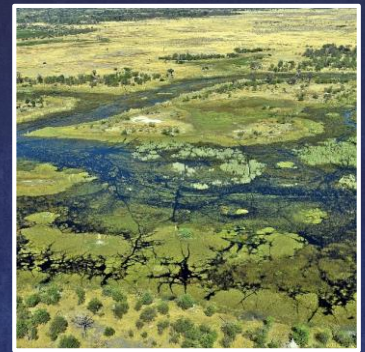
- Wetland inventory (mapping extent floodplains, swamps, marshes, and other surface water bodies)
- Information on water cycle regimes (duration, extent and timing of flooding)
- Information on vegetation dynamics
- Inland water quality mapping (algal blooms and total suspended matter)
- Wetland utilisation and landcover information

Wetlands in Southern Africa are highly productive and biologically diverse ecosystems that contribute significantly to livelihoods and to economic development.

However, they are under significant pressure from both human activities and natural phenomena, including agricultural practices, land cover and land use change, human settlements, water harvesting, invasive species infestation, climate change and unsustainable development practices.

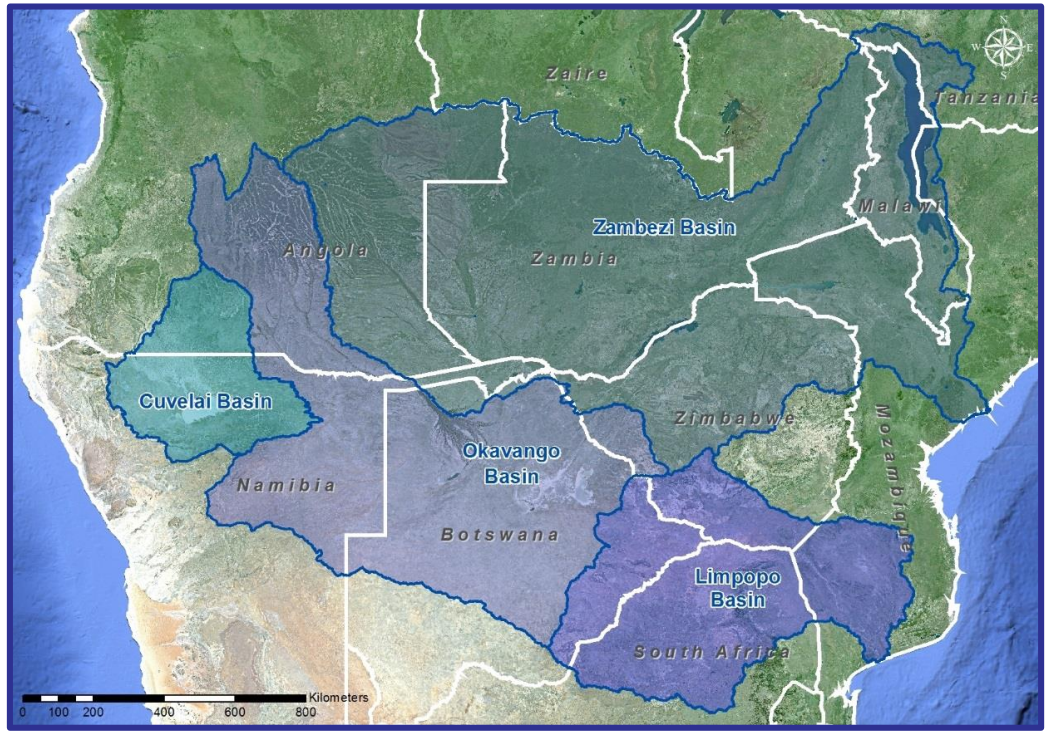
The future of these wetlands is therefore dependent on effective assessment and monitoring initiatives that can inform policy and decision making to promote sustainable management and use of these wetland ecosystems.

Moreover, the necessary skills and institutional capacities, to exploit existing and freely available data and information resources, in particular Earth Observation (EO) products, are often lacking and therefore constrain effective wetland management efforts.



Project Basins

The WeMAST project will provide products and services for the management of the wetlands of the following basins:



Basin	Basin Area	Riparian Countries
Cuvelai Basin	173 686 km ²	Angola & Namibia
Limpopo Basin	411 553 km ²	Botswana, Mozambique, South Africa & Zimbabwe
Okavango Basin	704 275 km ²	Angola, Botswana, Namibia & Zimbabwe
Zambezi Basin	1 383 498 km ²	Angola, Botswana, Namibia, Malawi, Mozambique, Tanzania, Zambia & Zimbabwe



The Cuvelai Basin

The Cuvelai drainage system channels runoff from Angola’s summer rainfall through a complex system of ephemeral river channels, referred to as the oshanas. When the system floods, the runoff flows through the shallow channels in a southerly direction to the Etosha pan in Namibia.

During the wet season, the oshanas of the Cuvelai drainage system are estimated to support around 30 to 40 % of Namibia’s population with subsistence farming and fishing on the seasonal wetlands. In addition, the flooded wetlands contain small fish, carried with the runoff from the North, which are joined by various pond fauna and draw various bird species, including flamingo, that will also breed in the Fischer’s Pan of the Etosha pan, and the threatened blue crane. Most of the Etosha pan itself is contained in the Etosha National Park, which hosts a number of rare and endangered mammals, including the black rhinoceros, and consequently contributes substantially to the local economy with tourism. The Etosha pan and the Cuvelai drainage system in Namibia are a Ramsar site.



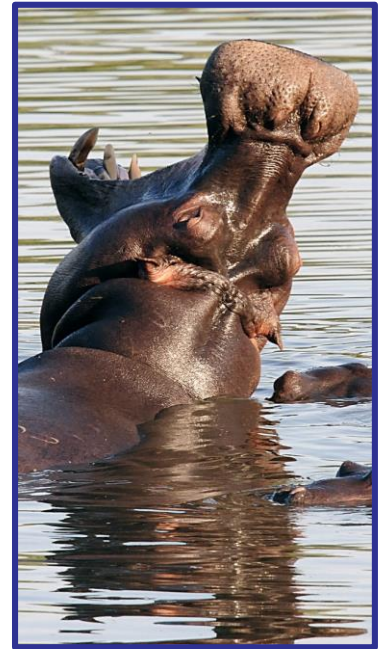
The Limpopo Basin

The majority of wetlands along the Limpopo basin are located in Mozambique and along the Changane River. There are three Ramsar wetland sites in the Limpopo basin: The Makuleke Wetlands, the Nylsvley Nature Reserva and the Verloren Valei Nature Reserve. All three wetland sites have conservation status and therefore contribute to the local economies with tourism.

Most of the Makuleke wetlands are situated within the Kruger National Park. The wetlands are of floodplain vlei type and are intermittently filled by floods and rain. They sustain riverine ecosystems, including wildlife, well into the dry season. The floodplains also serve to attenuate floods, thereby reducing flood damage downstream.

The Nylsvley Nature Reserve serves as a breeding ground for eight red-listed waterbirds and hosts the endangered roan antelope. It is also the only site where wild rice is found in South Africa.

The Verloren Valei Nature Reserve is hydrologically significant as it functions like a sponge in the upper catchment, ensuring the gradual release of water to downstream areas during and after the rainy season. The area provides a refuge for the Wattled Crane and further hosts various vulnerable and threatened plant and mammal species.



The Okavango Basin

The Okavango Basin's main stream, the Okavango River, is southern Africa's fourth longest river and is produced by seasonal flooding during the summer months. It begins as the Rio Cubango in Angola, flows south to form the border between Angola and Namibia and, in Botswana, it reaches the large swampy inland delta called the Okavango Delta, a UNESCO World Heritage Site.

The Okavango River and the delta attract great concentrations of wildlife, including huge elephant and buffalo herds, and consequently fuel a lucrative tourism industry in Namibia and Botswana.

Along all rivers and tributaries, the river-based communities rely on the perennial river for small-scale irrigation, subsistence farming and fishing.

The Zambezi Basin

The Zambezi basin is the fourth-largest river basin of Africa with a large area covered by wetlands. These include the Barotse Floodplains in Zambia, the Chobe Swamps in northeastern Namibia, the Linyanti Swamp in Botswana, the Busanga Swamps on the Lunga River, the Lukanga Swamps and the Kafue Flats on the Luangwa River, and the Elephant Marsh near the town of Chiromo in Malawi. These wetlands are used for fisheries, including commercial fisheries, agriculture, wildlife management and transportation services. Moreover, these wetlands are important habitats for fish, and its riverine woodlands supports support wildlife and birds, by providing vegetative cover and suitable breeding and feeding grounds, which drive tourism activities, that include photography, bird watching and hunting. Furthermore, the wetlands provide hydrological services by decreasing downstream flood risks.

The construction of the Kariba and Cahora Bassa dams has decreased the size of the floodplain of the lower Zambezi, and consequently the wetlands, but flooding remains perennial.



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