



ZAMBEZI WATERCOURSE COMMISSION

ZAMBEZI

TODAY



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Zambezi stakeholders discuss basin-wide planning

BENEFITS OF Cooperation and basin-wide planning took centre stage at the 2nd Zambezi Basin Stakeholders' Forum held in Lusaka, Zambia in September 2017.

More than 100 stakeholders from the Zambezi River Basin, the Southern African region and beyond gathered at Lusaka's Hotel Intercontinental to share information and experiences

In his opening remarks, Honourable Lloyd Mullenka Kaziya, Minister of Water Development, Sanitation and Environment Protection, Zambia, noted that transboundary co-operation is central to fostering and strengthening regional co-operation.

He added that the Zambezi River Basin is an important resource to the basin, which is facing increasing socio-economic and environmental challenges. It is home to more than 40 million people and projected to increase to 51 million by 2025.

"The mounting socio-economic pressures on the basin will require a better basin-wide common understanding and appreciation of the opportunities and challenges that the basin will face at national and basin-wide levels without compromising ecosystems while undermining development aspirations of Member States," Kaziya added.

Themed "Benefits of co-operation and basin-wide planning in the management and development of shared water resources", the forum provided an opportunity for stakeholders to reflect on how the water resources of the Zambezi River Basin should be managed to enhance its contribution towards the wellbeing of the region through poverty reduction, creation of jobs and improvement of the livelihoods of the region's inhabitants. The Forum focus was on the benefits of shared water resources cooperation in the context of basin-wide planning.

"Furthermore, this forum provides a platform for us to discuss how we can accelerate the implementation of the much desired development in a manner that promotes the preservation of the environment and our ecosystems while at the same time, ensuring that more climate change resilient and adaptive approaches are integrated in our programmes for the benefit of our communities."

"I therefore wish to remind you that integrated planning and sustainable development should be the cornerstone upon which all the interventions ought to be anchored," Kaziya said.

The forum outputs are expected to inform the development of the Strategic Plan for the Zambezi Watercourse (ZSP), a project the Zambezi Watercourse Commission (ZAMCOM) is implementing.

Sub-themes lined up as part of the programme included basin-wide planning - issues and perspectives; benefits of shared water cooperation and basin-wide planning; and, the roles of River Basin Organisation (RBOs) and other players.

Benefits such as economic, social and environmental, regional economic cooperation, peace and security as well as governance were explored.

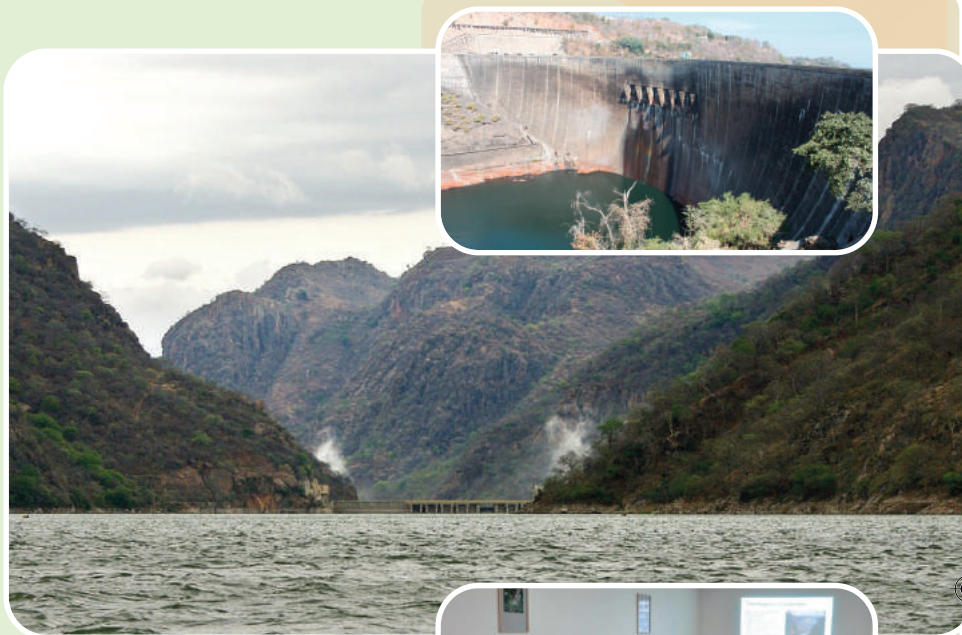
Launched in 2016 and held every year, the forum is organised by ZAMCOM, in collaboration with its partners, which include Global Water Partnership Southern Africa (GWP SA), the International Union for the Conservation of Nature (IUCN), Water Net, World Wide Fund for Nature (WWF), the Southern African Research and Documentation Centre (SARDC), the Institute of Water and Sanitation Development (IWSD) and the NEPAD-Southern African Network of Water Centres of Excellence.

The objective of the forum is to bring together representatives of stakeholders with interests in the management and development of water and related resources in the basin to share knowledge and experiences; and to provide advice and inputs that contribute to ZAMCOM initiatives, and Zambezi Basin developments.

The Basin-wide Stakeholders Forum brings together people with an interest in the Zambezi River Basin to share information and experiences around a selected theme.

ZAMCOM is a major river basin organisation in Africa. It was established in 2014 as an intergovernmental establishment that brings together eight Riparian States. The Riparian States are Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania; Zambia and Zimbabwe.

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ZAMCOM

Executive Secretary
Prof. Zebediah Phiri

Programme Manager
Information, Communication
and Partnerships
Ms. Leonissah Abwino-Munjoma

Partners
National Stakeholders Coordination
Committees (NASCs)

SARDC

Editorial Team
Egline Tauya, Joseph Ngwawi,
Kizito Sikuka, Admire Ndhlovu,
Neto Nengomasha,
Danai Matowanyika,
Anisha Madanhi, Anesu Ngadya
Tonderai Mpofu

Design
Tonely Ngwenya SARDC

Photos and Illustrations
P1 ZAMCOM, D Martin APG,
A Ndhlovu SARDC, ZTA,
B Antonio;
P2 ZAMCOM; P4 A Ndhlovu SARDC,
B Padegimas; P5 B Antonio,
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P Johnson SARDC;
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Correspondence should be addressed to:

ZAMBEZI Today
Zambezi Watercourse Commission
128 Samora Machel Avenue
P O Box CY118
Harare, Zimbabwe
Website www.zambezicommission.org

Tel +263-4-253361/2/3
E-mail zamcom@zambezicommission.org

EDITORIAL

COOPERATION IN the development and management of water resources in the SADC region in general and the Zambezi River Basin in particular is critical for successful project implementation.

Basin-wide cooperation generates many significant benefits for the riparian states. Some of the benefits are improved water resources management and development; accelerated economic growth; improved human well-being; and increased food security.

Other benefits are energy security; increased resilience to climate-related extreme events such as floods and droughts; enhanced environmental sustainability; and political stability.

Scientific studies have shown that coordinated operation of the existing hydropower facilities in the Zambezi River Basin can potentially increase energy production by 23 percent without any additional investment.

Basin states are therefore encouraged to strengthen efforts to share information and improve coordination in hydropower production.

Improved cooperation within the basin can strengthen economic resilience to climate variability by reducing the risks associated with floods, which generate estimated losses of over US\$1 billion per year.

Cooperation among Basin States depends on existence of institutional structures, sound policies and strategies, stakeholder engagement, data and information sharing, and awareness of the benefits of cooperation.

As a result of improved information sharing due to cooperation, expectations are high that the Zambezi Water Information System (ZAMWIS) will provide guiding information to the Strategic Plan for the Zambezi Watercourse for the projected more than US\$16 billion investment in national projects. This will have the potential to double the area under irrigation and create more than 500,000 new jobs.

Another project of benefit is the Zambia-Malawi Water and Sanitation Project at Mwami border under the auspices of Climate Resilient Infrastructure Development Facility. The project seeks to benefit over 6,000 public travellers and 1,500 houses at Mwami, Mchinji and Chanida border towns with water supply and sanitation.

Since its establishment in 2014, the ZAMCOM Secretariat has worked tirelessly in ensuring instruments of cooperation are in place. These include the adoption by the ZAMCOM Council of Ministers of Rules and Procedures for the Sharing of Data and Information related to the management and development of the Zambezi Watercourse; Procedures for Notification of Planned Measures; and, a Legal Equivalence Study.

ZAMCOM has also put in place provision of platforms for stakeholder engagement which is critical to guarantee ownership, credibility of outputs, products and outcomes.

To facilitate this, National Stakeholders Coordination Committees (NASCs) have been established in all the eight Zambezi Basin States to serve as a platform for national consultations that facilitate input into basin-wide plans and processes; coordination and fostering ownership and legitimacy of results; building trust and confidence in ZAMCOM processes for dissemination of information.

A Basin-wide Stakeholders Committee (BASC), comprising of NASC focal points and regional partners, has been formed.

The BASC coordinates NASC inputs into basin-wide processes, plan and organise annual forums, and serve as the nucleus for basin-wide consultations.

There is need to strengthen the capacity of the BASC to improve coordination of NASC inputs.

Another achievement for ZAMCOM is the development of procedures for notification of planned measures to foster cooperative management of shared watercourses.

ZAMCOM has also developed rules and procedures for sharing of data and information related to management and development of the Zambezi watercourse to facilitate cooperation in the basin.

These measures demonstrate that basin states are conscious of the benefits of cooperation realised through sharing of data and information. Zambezi Riparian States should therefore be commended for continuing to lead in the development and management of the shared Zambezi water resources. □



Strategic plan development for the Zambezi Basin on course

by Admire Ndhlovu

THE DEVELOPMENT process of the Strategic Plan for the Zambezi Watercourse has reached an advanced stage with stakeholder consultations taking centre stage.

Two rounds of stakeholder consultations through National Stakeholders Coordination Committees (NASCs) have taken place in all the eight riparian states.

Stakeholder consultations are expected to inform the various outputs during the development process for the Strategic Plan for the Zambezi Watercourse (ZSP).

The ZSP, a strategic plan that forms the basis for basin-wide cooperation in the management and development of shared Zambezi water resources, is one of the key provisions of the ZAMCOM Agreement.

It is therefore, essential in that it allows for the coordinated and integrated implementation of activities.

‘As countries in the basin face similar challenges, it is good to have in place institutional mechanisms and a strategic plan to address these in a coordinated manner’, notes Sylvester Matemu, Assistant Director (Transboundary Waters) in the Ministry of Water and Irrigation, Tanzania.

Development of the ZSP commenced in January 2017 and is expected to end in January 2019. Major steps include conducting a situation analysis, developing strategic directions, as well as consideration of national and basin-level objectives, sector development plans, infrastructure inventories and basin development scenarios.

The final stages of the process will include consideration of basin investment scenarios and development of the proposed ZSP.

Input from stakeholder consultations is critical in identification of priority issues and intervention areas. In this regard, they are held under the auspices of NASCs established in each of the eight riparian states.

Further consultations take place at Basin-wide Stakeholders’ Coordination Committee, Joint Project Steering Committee and ZAMCOM Technical Committee (ZAMTEC) levels.

The ZSP will build on a substantial body of knowledge, basin-wide studies, assessments and strategies, including the Zambezi Basin Integrated Water Resources Management Strategy (2008), the Multi-Sector Investment Opportunities Analysis in the Zambezi River Basin (2010), the Dam Synchronisation and Flood Releases in the Zambezi River Basin Project (2011), the Zambezi Basin Atlas of the Changing Environment (2012), and the Zambezi Environment Outlook 2015.

An analysis of current situation and stakeholder consultations show a number of emerging issues in the basin.

Persistent poverty calls for equitable development as a very high proportion of the population, mainly in rural areas, is extremely vulnerable and yet receives less prioritization in terms of investment in water infrastructure.

The basin is characterized by a substantial infrastructure deficiency. Without adequate infrastructure such as large-, medium- and small-scale water storage facilities, the basin

economies will remain vulnerable to regional variability of rainfall and will lack resilience to climate change.

Recent studies, including the Zambezi Environment Outlook 2015 and the Zambezi River Basin Atlas of the Changing Environment 2012, indicate that the Zambezi environment is being affected by unplanned developments, exacerbated by climate change and variability.

The Zambezi riparian states have to undertake a well-considered development path, which will contribute towards economic growth while helping to protect the environment.

The basin also requires balanced investment. Development of hydropower, for example, needs to consider impact on other sectors such as agriculture and tourism.

Balanced investment requires an equitable sharing of development between riparian states.

These challenges and emerging issues will help support the identification of strategic options that will feed into the process of developing the ZSP.

The development of the ZSP takes into account national development priorities, as reflected in national strategies and action plans.

Angola, for example, has a master plan for sustainable management and utilization of water resources in the Angolan part of the basin, which was developed in 2017.

Angola, for example, has a master plan for sustainable management and utilization of water resources in the Angolan part of the basin (*Plano Geral Para a Gestão Integrada dos Recursos Hídricos da Bacia do Rio Zambeze Zambeze*), developed in 2017 with a planning horizon of 2035.

Manuel Quintino, director of the National Institute for Water Resources and ZAMTEC member for Angola, notes that the plan seeks to transform the Angolan part of the basin into a major economic hub, and this will improve socio-economic conditions of the area which has lagged behind due to its remoteness.

He adds that priority investment plans for Angola, to be reflected in the ZSP, include development of mini-hydropower plants, irrigation projects and water and sanitation infrastructure.

Its priority investment plans to be reflected in the ZSP include mini-hydropower plants, irrigation projects and water and sanitation infrastructure development.

The basin plan will lay a firm foundation for more systematic, cooperative and tangible actions aimed at addressing the emerging socio-economic challenges in the basin and the region in an efficient and sustainable manner.

This will result in improved energy security, food security and provision of ecosystem services. □



ZAMCOM rolls out water resources decision support system

by Neto Nengomasha and Hastings Chibuye

THE ZAMBEZI Watercourse Commission is in the process of implementing a water resources information system with capabilities to analyse water resources and weather conditions in the Zambezi Basin.

The implementation of the system known as the “Zambezi Water Resources Information System Enhancement 3: Hydro-meteorological Database and Decision Support System (ZAMWIS- DSS)” which started in January 2017, is expected to be completed by January 2019.

Its main objective is to support the promotion and co-ordination of the cooperative management and development of the water resources of the Zambezi watercourse in a sustainable and climate-resilient manner.

In essence, the system will be a software framework with a collection of modelling and information management tools for communication, information management and analysis of water resources and weather conditions.

ZAMWIS-DSS will provide a platform for sharing knowledge, understanding river system behaviour and evaluating alternative management and development scenarios.

Thus, it will support informed and transparent decision-making in multi-stakeholder and multi-country contexts and help facilitate confidence and trust among the Zambezi River Basin stakeholders.

The decision support system will have three main components that will include the database, planning tool and a flow forecasting system.

Most importantly, the database will build on the one developed during ZAMWIS- Enhancement 2 and it will be a platform to share a common set of data and information within the basin.

The key users of the ZAMWIS database are the government institutions of Riparian States who will be able to access the required data through their local installations.

Other users such as dam operators, irrigation schemes’ operators, mining companies, non-governmental organisations, consultants and academic institutions will access data through the web version of the database.

Through the water resources planning tool, stakeholders will be able to investigate how different interventions in the river basin system, such as building new infrastructure, enhancing and optimizing operation rules of existing infrastructure, would impact livelihoods, the environment and the economic performance of the system.

The flow forecasting system will integrate monitored near real-time flow data with forecast flow data into one central system.

Hence, it will provide useful information for optimizing hydropower production and facilitate synchronized operation of dams, improve environmental flow management and support disaster management efforts in the basin.

The flow forecasting system will consist of three components that is, rainfall-runoff models, river hydraulic model and a forecasting system.

Rainfall-runoff models will provide runoff estimates from the basin sub-catchments while a river hydraulic model will be used for routing the runoff from sub-catchments through the river and channel network in the basin, lakes, reservoirs and other man-made structures.

The forecasting system will serve as an automation and integration component to make monitoring data and model results available on the internet through a web-application, thereby providing regular forecasts of inflow to reservoirs and flow at strategic locations in the basin.

Forecasts produced will be compared with historical flow statistics and critical flows at given locations and the focus will be on a three-month estimate. Though it will be possible to come up with longer estimates, this will be subject to increased uncertainty.

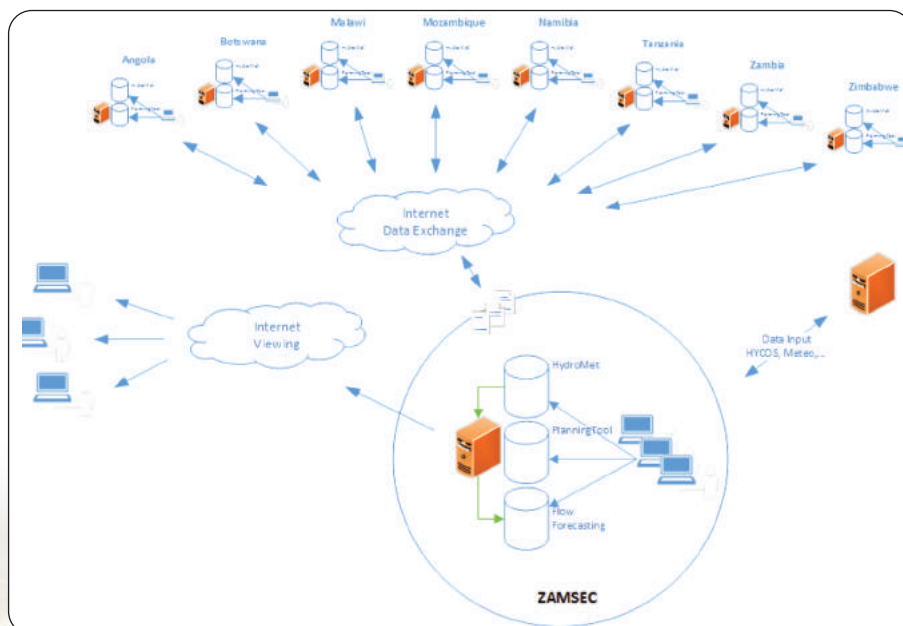
Information generated on water levels will be useful for planning purposes and improving early warning for communities to be evacuated on time in the event of floods.

In order to ensure sustainability of the ZAMWIS-DSS, it was noted by stakeholders during the pre-inception phase that there was need for training and capacity building.

It was highlighted that the Zambezi Watercourse Commission Secretariat (ZAMSEC) needed to have sufficient resources to operate and maintain the ZAMWIS-DSS installation at the Secretariat to facilitate coordination between the Riparian States.

Core working groups would be established in each of the eight riparian states to manage, maintain, and operate the ZAMWIS-DSS at the end of the project. □

Conceptual overview of ZAMWIS-DSS



Stakeholders in Mozambique realise the benefits of cooperation

by Admire Ndhlovu

ZAMBEZI WATERCOURSE Commission National Stakeholders Coordination Committees continue to play a central role in the implementation of the basin activities, and one of them stands out as a marvel.

The Mozambican National Stakeholders Committee (NASC), which is normally referred to as the Zambezi Basin Committee (ZBC), has been restructured to make it more effective.

Taking into account the size of the Mozambican part of the basin, the country established two sub-committees, and 17 members from each sub-committee make up the ZBC.

According to Francisco Macaringue, a hydrogeologist at ARA-Zambeze, the ZBC meets once a year and subcommittees twice, before and after the rain season.

“The main agenda of the meetings is to forecast and analyse hydrological situation and deliberate on activities and development of projects along the Zambezi Basin in Mozambique”, he adds.

Chaired by ARA Zambeze, the ZBC is comprised of stakeholders from local governments, the mining, agriculture and hydropower sectors. Other stakeholders are from academic institutions, private sector, civil society and vulnerable groups including women and children.

There are plans to establish a Secretariat for the ZBC. Currently, ARA-Zambeze assists with coordination of the Committee’s activities.

Some of the Committee’s key functions include serving as a platform for national consultations that facilitate input into basin-wide processes, outputs, outcomes and decisions; providing vehicle for dissemination of ZAMCOM plans, products, processes and outputs as well as obtaining feedback; providing a multi-sectoral platform for coordination; and fostering national ownership of ZAMCOM plans and processes.

During development of the Strategic Plan for the Zambezi Watercourse, the ZBC, as has been the case with other NASCs in the other Riparian States, has played a crucial role in facilitating

stakeholder consultations, and ensuring that the country’s concerns and development priorities are included in the basin plan.

For example, as a downstream riparian state, Mozambique benefits immensely from timely sharing of information that relates to flood management in particular and would want information sharing to be strengthened.

Sharing of hydro-meteorological data is also critical for the planned construction of the Mpanda Nkuwa dam, which is set to address the energy deficit in both the basin and the region.

The ZBC faces several challenges in executing its mandate. For example, there are logistical challenges when organising meetings, considering that the Mozambican part of the basin is large in size.

The focus for 2018 is to strengthen the functionality of the subcommittees for them to fully execute their mandate.

This will ensure wider participation and appreciation issues at basin level. NASCs are now well-established in all riparian states of the Zambezi River Basin to ensure active stakeholder participation. Such an approach embraces the associated spirit of ownership among the stakeholders and their commitment towards ensuring that matters of the basin are given deserving attention.

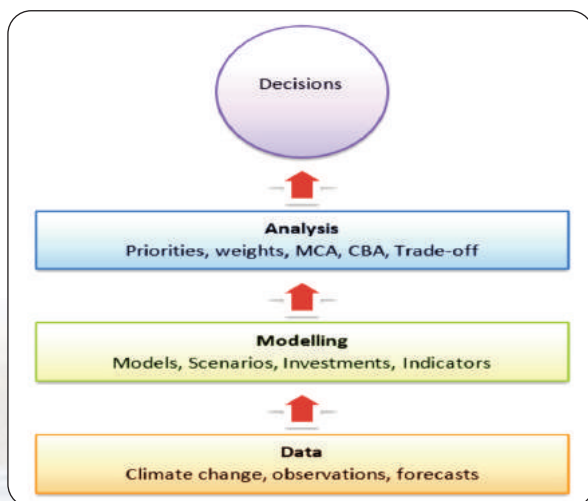
Representation is drawn from major relevant stakeholder institutions and bodies in each riparian state including government, non-governmental organisations, academia, civil society, and traditional leadership.

The major ZAMCOM organs that include the Council of Ministers, the ZAMCOM Technical Committee (ZAMTEC) and the ZAMCOM Secretariat are supported by NASCs, and a Basin-wide Stakeholders Coordination Committee (BASC) which convenes regularly to address specific issues relevant to the implementation of the ZAMCOM work programme in line with the ZAMCOM Agreement.

Arising from the above, as also evidenced by Mozambique, NASCs are institutionalized differently in each of the riparian states, but every effort is being made to ensure integration into national organs, plans and processes in the context of ensuring legitimacy of basin-wide cooperation and sustainability. □

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Schematic representation of the ZAMCOM Planning Tool



Notes: MCA = Multi-Criteria Analysis and CBA = Cost-Benefit Analysis

The 2nd Zambezi Basin Stakeholders' Forum: Some outcomes

- Called for cooperation and basin-wide planning to translate to national development, which in turn enables development at the sub-national level.
- Urged riparian states to focus on investment-led cooperation. Placing cooperation around investments at the centre of transboundary water management attracts financing from development partners. As such, the forum called for the mandate of ZAMCOM to be relooked at for it to facilitate investment-led cooperation.
- Called for engagement of multiple stakeholders and sectors, as well as the mainstreaming of gender in basin programmes and activities.
- Urged the civil society to play an active role in basin management efforts, including developing innovative tools for accelerating socio-economic development
- Validated Strategic Plan for the Zambezi Watercourse (ZSP) development outcomes.
- Urged capacity building institutions in the basin to expedite human and institutional capacity development and knowledge exchange to improve basin management and the realisation of benefits.
- Called for national strategic environmental impact assessments to be done during notification of planned measures, to inform decision-making by riparian states especially where anticipated development plans may have transboundary impact.

GENDER AND WATER



Women trained in water resources management

by Eglina Tauya

ZAMBEZI BASIN States have placed gender-related concerns at the top of their agenda as they move towards sustainable solutions to transboundary water resources management.

Realising the need for an all-inclusive and gender-based approach efforts are being made to mainstream gender in sustainable water resources management.

Several training programmes on gender mainstreaming in Transboundary Water Management (TWM) have been conducted over the past few years involving the Zambezi Basin states and the rest of the SADC region.

The latest regional training was held in December 2017 in South Africa, aimed at equipping water resources managers from different states with the skills to promote gender-responsive approaches to water management.

During the training, water practitioners had the opportunity to design tools that could be used in their institutions as a measure to close the gender gap.

Key outcomes of the workshop included the need to mainstream gender from the planning, designing up to the implementation stage of any project cycle; and the need to strengthen the capacity of women to participate in key decision making processes through training in technical fields such as engineering, hydrology, water law and political science.

Other gender and water efforts in the basin include the appointments of Gender Focal Points (GFPs) in all the eight Zambezi Basin States as part of the SADC TWM programme.

The main functions of the GFPs is to promote awareness, knowledge, and communication about gender mainstreaming in water management in their respective Member States.

The GFPs will provide valuable input to the implementation of the Strategic Plan for the Zambezi Watercourse.

According to the SADC Gender Mainstreaming Strategy for TWM (2016-2019) at least two river basin organisations should formally involve the respective national GFPs in their structures.

Several training programmes have been conducted for GFPs in southern Africa including the eight Zambezi Basin States. The most recent one at national level was held in Zambia in November 2017.

In some basin states, training programmes are tailored to specific activities, including sustainable wetlands resources utilization and management.

Women and men have been trained in basket making using the available resources from wetlands such as reeds. People in Binga, Zimbabwe, mostly women, have managed to earn a living from baskets woven using reeds from the Zambezi Valley.

Other areas for training include irrigation agriculture, fish processing, and marketing.

Skills gained from the training have enabled women and men to undertake various activities that have improved the well-being of their households' especially female headed households.

In Zambia, for example, fish processing, which was male dominated has now been introduced to women and has so far contributed to the increased income for wetlands households.

During a training in September in 2017 which was led by the Ministry of Fisheries and Livestock, the University of Zambia and World Fish Centre, a female fish trader in Senanga district, Zambia, said, "Men's attitudes have changed. Most of those we work with now treat us as equal partners. Some men have put aside their egos and ask us on certain technologies that they don't understand better."

The basin states have realised that gender mainstreaming in TWM is the basis for establishing a level of equality between women and men that can help to stimulate economic growth, create higher level jobs, support communities, raise productivity and reduce poverty.

For example, access to water and its resources, is a liberating factor that allows women and men to participate in economic development.

Statistics have shown that there is a high economic cost when women are not more fully integrated into their respective national economies.

For example, at continental level, gender inequality in the labour market alone cost sub-Saharan Africa about US\$95 billion annually between 2010 and 2014, peaking at US\$ 105 billion in 2014.

It can therefore be concluded that, the missing full growth potential from water resources development and management in the basin is partly as a result of not utilizing sizeable portion of its growth reserve who are women. ▢



AGRICULTURE

2017/18 Zambezi Basin rain season forecast to extend to May

by Neto Nengomasha

THE 2017/18 rainfall season in the Zambezi Basin and Southern Africa is likely to continue until May, according to regional weather experts.

This is a shift from the 2015/16 and 2016/17 agricultural seasons where rainfall ceased in March/April.

According to the Twenty First Southern Africa Regional Climate Outlook Forum (SARCOF-21) Mid-Season Review and Update released in December 2017, the Zambezi River Basin is expected to receive an increased amount of rainfall in the period January to May 2018.

Chances of increased rainfall in the basin will be a welcome development, particularly in areas where low rainfall resulted to delays in planting and crop moisture stress in some areas.

In areas such as southern Zambia and Zimbabwe, crops are already showing signs of moisture stress due to the prevailing dry spells.

Reports from Namibia indicate that low rainfall has resulted in deterioration of grazing pasture for livestock in several areas across the country.

Farmers, especially in these affected areas in the basin are beginning to worry about the effect of the current erratic rains on crop production.

The mid-season update is consistent with the forecast released in August last year, which predicted less rainfall during the first half of the agricultural season and significantly high rainfall from January onwards.

In the period January to May, the entire basin has increased chances of receiving high rainfall characterized as "normal to above-normal."

According to the mid-season review and update, normal to above-normal rains were received in most areas of the northern part and north-eastern part of Southern Africa, whereas the central and south-western parts of the region, outside the Zambezi Basin, experienced normal to below normal rainfall conditions during October and November 2017 period.

The review and update demonstrates that the Inter-Tropical Convergence Zone (ITCZ) which is the main rain bearing mechanism for Southern Africa, is still very active and is centred over the northern and eastern parts of the region.

Based on the forecast by weather experts in the mid-season update, there is a possibility that farmers who planted late may harvest good yields considering that rainfall is likely to end in May.

It should, however, be noted that the mid-season review and update is only relevant to seasonal time scales and relatively large areas and may not fully account for all local and intra-seasonal factors that influence weather patterns.

In this regard, it is critical for farmers and other users of climate information to contact their national meteorological and hydrological offices for better interpretation and regular updates.

While increased moisture is expected to improve crop productivity, flooding could destroy crops and impact on food security.

Excessive rainfall may increase incidences of malaria and water-borne diseases in the basin and a possibility of infrastructure damage due to flooding.

Flood-prone areas that are mainly affected include the Zambezia province in Mozambique, the Lower Shire zone in Malawi, Zambezi Region in Namibia, Kazungula and Kafue district in Zambia and Muzarabani district in Zimbabwe.

One of the challenges still affecting the basin countries is the lack of current and reliable data on possible weather scenarios.

Hence to reduce vulnerability to floods, there is need for the allocation of sufficient resources to operate and maintain the ZAMWIS-DSS installation at the Secretariat to facilitate coordination between the Riparian States in order to improve data and information sharing and ensure that affected communities are evacuated on time before when floods occur.

Governments in the basin will further need to retrofit public infrastructure such as schools as they both act as centres of learning at the same time providing safety to communities during floods.

As a measure to increase resilience, Basin States through the Zambezi Watercourse Commission are in the process of strengthening data and information sharing on water flows and weather conditions by implementing the Zambezi Water Resources Information System Enhancement 3: Hydro-meteorological Database and Decision Support System (ZAMWIS DSS).

The main objective of setting up the ZAMWIS DSS is to support the promotion and coordination of the cooperative management and development of the water resources of the Zambezi Watercourse in a sustainable and climate-resilient manner.

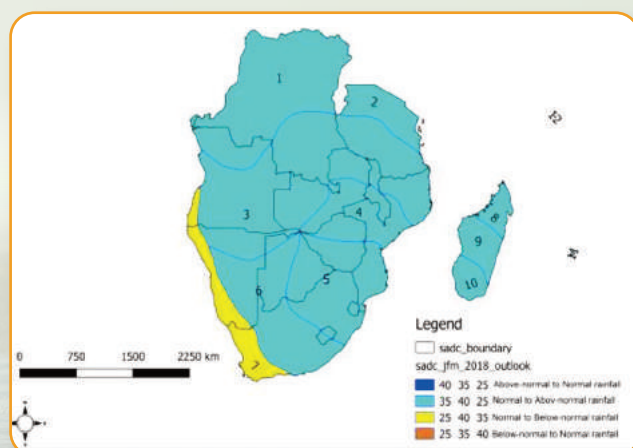
Another intervention being undertaken in the basin is the establishment of village based response systems to respond to floods.

In Malawi, the Catholic Development Committee works with village-based communities to spearhead preventive and response system to floods.

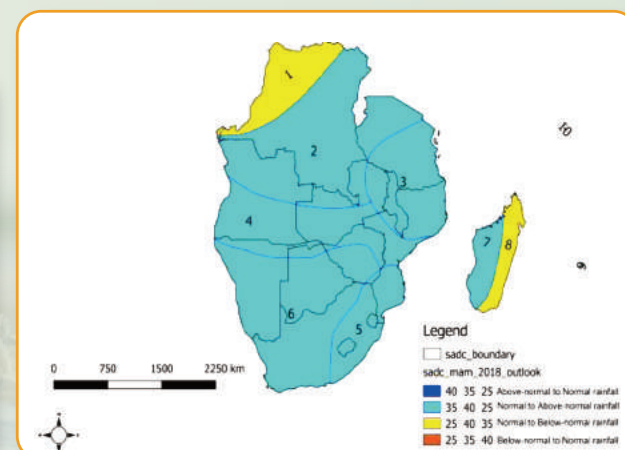
The alert system includes the use of traditional knowledge systems in raising awareness through civic education. For example, the appearance of large populations of ants indicates occurrence of floods.

Floods may present opportunities for riparian states only if they started prioritizing water harvesting projects to harness rains and use the water for agricultural purposes in future especially in years when the basin may experience drought. □

Rainfall forecast for January-February-March 2018



Rainfall forecast for March-April-May 2018



ENERGY SECURITY

Rehabilitation of Kariba Dam set to improve regional energy security

by Neto Nengomasha

THE ONGOING rehabilitation of the Kariba Dam is expected to promote energy security and economic development in the Zambezi River Basin as efforts to improve its performance and longevity gain momentum.

The Zambezi River Authority (ZRA), which operates, maintains and manages the Kariba Dam on behalf of the Governments of Zambia and Zimbabwe, announced in November 2017 during its 6th Technical Joint Mission held in Siavonga, Zambia that there was steady progress on the rehabilitation of Kariba Dam.

“Progress on the Kariba Dam Rehabilitation Project is steady with the plunge pool currently in the implementation phase and the spillway refurbishment works under procurement,” said the ZRA chief executive officer, Engineer Munyaradzi Munodawafa.

Based on the current schedule, Munodawafa revealed that the rehabilitation project will take another eight years and is expected to be completed in 2025. The rehabilitation project started in May 2017.

Kariba Dam has been essential to energy security and economic development in Southern Africa in the last 50 years.

The rehabilitation comes at a time when the basin continues to experience growing energy demand.

The basin has hydropower generation potential of 20,000 megawatts (MW) of which, just over 20 percent is used and the rest remaining untapped.

In order to meet the growing demand for energy supply, some of the basin countries are using energy from coal thermal power stations such as Hwange in Zimbabwe and smaller thermal stations that use oil-derived products such as those in Mozambique and the Copperbelt Province of Zambia, although these have environmental impacts.

The basin has potential to exploit its vast renewable energy sources such as solar and geothermal energy, among others.

An assessment by the United Nations Programme and the Global Environment Facility estimated that 4,000 MW of electricity can be harvested from geothermal sources along the Rift Valley in Malawi and Tanzania.

In Malawi, major hot springs have been reported in the Chitipa-Karonga area down to Chipudze in the southern region.

The Government of Zambia has also identified more than 80 hot springs that can be tapped for electricity generation.

With this great potential to develop these energy sources, the basin has challenges of high operational costs associated with the required infrastructure.

Solar energy technologies are however becoming more affordable with plans underway to create hybrid systems to offset the costs. □

Upcoming Events

Dates	Event
20-21 February Swakopmund, Namibia	ZAMCOM Technical Committee Meeting The main items to be discussed during the ZAMTEC meeting will include the Annotated Agenda for the ZAMCOM Council of Ministers meeting; Progress of Implementation of the 2017/18 Work Plan; and Planned Measures.
22 February Swakopmund, Namibia	ZAMCOM Council of Ministers Meeting The meeting will transact ZAMCOM business including adoption of policies and decisions; and provide necessary guidance on the promotion, support and coordination of the efficient management and sustainable development of the water resources of the Zambezi Watercourse. More specifically, the meeting will receive updates; consider and approve ZAMCOM annual narrative and audited financial reports; the ZAMCOM work plan and budget for 2018/19; and adopt or approve other recommendation from the ZAMTEC.
March Harare, Zimbabwe	Joint Project Steering Committee Meeting The Joint Project Steering Committee (JPSC) is a ZAMCOM Technical Committee (ZAMTEC) sub-committee set up to take up the responsibility of reviewing progress in the implementation of ZAMCOM projects. In this case the development of the Strategic Plan for the Zambezi Watercourse (ZSP) and the ZAMWIS-DSS. The JPSC is made up of Riparian States' representatives. The Committee meets to review and approve deliverables from the two projects. The meeting in March will be considering progress so far, one year down the line in the implementation of the two. They will also consider and approve some deliverables.
22 March	World Water Day World Water Day (22 March) is a day to raise awareness and inspire action to tackle water and sanitation issues. The theme for this year, 'Nature for Water' will show the potential of nature-based solutions for water and how they can be considered for water management policy and practice.
March – April	Kuomboka This is an annual traditional ceremony of the Lozi people in the western province of Zambia that takes place at the end of March or early April. The ceremony marks the seasonal movement of the paramount Chief, the Litunga, from the floodplains to higher land. Kuomboka means “getting out of water.”
5 June	World Environment Day Occurs on 5 June every year, and is the United Nations' principal vehicle for encouraging worldwide awareness and action for the protection of our environment. First held in 1973, it has been a flagship campaign for raising awareness on emerging environmental issues from marine pollution, human overpopulation, and global warming, to sustainable consumption and wildlife crime.