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SADC Multi-stakeholder Water Dialogue
October 12-13, Maun, Botswana

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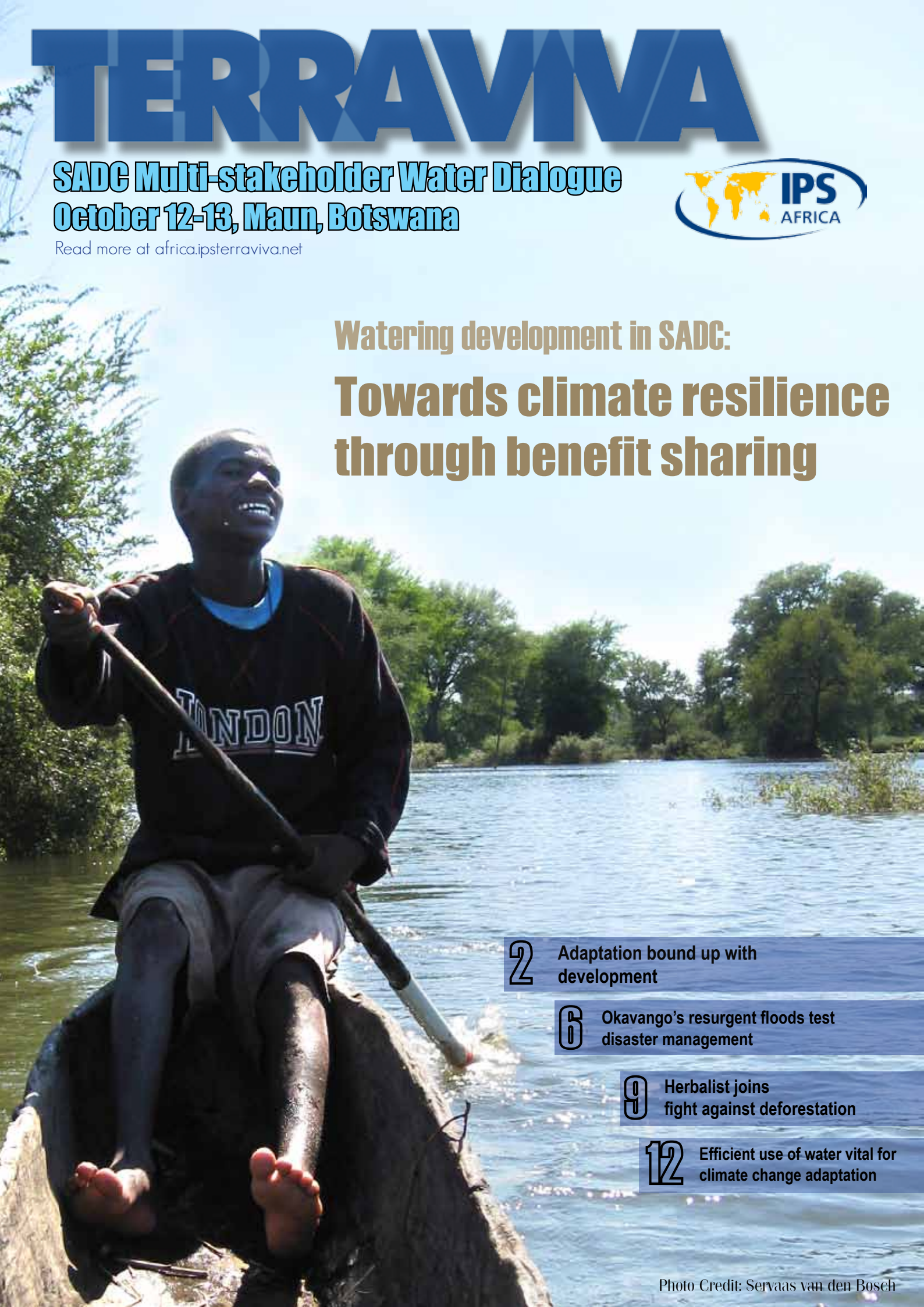

Watering development in SADC:

Towards climate resilience through benefit sharing

Photo Credit: Servaas van den Bosch

TERRAVIVA

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Adaptation bound up with development

Photo credit: Kristin Palitza/IPS

Climate change already costs Southern Africa five to ten percent of its GDP, according to the Stern Report; this implies a loss of between 10 and 21 billion dollars each year - in a region where nearly half the population is living on less than a dollar a day.

Reginald Tekateka, chair of the Technical Advisory Committee of the African Ministers' Council on Water, cited these alarming figures in a keynote address to the fourth Multi-stakeholder Dialogue organised by the Southern African Development Community's Water Division.

The Dialogue, held in Maun, Botswana on October 12-13, brought together water managers, agronomists, scientists and researchers, representatives of industry, cooperating partners and others to consider the theme "Watering Development in SADC: Toward climate resilience through benefit sharing".

"As with many other regions, SADC's adaptation challenge is inextricably linked with its development challenge," said Tekateka. "This region's prospects for growth and prosperity are clearly affected by climate change. But if people are informed, have access to good basic services and can fall back on effective response systems in times of crisis, they will be much less vulnerable to climate change."

Some key areas of action for SADC include developing better information and policies on climate risk; encouraging the inclusion of water in regional economic integration; reinforcing integrated water resource management as an adaptation strategy for resilient development; and improving the region's ability to secure and make use of climate finance.

The Dialogue highlighted numerous examples of progress on these and other fronts, from the Transboundary Diagnostic Analysis of the social, economic and hydrological characteristics of the Okavango, to a meeting of role players to discuss dam synchronisation along the length of the Zambezi; to detailed scenarios of climate variability produced by the Regional Climate Change Programme.

Getting water use and management right is central. Agriculture provides employment to roughly 70 percent of Southern Africa's 250 million people, a majority of these engaged in rain-fed, small-scale farming that is particularly vulnerable to a changing climate.

The food insecurity and loss of livelihoods that increasingly frequent droughts and declining yields produce are increasing competition for water resources and driving migration to urban areas already struggling to meet demand for services, including for water and sanitation.

In Tekateka's assessment, both the shape of the global economy and the transboundary nature of the subregion's major rivers reinforce the fact that problems cannot be solved by one country alone.

The Multi-Stakeholder Dialogue, he said, "focuses on moving towards climate resilient development through sharing water benefits."

Water is a catalyst for regional cooperation on climate resilient development.

Realising trade in virtual Water

Photo Credit: Alma Balopi/IPS

Picking tomatoes in Botswana: factoring virtual water into planning means to maximise production of crops per unit volume of water

By Alma Balopi

FRANCISTOWN, Botswana - The vegetables Omphemetse Monyi sells at the Francistown bus rank come from 400 kilometres away in South Africa.

One approach to development might seek to replace her suppliers with local farmers, but Southern Africa's water managers are considering the merits of reinforcing a regional trade in "virtual water".

Depending on the season, Monyi sells watermelons, tomatoes, potatoes, onions from the back of her truck. The 44-year-old makes the trip to South Africa each week to purchase vegetables for sale; she says she buys about 10,000 pula worth of stock ($1430), and makes a profit of between P3,000 and P4,000.

It's not just informal traders who bring fruit and vegetables to northern Botswana from elsewhere. The supermarkets down the road from her stall also import their produce from South Africa. It's part of a trade in virtual water, though Monyi doesn't think of it that way.

"For those [Botswana farmers] who do harvest and sell, they do not produce the quality that we get in the South African farms. Take potatoes for example, they will not be cleaned well and not packaged according to size," she says.

Until recently, one of the first questions economists might ask would be, why can't the farmers in Botswana compete? The answers might include disadvantages in terms of good soil and sufficient water, or capital to allow them to mechanise production and put more land under cultivation. The recommendation might be to address these problems to help local farmers gain a foothold in their local market.

But some disadvantages cannot readily be overcome with money or training. Enriching soil, for example, is a slow process, but possible.

David Phillips, an independent consultant and researcher based in Namibia, explains that countries can use virtual water to strategically enhance their overall access to fresh water.

"Perhaps the best examples of this are Israel and Egypt, both of whom import large quantities of foodstuffs and other items containing virtual water. Israel for example uses about 2.2 cubic kilometres of fresh water annually but imports about three times this volume every year in virtual water form."

The concept of virtual water means thinking of an agricultural product - or other commodity - in terms of the amount of water required to produce it.

Due to richer soils, lower temperatures and evaporation, and better farming techniques, a thousand litres of water used in a farm along the South African stretch of the Limpopo will produce more tomatoes or sugar than the same amount of water used somewhere upstream in Botswana, where the river runs through more arid countryside.

A benefit-sharing approach is to maximise production of crops per unit volume of water.

Applying this to local economic development and food security along the Limpopo River recognises that these advantages can mean greater productivity and food security at lower cost for everyone: consumers in Botswana can make virtual - optimum - use of water if the farming is done in South Africa.

There are many other factors to consider, including the livelihoods of local farmers: virtual water is a concept that policy makers in river basin organisations are still working to grasp in order to see how they stand to benefit.

During a June brainstorming session of the Limpopo Basin Technical Committee held in Francistown, Botswana, water managers from throughout the basin were still cautiously assessing how benefit sharing might work.

Tracy Molefi-Mbui, River Basins Coordinator at the International Office in Botswana's Ministry of Minerals, Water and Energy Affairs said the question of how the trade-offs will work in the full social, economic and political context of a transboundary river basin is not yet clear.

"If a country says, I will forgo this resource so that country B could produce this amount of products, how will that country benefit economically? Its applicability is still remote because we have not fully comprehended it," she said.

As the benefit-sharing concept is developed by the Southern African Development Community's Water Sector, the hope is that it will become another concrete example of the regional body's objectives, including sustainable collective development, harmonisation of political and socio-economic policies, and interdependence of member states.

Zambezi initiative might fail due to lack of collaboration

By Nebert Mulenga

A new initiative seeking to synchronise usage of water along the Zambezi River may be doomed to fail if governments refuse to collaborate, argued a water expert during a session of the Multi-Stakeholder Water Dialogue held in Maun, Botswana from 12-13 October.

He believes that the interests of the governments of the eight countries through which the Zambezi flows – Zambia, Mozambique, Zimbabwe, Angola, Malawi, Botswana, Namibia and Tanzania – are too diverse, including competing domestic political concerns, economic priorities and different resource levels.

“It will be very difficult for this programme to succeed because there are so many interests represented by the various water users,” warns Leonard Ndlovu, water resources manager at Royal Swaziland Sugar Corporation.

He suggests that the countries along the Zambezi should prepare their populations to adapt to the different potential effects of climate change through forward-looking strategies. “Any change demands that it be accompanied by a deliberate programme of change management, but change management is not being factored into the Zambezi River project,” Ndlovu complains.

The Zambezi Dam Synchronisation Programme is the latest attempt of the eight riparian states to manage the usage of the river, which has suffered extensive flooding in recent years, leaving thousands of people displaced, hundreds of hectares of agricultural land washed away and infrastructure damaged. The programme includes mechanisms for synchronization of dam operations and flood releases to optimise water use in all countries.

Dr Mike Tumbare, lead consultant for the programme, however, believes it will play a pivotal role in mitigating the impact of climate change in the region. But he agrees with Ndlovu – it can only succeed if all eight countries pull together.

“By operating in a synchronised and conjunctive manner, there will be benefits, for the environment and the livelihoods of the people who are living in the riparian areas of the river,” Tumbare told IPS, hoping the eight governments will commit to collaboration.

“So far, they have been operating individually, as individual countries, but now they are being required to operate in a conjunctive manner, taking into account all the dams along the river,” he notes.

Tumbare acknowledges, however, that he is facing a difficult task: “It continues to be a challenge to bring them together and make them, as stakeholders, realise the potential benefits of the project if they would work together. We know it’s usually difficult for people to suddenly change.”

Children in Kafue district: the Zambezi basin is home to over 40 million people. Close cooperation on management of the basin’s many dams is vital for flood control, improved food security and the rehabilitation and environmental health of the basin

Photo Credit: Brian Moonga/IPS

Gathering Evidence for Stronger Policy

Serusha Govender interviews BELYNDA PETRIE, chief executive officer of OneWorld Sustainable Investments, a research firm conducting studies for the public and private sector.

The term climate change is on the tip of everyone's tongue, but while extensive work has been done on the hard science of global warming, there is far less research into a detailed understanding of its impacts on economic and social development.

OneWorld researchers are studying the effects of climate change to assist governments in Southern Africa to effectively plan for climate adaptation.

IPS: What is your mandate for compiling the research?

Belynda Petrie (BP): Our funding comes from international governments, mostly Britain and Sweden. We've got public and private sector clients, such as energy companies and so on. We do a lot of work for regional governments, such as Uganda, South Africa, Mozambique and Botswana.

IPS: What are the study outcomes used for?

BP: We're bringing about a base for strong evidence for climate change in the region; a local [African] evidence base that the region can use in funding proposals and international negotiations.

IPS: What are some your key findings?

BP: People are suffering in terms of the increase in frequency and intensity of extreme events. So floods and droughts have been going on for decades, they are not new, but what is new is the intensity of those events and that they're happening much, much more often. We know that Africa has already experienced a two-degree Celcius increase in temperature, which is why you are seeing an increase in intensity and frequency of the events that we were talking about. This, in turn, is affecting food security, it's affecting human security.

IPS: What impact do you hope your research will have?

BP: We build evidence and then we disseminate it, so we use it as a platform [for] decision making as well to try and inform adaptation decisions.

Findings of the International Assessment of Agricultural Science and Technology for Development (IAASTD)

Achim Steiner
Executive Director of the United Nations Environment Programme (UNEP)

Agriculture is among the most diverse forms of human activities; it touches many things. There isn't one simple answer to the big challenge of agriculture in the 21st century.

This assessment not only looks at agricultural science and technology, but at the reality of its impacts on the environment and society.

Up 'til now, agriculture has been the domain of professional agriculturalists with a narrow focus on increasing productivity. IAASTD has brought in many other voices to create a broad vision that includes production, social and environmental dimensions.

Food insecurity is not a result of lack of production but of the inadequacy of agricultural capacity to deliver food - such as trade issues (and) the 40 percent loss of food, post-harvest. This is also something society at large wants: to see a broader vision for agriculture.

It is critical for agriculture to be able to adapt to climate change. Changes in rainfall, seasonality and ecosystem functioning will have considerable impacts on agriculture, otherwise. Agriculture must factor in the fact that it will have far greater vulnerability. We must invest in climate-informed policies and research that manage these risks downwards and at the same time reduce agriculture's significant emissions of greenhouse gases.

Okavango's resurgent floods test disaster management

This road had to be rebuilt after record flooding. Photo Credit: Kristin Palitza/IPS

By Thabani Okwenjani

Despite early warnings about higher-than-usual flooding of the Okavango Delta in 2010, homes, fields, latrines and boreholes in the delta were flooded. Beginning in May, gradually rising waters destroyed crops, disrupted the water supply and sanitation facilities, threatening public health with increased incidence of malaria and diarrhoea.

The flooding marks a return to high water levels last seen thirty or forty years ago, and even with advance notice, local government's disaster management strategy proved inadequate to the task.

Dr Piotr Wolski, Associate Professor at the Okavango Research Institute (ORI) of the University of Botswana in Maun, who is an expert in hydrology, says he warned government already in April of the risk of severe flooding in the area, but nobody paid heed to his advice.

Wolski was able to predict the advent of the flood because he had been studying the delta's weather patterns for years. He says the flood was caused by cyclic weather patterns and not by – largely unpredictable – climate change. "It looks like there is a lot of flooding this year, but when you look back 30 years, these floods are not exceptional," he notes.

According to Wolski, the flooding in the delta is based on a 30-year cycle of flooding and drought which has been occurring for the past 800 years. After having experienced drought for three decades, the delta is now likely to enter a 30-year-period of flooding, he reckons.

Wolski says the phenomenon correlates to the Pacific Decadal Oscillation, a shift between phases of warmer and cooler surface temperatures half a world away in the Pacific Ocean. "Pacific Decadal Oscillation affects temperatures over the Pacific and this [in turn] affects rainfall in Botswana," he explains.

"There has been no cyclicity change," Wolski further notes. "A change in climate would be a modification of the cycle, and so far we have not seen that." It's a reminder that while the broad predictions of increasing drought for Southern Africa are valid, they don't simply translate into reduced rainfall in every locale. Careful study and interpretation of data is vital to guide planning.

Government officials - and indeed hydrologists - long assumed the decades-long dry spell in the Okavango was a permanent effect of climate change and were caught by surprise when the floodwaters began rising higher.

"There has been no water for the past number of years," confirms Olebeng Balapi, head of hydrology at the provincial Department of Water Affairs in Maun.

"Only the past two years have seen a tremendous amount of water, particularly this year. Because of the dryness, we have seen people built in the middle of the river where they have been allocated land.

Wolski's study of the data meant he was the amongst the first to recognise the error; his April predictions for 2010's record flooding were remarkably accurate. But relatively little could be done to prepare the community in line with Wolski's warning.

For one thing, limited availability of funds blocked local government from effectively dealing with the situation.

"No assistance was provided because of [lack of] money. Money is a factor, and we don't have much," said Balapi. Wolski agreed with Balapi that local government's hands are often bound by red tape and lengthy tender processes.

For example, he predicts it will take a long time before the boreholes submerged by the flood will be fixed or new ones will be built: "Construction of more boreholes could take months or years due to tender procedures."

Also complicating a comprehensive response is the very broad nature of the problem. Over the decades of dryness, the local population has grown and low-lying land had been allocated for use on the assumption that it would remain above the flood line.

People have made private investments in properties that now seem set for regular inundation; public works such as boreholes and sewage infrastructure are inappropriately sited; disaster management will need thoughtful, long-term intervention from numerous departments.

Responding to the upturn in the annual flooding of the Okavango is clearly not one day's work - or even one months-long flood season, as the challenges of 2010 demonstrate.

Yet the return of high waters is welcome, accompanied as it is by returning fish and fowl, and economic opportunities. The data and analysis by hydrologists like Wolski, as well as the evidence-based scenarios put out by the river basin's co-ordinating body, the Permanent Okavango River Basin Commission, will be vital to designing immediate and long-term plans for the entire Okavango delta.

2010 floodwaters rose to levels unseen in over 30 years, here submerging a farmer's field.

Photo Credit: Serusha Govender/IPS

Birdlife soars above Botswana's floodplains

By Serusha Govender

When the Okavango poured out of its riverbed in early May, floodwaters destroyed houses, roads and fields in the delta. But environmental experts say the inundation also had a positive effect: it gave a boost to the local waterbird population and brought back species in danger of extinction, such as the Gullbilled Tern, which was seen in the delta less than ten times in recent years.

Okavango floodwaters submerged plains with nutrient-rich water around several lakes in the Ngamiland and Chobe districts in the north of the country, turning them into optimal breeding grounds for birds. Wildlife experts predict this will draw thousands of tourists to the area.

Birdwatchers have reported spotting more than 50 different bird species along the banks of the Chobe River, an arm of the Okavango, and more than 12,600 waterbirds, many of which had not been seen in the area since the late 1950s and early 1960s. Over the past few decades, the delta has progressively gotten drier, and wildlife dwindled as a result.

On the floodplain around the Ngami River, the bird population is estimated to be five times higher than in the last few years,according to Birdlife Botswana, the local chapter of an international organisation that works to conserve birds and their habitats in the context of sustainable use of natural resources

Birdlife Botswana committee member and birding expert Pete Hancock confirms that since the beginning of the flood, there has been an influx of bird species into the region, which has been a great opportunity for the country to promote birding tourism. "Areas like Lake Ngami are becoming one of the birding hotspots of southern Africa," he reckons.

Keen to make the most of the abundant birdlife, several safari operators have started running bird watching tours to the floodplains. This has the upside of increasing tourism in the area, but there are also some clear setbacks. Since Lake Ngami is a designated bird and wildlife hunting area, the rise in tourists might actually pose a threat to the birds.

Hancock fears safari operators will promote the hunting of birds, including rare species, such as the wattle crane, one of the most endangered bird species in the world.

OKACOM, the Permanent Okavango River Basin Water Commission, has collected and analysed data from throughout this river system, and projected the impacts of several different development paths. The Commission's Transboundary Diagnostic Analysis has given the river's three riparian states a powerful tool to guide development and protection of biodiversity.

"[Lake Ngami] is a communal area, [meaning that] the whole area is a designated hunting area, so it just became a free-for-all," says Hancock, stressing the need for stricter hunting regulations. "We need to recognise these places as formal bird areas, [otherwise] recreational hunters will become a big threat to the birds."

He recommends involving local communities in the birds' conservation by letting them manage the access to and use of the area. That way, communities can help to control safari activity on the floodplains and at the same time gain economic benefit from the increase in tourism by charging a fee to enter the area.

Currently, established tour operators and lodge owners are reaping the greatest benefits of increased tourism, while the majority of residents are left behind.

"There are more tourists coming and more tours on the mokoro [wooden canoe], that's good for us. But only a few operators make money from this. The communities still don't get more money," confirms Monnye Ntema, the 77-year-old owner of a piece of land overlooking the river near Maun's Old Bridge.

Ntema himself has long leased some of his land as the site for a successful lodge, in exchange for a percentage of the profits.

Local landowner Monnye Ntema says communities have yet to benefit from the increase in tourism due to the flood.

Photo Credit: Kristin Palitza/IPS

Water makes the difference

By Claire Ngozo

LILONGWE, Malawi - Water has become the very essence of economic development for a rural community of Ngolowindo, in Malawi's lake district of Salima, where households are reducing poverty thanks to irrigation.

Taking advantage of the fresh water from Lake Malawi, the people of Ngolowindo are using simple irrigation methods to grow such produce as tomatoes, cabbages, mustard, onions, okra, green pepper, green beans, lettuce and maize on 17 hectares of land.

The Ngolowindo Horticultural Cooperative Society, has since emerged in the area and 159 people are now members. Each individual farmer is allocated a small piece of communal land and assigned a specific crop to grow. The produce is collected into one lot and is put on the market.

Eluby Tsekwe, the cooperative's chairperson, proudly told IPS that her community has become the largest supplier of fresh produce to the residents of the country's capital city, Lilongwe.

"We supply all the main supermarkets and individual vendors in the capital city with fresh produce which they sell to residents of the city. We make a substantial sum of money from there and this sustains our livelihoods," she said.

For Tsekwe, a single mother of five, the financial benefits of this collective endeavour are evident; all her children, aged between four and 19, are in school. Despite her divorce leaving her alone as head of her household, she is also able to provide three meals every day to all her children in a country where, according to the United Nations, seven out of 10 households typically run out of food before every harvesting season.

Tsekwe has also managed to build a house of bricks with an iron sheet roof and cement floors. "A typical house here is one with mud walls and floors with a grass-thatched roof but I can afford to live better and I am very proud of myself," she said.

The cooperative coordinator explains that the agricultural initiative started at Ngolowindo in 1985 as an irrigation scheme and only became a cooperative in 2001. She said the project was initially driven by the government's departments of water and agriculture through traditional leaders and community members.

"As a scheme, individual farmers worked in their own fields. They could only benefit from communal irrigation systems, but they were each others' competitors when it came to marketing their produce," Butao told IPS. During this time, the maintenance of irrigation structures such as drainage canals and irrigation canals was suffering.

The scheme was turned into a cooperative to improve marketing of the produce and for a more organized management of the project, according to Butao, but this also solved problems of maintenance.

"The farmers applied for funding from the European Union soon after forming the cooperative, and they used the money to upgrade their agricultural skills in irrigation farming and modern ways of crop production," said Butao.

The Ngolowindo farmers have also been trained in marketing fundamentals, financial management, organisation management and agro-processing.

The Cooperation for the Development of Emerging Countries (Cospe), an Italian non-governmental organisation has assisted the Society to build irrigation structures and to pay staff. Butao, for instance, is an agricultural expert, employed by Cospe since 2002 to provide technical support to the cooperative.

"The Ngolowindo project has grown so much and it is now moving into agro-processing," Butao told IPS. She said in the absence of a processing project, there had been a lot of wastage of produce since the crops being grown are perishables.

The project has 18 people working in agro-processing, using hand-powered machines to process the agricultural products. "We are yet to make it big in the agro-processing business. Our products are not developed enough to compete on market but we are working hard towards advancing further," said Butao.

The cooperative is also working towards diversifying into livestock farming so as to use excess produce from the farming to feed the animals. "We also want to promote the use of animal manure in our farm," Butao said.

But people like Tsekwe and Kamoto are still the exception in Malawi where up to 65 percent of the 13.1 million people live below the poverty line of less than a dollar per day.

Irrigation raises income and resilience for smallholder farmers.

Photo Credit: Claire Ngozo/IPS

Herbalist joins fight against deforestation

By Collins Mtika

Decades of rural farmers practicing shifting cultivation have threatened indigenous trees in the district of Karonga in northern Malawi. They have also threatened the livelihood of Benjamin Kalowekamo, a herbalist, who depends on local plants to mix his healing concoctions.

"Certain types of trees, which our ancestors prayed underneath, asking for the heavens to open up for rains, have been hacked away [for farming purposes and firewood]. Life is threatened if natural resources are not protected," says Kalowakamo, who lives in Mwalwanda village near Karonga, adding that "culture and the environment are therefore inseparable."

Although herbalists are often seen as contributors to the loss of indigenous trees and shrubs because they use them to prepare traditional medicines, Kalowakamo decided to join a programme initiated by the Cultural and Museums Centre Karonga to fight deforestation. He now helps to educate communities about the importance of preserving indigenous plants.

Clearing land

In the search for fertile soils, Malawi's small-scale farmers who practise shifting agriculture clear forests every couple of years to create virgin lands to plant their crop.

About 30 years ago, Kalowekamo only had to walk a stone's throw from his home to find the ingredients for his natural medicines. He has a large patient base since most people in rural Malawi seek the assistance of herbalists or traditional doctors as the first port of call instead of going to clinics or hospitals.

"But that is history. Today, I have to trek more than 20 kilometres to the countryside, and that means closing my clinic for two days or more. That is a disservice to my patents," he laments.

Hopefully, the deforestation programme will help to change this. Over the next four years, the centre aims to plant new trees and label existing plants on 27,000 hectares of land.

Archibald Mwakasungura, one of the museum's founders and project managers, believes the programme will directly benefit 100,000 people, while a further 300,000 in other parts of the district are also expected to benefit indirectly from the aforestation and the protection of water catchment areas.

"The programme involves labelling trees and other plants so that people know their importance and hence the need for protection. We are also trying to protect water catchments areas through aforestation, using both indigenous and exotic plants," he explains.

Moreover, communities are taught about nursery establishment, woodlot management, natural resources conservation and mapping as well as local forest management.

Gaining trust

To get local buy-in from the community, the centre has teamed up with Kalowekamo, who, as a herbalist, is a leader in his community and has strong influence on its members. He acts as a role model, convincing other residents to change their ways.

"I want to preserve what has been passed down to me by my ancestors, so that I can continue helping the community," Kalowekamo explains his interest in collaborating with the centre.

Joseph Mwalwanda, headman of Mwalwanda village in Karonga district, also acknowledges the negative impact of deforestation of his community, which is now exposed to flush floods, droughts and dry spells. "Most areas have no trees anymore, because we cut them down to open news fields. Generations are still coming, and what will they have?" he asks.

Mwalwanda blames local farmers not only for soil degradation and deforestation, but also for the drying out of streams and rivers. Because trees, dense bush and shrubs are cut down to clear fields, rainwater washes away instead of flowing into catchment areas near rivers.

But changing farming practices is a slow process. Since it was launched four years ago, the project is yet to show first results. "Due to the protection of water catchment areas and river banks, people in some areas are expecting their streams and rivers to start flowing," says Jando Nkhwazi, director of the Rural Foundation for Aforestation in Mzuzu, a non-profit organisation also involved in the project.

He only expects to see tangible results in the next ten years – the time it takes for trees to grow to medium height.

Unsustainable use of forest increases vulnerability across Southern Africa. Photo Credit: Mantoe Phakathi/IPS

Weather changes turn farming into gamble with nature

By Denis Gathanju

DAR-ES-SALAAM, Tanzania - Changes in weather patterns have turned agriculture into a gamble with nature for Tanzanian farmers.

Prolonged droughts and floods have made the lives of small-scale farmers, who don't have access to irrigation, extremely difficult.

In Tanzania, where the economy is largely driven by agriculture, the largely poor, rural population has become even more vulnerable.

According to the national Ministry of Agriculture (MoA), agriculture accounts for up to 60 percent of the country's Gross Domestic Product (GDP). More than 80 percent of the population works in the sector, which makes up 60 percent of the country's exports.

A 2009 report by the International Institute for Environment and Development (IIED) warns that Tanzania has two decades to adapt its agriculture to climate change or risk major dents in its GDP. Otherwise, GDP loss could amount to one percent within the first 20 years and rise to between 5 and 65 percent over the next 75 years, says Muyeye Chambwera, who co-authored the report.

Climate change experts agree that the only way to prevent major

Photo Credit:IFRC/IPS

economic impact is to change the way agriculture is done.
"The only way forward is to educate farmers on better farming practices, as most are still using outdated farming methods, while others are practicing farming in areas where rainfall is inadequate," said Marc Baker, executive director of Carbon Tanzania, a non-profit organisation that helps farmers in Arkaria village, 35 kilometres west of Arusha, to adapt to climate change.

The Tanzanian government has realised it needs to act quickly and initiated a National Adaptation Programme of Action (NAPA) that seeks to reduce green house gas emissions and help small-scale farmers adapt to new agricultural practices and technologies.

It plans to educate farmers on alternative practices, such as crop rotation, zero grazing and growing of crops that need litlle water, such as millet and sorghum. NAPA also promotes the planting of drought-resistant maize.

"NAPA's objective is to enhance the adaptive capacities of vulnerable communities, since Tanzania's economy is largely dependent on agriculture…," confirmed Abubakar Rajabu, permanent secretary in the Office of the Vice President.

Throughout the country, temperatures are likely to increase between two to four degrees Celsius by 2100, the MoA predicts. This seems a long time away, but it gives an indication that perennial crops, such as maize and beans, will eventually not be able to grow anymore and will have to be replaced with annual crops, such as millet and sorghum.

The production of maize, Tanzania's staple food, is expected to drop by a third within the next few decades, because the crop needs lots of water to grow, MoA officials further caution. In the drier, central parts of the country, the maize harvest could even decrease by up to 84 percent.
Last year's planting season is a good indicator that the predictions are coming true, perhaps even earlier than expected. Farmers in Iringa province told MoA officials that they harvested between three and five bags of maize per acre of land in 2009. This is a far cry from the average 15 to 18 bags harvested a few years ago.

Farmers have also observed the effects of changing rainfall patterns. "Maize is no longer doing very well," says Mama Mrema, a small-scale farmer from Arusha. "Now I have turned to growing other crops, such as cassava and sweet potatoes, that do not need a lot of rainfall, to make a living."

In another village, Mwitikilwa in Iringa province, villagers say there have been drastic changes in weather patterns during the last thirty years.

Dr Emma Liwenga, a researcher at the Institute of Resource Assessment at the University of Dar-es-Salaam who has carried out research in the village in the past year, confirms that climate change has prevented farmers in Mwitikilwa from planting beans, coffee, peas and sweet potatoes. Her research also shows an increase in pests due to the increase in temperatures.

Farmers have been struggling to adjust to changing weather patterns. "The last decade has been really bad in terms of food production, especially in our village where we never used chemical fertilizers to grow our crops. We have been recording fewer harvests, because the dry spells have been longer and more severe while the rains have been irregular," says farmer Maimuna Hamadi.

The usually short rainfalls that occur between April and July have become sporadic, while temperatures between April and August have become abnormally high, the farmers say.

"We are no longer sure when to start preparing the land for planting or when to start planting. It is pretty much gambling with nature. The weather is no longer predictable as it was some 10 or 15 years ago," laments Mwanaisha Mwampamba, another farmer from Mwitikilwa.

"Sometimes the rains are not enough for crop production, while at other times, they are too much. They flood and destroy the crops," she adds. "If the situation persists, then most of us, who have small farms, will sink deeper into poverty, because we depend on agriculture to take care of our families."

Efficient use of water vital for climate change adaptation

By Deodatus Mfugale

Southern African countries must use water efficiently in order to adapt to climate change which is having severe impacts on water resources in the region.

With more efficient use of water, countries in the Southern African Development Community (SADC) will not only save money, they will be able to provide better services to their people.

Dr Bhekithemba Gumbo told participants at the 2010 SADC Multi-Stakeholder Dialogue on Oct. 12, that across the region, municipal water systems experience huge losses of water for a number of reasons.

"An average of between 45 and 70 percent of water is unaccounted for in many countries in the region," said Gumbo. "The financial loss is horrendous. We could adapt to the stress on water being exerted by climate change if we [could] become more efficient in using the water that is available."

Gumbo, Project Manager of the Water Demand Management Programme of the Development Bank of Southern Africa, said evidence of indifference to wasted water is visible in leaking taps in residences and office buildings, which may go unrepaired for days. Pictures of a broken standpipe tied off with flimsy cellophane paper in a vain attempt to stop leaking, of water gushing unused from a tap in an laundry room, and a broken water mains pouring precious treated water out onto the ground bolstered his case.

The Dar es Salaam Water Supply and Sanitation Authority in Tanzania, for example, says that over 50 percent of the water it produces is not accounted for. Lost due to obsolete infrastructure, improper connection of delivery and supply pipes, illegal connections or the utility's failure to bill consumers.

"Water utilities cannot continue to operate in this manner. They have to look at the resource as a commodity so that they can raise enough money by, among other things, avoiding losses and collecting all the revenue," he said, adding that with enough money, utilities can repair or build new infrastructure that would guarantee efficient use of water.

Water kiosk in Blantyre, Malawi

Photo Credit: Charles Mpaka/IPS

He said that although the water sector depends heavily on public funding, governments do not make substantial budgetary allocations for water infrastructure.

Africa as a whole faces a shortage of between 30 and 50 million dollars per year to produce potable water and manage water systems.

Water Demand Management's objectives are to consolidate pro-poor water demand management practices in the region, including building greater acceptance of the management model, and bolstering confidence amongst lenders to finance projects.

WDM is processing applications for funding from several countries including South Africa, Zambia, Madagascar and the Democratic Republic of Congo.

Gumbo told IPS that Tanzania will get funding from WDM through the Lake Victoria Initiative.

"We are collaborating with UN-HABITAT to provide funding to water utilities in the Lake Victoria region. Ultimately we want these utilities to stop depending on public funding and run their affairs in a business manner so as to ensure efficient use of water," he said.

Governments must choose their strategies to cope with water stress carefully. Reducing losses and waste, while enabling water utilities to become more self-supporting will both optimise use of available water and free government resources for other uses.