

**Our
Olifants**

Exploring how things are linked
in the olifants system

The Olifants River Catchment



A User's Guide



USAID
FROM THE AMERICAN PEOPLE

SOUTHERN AFRICA

Our Olifants

USAID's Resilience in the Limpopo River Basin (RESILIM) program



Acknowledgements

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USAID's Resilience in the Limpopo River Basin (RESILIM) program addresses ongoing degradation in the Limpopo River Basin in southern Africa, where people face water shortages, increased floods, and declines in crop productivity as climate change further stresses an already water limited region.

USAID's RESILIM O program aims to reduce the vulnerability of people and ecosystems in the Olifants River Catchment specifically, by improving how transboundary natural resources are managed. By understanding the systemic causes of vulnerability, including climate vulnerability, it is promoting new ways of thinking and acting to promote integrated water and biodiversity management. It is being implemented by the Association for Water and Rural Development (AWARD).

The Olifants River Catchment at a glance

The total population for the Olifants River Catchment is estimated to be about 4.2 million people, about 70% of whom live in rural areas.

There are about 30 major dams, not including farm and unlawful dams.

Only around 21% of the total population is formally employed.

About 900 000 people on the South African side of the catchment receive some kind of social grant from the South African government.

There are in the region of 800 registered mines in the catchment including closed mines and prospective mines.

Roughly 16% of the land area of the Olifants River Catchment is under protected conservation.

About 42% of the land area in the Olifants River Catchment is officially classified as endangered or vulnerable.

There are around 120 waste water treatment works that process domestic and industrial waste water on a daily basis.

The value of the Olifants River Catchment's export market is around R1 billion, which is mainly generated from the mining industry and food exports from large irrigated agricultural operations.

Large portions of the Olifants River Catchment are under agricultural production and the catchment is home to the second largest irrigation scheme in South Africa.

Significant amounts of the Olifants River Catchment are under land claim from communities that were previously dispossessed of their land.

The Olifants River Catchment is often seen as the 'power house' of South Africa. Eskom has 9 major coal-fired facilities in the catchment. The coal for these power generators comes from parts of the catchment too.

Tourism is important in the area, which is home to some of the best known parks and lodges in the world, protecting and commercializing its diverse natural resources.

In Africa, Mozambique, is the third most vulnerable country for risks associated with Climate Change, having experienced 68 natural disasters in 50 years.

In the Limpopo Basin in Mozambique, the average age is 17.5 years and 95% of the people are considered dependents aged less than 15 or older than 64



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What is the Olifants River Catchment

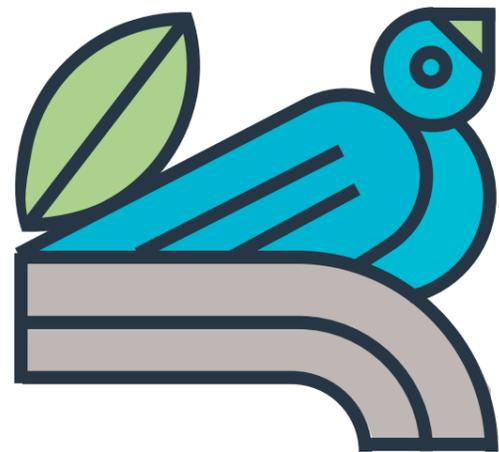
A river catchment is simply an area of land where all surface water from rain collects, flowing into a river, lake, reservoir, estuary, wetland or ocean. It is separated from neighbouring catchments by hilly or mountainous areas.

The Olifants River Catchment falls within the Limpopo River Basin, which is part of an international drainage basin that stretches across South Africa, Mozambique, Zimbabwe and Botswana.

In fact, the Olifants River contributes nearly 40% of the water that flows in the Limpopo River, making it an important river in the larger system as a whole.

At the heart of this catchment is the Olifants River, a vital artery that flows for 560 kilometres through South Africa and into Mozambique, where it is known as the Rio dos Elefantes.

This once mighty river originates in South Africa's Mpumalanga Highveld, flowing northwards before curving in an easterly direction through the Kruger National Park and into Mozambique, finally finding rest in the salty water of the Indian Ocean near Xai Xai, just north of Maputo.



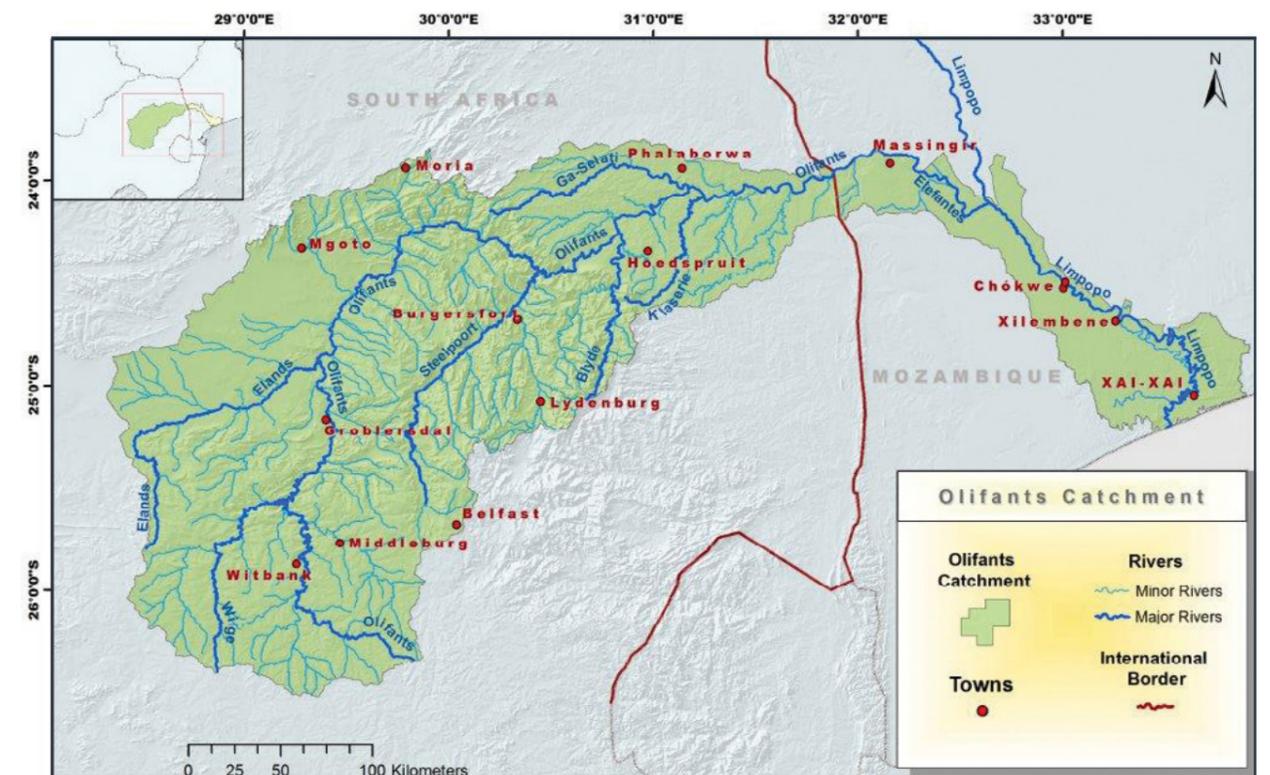
The Olifants river in South Africa has 6 main tributaries:

- 1 Wilge
- 2 Elands
- 3 Steepoort
- 4 Blyde
- 5 Klaserie
- 6 Selati

The Letaba and Shingwedzi rivers join the Olifants in Kruger National Park and Mozambique respectively. The Olifants River, in turn, is the Limpopo River's most important tributary in Mozambique.



“The Olifants River flows through us, not past us. It sustains our livelihoods. It nourishes our identities. It supports our world.”



In South Africa we manage rivers and water resources within them on the basis of what we call Water Management Areas (WMA). In total, the Olifants Water Management Area is just short of 55 000km² and falls within three provinces- Gauteng, Mpumalanga and Limpopo in South Africa and one province, Gaza, in Mozambique. Each secondary catchment has its own variations in climate, water availability, level and nature of economic development, and population density. Along with its tributaries, it is one of the six major Lowveld river systems that flow through the Kruger National Park and then into Mozambique.

As a transnational catchment, there are sections of the Olifants Catchment in South Africa and Mozambique. On the South African side, 45% of the catchment lies in Mpumalanga, 42% in Limpopo and 13% in Gauteng. About 3.5 million people live on the South African side of the catchment. In Mozambique, it flows through Gaza Province, which is home to about 700 000 people. On the South African side of the Olifants River Catchment, about 66% of the people - or around 2.3 million - live in rural rather than urban areas. In Mozambique, nearly 80% of the people, or 560000, live in rural areas.

On the South African side

45%

of the catchment lies in Mpumalanga

42%

in Limpopo

13%

in Gauteng

A lifeline in trouble

The diverse population groups living in the Olifants Water Management Area and along the river in Mozambique all have one thing in common;

They rely on the goods and services that the complex ecosystem in the Olifants River Catchment provides.

This reliance can be direct or indirect. Rural communities rely on it for things such as traditional medicine, grazing and browsing, fuel, food and housing materials. Some people in river-side communities harvest reeds, collect water from the river for washing and drinking and use it for recreational and spiritual practices.

Subsistence farmers in Mozambique rely heavily on its flood plains. There are also large mines and associated industries, large scale agriculture and the wildlife economy, which all rely on a healthy, functioning river system and its associated biodiversity.

The life-giving, livelihood sustaining natural resources of the Olifants Catchment and its associated systems of natural resources, are under threat. Unchecked pollution, inappropriate land resource use, weak and poorly enforced policies and regulations and poor protection of habitats and biodiversity are degrading the Olifants at an alarming rate. Factors such as mining from heavy metals, inappropriate land management, rural sprawl and unsustainable use of natural resources all affect the level of goods and services the ecosystem can provide.



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The catchment's interwoven system of natural resources are the foundation of the livelihoods and development of all of these people. Yet the river and associated natural resources in the Olifants Catchment are under threat...



The Olifants Catchment has a predominantly rural character with almost 70% of the total population residing in rural areas



People of the Olifants

The question is, if the system is in trouble, who or what will be affected?

The Olifants Catchment has a predominantly rural character with almost 70% of the total population residing in rural areas. The former homelands of Lebowa, Bophuthatswana, Kwa-Ndebele and Gazankulu, which constitute 26% of the area in the basin, are the most densely populated. This is also where the most vulnerable people live. If the system degrades, so does their quality of life. As well as exposing them to threats to their health and well-being, it limits their opportunities for living healthy lives and job creation.

The Upper Olifants contains the largest urban population, concentrated in the two main urban centres of Witbank (Emalahleni) and Middleburg, which is also where the majority of coal mining activities take place. The major urban centre in the Olifants Catchment in Mozambique is Xai-Xai town.



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This is Thomas Malapane

He is a farmer, who rents land just outside Lekgalameetse Nature Reserve in the Olifants Catchment.

“For twenty-one years I worked for a citrus farmer out near Hoedspruit, so I understand farming. I grow green beans, lima beans, okra, brinjals, and baby marrows, and I sell my produce at the local market. It’s hard work, but it’s a good business. A well-established farm can produce R30 000 worth of vegetables in a week, but that’s not all profit. I have to buy seed, fertilizer and equipment, and pay my workers. Still, there’s money in it if you do it right.”

This is Ruben Thomas

He is a Zambian entrepreneur living in Tafelberg the Olifants Catchment, where he makes leather goods.

“We buy the ostrich and kudu leather from Mpumalanga Parks Board and we do all the stitching, dying and ‘engraving’ (leather pressing) ourselves. In one week we can usually make about one hundred wallets and about twenty belts.”



This is Blessing and sibling Shullen Moagi from Penge.

“We’ve always depended on the river for all our water requirements. Unfortunately, these days we can’t drink it because too many people throw all their rubbish into it, especially dirty nappies - there are lots of dirty nappies in the water! But people still wash their clothes in it and go fishing here all the time.”





This is Alfred Nkadimeng

He is a recycling entrepreneur from Jane Furse.

“Water is actually our biggest problem here in Jane Furse. We only get water about once a week from the community taps. On the days we don’t have water, we walk about 3 – 4 km with wheelbarrows and buckets to collect river water. It’s very dirty because we have to share it with the goats and cows that walk around down there, but we don’t really have a choice.”

This is Lindiwe Malatji

She is a cleaner at Bollanoto Tourism Centre in Phalaborwa.

“In my village people are still collecting water from the river, which is dirty because the animals drink and mess there too. I have a good job here as a cleaner, so every day I can buy 25 litres of drinking water from the man with a donkey cart, and then another 25 litres of salty water for bathing and washing from the man who dug his own borehole. The drinking water costs R40, and the bathing water isn’t good, but is cheaper. It means I don’t have to walk to the river, which is 5 km away. People who can’t afford to buy their water have to use the river for everything.”



What happens upstream affects things down stream

Our system is an interconnected one. Contaminated water from the upper parts of the Olifants Catchment eventually reaches the Loskop dam, which acts as a sink from upstream pollutants before the river flows down to the Kruger National Park and into Mozambique. The aquatic system of the Loskop dam is becoming hypertrophic, which means that the water is excessively enriched by phosphate and nitrogen nutrients, and has been occasionally experiencing massive toxic blue-green algae blooms since 2008. The high concentration of metals, sulphates and nutrients and the change in trophic status has negatively affected the dam's aquatic life. For example, fish have tumors and there are high concentrations of aluminium and iron in fish organs as well as severe liver disease in certain fish species in Loskop Dam.



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Often people forget that what they do upstream in the Olifants River Catchment affects people and natural resources downstream, sometimes with dire consequences.



In the Elands, Steelpoort and Middle parts of the Olifants River, water quality issues are primarily related to salinity (high salt content), eutrophication (too many nutrients), toxicity and sediment. Mining activities and irrigated agriculture near the Steelpoort area are the main cause for salinity and eutrophication problems (salts are from mining processes and nutrients come from fertilizers). Toxicity problems have been associated with the use pesticides and herbicides. Land degradation, poor agricultural practices and overgrazing in the rural areas within the Middle Olifants are responsible for sediment pollution when soil is washed into the river making it turn brown and muddy. Moreover, this production of sediment causes problems at the downstream Phalaborwa Barrage by blocking pumps and mud sedimenting up the dam.

Sediment laden water releases from the Phalaborwa Barrage into the Kruger National Park have been the cause for massive fish kills because mud in the water causes a drop in oxygen in the water. In the Lower Olifants part of the catchment, the major water quality issue is caused by discharges from the mining activities around Phalaborwa in the Ga-Selati River.

Consequently, the poor quality water in the Ga-Selati River eventually impacts on the Olifants River in the Kruger National Park.

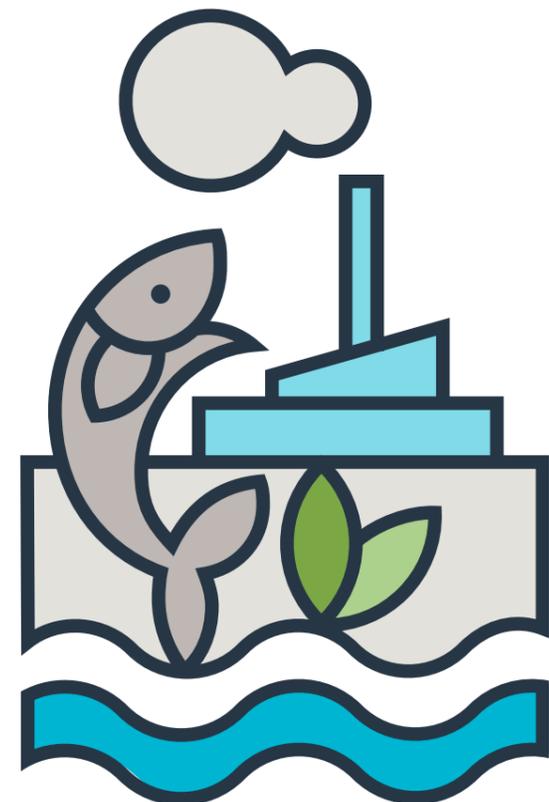
However, the good water quality coming from the Blyde River (in the Blyde part of the catchment) along with the Mohlaitse River (in Lower Olifants part of the catchment) help improve the water quality in the Olifants River, keeping the water quality at an acceptable quality for the park – for now!

The Blyde River is recognised as a relatively pristine river and is classified in a 'good to natural' ecological state. Moreover, it has been shown that the Blyde River's contribution to diluting water pollution in the Olifants River results in important reduction in sulphate levels.

How do we know what's happening in our rivers?

There is a large network of water-quality monitoring sites across the Olifants water management area.

More specifically, there is a moderate to good distribution of these monitoring sites in the Upper and Lower Olifants sub-catchments. Poor distribution in the Middle Olifants, especially in the former homelands, needs to be addressed.



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Farmers, miners, fishermen and lodge owners need to begin to see themselves as part of the same system and part of the solution to the water quality and other issues we are facing in the catchment.

Understanding the system as more than the sum of its parts!

It is important for everyone to understand what's happening to the water in our Olifants and help people to see the links between their activities and how it affects things down stream. This helps to support thinking and acting in ways that help people and ecosystems cope with changing conditions. Trouble never comes alone! One cannot manage a system by focusing on one aspect only.



What the research is saying

Ongoing research, by organisations such as AWARD, in the Olifants River Catchment shows that some of the issues affecting the water are high salinity associated with mining activities, acid mine drainage and irrigated agricultural practices.

There are also concerns around sulphate levels associated with mining and acid mine drainage, phosphate levels associated with wastewater treatment and agricultural practices (phosphate fertilizers) and pH levels associated with mining and acid mine drainage. In fact, some parts of the river are nearly as acidic as battery acid when there is a spill into the river from mining or industry.

Some other drivers of poor water quality in the Olifants River Catchment are disposable nappies, animal waste and poorly functioning waste water treatment plants

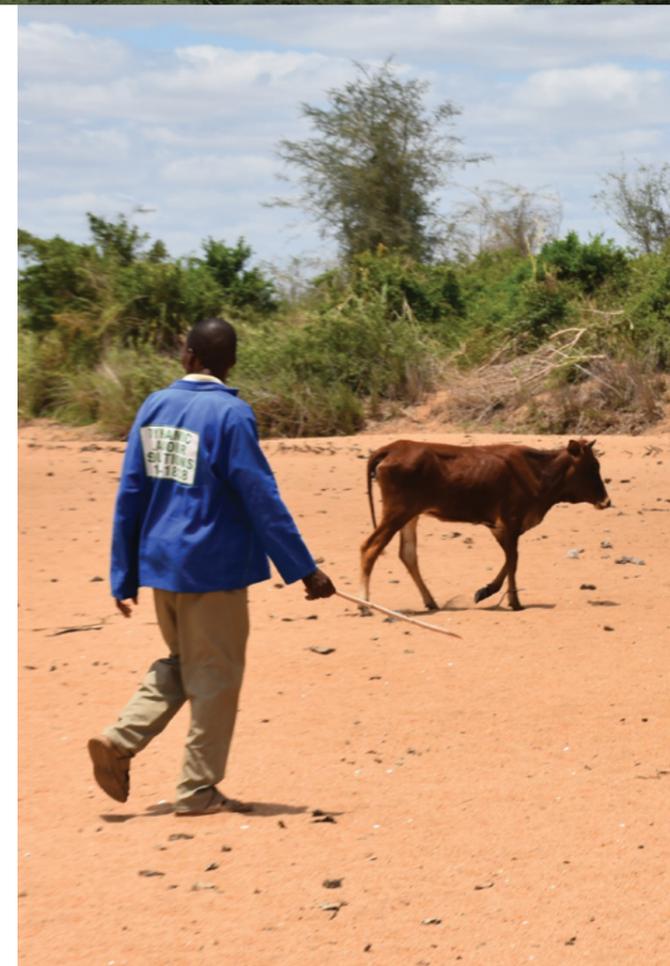


Coupled with all this, burning issues affecting how natural resources are managed are climate change, governance, land reform, issues around protected area management and more.

Together, these multiple drivers of change have led to growing concerns about the ecological and human health risks throughout the Olifants River Catchment.

This severely compromises the resilience of the water resources and associated biodiversity and negatively affects the tens of thousands people who rely on the system for goods and services in South Africa and Mozambique.

Climate change is likely to exacerbate this with increased temperatures, evaporation, flooding and droughts.



How will Climate Change affect the catchment?

With temperatures expected to rise by 3-4 degrees Celcius over the next ten years, according to the latest climate models developed as part of the USAID: RESILIM O project, nobody can afford to ignore climate change.

Significantly, the warmer temperatures will also mean more evapo-transpiration (water lost from plants). Dams will also be left emptier by water evaporating under warm weather. That means the amount of useable water we will be left with, is massively decreased. Climate change projections also show that in the absence of strategies and mechanisms for adaptation, Mozambique could lose up to 4,850 km² of land by 2040, or even 0.6 % of its land area. This may affect 2.3% of the population, which may be forced to migrate away from the coast

So how will an increase in evaporation potential of 10-15% and a predicted decrease in mean annual precipitation (amount of rain we can expect each year) by 10-20% affect people in the catchment?

The scenarios differ for different areas in the catchment, but in general it threatens to cause widespread livelihood vulnerability, environmental degradation and intensifying conflict over resources.



Managing water and biodiversity in the Olifants River Catchment is the responsibility of everyone because we live in the catchment and the biodiversity offers us livelihoods security. It provides food, building materials, job opportunities, it makes our catchment beautiful and interesting and is a big influence on our culture.

Who is responsible for managing the water and biodiversity of the Olifants River Catchment?

The ‘custodians’ of the Olifants River Catchment are the people who act on our behalf. They include the Ministers and their National and Provincial Departments.

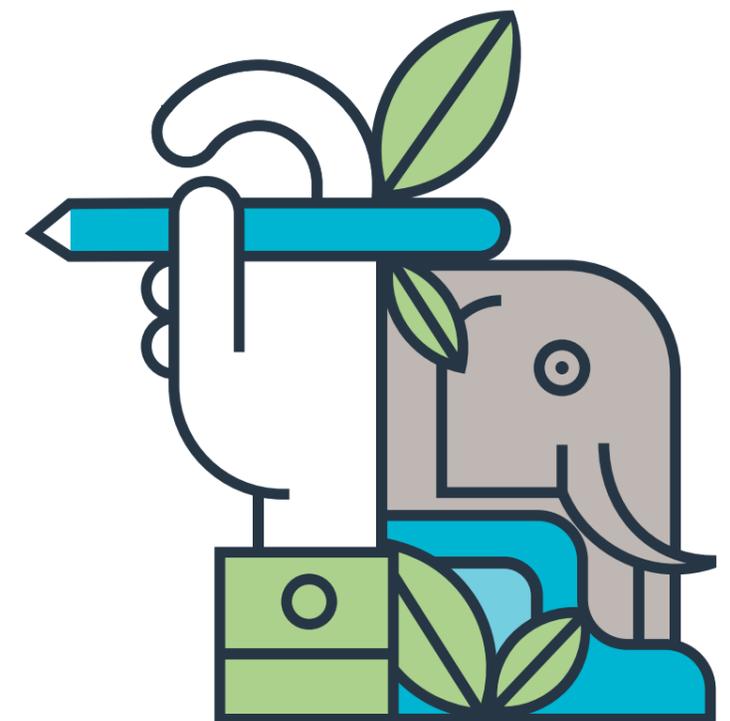
In some case we also have special bodies that work with the Government departments to manage some of resources. In the case of water the Minister of Water and Sanitation is the custodian and regulator. The Minister is assisted by organisations called Catchment Management Agencies (CMAs) of which there are nine in South Africa. These set and monitor the standards for protecting water resources and well as regulation of its use. Local government, water boards and water user associations also play an important role in managing water in South Africa because they are the ones who use and distribute water from people and farming.

When it comes to biodiversity the national custodian is the Department of Environmental Affairs. The Minister is assisted by provincial departments and organisations such as the Mpumalanga Tourism and Parks Authority. When it comes to parks we have a special parastatal organisation called SANParks to which Kruger National Park belongs. There are also provincial and municipal parks and privately run conservancies and game lodges.

For water resource management, Mozambique has the Water Act (1991) and the National Water Policy (2007) which are being implemented through the National Water Resource Management Strategy.

In Mozambique, the legal framework for the use and management of the environment is outlined in the Environmental Act (Decree 20/97), in the Forestry and Wildlife Act (Law n°10/99) and its regulations, in line with various international conventions and/or ratified by the Mozambican government.

Everyone needs to know who these organisations are and what laws are in place so we can all be involved!



What is your role?

Civil society has an important role because in the eyes of the law everyone has a right to participate in decisions that affect them (according to our Constitutional democracy). But some civil society members choose to get organised and form volunteer organisations or register as Civil Society Organisation (CSOS or NPOs). Many of these perform a “watchdog” role. Some also get involved in delivering services to civil society members. This watchdog role is very important. We encourage everyone living in the Olifants River Catchment to attend public participation meetings and get involved in local governance. If we don’t respect water we will not have a very bright future.

Get involved

Anyone interested in learning more about AWARD can visit

www.award.org.za

or the Our Olifants website

www.ourolifants.com

You can follow the campaign using

#OurOlifants



“

Managing for a sustainable future is going to take skills we need to start developing now. We need climate change scientists, municipal managers and so on...We also need engaged citizens and strong civil society organisations”

About AWARD

At AWARD, we recognize that the natural world's resources are limited, and undergoing rapid depletion and transformation. We know current practices of use and management are inadequate to deal with the changes and challenges we are facing.



We design practical interventions to address the vulnerability of people and ecosystems, and merge considerations from both environmental and social perspectives. Our approach involves thinking across disciplines, boundaries and systems.

We are working with diverse people and institutions in the water and biodiversity sectors in the Olifants River Catchment to understand the multiple vulnerabilities to change, including climate change. Along with quality scientific contributions, our engagement in the socio-political context of the Olifants River Catchment allows us to begin to institutionalize integrated, resilience-based practices, providing a foundation for robust development policy and practice in the in this river catchment, and beyond.

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