

# THE ZAMBEZI

Volume 6 no 3

## **Recent floods in the Zambezi basin – a result of climate change?**

by Tigere Chagutah

The planet is heating up, almost certainly due to the increase in greenhouse gases caused by human activity, and the signs are beginning to show. Debate on climate change and its link to natural disasters has been revived in the wake of recent floods that inundated some parts of the Zambezi river basin following a prolonged drought.

Speaking at the UN Conference on Climate Change held in Canada in December, the principal secretary in the Ministry of Lands, Housing and Surveys in Malawi, George Mkondiwa said although local scientists are yet to publish their findings, there is no doubt that climate change has influenced climate trends in southern Africa over the last decades.

"Everyone is asking such questions such as, '...is this due to climate change or not?' We don't think that there is any doubt that this is due to climate change," Mkondiwa said.

The flooding followed heavy and continuous rains that pounded many parts of southern Africa from December 2005 through March 2006 and caused considerable structural damage, destroying schools, crops, telecommunications and roads while in some places whole villages were flooded prompting the relocation of people and livestock to higher ground.

At least 22 people were killed in Mozambique while 1,500 families were left homeless and up to 9,000 people were affected. In Sofala province alone, about 4,000 hectares of maize were destroyed.

In the southern province of Huila in Angola, at least 45 houses were destroyed while in the neighbouring Benguela province, some 50 hectares of cropland were destroyed.

In Malawi, 72 hectares of cropland was damaged and more than 2,000 people were displaced in the flood-ravaged southern district of Nsanje. This was after heavy rains caused the River Ruo to burst its banks, affecting up to 40,000 people.

The flooding also disrupted the power supply in Zambia after the country's main hydroelectric power station at Kafue Gorge was damaged.

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## EDITORIAL

Water is life, but too little of it or too much of it has adverse effects. Recent trends indicate that in any rainfall season, southern Africa is either experiencing scattered floods or drought.

Hydro-meteorological disasters are not a new phenomenon in the Zambezi river basin. Several droughts and floods have afflicted the basin in recent times. For example 1986-87, 1991-95, 1997-98 and 2003-04 are some of the recent drought years, while the period 1999 to 2001 saw the basin experiencing some of the worst floods in living memory.

The severe droughts in the 1990s compromised southern Africa's food security. The region's food and livelihood situation was worsened when the cyclone-induced floods of 1999-2000 killed more than 700 people, destroyed infrastructure and property, displaced people and wildlife, and damaged crops.

In early May 2003, heavy rains led to flooding in the Caprivi region of Namibia, where high waters along the Zambezi River and its tributaries displaced 25,000 people. The floods recorded as the worst since 1958, killed people, livestock and wildlife. Many villages were submerged and some homes were washed away.

Heavy rains being experienced in the current 2005/2006 rainfall have had varying impacts for the different communities in the basin. There have been localised flooding in areas in the middle to the lower Zambezi River basin including northern and western Zimbabwe, eastern Zambia, southern Malawi and central Mozambique. At least 22 people have been killed, several houses damaged and many families left homeless.

In the wake of the current floods, the state of the region's disaster preparedness calls for more concerted efforts. This is notwithstanding the roles of specialised centres such as the SADC Drought Monitoring Centre (DMC) and SADC Regional Remote Sensing Unit in informing the region of impending droughts, floods or other climate patterns, particularly those that impact negatively on agricultural production.

Additional measures in the area of disaster management in southern Africa followed the outcome of the World Summit on Sustainable Development in Johannesburg in 2002, which urged countries to reinforce monitoring and early warning systems, particularly in the area of flash floods forecasts and in the use of satellite data about extreme meteorological phenomena.

The importance of disaster preparedness and management was further reinforced at the regional summit on agriculture and food security held in 2004 in the United Republic of Tanzania, which stressed the need for the region to vigorously embark on water management programmes such as flood control to prevent loss of life and the destruction of agricultural land and infrastructure. The summit also considered the possibility of establishing a Regional Food Reserve facility, which would include both the physical reserve and a financial facility. In this regard, studies are to be conducted on early warning, including a review of the SADC food security early warning systems.

From a cost benefit perspective, there is every reason for governments and other stakeholders to invest in early warning systems and disaster preparedness plans, and disaster awareness rather than wait to respond to disasters only when they occur.

Early warnings that are issued without enough community awareness have in the past failed to yield the desired results. To ensure people respond to warnings, all the links in the chain, from high-technology meteorology to low technology warnings and awareness raising, must be put in place.

After the 2000 floods, former Mozambique President, Joaquim Chissano observed that "warnings must be clear and simple" and communities at risk must trust those delivering the warnings.

Scientists have in the past encouraged cultivation of drought resistant crops such as sorghum but these are generally viewed as economically inferior compared to crops such as maize. In order for diversification to be successful, there is also need for a change in eating habits so as to be in line with crops that are potentially able to perform in dry areas or during dry periods.

The region can only improve its resilience to the vagaries of climate change and variability such as floods and drought if it develops more resilient infrastructure, protects its environment from natural disasters, and most important, change their livelihood strategies, including aligning agricultural practices and consumption patterns to the dynamic climatic challenges.

## Highlights...

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# Stakeholders discuss strategy for Zambezi water management

by Egline Tauya

**K**ey issues and challenges for the management of water resources in the Zambezi River Basin were considered by stakeholders at a recent conference attended by more than 100 people from the eight basin states that share the river.

Integrated Water Resources Management (IWRM) provided the basis for the discussion, with the objective of informing the IWRM strategy formulation process in the Zambezi basin and reviewing progress.

The two-day Stakeholders Dialogue Participation and Networking conference in Gaborone in December also sought to facilitate dialogue between stakeholders and to promote sharing of information on various initiatives in the Zambezi basin.

Participants included water experts and environmentalists drawn from government, non-governmental organisations, civil society, traditional leaders, cooperating partners and academia, research institutions and media.

The conference was co-hosted by Zambezi Action Plan Project 6, Phase II (ZACPRO 6.2), in collaboration with IUCN-The World Conservation Union and the Musokotwane Environment Resource Centre for Southern Africa (Imercsa) of the Southern African Research and Documentation Centre (SARDC).

Discussing the issues and challenges of the basin, conference participants emphasised the need to prioritise not only equitable sharing of water but also equitable sharing of benefits.

While noting that equitable access does not necessarily mean equal quantities but rather equal opportunities to access water, the conference stressed that the Zambezi IWRM strategy should recognise not only the value of blue water (water in the river) but also green water (available soil moisture), and should also mainstream gender in the strategy.

The conference stressed the need to incorporate the key principles of IWRM strategies, which were agreed upon and clearly spelt out at the International Conference on Water and Environment at Dublin in 1992.

These principles recognise water as a finite and vulnerable resource whose allocation is crucial; the pivotal role of women in management of water resources; a participatory approach in water management; and management of water as a social and economic good with due consideration of the economic value in its competing uses.

The need to ensure achievement of the IWRM goal of ensuring adequate quantities and quality of water for human use and economic development was emphasised by a Member of Parliament (MP) from Malawi, Dzoole Mwale, in his keynote address to the conference. He said this should be coupled with ensuring sustainable use of water resources for the proper functioning of ecosystems and their use by future generations.

Mwale highlighted three governance components, which should be in place for the implementation of IWRM: an enabling environment, an appropriate institutional framework, and adequate management instruments and tools.

Officially opening the conference, Nonnie Lephole, speaking on behalf of Charles Tibone, Botswana's Minister of Minerals, Energy and Water Resources, emphasised the need to consult all stakeholders in the process of formulating the IWRM strategy for the basin.

"This builds the necessary consensus for policy reform and also promotes a more efficient and socially responsible water management strategy that benefits all sections of society, including the poor and the marginalized," she said.

The ZACPRO 6.2 Project, a Southern African Development Community (SADC) initiative, is expected to lead the strategy formulation process, in consultation with stakeholders, with the aim of developing an IWRM strategy for the Zambezi river basin.

Speaking at the same conference, Zebediah Phiri, the ZACPRO 6.2 Project Manager, gave an outline of the strategy formulation process to date, including water resources assessment and IWRM strategy definition.

The conference noted the need to harmonise policies and regulations at national and regional levels. Roles and responsibilities of National Steering Committees (NSC), established under the ZACPRO 6.2 project, should be clearly specified to avoid duplication of activities.

In addition, data collection and dissemination systems must be upgraded to inform and support the strategy formulation.

The conference emphasised the need for repackaging and disseminating information to various interest groups. The value of institutions such as SARDC IMERCSA, which produces State of the Environment reports and fact sheets as well as *The Zambezi* newsletter was commended. Julius Daka of the Environmental Council of Zambia said, "at the heart of information is data and there is need to value the people who collect data, analyse it and disseminate."

Gunnla Wingquist of the Swedish International Development Cooperation Agency (Sida) represented the cooperating partners who give financial support to the ZACPRO 6.2 Project. She said it is encouraging to see that the process of formulating an IWRM strategy for the Zambezi basin has been initiated and called for further cooperation and collaboration among the riparian states.



Participants attending stakeholder dialogue networking conference, Gaborone.





## Conference appreciates the role of disaster prevention and mitigation in the conservation of wetlands

by Admire Ndhlovu

**P**arties to the Ramsar Convention on Wetlands have agreed to protect and restore wetlands and watersheds, to prevent and mitigate damage by natural disasters on such ecosystems.

This is one of the 24 resolutions that came out of the ninth meeting of the Conference of the Contracting Parties (COP 9) to the Ramsar Convention on Wetlands, the first to be held in Africa.

With the theme "Wetlands and Water: Supporting Life, Sustaining Livelihoods", the conference in Uganda in December 2005 was attended by about 1,000 participants from 120 contracting parties, as well as a number of observer states, UN agencies and non-governmental organisations.

Contracting Parties meet every three years to assess progress in the implementation of the convention, share knowledge and experience, and plan for the next meeting.

The resolution on natural disasters provides a framework to assist the drought and flood-prone Zambezi basin to monitor and assess the impacts of natural disasters on the ecological character of wetlands, and on the livelihoods of people dependant on these wetlands.

Six of the eight Zambezi basin states are party to the Ramsar Convention: Botswana, Malawi, Mozambique, Namibia, the United Republic of Tanzania, and Zambia. Angola and Zimbabwe are not parties to the Convention.

The Zambezi river basin is highly vulnerable to natural disasters, the most common of which are floods and droughts. The basin and the rest of southern Africa experienced at least three drought seasons in the decade 1990 to 2000.

Flood occurrences are becoming more frequent in the region. In the rainfall season of 1999-2000, cyclone Eline brought widespread floods devastating extensive areas of Botswana, Mozambique, Malawi, Zambia and Zimbabwe. Outside the Zambezi river basin, the cyclone caused extensive damage to the northern parts of South Africa.

The Southern African Drought and Flood Network reports that the heavy rains experienced in the 2005-2006 rainfall season in southern Africa had varying impacts for different communities.

While the high rainfall recorded in many parts of the region came as a welcome reprieve from the recurrent droughts of recent years, the heavy rains have also resulted in losses due to flooding.

Services and benefits derived from wetlands include recharge of aquifers, flood and flow regulation, conservation of fauna and flora, water purification, as well as supporting flood recession agriculture. Wetlands act as sponges holding back some water that percolates into the ground and contributes to groundwater supplies.

Vegetation and plants in marshes and swamps control erosion as roots hold the

soil and trap sediments. Well-vegetated rivers and flood plains are also excellent flood absorbers.

In the Zambezi river basin, wetlands have been used for centuries for recession agriculture.

The variations in flooding create fertile soils used to support intensive agriculture. The basin floodplains such as the Zambezi floodplains, East Caprivi wetlands, the Elephant marsh, Kafue flats and Muzarabani support productive agriculture that sustains communities living near them.

Prolonged droughts negatively impact on the ecology of wetland ecosystems. However, well-conserved wetlands provide survival means for communities that depend on them. For example during the 1967-70 drought in Zimbabwe, 84 percent of the families with dambo fields were able to support their families.

Wetlands of the Zambezi basin support a diversity of plant and animal species. They are principal habitats for various fish and other aquatic species. The most notable commercial fisheries are on Lake Malawi/Nyasa/Niassa, Zambezi delta/Sofala bank and Cahora Bassa, and at Itzhi-tezhi, Kafue and Lake Kariba.

Despite their many uses and values, wetlands are being threatened by both natural disasters and human activities, and this necessitated the resolution on the role of the Ramsar Convention in natural disaster prevention, mitigation and adaptation.

Floodplain wetlands in the Zambezi basin have been severely degraded by changes in the magnitude, timing, duration, and frequency of flooding events resulting from the management of upstream dams and water diversions.

The Ramsar Convention underscores the devastating impacts of natural disasters on the delivery of ecosystem services and benefits, and calls for the maintenance and restoration of wetlands to reduce vulnerability to natural disasters while contributing to wider strategies aimed at mitigating climate change and desertification.

The Convention on Wetlands of International Importance especially as Waterflow Habitat (the Ramsar Convention) was signed in Ramsar, Iran, on 2 February 1971, and came into force on 21 December 1975. The only environmental treaty dealing with a particular type of ecosystem, it currently has 147 Parties to the Convention.

Ramsar sites found in the Zambezi basin include Kafue flats and the Lukanga and Bangweulu swamps in Zambia. The Okavango Delta System in Botswana include the Okavango river, Lake Ngami and parts of the Kwando and Linyati river systems that fall west of western boundary of the Chobe national park. In Malawi, the entire Lake Chilwa is within the basin.



Wetlands have provided many ecological and social services.



# The ZRA gives back to the Zambezi valley community

by Leonissah Munjoma

**T**he Zambezi River Authority (ZRA) is giving back to communities on the banks of the Zambezi river in Zambia and Zimbabwe through implementation of development projects ranging from borehole drilling to livestock production.

ZRA has also facilitated the electrification of two rural centres in the two countries and equipped a laboratory at a school in one of the districts.

Realising the need to ensure that the Tonga/Korekore people, removed from the Kariba Dam site way back in the late 1950s earn a decent living, the ZRA set up a development fund with the aim of economically empowering the communities living on both sides of the Zambezi river and Lake Kariba through implementation of self-sustaining projects.

The main objectives of the Zambezi Valley Development Fund (ZVDF), established in 1997, are to:

- raise funds for specific and sustainable projects meant to alleviate the impact of the displacement of people of the Zambezi river basin in Zambia and Zimbabwe who were removed during the construction of Kariba Dam; and
- address issues pertaining to project financing, human resources training and project administration for the communities in both countries.

It is also hoped that some small-scale irrigation schemes would help the communities to benefit from the waters of the Zambezi river on which Lake Kariba was built.

"The ZRA, while not legally bound, feels it has a moral and social responsibility to assist the displaced people bearing in mind that the benefits from the dam are being enjoyed by people who were never displaced," said ZRA Chief Executive, Dr. Michael Tumbare.

Seven districts from both countries have benefited from the fund. These are Kalomo, Gwembe, Sinazongwe and Siavonga in Zambia and Binga, Hurungwe and Nyaminyami in Zimbabwe. These districts are set to benefit from small-scale irrigation schemes being established to bring about an agricultural revolution in the Zambezi valley.

Other projects being implemented include the operation of grinding mills, drilling of boreholes, livestock production, supply of laboratory equipment to schools, and electrification of some rural centres.

The small-scale irrigation schemes are at various stages of development in the seven districts. These are: Lusitu in Siavonga, Buleya Malima in Sinazongwe, Nkolongozoya in Gwembe, all in Zambia. In Zimbabwe, the irrigation schemes are at Gatche Gatche in Nyaminyami, Mlimbizi in Binga and Chitenga in Hurungwe.



The distance walked to access water has been reduced through the drilling of boreholes.

Explaining the rationale behind implementation of the social projects, Dr. Tumbare said the resettlement of the displaced Tonga/Korekore was not well planned.

He said the setting up of the development fund was a way of sensitising the public and the two governments of Zambia and Zimbabwe on the plight of the displaced people and the need to assist them.

"So far the projects have brought the communities together and have created awareness among citizens of the two countries that these people are there and that their problems still exist.

The projects have empowered them. They have set up committees that assist in the management of the activities," Dr Tumbare said.

The ZRA was established in 1987 by parallel legislation in the Parliaments of Zambia and Zimbabwe following the reconstitution of the Central African Power Corporation (CAP Co) under the Zambezi River Authority Acts (Acts No. 17 and 19 of Zambia and Zimbabwe, respectively), and is jointly owned by the governments of Zambia and Zimbabwe in equal proportions.

The communities identify the projects through their district councils before submitting them to the ZRA who make recommendations to the Board of Trustees comprising members from both countries.

While women and children, mainly responsible for water collection, have had their burden made lighter through the drilling of boreholes, the community also has access to cleaner water. The community now pays less for the services of grinding mills, which have been brought closer to them.

Laboratory equipment installed at Manjolo School in Binga has offered the children an opportunity to venture into science careers. The electrification of Msampakaruma centre in Nyaminyami district, Zimbabwe and a centre in Zambia's Gwembe district is expected to bring about economic empowerment among the residents.





## Children to have a say in water issues through competition

by Eglina Tauya

A youth water competition was initiated by the African Ministers Council on Water (AMCOW) as one input to the fourth World Water Forum held in March in Mexico.

The competition, organized in conjunction with German Technical Co-operation (GTZ), was divided into three categories: one category for children between the ages of six and 12, another for teenagers 13-15, and the third for young adults of between 16 and 19 years.

This was part of AMCOW's contribution to involve children and the youth in formulating messages on key water issues for presentation to the world forum.

Children in the youngest category were tasked to make drawings or paintings with the theme "Vulnerability of Water Resources in your Community", to focus attention on the realization that available water resources are becoming more vulnerable due to increasing population pressure and worsening pollution levels.

The competition highlighted the existing and impending threats to water resources in various river basins in Africa.

The middle category of teenage competitors were to present their views through poetry by writing a poem on "Droughts,

floods, or other climate extremes, including experiences and responses by local communities".

Droughts and floods are a common phenomena in the Zambezi river basin, and in some other parts of Africa. The youth competition was intended to provide an opportunity for sharing of experiences in dealing with the problem of floods and drought across Africa.

Secondary school students aged 16-19 years were assigned to write essays of not more than 1,000 words each focusing on "Fresh water bodies shared by more than one country".

The essays were intended to depict good management of shared watercourses, with reference to community experiences and responses in Africa.

Most river basins in Africa are shared by two or more countries. Thus, the shared rivers could become a catalyst for cooperation, or a source of dispute. The 1.4 million sq km Zambezi river basin is shared by eight countries (*see page 8*).

The AMCOW was founded in April 2002 with the aim of providing political leadership, policy direction and advocacy in the provision, use and management of water resources, as well as strengthening intergovernmental co-operation to deal with water and sanitation issues in Africa.

## Two Zambezi basin states phase out leaded fuel

by Wilson Yule

Botswana and Namibia, two of the eight countries that share the Zambezi river basin, have phased out leaded fuel in line with the commitment made by African countries at the African Union (AU) Summit in Dakar, Senegal in 2002. Zimbabwe and Mozambique have set themselves a March 2006 deadline to do the same.

Phasing out leaded fuels will yield environmental benefits to the riparian states of the Zambezi Basin.

Environmental concerns associated with the use of leaded fuels include the emissions of carbon monoxide and ozone-forming chemicals, as well as the emission of toxic substances such as benzene.

Climatic experts argue that lead particles emitted into the atmosphere form a thin layer, which traps the atmospheric gases causing a serious threat to global warming. Lead fuel emitted to the air falls back to the earth and contaminates soil and crops. In this way lead is not only inhaled, but is also ingested by people through food.

Experts say urban air pollution, mainly from leaded fuels, impacts negatively on the environment and on people's health. In addition, such pollution is a major contributor to regional and global environmental challenges such as trans-boundary air pollution and climate change.

The move to stop using leaded petrol in sub-Saharan Africa began in Dakar, Senegal, in 2001 when countries agreed on the Dakar Declaration for the phasing out of leaded fuel.

The initiative was given fresh political impetus at the World Summit on Sustainable Development, which took place in Johannesburg, South Africa, in 2002.

After the declaration in Dakar, five sub-regional Action Plans were drafted, including one from southern Africa. A follow-up meeting on "Phasing out of Leaded Gasoline in Southern Africa", held in October 2003 in Cape Town, paved way towards the cleaner, lead-free, motor fuels in the SADC region.

Climate experts argue that vehicular emission from motor vehicles is the main contributor to air pollution in cities in developing countries. According to the outgoing United Nations Environment Programme (UNEP) Executive Director, Klaus Toepfer, "Removing lead from petrol in Africa is proving to be one of the great environmental and health success stories of the early 21st century."

Lead is a toxic metal that can cause damage to the kidneys, nervous system, brain, cardiovascular system and reproductive systems. Of most concern are its effects on the nervous system of young children. It has been linked with reduced intelligence, attention deficit disorders, and behavioural difficulties. The phasing out of lead in petrol will also pave the way for cleaner vehicle technologies, such as catalytic converters, which can greatly reduce harmful emissions from vehicles. These technologies are already standard in many parts of the world but need unleaded petrol in order to function.



# Recent floods in the Zambezi basin – a result of climate change?

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Southern Africa has experienced severe floods, resulting in destruction of infrastructure and homes.

Ironically, the downpour compounded the challenges of a severe drought that caused Botswana, Malawi and Zambia to declare a state of disaster as hunger threatened.

Added to this are fears of the spread of cholera as 1,640 cases were confirmed in Malawi, Mozambique, Zambia and Zimbabwe, and increased cases of malaria and tick-borne diseases.

In the Zambezi basin, climate variability has been most felt through water shocks caused by droughts and floods, and this has sharply reduced food security. The variation in the start of the wet season caused by climate change has left farmers in the basin unsure about when to plant their crops.

According to Mkondiwa, in 2004, Malawian farmers who had planted during the first rains on the advice of agricultural extension scientists, had to watch helplessly as their crops wilted.

Zambia has experienced a shift in recent years in the onset of the rainy season and when the rains do come they are interspersed with dry spells. This resulted in a food deficit for 2005 as production fell from 1.2 million metric tonnes in 2004 to 866,000 tonnes in 2005.

In Zimbabwe, the Meteorological Services department had forecast a longer wet season characterized by "normal to above normal" rainfall across the country up to March 2006 as a result of a shift in sea surface temperatures.

The development of measures to mitigate the effects of hydrological extreme events (floods and droughts) is a key activity in the SADC Zambezi Action Plan Project 6, Phase II (ZACPRO 6.2) initiative.

According to Jeffer Sakupwanya, the water resources expert in the ZACPRO 6.2 project, dialogue is ongoing and a group of hydrologists from the riparian countries are spearheading the process that is expected to establish synergies with all Meteorological Departments in the basin.

Speaking at the SADC pre-season disaster meeting held in Namibia in September 2005, Gabriel Kangova, the deputy director at the Emergency Unit in the Office of the President of Namibia, said every SADC Member State has strategies in place to deal with disasters.

However, calls have been made for more concerted efforts in ensuring that the region has adequate early warning and communication mechanisms in place and is better equipped to manage hydrological disasters when they occur.

In the Zambezi basin, extreme variations in rainfall can have proportionately larger consequences for agriculture, health and infrastructure, threatening developmental efforts, given that a large proportion of the basin's economy is climate sensitive.

With recent research showing that, due to global warming, the glaciers at the summit of Mt Kilimanjaro in the United Republic of Tanzania are melting so quickly that they will be gone by 2020, there is concern that excessive emission of greenhouse gases may have set in motion irreversible climatic changes.

The world's most industrialised countries are the leading emitters of greenhouse gases while the entire African continent produces only five percent of total output.

All Member States of the Southern African Development Community (SADC), including the Zambezi basin states, have acceded to the United Nations Framework Convention on Climate Change (UNFCCC). This compels them to regulate levels of greenhouse gas concentration in the atmosphere so as to avoid the occurrence of climate change on a level that would impede sustainable economic development, or compromise initiatives in food production.

## ZACPRO 6.2 website launched [www.zacpro.org](http://www.zacpro.org)

A website has been launched for the Zambezi Action Plan Project 6, Phase 2 (ZACPRO 6.2), that should increase dialogue among stakeholders in the Zambezi River.

The ZACPRO 6.2 website was launched at a reception by the host government during a Zambezi River Basin stakeholders conference held in Gaborone, Botswana in December 2005.

The website aims to provide a forum for the exchange of information, and also showcases ZACPRO 6.2 activities and processes, including the establishment of the Zambezi Watercourse Commission (ZamCom).

The content to be found at <http://www.zacpro.org> includes:

- Information about ZACPRO 6.2;
- Information about the stakeholders and cooperating partners;
- News about events, activities and issues through press releases, announcements, news stories, and newsletters;
- Calendar of events;
- Stakeholder databases; and
- Interesting related links.

Another highlight of the website is a photo gallery that gives a visual update on some of the major activities in the Zambezi River basin.

An exciting aspect of the website is an online forum where debate is expected to take place covering a range of topics. It is hoped that issues around integrated water resources management will be well articulated using this section of the website. It is expected that stakeholders and other visitors to the site will generate topics for discussion.





# THE ZAMBEZI AT A GLANCE

## The Zambezi River

rises on the Central African Plateau in the Kalene Hills in northwestern Zambia and flows through eight countries to its delta in Mozambique and the Indian Ocean.

drains an area of almost 1.4 million sq km, stretching across Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe.

supports the Victoria Falls, popularly identified as one of the seven natural wonders of the world, as well as Kariba and Cahora Bassa hydroelectric dams and their lakes.

## The Zambezi Basin

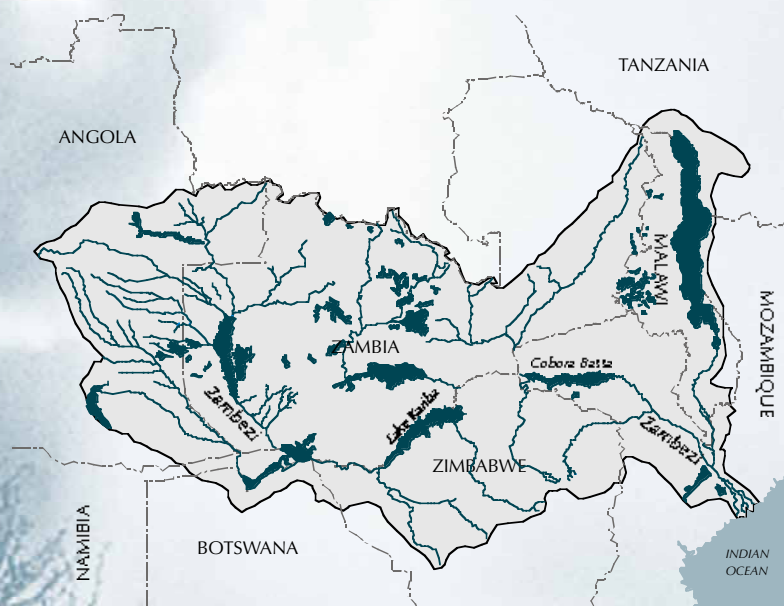
is the most shared in southern Africa and third largest in Africa after the Congo and the Nile.

covers about 25 percent of the total geographic area of the eight riparian countries estimated at 5.6 million sq km.

is home to almost 40 million of SADC's estimated population of more than 200 million people.

hosts urban areas such as Luena in Angola, Kasane in Botswana, Tete in Mozambique, Katima Mulilo in Namibia and Mbeya in Tanzania, almost all urban centres in Zambia including the capital city of Lusaka, all urban centres in Malawi and most in Zimbabwe, including Harare.

contains Lake Malawi/Nyasa/Niassa covering 28,000 sq km, Africa's third largest freshwater lake after Lakes Victoria and Tanganyika and third deepest in the world.



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