



## Press Review

Nairobi workshop on water issues

January 30 to February 3 2023

Network of African Journalists  
Specialized in Sustainable Development  
and Climate Change

### Background

The East African Journalists' Workshop on Water Issues in Africa, co-organized by Africa21 and the Water Diplomat with the support of Media for Environment, Science, Health and Agriculture (MESHA), was held in Nairobi (and online) from January 30 to February 3, 2023. International and local experts came to enlighten us on various issues related to water resources in Africa and particularly in East Africa. The panelists represented several institutions, such as the IPCC (Intergovernmental Panel on Climate Change), the Secretariat of the 9th World Water Forum, UNEP (United Nations Environment Programme), UN-Habitat (United Nations Human Settlements Programme), IOM (International Organization for Migration) the ICRC (International Committee of the Red Cross), UNDP (the United Nations Development Programme), the FAO (Food and Agriculture Organization of the United Nations), the UNCTAD (United Nations Conference on Trade and Development), as well as the International Water Conventions of the UNECE (UN Economic Commission for Europe), among others.

### Contest

In parallel to the workshop a journalistic competition was organized. The works for the competition are marked with the symbol \*.





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**Lina Mwamachi (Kenya) ; Rice farmers in Kenya utilize ocean tides to boost production. ; InfoNile ; January 19, 2023.**

To read the article click here : <https://infonile.org/en/2022/01/rice-farmers-in-kenya-utilize-ocean-tides-to-boost-production/>

1000-1500- Estimated number of households in Ozi location in Tana Delta.

126 -Number of rice farmers in Ozi in 2019.

51,284 kilograms of unprocessed rice harvested in 2019 valued at Sh 3,076,983.

245- Number of rice farmers in 2020.

-79,625 kilograms of rice harvested in 2020 valued at Ksh 4,777,500, an increase by Ksh 1.7 Million.

-Komboka, Saro, Daurado Precoce, Nericas, CSR 36 and 08FAN10- Rice varieties that have been developed that can withstand brackish conditions.

In the golden midday sun, Ozi village in Ozi location nestled within the tail end of Tana Delta in Tana River County looks nothing less of a lost paradise. It borders the Indian Ocean on one end and river Tana, the country's longest river, on the other. During seasons of floods and high tides, Ozi becomes an island and when the water recedes, it joins the mainland in Kalota Brook where the salty seawater mixes with freshwater.



Ozi village / Tana river County : Photo by Lina Mwamachi





It is the ocean tides that make Ozi more magical, an occurrence that has made it an unrivaled coastal bread basket resulting from the ‘natural irrigation’ where tides push water into rice paddies.

“Unlike in other rice-growing regions where water sometimes is a challenge, In Ozi we bank on the tides that push water upstream into the canals and finally into farms. Already, we are waiting for the October tides to push water from river Tana into the farms,” said Saidi Nyara, a rice farmer. In the village, the indigenous knowledge of predicting when tides are high is one of the interesting tales that has kept it active during all seasons and beyond the pandemic period. According to the farmers, the high tides start off pushing water up the river Tana from mid-October every year, and farmers dig canals to allow the river water to flow into the farms. It is also the season where most farmers harvest their produce to pave way for a new planting season.



One of the canals dug for water to flow to the farms when tides come. Photo credit: Lina Mwamachi

For farmers like Nuru Omar Mwana, the pandemic did not have any impact on her farming ventures. She, like many other farmers in Ozi, has mastered the art of accessing water, which, alongside the availability of certified seeds, has seen her cashing from the venture throughout the year.

“The produce is not as I had anticipated because the rains were not enough, but I am prepared for the next planting season once the tides begin,” Nuru said.

Nuru is among the 245 farmers who in 2020, at the peak of the Covid-19 pandemic, were supplied rice seeds by Nature Kenya under the European Union’s Community Resilience Building in





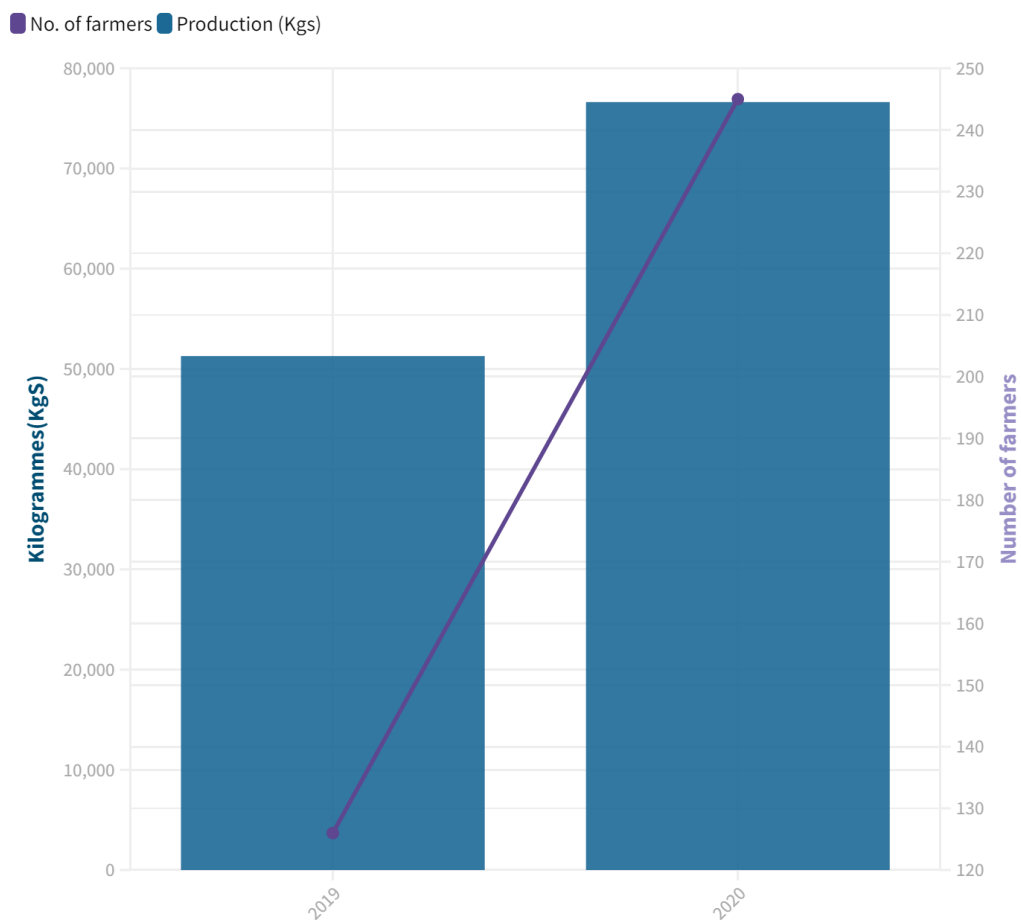


Livelihood and Disaster Risk Management (REBUILD) project. They collectively produced 79,625 kilograms of rice valued at Ksh 4,777,500, an increase from 2019 when 126 farmers were supplied with seeds.

### Rice production in Ozi, Tana River County.

Increased rice production recorded in Ozi during the peak of pandemic period.

Farmers utilising ocean tides to boost production increased from 126 in 2019 to 245 in 2020



Source: Tana River County, Nature Kenya • Credit: Caroline Chebet

“For the past one year, rice production in Ozi has actually increased with many farmers venturing into farming in the wake of the Covid-19 pandemic. Unlike in other areas, the 2020 period which was marred with lockdowns saw more farmers venturing into rice farming because of the availability of seeds and water that naturally flows into their farms,” said George Odera, Nature Kenya’s Tana Delta Project Manager.

Odera added that 2020 also saw a request for more rice seeds by farmers, which managed to increase production.



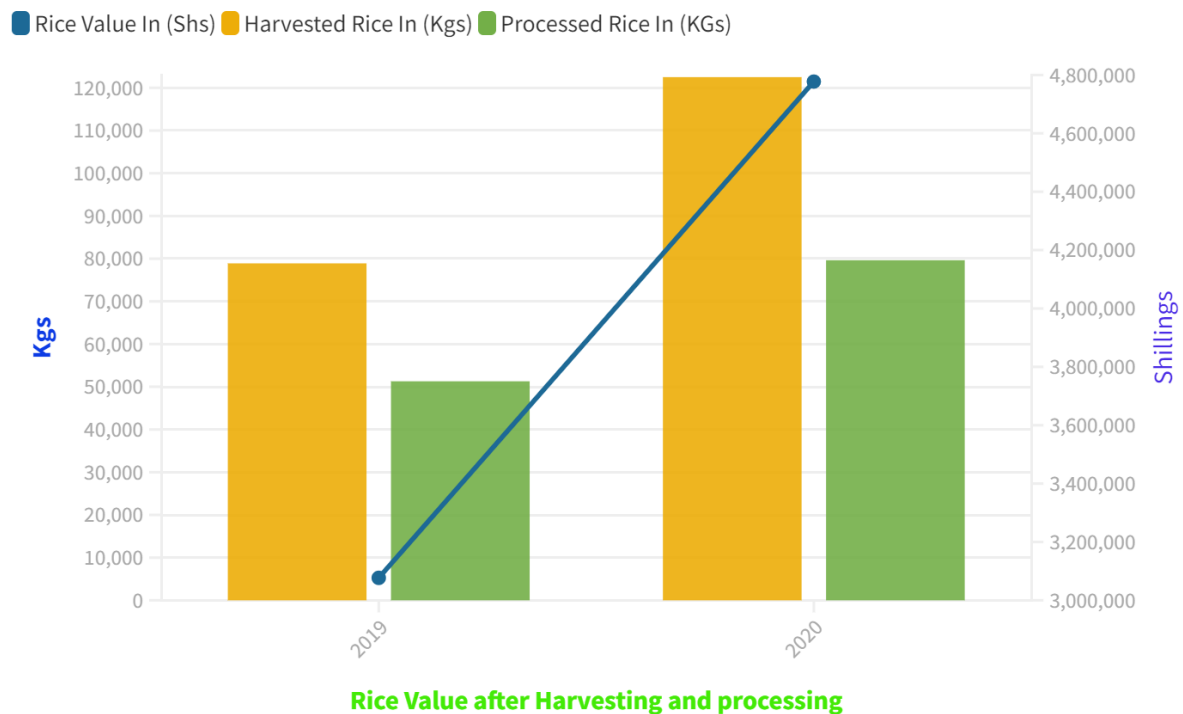


In 2019, the 126 farmers harvested 78,897 kilograms of unprocessed rice. After processing, the total processed rice amounted to 51,284 kilograms, producing a value of Sh 3 million (USD \$26,985).

In 2020 during the Covid-19 pandemic, the 245 farmers harvested 122,500 kilograms of rice, which upon processing produced 79,625 kilograms valued at Ksh 4.7 million (USD \$42,278), an increase of Ksh 1.7 million (USD \$15,292) in a year.

### Rice production in Ozi during Covid-19

Rice production increased during Covid-19, despite water intrusion challenges. Number of farmers also increased from 126 in 2019 to 247 in 2020



Source: NATURE KENYA, MPOZI FARMERS • DATA FROM 2019-2020

The four-year project funded by the EU is currently in its second year.

The country has been importing rice from countries including Pakistan and Tanzania. Rice imports have been increasing from 507,998.7 tonnes of rice in 2016 to 605,147.5 tonnes in 2020. In 2019, the country imported 608,609.1 tonnes of rice.

Tana Delta Sub-County officer Zilambe Kombo said that there are two rice farming seasons when a farmer can harvest up to 29 bags of rice per acre. The farmers sell their rice locally.





### **Seawater increasing**

But while Ozi's magical natural irrigation where farmers do not need to use machines to irrigate their rice paddies remains a key advantage, the salty seawater has been a challenge. Seawater intrusion has been intensifying with time. According to environmental experts, it is linked to climate change.



The seawater from the ocean is too saline and when the levels of freshwater in the river Tana are low, the seawater flows easily along the river and into the farms.

Nature Kenya director Paul Matiku says while river Tana is key to farmers in coastal regions including Ozi, it supports hydroelectric power projects like the Seven Folks dams that include Kindaruma, Kiambere, Kamburu, Gitaru, and Masinga dams. While river Tana is the country's longest river, traversing most arid and semi-arid countries, a lot of water is extracted to support irrigation activities that further reduce the flow downstream especially during the dry season. "In such instances, there is little flow of water downstream to push back the ocean water. In turn, the ocean water pushes much further back into the land, causing havoc to farmers. It is also believed that seawater levels in the ocean have continued to rise as a result of climate change, a factor that continues to heighten cases of seawater intrusion in villages bordering the ocean," Dr. Matiku said.

Matiku added that while the Tana delta, where Ozi lies, is below the sea level, it makes it easy for seawater to flow into the farms, a situation that mostly results in losses as a result of a high concentration of salt that dehydrates the crops.



Seawater can intrude as far as 30 kilometers into river Tana.

Erratic rainfall and the proposed construction of High Grand Falls Dam, a planned hydroelectric power project across river Tana, are expected to further alter the flow of river Tana.

### **New rice seeds that survive in salty water**

As salty water increases, organizations including National Drought Management Authority, Nature Kenya, CISP, GROOTS, Procasur, and the Kenya Agricultural and Livestock Research Organization have come up with rice seeds that can do well in extra saline conditions.

Kalro researcher John Kimani said the institution has been working with a number of international organizations to research rice seed varieties that can withstand the brackish conditions. The researchers, he says, have since produced a number of high-yielding rice varieties that are tolerant to both diseases and salinity.







Several varieties including those locally known as Komboka, Saro, Daurado Precoce, Nericas, CSR 36 and O8FAN10 have been developed through partnerships with organizations including the Korea-Africa Food and Agriculture Cooperation Initiative and Japan International Cooperation Agency as well as the Ministry for Agriculture and Counties.



The new rice varieties are not genetically produced but are carefully selected by experts over the years. Although the varieties can withstand the brackish conditions, some cannot withstand the deeply saline conditions, which researchers say they are still studying.

“Through partnerships, we have been able to develop salinity-tolerant varieties which are high-yielding with good grain quality. Many of the varieties are also resistant to diseases like rice blast, brown spot and bacterial leaf blight. Particularly the CSR36 variety is currently common among farmers countrywide,” Kimani said.

Zilambe said the current new varieties have seen farmers increasing their production despite the low water volumes within river Tana.

“The new varieties are solving the challenges brought about by changing weather patterns characterized by low rainfalls,” he said.

Nyara said they have devised a way of sustaining access to the rice seeds through Mpozi Farmers Association, an umbrella organization that brings together farmers within the area.

“Once we harvest, we take back part of the seeds to the association for storage so that when planting season comes, we can easily access the seeds alongside those given by the conservation organisations we are working with,” Nyara said.



A woman harvesting rice and preparing her farm for the next planting season. Photo by Lina Mwamachi

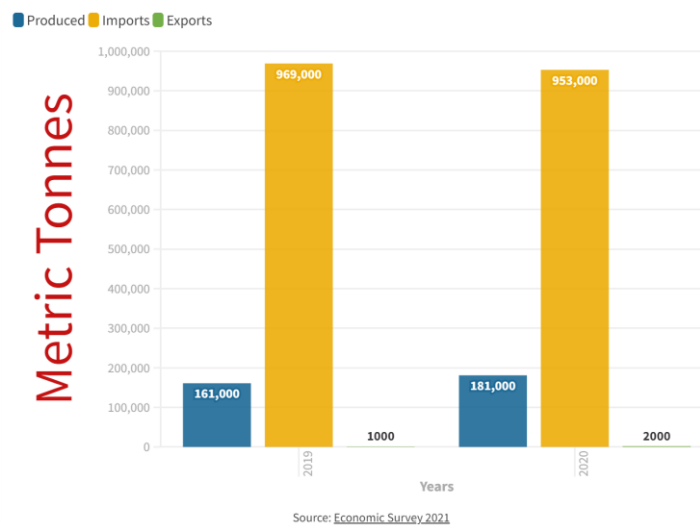




Last year, the institution also partnered with Korea-Africa Food and Agriculture Cooperation Initiative to promote rice production in the coastal region by contracting farmers to plant researched certified rice and supply seeds to the Kenya Plant Health Inspectorate Service (KEPHIS) for certification.

The move, according to Mr Kimani, has seen the production of certified seeds in the Coastal region for the first time.

### Kenya Exports and Imports of Rice and its Milled Products



“Because of high yield per unit, farmers can get more money to undertake normal livelihoods from these varieties especially in the face of climate change and the pandemic. There is need for more partnerships between national government, counties, KALRO, and its research partners to upscale the technologies and support with extension services and good agronomic management practices to boost rice production,” Kimani said.



**\*Jenifer Gilla (Tanzania); Water storage technology brings women back to agriculture in Zanzibar ; IPP media ; January 20, 2023.**

To read the article click here : <https://www.ippmedia.com/en/features/water-storage-technology-brings-women-back-agriculture-zanzibar>

**As a semi-autonomous territory in political union with Tanzania, Zanzibar has been hit hard by the effects of climate change, which results in poor crop harvests and other economic activities.**





It's now experiencing frequent floods, droughts, and unpredictable rainfall in almost the entire islands.

A study conducted by the Office of the Second Vice President Zanzibar in 2019 shows that, large areas of Zanzibar (Unguja and Pemba) are low lying and thus vulnerable to the consequence of variability in temperature, rainfalls, and winds, which have imposed huge social-economic burden to the community including failing in agricultural activities.

Challenges of dry land and saltwater entering the fields which deteriorated agriculture forced some farmers of KiungweKidogo in Bumbwini Ward, led by women to neglect their farms, avoiding losses that they use to get every time they cultivate.

Kiungwe Kidogo village leader, Amir Juma says in 2016 only 20% of women were engaged in agriculture from 1000 women registered as farmers, but by 2020 they had increased to 30 percent and it's all because of the new technology.

"I believe this technology will bring women back to agriculture as they have always been in the frontline in agriculture, but the challenge of climate change is discouraging them," explains Amir.

Some of the farmers in the village did not give up, they disturbed their brain until hurt they came up with the technology of digging small wells which were used to harvest and preserve rainwater and use them for irrigation in vegetable farming such as tomatoes, spinach, watermelons and cucumbers during which the rain does not show.

According to the village chairman, they were not taught about the technology, it was their own idea on the way to find the solution to serve their families from starving.

"We called on a meeting to discuss how we can fight the drought in our farms, since relying on the rain alone was not enough in vegetable farming, we tried this way and appropriate, then we use it so far," he explains.





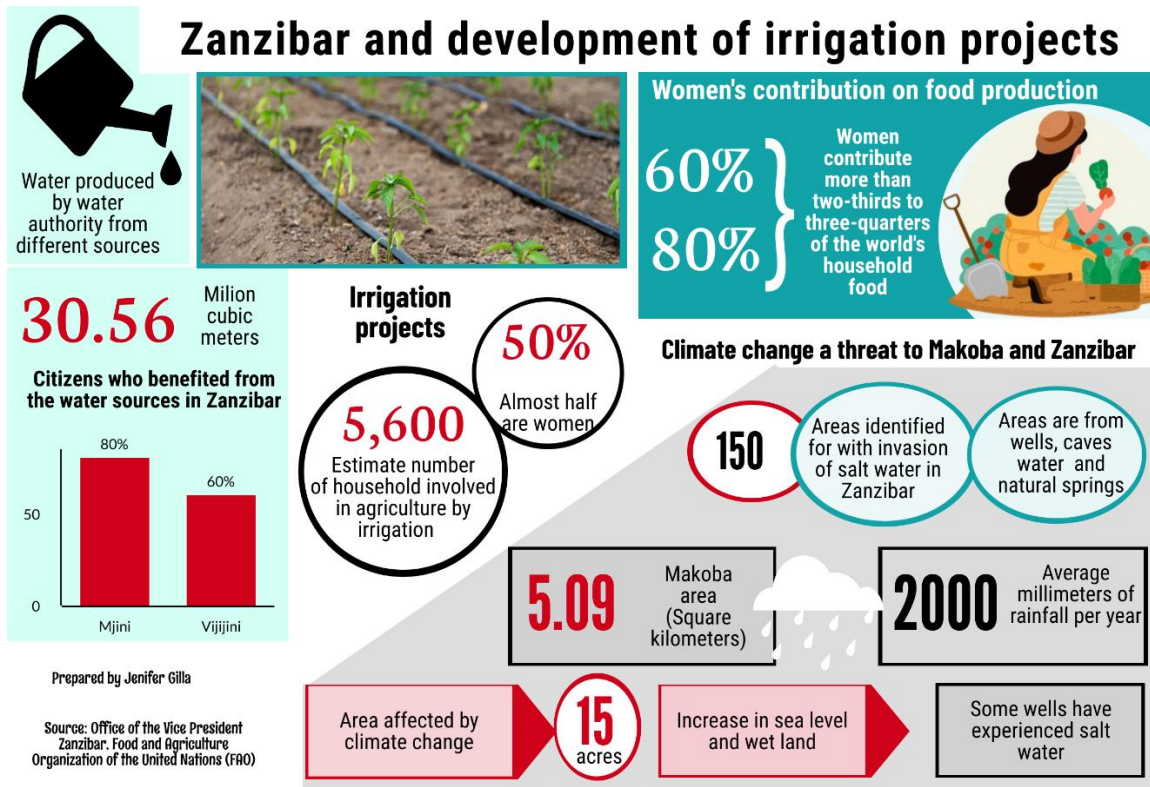
Abdi Athumani, a farmer from the village, says they harvest rainwater to use them for irrigation when the rains stop, but they start watering their crops when it rains.

“Water we harvest helps us when the rains stop, because these crops take three months to harvest and the rains fall for only one month or two weeks, so start watering our crops when it rains, when it stops we connect pumps to the well and start irrigation by using a generator,” explains Athumani.

Zuena Makame a watermelon farmer in the village is one of the women who fled her farm due to the drought but came back after seeing that well technology is helping in the fields.

“I stopped farming for two years after my crops dried up in, but in 2019 I decided to go back again after seeing that this method of storing water in small wells helps in vegetable farming, now I am thankful the rigors of life have decreased compared to when I was just sitting at home,” says Zuena.

In one acre of cucumber that she used the new irrigation technology, the mother of three earned 700,000/- which helps her pay for her son's fees and pay bills.





Azali Juma Ali says it was difficult to get back to vegetable farming due to the loss she got from the last cultivation, due to saltwater intrusion but well water storage technology restored his dream of farming again.

"I saw my dream fade in agriculture and I completely gave up, but I thank my husband for persuading me so far I see success even though the challenges are still there," says Azali.

Azali says during the two years he lived in agriculture he was running a small business such as selling mangoes and shells whereby her husband who is a fisherman was taking care of the family but now they are helping each other.

While Bahati Juma did not give up farming despite the challenges of drought and saltwater said she supported the men's idea of digging small wells to harvest rainwater which she praised as having changed crop growth on her farm.

"Before this technology were getting low harvest as expected because crops were not growing well, so when the men came up with the idea of digging water storage wells we supported them, we helped with small tasks while digging such as taking sand out of wells.

Thankfully we are now using the men's wells to water in our farms as well because we cannot dig our own wells, now on the half-acre of watermelon farm I earn 600,000/- while before I was earning 400,000/ -, "explains Bahati.

#### Challenges

Despite the help they get from the wells technology, farmers complain that the technology is poor and not compatible with the speed of irrigation of large farms.

"When it rains we dig small wells for water storage, and that is what we use for irrigation in the fields, now it depends on the amount of water, if the fields are big you water finish when crops still need them, so you end up getting loss," says AzaliJuma, a farmer in the village that.

The situation caused LailatuAbdi (50) to incur a loss of 400,000/- when water started to run out when her cucumbers farm were in one and a half month instead of three.







"This situation happened to me a year ago, it did not rain enough so this well did not harvest enough water, I planted one hectare, when the crop came to the middle I saw that the water would not be enough and I had to water only half of the farm and neglect the other half, " she says bitterly.

#### Existing Strategies

Director of the Environment Department from the Second Vice President's Office in Zanzibar, Farhat Mbarouk, says Zanzibar has received \$1 million from the United Nations Framework Agency for Climate Change (UNFCCC) to help prevent the effects of climate change, 'Adaptation Fund'.

"We have launched the adaptation fund project on January 13, this year, one the areas that will be reached with the money to reduce the impact of climate change is Bimbwili and the implementation will be done by the Ministry of Agriculture, Irrigation and Livestock, Zanzibar," she says.

While the Irrigation Engineer from the Ministry of Agriculture, Irrigation, and Livestock, Mohamed Mohammed explains that part of the money will be used to design rainwater harvesting systems for irrigation in Bimbwili ward located in the village.

"We will build a 500-meter wall in Kiungwe Kidogo while in Mafufuni we will build a 400-meter wall to prevent saltwater from entering the fields which will cost \$152,900, we will also build an irrigation system that will cost \$46,000, plus greenhouse \$ 29,000, water storage tank of 1,800,000 liters for irrigation that will cost \$ 75,000, "he explains

He adds that \$ 6200 will be used to provide education and increase awareness to local leaders on the proper use of the infrastructure to be built, thus making the total amount to be \$ 302,000 equivalent to 697.8m/-.

Fredrik Mulinda, Senior Environmental Officer of the National Environmental Management Council (NEMC), who is the National Coordinator of the Adaptation Fund, says NEMC is proud of the success of the project as it will revolutionize the economy in Zanzibar.

"Since we have launched the project, now the implementation is going to start immediately and our job is to closely monitor the progress of the implementation, the goal is to see economic activities hampered by climate change return to the line," says Mulinda.

FAO report on the role of women in Agricultural state that women comprise just over 40 percent of the agricultural labour force in the developing world, 50 percent of the agricultural labour force in sub-Saharan Africa, an increase from about 45 percent in 1980.



**Paul Tentena (Uganda) ; 600 Agribusiness communities to benefit from irrigation systems ; EABW News ; February 2, 2023.**

To read the article click here : <https://www.busiweek.com/600-agribusiness-communities-to-benefit-from-irrigation-systems/>



Kampala. February 1st, 2023. At least 600 Ugandan agricultural communities, particularly in rural areas in various parts of the country, are set to benefit from an innovative solar-powered irrigation system designed by Nexus Green to reduce the cost of farming and curb the effects of climate change in Uganda.

According to Mr. Rikki Verma, the CEO at Nexus Green, the Nexus Solar Irrigation Systems are also expected to revolutionise and professionalise Uganda's agricultural sector by easing access to water for farmers and rural communities through affordable and premium solar products.

"We are blanketing the country with over 600 sites of Solar irrigation systems to create wealth within the agriculture sector by introducing smart-agriculture practices and agribusiness development to move the small scale farmers from subsistence cultivation (majority at present) into modern commercial farming which would increase production, productivity and farm income," Verma said while announcing the renewable energy solutions in Kampala.

"With the increasingly unreliable rainfall patterns, the need for investment in irrigation and climate resilience has become of paramount importance, and the Government of Uganda recently ranked irrigation as the third most important infrastructural investment that will facilitate economic transformation of the country as envisaged under Vision 2040.





This project produces a perfect response to tackle the adverse effects of climate change in the agricultural sector, by providing water to mainly water stressed communities in Uganda for domestic use, farm use – animal and small holder crop farming.

It will also support community training on sustainable agricultural practices, developing resilience to climate change, protection of environments near swamps and water bodies, enhancing food security, promote proper sanitation and developing rural community livelihoods,” he added.

Nexus Green, which was founded in October 2015, is a solar energy company that specializes in designing, supplying, manufacturing, and delivering affordable solar-powered solutions that reduce carbon emissions and provide cheaper and cleaner energy.

According to Mr. Verma, Nexus Green is also introducing the latest state-of-the-art Solar Solutions which are also expected to greatly transform and significantly profit Uganda’s commercial and industry sector by easing access to renewable energy for companies and institutions through affordable and premium solar products.

Verma noted, “From a financial standpoint, it’s becoming very costly for businesses connected to the national electricity grid to do run their operation because energy price keep going up. “The obvious alternative route for a replacement is renewable energy.

The grid and diesel generation are not reliable. Power cuts, and the cost of fuel to keep operating the generators cost a lot. Using Solar with batteries is cheaper as there is no need to rely on the grid anymore,” he said.

“Power instabilities can have serious implications on food security and the social stability in the agricultural sector.

Electricity is essential in modern farming practices, and load shedding disrupts farming operations.

Solar energy provides a sustainable solution for such problems enabling farmers to have a continuous smooth running of all operations especially those in rural areas,” Verma added.

According to the Uganda Bureau of Statistics, about 70% of Uganda’s working population is employed in agriculture.

During the Financial Year 2021/22 agriculture accounted for 24.1% of Uganda’s GDP and 33% of export earnings, according to the ministry of finance, planning and economic development.

Majority of Ugandans heavily depend on the agricultural sector to for food and income. Solar-powered irrigation systems are therefore expected to lower the operational costs for both large and small-scale farmers in the long run and improve crop yields even during the dry seasons while at the same time reducing carbon emissions and greenhouses gases.

Verma noted that Nexus Green is committed to working hand in hand with the Government of Uganda to realize increased adaptation of solar energy across the energy by introducing cutting-edge technology to allow villages and small towns to connect to energy using mini-grids.

“The East African region presents enormous opportunities in the energy sector. We are excited to have our hub in Uganda which is land linked to so many countries,” he added. concluded.





# NATION

## **Francis Mureithi (Kenya) ; Boubacar Barry: Why water and food security is important for Africa ; Nation ; February 4, 2023.**

To read the article click here : <https://nation.africa/kenya/business/seeds-of-gold/boubacar-barry-why-water-and-food-security-is-important-for-africa-4111080>



Dr Boubacar Barry during the interview with 'Seeds Of Gold' on January 31. He wants African meteorological departments to be more active. Photo/ Francis Mureithi | Nation Media Group

Dr Boubacar Barry heads the Global Water Partnership in West Africa. He also the scientific adviser to the secretariat of the 9th World Water Forum in Dakar. He spoke about why the 'water for food, water for life' approach is important to Africa.

### ***What is integrated water resource management?***

This is a process that promotes the coordinated development and management of water, land and related resources to maximise economic and social welfare equitably without compromising sustainability of existing ecosystems.

### ***Just where is the African continent in terms of integrated water management?***

Only a section of the continent, mainly in West Africa, is advanced. Burkina Faso and Senegal are ahead of the pack. But many most of the countries still lag behind. Some even so not have the programme in their policies.

### ***Africa is endowed with ground water. How is this significant resource used to fight food insecurity?***

There is a need to invest in groundwater. Many studies have shown that the use of modern technology can transform agriculture in Africa and help alleviate food shortages for hundreds of millions of people.





***What is the level of understanding of Africa's ground water?***

The continent knows very little about ground water. Studies show that water needs to be harnessed at many levels. Africa needs to start tapping this resource.

***Producing crops like rice requires a lot of water. What practices can farmers adopt to use less?***

Governments and other key agriculture stakeholders need to train smallholder farmers on irrigation and how best they can utilise water. They should be trained on how much water is needed for irrigation. Some farmers use excess water, hoping to harvest more but end up with less yield and destroying their pieces of land. This information among smallholder farmers is the missing link on best irrigation practices.

***Africa lacks an early warning system against hunger. What are the early warning systems and how can they be used to conserve water?***

Inter-state organisations in the Sahel have put early warning systems in place. They predict rainy seasons and flooding. We need to be aware of the indicators before the rains and prepare our farms in time for planting.

***Drought has pushed 22 million people in the Horn of Africa and other regions to hunger. How should water be used in addressing such calamities?***

Apart from drought, the continent has to grapple with conflicts. Using water properly can stabilise the situation. Good water usage can help the fleeing families settle down and be productive. This is possible with the help of the United Nations and Non-Government Organisations. Residents of a particular area can be helped to manage this resource and share it with pastoralists, crop producers and the environment in general.

***Why are meteorological services in Africa underutilised?***

Africa should create an interlink between meteorological agencies. You cannot do water balancing without meteorological data and information. We need to intensify the density of the meteorological stations. If all these are combined, we shall have a good picture of what is going on in the atmosphere, do good monitoring and make proper predictions. This will be a boost to farmers who depend on rain.

***What is crop focus production?***

Crop focus production improves farmers' access to quality food production. Farmers using this system even know the quality of their production. Africa needs to invest in crop focus production and embrace new technology so as to predict yields and feed the rapidly growing population.







Farmers should be able to know their expected production using remote sensing, climate data and other systems.

***Why is diversifying crop systems important in water management?***

Water demands vary from crop to crop. Farmers are therefore advised to plant different crops so that if one fails, the other thrives as they have different water intake levels.

***Many African countries have weak or no water policies. What is the danger of such as far as fighting hunger is concerned?***

It is a sad affair that needs to be fixed immediately. Policies outside the water sector have a huge influence on water resources, diets, business, agriculture subsidies and energy.

We need to harmonise our policies around water to save our fragile economy. Industry, agriculture, health, environment, transport and other sectors of the economy depend on water. That means water must be at the heart of policies. The African Union is addressing this by bringing ministers in charge of water together.

***Why is it important to manage water at the lowest level?***

The approach to managing this resource should be bottom-up and not a top-bottom. People know their needs at the local level. If they are in charge, they become responsible for their actions, including misuse and mismanagement of water sources like wells, pans, dams, rivers and ponds.

***The lack of finance in water investments is there for all to see. What happens if this continues?***

It means the continent is increasingly dipping into more troubled waters. This could easily lead to a water crisis and conflicts that will definitely affect food production.





**\* Lenah Bosibori (Kenya) ; Farmers in Murang’a adopt water pans for sustainable smart farming to curb climate change ; TalkAfrica ; February 4, 2023.**

To read the article click here : <https://www.talkafrica.co.ke/farmers-in-muranga-adopt-water-pans-for-sustainable-smart-farming-to-curb-climate-change/>

Muranga County, Kenya: In a world where water shortage is becoming increasingly common, David Maina, a horticulture farmer in Murang’a County in central Kenya, is taking a unique approach to tame the shortage by farming smartly using water pans.

Water pans are a simple method of storing water particularly relevant for livestock farmers. They are “small ponds” dug in low-lying land specifically to collect water from small streams, roofs via gutters and rivulets, and high flow over land during rainfall. They reduce evaporation and provide a source of irrigation during the dry season.

Water pans can store up to 50,000 liters of water mainly for farming and livestock. The water can also be used for fish ponds.

Farmer Maina has one water pan that he is using to harvest rainwater for use during the dry season. The pan, which he started using in 2021, helps in his horticulture farming and also in conserving water resources by ensuring the health and productivity of his crops.

Agriculture is Murang’a County’s main economic activity. It plays a crucial role in food and nutrition security and accounts for 57 percent of the county’s employment.

The county is home to large and small-scale cash crop farming, mixed subsistence farming, livestock keeping, and fish farming.



David Maina at his water pan in Muranga County/ Lenah Bosibori.





Farmers in the county's lower midland agroecological zones are more exposed to floods, drought, and precipitation variability. Similarly, the upper highland farmers are slightly more exposed to landslides and mudslides, according to a 2019 climate risk assessment by the Ministry of Agriculture, Livestock, Fisheries, and Co-operatives.

About 23% of the county is considered food-poor, the assessment found.

According to Simon Thuo, a programs officer at the Alliance for Global Water and Adaptation (AGWA), in the face of climate change, farmers need to change their agricultural practices by embracing the use of water harvesting equipment like the use of water pans.

AGWA is an international members-based NGO focused on supporting experts, decision-makers, and institutions within the water community to work together to find solutions for resilient water management.

"We should change our agricultural practices towards sustainable agriculture, especially in areas which are sloppy and next to rivers," Thuo said.

Thuo adds there is a need for farmers to stop relying on rainwater and embrace harvesting it in every community and household.

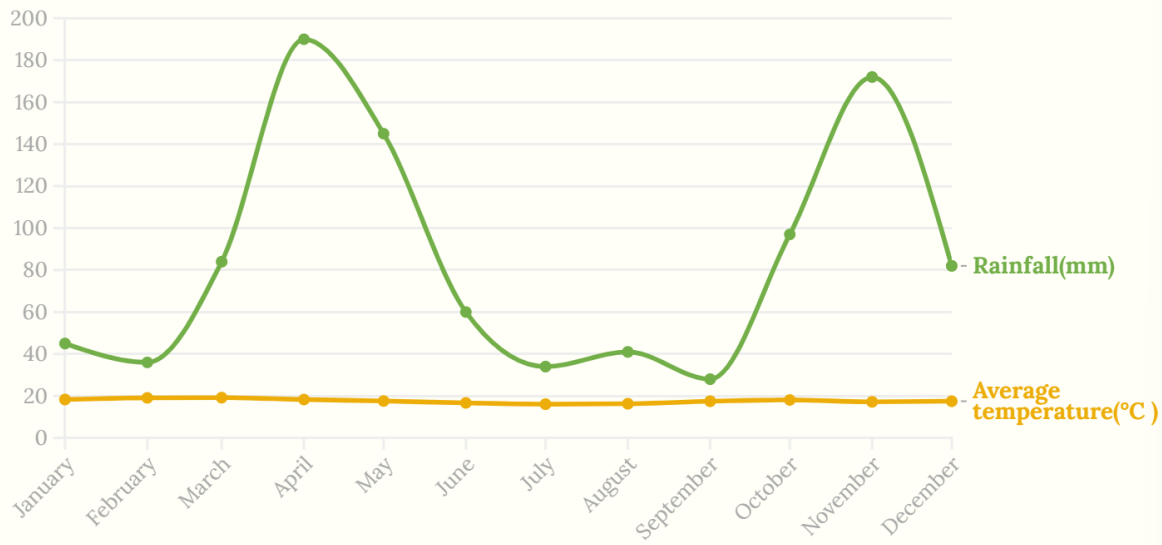
"We have enough rain. The problem is, we don't have enough water harvesting equipment. We normally leave the water flow to the rivers and oceans, ending up losing everything. We need to think about how we can harvest it," Thuo said.





## Murang'a County, Gatanga Sub County Weather by Month

Murang'a county, Gatanga sub county in Kenya has two main rainy seasons and two main dry seasons throughout the year. During the dry months of January-February and July-September, the water pans help farmers irrigate their farms.



Source: [Climate:Murang'a](#)



This is exactly what Maina is doing in his hilly one-acre farm in Kigumo village, Gatanga sub-County, Murang'a County through the Upper Tana Nairobi Water Fund program (UTNF).

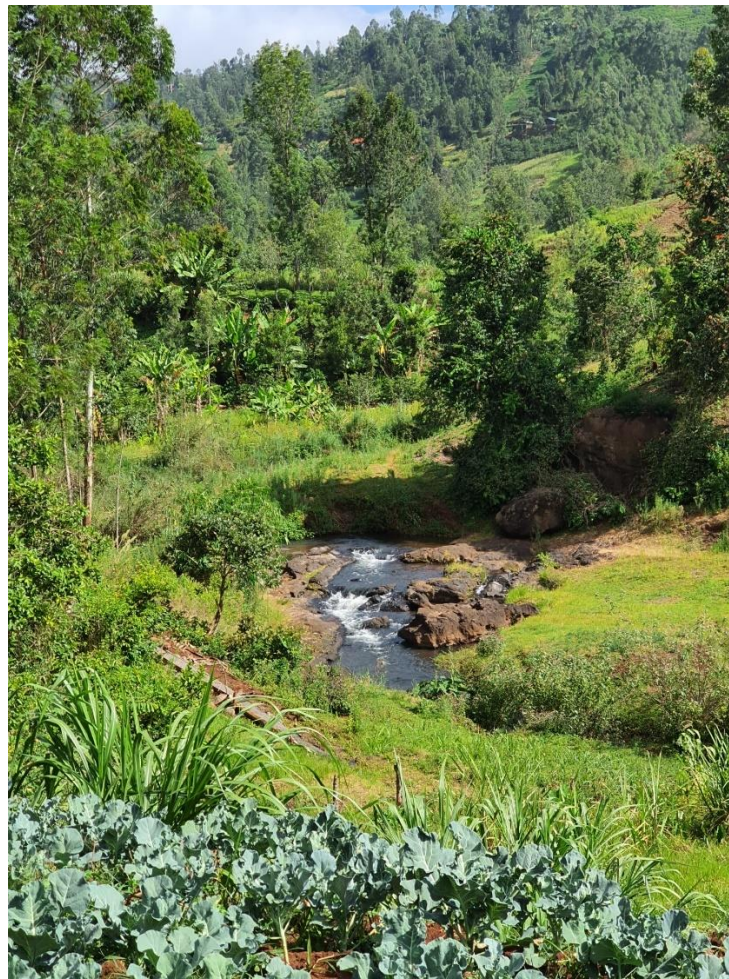
UTNF is the first of its kind in Africa now serving as a model across the continent looking for innovative ways to solve ever-increasing water challenges.

The program is funded by The Nature Conservancy and is impacting farmers in the central parts of Kenya that grow their crops on a hillside or mountainous region, for years and faced soil erosion. Officially registered in 2021, the program has so far benefited 30,000 people in the Upper Tana region of central Kenya.

The program has provided farmers in Nyeri, Kirinyaga, Nyandarua counties, and the Aberdare Range (mountains) with subsidized water pans at a 50 percent discount of \$250 instead of \$500. The Conservancy has also trained the farmers in how to use the pans and checks on their progress weekly.

Before the project, Maina could not plant different varieties of crops because he only relied on rainfall, but now he has a permanent water source in his homestead that is not drying up.





A photo showing Thika River that used to flood in David Maina's farm during the rainy season, he has planted napier grass to prevent flooding/ Lenah Bosibori.

"I used to plant maize and beans only because they don't require much water, but now I can plant anything. Right now I have a variety of crops like cabbage, kale, tomatoes, spinach, and watermelon," said Maina during an interview at his farm.

With this innovative method, Maina has managed to get back land that he lost when heavy rains flooded his farm. He has been able to plant napier grass that helps increase soil fertility and reduce soil erosion.

Maina has used his water pan for two years, recording excellent yields and high-quality organic produce for the local community and for commercial purposes.

He says that the profits from the farm have enabled him to take his three children to school. "I teach my children from this farm; I have also bought myself a piece of land from the profits," he said.

He adds that all the knowledge on how to use the pan was provided by Nairobi Water Fund. On a good day, he can make up to USD \$100.







“I harvest tomatoes and sell them per crate. One crate can fetch me \$56, and pepper is also doing well as I sell for \$0.4 per kilo,” Maina said.

John Nyagia, a water promoter with Nature Conservancy Nairobi, said the project started in 2017 with 11 people and now stands at 4,000 people who have been trained in Murang’a County. The Nature Conservancy tackles climate change, protecting oceans, land, and freshwater, providing food and water sustainability, and building healthy cities.

“The total number of people who have benefited directly from the fund is 30,000 to 40,000 in this area,” adds Nyagia.

“The majority of our beneficiaries are women and girls who are now harvesting the water in their homes instead of going long distances looking for it,” says Thuo.

The water pan can carry up to 50,000 liters of water. “Farmers who have embraced the use of water pans can be able to transform from poverty to where they have the income to purchase what they require, and they have suppliers,” says Thuo.

Jane Kimani is another farmer from the area who is also reaping the benefits of the water pans.

“I am about to harvest my fish that I started from water pans. I have 7 years since I started using the water pan and I wish I knew about it long ago,” says Kimani.

Kimani gets water for her fish pond from the water pans. She collects it in the pan and moves it to the pond.

### **Planting sustainable and drought-resistant crops**

Along with the water pans, farmers have also been trained by the Upper Tana Nairobi water project to dig trenches and plant napier grass that helps in preventing soil erosion. The fund has also issued the farmers with seedlings for avocado and macadamia nuts that mature very fast. Kimani has 14 avocado trees and a variety of other crops on her farm.

“We don’t need to wait until it rains to start thinking. Plan to get water-friendly trees that are drought-tolerant and grass that doesn’t dry even when there is drought,” says Kimani.

Thuo advises farmers to change their agricultural practices towards sustainable agriculture, especially in areas that are steep and next to rivers.

He urged farmers to look at what kind of crops could be planted in those areas like fruit trees and avocados that benefit families without destroying the soil and the catchment.





David Maina shows his kales that he plants using water from the water pan/Lenah Bosibori.

“We should look at a transition from the traditional crops, especially cereals towards sustainable high-income-generating trees and also drought-tolerant grass that don’t dry during the drought,” Thuo said.

“Provide greater protection and also see how to restore the natural conservation areas, particularly the wetlands and the natural forest and bushes, brushes and traditional grasses,” Thuo said.

Despite their increased yields, some farmers in the region are still challenged with low prices for produce and brokers mixing organic with non-organic produce, leading to retailing at the same price.

“We have been selling our avocado at a throwaway price; the people who buy from us are brokers, and you know when they come they come with their own price,” says Kimani.

She adds that they can buy for as low as five shillings per seed.

Kimani adds that she farms pure organic produce, but when they get to the market they mix with ones that are not organic, “leading them to retail at the same price,” said Kimani.

### **How to construct a water pan**

Construction of a water pan needs a flat and level location that is easily accessible to the farm and animals, according to the farmer Maina.

Then, farmers should dig a hole that is two meters deep, 40m by 18m to accommodate the water pan and provide a stable foundation. The pan itself is made of a polythene-like material that can last for an average of eight years before it is worn out. It is delivered by UTNF directly to the farmers already trained. Since it is delivered by UTNF, it is regularly maintained and the environmental impact is minimized during the manufacturing process.





The next step is to install the water pan in the hole by making sure it is level and has an inlet and outlet for water to flow. Gutters should be connected to the inlet. If necessary, farmers should install a drainage system to prevent overflow and allow the water to drain away from the water pan area.

Finally, farmers should regularly clean the water pan to keep it free of debris and maintain the water quality, Thuo said.

Farmers interested in acquiring a water pan can visit the offices of the Ministry of Agriculture, Livestock and Fisheries across the country, who will connect them with the Upper Tana Nairobi Water Fund.

Editorial support and data visualization by Annika McGinnis and Primrose Natukunda, InfoNile.



### **Sharon Ambani Tamba (Kenya) ; Nairobi to Experience Water Shortage Amid High Prices ; Kenyans ; February 5, 2023.**

To read the article click here : <https://www.kenyans.co.ke/news/85165-nairobi-experience-water-shortage-amid-high-prices>



A picture of Nairobi residents queuing for water

### **A severe water shortage is set to hit Nairobi County, if state reports are anything to go by.**

According to officials, the water shortage will be occasioned by low water levels in the main catchment areas.



There has been inadequate rainfall in areas that serve the catchment areas, especially in Kiambu and Murang'a counties whose ripple effect would be dry taps in Nairobi.



A water vendor using hand-drawn cart in Nairobi to sell water

Managing Director of Limuru Water and Sewerage Company Margaret Maina explained why Kenyans should be worried.

“We are experiencing a dry spell, in the near future, we may be forced to close operations with the hope that the levels at Tigoni Dam will rise because we cannot extract water anymore,” Maina told Nairobi based journalist Sharon Tamba.

Maina projected that water shortages will hit the county by the end of February 2023.

One area that has been affected is Ndakaini Dam in Murang'a County which supplies 84 per cent of water in Nairobi.

The Nairobi City Water and Sewerage Company operates the dam and supplies the capital city with 230,000 cubic metres of water per day.

If there is no rain in the next month, the dam will not be able to deliver the required 230,000 cubic metres since the dam is now at 56 per cent capacity.

Ndakaini Dam is supplemented by Tigoni Water Supply Project in providing water to Nairobi residents.

Tigoni Dam in Limuru, Kiambu County is also facing depletion due to insufficient rain making it impossible to supply water in Limuru and neighboring Nairobi towns.

In the past, the project used to supply 2000 cubic metres in a day but now the levels have dropped significantly to 900 cubic metres.

The water woes come at a time when the government has hiked water prices and introduced a raft of regulations for water vendors.



The Water Services Regulatory Board (WASREB) on January 31, 2023, announced that all water vendors must be licenced through the board as well as sell water at recommended prices.

The regulations affected water kiosks, water tankers, hand or donkey-drawn carts, water points and private boreholes.

WASREB further implemented new water levies which are projected to increase water prices tenfold.

Water charges will rise from 50 cents to Ksh5 for every 1,000 litres of water sold to consumers according to the new levies.



Nairobi residents getting water from a kiosk at one of the estates.



**\* Paul Tentena (Uganda) ; Wanjiru defies odds to farm in Kenya's harsh seasons ; EABW News ; February 6, 2023.**

To read the article click here : <https://www.busiweek.com/wanjiru-defies-odds-to-farm-in-kenyas-harsh-seasons/>



NYANDARUA COUNTY, KENYA – Situated just a few kilometers off Kenya's Sasumua Dam is 58 years old Phillis Wanjiru a mother of four children who has defied all the odds to grow crops throughout the year in rather Kenya's harsh dry conditions.

The resident of Njabini Township in Nyandarua County on the South End of the Aberdare Mountains, Wanjiru grows Passion Fruits, Cabbages, Strew Berries, Pumpkins, Pawpaws, Guavas and Yams among others.

She uses her home made irrigation means of tapping rainwater and transporting it to a pond, a rather unique idea in the area.

"This is family land. We grow food crops and Cash crops throughout the year with my husband through water harvesting and irrigation," said Wanjiru.

This was during a visit to her home by a group of East African Science Journalists who were there to see how she has managed to continue with farming despite the harsh and long dry spells in Kenya's Central Region part without rainfall.

Using the 2.5 acres family land, Wanjiru harvests water from their house during the rain season and through locally modified means, she transports it to a water pond that was dug with the use of polythene bags.

The polythene bags help to keep the water for longer periods of time by preventing evaporation and draining.





It's from the pond that she collects water that helps her irrigate the 2.5 acres of land to grow the different crops and raise some animals like cattle and sheep.

"I no longer have water stress since I started using water harvesting methods and the bore hole.

"In 1993, they stopped us from getting water from Sasumua Dam," She said.

To supplement her rain harvested water, Wanjiru dug a bore hole that supplies her water for home consumption as well as irrigation for the green house, she set up nearby for seed breeding and germination.

She sells her crops to Nairobi City markets and to the neighborhood of Njabini Township.

The Science Journalists excursion was sponsored by Africa 21 and the Water Diplomat.



**\*Sarah Natoolo (Uganda) ; Water Pollution ; UBC Radio ; February 8, 2023.**

To listen the audio click here : <https://www.youtube.com/watch?v=NLRhRQf5bSA>







## EABW NEWS

**Paul Tentena (Uganda) ; Why Africa will not hit water SDG by 2030 ; EABW News ; February 8, 2023.**

To read the article click here : <https://www.busiweek.com/why-africa-will-not-hit-water-sdg-by-2030/>



In Africa, out of the 1.3 billion population, over 300 million people have no access to clean drinking water with over 700 million without adequate sanitation.

This according to the Global Water Partnership for Africa is due to limited fresh water, Africa being the driest continent after Australia, 40% of its population living in arid, semi arid areas and with 18% of the world population and 9% of the world's freshwater.

"Unequal distribution, 6 countries in Africa have 54% of the water resource bringing the population under water stress to 65% in 2025 and 74% by 2040," says Dr. Abdoulaye Sene, the President of the Global Water Partnership for Africa.

He says that three quarters of the Arab countries on the continent are already living below the water scarcity threshold with renewable water per capita at 25 cubic meters per person in Egypt. The Sustainable Development Goal number 6 on water is a pillar to ensure water security because "water is life", development, peace, resilience and a human right.

"With the above trends, few states in Africa will have universal access to water and sanitation in 2030," stresses Sene.

He says of the 5400 billion cubic meters of water available in Africa, only 4% is developed for irrigation, food and hydro Electricity.







“The hydro Electricity potential in Africa is estimated at 1.4 million Gigawatts hours per year is exploited at only 8%.

“Increased public and private investment is critical to ensure water security and close the infrastructure Gap that is holding back Africa’s transformation,” notes Sene.

According to Dr. Tobias Schmitz of the Water Diplomat, the Blue Deal on Water Security for peace and development, which was adopted by the 9th World Water Forum in Dakar in March last year, fell apart as countries moved away from agreed upon principles to voluntary commitments.

There are five principles that were agreed upon and adopted. These include the acceleration of the implementation of the rights to Water and Sanitation, ensuring the availability and resilience of water resources and ensuring adequate financial resources to invest in water and sanitation.

The other adopted principles by the 9th World Water Forum in Dakar were ensuring inclusive water governance and enhancing cooperation in the domain of water and sanitation.

The Dakar declaration was intended as a contribution to a broader diplomatic process on water issues that will culminate in the UN Water Conference in New York this March.



**Sarah Natoolo (Uganda) ; Irrigation ; UBC Radio ; February 9, 2023.**

To Listen the audio click here : [https://www.youtube.com/watch?v=pSvcew\\_S-NI](https://www.youtube.com/watch?v=pSvcew_S-NI)



**Sarah Natoolo (Uganda) ; Quality Fluoride ; UBC Radio ; February 10, 2023.**

To listen the audio click here : <https://www.youtube.com/watch?v=PbpFwV3sjfI>





# SCIENCENOWMAG

**Christopher Bendana (Uganda) ; Dakar Blue deal must be on UN water agenda in march ; Sciencenowmag ; February 17, 2023.**

To read the article click here : <https://sciencenowmag.com/2023/02/17/dakar-blue-deal-must-be-on-un-water-agenda-in-march/>

**Tobias Schmitz is the editor-in-chief of The Water Diplomat, a monthly intelligence and media review on water issues published in Geneva, Switzerland. He has worked as a water researcher at the Centre for Policy Studies in Johannesburg, South Africa on water projects in several African countries. He has worked in Uganda, South Africa, Benin, Kenya, Senegal, and Tunisia. He got his bachelor's degree in Development Studies from Radboud University in 1987, then after a master's in 1992 from the same university. He got his doctorate in developmental studies specializing in Water Scarcity from the same university.**

Tobias was recently in Nairobi, Kenya courtesy of Water Diplomat and Africa- 21, a Geneva-based African media think-tank as one of the trainers for journalists on water issues.

Christopher Bendana, one of the trainees and publisher of ScienceNowMag spoke to Tobias Schmitz, about working on the continent and training journalists to report that water story.

**You are very interested in water issues on the continent. Why the interest in Africa?**

I am African. I was born in Lesotho. I am one of those Africans in the diaspora who see hope in the continent and would like to contribute in one way or another. Having studied development with a focus on water scarcity in South Africa, I decided to focus on the whole continent rather than on the sub-region taking into account the challenge of water access in the continent.

**Talking about access Valere Nzeyimana from the Food and Agriculture Organization of the UN paper during the training described much of Africa including countries like Uganda as water-stressed countries. How come a country like Uganda with over 1800mm of annual rainfall and five big fresh water can be classified as water stress?**

When we talk about water stress we are talking about countries where annually pre-capita water consumption is less than 1000 cubic meters and unfortunately luckily blessed Pearl of Africa, Uganda falls in the bracket. Too much water but limited clean water access. More investment is needed in infrastructure development and system maintenance to limit losses.





**You talked about losses. You were part of the team that visited Thinka Dam in central Kenya. The engineer there talked of 45% losses. In Uganda, the National Water and Sewerage Corporation's losses are also close to 50%. How can African water utilities reduce the losses as they impact access?**

They have to work on the infrastructure and make it more efficient. Physical losses of up to 45% are ridiculous. There must also be water demand management. The systems including, sanitation in homes, and irrigation systems among others have to be efficient.

**There is an incoming UN-Water conference in New York in March. A sector related to water, and climate change are struggling to raise the capital needed for mitigation and adaptation. How can Africa raise the resources needed to increase both water for consumption and production?**

There are things we can do here and there are some others where we need support. We can start by working on protecting catchment areas like we saw farmers creating water buffers in Thika. We also need to invest in a capacity like chemists to handle the pollutants, especially of minerals like oil and uranium. Water quality is unseen. Much of the water released is not treated, hence a problem for the environment. Much of these pollutants end up in international rivers like the Nile river. We must know that our actions upstream affect downstream communities.

Let us use the Dakar Blue deal as the framework. It has to get on the UN-Water agenda. Otherwise, the African voice will be lost. For instance, the Dakar deal emphasized water for rural development. This is an area that can't be ignored.



Tobias listens to a question during the training in Nairobi in early February





**Carolyne Tomno (Kenya) ; A drop of Hope : The power of Clean Water in Rural Kenya ; KASSTV ; February 17, 2023.**

To watch the video click here : <https://www.youtube.com/watch?v=M2BeVCmMezE>

Water project breathes new life into village life changing moment as they can now focus on other activities instead of looking for water.

## MONITOR

**\*Lominda Afedrarua (Uganda) ; How to farm during dry spell ; Monitor ; February 18, 2023.**

To read the article click here : <https://www.monitor.co.ug/uganda/magazines/farming/how-to-farm-during-dry-spell-4127898>



Njoroge explains how he uses irrigation to farm throughout the year. Photo/Lominda Afedrarua

Association Africa 21, C/o Maison Kultura, Rue des Savoises 15, 1205 Genève- Suisse  
<http://www.africa21.org> Email: [info@africa21.org](mailto:info@africa21.org)

Statut consultatif spécial auprès de l'ECOSOC, accréditée à l'OMC et au PNUE, Observateur à la CNUCED, partenaire de l'Université de Genève







### **What you need to know:**

- Uganda's rain-fed agriculture has progressively been constrained by frequent threats, droughts and floods.

It is early morning and a team of East African science journalists set off on a four-hour drive from Nairobi, Kenya to Nyandarua County in central Kenya on a fact finding visit.

The team arrive at Sasumua Dam with its main water source flowing from Chania River originating from the mountain ranges. Here, the situation looks dire because the dry spell is serious as seen from the looks of the agricultural initiatives from farmer fields.

### **Background**

A quick look at the farming communities practicing agriculture in arid and semi-arid areas in Sub Saharan Africa is a huge challenge with most of the interventions done by developmental partners such as Food and Agriculture Organisation (FAO) in partnership with Ministries of Agriculture in various countries.

In most cases development partners implement solutions geared towards adoption of irrigation technology during prolonged drought periods but access water facility can be a challenge. The statistical data provided by the ministry of Agriculture in the National Irrigation Policy indicates that irrigated land produces 40 percent of global food (IFAD, 2015).

Currently, Uganda's ratio of cultivated area under irrigation to the irrigation potential is only 0.5 percent.

This compares lowly to 3.6 percent for Tanzania and 2.0 percent for Kenya. The comfort of receiving rains to sustain two cropping seasons in a year has provided little incentive to Government to invest extensively in irrigation.

Little attention has been accorded to technological and human capacity development in irrigation. Despite the advantages the country holds in the ease of undertaking irrigation development, the potential has not been harnessed.

Uganda's rain-fed agriculture has progressively been constrained by frequent threats of actual occurrence of, droughts and floods.

However Ugandan farmers are not worse off than their counterparts in Kenya because we have several sources of water which farmers can tap to practice farming even during dry season.

As such Seeds of Gold got the opportunity to interact with farmers in Nyandarua as to how they are able to practice farming despite the dire situation of lack of water for the communities living in the country and below are the details.





### **Source of water**

In Sub Saharan Africa including Uganda typical sources of agricultural water include surface water which are categorised as rivers, streams and irrigation ditches including open canals impounded water such as ponds, reservoirs and lakes.

Others are groundwater from wells, harvested rainwater, locally collected water in containers, tanks and rain barrels.

There are four main areas of water use in agriculture which include for growing of crops, through irrigation, supplying drinking water to livestock, cleaning farm buildings and animals and supplying drinking water for those who work on the farm.

### **Farmer experience**

Phillis Wanjiru is a seasoned mixed farmer practicing agriculture on her two and half acres of land located to the main water supply Sasumua dam in Nyandarua County which she is unable to access. She grows mainly vegetables which include cabbages and kales (sukumawiki), Hass avocado, strawberry and Irish potatoes. She is also keeping two dairy cattle for milk collection which is a practice for most farmers in the area. Wanjiru contends that farming in Kenya is not easy due to water scarcity.

Wanjiru and other farmers in the county manage to farm throughout the year having been able to collect resources as group to invest in irrigation.

“After several engagements with other farmers in this county, we realised we needed water to grow more especially during drought. To achieve our goals, we had to pull resources as a group. That is how most of us managed to finance the sinking of boreholes which gives us water to irrigate our vegetables,” says Wanjiru. With the resources, each group member can access money to invest in irrigation. Wanjiru has also managed to dig wells which she uses to store harvested water during rainy season.

“I borrowed some money from the farmer’s group and I was able to purchase a 50,000 litre tank where I keep the rain water I harvest during rainy season,” says Peter Mongi Njoroge who is a mixed farmer.





## **Jenifer Gilla (Tanzania) ; Water scarcity worsens sexual violence on Maasai women in Longido ; Habitat ; February 20, 2023.**

To read the article click here: <https://habitat.co.tz/2023/02/20/water-scarcity-worsens-sexual-violence-on-maasai-women-in-longido/>

NAISHOKI Palagiki (23), a resident of Lumbwa Village of Longido District in Arusha region, is among women who have experienced abuse from their husbands due to spending time looking for water for the family and grazing livestock.

Naishoki was forced by her parents to drop school at grade six to get married to marry a 46-year-old co-villager who left her last year, because of extreme hardship in the aftermath of deaths of most of their cattle.

The mother of three was divorced after their 15 cows died, along with 29 goats and six sheep in August last year for lack of feed and water, with the now estranged husband accusing her of 'negligence.'

Before leaving her, the man used to beat her every time she was late to return the cattle, accusing her of doing whatever else besides, while she was having to walk a long distance to reach pastures for livestock as many pasture areas have been lost due to the severe drought lasting for three years now.

"Last year there was a severe drought, the cows did not have enough water and food. My husband said that I was negligent and failed to take care of the animals and he left me. I was spending the whole day looking for food for the animals and I was getting little, with some animals dying on the way," she narrates painfully.

Naishoki says that due to the current situation, he is forced to take care of her children alone which she cannot afford. She is seeking financial aid to support them following the difficult life situation she is facing.

" I regret the life I lived with him because I went through a lot of harassment, especially physical violence such as beatings and even sexual violence, because he married me when I was young," she says.

Naishoki is not the only one experiencing such challenges in the region. Arusha Regional Administration Secretary (RAS) Missaile Musa says that up to 4,705 incidents of violence and sexual violence were reported, of which 4,013 incidents were on women and 692 related to men, putting the younger and older ones together, till December 10, 2022.





Neema Saitabau (36), has a similar story. She says that due to walking long distances to find water for drinking and other domestic uses, there are times when she is late to serve the family and takes a beating from her husband.

“My husband beat me three times due to being late, returning home when I go to search for water in the canyons. The journey is long, so if I leave at seven in the morning I come back at five, to find the children and husband nearly starving. That is the reason for the beating,” says Neema. She says that sometimes they are raped by young people who meet them on the way, especially when they follow water in the springs located nearly 12 kilometers away near the irrigated agricultural fields of Ngarenanyuki and Ngabobo.

“My first daughter has survived being raped twice by young men who are working to water tomatoes in the field, because of looking for water. Drought has caused water to become a problem for us,” she further explains, her face twitching.

To make sense of the situation from a global perspective, the United Nations Intergovernmental Panel on Climate Change (IPCC) says in a report on global warming that temperature increase hit above 1.5°C by 2019 causing increase in natural disasters and subsequent devastation in communities around the world.

That leads to risks of gender-based violence as it becomes an even bigger problem if it is not properly tackled.

Nasupati Lomnyaki (42), a resident of Matadi, Siha District in Kilimanjaro Region, says her daughter who was in seventh grade last year, stopped schooling after being made pregnant by his brother-in-law.

She says the brother-in-law lured her that if he makes love with her, she will be cured of the bleeding disease, which becomes worse when the weather is too hot.

Speaking about the incident, the chairman of Matadi village government, Asanterabi Ng’onda, says he has not been informed about the girl’s brother, that their daughter has been impregnated by her brother-in-law.

The traditional leader of the Masai herding community (Laigwanani), Simel ole Kitasho, says that since 2013 the drought has affected many Maasai households with their livestock dying due to drought.

The District Administrative Secretary (DAS), Joseph Mabiti, says that climate change has left great scars on women pastoralists as many Maasai men of different ages have abandoned their families and fled to the urban areas to sell peanuts, cigarettes, etc. They seek work as night watchmen or cleaning work, while leaving what remains of the livestock to be tended by the children.

“Because of the challenge of pasture in the areas affected by prolonged drought which has shocked the entire northern zone regions, cattle, goats, sheep and donkeys have died. Men and especially young people have fled to the city to pursue other activities. Fetching grass for livestock has now become the work of women in some families. In short, women are experiencing considerable intensity of pressure and violence in the society in this situation,” says Mabiti.







Consolatha Kinabo, the coordinator for 'Promoting Equality for Human Rights Education' at TUSONGE Community Development Organization (CDO) that provides gender awareness education in peripheral areas of the two regions, says that despite the great work being done to break down the stereotypes of society and raise the voice to criticize violent actions, more effort is needed to stem increases in violent incidents.

Kinabo says they have already recommended to village and ward authorities to provide legal education and explain effects of sexual violence on women and children, plus reviewing traditions that promote gender based violence.

Noel Kikware, the Environmental Officer from the National Environmental Management Council (NEMC) in the northern zone, says that the agency is extending environmental education to the community focusing on communities most affected by the drought.

Spreading education to young people and others in drought-prone areas is a helpful tool in conveying the message to the entire community of residents of the northern regions of Kilimanjaro, Arusha, Manyara and Tanga.

"The environmental agenda is for everyone. You can see for yourself that the temperature has increased rapidly and caused drought. The northern regions have witnessed water sources drying up in various places. There is no pasture for livestock and economic activities have declined, while women and children are victims of sexual violence due to walking long distances in search of water or pasture in the surrounding areas day and night," he explained.

### **Building of dams**

Likewise, the World Wildlife Fund (WWF), has started to help those citizens by implementing a climate change project that invests in water infrastructure near their areas to reduce the interaction between humans and wildlife, where building dams is pivotal.

Novat Kessy, the manager of the WWF project, says that the project is focused on improving communities' ability to deal with climate change, noting that in the northern areas, the biggest impact is drought and they have come up with a strategy to enable them to deal with it.

"The community we work with are herders and farmers. As they have been walking long distances to find water we have built large dams for them.

"They have been getting less rain and to ensure that the water is not wasted, the dams are used to store water that will be used during more drought periods," he said.

Due to the drought, a large number of young people of the community have fled the countryside and left the responsibility of tending the livestock to the women who seek pastures to take care of the livestock.

He says that the grazing lands that were relied upon have completely dried and turned into dusty outreaches like a desert after agricultural activities started, followed by strange invasive weeds. For more than 10 years now with frequent droughts the community has gradually witnessed many livestock deaths in Longido, Siha, Simanjiro, Kiteto and Monduli districts, he stated.





Ole Kitasho says that between 2020 and 2022 herders in Arusha and Manyara regions lost 1,874 heads of cattle due to the drought which caused widespread loss of pasture.



**Faith Nyasuguta (Kenya) ; Water resilience beyond a 1.5°c world – an African priority in the UN Water Conference ; Africa Equity Media, February 21, 2023.**

To read the article click here : <https://africaequity.net/water-resilience-beyond-a-1-5c-world-an-african-priority-in-the-un-water-conference/>



The current unprecedented climate emergency has proven to be a water crisis for Africa. Driven by global emissions that have the least to do with Africa's development, the continent's temperatures are increasing faster than the global mean, contributing to water stress, related inequalities, and conflicts.

The period between 1991 and 2021 saw Africa warm up at an incremental average of about 0,3°C per decade.





Africa Equity Media spoke to Kevin Lunzalu, a marine ecologist who gives insights on the ongoing water crisis in the continent.



Kevin Lunzalu

“To Africa, every inch of warming matters, as it increases the vulnerability of its people and ecosystems, posing the most dire consequences to lives and livelihoods,” he says. This is already being manifested by water-related challenges being experienced by coastal communities in Africa, despite the continent contributing a paltry 3% of the world’s emissions. Climate-induced sea level rise in many coastal regions in Africa, such as Kipini in Kenya, is increasing intrusion of ground water, leading to a change in salinity and the chemical composition of groundwater that makes it unsuitable for drinking and other household uses. “This is alarming, as scientific projections show that close to 116 million people in Africa will be exposed to the adverse effects of sea level rise by 2030,” Lunzalu adds.





The last Well

According to Dr. Aditi Mukherji, a coordinating lead author of the chapter on Water of the IPCC Sixth Assessment Report, movement from the current 1.5 degrees celsius to 4.0 will largely depend on what we do in this decade.

Speaking during the inaugural workshop on water issues in Africa for East African journalists held in Nairobi, Dr. Aditi said that the climate crisis is also a water crisis, yet water is often neglected in climate change negotiations.

“Majority of the people living in the Global South, in climate exposed occupations, experience climate change through water.”

For such communities, the majority of water-related adaptations are meant to improve livelihoods, such as utilizing increased water-prone areas for rice production, and irrigation farming in water-deficient zones. The workshop was co-organized by Africa21, Water Diplomat, and Media for Environment, Science, Health and Agriculture (Mesha).

In view of the depth of the climate-related water crisis that Africa currently faces, the continent’s water adaptation must be on the agenda of the upcoming UN Water Conference scheduled to take place in New York (USA) in March 2023.

The main outcome of this crucial meeting will be a Water Action Agenda, which will seek to renew and realize additional commitments and actions by world leaders and other role-players to drive the United Nations Sustainable Development Goal on Water (SDG 6).







iStock

African countries will have a great opportunity to push the resilience and adaptation agenda during the second day of the conference (23rd March) where there will be three hours of interactive dialogue on water for climate, resilience, and environment.

The official programme of the conference shows that this session will be co-chaired by representatives of developed and developing countries. This provides a great chance for nations to have an honest dialogue on the contribution of increased emissions in the North, to the water crisis in the South. Concrete recommendations of how developed countries can help increase water resilience and adaptation in Africa must be tabled.

Dr. Boubacar Barry, the Scientific Advisor to the Secretariat of the 9th World Water Forum in Dakar, states that even though notable progress has been made in the recent past to enhance availability of water for food production in Africa, there still remains some unfinished business.



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“65% of household level income in Sub Saharan Africa is derived from farming or farm labor. This calls for increased resilience of food-providing systems and minimize environmental degradation that leads to loss of wetlands and pollution of dependent rivers,” Barry says.

**Notes:**

**Kevin Lunzalu is a marine ecologist and conservation writer from Kenya, with a deep interest in fostering inclusive and rights-based natural resource governance. He is the co-founder of the Kenyan Youth Biodiversity Network, a youth-led organization that strengthens the capacity of young people to make informed action toward halting the loss of biodiversity and policy advocacy.**



**Sarah Natoolo (Uganda) ; Climate Fund ; UBC Radio ; February 23, 2023.**

Listen the audio here : <https://www.youtube.com/watch?v=bmBmLy2rbhY>



**Lominda Afedrarua (Uganda) ; The importance of sustainable Water management to boost the agriculture sector in Africa ; ScienceDigest25 ; February 24, 2023.**

To read the article click here : <https://www.sciencedigest25.com/articles/view/194>



**Photo Caption:** A view of Lake Victoria from Uganda's City Entebbe which is used heavily by flower farm owners and fishermen Photo Credit Lominda Afedraru

Water is an integral part of resilience and needs to be more visible in climate negotiations especially when it comes to its usage in agriculture in Sub Saharan Africa.

Climate change is experienced first and foremost through changes in water regimes such as extreme rainfall, floods and prolonged droughts especially by a large majority in the Global South who depend on climate exposed occupations like agriculture

Since the most vulnerable feel climate impacts through water, it also becomes the vehicle through which climate injustice propagates.

Water is a part of the problem, but also a part of the solution. Many of the adaptation measures involve use of water a case in point irrigation, soil moisture conservation, rainwater harvesting to improve livelihoods, reduce vulnerability and improve agriculture productivity.

Mitigation is the need of the hour, but if not well planned, some mitigation measures can make local water and food security worse through high water footprint. Water needs a seat at the mitigation table.

This is the call of climate change experts who are advocating for sufficient and appropriate water management in agriculture systems.

### **Background**

Dr Aditi Mukheri from the Consortium of International Agriculture Research Centers (CGIAR) giving the background of the climate change assessment report detailing challenges of water shortage





affecting the agriculture sector notes that all components of the water cycle have been affected by climate change.

Heavy precipitation, prolonged droughts, Floods, Melting of Cryosphere are some examples. She notes that in the report experts observed changes in droughts since 1950s and Glaciers melting at unprecedented rates in all regions affecting culture and ways of lives of Indigenous peoples.

Looking at the agricultural sector it is stated that two thirds of global harvested land experienced drought agricultural losses between 1983 and 2009, with production loss of 9-10% due to weather extremes alone.

In as far as freshwater ecosystems is concerned, between 1970-2015, 35% of wetland area declined, with climate change being an important driver.

### **Mitigations measures**

Experts suggest that water related adaptation is most effective up to 1.5 degrees Celsius and effectiveness decreases with increasing warming

Most Mitigation measures and Carbon Dioxide Removals approaches and technologies can have large trade-offs with water and food security.

Bio-energy crops such as maize, soy beans and sugar cane along with other nature based solutions can potentially limit global warming by the end of the 21st century to 1.5°C, but can potentially double the global area and population living under severe water stress compared to the current baseline.

Other mitigation measures are afforestation and re-forestation as popular tool of mitigation, with some very optimistic estimates saying additional 0.9 billion hectares of canopy cover in suitable locations could store 205 Gigatonne of carbon.

The global assessments on Forest and Water reiterated afforestation and reforestation should be concentrated in water abundant locations and where transpiration can potentially be captured downwind as precipitation

### **Water usage for agriculture**

Valere Nzeyimana Senior Water Development and Management Officer Food and Agriculture Organization FAO Regional Office for Africa notes that globally agriculture accounts for 70% of water withdrawals.

Giving the statistical figure he explained that food production must increase significantly by 2050 to meet the demand of the world's growing population and 60% of the extra food requirement in the future should come from irrigated agriculture.

In Africa, only 7% of arable land is irrigated, with an even lower 4% in sub-Saharan Africa and 93% of the African farmers rely on rain fed agriculture for their livelihoods.







He recommends that Agricultural growth is key to reducing poverty in Africa and driving economic development since the continent is endowed with water resources, yet water withdrawals are less than 3 percent of total renewable resources.

This therefore means that additional investment in agricultural water management would pay great dividends.

### **An integrated approach building water resilience in Sub-Saharan Africa**

Communities are expected to establish knowledge based good practices on water development, conservation and management.

African governments are expected to establish appropriate infrastructure at appropriate level and harmonization of water related policies and strategies.

They are supposed to strengthen water users' associations and water boards for proper water governance.

In the continent the maintenance of many large-scale irrigation schemes is no longer ensured by government money and some irrigation schemes have been abandoned.

The large irrigation schemes are now only viable if owned by private entities and small-scale irrigation schemes are the only option affordable and manageable by farmers or groups of farmers. This is being the standard for many in African countries in terms of irrigation development.

### **Opportunities offered by FAO for farmers in Africa to the climate crisis**

Dr Valere explained that improved water control and watershed management in a rain-fed environment is crucial.

Farmer led irrigation schemes using small scale irrigation technologies which are Solar Powered including water access technologies using underground storage including valley tanks and dams is another opportunity to grab.

Experts at FAO recommend that sustainable use of water resource requires holistic, integrated and concerted long term planning;

Available water technologies should be adapted to the local context and made affordable to users according to their socio economic situation.

All programs and projects should target multipurpose use of available water resource. It is in that sense that all programs should target the Improvement of the efficiency and diversity of water use and the productivity of agricultural systems for Food Security and Nutrition

All available sources of water should be considered even if it requires long term sensitization for mind-set change



### Practical application in Uganda

In Uganda FAO has applied water challenge solving technologies in Central Uganda in the districts of Mubende and Nakasongola where valley dams and tanks have been constructed for the farming communities.

They communities have been sensitized to own water tanks set up by farmer groups under farmer field schools which they use mainly during dry season for growing vegetables and other crops such as beans and orange fruits that are grown in irrigated farms.

In the Karamoja region the same technologies have been applied where the farmers are using the valley tanks which are solar powered for crop production, and livestock farming.



### Sharon Ambani Tamba (Kenya) ; Meet Kenyan woman harvesting water to beat drought ; AWM News ; February 27, 2023.

To read the article click here: <https://awimnews.com/meet-kenyan-woman-harvesting-water-to-beat-drought/>



It is one of the hot days in early February when a group of East African journalists venture on a field trip as part of the workshop programme on reporting water issues in Africa. Most lands in Nyandarua County in Central Kenya lie idle, with shrubs of weeds that sprouted after last year's harvest. Farmers are eagerly waiting for the rains to fall before tilling the land, ready for the planting season. With the clear blue skies, it is hard to tell whether the rain gates will open soon.



Things are different for Phillis Wanjiru a farmer from Sasumua Dam Village in South Kinangop Sub-county. The shade from the numerous fruit trees in her compound keeps away the heat from the tormenting sun. On one corner of her farm stands a greenhouse that is housing soon-to-be harvested strawberries and arrowroots. A few strides from this structure are healthy purple cabbage stalks basking in the sun. Her calm cattle and sheep seem to be enjoying the juicy napier grass she had previously sourced from her farm. Unlike some of the neighbouring farms that are currently dormant, her 2.5 acres piece of land is half-filled with green flowering maize plants and a variety of vegetables.

Agriculture was never a walk in the park for the 56-year-old farmer in previous years. Similar to most farmers in the country, Phillis was previously a seasonal farmer who depended entirely on rain-fed agriculture. Moreover, she used to get poor yields since she lacked the knowledge of sustainable and climate-smart farming.

Things took a turn in 2017 when she was introduced to the Upper Tana Nairobi Water Fund Project UTNWFP.

### **Rainwater harvesting and irrigation**

Sasumua Dam was constructed many years ago to serve Nairobi City residents with water. The water sourced from a tributary of Chania River, originating from the nearby Aberdare Mountains, is collected and treated at the dam site and then disbursed to Kenya's capital city. Since the construction of a dam interferes with the upstream ecosystem, initiatives are put in place to ensure communities living in the watershed areas are sustained. In collaboration with the Sasumua Water Resource Users Association, the UTNWFP started a program to benefit farmers living in the upstream part of the water reservoir. In turn, the communities give back to the fund by conserving the catchment area.



*Healthy bean crop at the farm. Photo/ Sharon Ambani Tamba*

Water is a valuable resource in growing crops and rearing animals. Agriculture accounts for 70 per cent of global freshwater withdrawals. Therefore, farmers must have a supply of water to enable





food production. One of the core initiatives of the Water Fund program is to educate small-scale farmers living in the area on how to harvest and sustain rainwater through the construction of water pans. The project aims at boosting food production in such areas, especially during dry seasons.

With the knowledge acquired from her teacher James Munyua, Phillis constructed a water pan. When rain falls, the gutters that tightly secure her house roof collect and guide water into a large tank. Once the tank is full, Phillis opens the tap attached to it to lead water into the reservoir via connected pipes. The reservoir is a deep pit whose walls are lined with special polythene. The paper is essential in holding the harvested water for a long period of time to prevent it from seeping through the ground. The open pit is then covered by a wire mesh for security reasons. It is easy to trap runoff water in the pit since her farm is on a slope. She then pumps the collected water from the reservoir to the farm at her convenient time. Phillis has been educated on the amount of water to pump in her farm to prevent plants from being destroyed by excess water. Phillis can now farm all year long, no matter the weather, as long as the reservoir has water. The only challenges she faces are fuel and the adverse effects of climate change. She is affected by the ever-increasing fuel prices in the country since she uses fuel to pump the water to her farm. Phillis hopes to acquire a solar panel which is not only a cheap source of energy but also friendly to the environment. In addition, the change in weather patterns alters the water harvesting process. She prays for the rain to fall soon so she can refill the half-empty water pan.

### **Soil conservation**

Apart from the knowledge of rainwater harvesting, Phillis has acquired improved agricultural skills. Previously, she had a challenge with soil erosion where rainwater could sweep away the fertile soil and fertilizer from her farm.

“When it used to rain, I would lose most of the good soil through water runoff. I used to have poor harvests because I did not know how to conserve soil and water. But after interacting with my teacher, I was taught about terrace farming and planting fruit trees like Avocados and pears. I was also taught the need of planting napier grass on the terrace borders to hold the soil when it rains. Since then, my soil is intact. As you can see behind me, the crops are healthy too.”

Peter Njuguna, a water officer in Nyandarua County, says they collaborate with agricultural extension officers to sensitize farmers about improved agriculture with an aim of conserving the water catchment area. They teach them ways of stabilizing the soil through afforestation, rainwater harvesting and terrace farming to prevent silting of the dam that may be caused by soil erosion.

“Since this is a sloppy area, rainwater sweeps the farm soil that is composed of fertilizers and other chemicals into the rivers that lead to the dam. In turn, it reduces the quality of water gathered for treatment. We, therefore, teach farmers how to conserve and protect their soil. This in turn provides quality water for the treatment plant.”

### **Economic benefit**

The mother of four is now earning a living from smart-climate farming practices. She currently practices diverse agriculture unlike before when she only focused on potatoes and cabbages.







Through her plentiful harvest, she has improved her lifestyle, as evident by the ongoing construction of a permanent house.

“As you can see, I will be harvesting strawberries and avocados soon. With the earnings I get from the harvest, I can now boost the income my husband gets from his mechanic job. Moreover, I don’t burden my children with requests for upkeep money.” She says.

The successful implementation of the Water Fund aims at meeting several United Nation’s Sustainable Development Goals, among them being SDG 1; zero poverty, SDG 2; No hunger, SDG 5; gender equality, SDG 6; water and sanitation, SDG 8; decent work and economic growth, SDG 11 sustainable cities and communities, and SDG13 climate action.

Phillis is among the many women who have benefited from the implementation of the Water Fund in Nyandarua. She now calls on other women to embrace similar programs to help them sustain their livelihoods, families and the country’s economy at large.

*This story was developed with the help of Africa21.org and Water Diplomat.*

## THE CITIZEN

**Halili Letea (Tanzania) ; Tanzania receives Sh1.3 trillion in loans and grants from World Bank ; The Citizen ; March 1, 2023.**

To read the article click here : <https://www.thecitizen.co.tz/tanzania/news/national/tanzania-receives-sh1-3-trillion-in-loans-and-grants-from-world-bank-4141578>



The World Bank has approved a concessional loan and grants totaling \$579.93 million for financing the Tanzania Sustainable Rural Water Supply and Sanitation Programme and the Tanzania Maternal and Child Health Investment Programme.







Through the financing, at least ten million people will gain access to improved water supplies, while nine million will have improved sanitation facilities.

World Bank country director Nathan Belete, Finance and Planning minister Mwigulu Nchemba, Health deputy minister Godwin Mollel, and Zanzibar health director Amour Suleiman Mohamed represented the two sides at the signing ceremony.

Under the arrangement, the World Bank will extend \$300 million in credit and \$4.93 million in grant funding to improve access to water supply and sanitation in Tanzania.

"We expect up to 10 million Tanzanian citizens will gain access to improved water supply and 9 million to improved sanitation facilities. Also, up to 2,500 healthcare facilities and over 1,600 primary schools will be provided with adequate sanitation and hygiene services," Mr Belete said.

[The rest of the article is available online]



**\* Dessalegn Yeshambel Wassie (Ethiopia) ; The impact of drought and water scarcity crisis is threatening the lives of thousands of people and livestock in the rural parts of Amhara Wagihimra Seqota zone ; Africa News Channel ; March 2, 2023.**

To read the article click here : <https://www.africanewschannel.org/featured/the-impact-of-drought-and-water-scarcity-crisis-is-threatening-the-lives-of-thousands-of-people-and-livestock-in-the-rural-parts-of-amhara-wagihimra-seqota-zone/>



— THE WATER —  
DIPLOMAT



In a contemporary world, water and the issue of accessing fresh water are increasingly becoming the source of tensions and an alternative chance for enhancing and developing cooperation among shareholding actors in different countries, and become a pressing global agenda that highly

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attracts the attention of many politicians an Editor in Chief in Water Diplomat Dr. Tobias Schmitz said in the official opening speech of “agenda Nairobi Workshop on Water Diplomacy for East African Journalists during 30 January to 3 February 2023.”

He added that over 2 billion people worldwide lack access to fresh water, significantly observed in poor rural areas. From this figure, around 36.1 million people are highly affected by drought in the horn of Africa.

In the opening speech, Dr. Boubacar Barry, Scientific Advisor to the Secretariat of the 9th World Water Forum in Dakar, exclusively confirmed that Africa has a problem with access to fresh water and sanitation; 40% of its population lives in arid areas and gets only 9% of freshwater in Sub-Saharan Africa or Sahel Region.



*Dr. Boubacar Barry, Scientific Advisor to the Secretariat of the 9<sup>th</sup> World Water Forum in Dakar*

### **Dr. Boubacar Barry, Scientific Advisor to the Secretariat of the 9th World Water Forum in Dakar**

He further emphasizes that a protracted drought and ongoing political conflict are the leading causes of the scarcity of water that affected millions of people and livestock in the Horn of Africa. Accordingly, the region is in its third consecutive year of below-average rainfall and is now experiencing one of the worst climate-induced emergencies of the past 40 years, especially in Djibouti, Eritrea, Ethiopia, Kenya, and Somalia.

Unlike many African countries, Ethiopia has faced more significant water shortages, poor sanitation, and a lack of access to clean water sources. According to Simon Thuo, an expert in the Alliance for global water adaptation, Ethiopia, particularly the rural communities, are highly affected by the water crisis due to severe drought and an existing political conflict in the regional states.

Amhara regional state, particularly Northern Wagihimira Sequota Zone, is one of the region’s drought and more significant water shortage. Regarding water shortage in rural areas, Aberiha Assefa, a Zonal Water Official, addressed that almost 69.8% of water services are damaged and cut off due to a political power conflict between TPLF and Prosperity Party groups. He further added that Sahila, Dahina, Debre Habeba (015), and Semen Ber (09) rural kebeles are severely affected by water shortage and sanitation in Ziquala Woreda.

Aberbir Yihun, a rural water and sanitation coordinator at Ziquala Woreda, stated that nearly 70% of the rural communities in the selected Kebeles are highly suffering in accessing fresh water for drinking as sanitation purposes and for their livestock as well. Due to these problems, thousands of





people are forced to cross long distances to search for river and stream water for drinking and domestic use.

On the other hand, local communities noted that more people, particularly women, and children, are vulnerable to water-borne diseases such as cholera and diarrhea. They further added that women are becoming vulnerable to psychological and physical harassment while searching for water outside of their homes.

Though efforts have been made to resolve the problem sustainably, it is becoming beyond the capacity of the intervention organizations since there are poor infrastructures and more significant numbers of users in the community, experts and intervention organizations working in the area said.

To solve the problem and bring sustainable change, a call to action for humanitarian assistance is highly needed in drought-prone areas. Besides governmental (Amhara Regional Bureau of Water, Sanitation and Energy) and non-governmental interventions (Action Against Hunger), community engagement in roof water harvesting, rainwater harvesting, river water diversion, managing well and pond water, constructing shallow and spring water, working on underground water as well as managing surface water through water shade management is highly needed in the area.

## NATION

**Francis Mureithi (Kenya) ; FAO gives Sub-Saharan African countries chances to tackle climate crisis ; Nation ; March 4, 2023.**

To read the article click here : <https://nation.africa/kenya/business/seeds-of-gold/fao-gives-sub-saharan-african-countries-chances-to-tackle-climate-crisis-4146164>



A Malawian farmer works on his farms in 2015. Photo/Gianluigi Guercia | AFP





Sub-Saharan African countries could easily respond to the climate crisis by making good use of the opportunities offered by the Food and Agriculture Organization (FAO) to fight food insecurity. According to Valere Nzeyimana, Senior Water Development and Management Officer (FAO) Regional Office for Africa some of the readily available opportunities include improved water control and watershed management in a rain-fed environment.

Others are solar-powered irrigation systems, water access technologies and water governance and farmer-led irrigation and small-scale irrigation technologies.

“FAO is ready to engage into a partnership to the development and consolidation of inter-sectoral partnerships at the global and regional levels, and their declination to the national level representations in favour of the mobilisation of funding including strengthening the food-water-energy-environment security link,” said Mr Nzeyimana.

The official was speaking recently on the key topic titled “Water Management for Sustainable Agriculture Production” during a workshop on water issues in Africa for East African journalists in Nairobi.

The workshop organised by Africa21 and Water Diplomat was attended by 20 journalists from Kenya, Uganda, Tanzania and Ethiopia.

“Sustainable use of water resources requires holistic, integrated and concerted long-term planning. Available water technologies should be adapted to the local context and made affordable to users according to their socio-economic situation,” said the official.

At the same time, he recommended that all programs and projects should target multipurpose use of available water resources saying “it is in that sense that all programs should target the improvement of the efficiency and diversity of water use and the productivity of agricultural systems for Food Security and Nutrition.”

Mr Nzeyimana said all available sources of water should be considered even if it requires long-term sensitisation for mindset change and adaptation.

He said by 2050 the area experiencing water shortage in Sub-Saharan Africa will increase by 29 per cent. The World Bank estimates that the number of African countries experiencing water stress will rise to 18 and will affect about 600 million people on the continent.

“Due to the transboundary nature of many water basins, conflict over water resources will be exacerbated,” said the FAO official.

Other projected impacts of climate change in Africa include slow growth as developing countries are highly dependent on water for growth and development.

“Many developing countries have a low investment in irrigation systems, dams, and groundwater and do not have enough water storage to manage demand,” he added.

He observed that discharge reduction for the largest African water basins like Niger, Chad and Senegal could be as high as between 40-60 per cent.





The official revealed that the current situation in Africa indicates that only seven per cent of arable land is irrigated, with an even lower four per cent in sub-Saharan Africa while 93 per cent of the African farmers rely on rain-fed agriculture for their livelihoods.

“Agricultural growth is key to reducing poverty in Africa and driving economic development. Africa is well endowed with water resources, yet water withdrawals are less than three per cent of total renewable resources,” he said.

He called for additional investment in agricultural water management saying this would pay great dividends.

He said building water resilience in Sub-Saharan Africa requires good practices on water development, conservation and management, establishing appropriate infrastructure at the appropriate levels, coordination of institutions’ activities and harmonisation of water-related policies and strategies, and establishing and strengthening water users’ associations and water boards for proper water governance.



**\*Lina Mwamachi (Kenya) ; Plenty yet scarce: Kenya’s Taita Taveta County suffers water shortage as Kisenyi dam dries up ; InfoNile ; March 6, 2023.**

To read the article click here: <https://infonile.org/en/2023/03/plenty-yet-scarce-water/>

- Taita Taveta has plenty of water bodies but lacks water.
- Agriculture is shaky despite the presence of water bodies.
- Economic scarcity is the issue, not water scarcity.
- Water levels are depressed due to climate change.
- Several dams in the county have dried up, while others have shrunk in capacity.

Sustainable Development Goal (SDG) number 6 targets the world to meet water availability and sanitation needs by the year 2030. SDG number 13, Climate Action, aligns with the water goal. Both aim to be realized by the year 2030. The question is, will they be met?

In southeastern Kenya, climate change is affecting a water-rich county, which is struggling with access to clean water despite its plenty of water bodies.





Taita Taveta County number 006, lies quietly at the coastal part of Kenya and boasts of vast resources like dams, lakes, rivers and springs. It is sandwiched between two major national parks, Tsavo East and Tsavo West, which boost the economy of the county and Kenya as a whole through revenues from the tourism sector.

Lake Jipe, Lake Chala, Njoro springs, Mzima springs, River Lumi, and other water bodies supply the county with plenty of water, though water levels have gone down 'slightly' due to impacts of climate change.



Lake Chala (left) and Lake Jipe (right)

These water bodies, if well utilized and managed, could see the county contributing much from agriculture, which is the economic drive of the county.

It's ironic that despite the resource being in plenty, the county has a lot of water scarcity. Farmers in the county are struggling to obtain water after a dam that used to support 15,000 people dried up completely.





Residents queue to fetch water from the local taps.

More than 100 kilometers from Voi town, Taita Taveta County, I ascend the hills of Taita to investigate the water situation. My first point is Mzazala Werugha, where I meet with farmers who have encroached and farmed inside the water canal that feeds Kishenyi dam.

The water from the Kishenyi dam used to serve 15,000 residents of the lower part of the county. The dam, which was constructed in 1959, has been helpful to residents in terms of large-scale agriculture, livestock, fishing and home use.

According to Solomon Kilambo, secretary of the Kishenyi Water Resource User Association, four villages dependent on the large 30.6-acre dam are now struggling to get water as they await for the desiltation of the dam, after the WRUA Association acquired 11 million shillings as a grant from the Water Trust Fund. The money is also intended to fast-track reforestation activities, help in distributing water lines to affected villages, and constructing the dam to ensure there is no seepage of water underneath or soil erosion on the dam banks.

Solomon stresses that rigorous human activities have contributed largely to drying up of Kishenyi dam and other water catchments in the county.



Farming along the dam banks, cutting down of indigenous trees, and burning of shrubs and charcoal along the dam have all contributed to land depletion and the drying up of the dam.

In the past, the areas around the dam grew reeds that helped in sieving and cleaning the water that flowed into the dam, as well as controlling soil from entering the dam. But once the reeds





were destroyed, soil erosion from farming became rampant. When it rained, soil flowed into the dam, making the dam shallow and unable to hold water.

Now that the dam is dry, some farmers in Mzazala Werugha have sunk in boreholes inside the dried-up dam to obtain water for farming and home use, but they are not able to establish the safety of the water.

Richard Mwangeka, a farmer, says the changing weather patterns and little rainfall compelled them to sink boreholes to get water for irrigation and home use.

“We have no choice but to farm inside the dried-up dam. There used to be many trees but all have been cut off so that we can farm here,” says Mwangeka.

Similarly, in Lauren Kambale’s farm, the situation is the same. Lauren cites that climate change and unpredictable rain seasons led them to taking actions which have slowly depleted the resources and led to land degradation all together.

Mwadime Mwamburi, a farmer in Kishushe, has also turned away from rainfed agriculture to water investing using water pans, which are shallow dams equipped and covered with black plastic bags to prevent seeping of water.

Failing of rainfall seasons for long has forced him to quit farming and engage in other alternative livelihoods like cattle and chicken rearing.



30.6 acre Kishenyi Dam Dried up.

Kishushe Area Chief Ethel Mwasi implores the county and national governments to make plans to establish more water sources that can be used for agriculture, home use and animals, both domestic and wild.

She asks the government to drill dams and boreholes and erect water pans and check dams along gulleys that flow water into the Indian Ocean.





Simon Thuo, a Consultant at Alliance for Global Water Adaptation, East Africa region, says water plays a crucial role in climate change and drought in Sub-Saharan Africa.

Thuo cites that the water table has decreased from 60 to 300 meters in places like Nairobi County, attributing the change to an increased number of boreholes driven by the growing population.

He adds that Kenya should emulate how Ethiopia invested in watershed management. The model includes capturing runoff water through small dams and also utilizing subsurface water and reducing degradation of land by increasing vegetation cover.

Tha Taita Taveta Governor, who is also the chairman of the Water, Natural Resources Management and Forestry Committee at the Council of Governors, together with the national government PS Dr. Paul Kiprono, Ministry of Water and Sanitation, have begun deliberating on water projects to be undertaken by the national government in the county.

The two governments aim to strengthen their collaboration to implement water projects in Taita Taveta county amid ravaging drought occasioned by depressed rainfall.

First, they plan to implement the Njoro Kubwa and Mzima 2 water projects, which seek to develop water infrastructure from the Njoro-Kubwa and Kitobo springs and build a massive 50-kilometer water distribution pipeline. The county government is still in the planning process with investors for the projects, which aim to increase water production from 15 to 60 million liters per day.

Is it really water scarcity? Professor Boubacar Barry, a scientist on water issues in West Africa, says where there are plenty of water resources and it's evident there is scarcity of the resource, then it's not water scarcity but instead economic scarcity.

"Water is finite; we cannot increase it, rather we can make good use of it sustainably," Boubacar adds.

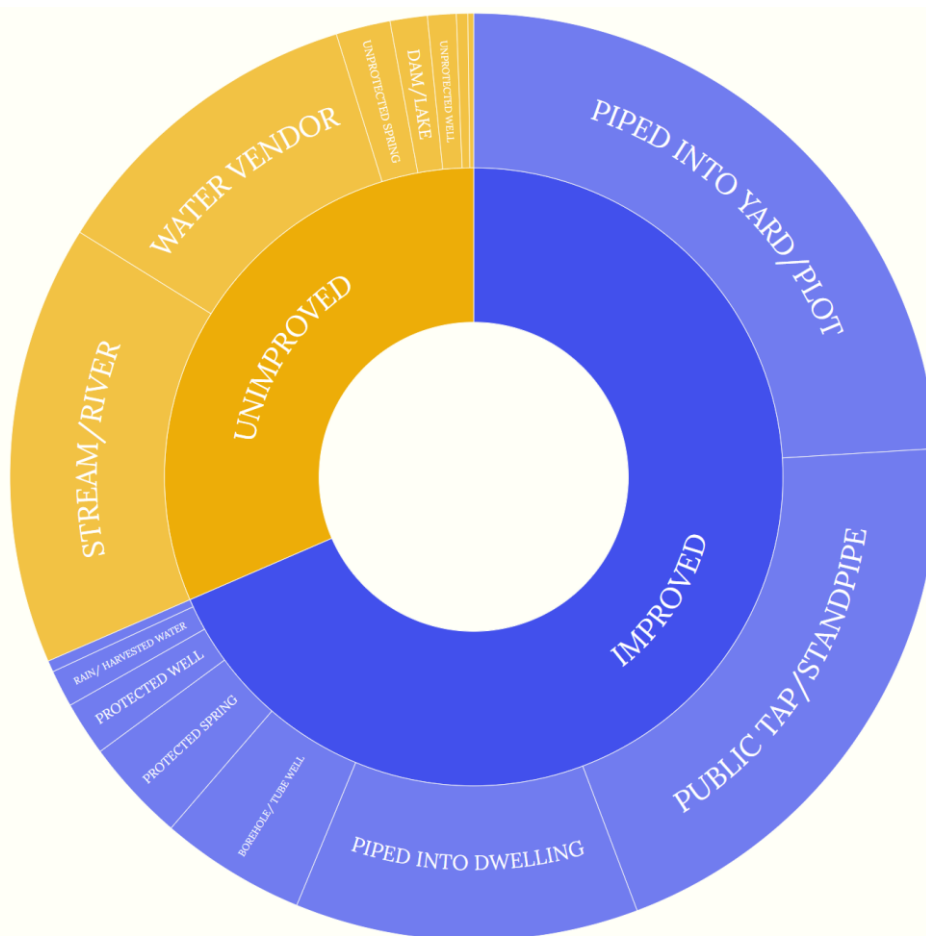
### **Access to Water in Taita Taveta County**

According to data from the 2019 Kenya Population and Housing Census as compiled by InfoNile, only about 36 percent of households in Taita Taveta county accessed piped water by that year, while about 15 percent still acquired water directly from rivers and streams. About 5 percent got their water from boreholes and 1 percent from dams and lakes.

Access to Water in Taita Taveta County, Kenya

As of the most recent Kenya census conducted in 2019, 69 percent of households in Taita Taveta county were using improved sources of drinking water. More than a quarter of households still got their water from rivers, streams or water vendors.





Source: [2019 Kenya Population and Housing Census, Volume IV](#)

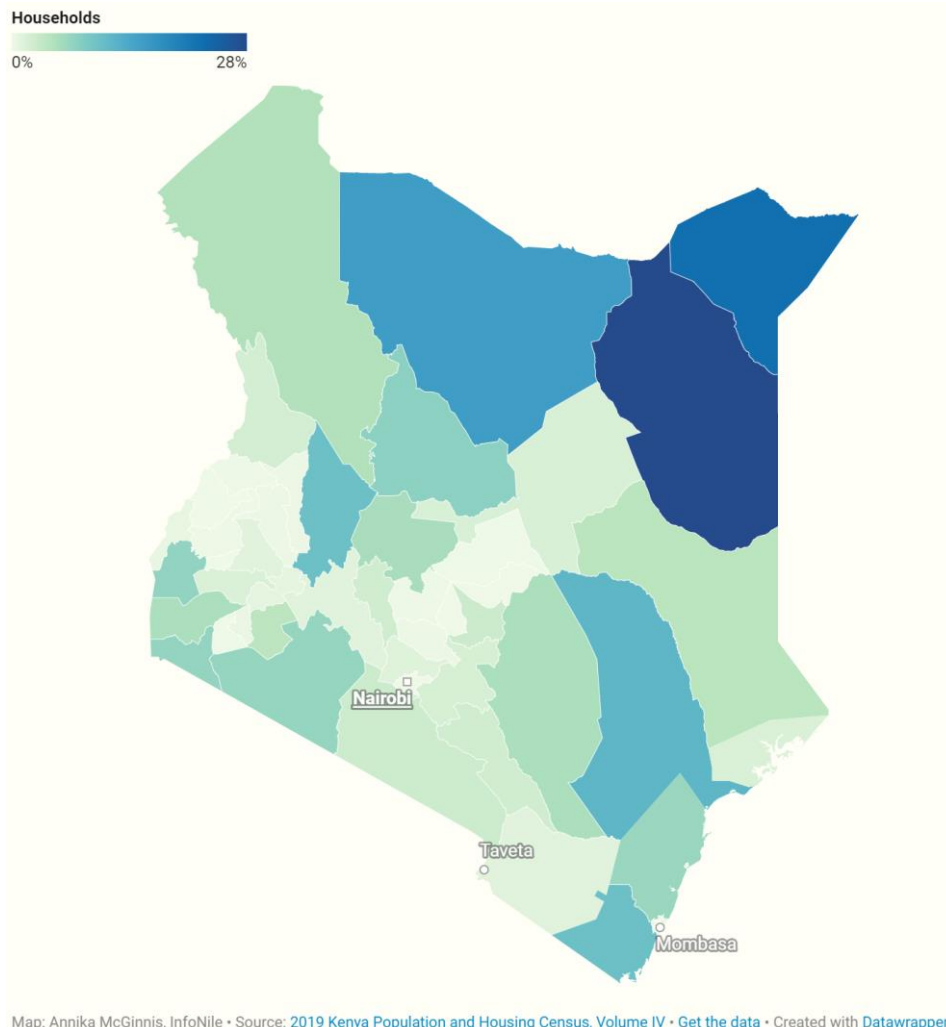
 InfoNile

In Kenya overall, about 3 percent of households acquired water from dams or lakes in 2019, the census found. This percentage was higher (5 percent) in rural areas.

### Households Accessing Water from Dams/Lakes in Kenya

As of 2019, the highest percentage of households who accessed water from dams/lakes in Kenya was in Wajir county (28%). Nationally, 3.3 percent of households got their water from dams or lakes.





### Not only in Taita Taveta

Water levels are going down not only in Taita Taveta but also in several other reservoirs and dams in the country. A recent visit to Thika dam-Ndakaini and Sasumua in South Kinangop Kenya, which contribute to supplying Nairobi county with water, established that water levels are going down in these dams as well.

Scientists attribute the challenges to climate change and rigorous human activities.

According to Engineer Job Kihumba, the managing director at the Thika (Ndakaini) dam, the dam has a storage capacity of 70 million cubic meters and delivers about 230,000 cubic meters of water per day to Nairobi, which makes up 84 percent of the water supply of Nairobi county. However, Thika is supplemented from other supply dams, which are also in bad condition. Kihumba cites that the dam is now at 56 percent capacity, which is quite low in terms of sustainable capacity.





Professor Boubacar says the economic scarcity puzzle can only be solved by the government, by putting firm measures and resources to enable its citizens to tap the water well in different ways so as to sustain themselves with the available water resource.

*The story is done by Lina Mwamachi with the help of Water Sector and Africa 21. Editorial support and data visualization by Annika McGinnis, InfoNile.*

# NATION

**\* Francis Mureithi (Kenya) ; Decentralised sanitation system can reduce pollution in Nairobi says UN-Habitat official ; Nation ; March 7, 2023.**

To read the article click here : <https://nation.africa/kenya/health/decentralised-sanitation-system-can-reduce-pollution-in-nairobi-says-un-habitat-official-4150080>



Mr Pireh Otieno an expert in governance and leader of the water and sanitation team at the UN Habitat speaks in Nairobi on January 31, 2023. Photo/Francis Mureithi | Nation Media Group

Effective management of sanitation and wastewater will lessen the pollution load on local water resources in Nairobi and other urban areas of Kenya.

The growing challenge in dense urban settlements, the rapidly increasing urbanisation rate of 4.5 per cent per annum and rising settlement densities in low-income urban and peri-urban areas are piling pressure on the urgent need for sanitation technologies and management systems that are robust and affordable.

“A lot of effort has been put into water delivery with very limited investment in sanitation and wastewater which is affecting the quality of water,” said Mr Pireh Otieno, an expert in governance and leader of the water and sanitation team at the UN Habitat headquarters in Nairobi.





Mr Otieno said in many developing countries, centralised sewerage and wastewater treatment systems cover only a portion of larger urban areas, and are often not yet planned for smaller towns and densely populated, low-income areas of cities.

The official was speaking recently on the key topic titled “Public policies for access to water in Africa” during a workshop on water issues in Africa for East African journalists in Nairobi.

“On-site sanitation is often inappropriate in the denser settlements and slum areas, thus requiring intermediate and complementary solutions. Decentralised wastewater treatment systems (DEWATS) connected to simplified sewer systems or communal sanitation centres have the potential to close the gap between on-site and centralised systems,” he said.

### **Sanitation improvements**

He added: “Community-managed DEWATS offer the possibility of swift sanitation improvements in high-priority neighbourhoods that communities can manage themselves, where local government does not yet provide a full sanitation service.”

“Water and sanitation not only drastically improve the quality of lives; it can save lives. Africa's cities are growing at an unprecedented rate. In Kenya alone, the urban population will more than triple to 40 million by 2050. This rapid urbanisation has huge implications for water use and wastewater management, which already face rising water and sanitation demands and problems, such as pollution and overexploitation,” said the official.

“African governments should think of ways to manage wastewater. There is very little data on how to track the impact of wastewater on the environment. African people are concerned about access not thinking about how you manage waste. The management of waste water is not about developing more sewers. Sewers are the most expensive,” he added.

The latest water and sanitation for the urban poor report in Kenya indicates that access to improved sanitation facilities remains low at 31 per cent in urban areas, with access to safely managed sanitation estimated at 26 per cent while sewer coverage is estimated at 16 per cent with 84 per cent of the Kenyans depending on onsite sanitation.

The current population of Kenya is 57 million as of the end of February 28, 2023, based on Worldometer elaboration of the latest United Nations data.

The World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) joint Monitoring Program (JMP) estimates that only 31 per cent of urban residents in Kenya have access to improved facilities.

About 48 per cent use shared facilities, including public toilets as well as facilities shared by defined groups of households.

### **Low sewer coverage**

According to the Water Services Regulatory Board (WASREB), the low sewer coverage is putting over half of the population at heightened risk of diseases and death due to poor access to safe





water, sanitation and hygiene, which is responsible for over 75 per cent of Kenya's total disease burden.

The poor sanitation is piling pressure on the government to increase the proportion of the population using safely managed sanitation services and meet the Sustainable Development Goal (SDG) 6.2 on sanitation and Kenya Vision 2030 sanitation targets.

WASREB estimates that about Sh433 billion would be required to fund urban sanitation programmes due to rapid urbanisation which is double the global average.

According to the National Water Master Plan 2030, to increase the conventional sewerage coverage to at least 80 per cent by 2030, 96 per cent of the required resources of Sh663 billion will be needed for new urban sewerage infrastructure development, with the remaining four per cent required for rehabilitation of existing dilapidated systems.

To realise these ambitious investment targets, the National Water Master Plan 2030 estimates an annual investment of Sh127 billion is required.



**\* Thuku Kariuki (Kenya) ; Eco Africa — The Environment Magazine ; DW ; March 10, 2023.**

To watch the video click here : <https://www.dw.com/en/eco-africa-the-environment-magazine/video-64920451>

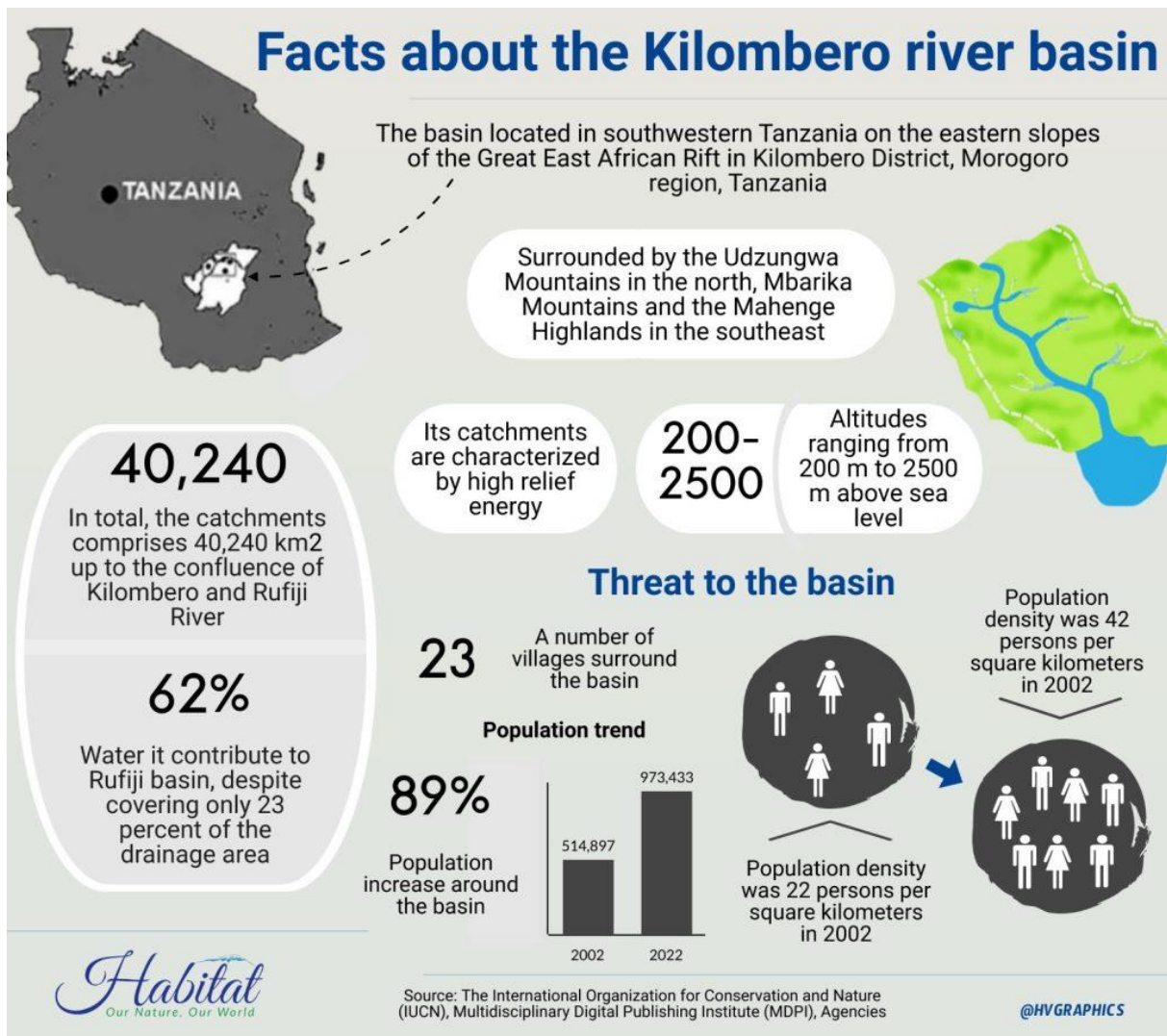
Watch the report at 1'25 to 6'25 in the tv show.

This week on Eco Africa we will see how farmers are combatting lack of rain in Kenya and how does an underwater drone 'made in Senegal' helps in marine conservation.



**\*Halili Letea (Tanzania) ; How to move forward after Kilombero river basin destruction ; Habitat ; March 15, 2023.**

To read the article click here : <https://habitat.co.tz/2023/03/15/how-to-move-forward-after-kilombero-river-basin-destruction/>



According to the Controller and Auditor General (CAG) 2022, Conservation and Protection of Wetland Ecosystems Annual Report, human activities have caused the Kilombero River Basin to be 80 percent polluted with solid waste.







The Kilombero River Basin is surrounded by 23 villages across Kilombero, Ulanga/Malinyi, Ifakara, and Mlimba districts.

Activity, mainly agriculture expansion and intensification in wetland ecosystems, caused by population growth, which have increased the demand for land resources to ensure food supply and improve income.

According to the 2002 national human population census report in Tanzania, the population in the Kilombero valley plain was 514,897 with population density of 22 persons per square kilometers. Two decades after the population almost doubled to 973,433. This means population density is at 42 persons per square kilometers.

When you visit Mkula ward in Kilombero district, you come across farms and other human activities that are in contact with the basin area. You also see household waste in some areas near the trees.

Mrashi Dongwe, a Sonjo village resident in Mkula ward who is engaged in sugarcane farming, says his farm is located in Mangula A, which is near the animals' corridors and habitats, such as elephants, among others.

"In recent years, elephants have made numerous appearances. Our farms are located near their habitat, some on their corridor," he said, despite the fact that they are forced to remain in these areas.

Dongwe pointed to the government to help implement the project, which will allow easy passage for elephants because until now they have continued to pass through their areas and destroy crops that they rely on for food and business for their families.

The chairman of Sole Village in that district, Wendo Isdory, says the threat of an elephant attack has begun to appear among the students of Sole Secondary School.

"It is said that the school was built in the path of the elephants, but in recent years human activities have increased and people are going further into the basins,"

According to Tanzania Wildlife Management Authority (TAWA), between 2019 and 2021, incidents of elephants entering and exiting the villages located in the middle of the reserve increased from 167 incidents in 2019 to 300 in 2021, especially in the villages of Kanyenja, Sonjo, Katurukila, and Msolwa in Ifakara town council.

TAWA Conservation Commissioner, Mabula Misungwi, said the valley is facing the challenge of the invasion of human activities, in particular, the invasion of settlements, livestock, agriculture, and illegal fishing.

"These activities have led to a significant decrease in wildlife due to the destruction of the environment and a threat to water sources," says Mr. Misungwi.

According to him, TAWA conducts regular patrols (air, land, and water) in all areas where wildlife is found in the valley to provide education and to continue to strengthen the reserve area's boundary to eliminate human interference.





The International Organization for Conservation and Nature (IUCN) also recognizes the threat to wildlife and people. The Assistant Commissioner for Conservation in the National Reserve of the Udzungwa Mountains (among the area across the basin), Abel Peter, gave a warning to control the damage in the valley caused by human activities.

As a result of the invasion, Peter says more than 90 percent of the 100 square kilometers of forests were harvested between the reserve and the Nyerere National Park, which has retained the original Magombera Forest.

“The biodiverse forests of the area spread over a large area but were further damaged. Since the 1950s, agricultural activities have led to the clearing of approximately one million hectares of forest within the valley,” says Peter.

The park is one of the 22 national parks with more than 2,500 trees and 12 types of monkeys while being the source of water from more than 31 rivers, with water entering Kidatu Dam, Kihansi, and Kilombero Valley, which are used for rice cultivation and sugarcane production at the Kilombero Sugar Factory.

### **Government actions**

On January 29, this year, the then Minister of Livestock and Fisheries, Mashimba Ndaki, instructed district communities and other district leaders not to stop farmers and livestock keepers who are moving away from the Kilombero River valley in implementation of the government’s order that requires them to leave the valley.

“I emphasized that you should provide them with other places so that it cannot affect their herding activities,” said the former minister in Mlimba district.

Explaining how they will implement the instructions, Kilombero district commissioner Dunstan Kyobya promised to meet with various leaders and executives of the district to start allocating areas where the herdsman and farmers who leave the Kilombero river valley will move.

The Director of the Department of Wildlife from the Ministry of Natural Resources and Tourism, Dr Maurus Msuha, says the issue of conservation is sustainable, which is why the government has set aside 32.5 percent of the land as wildlife sanctuaries, unlike the plan of 30 percent in the world by 2030.

“We are doing this to protect our environment and other species habitats.” This shows the importance of Tanzania in the conservation of biodiversity in the world,” says Dr. Msuha.

Morogoro Regional Natural Resources Officer Joseph Chuwa says that among the measures that have been taken to control the threat is the establishment of a committee of nine members for the management of the swamp under the Kilombero District Head’s Office.

### **Recommendations from stakeholders**

The International Union for Conservation of Nature (IUCN) recommends that the government raise public awareness on environmental conservation and water resources management, tree planting,





and sustainable farming, and strengthen the enforcement of environmental and water-related by-laws and laws.

“To strengthen the institutional capacity of village governments and water governance structures, including water user associations, develop and enforce the implementation of land use plans at the village and landscape levels,” it noted.

It further recommends supporting communities in the diversification of livelihood options such as beekeeping, fish farming, and poultry as a way of reducing dependence on natural resources and enhancing coordination and collaboration among key actors and water users in the catchment.

### **Why Kilombero River Basin?**

The Kilombero River Basin stands as the main source of water for millions of Tanzanians from Morogoro, the coastal region, and Dar es Salaam. Although the Kilombero Catchment contributes 62 percent of the annual runoff volume of the Rufiji Basin, which forms the Rufiji River, The Rufiji River is the source of water for the Julius Nyerere Hydropower Project (JNHPP), a pipeline hydropower project that is expected to generate up to 2,115 megawatts of electricity. One of the river catchments is the Ruvu River, which is the main source of water for 80 percent of the city of Dar es Salaam.



**\* Carolyn Tomno (Kenya) ; Artificial intelligence and innovation: The future of water ; March 15, 2023.**

To watch the video click here: [https://www.youtube.com/watch?v=NgdEOIJYC\\_g](https://www.youtube.com/watch?v=NgdEOIJYC_g)





**\* Sharon Ambani Tamba (Kenya) ; Increasing food production during dry season through farmer led irrigation ; County Splash ; March 17, 2023.**

To listen the audio click here: <https://www.youtube.com/watch?v=1OVbdA0ScKk>

To read the article click here: <https://countysplash.co.ke/2023/03/17/increasing-food-production-during-dry-season-through-farmer-led-irrigation/>

The world's population is projected to rise to 9 billion people by 2050, hence need for more food production to support the ever-growing population. The effects caused by climate change and variability, especially the drought currently being experienced in the country, poses a threat to agriculture which leads to food shortage.

The availability of sufficient water is crucial in agriculture as it boosts food growth and production. Many farmers in the country depend entirely on rainwater to sustain their agricultural activities. However, most of them have been greatly affected by climate change which has impacted the frequency, amount, and predictability of rain with several parts of the country currently facing severe drought for over a year now.



Cabbages growing in a farm





Kakamega County is one of the areas that receive a lot of rain in the country. This is attributed to the existence of the only tropical rainforest in the country; the Kakamega Rainforest. According to the Meteorological Department, this region has recorded very little rainfall in the months of January and February which is below the Long Term Mean for the two months in previous years. Lack of enough rain for over two months now in the Kakamega region has posed a challenge of inadequate food, especially for vegetables. Lavenda Akinyi, a resident of Kakamega town, expresses the strain she gets to buy enough vegetables for her family as the scarcity of this product in the market has led to an increase in its price.

While many farmers put a hold on farming during the dry season, Lechama Sanga a vegetable farmer from Shibuli Village, in Lurambi constituency of Kakamega County in Western proceeded with his business as usual.

Sanga ventured into planting different types of vegetables to meet the local market needs, besides earning money to support himself. After thirty years of seasonal farming, Sanga diverted to irrigation farming in 2016 when he dug a well in his compound and purchased a ten-thousand-litre water storage tank.

“I do horticulture farming. I cultivate various vegetables from cabbages, kales, cowpeas, African nightshade to tomatoes which I supply to my neighbours and two markets near me. I used to depend on rainwater since I started farming in the '80s. I noticed I reaped very little from my farm,” said Sanga

He added : “In 2016, I decided to dig a well and bought a 10,000 Litre tank. I later bought a 14,000-litre tank to boost water storage. I use electricity to pump water from the borehole into the tanks. I then allow water to flow to my farm easily through pipes with the help of gravity,” Said Sanga With the knowledge and skills he acquired while teaching Agriculture in school, the now-retired teacher has expanded his agribusiness project hence benefiting him and his family.

“Since I embraced irrigation, I have seen a difference. If well done, I earn about 250,000 Kenyan shillings per harvest season. I have used the money to purchase more land and sustain my family.” He added.

The United Nations’ Sustainable Development Goal 2 seeks to end hunger and malnutrition through achieving food security. Target 2.4 of this goal states that by 2030, countries should have adapted sustainable food production systems and resilient agricultural practices to help increase food production amidst calamities caused by climate change such as drought.

According to the scientific advisor to the secretariat of the 9th World Water Forum in Dakar Dr Boubacar Barry, the adaptation of irrigation farming will greatly benefit Kenya and Africa at large in tackling the many challenges facing people including hunger and poverty.

Dr Boubacar, however, says that to achieve the goal of food security in the region, irrigation needs to be farmer-led. He calls on agricultural stakeholders to train small-scale farmers on the need to adapt and develop irrigation as a culture.

“Most small-scale farmers are not integrated into irrigated agriculture. They are used to rainfed cropping systems. Now they have to revert to a new type of system which is somehow different and requires some work that they are not used to.





We need to let them understand what is irrigation, and what benefits they can have from irrigation, when to irrigate, how much to irrigate, what type of seeds they should plant, the amount of fertilizer etcetera.”

His sentiments were backed up by the Kenya National Farmers’ Federation (KENAFF) Kakamega branch chairperson, Habakkuk Khamala who says it will be difficult for farmers to reap from their irrigated farms if they do it blindly.

He also states that small scale farmers face a financial challenge in purchasing the appropriate farm inputs such as solar water pumps due to their little income. According to a report from the World Food and Agriculture Organization, the agriculture sector consumes about 70 per cent of the available water worldwide. Therefore, farmers require the know-how of efficient water production, storage and management.



### **Growing vegetables in a farm**

Speaking at a workshop for training East African journalists on reporting on water issues in Africa, Simon Thuo from the Alliance for Global Water Adaptation stated the need to maximize on the amount of rain Kenya receives by educating farmers on rain water harvesting and storage rainwater. This will help in sustaining agriculture during dry season as the same time reducing the burden put on rivers and over digging of boreholes.

In January this year, the national government through the Ministry of Water, Sanitation and Irrigation launched National Irrigation Services Strategy 2022 – 2026 that is aimed at increasing irrigated land in the country.

Speaking at the launching event in Nairobi, the Cabinet Secretary in charge of the docket, Alice Wahome, said that the government had budgeted 389 billion Kenyan shillings to be used in the construction of irrigation infrastructure, capacity building and water harvesting and storage.





This will help in reaching the set target of 1.9 million acres of irrigated land in the country at the end of the 5-year plan. While attending the annual Kakamega Farmers Day with the Governor that was held on February, 22nd 2023 at Bukura Agricultural Institute, the Kakamega County Governor Fernandez Barasa assured farmers that his government will invest in developing climate-smart agriculture and irrigation to ensure that farmers benefit from increased yield.



*A water tank used that stores rain water used for irrigation*

“Irrigation is key in ensuring food security and improved household income. Given this, my government is supporting crop production through irrigated farms and the Kenya Climate-Smart Agriculture Project. This will ensure a consistent supply of horticultural crops such as vegetables throughout the year.” Said Governor Barasa.

Agriculture plays a key role in boosting a country’s economy, reducing poverty, and also achieving food security and good nutrition. The sector contributes to about 24 per cent of the national income, with 80 per cent of Kenyans depending on agriculture for their livelihood.

The sustainable implementation of this agricultural method is said to be of benefit to the nation, more so in eliminating hunger and poverty as well as water conservation among other United Nations Sustainable Development Goals.

*This story was produced and published in collaboration with Africa21 and the Water Diplomat.*





## **Dessalegn Yeshambel (Ethiopia) ; The impact of climate change on Dams & reservoirs : The changing face of Tigoni Dam ; ATP ; March 20, 2023.**

To read the article click here : <https://press.et/herald/?p=70632>



Wednesday afternoon, in the early February of 2023, was one of the most unforgettable days in my life – the event that put a good memory in my mind and an important experience as well. Though most of the roads were overcrowded, a group of East African Journalists have started a journey to Limuru Water County station and spent around 30 minutes with Margaret Maina, Managing Director of Tigoni Water and Sewerage Company.

The journey was a part of the Nairobi Water Workshop Program on reporting water issues in Africa. After observing a practical work done by the station workers, the journalists were heading to visit Limuru Water Sewerage and Treatment Plant area.

### **Margaret Maina, Managing Director of Tigoni Water and Sewerage Company; a photo taken during a field visit**

Having a detail briefing and practical observations at the water sewerage and treatment plant areas, a journey to Tigoni Dam was continued. Although it was almost a rainy season, a climate change caused a risk of drought to the area. Due to this reason, almost all of the community members (farmers) were eagerly waiting for the rain fall that would bring their harvest into life as most of the plants were on the verge of wilting. On the other hand, a drive through the forest gave







us a dreamy-like feeling that we were in the coolest wonderland, closest to the nature as we could ever be. It was one of an astonishing and iconic tourist attraction centers in the Limuru area. Passing through a glamorous landscape and eye alluring environment during the trips, we arrived at the place called Tigoni Dam.

Leaving the cars at the open space, journalists were walking and visiting the area which is covered with indigenous trees, very close to the dam. Tigoni is a natural dam located in the northern part of Nairobi which is 28.6 kilometers far from the central Nairobi, and it takes almost 40 minutes to reach the dam via the Northern Bypass Rd. Despite the fact that most of the journalists were comfortable with their visiting of the indigenous trees surrounding the Dam, the feeling of the journalists changed when they observed a risk that was creeping into Tigoni Dam. It concerned every journalist. Especially, Kenyan journalists who knew the place before were deeply saddened and became emotional about the quality of water as well as its volume.

Compared to the previous periods, as far as the Kenyan journalists understanding was concerned, the dam has lost almost more than half of its previous volume of water. Of course, as they explained, during summer or rainy season, the amount of the water increases to the level that it covers the building, but the devastating problem shows up itself in the dry seasons.

What worsened the problem was the area of the Dam is not fenced and there is no terrace which controls the flood and runoff water during the rainy season. The dam is full of mud and tree cuttings and it is deteriorating from time to time. Concerned about the serious problem they observed, stayed with a long deep silence, the journalists started discussing with Margaret Maina, Managing Director of Tigoni Water and Sewerage Company about the root causes of Tigoni dam water volume reduction, the future fate of the dam and the possible solutions that preserve and sustain it.

### **Tigoni Dam: a photo taken during the journalists filed visit at Limuru Kenya**

Though Tigoni dam is an attractive aquatic ecosystem with special habitats of trees, the biodiversity is changing its face due to the declining volume of water to the brink of drying up. Regarding the change of biodiversity, Simon Thuo, an expert in the Alliance for Global Water Adaptation, evidently explained that climate change particularly drought has a significant impact on dams and reservoirs. During an interview, he further described that due to prolonged drought, most of the dams and reservoirs are highly affected by water loss and this water loss significantly damages the overall nature of biodiversity at large.





The alarming loss of the volume of water is worsening due to the increment of the number of population both in rural and urban areas so that the Limuru water sewerage treatment plant is pumped from the TigoniWater Dam and later supplied to consumers. Accordingly, Tigoni Dam is located in a high altitude area where major human activities such as farming and industrialization are practiced. This serves as an alert that the impact of climate change particularly drought has a devastating challenge on human beings, irrigation and ground water resources and puts a great pressure on natural water level.

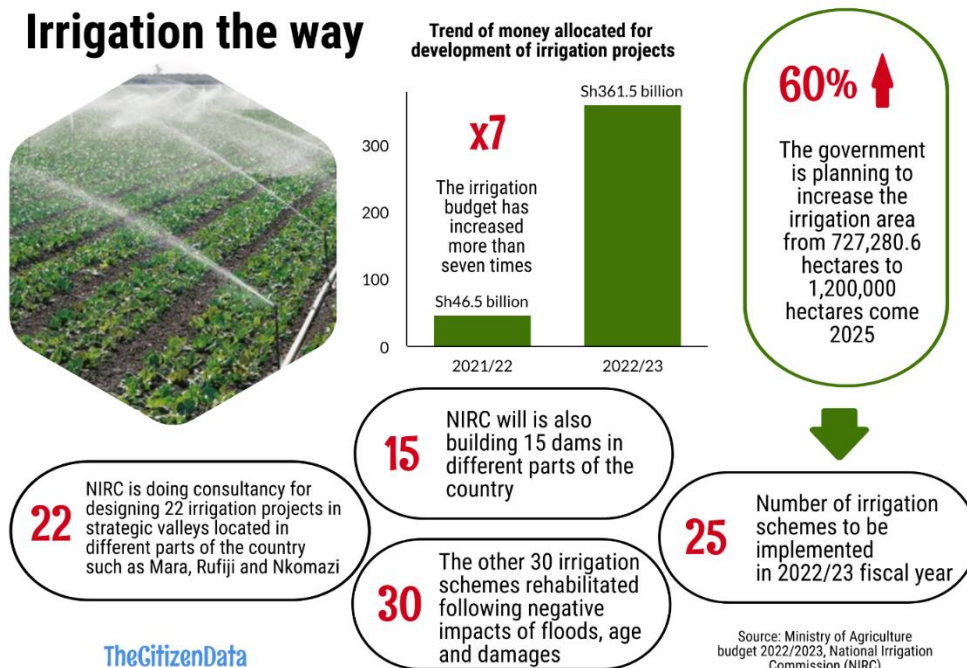
Besides, the loss of water volume in the dam and in the reservoirs can cause an environmental disaster, and alarmingly changing the biodiversity in general. To conserve the biodiversity as well as the future fate of the Tigoni Dam water security, a collaborative intervention of applying drought management techniques such as working on water shade management, reforestation, syntropic farming as well as constructing terraces around the dam is highly crucial in the area.





\* **Haika Kimaro (Tanzania) ; Farmers speak of challenges, opportunities from irrigation, The Citizen, Saturday, March 25, 2023.**

To read the article click here : <https://www.thecitizen.co.tz/tanzania/news/national/farmers-speak-of-challenges-opportunities-from-irrigation-4172310>



Infographic showing the amount of budget allocated by the government of Tanzania for irrigation agriculture.

**Summary**

**Irrigation is underdeveloped in Tanzania despite the availability of millions of hectares suitable for the practice, which could increase food production**

Dar es Salaam. Despite its potential to revolutionise food production, irrigated agriculture is still underutilised in Tanzania.

Irrigation is underdeveloped, despite the availability of millions of hectares suitable for the practice, which could significantly contribute to the development of the agro-economy.

Even in areas that receive enough rainfall, crop production remains relatively low due to other factors, mainly poor management of water resources and pests.





Most of the rainfall that falls is lost because there are inadequate facilities for collecting and storing rainwater for future use.

Farmers who have used irrigation argue that, despite a less established national infrastructure, watering crops puts agriculture back under the cultivator's control.

Mr Ally Bitu, a farmer from Mkula Village in Kilombero District, Morogoro Region, told The Citizen that after 30 years of irrigation farming, he has accumulated enough experience.

There are numerous opportunities in irrigation, particularly at this time when the world is struggling with the effects of climate change, which are causing a scarcity in food supply, he claims.

Mr Bitu claims that he is currently growing sugarcane and paddy with water from sources in the Udzungwa National Park.

Furthermore, Mr Bitu says he produces up to four tonnes of paddy despite relying on poor irrigation infrastructure.

"We are lucky because water is available throughout the year. We need to have our irrigation systems overhauled," he says.

Mr Bitu is aware that even with irrigation, he and other farmers in the area have not completely escaped the vagaries of climate change. The situation might worsen if the global scourge is not addressed.

"We pray that authorities continue to safeguard the water sources in the Udzungwa National Park for sustainable availability of water, which is our major lifeline," he stresses.

He asks the authorities to build water reservoirs, which will assure them of the availability of water for their activities.

"Drying out the water sources will make the situation even worse," he says.

Another local farmer, Ms Hadija Nowile, claims that irrigation farming has made it possible for her to grow vegetables, paddy, and sugar cane, which earn her enough cash to support her family.

"After many people have harvested past the rainy season, we use their land to produce crops through irrigation farming. This time, we grow vegetables for home consumption and sell the excess," she explains.

She says abundant water from Udzungwa National Park makes them the luckiest people, outlining the only impediment as poor irrigation infrastructure.

"We've been relying on the basic irrigation infrastructure that we built ourselves. If possible, the government should assist us by improving the irrigation infrastructure in our area," she said.

"This is because we are sure that with good infrastructure, we will be able to produce more food for our benefit and that of the country," she says.

She observes that due to the area's mountainous terrain, it is difficult to irrigate the areas that are much higher up during the dry season. Furthermore, she notes that because of poor infrastructure, they manage to farm only 100 hectares out of a total of 254 hectares conducive for irrigation in the area.





“With good infrastructure, we could have been able to produce more food with the land that is left unutilized,” she notes.

Another farmer in the area, Ms Felister Mwaka, says her children have gone to school thanks to irrigation, but the previous season was difficult due to pest infestations that destroyed the crops. “Livestock, mainly elephants, are also a menace to our activities. They invade our farms frequently from the national park,” she recounts. She said in the past, elephants were not a problem, but they started to invade their farms in 2019 during the dry season. However, pests are a problem during the rainy season.

Ifakara Town Council’s agriculture department head, Mr Elia Shemtoe, agrees that elephant invasion is a major challenge.

“It is only in recent years that they have started invading people’s farms in the search for food. But it is a big problem,” he says.

He notes that to contain the growing problem, the government is creating a wildlife passageway that will serve as a corridor to direct the animals far away from people’s farms as they move to the Mwalimu Nyerere National Park.

He adds that without proper passageways, they would continue to wander into people’s farms. The council has a total of 8,355.8 hectares with traditional irrigation infrastructure, and only 2,542 hectares have been equipped with modern infrastructure.

Furthermore, he says 3,256 farmers engage in irrigation farming, and they produce 8,834 metric tonnes of crops annually.

“Irrigation has improved the district’s annual food output and the revenue collected from crop cess,” he said.

The major challenges affecting irrigation development in the district are a lack of sufficient budget to build modern irrigation schemes and mitigating the effects of climate change.

### **Situation in Kenya**

Climate change, according to Ms Phillis Wanjiru of the Sasamua Dam Village in Kinangop Sub County of Nyandarua in Central Kenya, has forced farmers to switch to irrigation farming.

“We have been practising rain-fed agriculture for many years. Climate change has taught us to rely on irrigation,” she says, adding that irrigation farming has significantly increased crop yields. Ms Wanjiru and her colleague started engaging in irrigation farming following efforts made by the Upper Tana Water Fund Project (UTNWFP) established in order to assist farmers living on the upstream side of Sasumua Dam.

Ms Wanjiru noted that before the intervention of UTNWFP, the yield in her farm was so low due to changes in weather patterns and poor soil, noting that now things are better.

“I have also started livestock keeping. This has always been my dream, but I didn’t know how to start,” she said, thanking UTNWFP for the education that transformed her life.





She says the new irrigation technologies have enabled her to conduct greenhouse farming that has enabled her to produce strawberries, arrowroots, and purple cabbage, among other crops, which have increased her earnings from agriculture.

Ms Wanjiru told journalists who visited her that she has a surprise for them, and she took them to her 2.5-acre farm, where she has planted maize and vegetables.

There was a cowshed near the farm where she kept her livestock.

### **Experts**

A scientific advisor to the secretariat of the ninth World Water Forum in Dakar, Senegal, Dr Boubacar Barry, says adaptation to irrigation farming will greatly benefit the continent in tackling many challenges, including hunger and poverty. According to Dr Barry, irrigation must be a farmer-led activity in order to achieve food security in the region.

He calls on agricultural stakeholders to train small-scale farmers on the need to adapt and develop irrigation as a culture.

“Most small-scale farmers are not integrated into irrigated agriculture. They are used to rain-fed farming; now they must revert to new systems, which are somewhat different and necessitate work that they are not accustomed to,” explains Dr Barry.

